VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

DRAFT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NUMBER: 2003031001

Prepared for

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December 20, 2005

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B PUBLIC INVOLVEMENT
C AIR QUALITY
D BIOLOGICAL RESOURCES
E TRAFFIC IMPACT STUDY
F CULTURAL RESOURCES
G HAZARDOUS WASTE AND MATERIALS
H NOISE AND VIBRATION
I VISUAL AND AESTHETIC RESOURCES

ACRONYMS

AQA	Air Quality Analysis
AQMP	Air Quality Management Plan
ASTM	American Society for Testing Materials
ATSAC	Automated Traffic Surveillance and Control
BACM	best available control measure
BMP	Best Management Practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
BWC	Ballona Wetlands Conservancy
°C	degrees Celsius
CAAQS	California Ambient Air Quality Standards
CALCADB	Computer Assisted Level of Service Calculations and Database
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDOGGR	California Division of Oil, Gas, and Geothermal Resources
CDWR	California Department of Water Resources
CE	Commuter Express
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Information System
CFR	Code of Federal Regulations
CIS	Coastal Interceptor Sewer
CMA	Critical Movement Analysis
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNLM	Center for National Lands Management
CNPS	California Native Plant Society
CO	carbon monoxide
CWA	Clean Water Act
dBA	decibel, A-weighted
°F	degrees Fahrenheit
DDT	dichlorodiphenyltrichloroethane
DOD	Department of Defense
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency

EPB	Earth Pressure Balance
ERNS	Emergency Response Notification System
ESHA	Environmentally Sensitive Habitat Areas
FID	flame ionization detector
FINDS	Facility Index System
FUDS	Formerly Used Defense Sites
H_2S	hydrogen sulfide
LADOT	Los Angeles Department of Transportation
LAX	Los Angeles International Airport
LCP	Local Coastal Program
Leq	equivalent noise level
LORS	laws, ordinances, regulations, and standards
LOS	level of service
LUP	Land Use Plan
LUST	leaking underground storage tank
µg/kg	micrograms per kilogram
µg/l	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
MLTS	Material License Tracking System
MND	Mitigated Negative Declaration
mph	miles per hour
MSL	mean sea level
MTA	Metropolitan Transportation Authority
MTBE	methyl tertiary-butyl ether
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NDMA	N-nitrosodimethylamine
NFRAP	No Further Remedial Action is Planned
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NOS	North Outfall Sewer
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
O_3	ozone
ODI	Open Dump Inventory
OSHA	Occupational Safety and Health Administration
PADS	PCB Activity Database System
PAH	polynuclear aromatic hydrocarbon
Pb	lead
PCB	polychlorinated biphenyl

PCE	passenger car equivalent
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
RAATS	RCRA Administration Action Tracking System
RCRA	Resource Conservation and Recovery Act
ROC	reactive organic compound
ROD	Record of Decision
ROM	rough-order-of-magnitude
ROW	Right-of-Way
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCC	State Coastal Conservancy
SIP	State Implementation Plan
SLC	State Lands Commission
SLM	sound level meter
SMBRP	Site Mitigation and Brownsfields Reuse Program
SO_2	sulfur dioxide
SPT	Standard Penetration Test
SWPPP	Stormwater Pollution Prevention Plan
TBM	Tunnel Boring Machine
TMDL	total maximum daily load
TOC	table of contents
TPH	total petroleum hydrocarbons
TRIS	Toxic Release Inventory System
TSCA	Toxic Substances Control Act
TSD	treatment, storage and disposal
UBC	Uniform Building Code
USACOE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
V/C	volume-to-capacity
VM Classes	Visual Modification Classes
VOC	volatile organic compound
vplph	vehicles per lane per hour
VPP	Venice Pumping Plant
WRA	Wetlands Research Association

1.0 INTRODUCTION

1.1 PURPOSE OF THE EIR

The purpose of an Environmental Impact Report (EIR), as defined in Section 15121(a) of the State Guidelines for the implementation of the California Environmental Quality Act (CEQA) California Code of Regulations (CCR), Title 14, Division 6, Chapter 3 "Guidelines" is as follows:

> *An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effect and describe reasonable alternatives to the project.*

This document assesses the significant environmental impacts, including unavoidable adverse impacts and cumulative impacts, likely to occur if the City of Los Angeles constructs and operates a new proposed 54-inch pipeline from the existing Venice Pumping Plant (VPP).

Consistent with CEQA Guidelines (Section 15180), this EIR is a project EIR. The intent of this EIR is to provide a comprehensive analysis of the potential impacts that may result from the implementation of the goals and objectives of the proposed Project. This EIR is intended to evaluate the project-related, secondary, and cumulative impacts of the proposed Project within the areas of the proposed alignment alternatives in as much detail as possible and to identify and resolve all reasonably anticipated impacts. Moreover, this EIR focuses on the impacts associated with the long-range implementation of the Project.

1.2 LEAD AGENCY AND DOCUMENT FORMAT

The City of Los Angeles is the lead agency, as defined by Section 21067 of CEQA, for this EIR and has supervised its preparation. The City of Los Angeles' City Council has primary responsibility for the adoption and implementation of the proposed Project and the certification of the Project's Final EIR. The overall format of the EIR contains those components required by CEQA, as summarized in Table 1.2-1. During the course of the EIR preparation, the City of Los Angeles' Department of Public Works contacted all affected agencies and organizations. Responses to the City's Notice of Preparation (NOP) are provided in Appendix A to this EIR.

Table 1.2-1 Required Contents of an EIR – CEQA Law and Guidelines

Required Analysis (in Number)	In Draft EIR
Table of Contents (Section 15122)	TOC
Summary (Section 15123)	1
Project Description (Section 15124)	2
Environmental Setting (Section 15125)	3 and 5
Environmental Impacts (Section 15126)	5
Significant Environmental Effects of Proposed Project [Section 15126(a)]	5
Unavoidable Significant Environmental Effects [Section 15126(b)]	5
Mitigation Measures Proposed to Minimize Significant Effects [Section 15126(c)]	5
Alternatives to the Proposed Project [Section 15126(d)]	4 and 6
Significant Irreversible Environmental Changes Resulting From Implementation of the Proposed Project [Section 15126(f)]	5
Growth Inducing Impacts of the Proposed Project [Section 15126(g)]	7
Effects Found Not to Be Significant (Section 15128)	5
References, Persons Contacted and Preparers of the Draft EIR (Section 15129)	9 and 10
Cumulative Impacts (Section 15130)	5 and 7

Technical studies were prepared for this EIR and are provided in the appendices. The reports for these studies are listed in Section 10.0: References and Persons Contacted, and are available for public review at the City of Los Angeles' Bureau of Engineering, Department of Public Works at 650 South Spring Street, Suite 574, Los Angeles, 90014-1920.

1.3 FOCUS OF THE EIR

The analysis contained in this EIR reflects the level of detail necessary at this time for the City to consider the proposed Project. Consistent with Section 15180 of the CEQA Guidelines, this is a "project" EIR for the construction and operation of the proposed new force main sewer. This EIR, prepared for the City of Los Angeles, Venice and Dockweiler Beach vicinity, focuses on the effects that may be expected with the approval of and the subsequent implementation of the new Force Main Sewer Project resulting in the following potential impacts: air quality, biological resources, circulation, traffic and transportation, cultural resources, geology, soils and seismicity, hazardous waste and materials, hydrology, water quality/stormwater runoff, land use plans, noise and vibration, public facilities and services, and visual and aesthetic resources.

The environmental issues listed above were identified in the Initial Study prepared by the City of Los Angeles (included in Appendix A). Fiscal issues and impacts are not addressed in this EIR, as fiscal impacts are not required to be addressed in an EIR under current applicable CEQA requirements.

1.4 INTENDED USE OF THIS EIR

Article 1, Section 15002 of CEQA states that the basic purpose of an EIR is to: 1) Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities, 2) identify the ways that environmental damage can be avoided or significantly reduced, 3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible, and 4) disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

In accordance with CEQA Guideline 15063(a), an Initial Study was conducted to determine if this project may have a significant effect on the environment. Although it was determined that this project will not have any long-term or lasting effects to the environment, it was determined that an EIR should be prepared for the purpose of describing impacts associated with the long-term construction schedule for the project.

1.5 REVIEWING AGENCIES

The following agencies will review this Project:

- Los Angeles County (various departments);
- California Coastal Commission (CCC);
- California Department of Fish and Game (CDFG);
- Department of Conservation;
- Department of Parks and Recreation;
- American Heritage Commission;

- State Lands Commission;
- California Department of Transportation (Caltrans), District 7;
- National Marine Fisheries Service;
- United States Fish and Wildlife Service (USFWS);
- Regional Water Quality Control Board (RWQCB), Region 4;
- South Coast Air Quality Management District (SCAQMD);
- United States Army Corps of Engineers (USACOE); and
- Others as determined.

1.6 PERMITS AND APPROVAL REQUIREMENTS

Table 1.6-1 identifies the names of agencies responsible to review and approve the project and the permits required:

Table 1.6-1 Permit Requirements

Agency	Permit/Requirement	Issues of Concern
Los Angeles County	▪ Geotechnical/Grading/Hauling Permits ▪ Dept. of Beaches and Harbors; Right-of-Entry Permit ▪ Right-of-Way (ROW)/Easements for construction and future maintenance and operations	▪ Impacts from dewatering, tunneling ▪ Staging areas and additional easement
RWQCB	▪ National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Pollution Prevention Plan (SWPPP) Permit ▪ 401C Section Certification	Water Quality and placement of discharges associated with dewatering activities. No permit required for discharges to sewer. General Permit saves time with RWQCB.
USACOE	Section 10 or Section 404 Permit required if excavated material discharged to waters and construction permit.	▪ Location, placement and depth of pipeline ▪ Obstruction of navigation or other channel activities ▪ Channel safety ▪ Impacts to wildlife ▪ Dredging/filling activities
CDFG	1600 et seq. (Streambed Alteration)	Impacts to fish habitat
CCC	Coastal Development Permit	▪ Obstruction of recreation and beachfront facilities ▪ Impacts to animal species and habitat ▪ Impacts to parking and traffic
California State Lands Commission	Possible lease requirement	Verification of jurisdiction
National Marine Fisheries Service	Consultation notification	Impacts to aquatic and marine life
California Department of Conservation, Division of Oil, Gas and Geothermal Resources	A construction notification form should be submitted to the Division prior to any activity.	Project is inside administrative bounds of the Playa Del Rey Oil Field containing numerous plugged and abandoned oil wells
State of California Department of Health Services	Project Review for compliance with Title 22, Section 64630 (Conducted through County Environmental Services Division)	Separation of water and sewer mains
USFWS	Notification	Impacts to habitat (i.e., least tern)

Source: URS Corporation

1.7 RELATED PROJECTS

Sections 15126 and 15130 of the CEQA Guidelines provide that EIRs consider the significant environmental effects of a proposed project, as well as "cumulative impacts." Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines Section 15355). Cumulative impacts may be analyzed by considering a list of past, present, and probable future projects producing related or cumulative impacts [CEQA Guidelines Section 15130(b)(1)(A)].

Table 1.7-1 provides a list of related projects in the City and County of Los Angeles within an approximate 2-mile radius of the project site. The list includes 15 projects of various land uses, including residential, retail, general commercial, and mixed uses.

Table 1.7-1 Related Projects

Project No.	Jurisdiction	Location	Type of Project	Current Status
1	County of Los Angeles	Bora Bora Way	120 D.U.s; Net decrease of 271 slips; Demolish 4 KSF offices	10/18/2000 (approval date)
2	County of Los Angeles	Tahiti Way	Remodel existing apartments (no increase in D.U.s)	10/18/2000 (approval date)
3	County of Los Angeles	Marquesas Way	Net increase of 282 D.U.s; 354 senior apartments; Net decrease of 3.6 KSF retail; Net decr. of 237 slips	12/6/2000 (approval date)
4	County of Los Angeles	Panay Way	68 D.U.s; 60 Congregate Care units	6/13/1996 (approval date)
5	County of Los Angeles	Panay Way	Net increase of 250 D.U.s; 47 senior apartments; Net decrease of 41 slips; Demolish 4.4 KSF restaurant	12/6/2000 (approval date)
6	County of Los Angeles	Panay Way	99 D.U.s; Net increase of 4.94 KSF Yatch Club; 2.3 KSF Office; Transfer of 97 D.U.s from DZ1 to DZ4	10/2/2000 (approval date)
7	County of Los Angeles	Palawan Way/ Beach Ave	450 s.f. net retail increase	6/25/2003 (approval date)
8	County of Los Angeles	Palawan Way/ Beach Ave	Net increase of 115 D.U.s	12/10/2003 (approval date)
9	County of Los Angeles	Admiralty Way	Library expansion – 2,454 S.F.	3/5/1997 (approval date)
10	County of Los Angeles	Mindanao Way	4.7 KSF retail increase	To Be Announced (TBA)
11	County of Los Angeles	Via Marina	11.4 KSF net retail increase, 288 restaurant seats, 1.3 KSF reduction in office	6/16/2004 (approval date)
12	County of Los Angeles	Marina Del Rey Tide Gates	Tide Gate Rehabilitation	11/2005 – Design Completed
13	County of Los Angeles	Hotel at Via Marina	TBA	TBA
14	City of Los Angeles	Grand Canal	Gates at Washington Street	11/2005
15	City of Los Angeles	Grand Canal	Between Driftwood Street and Hurricane Street Temporary VPP bypass pipeline for sluice gate replacement in VPP	11/10/2005 MND

Sources: City of Los Angeles Planning Department; County of Los Angeles Department of Regional Planning, Bureau of Engineering and Los Angeles County Department of Public Works.

1.8 AREAS OF PUBLIC CONCERN OR KNOWN CONTROVERSY

The preparation of this EIR has included, to date, one public meeting. A community scoping meeting was held on May 31, 2005, at the Westchester Community Center. The scoping meeting participants were introduced to the EIR process and the proposed Project and were invited to provide information and/or comments regarding potential impacts to the environment resulting from construction of the proposed Project.

The primary issues and areas of concern identified by the public for the project, which are addressed in this EIR, are:

- Noise impacts created during project construction;
- Limited on-street parking availability during construction;
- Aesthetic and visual impacts during construction;
- Air quality impacts during construction;
- Possible impacts to the Least Tern and other wildlife during and after construction;
- Potential impacts to recreational facilities and public events on the beachfront;
- Staging and operation of construction equipment on existing bike paths, walking trails and bridges;
- Impacts to water quality in both the Marina Del Rey Channel and Ballona Creek Channel;
- Impacts to traffic circulation and emergency access during construction;
- Impacts to residential access to and from housing during construction; and
- Impacts to structural foundations resulting from construction-related activities.

1.9 EIR PARTICIPANTS AND PUBLIC REVIEW

The analysis in this EIR has been prepared in conformance with the local and state CEQA Guidelines, as amended. URS Corporation provided environmental consultation for the EIR. As required by CEQA, this EIR is being provided to public agencies and private organizations for review and comment.

The City of Los Angeles circulated a NOP for this EIR to responsible agencies on May 2, 2005, to solicit comments on issues relevant to their agency or jurisdiction, and for consideration for this project. A list of the agencies that received the NOP and copies of all comments on the NOP are included in Appendix A and B to this EIR.

This EIR may be reviewed by interested parties not included in the City's distribution list. The document will be available for a 45-day public review period at the City of Los Angeles Bureau of Engineering, Environmental Management Section. The document will also be available at the City of Los Angeles Central Library, Venice Branch Library, Westchester Library, and Playa Vista Public Library. Agencies and interested persons not involved in the preparation of the EIR will have the opportunity to provide comments during the 45-day public review period and at the public hearings held prior to draft consideration of the project's adoption and the EIR's certification.

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project is in the City of Los Angeles (Figure 2.1-1, Regional Project Location Map) in the communities of Venice and Playa Del Rey (see Figure 2.1-2, Project Vicinity). The project originates from the VPP, located on Hurricane Street and the westerly bank of the Grand Canal and the northerly bank of the Ballona Lagoon in the community of Venice, and extends southerly under both the Grand Canal and Ballona Creek, and ends in Vista Del Mar approximately 240 feet south of Waterview Street. The project site can be accessed via Imperial Highway and Vista Del Mar on the south, and from Pacific Coast Highway (SR-1)/Lincoln Boulevard and Washington Boulevard on the north (see Figure 2.1-1).

2.2 PROJECT OBJECTIVES

The City of Los Angeles is proposing to construct and operate a new force main sewer extending from the existing VPP at 140 Hurricane Street in the community of Venice to a junction structure on the Coastal Interceptor Sewer in the community of Playa Del Rey on Vista Del Mar near Waterview Street. The VPP's existing 48-inch-diameter force main sewer, built in 1958, is a force main (pressurized pipeline) that currently conveys the plant's wastewater flows to the Hyperion Treatment Plant. Figure 2.2-1 shows the Project location.

Currently, the existing force main sewer can handle only about 60 percent of the flows that could otherwise run through the VPP when all five of its pumps are running at full capacity. When flows into the VPP exceed flows out of the plant, wastewater will overflow directly into Ballona Lagoon. During heavy storms, such as those that occurred during the winters of 1994-95 and 2004-05, the excess wastewater at the plant came within minutes of overflowing into Ballona Lagoon.

The project's intent is to construct a second force main sewer to be used in tandem with the existing force main sewer for the purpose of fulfilling the three key objectives described below. The following describes each of the City's objectives, purposes and needs for the proposed new 54-inch sewage conveyance line.

SEWAGE CONVEYANCE CAPACITY

The VPP is the largest pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City through an existing 48-inch pipeline and transports it to the Hyperion Treatment Plant in Playa Del Rey (see Figure 2.2-1). Over the years, the existing pipeline that conveys sewage to the treatment plant has gradually approached maximum capacity placing substantial strain on the system forcing the water level in the wet-well of the VPP basement to rise.

The City of Los Angeles first identified the need for additional sewer capacity during the heavy storms of 1995 when sewage and infiltrated stormwater in the sewage system exceeded the capacity of the existing 48-inch line, creating a potentially serious human and environmental health risk. Although the pumping plant had all five pumps running during peak rainfall, the existing downstream sewer force main that runs along the beach could only handle approximately 60 percent of the flows that would otherwise run through the pumps - serving as a bottleneck in the system. The amount of sewage and infiltrated stormwater in the sewage system exceeded its capacity, forcing the water level in the wet-well of the VPP to rise. In an effort to prevent potential sewage spillage as a result of an overload situation, the City proposes to install an additional 54-inch pipeline to convey the flows.

Source: USGS 1:100,000 Topographic Quadrangle, Los Angeles (1983) and Long Beach (1981)

REGIONAL PROJECT LOCATION MAP

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 2.1-1

REGIONAL PROJECT LOCATION

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 2.1-2

VENICE PUMPING PLANT AND HYPERION TREATMENT PLANT

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 2.2-1

PIPELINE REDUNDANCY

In addition to the need to provide pipeline capacity to manage peak flows, the new 54-inch force main would be used in tandem with the existing force main; together, the two force mains would provide the necessary capacity to meet current and future peak wet weather flow demands. The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two objectives: expand the capacity of the Coastal Interceptor Sewer's force main segment from the VPP to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all projected wet weather flows can be safely conveyed without future threats of spilling onto city streets and adjacent surface waters; and to provide force main redundancy to allow for maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

INABILITY TO PERFORM MAINTENANCE

The existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. The installation of the proposed 54-inch force main will provide bypassing capability allowing repair and maintenance of the existing pipeline, which is currently not possible.

2.3 PROJECT DESCRIPTION

The City of Los Angeles is proposing to construct and install a new 54-inch diameter force main sewer extending from the VPP to a junction structure at the North Outfall Sewer under Vista Del Mar, approximately 240 feet south of Waterview Street in Playa Del Rey. The existing VPP force main is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Playa Del Rey.

The potential impacts resulting from the Project are construction related; no aspect of its operation applies to the Project. Therefore, the critical aspects of the Project address the spatial extent of construction, the equipment and activity associated with it, and the duration of the activities from the start of construction until Project completion.

Relevant aspects of construction associated with this project are as follows:

MICRO-TUNNELING (BORING) AND CUT-AND-COVER CONSTRUCTION

Boring would include excavation at the starting and ending points of the under-channel and under-canal sections of the alignments. The starting point is referred to as the "launch shaft," while the endpoint is referred to as the "receptor shaft." There are two launching shaft alternatives for under-channel boring, located at the northerly end of the Playa Del Rey Alignment Alternative, on the south side of the Marina Del Rey entrance channel, along the northeast side of the Pacific Avenue fishing bridge. Also, there are three alternative receptor shaft sites on the north side of the entrance channel. One would be in the parking lot northwest side of the corner where Via Marina turns 90 degrees to the southwest, one to the west of Via Marina located on the north side of the channel, and the other would be at the southeast end of Pacific Avenue.

PUSH SITE EQUIPMENT

The major elements of push site construction for the Project would be:

- Jacking pit [from which the hydraulic jacks push pipes through the ground behind a remotely operated Tunnel Boring Machine (TBM)];
- Remote control cabin for operating the TBM;
- Crane;
- Support facilities (generator, power pack, and bentonite lubrication unit);
- Slurry separation equipment and tanks;
- Construction/Laydown area, 10 – 12,000 square feet in area, for pipe and other equipment storage and staging;
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment (There would be eight truck round trips per day for muck removal and material supply.);
- Construction crew (There would be 17 construction crew on site and 17 passenger-car round trips daily.);
- Nighttime construction and lighting (It may be required to proceed continuously at the end of long drives through sticky soils to prevent the pipe from getting stuck short of the receiving site. In such cases, nighttime construction would be required. It is assumed that there would be a need for lighting at the push site throughout the night, on occasion.); and
- Acoustic curtain (sound barrier) (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the push site, except for the crane.).

LAUNCH SITE CONSTRUCTION DURATION

The launch sites would require about 2 months to complete and must be constructed prior to the start of boring under the entrance channel and the Grand Canal. The under-channel tunnel is approximately 1,800 feet long and boring rates range from 30 - 50 feet per 8-hour shift. A conservative estimate allows for no nighttime work however, the mined tunnel method of construction would require continuous boring until the tunnel is completed. In areas where the cut and cover, and short range micro tunneling (boring) method of construction is used, is assumed that there would be one shift per day. Under this assumption, short range boring could require from 36 to 60 days (about 1 to 2 months). Cumulatively, push site construction and boring would take up to 4 months and would be considered to be "temporary." Even if tunnel boring were to be sequential to cut-and-cover construction activities (see below), the cumulative total construction time would be less than 1 year and would also be considered to be temporary. However, it is assumed that boring and trench construction would be concurrent.

For under-canal boring, the rate of advance would be the same as for under-channel boring. The tunnel length would range from about 100 to 500 feet, depending on which of the alternative launch sites are used for the shafts. Tunneling could require from 10 to 16 days for the longer route, or 3 to 4 days for the shorter route. It is assumed that there would be no nighttime construction.

RECEPTOR SITE EQUIPMENT

Construction activity at the receptor sites would occur during two periods: the initial construction of the shaft, and then, later, when the TBM is extracted from the tunnel and the pipeline is connected at the receptor sites.

The major equipment that would be utilized at the receptor shaft sites would be:

- Crane;
- Jacking equipment;
- Construction/Laydown area (about 5,000 square feet in area for pipe and other equipment storage and staging);
- Truck traffic to and from the pit for transporting tunnel muck (Pipe sections and tunneling equipment are estimated to be approximately 15 truck round trips per day for muck removal and material supply.);
- Construction crew (There would be 25 construction crew on site daily.); and
- Acoustic curtain (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the receptor site, except for the crane, which will extend beyond the top of the curtain.).

RECEPTOR SHAFT SITE DURATION

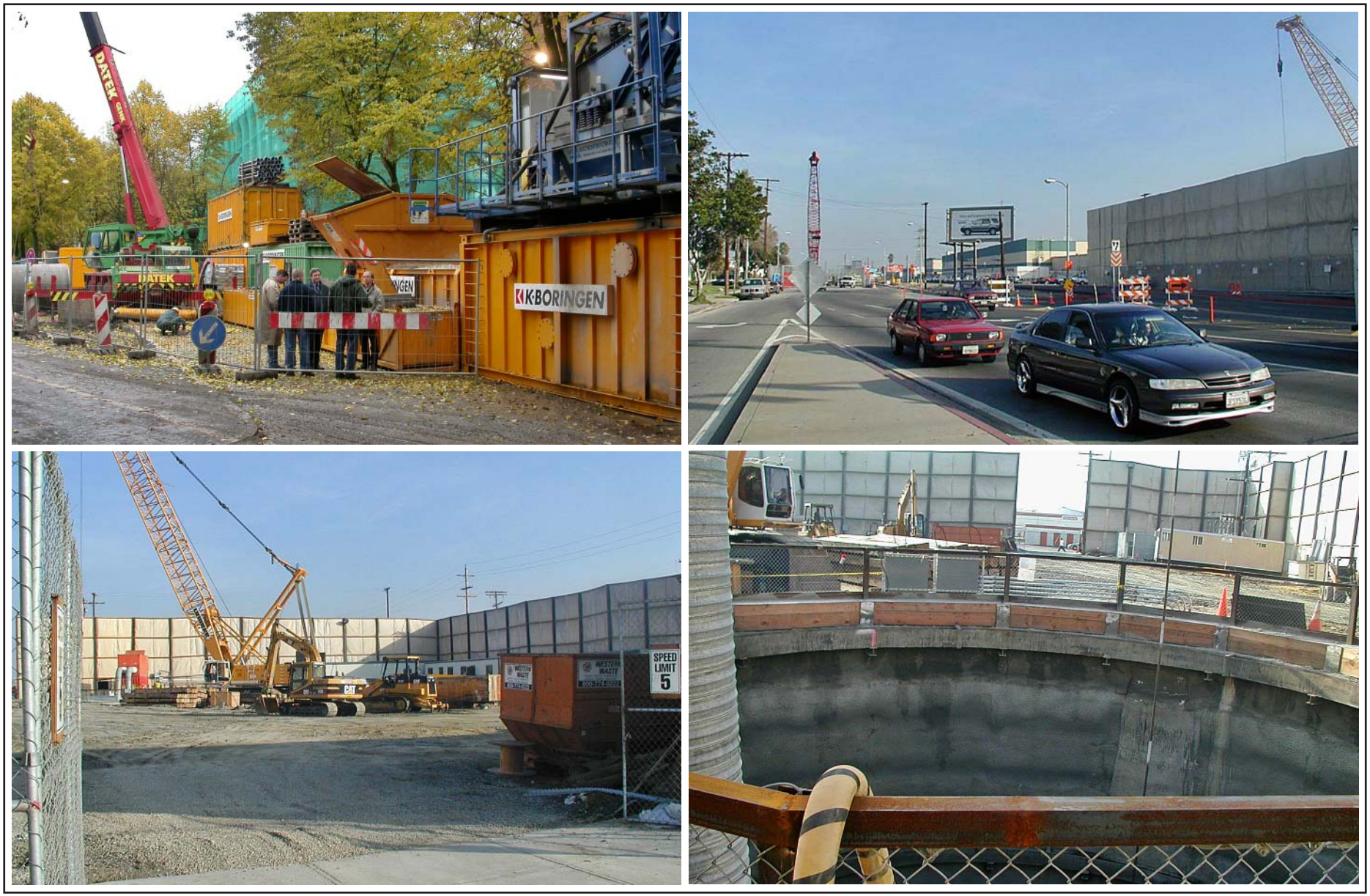
Construction of the receptor shafts would require about 6 weeks each to complete. Then all activity at the sites would cease until under-channel tunnel boring reaches them. At that point, the TBM would be extracted from the receptor shaft and the pipeline would be tied in with either the cut-and-cover alignment. It is estimated that the extraction and tie-in activities would require about 1 week. The receptor shaft site in the vacant lot opposite to the VPP would require 6 weeks to complete, then would lie dormant until under-canal tunnel boring reached the site. One week would be required for TBM extraction and tying the pipeline in with the VPP.

CUT-AND-COVER CONSTRUCTION SITE EQUIPMENT

Cut-and-cover construction is a common method of linear pipeline construction that involves an open trench and sequential activities. The trench would be excavated and then shored up with sheet piles that would be installed 200 to 300 feet ahead of the pipeline crew. Construction involves excavation, the pouring of a concrete foundation, backfilling with a bed of gravel, pipeline installation, backfill and compaction, restoration of curbs and utilities, and re-paving the affected road. Figure 2.3-1 shows one example of a typical array of equipment used in cut-and-cover construction along a public street.

The major visible elements of the cut-and-cover sites would be:

- Concrete saw;
- Pavement breaker;
- Pile driver;
- Excavator;
- Rubber tire loader;
- Cranes (2);
- Backhoe loader/compactor;
- Generator/compressor;
- Soil compactor;
- Asphalt paver;
- Sweeper;
- Water truck;
- Supply truck;
- Haul/dump truck;
- Minimum of 17 to 28 workers on site daily;
- A moving construction/laydown area along 1,000-foot stretches of the alignment; and
- A construction/laydown area next to push and receptor site construction activities.



City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Clockwise from Top: Construction Equipment for Typical Cut-and-Cover Construction. Sound Barriers, Seen from Street and from within Shaft Construction Area. Shaft, within Sound Barrier.

Figure 2.3-1

CUT-AND-COVER CONSTRUCTION DURATION

Given the proposed cut-and-cover construction sequence, within 12 weeks, approximately 1,800 feet of pipeline installation can be completed to the point that the affected road is returned to its pre-construction state (paved). Given the rate of construction, the duration of construction for the alignment alternatives north of the Marina Del Rey entrance channel would be approximately 7 months, and the alignment south of the entrance channel (Pacific Avenue/Vista Del Mar) would be the same duration. It is assumed that cut-and-cover construction north and south of the entrance channel would occur concurrently. The construction and operation of the launch and receptor sites would be concurrent with the cut-and-cover construction.

LARGE-DIAMETER (MINED) TUNNELING CONSTRUCTION

There are four alternative alignments for mined-tunneling construction; mined tunneling involves a launch shaft and an extraction shaft. The launch shaft would be located on Los Angeles International Airport (LAX) property about 300 feet northeast of Vista Del Mar and as close as 220 feet south of Napoleon Street. There are two alternative extraction sites, one on Dockweiler Beach at the southwest end of Hurricane Street, and the other at the northeast end of Hurricane Street in a vacant lot directly across from the VPP. Mined tunneling uses manned TBMs along a continuous alignment that may be of any length, so this construction alternative would require just the launch shaft and one extraction shaft. Additionally, two 3-foot-diameter escape shafts would be needed, one north and one south of the Marina Del Rey entrance channel, with construction requiring up to approximately 3 to 5 days.

STARTER SHAFT EQUIPMENT

The major equipment for the starter shaft sites would be:

- 30-foot-diameter starter shaft;
- One 160-ton crane to lift/set the TBM and hoist muck cars;
- One 35-ton RT crane to handle segments and load segment cars;
- Office facilities, change houses;
- Cut-and-cover equipment (see above) for open trench construction;
- Support facilities (generator for pumps, electrical substation);
- Construction/Laydown area (12,000 square feet in area for storage of tunnel liner and carrier pipe segments throughout the duration of the tunneling);
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment (There would be 15 truck round trips per mining shift.);
- Construction crew (There would be a 20 to 25-person construction crew on site and 20 to 25 passenger-car round trips daily.);
- Lighting may be required for security of the construction site and nighttime construction for mined tunneling; and
- Acoustic curtain (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the extraction site, except for the crane.).

STARTER SHAFT CONSTRUCTION DURATION

The starter shaft would require approximately 7 months to construct and the tunnel portion of construction would last from 27 to 28 months.

EXTRACTION SITE EQUIPMENT

The major visible elements of the starter sites would differ depending on the phase involved. The first phase is the construction of the shaft, and the second phase is the removal of the TBM and construction of the tie-in with the pipeline that would be installed along Hurricane Street. For construction of the shaft, the following equipment would be needed:

- 20-foot-diameter extraction shaft;
- Crane;
- Jacking equipment;
- Cut-and-cover equipment (see above) for open trench construction;
- Support facilities (generator for pumps, electrical substation);
- Construction/Laydown area (5,000 square feet in area);
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment;
- Construction crew;
- Lighting may be required for security of the construction site; and
- Acoustic curtain (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the extraction site, except for the crane.).

EXTRACTION SHAFT AND CUT-AND-COVER CONSTRUCTION DURATION

The extraction shaft would require approximately 10 weeks to construct and about 1 week for TBM removal after tunnel excavation has been completed. The cut-and-cover construction that is part of the mined-tunnel construction alternative is expected to occur concurrently with tunnel construction.

2.3.1 Project Alternatives

The City's objectives can be achieved by using one of several alternatives described in Section 6.0 of this EIR.

A preferred alternative for the project has not been determined at this time. Equal analysis has been given to each alternative associated with the Project, allowing for a decision to be made in accordance with CEQA Guidelines, which states that sufficient information must be provided to allow meaningful evaluation, analysis, and comparison of the proposed Project. A matrix displaying the major characteristics and significant environmental effects of each alternative are provided in Section 8.0 of this document, which may be used by decision-makers to make comparisons and ultimately choose a preferred alternative alignment for the VPP dual force main sewer.

Based upon the analysis conducted for the alternatives addressed in this EIR, the cut-and-cover method of construction for two of the proposed alignments were deemed not viable; therefore, a detailed impacts analysis is not provided for them. These two proposed alignments are the beachfront alignments on the

north, and south sides of the Via Marina/Ballona Lagoon channels. The deep-mined tunneling method of construction along the beachfront, however, has been analyzed for this project.

Unless otherwise stated, it is assumed that the Project, regardless of the alignment selected or the construction method used, will be designed, constructed and operated following all applicable laws, regulations, ordinances and other formally adopted City standards (e.g., *Los Angeles Municipal Code* and *Bureau of Engineering Standard Plans*). Also, the analysis provided in this EIR assumes that construction will follow the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., *Standard Specifications for Public Works Construction* and the *Work Area Traffic Control Handbook*) as specifically adopted by the City of Los Angeles [e.g., *City of Los Angeles' Department of Public Works Additions and Amendments to the Standard Specifications For Public Works Construction* ("The Brown Book")].

3.0 ENVIRONMENTAL SETTING

3.1 REGIONAL SETTING

The proposed project is located in the City of Los Angeles and lies along the immediate coastline of the Santa Monica Bay in the communities of Venice and Westchester/Playa Del Rey. Venice and Westchester/Playa Del Rey are bounded by Santa Monica on the north and El Segundo on the south and are known as popular beach communities with scenic parks, recreational areas and scenic vistas from upland areas on the east to the ocean fronting both communities on the west (see Figure 2.1-1 in Section 2.0, Project Description).

3.2 LOCAL SETTING

The VPP is located on Hurricane Street on the west bank of the Grand Canal and the Ballona Lagoon, at the junction of the two features in the Community of Venice. The VPP conveys sewage from the western part of the City of Los Angeles and transports it southerly under the Dockweiler Beach, under the Marina Del Rey Channel and through the communities of Westchester/Playa Del Rey, along Vista Del Mar Avenue to the Hyperion Treatment Plant in Playa Del Rey (see Figure 2.2-2 of Section 2.0, Project Description). There are parks and recreational areas surrounding the project to the east with public beaches and recreational facilities to the west, along the shoreline facing the Pacific Ocean.

3.3 RELATIONSHIP TO REGIONAL AND/OR LOCAL PLANS

The Project is subject to meeting the requirements of the following regional and local plans, which are more specifically described in Section 5.9, Land Use Plans:

- Los Angeles County General Plan;
- Marina Del Rey Local Coastal Program Implementation Plan;
- Marina Del Rey Specific Plan;
- City of Los Angeles General Plan;
- Venice Community Plan;
- Venice Coastal Specific Plan;
- Ballona Lagoon East/West Bank Sub-areas;
- Silver Strand Sub-area;
- Marina Peninsula Sub-area;
- Venice Land Use Plan (LUP);
- Westchester/Playa Del Rey Community Plan; and
- Westchester/Playa Del Rey Specific Plans.

4.0 ALTERNATIVES UNDER CONSIDERATION

Alternatives under consideration for this Project are defined by the alignment and construction method (alternative = alignment + construction method).

4.1 CONSTRUCTION METHODS

The three construction methods for consideration in this EIR are: (1) Cut-and-cover, (2) Micro-tunneling (or "boring"), which are proposed for optional alignments as described below, and (3) Continuous large-diameter (or "mined") tunneling, which is described below as an alternative means of constructing the sewer. Each method provides both benefits and issues of concern for the project. For example, while open trench with micro-tunneling construction costs less, mined tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels in Venice and can facilitate mitigation of other impacts such as noise and visual aesthetics.

4.1.1 Cut-and-Cover Construction

Cut-and-cover construction is a very common method of linear pipeline construction and replacement. The contractor would not start work in all areas on a site at the same time, but rather would proceed with finishing and restoring relatively short segments at a time. Underground utilities that conflict with the construction would be temporarily relocated as necessary.

For the purpose of this EIR, it is assumed that the 54-inch pipe would be placed on a 1-foot gravel bed on top of a 1-foot concrete mud slab placed at the bottom of an approximately 8-foot wide and 12-foot deep trench. A shoring-installation crew would get a head-start driving sheet piles approximately 200 to 300 feet in front of the pipeline crew. The latter would excavate approximately 80 feet of trench every day and pour the mud slab. The next day, 80 feet of pipe would then be installed and backfilled. This approach would yield an effective production rate of about 40 feet of completed pipe installation per day (i.e., 200 feet per week). Subsequent to pipe installation, a third crew would extract shoring, restore curbs and utilities, and repave about 600 feet of roadway every 3 weeks. With this approach, major construction activities could be limited to within relatively short segments of about 1,000 feet at any given time (Figure 4.1-1, Cut-and-Cover Construction).

4.1.2 Small-Diameter Micro-Tunneling (Boring)

Boring is a trenchless construction method, which utilizes hydraulic jacks to push pipes through the ground behind a remotely operated TBM. Drive lengths are generally limited to about 1,000 feet, depending upon ground conditions and pipe size; but intermediate jacking stations can be used to extend the drive length. Unlike conventional trenching techniques that require excavation for the entire length of pipeline, excavation for tunneling is limited to the endpoints of each drive at designated launching (jacking) and receiving pits. The launching pit contains the hydraulic jacks used to push the pipes, and the receiving pit is used to recover the TBM at the end of each drive. Tunneling can proceed intermittently; although, it is often necessary to proceed continuously, particularly on long drives through sticky soils, to prevent the pipe from getting stuck short of the receiving pit. Tunnel advance rates are typically between 30 and 50 feet per 8-hour work shift, depending on soil conditions and pipe size.

CUT-AND-COVER CONSTRUCTION

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.1-1

The tunnel face is supported by a thick liquid ("slurry"), which is a mixture of the excavated soil ("muck") and bentonite (a natural clay mineral). Keeping the slurry pressurized in a closed chamber behind the cutter-head of the TBM prevents groundwater and excess soil material from entering the TBM. This minimizes tunneling-induced ground settlements and associated damage to existing utilities and buildings along the tunnel alignment. A mixture of the excavated muck and slurry is pumped from the TBM to a slurry-processing plant on the surface, where soil particles are extracted from the slurry with vibrating screens and cyclones. The extracted soil is hauled away for disposal off-site, and the cleaned slurry is pumped (recycled) back to the TBM. The slurry-processing plant, remote control cabin for operating the TBM, as well as cranes and other construction equipment, are located near the jacking pit. The equipment setup is site specific, depending on available space. The jacking pipe, which is made of reinforced concrete or steel, serves as a temporary tunnel liner. Upon completion of the tunnel drive, the carrier pipe will be inserted and the space between it and the jacking pipe will be filled with grout.

4.1.3 Large-Diameter (Mined) Tunneling

In contrast to small-diameter micro-tunnels, which are constructed by remote-controlled TBMs and pipe-jacking, large-diameter tunnels (i.e., minimum excavated diameter = 10 to 12 feet) can be constructed with manned TBMs. The most important difference between these larger TBMs and the micro-tunneling machines discussed above is that the tunnel liner can be erected in segments immediately behind the TBM. This type of tunnel liner does not need to be continuously pushed (jacked) forward, and there is no length limitation due to frictional resistance building up with increasing tunnel length. For tunneling below the groundwater level without the need for dewatering, pressurized-face TBMs are used to stabilize the tunnel face and prevent the water from entering the TBM. There are two basic types of these machines: (1) Slurry TBMs and (2) Earth Pressure Balance (EPB) TBMs.

Both types of TBMs use pressurized muck to stabilize the tunnel face. The liquidized muck in Slurry TBMs is pumped in the same manner as described above for micro-tunneling. In contrast, the muck in EPB TBMs is more solid ("toothpaste-like"). Therefore, it is extracted from the face chamber of the TBM by means of a screw conveyor and then transported out of the tunnel by muck cars on rails or with a belt conveyor.

4.2 CUT-AND-COVER ALIGNMENT ALTERNATIVES

The City's objectives can be achieved by any one of several proposed construction alternatives under consideration in this section. During the course of this study and analysis, the cut-and-cover method of construction for two of the alignments proposed as alternatives to this project were "considered but determined to be not viable." They are: The South Dockweiler Beach to Pacific Avenue cut-and-cover alternative and the Dockweiler Beach cut-and-cover alternative, as described below. For the purpose of this EIR, these alignment alternatives are described without extended detailed analysis and the reason for their rejection are described in Section 6.0 of this document (Figure 4.2-1, Alignment Alternatives Overview).

ALIGNMENT ALTERNATIVES

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.2-1

MARINA DEL REY

Marquesas Way/Via Marina Way

From the existing VPP on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel to a boring shaft. From there, the alignment continues south along Pacific Avenue and Vista Del Mar to the connection near Waterview Street. This alignment is about 10,400 feet long. The new 54-inch line would be constructed by boring tunneling under the Grand Canal, cut-and-cover along Marquesas, Via Marina Way and Pacific Avenue/Vista Del Mar, and boring tunneling approximately 1,800 feet to cross the Marina Del Rey Channel and Ballona Creek. This alternative route has an estimated construction cost of $46,700,000.

VENICE

Pacific Avenue Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn southeast and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue southeast within Pacific Avenue and Vista Del Mar to a junction structure under Vista Del Mar near Waterview Street. This alternative would be constructed by using the cut-and-cover method in the streets and tunneling beneath the channels. The approximate cost is $46,700,000.

Dockweiler Beach to Pacific Avenue Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot-wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south within the Pacific Avenue and Vista Del Mar alignments to a junction structure under Vista Del Mar near Waterview Street. The cut and cover method of construction was initially considered for this alignment, however, due to the extensive number of impacts that it would impose along the beachfront, it was deemed not viable. The micro-tunnel method of construction is still an option for this alignment. The cost to micro-tunnel from Hurricane to the channel would be approximately $45,000,000.

Dockweiler Beach Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point, the line runs easterly to the junction structure under Vista Del Mar near Waterview Street. The cut and cover method of construction was initially considered for this alignment, however, due to the extensive number of impacts that it would impose along the beachfront, it was deemed not viable. The micro-tunnel method of construction is still an option for this alignment. The cost to micro-tunnel from Hurricane to the tie in near Waterview in Playa Del Rey would be approximately $45,000,000.

WESTCHESTER/PLAYA DEL REY ALIGNMENT ALTERNATIVES

The alignment alternatives located in Westchester/Playa Del Rey are identified in the narratives above as the southern portion of the alignment descriptions and are located on Pacific Avenue/Vista Del Mar and on Dockweiler Beach respectively (Figure 4.2.1).

CHANNEL CROSSING

As noted in the alignment alternatives descriptions, each alignment under consideration crosses the Marina entrance channel and Ballona Creek, requiring approximately 1,800 feet of tunneling under the two channels. The location and alignment of the channel crossing will ultimately be determined by the chosen alternatives for the north and south portions of the overall sewer alignment.

SHAFTS AND LAYDOWN AREAS

The shafts for the boring associated with the cut-and-cover alignments (that is, locations where construction equipment will be used on the surface and visible during the construction of the particular alignment) may be located at any of the following locations numbered from 4 to 12 respectively (Figure 4.2-2):

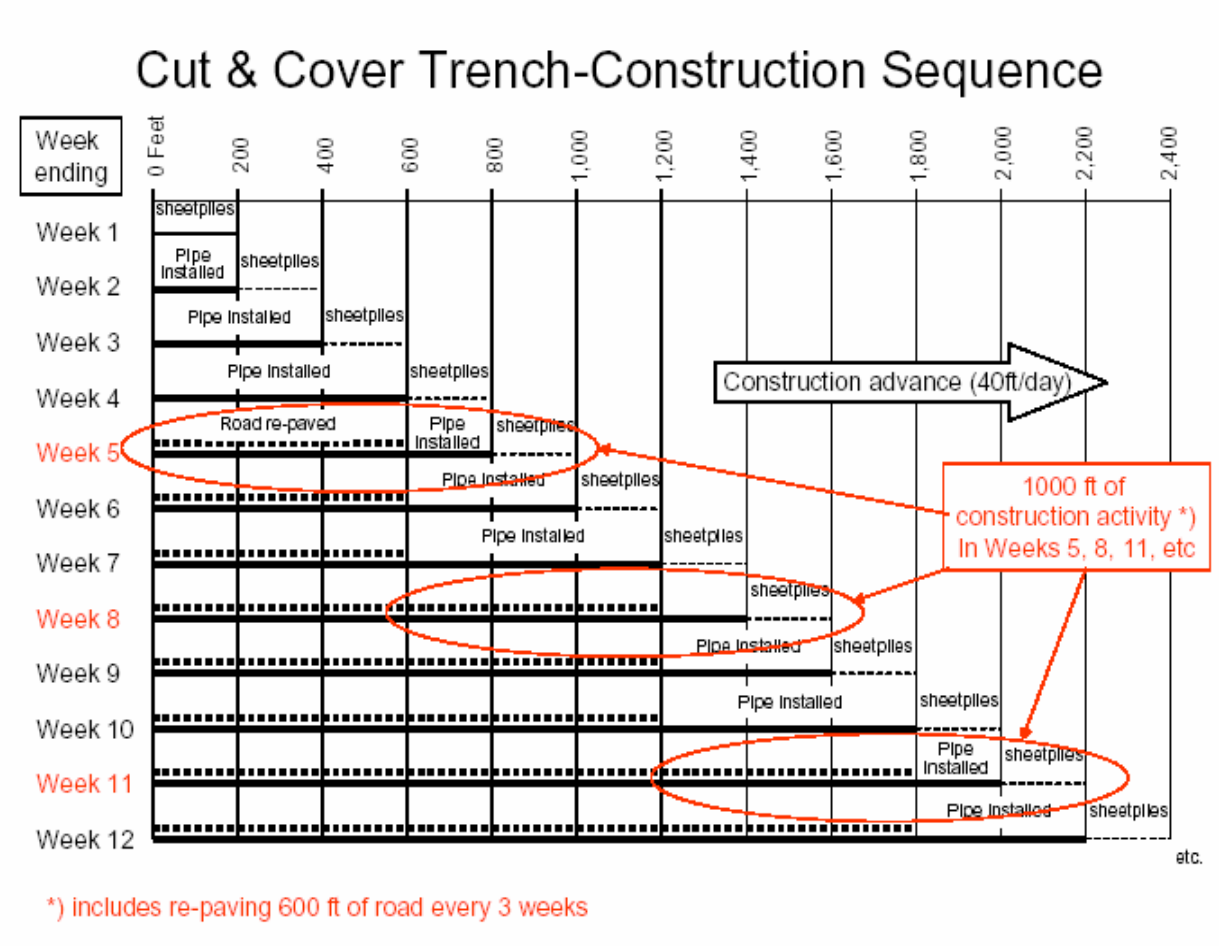
- #4 - 62nd Avenue at Pacific Avenue;
- #5 - The beach south of the Ballona Creek Channel;
- #6 - The beach at Waterview;
- #7 - Via Maria at Pacific Avenue;
- #8 - Marquesas Way at Via Marina;
- #9 - The beach at Hurricane Street;
- #10 - Hurricane at Canal Street;
- #11 - Hurricane at the Grand Canal; and
- #12 - Via Marina at the County surface parking lot.

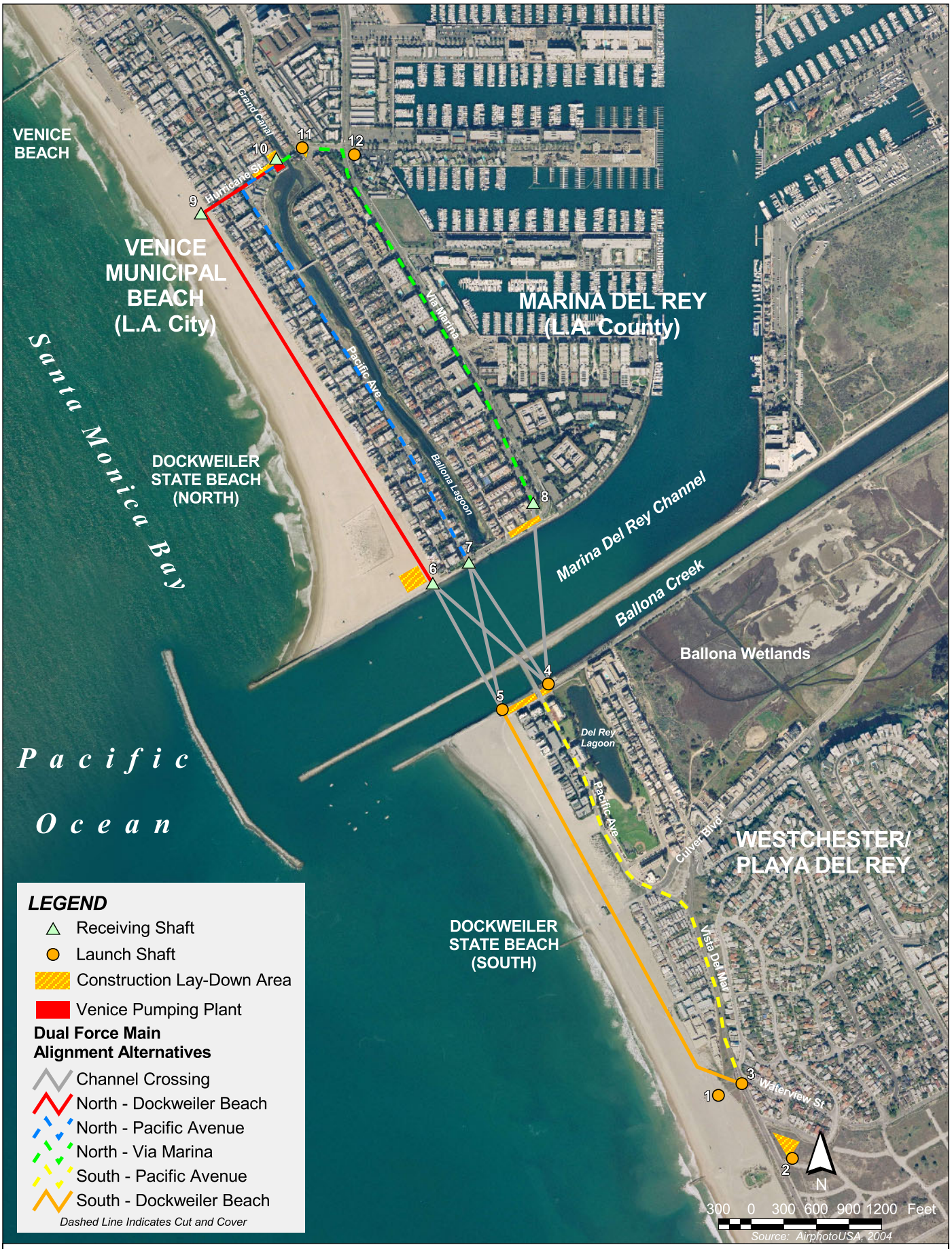
TIMELINES FOR CUT-AND-COVER / BORING CONSTRUCTION

Each method of construction will have temporary impacts to the immediate and surrounding vicinity of the chosen alignment. In an effort to provide accurate information regarding the length of time associated with these impacts, Table 4.2-1 outlines the estimated duration of time it will take to install the sewer for each of the proposed alignment alternatives.

Table 4.2-1 Construction Duration for Cut-and-Cover/Boring Method

Alignment	Cut-and-Cover Location	Boring/Tunneling Location	Approximate Length in Feet (Lft)	Duration +/-
Marina Del Rey		Grand Canal	500	10-16 days
	Marquesas/Via Marina Way (to #1)		3,800	25 weeks
	Marquesas/Via Marina Way (to #2)		4,300	29 weeks
Venice	Hurricane Street		400	3 weeks
	Pacific Avenue		4,000	27 weeks
		Via Marina/Ballona Lagoon Channel	1,800	8 weeks
Westchester/ Playa Del Rey	Pacific Avenue		2,400	16 weeks
	Vista Del Mar		1,700	12 weeks
For All cut-and-cover alignments		Marina entrance/Ballona Lagoon Channels	1,800	8 weeks


Cut & Cover Trench-Construction Sequence
Week ending
0 Feet
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
sheetpiles
Pipe Installed
Road re-paved
Construction advance (40ft/day)
1000 ft of construction activity *) In Weeks 5, 8, 11, etc
etc.
*) includes re-paving 600 ft of road every 3 weeks



SHAFTS AND LAYDOWN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.2-2

CONSTRUCTION LAYDOWN AREAS

It is important to provide adequate space for staging construction operations so that pipe installation can be completed efficiently. Construction areas for cut-and-cover trenching would "travel with" progress. An area 1,000 feet long and approximately one lane wide would be under construction at any given time for driving sheet piles, trenching, laying pipe, backfilling, and paving. Some laydown areas would "travel with" progress; others may remain in one location throughout the duration of the project and would be removed upon final completion of the project. At least 10,000 square feet would be added to shaft laydown areas for this purpose. Construction access to jacking pits would be provided for transporting tunnel muck, pipe sections, and tunneling equipment. A typical pit site utilizes enough space for the jacking pit, slurry separation tanks, a crane, the control cabin, pipe storage, and support facilities (e.g., generator, power pack, and bentonite lubrication unit). The jacking pit is placed a sufficient distance from overhead electrical lines to avoid hazards in operating the crane. A gantry system may be used instead of a crane for smaller pipe sizes. These areas will contain anywhere from 12,000 to 5,000 square feet of additional space at shaft locations.

4.3 MINED-TUNNEL ALTERNATIVES

The mined-tunneling method of construction of the sewer is under consideration for the following alignment areas/locations (Figure 4.3-1):

Alt. 1 - Beach Alignment (Waterview to Hurricane) (also see Figures 4.3-2, 4.3-3, and 4.3-5)

Alt. 2 - Beach Alignment (LAX to Hurricane) (also see Figures 4.3-4, 4.3-5, 4.3-6, and 4.3-7)

Alt. 3 - Beach Alignment (LAX to VPP) (also see Figures 4.3-6, 4.3-7, and 4.3-8)

Alt. 4 - Inland Alignment (LAX to VPP) (also see Figures 4.3-7 and 4.3-9)

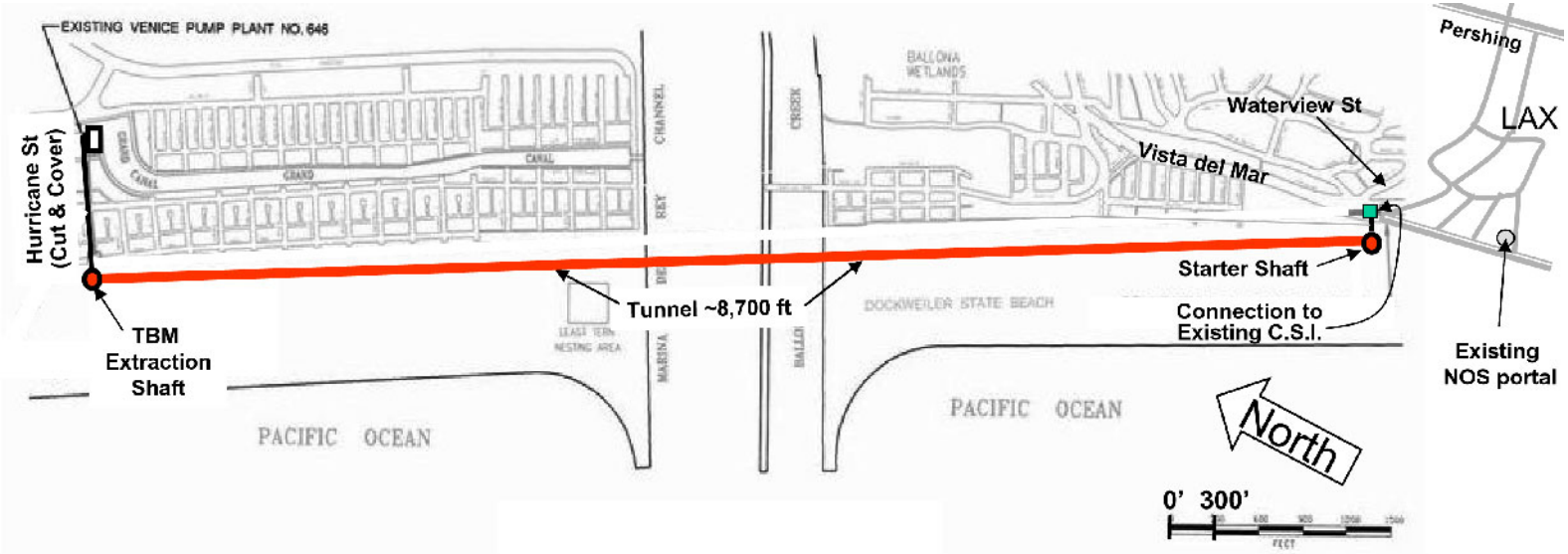
CONSTRUCTION-RELATED IMPACTS AND MITIGATION ACTIONS ASSOCIATED WITH MINED TUNNELING

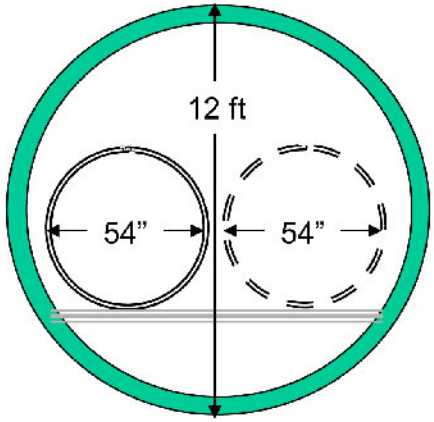
Oil Wells – There are hundreds of abandoned oil wells dotting the Venice area and Marina Del Rey Channel. Probing for possible oil wells ahead of the TBM will have to be performed during tunneling along any of the alternative alignments. This may be accomplished by magnetometer surveys performed in horizontal borings drilled from the TBM (Figure 4.3-10).

Methane Zones – Because the project area is designated as a "Methane Zone," emergency escape shaft(s) need to be provided during tunnel construction at intervals not exceeding 5,000 feet. With the alternative tunnel alignments being no more than 10,000 feet long, one escape shaft could be sufficient. However, since the Marina Del Rey Channel is right in the center of the alignment, it may be necessary to construct one of these shafts on either side of the channel. These shafts may be relatively simple consisting of nothing more than a 3-foot-diameter vertical casing accessible through the roof or side wall of the tunnel; and construction can be accomplished with a drill rig within a few days with minimal impact on the surface.

LARGE-DIAMETER (MINED) TUNNEL ALTERNATIVES

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-1





VENICE FORCE MAIN

Mined (Large-Diameter) Tunnel

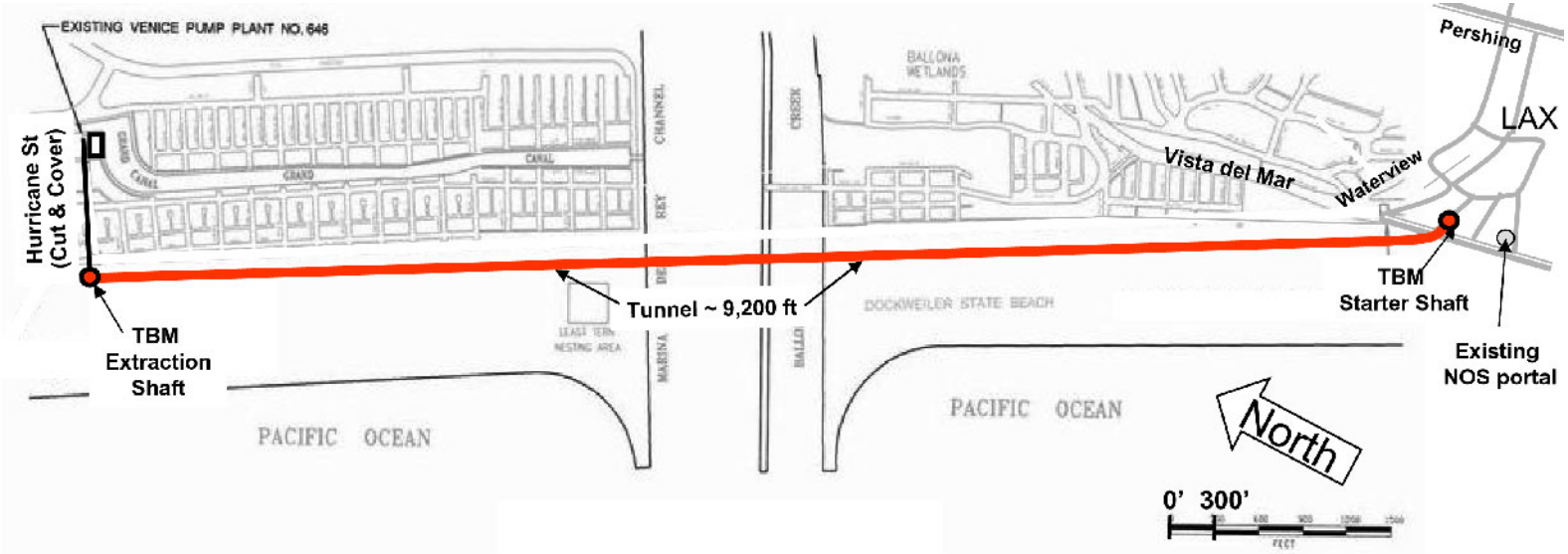
Alternative 1
Beach Alignment
Waterview St. to Hurricane St.

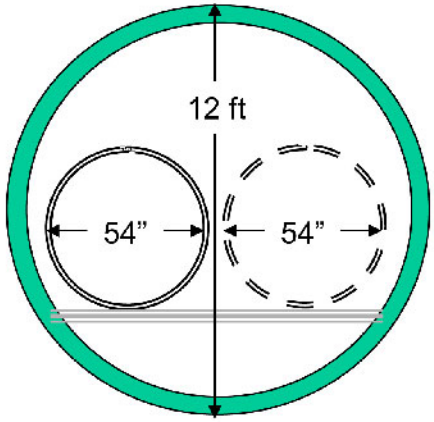
MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 1

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-2

MINED TUNNEL ALTERNATIVE 1: CUT-AND-COVER CONNECTION NEAR WATERVIEW ST.

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-3





VENICE FORCE MAIN

Mined (Large-Diameter) Tunnel

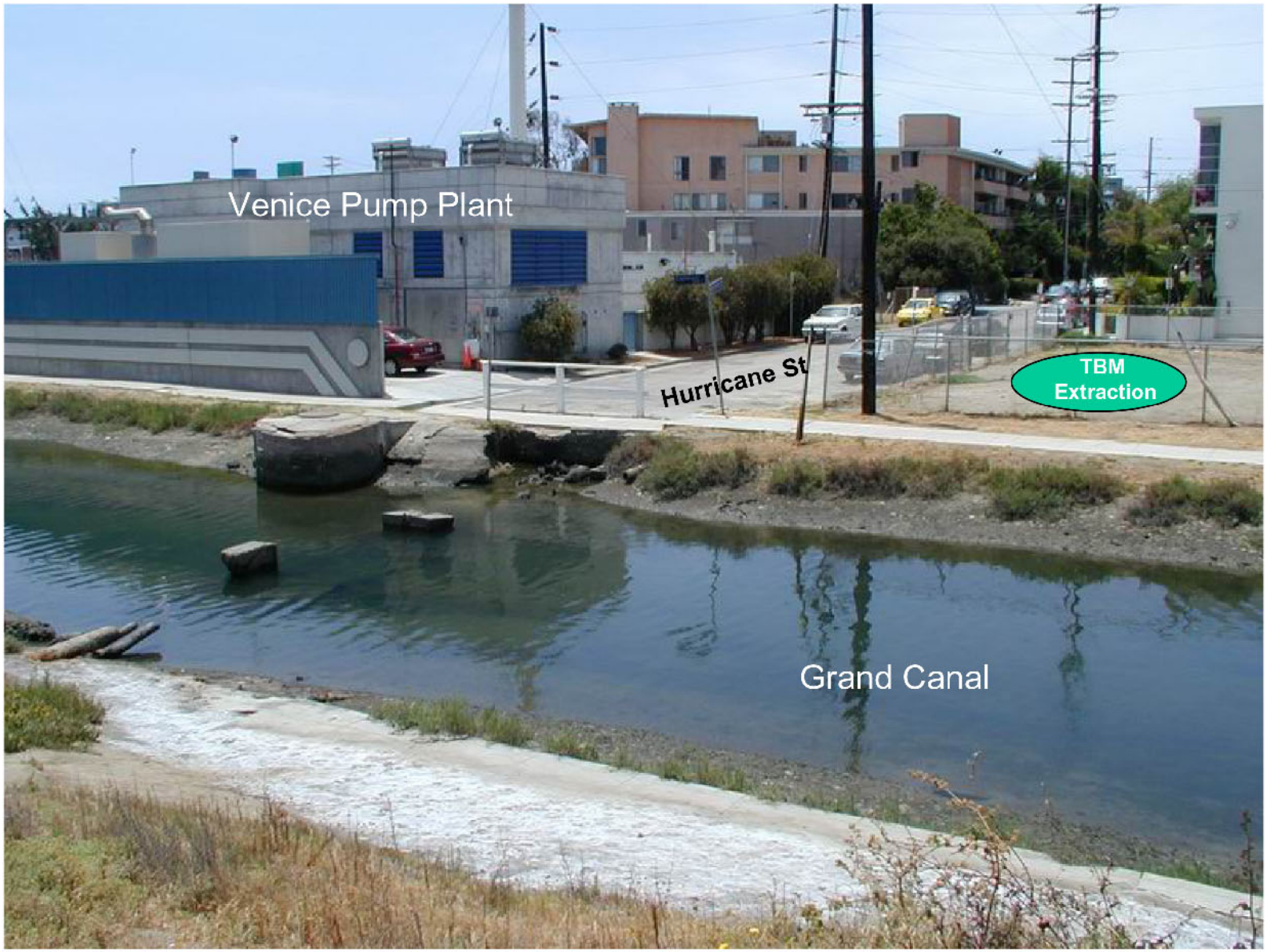
Alternative 2
Beach Alignment
LAX Shaft → Hurricane St

MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 2

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-4

MINED TUNNEL ALTERNATIVES 1 & 2: CUT-AND-COVER CONNECTION ALONG HURRICANE ST.

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-5

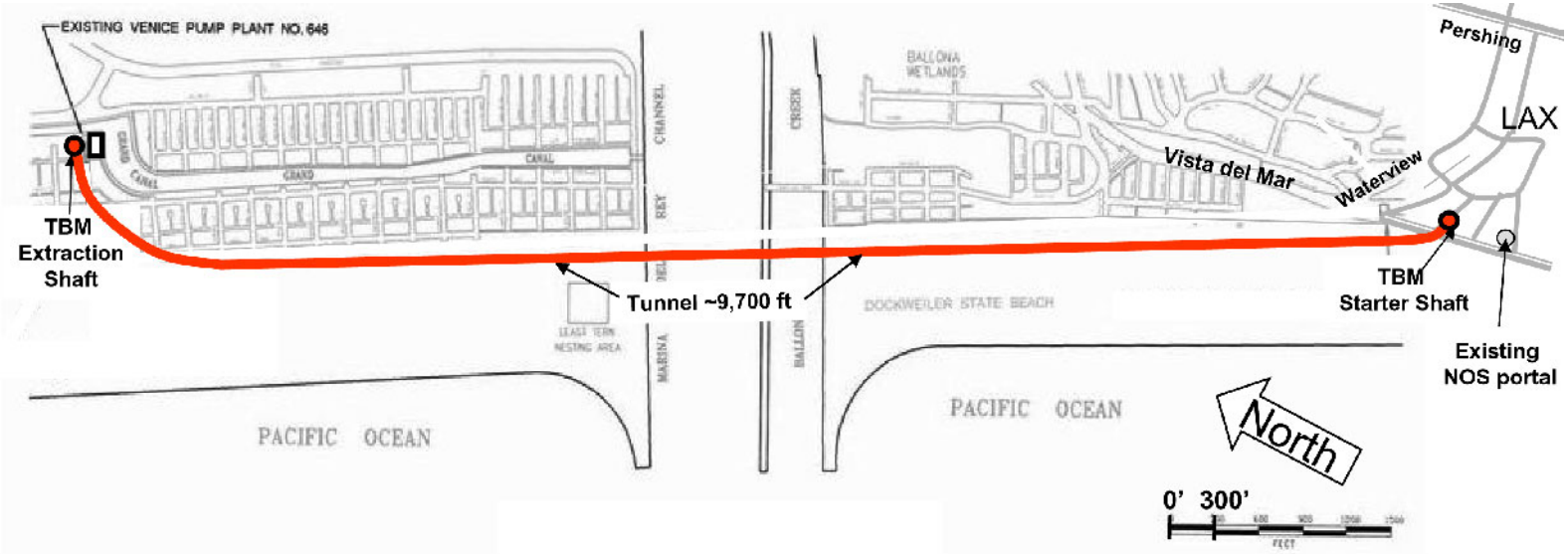


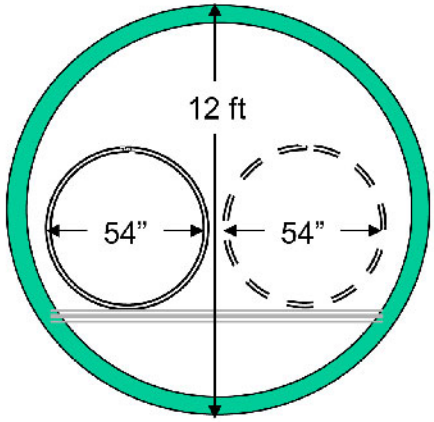
MINED TUNNEL ALTERNATIVES 2 & 3: TBM EXTRACTION SHAFT AT VENICE PUMP PLANT

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-6

MINED TUNNEL ALTERNATIVES 2, 3 & 4: TBM STARTER SHAFT AT LAX PROPERTY

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-7





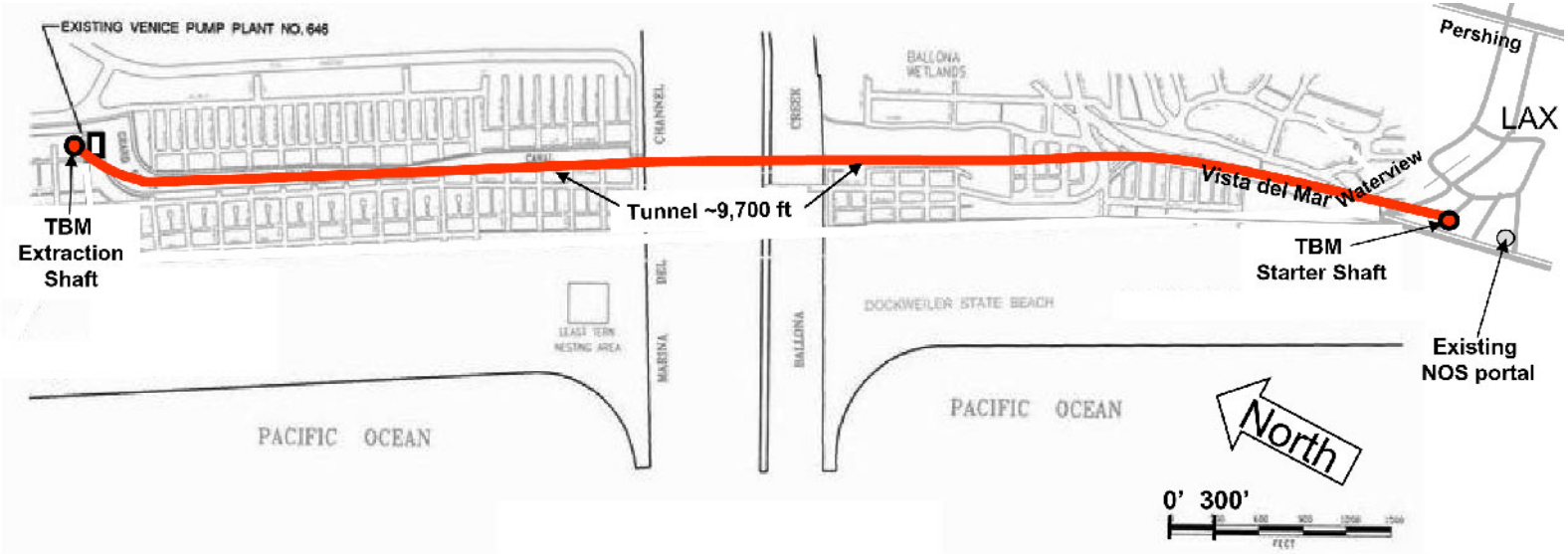
VENICE FORCE MAIN

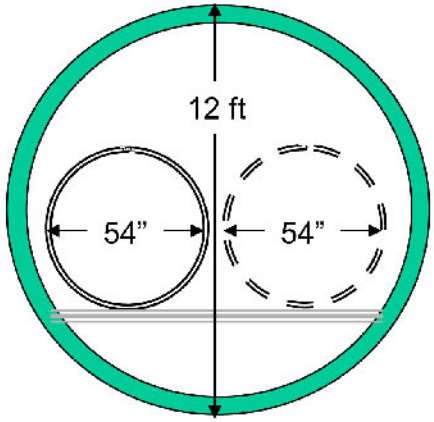
Mined (Large-Diameter) Tunnel

Alternative 3
Beach Alignment
LAX Shaft → Venice Pump Plant

MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 3

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-8





VENICE FORCE MAIN

Mined (Large-Diameter) Tunnel

Alternative 4
Inland Alignment
LAX Shaft → Venice Pump Plant

MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 4

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-9

OIL WELLS MINED TUNNELING

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-10

TIMELINES ASSOCIATED WITH MINED-TUNNELING CONSTRUCTION ALTERNATIVE

Rough-order-of-magnitude (ROM) estimates have been prepared for consideration in the EIR. Table 4.3-1 below summarizes estimated construction costs and durations:

Table 4.3-1 Rough-Order-of-Magnitude for Mined-Tunneling Construction

Alternative	Length of Tunnel [feet]	Cost Estimate (tunnel only) [million $]	Construction Duration (tunnel only) [months]	Length of Cut-and-Cover Construction (in addition to tunnel) [feet]
1	8,700	64.7	27	1,300
2	9,200	66.8	27	1,000
3	9,700	67.8	28	300
4	9,700	67.8	28	300

CONSTRUCTION LAYDOWN AREAS

Construction laydown areas of at least 12,000 square feet would be required for the starter shaft sites which, in addition to construction of the shaft itself, will also handle muck disposal and storage of tunnel-liner and carrier-pipe segments throughout the duration of tunneling. An area of only about 5,000 square feet would be required for constructing the TBM extraction shafts for an approximate duration of 10 weeks; plus about 1 week for TBM removal after tunnel excavation has been completed (see Figure 4.2-2).

5.0 ENVIRONMENTAL ANALYSIS

5.1 INTRODUCTION

In accordance with Sections 15126.2 through 15130(a) through (e) of the CEQA Guidelines, this EIR examines the significant environmental effects of the proposed Project and discusses any significant irreversible environmental changes or growth-inducing impacts resulting from the Project. For each impact identified, this EIR describes proposed mitigation measures to minimize the significant effects caused by them.

TECHNICAL STUDIES

Technical studies and analyses were conducted for the purpose of establishing existing conditions, thresholds of significance and environmental impacts for each resource which may be impacted as a result of the Project. Information derived from each technical report is summarized in this EIR. The technical reports are located in Appendices C through I of this document.

POTENTIAL IMPACTS FOUND NOT TO BE SIGNIFICANT

The following impacts were found to be less than significant and therefore, are not analyzed in this EIR:

- Agricultural Resources – There are no agricultural resources in the project area.
- Mineral Resources – The project will not result in the loss of valuable mineral resources to the region or in the vicinity of the project.
- Population and Housing – The project will not impact growth in either population or housing or displace any existing numbers of people or housing.

ENVIRONMENTAL ANALYSIS

The following sub-chapters provide an analysis for each environmental resource of concern for this project as identified in the Initial Study located in Appendix A of this document. Although there will be no significant long term or permanent adverse impacts to the environment resulting from the construction of the proposed new sanitary sewer dual force main, mitigation measures have been identified for the purpose of reducing construction-related impacts only due to the extended duration of the project's construction phase, which is estimated to be from 18 to 24 months.

5.2 AIR QUALITY

5.2.1 Environmental Setting

The proposed Project is located in the South Coast Air Basin (SCAB) with SCAQMD monitoring and regulating air quality from stationary sources within the SCAB.

REGIONAL AIR QUALITY

The air quality in the SCAB is influenced by its climate, which is in turn determined by its terrain and geographical location. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern border, and high mountains surround the rest of the SCAB.

The SCAB is ensconced in the semi-permanent, high-pressure zone of the eastern Pacific, thus its climate is mild, tempered by cool ocean breezes, and its salubrious climatological pattern is interrupted by rare periods of extremely hot weather or winter storms.

Annual average temperature fluctuates minimally throughout the SCAB, ranging from the low to mid 60s, measured in degrees Fahrenheit (°F). Due to more pronounced oceanic influence, coastal areas have less variability in annual minimum and maximum temperatures than inland areas.

Precipitation in the SCAB occurs mainly between November and March. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB, along the coastal side of the mountains (see subsequent section for local precipitation data.).

A temperature inversion (increasing temperature with increasing altitude) persists over much of the SCAB as a result of the strength and position of the sub-tropical high-pressure cell over the Pacific Ocean. This inversion limits the vertical dispersion of air contaminants, thereby increasing their ground level concentration. With solar heating of the ground and the lower air layer, the temperature of the air at lower elevations approaches the temperature of the base of the inversion (upper) layer until the inversion layer is eroded, enabling vertical mixing within the planetary boundary layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning. During the fall and winter months, Santa Ana winds – strong, dry north or northeasterly winds – disperse air contaminants for several days at a time (See subsequent section for local wind data.).

Coupling stagnant wind conditions and low inversions yield the greatest air pollutant concentrations. Ambient air pollutant concentrations are generally lowest on days of no inversion or high wind speeds. The greatest pollution problems in winter are carbon monoxide (CO) and oxides of nitrogen (NO_x) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the more intense sunshine and longer daylight hours cause hydrocarbons and NO_x to react and form photochemical smog.

The California Legislature created the SCAQMD in 1977 by merging the air pollution control districts of the four counties sharing the SCAB. The SCAB covers an area of 6,745 square miles with a population of 14.6 million, while the larger SCAQMD boundary includes 10,743 square miles and a population of 15

million. The SCAB includes portions of Los Angeles, Riverside and San Bernardino counties and all of Orange County[1].

The SCAQMD is a non-attainment area for ozone (O_3), CO, and fine, suspended particulate matter less than 10 microns (PM_{10}) and 2.5 microns in diameter ($PM_{2.5}$)[1] and in attainment for the other criteria pollutants, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). To maintain the attainment status and reduce emissions for the non-attainment pollutants, the SCAQMD has established daily emission thresholds for all criteria pollutants to determine the significance of air quality impact from proposed projects. A significant impact would occur if the project resulted in substantial emissions during construction or operation that would exceed the established thresholds. For example, one of the proposed alternatives is to install the sewer line along the beach to minimize traffic impact to the project area. It should be noted that depending on wind conditions throughout the day, the excavation and transporting of sand, which also contains fine particulates, could potentially become airborne and cause a nuisance to nearby residences and sun bathers. To minimize airborne particulates, construction best management practices (BMPs) such as application of water should be implemented during the construction of the proposed sewer line.

LOCAL AIR QUALITY

Annual rainfall in the vicinity of the Project site can be characterized by historical average total precipitation data from Santa Monica Pier – National Climatic Data Center (NCDC), Cooperative Station, number 047953. NCDC data indicate that the bulk of annual precipitation occurs between November (1.46 inches) and March (1.94 inches), peaking in February (3.04 inches). Summer rainfall is minimal and the average total precipitation undergoes a seasonal reduction from 0.79 inches (April) to 0.02 inches (July).

Southwesterly winds dominate in the vicinity of the project site, as evidenced by historical meteorological data records from Santa Monica Airport. Annual average wind speed was 7.4 miles per hour (mph) with the highest winds occurring from April (8.5 mph) to May (8.4 mph) and the slowest winds in January (6.2 mph).

Ambient monitoring stations are used to collect ambient criteria pollutant data, which are used to determine whether the region is in attainment with the National Ambient Air Quality Standards (NAAQS) or the California Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are designed to protect public health and to prevent degradation of the environment. The NAAQS and CAAQS are provided in Table 5.2-1. The California Clean Air Act (CCAA) of 1988 required non-attainment areas in the state to prepare air quality attainment plans. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of non-attainment pollutants, unless all feasible measures have been implemented. The SCAB is currently classified as a non-attainment area for O_3, CO, $PM_{2.5}$, and PM_{10}. The SCAB is technically in attainment for CO but has not been reclassified by the EPA; therefore, the current designation is considered as serious non-attainment. The attainment status for the SCAB is provided in Table 5.2-2.

[1] U.S. Environmental Protection Agency web page - http://www.epa.gov/air/data/monvals.html

Table 5.2-1 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm (235 µg/m^3)[8]	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)*		0.08 ppm (157 µg/m^3)[8]		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation*	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Geometric Mean	20 µg/m^3		50 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	NDIR
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m^3)		--		
Lead[9]	30 days average	1.5 µg/m^3	Atomic Absorption	--	--	--
	Calendar Quarter	--		1.5 µg/m^3	Same as Primary Standard	High-volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.30 ppm (80 µg/m^3)	--	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm 105 µg/m^3)		0.14 ppm (365 µg/m^3)	--	
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		--	--	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles of more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		NO FEDERAL STANDARDS		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			

** This concentration was approved by the California Air Resources Board (CARB) on April 28, 2005, and is expected to become effective in early 2006. (See Table notes provided on the following page*

Table 5.2-1 Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter-PM_{10}, $PM_{2.5}$, and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by EPA on July 18, 1997. Contact EPA for further clarification and current federal policies.
9. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Acronyms:
$\mu g/m^3$ – micrograms per cubic meter
°C – degrees Celsius
EPA – U.S. Environmental Protection Agency
mg/m^3 – milligrams per cubic meter
ppm – parts per million

Source: California Air Resources Board (11/29/05)

Table 5.2-2 State and Federal Attainment/Non-Attainment Designations for South Coast Air Basin

Criteria Pollutant	County	State	Federal	
CO	Los Angeles County (P)	A	N	Serious
	Orange County	A	N	Serious
	Riverside County (P)	A	N	Serious
	San Bernardino County (P)	A	N	Serious
NO_x		A	A	A
SO_x		A	A	A
PM_{10}		N	N	Serious
$PM_{2.5}$		N	N	
Ozone (1-hour)		N	N	Extreme
Ozone (8-hour)		N	N	Severe 17
Lead		A		

Source: www. arb.ca.gov

The SCAQMD maintains ambient air quality monitoring stations throughout the SCAB and the air quality monitoring stations nearest to the Project site are the Lynwood (11220 Long Beach Boulevard, Lynwood) and Hawthorne (5234 West 120th Street, Hawthorne) monitoring stations located approximately 19 and 13 miles, respectively, from the VPP. While the Hawthorne station is closer to the project site, use of air quality data from the less proximate Lynwood site is necessary because the Hawthorne station lacked $PM_{2.5}$ monitoring data. Table 5.2-3 shows the criteria pollutants monitored at the Hawthorne and Lynwood stations, which include CO, O_3, NO_2, and $PM_{2.5}$. SO_2 and Pb are not listed because there have been no exceedances of the federal or state standards in the past 10 years.

The ambient air quality data in Table 5.2-3 show that CO and NO_2 levels are below the relevant state and federal standards at the Hawthorne site for the past 5 years. Hawthorne 1-hour O_3 and PM_{10} levels are below the federal standards but have exceeded the state standards within the past 5 years. The $PM_{2.5}$ concentration monitored at the Lynwood station exceeded the federal standard most recently in 2001 and has not been exceeded in the last few years.

The following paragraphs briefly describe the adverse health effects of the six criteria pollutants monitored in the Basin.

Ozone – O_3 is formed by photochemical reactions between NO_x and reactive organic gases, rather than being directly emitted. O_3 is a pungent, colorless gas typical of southern California photochemical smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children. O_3 levels peak during the summer and early fall months.

Carbon Monoxide – CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. CO passes through the lungs into the bloodstream, where it interferes with the transfer of oxygen to body tissues.

Table 5.2-3 Ambient Air Quality at Air Monitoring Stations Close to the Project Site

	Carbon Monoxide (CO)				Ozone (O_3)				Respirable Particulate Matter (PM_{10})		Fine Particulate Matter[1] ($PM_{2.5}$)		Nitrogen Dioxide (NO_2)	
	Max 1-hour Conc. (ppm)	Number of Days Exceeded	Max 8-hour Conc. (ppm)	Number of Days Exceeded	Max 1-hour Conc. (ppm)	Number of Days Exceeded	Max 8-hour Conc. (ppm)	Number of Days Exceeded	Max 24-hour Conc. ($\mu g/m^3$)	Number of Days Exceeded	Max 24-hour Conc. ($\mu g/m^3$)	Number of Days Exceeded	Max 1-hour Conc. (ppm)	Number of Days Exceeded
State Standards	> 20 ppm/ 1 hour		> = 9 ppm/ 8 hour		> 0.09 ppm/ 1 hour		> 0.070 ppm/ 8 hour[2]		> 50 $\mu g/m^3$/ 24 hour		> 65 $\mu g/m^3$/ 24 hour		> 0.25 ppm/ 1 hour	
2004	5.8	0	4.43	0	0.069	0	ND[3]	ND[2]	52.0	2	55.8	0	0.084	0
2003	6.5	0	5.04	0	0.110	2	0.077	NA[3]	58.0	3	54.8	0	0.120	0
2002	6.8	0	6.00	0	0.087	0	0.072	NA[3]	121.0	12	64.0	0	0.099	0
2001	7.3	0	5.21	0	0.098	1	0.079	NA[3]	75.0	8	73.1	3	0.110	0
2000	8.7	0	7.14	0	0.095	1	0.075	NA[3]	74.0	9	82.1	2	0.128	0
Maximum	8.7	0	7.14	0	0.110	2	0.079	NA[3]	121.0	12	82.1	3	0.128	0
Federal Standards	> 35 ppm/ 1 hour		> = 9 ppm/ 8 hour		> 0.12 ppm/ 1 hour		> 0.08 ppm/8 hour		> 150 $\mu g/m^3$/ 24 hour		> 65 $\mu g/m^3$/ 24 hour		Annual Average > 0.053 ppm/ annual avg.	
2004	7.2	0	4.43	0	0.069	0	ND[2]	ND[2]	52.0	0	55.8	0	0.030	0
2003	10.4	0	5.04	0	0.110	0	0.077	0	58.0	0	54.8	0	0.024	0
2002	12.2	0	6.00	0	0.087	0	0.072	0	121.0	0	64.0	0	0.023	0
2001	15.8	0	5.21	0	0.098	0	0.079	0	75.0	0	73.1	3	0.024	0
2000	11.7	0	7.14	0	0.095	0	0.075	0	74.0	0	82.1	2	0.027	0
Maximum	15.8	0	7.14	0	0.110	0	0.079	0	121.0	0	82.1	3	0.030	0

Notes:
1. Fine particulate matter data are obtained from the Lynwood air monitoring station; all other tabulated data are from the Hawthorne air monitoring station.
2. NA – This standard was approved by the CARB on April 28, 2005 and is expected to become effective in early 2006.
3. ND – Insufficient data from the CARB on Hawthorne air monitoring station to determine this value.
ppm – parts per million
$\mu g/m^3$ – micrograms per cubic meter

Oxides of Nitrogen – NO_x contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2, a reddish-brown gas, and nitric oxide, a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as NO_x. NO_x is a primary component of the photochemical smog reaction. NO_2 decreases lung function and may reduce resistance to infection.

Sulfur Dioxide – SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels in the SCAB. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Reactive Organic Compounds – Reactive organic compounds (ROCs) are formed from combustion of fuels and evaporation of organic solvents. ROCs are a prime component of the photochemical smog reaction. Consequently, ROCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower.

Particulate Matter – Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 microns, or PM_{10}) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 microns, or $PM_{2.5}$) often come from fuel combustion, power plants, and diesel buses and trucks. Fine particles can also be formed in the atmosphere through chemical reactions.

Coarse particles (PM_{10}) can accumulate in the respiratory system and aggravate health problems such as asthma. The U.S. Environmental Protection Agency (EPA's) scientific review concluded that fine particles ($PM_{2.5}$) at concentrations that extend well below those allowed by the current PM_{10} standards, which penetrate deeply into the lungs, are more likely than coarse particles to contribute to the health effects listed in a number of recently published community epidemiological studies. These health effects include premature death, increased hospital admissions, and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.

REGIONAL AIR QUALITY PLANNING FRAMEWORK

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the state. The Federal CAAA of 1977 required that each state adopt a State Implementation Plan (SIP) outlining pollution control measures to attain the federal standards in non-attainment areas of the state.

The California Air Resources Board (CARB) coordinates and oversees both state and federal air pollution control programs in California. The CARB oversees activities of local air quality management agencies and is responsible for incorporating Air Quality Management Plans (AQMPs) from local air basins into a SIP for federal EPA approval. The CARB also maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by the CARB to

classify air basins as "attainment" or "non-attainment" with respect to each pollutant and to monitor progress in attaining air quality standards.

The CARB has divided the state into 15 air basins. Significant authority for air quality control within them has been given to local Air Pollution Control Districts or Air Quality Management Districts, which regulate stationary source emissions and develop local attainment plans. The CCAA provides the Air District with the authority to manage transportation activities at indirect sources and regulate stationary source emissions. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution (e.g., the motor vehicles at an intersection, a mall, and highways). The Air Board regulates motor vehicles and fuels.

AIR QUALITY MANAGEMENT PLAN

The SCAQMD and South Coast Association of Governments (SCAG) are responsible for formulating and implementing the AQMP for the SCAB. Every 3 years, the AQMP is updated to reflect the overall plan for improving air quality in the region.

The 2003 AQMP was prepared pursuant to federal and state clean air legislation, and addresses 1990 CAA requirements with respect to particulate matter standards. Under the Clean Air Act (CAA), the AQMP must demonstrate attainment of PM_{10} standards by 2006 for both 24-hour and annual average ambient air quality standards. The 1997 AQMP responds to this requirement, relying mostly on the control measures outlined in the 1994 AQMP.

To ensure continued progress toward clean air and comply with state and federal requirements, the SCAQMD, in conjunction with the CARB, the SCAG, and the EPA, prepared and adopted the 2003 AQMP on August 1, 2003. The 2003 AQMP updates the demonstration of attainment with the federal standards for O_3 and PM_{10}, replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal NO_2 standard that the SCAB has met since 1992. The 2003 AQMP also incorporates a revised emissions inventory, the latest modeling techniques, and updated control measures remaining from the 1997/1999 SIP, as well as new control measures. As of March 4, 2005, SCAQMD determined that the region has satisfied the federal CO standards requirements and will request the EPA to redesignate the region as attainment for CO standards. The EPA will have 18 months to process the request.

More specially, the 2003 AQMP is designed to satisfy the CCAA tri-annual update requirements and fulfills the SCAQMD's commitment to update transportation emission budgets based on the latest approved motor vehicle emissions model and planning assumptions. The SCAQMD forwarded the Final 2003 AQMP to the CARB on October 15, 2003, and in turn, the CARB submitted the 2003 AQMP to the EPA for approval on January 9, 2004.

5.2.2 Thresholds of Significance

Air quality impacts are determined by the level of significance. The analysis for the proposed project involves estimating emissions based on planning data for construction and operational activities. Construction emissions are considered short term because of the time duration. Construction emissions were quantified using emission factors provided in the SCAQMD *CEQA Air Quality Handbook* (1993),

and other resources to provide an accurate impact assessment. Operational emissions were not quantified because preliminary data show that there is no change in equipment; therefore, emissions would have little to no changes and are considered negligible. As such, air quality impacts from operation of the proposed Project are considered to be less than significant and will be briefly mentioned in this analysis.

To determine significance of air quality impact from the proposed Project, either a quantitative or qualitative method can be used as both methods are accepted by regulatory agencies. A quantitative method is used when accurate and reliable project-specific data are available, which allows the estimation of criteria pollutants using an approved air quality model such as URBEMIS2002 and/or CALINE4; whereas a qualitative method is used when specific project data are inadequate for quantifying emissions. This analysis utilizes the quantitative method because construction data are available.

THRESHOLD FOR CONSTRUCTION EMISSIONS

The following significance thresholds for construction emissions have been established by the SCAQMD:

- 75 pounds per day of ROC;
- 100 pounds per day of NO_x;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10}; and
- 150 pounds per day of SO_x.

Projects in the SCAB with construction-related emissions that exceed any of the emission thresholds listed above are considered significant by the SCAQMD.

THRESHOLD FOR OPERATIONAL EMISSIONS

Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the SCAQMD's *CEQA Air Quality Handbook* (1993 and on their web page). The criteria include operational emissions thresholds, compliance with state and national air quality standards, and consistency with the current AQMP.

SCAQMD has separate criteria for operational activities. The criteria include operational emissions thresholds, compliance with state and national air quality standards, and consistency with the current AQMP. SCAQMD established daily significance thresholds for operational emissions and are as follows:

- 55 pounds per day of volatile organic compound (VOC);
- 55 pounds per day of NO_x;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10}; and
- 150 pounds per day of SO_X.

EMISSION STANDARDS

- California state 1-hour CO standard of 20.0 parts per million (ppm);
- California state and federal 8-hour CO standard of 9.0 ppm;
- California state 1-hour average NO_2 standard of 0.25 ppm;

- Federal annual average NO_2 standard of 0.053 ppm; and
- California state annual arithmetic mean for PM_{10} of 20 micrograms per cubic meter (µg/m^3).

SCAQMD is in attainment for CO and NO_2 and non-attainment for PM_{10}; therefore, a project is considered to be significant if it causes or contributes to an exceedance of one or more of the above standards. Project PM_{10} emissions are considered to be significant if the project increases the PM_{10} 24-hour average by 10.4 µg/m^3 for construction and 2.5 µg/m^3 for operation, or annual (geometric) average concentrations by 1 µg/m^3.

5.2.3 Environmental Impacts

Air pollutant emissions associated with the project would occur over the short and the long term. Short-term emissions are from construction activities such as fugitive dust from site preparation, soil excavation, and emissions from construction equipment exhaust. Long-term emissions are from equipment used for the proposed Project such as maintenance vehicles traveling to and from the pump station to service the equipment or to take readings. To determine whether the proposed Project would have a significant impact on air quality, the analysis has to show that the implementation of the proposed Project would not generate an increase in emissions that would exceed the SCAQMD construction and operational significance thresholds.

Potential adverse air quality impacts could occur during the course of construction and is associated with exhaust emissions generated by heavy-duty construction equipment, off-road mobile sources (construction equipment), on-road mobile sources (e.g., construction worker vehicle trips, materials transport, etc.), and fugitive dust.

The net change in emissions from the operation of the proposed Project is expected to be negligible because preliminary data indicate that the same equipment would be used with the same operating hours. As such, there would not, or there are not expected to be, any long-term air quality impacts from the operation of the proposed Project and, therefore, these will not be discussed further in this analysis.

5.2.3.1 Construction-Related Impacts

EQUIPMENT EXHAUSTS AND RELATED ACTIVITIES

Construction activities produce combustion emissions from various sources such as site grading, generators, worker's vehicles, on-site heavy-duty construction vehicles, and trucks hauling materials to and from the site. Exhaust and fugitive dust emissions from construction activities on site would vary daily as construction activity levels change. The use of construction equipment on site would potentially result in localized air quality impacts. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's *CEQA Air Quality Handbook*. Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Preliminary plans assume that two independent construction worker teams would be involved for two different construction techniques. One team would be responsible for tunneling the 1,800-foot section that crosses the Marina and Ballona Creek Channel and the other team would perform the open trench

techniques elsewhere along each alignment (approximately 8,200 to 8,600 feet). The following assumptions were also made in the calculations of the emissions from construction activities:

- The construction activities would operate 6.5 hours per day (as per the Mayoral Directive restricting on-street construction work hours);
- The construction zones have a total area of approximately 0.5 acre each; and
- The TBM and some of its associated paraphernalia (slurry settling tank, slurry pump and control trailer) emit negligible quantities of criteria pollutants because they are electrically driven.

Tables provided in Appendix C list the construction equipment and associated exhaust emissions from open trench and micro-tunneling methods, respectively. The list of equipment is derived from the Kaku Draft Traffic Report, September 1, 2005 conducted for this project and included in Appendix.

Total daily construction emissions from open trenching and micro-tunneling are summarized and compared with the SCAQMD daily construction significance thresholds. The estimated construction emissions are under the SCAQMD significance thresholds for all criteria pollutants, with the exception of NO_x emission. Thus, the combination of open trench and micro-tunneling construction is expected to have a significant impact on air quality, unless mitigation measures for NO_x are implemented. To mitigate NO_x emissions, there are several alternatives such as:

- Strategize and plan ahead to minimize the transporting of construction equipment and excessive material to and from work area;
- Optimizing construction crew size and proper selection of equipment to reduce any unnecessary emissions such as to eliminate redundancy or similarity in equipment capable of doing similar work in the same construction zone, e.g., excavator vs. backhoe;
- Adjusting the electronic timing on the construction equipment to reduce NO_x emissions;
- Use newer construction equipment such as equipment meeting Tier 2 emission standards;
- Minimize idling emissions from construction equipment and haul trucks by turning it off when not in use or during potential long delays (i.e., over 5 minutes);
- Optimize the muck removal schedule to reduce emissions from haul trucks; and
- Use of alternative fuel such as biodiesel, liquid natural gas, and propane.

Another option for further investigation should NO_x emissions become a primary concern is the large (mined) tunneling method.

FUGITIVE DUST

Fugitive dust emissions are generally associated with demolition, land clearing, exposure, and cut and fill operations. Dust generated during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions. Table 5.2-4 presents the best available control measures for high wind conditions. Fugitive dust would also be generated as construction equipment travels on unpaved roads or on the construction site. The fugitive PM_{10} emissions rate used in the Air Quality Analysis (AQA), 0.42 tons per acre-month (30 days), is for road construction, which is applicable to this Project. Approximately 28 pounds per day is generated each day during construction of the proposed Project. To minimize fugitive dust, control measures are provided in Table5.2-4, 5.2-5 and Table 5.2-6.

Table 5.2-4 Best Available Control Measures For High Wind Conditions

Fugitive Dust Source Category	Control Measures
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of 6 months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas three times per day. If there is any evidence of wind-driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 5-2 of the technical study (Appendix C), Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 5-1 of the technical study (Appendix C) may be used.

Table 5.2-5 Dust Control Actions

Fugitive Dust Source Category	Control Actions	
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by American Society for Testing and Materials (ASTM) Method D-2216, or other equivalent method approved by the Executive Officer, the CARB, and the EPA. Two soil moisture evaluations must be conducted during the first 3 hours of active operations during a calendar day, and two such evaluations each subsequent 4-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: construction fill areas	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM Method D-2216, or other equivalent method approved by the Executive Officer, the CARB, and the EPA. For areas which have optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the CARB and the EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first 3 hours of active operations during a calendar day, and two such evaluations during each subsequent 4-hour period of active operations.
Earth-moving: construction cut areas and mining operations	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind-driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: completed grading areas	(2c)	Apply chemical stabilizers within 5 working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.
Unpaved roads	(4a)	Water all roads used for any vehicular traffic at least once per every 2 hours of active operations ; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 mph; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
<u>All Categories</u>	(6a)	Any other control measures approved by the Executive Officer and the EPA as equivalent to the methods specified in Table 5-2 of the technical study (Appendix C) may be used.

Table 5.2-6 Track-out Control Options

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the EPA as equivalent to the methods specified in Table 5-3 of the technical study (Appendix C) may be used.

The combination of the PM_{10} fugitive dust and PM_{10} exhaust emissions from construction equipment are added together and compared to the SCAQMD daily threshold for PM_{10} to determine whether the Project has a significant impact on air quality. Total PM_{10} emissions, 22.6 pounds per day, from both construction operations are significantly lower than the SCAQMD daily threshold for PM_{10} of 150 pounds per day.

5.2.3.2 Operational Impacts

The proposed Project is anticipated to emit minimal odors. Once operational, the proposed Project would operate with minimal need for on-site maintenance under normal conditions. The total amounts of emissions from maintenance worker vehicle exhaust are considered negligible and would not have a significant impact on air quality.

Based on the above operational characteristics, the proposed Project is not likely to impede the progress of the SCAB in complying with federal or state ambient air quality standards, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors.

5.2.4 Mitigation Measures

Mitigation measures are not required for the operation of the proposed project because there would not be a significant long-term impact upon air quality.

NO_x emissions arising from short-term construction activities may be addressed by implementing various innovative emission control technologies (e.g., use of fuel additives, electronic timing and metering and use of alternative fuel).

FUGITIVE DUST CONTROL MEASURES

The Project would be required to comply with regional rules, which would assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures (BACMs) so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 402 prohibits dust from creating a nuisance off site. These dust suppression techniques were summarized in Table 5.2-5 above. Implementation of these dust suppression techniques, as required by the SCAQMD, can reduce the fugitive dust generation (and thus the PM_{10} component) by 50 to 75 percent. Compliance with the following BACMs would reduce impacts on nearby sensitive receptors.

5.2.5 Unavoidable Adverse Project Impacts

Although the short-term construction emissions will contribute to the existing non-attainment status, the operation and construction of the proposed project is not expected to exacerbate long-term air quality. BACMs and other feasible control measures are suggested to reduce fugitive dust and other emissions from the construction zones.

5.2.6 Cumulative Impacts

CONSTRUCTION EMISSIONS

The implementation of the proposed Project and other development projects in the general vicinity of the Project area may be simultaneously under construction. Depending on construction schedules of all the projects in the area, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts. Traffic analysis conducted by Kaku Associates in September 1, 2005, has indicated that of the nine study intersections in the vicinity of the proposed project, six of study intersections currently operate at "acceptable" levels of service (LOS D or better) during the morning and afternoon peak traffic periods. LOS D may be defined as imposing delays that may be substantial during portions of the rush hours, but having enough lower volume periods to permit clearing of developing lines, thereby preventing excessive backups. Of these six intersections, four are operating at LOS B or better, i.e., reasonably unimpeded operations with slightly restricted maneuverability and stopped delays that are considered acceptable LOS.

PROJECT EMISSIONS

Currently, the SCAB is in non-attainment for O_3, PM_{10}, and $PM_{2.5}$. Preliminary data indicates that the maintenance schedule and equipment would remain the same; therefore, the operation of the proposed project should have an essentially negligible impact on the existing air quality status.

5.3 BIOLOGICAL RESOURCES

5.3.1 Environmental Setting

Biological resources within the proposed Project areas have been studied and analyzed for the purpose of determining any impacts to the environment resulting from the construction of the proposed sewer main. Resources were observed, studied, and analyzed within each of the alternative alignments to allow flexibility for construction staging, construction, and construction related activities.

This section summarizes the findings and conclusions contained in the Biological Technical Report prepared by Keane Biological Consulting (2005) and the Marine Resource report prepared by MBC Biological (2005) for the Project. The Biological Technical Report and Marine Resource Report are contained in Appendix D to this EIR. The reports were prepared to: (1) inventory, map and describe the types, current conditions, and value of existing on-site biological resources; (2) identify and evaluate the significance of all potential direct, indirect, and cumulative project impacts on existing resources; and (3) recommend mitigation measures to reduce impacts to a less than significant level.

This section also summarizes the findings and conclusions contained in the 404 and 1603 Jurisdictional Delineation Report prepared by URS for the Project site dated 2005 (Appendix D).

Marina Del Rey is one of the largest human-made marinas in the world with more than 6,000 berths (Pondella and Allen, unpublished data). Most of the Marina is silt-bottomed with little hard substrate other than various retaining walls, floats and pilings. Basin D, located on the west side of the marina, terminates in a sandy swimming beach, and eelgrass beds (*Zostera marina*) are present in the subtidal areas of the basin. The marina connects to Santa Monica Bay through an entrance channel bound by breakwaters running perpendicular to shore with a terminal breakwall running parallel to shore that protects the entrance.

The Ballona Creek flood control channel runs parallel to the Marina Del Rey entrance channel at the mouth of the Creek, emptying into Santa Monica Bay south of the Marina Del Rey Channel. Within the Project area, Ballona Creek is riprap-lined and primarily marine, providing tidal exchange for both Del Rey Lagoon and the nearby Ballona Wetlands. Ballona Creek drains most of Culver City and the surrounding areas [Wetlands Research Associates, Inc. (WRA), 1990].

To the west of the Project area, the Marina Del Rey and Ballona Creek entrances bisect Dockweiler State Beach. The north beach is adjacent to Venice Municipal Beach, the Ballona Lagoon and Marina Del Rey to the east. A protected California least tern (*Sterna antillarum browni*) avian nesting vegetated area is located near the southern end of the beach. The breeding area is fenced to exclude humans and predators.

The southern extent of Dockweiler State Beach is adjacent to Del Rey Lagoon, Playa Del Rey and LAX to the south. In the Del Rey Lagoon area, several fenced, vegetated dunes front the beach. Steeper slopes backing the beach are also vegetated. Two western snowy plover critical habitat units have been proposed for Dockweiler State Beach, the northernmost west section of the airport, slightly south of the southern extent of the project. Dockweiler State Beach, particularly the upper, dry back-beach area where proposed Project activities may occur are, for the most part, groomed with developed paths and volleyball courts.

Two Environmentally Sensitive Habitat Areas (ESHA) are located close to most of the potential alignments. To the north, three proposed project alignments are in proximity to the Grand Canal/Ballona Lagoon in the Venice and Marina Del Rey area. To the south, two proposed alignments are near Del Rey Lagoon situated in Playa Del Rey.

VEGETATION

The Ballona Lagoon area supports several coastal vegetative communities including Coastal Salt Marsh, characterized by vegetation that occupies intertidal areas and is periodically inundated by rising tides, Coastal Strand, which is characterized by vegetation typical of upland, beach and dune habitats, and Coastal Sage Scrub, a habitat that includes those species typically found higher, above the Coastal Strand community (Jones, 2003).

Del Rey Lagoon is surrounded by an urban park with manicured landscaping, lawns, a sandy beach, and recreational infrastructure along the southern end of the lagoon on level parkland about 10 feet above the elevation of the lagoon (WRA, 1990). Adjacent to Del Rey Lagoon to the south, between Pacific Avenue and Dockweiler State Beach, are several fenced, vegetated dunes. The dunes support a degraded Southern Dune Scrub habitat dominated by invasive iceplant, and to a lesser extent, native beach evening primrose.

Special-Status Species – For purposes of this EIR, a species is considered "special status" or "sensitive" if it is included in one of the following categories:

- Federal listing as threatened or endangered;
- State listing as rare, threatened, or endangered;
- Proposed for federal or state listing as threatened or endangered;
- Candidates for federal or state listing as threatened or endangered;
- Federal species of concern;
- Protected by the Migratory Bird Treaty Act;
- Designated by the CDFG as a Species of Special Concern; and
- Included in the sixth edition of the California Native Plant Society (CNPS) inventory of rare and endangered plants in California [California Natural Diversity Database (CNDDB), 2005].

Several species of plants or wildlife that occur (or could potentially occur) within Ballona and Del Rey Lagoons are listed by the federal and/or state governments as threatened or endangered. Additionally, some species are listed by government agencies and other entities as being of concern for various reasons. All marine mammals are protected by the Marine Mammal Protection Act, native birds by the Migratory Bird Treaty Act, and endangered plants and animals by the California Endangered Species Act.

Marina Del Rey Area – Sensitive insect species known to occur in the Marina Del Rey area, and that may potentially be found in the project area, include two species of butterflies, the federally listed endangered El Segundo blue butterfly (*Euphilotes battoides allyni)* and the wandering or saltmarsh skipper (*Panoquina errans*). Both butterflies are associated with host plant species that are known to occur in the Ballona Lagoon plant community. Historically three sensitive insect species, Dorothy's El Segundo dune weevil (*Trigonoscuta dorothea dorothea*), Belkin's dune tabanid fly (*Brennania belkini*),

and globose dune beetle (*Coelus globosus*), were reported to occur on the dunes of South Dockweiler State Beach (CNDDB, 2005). Recent occurrence of these species in the area has not been corroborated.

Venice Area – Several species of sensitive native plants were noted in the Ballona Lagoon area, including: red sand-verbena (*Abronia maritima*), southwestern spiny rush (*Juncus acutus ssp. leopoldii*), and woolly sea-blight (*Suaeda taxifolia*), which are sensitive species found in small populations of limited distribution. Three other plants, south coast saltbush (*Atriplex pacifica*), pink sand-verbena (*Abronia umbellata*), and California sea-blight (*Suaeda californica*) are considered to be rare, threatened or endangered in California.

Among avian species, the California least tern occurs in the Project area. It nests in a protected breeding site on North Dockweiler State Beach and feeding in shallow waters throughout the area. The Western snowy plover (*Charadrius alexandrinus nivosus*), another beach nesting species, is known to occur in the Project area in winter, feeding on lower beaches and tidal flats.

Playa Del Rey Area – Summer nesting in the Project area is not reported, but critical nesting habitat designation is proposed for Dockweiler State Beach south of the proposed Project area. Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) requires pickleweed habitat and is known to occur in the Marina Del Rey area. Belding's savannah sparrow could potentially be found foraging in or nesting near Del Rey Lagoon.

5.3.2 Thresholds of Significance

Direct impacts occur when sensitive biological resources are altered or destroyed as a result of project implementation. Examples of such impacts include removal of sensitive vegetation, filling of wetland habitats, or severing or physically restricting the width of wildlife corridors. Other direct impacts may include loss of foraging or nesting habitat and take of federal and state protected plant or animal species. Indirect impacts may occur due to elevated levels of noise or lighting, change in surface water hydrology within a floodplain, and increased erosion or sedimentation. These types of indirect impacts can affect vegetation communities or their potential use by sensitive wildlife species.

The CEQA Guidelines define "significant effect on the environment" as a "substantial, or potentially substantial, adverse change in the environment." The CEQA Guidelines further indicate that there may be a significant effect on biological resources if the project will:

a. Substantially affect an endangered, rare, or threatened species of animal or plant or the habitat of the species;
b. Interfere substantially with the movement of resident or migratory fish or wildlife species to the extent that it adversely affects the population dynamics of the species;
c. Substantially diminish habitat for fish, wildlife, or plants; or
d. Affect a substantial portion of the distribution of plant communities defined as threatened or very threatened by the Nature Conservancy Heritage Program or as designated in the CNDDB maintained by the CDFG.

5.3.3 Impact Analysis

MARINA DEL REY

Marquesas Way/Via Marina Way Alignment – Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

Temporary turbidity in the canal could occur with certain tunneling methods, and turbidity may affect least tern foraging either by reducing local prey availability and/or by compromising visibility of prey in the vicinity. However, in general, tunneling would occur below the bottom of the canal, and tunneling generally has no effect on the surface (Justin Brown, pers. comm.). Thus, no turbidity is expected in the canal near Hurricane and Marquesas Way where tunneling will occur.

VENICE ALIGNMENT

Pacific Avenue Alignment – Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment, although the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow). Since this alignment would be located a minimum of 600 feet from the least tern nesting site, activity at the receptor site would not have any temporary or permanent effects on the nesting site should construction activities occur during nesting season, if proper BMPs are incorporated. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Venice Beach/North Dockweiler Beach Alignment – Temporary impacts to water quality and marine resources could occur along the beach at launching and receiving pits through the unintentional release of sediments and water into the local environment. The cut-and-cover construction method for this alignment, though considered, has been deemed not viable.

Portions of the alignment (between Yawl and Topsail streets) would be located within 200 feet of the least tern nesting site. If any construction activities associated with tunneling occur during the least tern nesting season when terns are present, significant temporary impacts on least terns at the nesting site may result if noisy equipment is used, or if the micro-tunneling and jacking pit and/or receiving pit are within 500 feet of the nesting site. These impacts include noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the nesting site (crows). Construction activities may result in temporary effects on least terns [see Appendix D, Biological Technical Report (Keane,

2005)]. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Channel Crossings – Temporary impacts associated with construction are possible, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the Project area are anticipated for any of the proposed alignment alternatives.

Continuous (Full-Length) Tunnel Alignment Alternatives; Venice Beach/Dockweiler Beach – Temporary impacts to water quality and marine resources at shaft points associated with methane venting along the alignment surface could occur through the unintentional release of excavated sediments and water into the local environment. Potential impact to the least terns exists within 600 feet of the designated least tern nesting area.

Construction Alternatives – Tunneling construction methods have the advantage of reducing impacts by limiting construction activities to the launch and receptor shaft sites, which could be positioned away from sensitive areas, although the construction technique could lead to temporary impacts to water quality and marine resources, which could occur through the unintentional release of excavated sediments and water into the local environment.

MINED TUNNELING/SHAFT LOCATIONS

Alt. 1 – Beach Alignment (Waterview to Hurricane) – Temporary impacts to water quality and marine resources could occur at the #1 starter shaft or #9 receptor shaft locations (mined tunnel Alternative #1), through the unintentional release of excavated sediments and water into the local environment. However, the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

The Dockweiler State Beach #9 receptor shaft is located within 3,000 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Alt. 2 – Beach Alignment (LAX to Hurricane) – Temporary impacts to water quality and marine resources could occur at the #2 starter shaft and #9 receptor shaft locations (mined tunnel Alternative #2), through the unintentional release of excavated sediments and water into the local environment. However, the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

The Dockweiler State Beach #9 receptor shaft is located within 3,000 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent

and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Alt. 3 – Beach Alignment (LAX to VPP) – Temporary impacts to water quality and marine resources could occur at the #2 starter shaft and #10 receptor shaft locations (mined tunnel Alternative #3), through the unintentional release of excavated sediments and water into the local environment. However, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

The Hurricane Street #10 receptor shaft is located within 3,400 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the project area are expected.

Alt. 4 –Inland Alignment (LAX to VPP) – Temporary impacts to water quality and marine resources could occur at the #2 starter shaft and #11 receptor shaft locations (mined tunnel Alternative #4), through the unintentional release of excavated sediments and water into the local environment. However, the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

The Grand Canal #11 receptor shaft is located within 3,600 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the project area are expected.

Other shaft locations which may be used for either method of tunneling are:

62nd Avenue – 62nd Avenue is located 1,800 linear feet from the least tern nesting area and is separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the project area.

The Beach at Hurricane Street – The beach at Hurricane Street is located 3,000 linear feet from the least tern nesting area. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the Project area.

The Beach at Waterview – The beach at Waterview is located 6,600 linear feet from the least tern nesting area and is separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with Project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the project area.

Marquesas Way at Via Marina – Marquesas Way at Via Marina is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the project area.

Hurricane at the Grand Canal – Hurricane at the Grand Canal is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site.

The Beach North of the Marina Entrance Channel – The beach north of the Marina entrance channel is located less than 400 linear feet from the least tern nesting area. Noise and other activities associated with project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from the least tern nesting area. Therefore, the alignment would result in temporary (and no permanent) effects on the nesting site.

The Beach South of the Ballona Creek Channel – The beach south of the Ballona Creek Channel is located 1,800 linear feet from the least tern nesting area and is separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site.

Hurricane at Canal Street (for the tunnel option only) – Hurricane at Canal Street is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

The Dunes at LAX (tunnel option only) – The dunes at LAX (tunnel option only) are located 600 linear feet from the least tern nesting area and are separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the

nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the Project area.

Via Marina at the County Surface Parking Lot – Via Marina at the County surface parking lot is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with Project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Via Marina at Pacific Avenue – The Via Marina at Pacific Avenue is located 600 linear feet from the least tern nesting area. Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

WATER QUALITY

Clean Water Act – The Clean Water Act (CWA) of 1972 was designed to restore and maintain the physical, chemical, and biological integrity of the nation's waters. Sections of the CWA control the discharge of waste and pollutants into aquatic environments. Section 404 of the CWA established a program to regulate dredging and/or filling in U.S. waters. Under Section 404, the USACOE can issue two types of permits: a general permit or an individual permit. The general permit is a type of permit issued to the public at large on a regional or national basis and is only issued when the activities would cause only minimal direct or cumulative impacts. An individual permit is required for an applicant that wishes to conduct activities not already allowed under a general permit.

Rivers and Harbors Appropriations Act of 1899 – The Rivers and Harbors Appropriations Act of 1899 authorizes the USACOE to exercise control over all construction projects in U.S. navigable waters. The Rivers and Harbors Act was originally designed with the intent to protect navigation and navigable capacity. These objectives were later expanded to include environmental protection. The key provision to this Act is Section 13, which makes it a crime to discharge refuse into any navigable water without the permission of the USACOE.

All areas of construction must adhere to the CWA by implementing National Pollutant Discharge Elimination System (NPDES) compliance. The following alternative locations are subject to WQ requirements and may be subject to agency notification or review.

Water quality is discussed here, because it relates to the protection of marine/aquatic species. The following alternative locations are subject to water quality requirements as follows:

Location	Agency	Permit/Requirement	Issues of Concern
All Alignments	Los Angeles County	▪ Geotechnical/Grading/Hauling Permits ▪ Dept. of Beaches and Harbors; Right-of-Entry Permit ▪ ROW/Easements for construction and future maintenance and operations.	▪ Impacts from dewatering, tunneling ▪ Staging areas and additional easement
All Alignments	RWQCB	▪ NPDES Construction SWPPP Permit ▪ 401C Section Certification	Water quality and placement of discharges associated with dewatering activities. No permit required for discharges to sewer. General Permit saves time with RWQCB.
Launch Sections	USACOE	Section 10 or Section 404 Permit required if excavated material discharged to waters and construction permit.	▪ Location, placement and depth of pipeline ▪ Obstruction of navigation or other channel activities ▪ Channel safety ▪ Impacts to wildlife – right-of-entry fauna ▪ Dredging/filling activities
All Alignments	CDFG	1600 et. seq. (Streambed Alteration)	Impacts to fish habitat
All Alignments	CCC	Coastal Development Permit	▪ Obstruction of recreation and beachfront facilities ▪ Impacts to animal species and habitat ▪ Impacts to parking and traffic
N/A	California State Lands	Possible lease requirement	Verification of jurisdiction
All Alignments	National Marine Fisheries Service		Impacts to aquatic and marine life
All Alignments from Vista Del Mar and Northward	California Department of Conservation, Division of Oil, Gas and Geothermal Resources	A construction notification form should be submitted to the Division prior to any activity.	Project is inside administrative bounds of the Playa Del Rey Oil Field containing numerous plugged and abandoned oil wells.
All Alignments	State of California Department of Health Services	Project Review for compliance with Title 22, Section 64630 (Conducted through County Environmental Services Division)	Separation of water and sewer mains
All Alignments	USFWS		Impacts to habitat (i.e., least tern)

Source: LUPIN Website, LA County Website, CERES, Website, 2005

5.3.4 Mitigation Measures

The following mitigation measures are expected to reduce the proposed Project's potential significant adverse impacts to biological resources to less than significant levels:

BIO-1 If the Venice Beach/Dockweiler Beach alignment is selected and construction is to be above-ground, or if tunneling is used and the jacking and/or receiving pit is within 500 feet of the nesting site, and any construction activities are to occur during the least tern nesting season (April 1 through August 31), a qualified and experienced biological monitor shall be present during all construction activities within 500 feet of the nesting site to ensure that construction activities do not adversely affect least terns using the nesting site. In addition, the monitors will ensure that work crews properly dispose of all

garbage in covered containers so that work crews do not attract predators (such as crows) into the area and thus contribute indirectly to depredation of least tern eggs and chicks.

BIO-2 Construction of any of the alternative alignments includes tunneling under the Marina Del Rey Channel and Ballona Creek, and the Marquesas Way alignment includes tunneling under the Grand Canal. All of these waterways have been documented as foraging habitat for the least tern. If any tunneling activities are to occur during the least tern nesting season (April 1 through August 31), a water quality specialist or biological monitor shall conduct surveys at tunneling access shaft locations at a minimum of once daily to ensure that tunneling does not increase water turbidity. If any turbidity is discovered in these areas, the tunneling activities shall cease until the leak from the tunnel that is resulting in turbidity is repaired.

BIO-3 Existing and potential values in environmentally sensitive habitat areas shall be protected, enhanced, and where feasible, restored. If any habitat and of marine resources are disturbed, in accordance with the City of Venice LUP and Local Coastal Program (LCP), ESHAs would be restored as necessary to previous undisturbed condition. Marine resources shall be maintained, enhanced, and restored, as necessary.

5.3.5 Unavoidable Adverse Impacts

If the avoidance and minimization measures described in this EIR are implemented successfully, no unavoidable adverse impacts on biological resources are expected as a result of the proposed Project.

5.3.6 Cumulative and Secondary Impacts

No significant cumulative impacts have been identified to biological resources or habitats in the Project area. Assuming the avoidance and minimization measures above are implemented successfully, the project would not contribute to cumulative adverse effects on least terns in southern California or result in secondary impacts on least terns, least tern nesting sites or least tern foraging habitat. There are no other known projects in the vicinity of the proposed project that, when considered together, would result in significant adverse impacts to the wildlife and habitats in the Marina Del Rey area.

5.4 CIRCULATION, TRAFFIC AND TRANSPORTATION

5.4.1 Environmental Setting

EXISTING STREET SYSTEM

The regional freeway and highway system serving the project alignment area is depicted in Figure 5.4-1. Primary regional access to the project site is provided by the Marina Freeway (SR 90), the San Diego Freeway (I-405), the Santa Monica Freeway (I-10) and the Glenn M. Anderson Freeway (I-105). SR 90 runs northeast of the VPP site along a diagonal east of Marina Del Rey. Access to the site from SR 90 can be obtained from Admiralty Way or Lincoln Boulevard. I-10 runs in an east/west direction in the northern portion of the study area approximately 4 miles north of the Ballona Creek, and I-105 runs east/west about 3 miles south of the Ballona Creek. Both I-10 and I-105 connect with I-405 to the north and south, respectively.

The main streets carrying project-related construction traffic (both worker trips and truck trips) to the construction pits or zones would be:

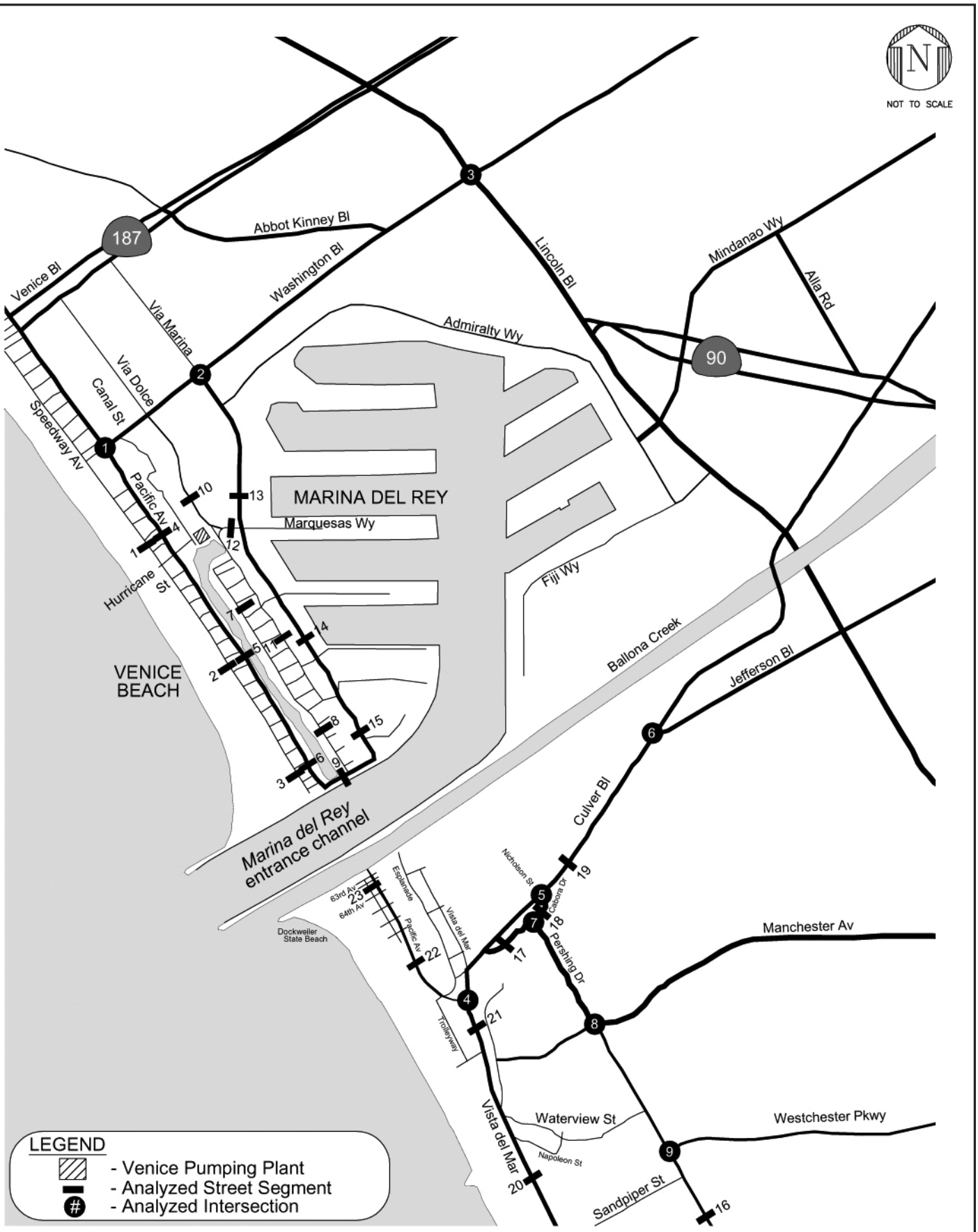
Venice and Marina Del Rey Areas – Lincoln Boulevard (SR 1), Washington Boulevard, Venice Boulevard (SR 187), Via Marina, Via Dolce, Pacific Avenue, and Hurricane Street adjacent to the VPP.

Westchester/Playa Del Rey Areas - Vista Del Mar, Culver Boulevard, Jefferson Boulevard, Pershing Drive, Westchester Parkway, Manchester Avenue, and Pacific Avenue.

These secondary highways, collectors and selected local streets in the project's study area offer sub-regional and local access and circulation opportunities. These facilities generally provide two to four travel lanes and allow parking on one side of the street. The physical characteristics and functional classifications for the above key streets in the project alignment area are summarized in Appendix E of this EIR. In addition, an inventory of the existing on-street parking supply along Pacific Avenue in the vicinity of the VPP and along the project alternative alignments both north and south of the Ballona Creek/Marina Del Rey Channels can also be found in Appendix E.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

Twenty-three roadway segments and nine intersections in the vicinity of project alignment alternatives were analyzed in the project study area. New daily roadway traffic machine counts and morning and afternoon intersection peak hour traffic volumes (the highest 1-hour period between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m.) were conducted in July 2005 and are included in Appendix E. The volume-to-capacity (V/C) ratio and corresponding LOS of each segment was calculated. A capacity of 800 vehicles per lane per hour (vplph) was used on Major Arterials (Class II), 750 vplph for secondary arterials, 650 vplph for collectors, 600 vplph for local streets. In accordance with Los Angeles Department of Transportation (LADOT) practices, a 7 percent increase in capacity was assumed on major and secondary street segments to reflect the benefits of the existing Automated Traffic Surveillance and Control (ATSAC) system. Detailed assessment of the existing operating conditions at these 23 roadway segments and the LOS definitions for roadway segments are included in Appendix E. All but two of the 23 analyzed directional street segments in the project study area are currently operating at LOS D or better during morning and afternoon peak hours, the exceptions being Nicholson Street between Culver Boulevard and Pershing Drive, and Culver Boulevard east of Nicholson Street in the Playa Vista area south of the Ballona Creek (#5 and #6, respectively, in Figure 5.4-1).



REGIONAL FREEWAY AND HIGHWAY SYSTEM

Project No.: 29401783	Date: DECEMBER 2005	Project: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT	Figure 5.4-1

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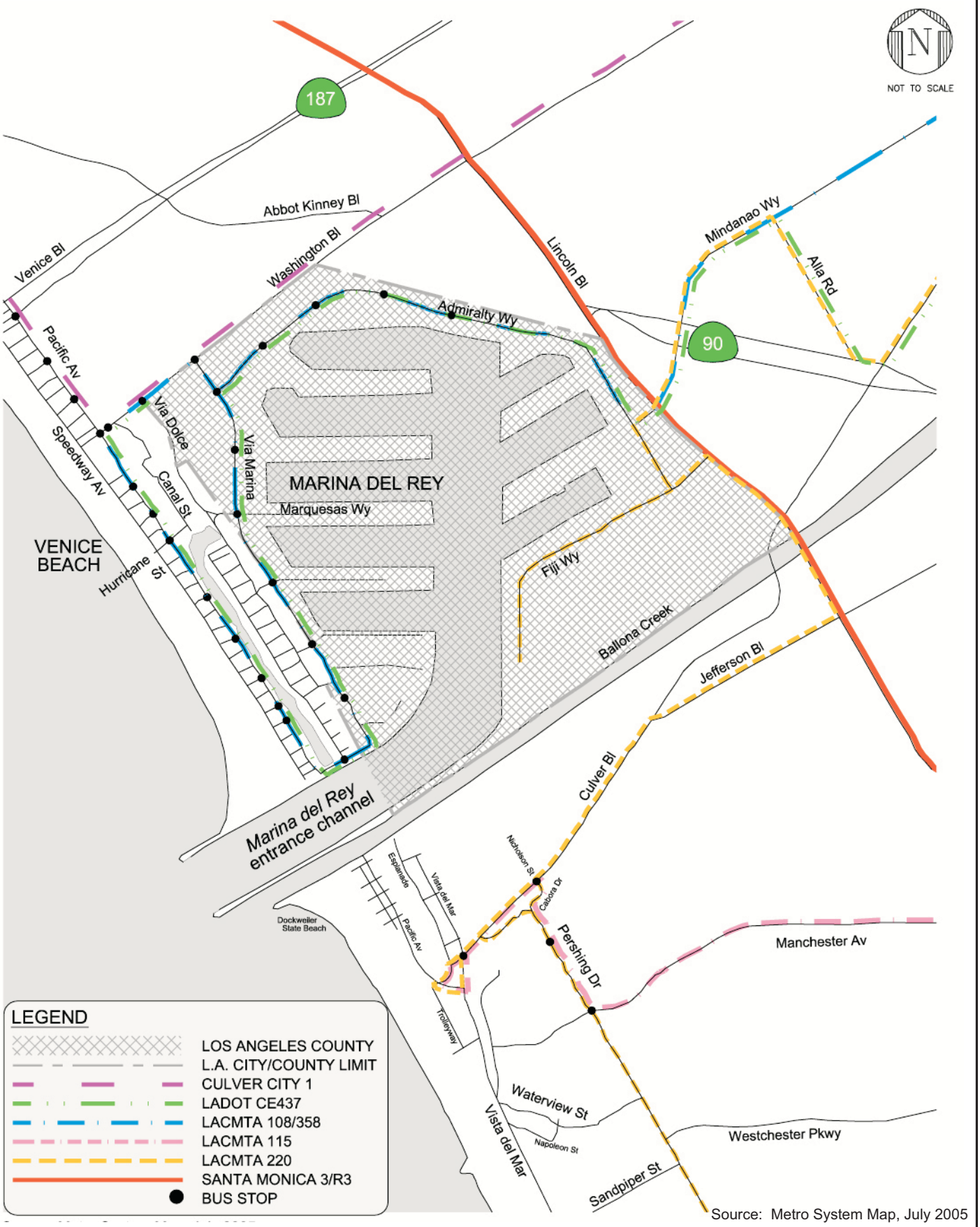
Of the nine analyzed intersections, three are located in the Marina Del Rey area and six are located south of the Ballona Creek. Seven intersections are currently controlled by traffic signals. The intersections of Vista Del Mar/Pacific Avenue and Pershing Drive/Cabora Drive are stop-controlled intersections. In accordance with LADOT procedures, the "Critical Movement Analysis-Planning" (Transportation Research Board, 1980) method of intersection capacity analysis was used to determine the intersection V/C ratio and corresponding LOS for the turning movements and intersection characteristics at the seven signalized study intersections. The Computer Assisted Level of Service Calculations and Database (CALCADB) software developed by LADOT was used to implement the Critical Movement Analysis (CMA) methodology. The ranges of V/C ratios and corresponding LOS for signalized intersections are included in Appendix E. The "Two-Way Stop Controlled" methodology and the "All-Way Stop Controlled" methodology from the 2000 Highway Capacity Manual were used to determine the average vehicle delay (in seconds) and the corresponding LOS for the two stop-controlled study intersections. The LOS definitions for the stop-controlled intersections are included in Appendix E. Detailed assessment of the existing operating conditions at the nine intersections, including the V/C ratio or delay (in seconds) and corresponding LOS at each of the study intersections during the morning and afternoon peak hour can be found in Appendix E. Six of the nine analyzed intersections currently operate at acceptable levels of service (LOS D or better) during both peak periods. The exceptions are the two signalized intersections of Lincoln Boulevard/Washington Boulevard and Pershing Drive/Nicholson Street/Culver Boulevard, and the stop-controlled intersection of Pershing Drive/Cabora Drive.

EXISTING TRANSIT SYSTEM

Public transit services operating in the Marina Del Rey and Playa Del Rey area include the Los Angeles County Metropolitan Transportation Authority (MTA) system, Los Angeles Department of Transportation Commuter Express (CE), Culver City Bus, and the Santa Monica City Big Blue Bus. The routes that serve the Project area are shown in Figure 5.4-2. Bus routes and their frequencies during the morning (7-9 a.m.) and afternoon (4-6 p.m.) peak periods are detailed as follows:

Line 108 – Line 108 is a local east/west line that travels from Pico Rivera to Marina Del Rey. Limited-stop Line 358 travels during the peak hours. These lines run primarily along Slauson Avenue and serve the Metro Blue Line Slauson Station and the Westfield Shoppingtown Fox Hills Transit Center. They travel along Centinela Avenue, Mindanao Way, Admiralty Way, Via Marina, Pacific Avenue, and Washington Boulevard. Both lines have stops on Via Marina and Pacific Avenue adjacent to the project area. Line 358 has an average a.m. and p.m. peak hour headway of 25 minutes, whereas Line 108 provides average midday headway of 40 minutes.

Line 115 is an east/west local line that travels primarily along Manchester Boulevard and Firestone Boulevard connecting Playa Del Rey and Norwalk and serves the Metro Blue Line Firestone Station and Metro Green Line I-105/I-605 Station. In the vicinity of the Project, this line travels along Manchester Avenue and serves a loop route starting from Pershing Drive, Culver Boulevard, Pacific Avenue, Vista Del Mar, and returning back to Pershing Drive. Line 115 has average a.m. and p.m. peak hour headways of 30 minutes and 40 minutes.



Source: Metro System Map, July 2005

EXISTING TRANSIT SYSTEM

Project No.: 29401783	Date: DECEMBER 2005	Project: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT	Figure 5.4-2

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Line 220 – Line 220 is a north/south local service that travels along Robertson Boulevard, Culver Boulevard, Pershing Drive, and Imperial Highway, connecting West Hollywood and LAX. In the vicinity of the Project, this line serves a loop route starting from Culver Boulevard, Esplanade, Pacific Avenue, Convoy Street and returning back to Culver Boulevard. Line 220 has an average headway of 60 minutes throughout the day.

LADOT CE 437 – This LADOT commuter express line serves the communities of Venice, Marina Del Rey, Mar Vista, and Culver City and travels along Santa Monica Freeway (I-10) to connect them with downtown Los Angeles. In the vicinity of the project, this line travels along Admiralty Way and Via Marina and terminates at Pacific Avenue and Washington Boulevard. This line provides average a.m. and p.m. peak hour headways of 25 minutes and 30 minutes.

Culver City Line 1 – This Culver City Bus line travels primarily along Washington Boulevard and Pacific Avenue, and connects the Venice Beach area, Culver City area, and West Los Angeles transit center. In the vicinity of the Project, this line has stops at Washington Boulevard and Pacific Avenue, with 15-minute headways throughout the day.

Santa Monica Line 3/Rapid 3 – Santa Monica Line 3/Rapid 8 travel primarily along Lincoln Boulevard and connect Santa Monica, Marina Del Rey and LAX. Line 3 provides a 10-minute headway throughout the day, and Rapid 3 provides additional limited-stop service during peak hours.

NON-MOTORIZED TRANSPORTATION

Biking and walking are non-motorized transportation modes that typically serve shorter trips than do motorized travel modes. In the VPP area, bikeways facilitate and encourage this mode of non-motorized transportation. According to LADOT, Class I bikeways are separate off-street paths, Class II bikeways are striped lanes within streets, and Class III bikeways are signed bicycle routes. The existing bicycle network in the vicinity of the project area is depicted in Appendix E. Pedestrian access at and near public transit, in local commercial and residential areas is facilitated by sidewalks, which are present on most streets.

5.4.2 Thresholds of Significance

The *Draft Los Angeles CEQA Thresholds Guide* presents traffic impact significance thresholds applicable to projects in the City's jurisdiction. Relevant thresholds are discussed below. The impact analysis discussion will address each pipeline alignment alternative's effects with respect to each of these thresholds.

TRA-1: A significant impact would occur if the project would permanently increase the V/C ratio of applicable intersections or street segments beyond the limits established by the City of Los Angeles, including the V/C ratio along Congestion Management Program (CMP) designated roads. The City has established operational traffic impact criteria for the assessment of potential impacts of a project on the local street system after completion and during operation. Those operational standards indicate that a project is considered to have a significant traffic impact if the increase in V/C ratio attributed to the project exceeds a specific threshold for each level of service (see Appendix E for the definitions of level of service for signalized intersections and for unsignalized intersections).

A sliding scale has been established under which the maximum allowable increase in the V/C ratio decreases as the V/C ratio increases using the following scale:

V/C Ratio with Project Traffic	Maximum Allowable Increase in V/C Ratio
0.701 to 0.800 (LOS C)	<0.040
0.801 to 0.900 (LOS D)	<0.020
0.901 or greater (LOS E or LOS F)	<0.010

Using these criteria, a project would not have a significant impact at an analyzed intersection if it were operating at LOS A or B after the addition of project operational traffic. Also, a project would not have a significant impact on an analyzed intersection if it were operating at LOS C and the incremental change in the V/C ratio were less than 0.04, or if it were operating at LOS D and the incremental change in the V/C ratio were less than 0.02. If the location were operating at LOS E or F after the addition of project operational traffic and the incremental change in the V/C ratio were greater than or equal to 0.01, a project would be considered to have a significant impact.

In addition, based upon discussions with the City staff, the following threshold criteria, set forth in the Draft L.A. CEQA Threshold Guide (City of Los Angeles, 1998) are used to determine if a project has an impact at a specific roadway segment for the roadway link-level analysis:

A proposed project would normally have a significant street segment capacity impact if proposed traffic causes an increase in the V/C ratio on the street segment operating condition after the addition of project traffic equal or greater than the following:

- V/C ratio increase > 0.080 if final LOS is C
- V/C ratio increase > 0.040 if final LOS is D
- V/C ratio increase > 0.020 if final LOS is E or F

Final LOS is defined as projected future conditions including project, ambient, and related project growth but without project traffic mitigation.

Although the methodologies and the criteria to calculate V/C ratios for intersections and segments are intended by LADOT to identify potential traffic impacts during operation, they can also be applied to construction. During project construction, however, LADOT considers such impacts as adverse but not significant since, while they introduce inconvenience for vehicular traffic, those impacts are only temporary. Where determinations of adverse impacts are made, motorists would experience inconveniences that range in intensity from slight to substantial.

TRA-2: The project would be considered to have a significant impact if it were to result in bicycle, pedestrian, or vehicular safety hazards, or if it results in the permanent removal of designated bike lanes or access points to public transportation.

TRA-3: The project would have a significant impact if it were to permanently eliminate a substantial amount of on-street or off-street parking.

5.4.3 Environmental Impacts

This section provides an assessment of the potential transportation impacts and effects associated with each project alternative, including both motorized and non-motorized transportation. The methodology used to assess these impacts and a discussion of the regulatory framework is provided. The significance of impacts is analyzed for each of the alternatives and the No Project alternative. Mitigation to reduce the impacts associated with each alternative is provided where applicable.

The City of Los Angeles regulations for the following are discussed below:

1. Significance of construction-related activities;
2. Designated truck routes and hours;
3. Noise restrictions due to construction and excavation activities; and
4. Construction clearance requirements.

The City of Los Angeles considers construction-related traffic effects adverse but not significant impacts because such effects, while sometimes inconvenient, are only temporary. Because of this, construction-related traffic effects are discussed but are not considered to be significant. Additionally, the City of Los Angeles requires implementation of Worksite Traffic Control Plans to ensure that any construction-related effects are minimized to the greatest extent possible. The City of Los Angeles allows major and secondary arterials to be used as truck routes. Some local streets, however, have weight limitations or restrictions that limit truck traffic. Typically, trucks would not travel on these streets except to obtain access to a specific site. The City of Los Angeles' policy is to allow trucks to travel in a "reasonable fashion" to and from a work site. The City of Los Angeles reviews each haul-route permit for specific application of its general guidelines.

The new Mayoral Executive Directive No. CP AV-1 (dated August 12, 2005) formalizes the prohibition on rush hour construction by any city department agency on major roads from 6:00 a.m. to 9 a.m., and 3:30 p.m. to 7:00 p.m. In recognition of the priority need to protect public health and safety, it is the intent of the Mayoral Executive Directive that construction activities related to emergency maintenance and repair are exempted from the rush hour construction ban, and formal traffic mitigation plans shall be required for projects that receive exemptions. Since the VPP is not related to emergency maintenance or repair, project construction activities are not exempted from the Mayoral Directive Executive.

The City of Los Angeles restricts the speed limit to 25 mph in construction areas. The City of Los Angeles' construction clearance requirements are as follows:

- Five-foot clearance between a traffic lane and the nearest vertical obstruction is required. This can be reduced to 3 feet with the approval of the City.
- Two-foot clearance to a raised curb is required. This can be reduced to zero with the approval of the City.
- A minimum 10-foot-wide traffic lane must be maintained through construction zones.

The minimum taper requirement for channeling traffic flow lanes is 25:1 to 30:1. Factors such as speed and type of facility, location and other geometric characteristics of the specific roadway under construction will dictate the actual taper ratio.

5.4.3.1 Future Cumulative Base Conditions

Future cumulative conditions during construction were evaluated for all street segments where in-street construction activities associated with Project alignment alternatives analyzed could result in temporary lane closures. These locations lie along the alignments under consideration for different construction methods. Although the Project would occur in several stages, it has been assumed that construction specified at all sites would be performed at any given time between the start and the end of construction (2008 – 2010 with the Pacific Avenue, Via Marina/Marquesas Way roadway alignments and 2008 – 2011 with the beach alignment). Therefore, to be conservative, all roadway segments and intersections in the vicinity of VPP Project area were evaluated for the future year 2011, which corresponds to the Draft EIR construction timeframe. The street and intersection improvements within the study that are programmed for implementation by 2011 are identified in Appendix E and were assumed in the analysis of future conditions.

An application of one percent per year growth factor was used to estimate total ambient growth to 2011. In addition, information was obtained from LADOT, Culver City and the Los Angeles County Department of Regional Planning and Department of Public Works Bureau of Engineering regarding known approved or planned development projects within a 2-mile radius of the project area. A list of these 10 projects and the estimated trip generation of each and the locations of these projects are illustrated in Appendix E. These related project volumes were then added to the existing traffic volumes after the adjustment for area-wide growth to represent cumulative base conditions (i.e., future conditions without the proposed project), and were analyzed to determine the projected V/C ratios and LOSs for the 23 study segments and nine intersections. Future cumulative base volumes, which represent future no project traffic conditions at the nine analyzed intersections, and the detailed level of service analysis results for the nine study intersections and the 23 roadway segments can be found in Appendix E. It is projected that the same five intersections and the 21 roadway segments that operate at LOS D or better under the existing conditions would continue to operate at LOS D or better under future cumulative base conditions.

5.4.3.2 Construction Assumptions

Trip generation estimates that were prepared for each Project alignment alternative estimate for construction phases were based upon projected staffing and truck activity levels. Future traffic conditions on these roadway segments prior to construction of the Project alignment alternatives, and the changes related to construction activities (additional vehicular traffic and reduction of roadway capacity due to the project), if any, at each of the worksites were evaluated to identify adverse impacts. This traffic analysis represents a worst-case scenario in that it considers the upper bounds of impacts likely to be experienced on the street system in the immediate vicinity of each site where in-street construction activities could result in temporary lane closures and loss of on-street parking at nearby locations.

The development of traffic generation estimates for the proposed Project involves the use of a three-step process similar to that discussed above for the cumulative projects, including traffic generation, trip distribution, and traffic assignment. It was assumed that approximately 40 to 50 feet of cut-and-cover section would be excavated per day with a maximum depth of 12 feet and a maximum width of 8 feet. The City's Wastewater Master Specifications (Section 02200 Earthwork, 3.3.C) states *"the maximum amount of open trench permitted in any one location shall be 500 feet or the*

length necessary to accommodate the amount of pipe installed in a single day, whichever is greater." The construction zone for the proposed Project would include approximately 1,000 feet of roadway during the 3-week cycle, as it is more feasible and cost effective to schedule asphalt paving every 3 weeks rather than every week. The construction zone would also be fully backfilled at the end of each day or be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations, as required by the Wastewater Specifications.

A construction zone of 1,000 feet would include approximately four blocks of Pacific Avenue on the north side of the channel. During construction, one-way traffic would be maintained along the west side of Pacific Avenue (southbound movement), controlled by using the small one-way speedway that runs parallel to and west of Pacific Avenue. Work on the south side of the channel on Pacific Avenue and Vista Del Mar would be performed in a similar manner, but the traffic control would be different since there is only a short segment of Speedway Avenue to provide additional access. It appears appropriate to assume, therefore, that no more than one travel lane would be blocked on any street segment at any time, including the clear area beside the actual trench. Although the Project may occur in several stages, it has been assumed for the purpose of this analysis that construction specified at all sites would be performed at any given time between the start and end of construction (2008 – 2010 for the roadway alignments and 2008 – 2011 for the beach alignment). The construction activities are anticipated to occur simultaneously at two locations as a worst-case scenario.

It is assumed that up to two locations, a tunnel-boring operation near Hurricane Street and one trenched segment north of the channel or a tunnel-boring operation south of the channel and one trenched segment south of the channel could be in active construction at once. Traffic impacts associated with the three north and the two south alignments were evaluated. It is assumed that two independent construction teams would be involved, one for each of the two construction techniques. One construction team would be responsible for a 1,800-foot tunnel-boring construction section that crosses beneath the Marina entrance and Ballona Creek channels and, if necessary, beneath the Grand Canal near Hurricane Street. Elsewhere along each alignment totaling approximately 8,200 to 8,600 feet, open-trench technique, as performed by a second construction team, is assumed.

A list of equipment required for the open-trench and the tunnel-boring construction teams was obtained from the project team. As shown in Table 5.4-1, the total equipment (number and type of equipment) required for both construction techniques and for each construction segment section at any given time is approximately 22 vehicles for open-trench and 13 vehicles for tunnel-boring. The number of construction workers required for both techniques during each construction section was derived based on the estimated ratio of construction workers to equipment or supplies on site. The ratio of construction workers needed per piece of equipment was obtained from previous traffic studies for similar projects. Ratios range from 0.8 (minimum) to 1.3 (maximum) workers per piece of equipment.

Table 5.4-1 Derivation of Project Trip Generation Estimates

Part A. Equipment Required during Open-Trench for the Large Sewers			Part B. Equipment Required during Tunnel-Boring			Part C. Equipment Required during Large (Mined) Tunneling	
Equipment	**Horsepower**	**Approximate Number Required**	**Equipment**	**Horsepower**	**Approximate Number Required**	**Equipment**	**Approximate Number Required**
Concrete Saw	56	1	Hydraulic Jack	90	1	12 feet O.D. EPB TBM complete with trailing gear, segment, erector	1
Pavement Breaker	100	1	Crane	300	1	Diesel Locomotives	3 (includes 1 spare)
Pile Driver	100	1	Generator/Air Compressor	45	5	Five-cy Lift-off Muck Cars	12 (includes 2 spares)
Excavator	360	1	Slurry Settling Tank	0	1	Segment Cars	3
Rubber Tire Loader	110	1	Slurry Pump	0	1	100-hp fans	3 (1 spare)
Crane	300	2	Control Trailer	0	1	24 inch fanline (sufficient to construct the tunnel and vent up the shafts)	1
Backhoe loader/Compactor	100	1	Tunneling Machine	0	1	160+/- ton Crane (to lift/set TBM and hoist muck cars)	1
Generator/Compressor	45	1	Supply Truck	300	1	35 ton RT Crane (to handle segments and load segment cars)	1
Soil Compactor	100	1	Haul Truck/Cement Truck	0	1	4-cy FEL (to remove tunnel muck, load trucks, tic)	1
Asphalt Paver	102	1				Office facilities, change houses, electrical substations, and related equipment (standby generator for pumps)	N/A
Sweeper	97	1				Pumping system with sump and shaft pumps and stand-by units	N/A
Power Tools	N/A	N/A				Rail, ties, water, discharge lines	N/A
Water Truck	92	1				Electrical cable to power TBM and for lights, etc.	
Supply Truck	300	1				Transformers for fans, pumping, lighting	
Haul Truck/Dumper	300	8				Pipe jumbo or carrier for setting carrier pipe into tunnel once mining is complete	
						Small or midsize compressor for air supply	
Total # of Equipment		***22***	***Total # of Equipment***		***13***	***Total # of Equipment***	***N/A***
Minimum Workers on Site [a]		**17**	**Minimum Workers on Site [a]**		**10**		
Maximum Workers on Site [a]		**28**	**Maximum Workers on Site [a]**		**17**	**Crew Size on Site [f]**	**25**
Required Truck Loads Per Day for Muck Removal [b]		**10**	**Required Truck Loads Per Day for Muck Removal [d]**		**6**	**Required Truck Loads Per Day for Muck Removal [f]**	**15**
Required Truck Loads Per Day for supply [c]		**5**	**Required Truck Loads Per Day for Supply [e]**		**2**	**Required Truck Loads Per Day for Supply [f]**	**3**

Note:

[a] The required ratios of number of workers versus number of total equipment are assumed to be 0.8 (minimum) and 1.3 (maximum).

[b] Muck removal per day (1.5 bulking, 50% removed, 50% re-used): 1.5 bulking x 50% x 8 feet x 12 feet x 40 feet /27 = 106 cubic yards. Assuming truck load capacity of 10 cubic yards per truck, a total of 10 trucks loads per day would be required.

[c] Required truck loads per day for material supply (pipes, concrete, sheetpiles, etc.) assumed five truck loads per day.

[d] Muck removal per day (1.5 bulking, 100% removed): 1.5 bulking x 40 feet x 6 feet x 6 feet x 3.14 /4 /27 = 63 cubic yards. Assuming truck load capacity of 10 cubic yards per truck, a total of six trucks loads per day would be required. Required truck loads per day for material supply (bentonite, miscellaneous, etc.) assumed two truck loads per day. Therefore, a total of 8 truck round trips per day were estimated during the tunneling construction.

[e] Required truck loads per day for material supply (bentonite, miscellaneous, etc) assumed two truck loads per day.

*[f] A crew of about 20 to 25 would be required for constructing the large tunnel. Assuming an advance rate of 24 feet/8 hour shift, muck removal for a 12-foot-diameter tunnel per day: 1.5 bulking*36*3.14*24/27 = 151 cubic yards. Assuming truck load capacity of 10 cubic yards per truck, a total of 15 truck round trips per mining shift for mucking. Required trucks trips for material supplies assumed three truck round trips per mining shift per day. Therefore, a total of 18 truck round trips per mining shift per day were estimated during the large (mined) tunneling construction.*

Source: Required truck loads were prepared by URS Corporation staff based on the (peak) production rate of 40 feet per day given the prohibition of in-street construction between 6-9 a.m. and 3:30 – 7 p.m. (August 22, 2005).

As indicated, the peak estimate for daily commute workers due to the proposed Project is approximately 28 construction workers for the open-trench method and 17 construction workers for the tunnel-boring method. With the moderate construction speed of 40 feet per day due to the mayoral construction rush hour prohibition, the required number of delivery truckloads for materials and supplies was estimated at five truckloads per day for the open-trench and two truckloads per day for the tunnel-boring. The number of required truckloads for muck removal was estimated at 10 truck round trips per day for the open-trench, and 6 truck round trips per day for the tunnel-boring methods. Therefore, approximately 15 truck round trips and 28 construction workers would be needed for each construction section on a daily basis if the open-trench method was implemented. Approximately 17 construction workers and 8 trucks (or 2 trucks if no muck removal is required) were estimated for the underwater construction section beneath the two channels on a daily basis.

Using open-trench construction as the basis of comparison, approximately 30 one-way truck trips would be generated for each construction section if 15 truckloads would be needed on a daily basis. The 30 daily one-way truck trips were then converted with a passenger car equivalent (PCE) of 2.5 to 75 vehicle trips since trucks create a greater impact on the capacity of intersections than typical automobiles. Considering the Mayoral Directive limiting on-street construction work hours, all of the truck trips related to the VPP Project should only operate from 9:00 a.m. to 3:30 p.m. (6.5-hour workday). It is also assumed that the workers would be allowed to arrive before 9 a.m. and leave after 3:30 p.m., so the workers would be ready to start construction work at 9 a.m. sharp and stop at 3:30 p.m. The only exception would be the construction truck operations on the beach shafts during the full-length large (mined) alternatives, so that during the most intense construction period, 100 percent of the construction workers and 10 percent of truck trips at each site would arrive or depart during the peak hours of adjacent street traffic. Therefore, none of the estimated 75 PCE daily truck trips would occur during the morning and afternoon peak hour if the open-trench method were implemented on the street. However, all 28 construction workers would arrive during the morning peak hour and leave during the afternoon peak hour. As for the tunnel-boring, using the same trip generation methodology described above, approximately 10 total daily truck trips (in PCE) would occur for the underwater sewer section, none of which would arrive and leave during the morning or afternoon peak hour. In addition, 17 construction workers were estimated to be on the site for the same section, which would generate a total of 34 daily trips (17 inbound trips during the morning and 17 outbound trips during the afternoon peak hour).

The four large-diameter tunneling alternatives with short cut-and-cover segments were evaluated separately. For these alternatives, a receiving shaft location would be located on the beach west of Hurricane Street and a launch shaft would be located either on the beach or on LAX property at the southern end of the alignment. During the most intense phase of tunnel construction, there would be a 25-person crew on site per shift, generating 15 truckloads of soil per day and three supply truck trips per typical day. Since the majority of the large tunnel construction would occur on the beach shaft site off the street or outside of the residential area either east or west of Vista Del Mar, it is assumed that construction truck trips that travel to and from the large tunnel construction shafts would not be affected by the Mayoral Directive on construction hour prohibition. Assuming the same equipment and crew for the open-trench method would apply for the cut-and-cover segments, it is assumed that approximately 15 truck round trips and 28 construction workers would be needed at the cut-and-cover section on a daily basis.

The above trip generation estimates were derived assuming the presence of two independent construction groups for each of the two different construction techniques. As the worst-case scenario, it was assumed that the entire alignment would be constructed simultaneously by two teams of construction workers. Estimated worker trips and truck trips generated by each construction method were added accordingly, as shown in Table 5.4-2.

The geographic distribution of the traffic generated by each of the Project build alignments depends on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the construction workers are drawn, the locations of the construction material suppliers and soil dump sites, and the locations of the shaft sites in relation to their surrounding street systems and available access to the regional freeway system. The generalized regional trip distribution applied in the analysis for construction workers is approximately 35 percent to and from the north, 35 percent to and from the south, 30 percent to and from the east, and negligible traffic to and from the west. The generalized trip distribution applied in the analysis for construction truck trips is approximately 35 percent to and from the northwest and 65 percent to and from the southeast. As the construction material suppliers of concrete and gravel and soil dump sites are located through Los Angeles and Orange counties, all truck deliveries would travel on the regional freeway networks and connect to the construction sites from the adjacent freeway ramps. Most of the construction workers would travel on the regional freeway network, while some portion of them would arrive from the local street network. Given the difference between the distribution of construction workers and that of truck trips, specific distribution patterns for each of the Project build alternative alignments were developed for both the construction worker commute trips and the truck delivery trips. The traffic expected to be generated by each of the project alignment alternatives, given concurrent construction activities as shown in Table 5.4-2, was assigned to the street network based on with the application of the generalized trip distribution. The assignment of construction traffic for each of the 10 project alignment alternatives is included in Appendix E, including the six combinations of alignments utilizing the open-trench method and the tunnel-boring method and the four larger full-length tunnel alternative alignments.

The project-generated construction traffic volumes were added to the cumulative base traffic projections, resulting in the Projected cumulative plus project a.m. and p.m. peak hour traffic volumes. These cumulative plus project volumes represent projected future weekday peak hour traffic conditions, including the presence of the construction traffic. The Project-generated construction traffic volumes on the 23 analyzed roadways and the resulting projected cumulative plus Project peak hour link volumes are included in Appendix E.

5.4.3.3 Project Impacts

The construction-period impacts for each of the build alternatives are assessed in this section. This analysis includes general traffic impacts caused by construction traffic and reduction of roadway segment capacities, if any, and localized impacts related to access, pedestrian movement, bus routes and stops, and on- and off-street parking in the vicinity of each of the construction sites.

Table 5.4-2 Project Trip Generation Estimates

Activities	Trip Types	Required Quantity	TRIP GENERATION ESTIMATES [a]						
			Daily	a.m. Peak Hour			p.m. Peak Hour		
			Trips	In	Out	Total	In	Out	Total
North Portion: Dockweiler Beach Alignment & Pacific Avenue Alignment									
Open-Trench	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	168	28	0	28	0	28	28
		Subtotal	*243*	*28*	*0*	*28*	*0*	*28*	*28*
Tunnel-boring Construction (one-time TBM removal from receiving shaft; no muck removal during tunneling)	Truck Deliveries	2 truckloads per day [b]	10	0	0	0	0	0	0
	Construction Workers	17 workers on site per day	34	17	0	17	0	17	17
		Subtotal	*44*	*17*	*0*	*17*	*0*	*17*	*17*
		Total	287	45	0	45	0	45	45
North Portion: Marquesas Way/Via Marina Alignment									
Open-Trench	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	56	28	0	28	0	28	28
		Subtotal	*131*	*28*	*0*	*28*	*0*	*28*	*28*
Muck removal from one jacking shaft during tunneling across Grand Channel (one-time TBM removal from receiving shafts; no muck removal during tunneling)	Truck Deliveries	8 truckloads per day [b]	40	0	0	0	0	0	0
	Construction Workers	17 workers on site per day	34	17	0	17	0	17	17
		Subtotal	*74*	*17*	*0*	*17*	*0*	*17*	*17*
		Total	205	45	0	45	0	45	45
South Portion: South Pacific Avenue/Vista Del Mar Alignment and South Dockweiler Beach and Pacific Avenue Alignment									
Open-Trench Construction	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	56	28	0	28	0	28	28
		Subtotal	*131*	*28*	*0*	*28*	*0*	*28*	*28*
Tunnel-Boring Construction (with muck removal from one jacking shaft during tunneling across marina)	Truck Deliveries	8 truckloads per day [c]	40	0	0	0	0	0	0
	Construction Workers	17 workers on site per day	34	17	0	17	0	17	17
		Subtotal	*74*	*17*	*0*	*17*	*0*	*17*	*17*
		Total	205	45	0	45	0	45	45
Full-length Large Diameter Tunnel Alignments									
Short Cut-and-Cover [e]	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	56	28	0	28	0	28	28
		Subtotal	*131*	*28*	*0*	*28*	*0*	*28*	*28*
Large-Diameter Tunneling	Truck Deliveries	18 truckloads per day [d]	90	9	9	18	9	9	18
	Construction Workers	25 workers per shift on site per day (1 shift per day) [d]	50	25	0	25	0	25	25
		Subtotal	*140*	*34*	*9*	*43*	*9*	*34*	*43*
		Total	271	62	9	71	9	62	71

Note:

*[a] Truck trip assumes 2.5 passenger car equivalent (PCE). Daily truck trips = required daily truckloads *2 trips per truckloads. Except the off-street full-length large (mined) diameter Tunnel alignment, application of the Mayor's new directive of prohibition on construction hours indicated that no truck trips would be allowed to arrive or leave construction work zones during the peak periods between 6 to 9 a.m. and 3:30 to 6 p.m. for in-street construction.*

[b] The truck delivery trip estimates for muck removal during tunneling were excluded as part of the peak truck trip estimates.

[c] The truck delivery trip estimates for muck removal during tunneling across Grand Canal were included as part of the peak truck trip estimates.

[d] Required truck deliveries and construction workers trips were development by assuming 25-person crew on site, 15 truckloads of soil per shift per day, and three supply truck roundtrips per shift per day during the largest (mined) tunneling construction.

[e] Short cut-and-cover method would only be applied to the full-length Dockweiler Beach alignment alternative (on both the north and south ends) and the Dockweiler Beach to LAX Shaft alignment on the north end along Hurricane Street.

MARINA DEL REY SEGMENT

(1) Marquesas Way/Via Marina Alignment - Construction of the proposed (3,200-foot-long) Marquesas Way/Via Marina Alignment, including open-trench construction zone, tunneling shaft sites, and maintenance holes would produce temporary localized impacts on the transportation system for a period of up to 3 weeks around each active open-trench zone and up to 2 months around the tunnel-boring jacking and extraction shafts, all between the start (year 2008) and end (year 2010) of construction. The temporary localized impacts on the transportation system would involve the combined effects of additional construction traffic and closure of travel lanes on certain roadways, leading to reductions in roadway capacity.

During the construction of the Marquesas Way, alignment that begins at the VPP on Hurricane Street crosses under the Grand Canal and proceeds along Marquesas Way before turning southeast on Via Marina. Jacking will be performed at two optional launching sites and one extraction site. The extraction shaft (receiving) site is located on the northeast corner of the VPP property just west of the Grand Canal. The potential construction equipment laydown zone for this site would be on vacant land across from the VPP opposite Hurricane Street. One of the proposed shaft sites is located at the southwest corner of the intersection of Via Marina and Marquesas Way, and the alternative shaft site would be located on Marquesas Way adjacent to the raised triangle island at the intersection of Via Dolce and Marquesas Way. The raised island would also be the potential laydown zone for the two optional shaft sites east of the Grand Canal. If the shaft site adjacent to Via Marina were used, temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina. Alternatively, if the shaft site adjacent to Via Dolce were used, temporary closure of the eastbound travel lane on Marquesas Way between Via Dolce and Via Marina would be necessary to allow for jacking activities across the Grand Canal and the open-trench activities on Marquesas Way between the jacking site and the Via Marina alignment. To minimize the impact of closing Marquesas Way, the jacking method could be applied underneath the intersection to avoid blocking the northbound movement on Via Dolce at the intersection of Via Dolce and Marquesas Way. Otherwise, northbound traffic on Via Dolce would need to detour to travel through Tahiti Way or another parallel east-west roadway and use Via Marina to reach Marquesas Way. Also, pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks. With any shaft site, however, the tunneling or open-trench activities for the Marquesas Way alignment would be temporary in nature and are expected to be completed during a period of up to two months. None of the shaft sites under consideration would result in the loss of on-street or off-street parking.

During the construction of the Marquesas Way, alignment that begins at the VPP on Hurricane Street crosses under the Grand Canal and proceeds along Marquesas Way before turning southeast on Via Marina. Jacking will be performed at two optional launching sites and one extraction site. The extraction shaft (receiving) site is located on the northeast corner of the VPP property just west of the Grand Canal. The potential construction equipment laydown zone for this site would be on vacant land across from the VPP opposite Hurricane Street. One of the proposed shaft sites is located at the southwest corner of the intersection of Via Marina and Marquesas Way, and the alternative shaft site would be located on

Marquesas Way adjacent to the raised triangle island at the intersection of Via Dolce and Marquesas Way. The raised island would also be the potential laydown zone for the two optional shaft sites east of the Grand Canal. If the shaft site adjacent to Via Marina were used, temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina. Alternatively, if the shaft site adjacent to Via Dolce were used, temporary closure of the eastbound travel lane on Marquesas Way between Via Dolce and Via Marina would be necessary to allow for jacking activities across the Grand Canal and the open-trench activities on Marquesas Way between the jacking site and the Via Marina alignment. To minimize the impact of closing Marquesas Way, the jacking method could be applied underneath the intersection to avoid blocking the northbound movement on Via Dolce at the intersection of Via Dolce and Marquesas Way. Otherwise, northbound traffic on Via Dolce would need to detour to travel through Tahiti Way or another parallel east-west roadway and use Via Marina to reach Marquesas Way. Also, pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks. With any shaft site, however, the tunneling or open-trench activities for the Marquesas Way alignment would be temporary in nature and are expected to be completed during a period of up to 2 months. None of the shaft sites under consideration would result in the loss of on-street or off-street parking.

During the construction of the Via Marina alignment from Marquesas Way to the tunnel-boring shaft site at the end of Via Marina adjacent to Aubrey Austin Memorial Park, open-trench techniques performed by a second construction team are assumed. Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle at any time between years 2008 and 2010. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437. Since no street parking is present on this Via Marina segment, no parking loss would be expected due to the closure of the southbound lane. Increased safety risks for vehicles, bicyclists and pedestrians could result from construction activities within or adjacent to streets. Local pedestrian or vehicular access for residences and businesses immediately adjacent to the open-trench construction would be restricted between 9 a.m. and 3:30 p.m., but would be maintained with a metal cover or other replacement to provide access to these properties outside of active construction hours during the temporary construction period of up to 3 weeks.

During the construction of the 1,800-foot tunnel-boring section that crosses under the marina entrance channel and the Ballona Creek channel, the receiving shaft site would be located on a vacant site and the sidewalk adjacent to the end of southbound lane on Via Marina. The potential construction equipment laydown zone for this site would be located on the existing parking lot and would temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.

It was assumed that the entire Marquesas Way/Via Marina alignment would be performed simultaneously by two teams of construction workers (for trench and tunneling) as the worst-case scenario, resulting in

peak trip generation estimates of 45 worker trips and no construction truck trips during the morning and afternoon peak hour. The projected incremental change in V/C ratio during construction of the Marquesas/Via Marina alignment for the nine analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Project trips generated by the construction of the entire Marquesas Way/Via Marina alignment in combination with either of the two Playa Del Rey alignments would not result in an adverse impact at any of the four study intersections north of the Marina Del Rey Channel in Marina Del Rey, but could occur at Via Marina south of Tahiti Way (one of the 23 analyzed roadway segments) in Marina Del Rey with a southbound lane closure.

(2) Pacific Avenue Alignment – Construction of the proposed (3,000-foot-long) Pacific Avenue alignment would be similar to that described above for the Marquesas Way/Via Marina alignment and would involve both the open-trench construction and tunnel-boring. The temporary localized impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

The open-trench method would be performed to construct the Pacific Avenue alignment in Marina Del Rey, beginning at the VPP on Hurricane Street, proceeding west to Pacific Avenue, and turning south and proceeding along Pacific Avenue and ending at the receiving shaft for the tunnel-boring construction at the southern end of Pacific Avenue on vacant land west of the Los Angles County parking lot. The potential equipment laydown area will be located in the vacant land across from the VPP and on the beach area south of the least tern area. Hurricane Street is 36 feet wide from curb to curb with street parking and residential neighborhoods on both sides. Pacific Avenue is 42 feet wide from curb to curb with one lane in each direction, and street parking is only allowed on the west side (southbound) of this roadway. A construction zone 1,000 feet long and 8 feet wide would include all of Hurricane Street east of Pacific Avenue and approximately four blocks of Pacific Avenue on the north side of the channel at any time during the 3-week cycle. During construction, two-way traffic could be maintained along Hurricane Street by displacing parking along Hurricane Street (approximately 17 spaces on the north side and 10 spaces on the south side) and northbound traffic would be detoured to Speedway Avenue where necessary. One-way traffic would be maintained along the west side of Pacific Avenue (southbound movement). Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue.

To minimize the impact of closing the northbound lane of Pacific Avenue, it is assumed that the jacking method would be used to construct the 100-foot segment at the end of Pacific Avenue to avoid blocking traffic flow and transit buses traveling between Via Marina and Pacific Avenue. The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas. Since no street parking is allowed on the east side of Pacific Avenue, no parking loss would be expected due to the closure of the northbound lane for four blocks at a time on Pacific Avenue. In addition, Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period. Local access to residences and businesses on the east side of Pacific Avenue and the pedestrian bridge across the Ballona Lagoon would be maintained in

the same manner as described in the Marquesas Way/Via Marina alignment during the temporary construction period of up to 3 weeks for each construction segment.

Like the development of Project trip generation estimates, as described in the Marquesas Way/Via Marina alignment, the projected incremental change in V/C ratio during construction of the Pacific Avenue for the nine analyzed intersections and the 23 analyzed roadway segments are identified in Appendix E. During construction of the Pacific Avenue alignment in combination with either of the two Playa Del Rey alignments, construction-period adverse impacts would not result in an adverse impact at any of the four study intersections north of the Marina Del Rey Channel in Marina Del Rey, but could occur on 2 of the 15 analyzed roadways in the Marina Del Rey area:

- Pacific Avenue between Privateer Street and Quarterdeck Street; and
- Pacific Avenue between Westwind Street and Yawl Street.

(3) Venice Beach/North Dockweiler Beach Alignment - Construction of the proposed (3,300-foot-long) North Dockweiler Beach alignment would be similar to that described above for the other two project alignments in the Marina Del Rey area, involving both open-trench and tunnel-boring construction methods. The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

The open-trench method would be used to construct the North Dockweiler Beach alignment beginning from the VPP on Hurricane Street, proceeding west to the existing 20-foot-wide sewer easement on Venice and Dockweiler beaches, then turning south and ending at the beach shaft for the tunnel-boring construction at the waterfront of Marina Del Rey Channel. The equipment laydown area would be adjacent to this shaft on the beach area. Hurricane Street is 36 feet wide from curb to curb, with street parking and residential neighborhoods on both sides. A construction zone 1,000 feet long and 8 feet wide would include all of Hurricane Street west of the Grand Canal. During construction, two-way traffic could be maintained along Hurricane Street by displacing the parking along Hurricane Street. Approximately 17 unmarked spaces on the north side and 10 spaces on the south side of Hurricane Street are available east of Pacific Avenue, while 11 spaces on the north side and 5 spaces on the south side of Hurricane Street are available between Pacific Avenue and Oceanfront Walk. During the construction of the open cut-and-cover section across the intersection of Hurricane Street and Pacific Avenue or the intersection of Hurricane Street and Speedway Avenue, traffic would be diverted to either Galleon Street or Ironsides Street and return to Pacific Avenue or Speedway Avenue when either of the intersections is closed. Given the construction speed of 40 feet per day, however, the traffic diversion would be brief and would only occur during the off-peak daytime period.

Non-motorized transportation would be temporarily affected by construction on Hurricane Street. Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437. Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street. Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront. Local access to residences and businesses on Hurricane Street could

be maintained in the same manner as described in the Marquesas Way/Via Marina alignment during the construction period.

Similar to the development of Project trip generation estimates, as described in the other two alternative Marina Del Rey alignments, the projected incremental change in V/C ratio during construction of the beach alignment for the nine analyzed intersections and the 23 analyzed roadway segments are identified in Appendix E. Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

CHANNEL SEGMENT

The Marina Del Rey and Ballona Creek channels would be crossed using the tunnel-boring method. For any combination of north and south alignments, the launching shaft would be on the southern shore of the channel, while the receiving shaft would be located on the northern shore. Depending on which combination of north and south alignments is selected, the channel crossing would be about 1,300-1,900 feet long. As the tunnel-boring would occur at the same time as the open-trench construction, a discussion of the Project impacts for the channel segments is included in the discussion above and in the following discussion of the two Project alignment alternatives in the Playa Del Rey segment.

PLAYA DEL REY SEGMENT

(1) Pacific Avenue/Vista Del Mar Alignment – Construction of the proposed 4,400-foot Pacific Avenue/Vista Del Mar alignment would be similar to that of the Pacific Avenue alignment and would involve both open-trench construction and tunnel-boring. Temporary localized impacts on the transportation system would occur as a result of a reduction in roadway capacity due to construction traffic and the closure of roadway travel lanes.

The open-trench method would be used to construct the Pacific Avenue/Vista Del Mar alignment beginning from tunnel-boring shaft on the south shore of the Ballona Creek channel, continuing south along Pacific Avenue and Vista Del Mar to a junction structure at Vista Del Mar near Waterview Street. The potential equipment laydown area would be immediately adjacent to the shaft on 62nd Avenue and the public parking lot east of Pacific Avenue. A portion of the open-trench segment would occur across this laydown area. Therefore, during the tunnel-boring and open-trench construction, 62nd Avenue east of Pacific Avenue would be temporarily closed and would result in the temporary loss of approximately 15 parking spaces in the public parking lot. Non-motorized transportation would be temporarily affected by establishment of the laydown area of the tunnel-boring construction. Pedestrian pathways to Back Bay Place and the Del Rey Lagoon waterfront would need to be diverted around the construction laydown area.

Pacific Avenue north of 66th Avenue is approximately 40 feet wide from curb to curb with one lane in each direction and street parking available on both sides of the street. A construction zone 1,000 feet long and 8 feet wide would affect the Pacific Avenue segment north of 66th Avenue for a period of up to 3 weeks. Two-way traffic on Pacific Avenue could be maintained by temporarily displacing approximately 13 unmarked spaces on the east side of Pacific Avenue. An alternative arrangement could maintain one-

way traffic along the west side of Pacific Avenue (southbound movement), controlled by diverting northbound traffic to the alley that runs parallel to and west of Pacific Avenue north of 66th Avenue. Temporary closure of the northbound lane of Pacific Avenue would require diverting the northbound traffic on Pacific Avenue to use 63rd Avenue or another parallel east-west roadway to reach the alley. During the in-street construction on Pacific Avenue between 66th Avenue and at the public parking lot north of Convoy Street, temporary removal of street parking from one or both sides of the street would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue. Approximately two parking spaces on the west side and four parking spaces on the east side are available.

South of 66th Avenue, Pacific Avenue widens from approximately 40 feet to over 80 feet, which along Convoy Street, allows maneuvering in and out of 35 parking stalls. Pacific Avenue narrows back to 40 feet south of Convoy Street, and then flares out when intersecting with Culver Boulevard. During the in-street construction on Pacific Avenue between 66th Avenue and Culver Boulevard, temporary removal of street parking on one side of the would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue. Approximately 37 unmarked spaces on the west side and 35 spaces and 4 unmarked spaces on the east side are available for parking. Also, temporary removal of the northbound lane on the short route of Pacific Avenue between Culver Boulevard and Vista Del Mar (also known as Trolley Place) would be needed for construction for up to 3 weeks. Traffic on Vista Del Mar intending to use this short segment would be detoured to the adjacent segment of Culver Boulevard.

During the construction of the open cut-and-cover section across the intersection of Culver Boulevard and Pacific Avenue, traffic on Culver Boulevard would be diverted to use Esplanade and Convoy streets to reach the Pacific Avenue segment north of Culver Boulevard. Traffic on Pacific Avenue southbound would be detoured to use the intersection of Vista Del Mar and Pacific Avenue. Similarly, during the open cut-and-cover section across the intersection of Pacific Avenue and Vista Del Mar, traffic on Vista Del Mar could be detoured to use Pacific Avenue and Culver Boulevard to avoid the construction zone. To minimize the impact of cut-and-cover construction across a major intersection like Culver/Pacific or Vista Del Mar/Pacific, the underground jacking method could be used to construct the 100-foot alignment to avoid diverting traffic traveling through the intersections. All the traffic diversion, however, would be temporary in nature and would only occur for a period of up to 3 weeks.

Finally, during the open-trench construction on Vista Del Mar or during the connection with the existing junction structure on Vista Del Mar near Waterview Street, temporary closure of the outer northbound lane on Vista Del Mar would be required for 1,000 feet at any time during the 3-week cycle. No relocation of transit stops would be required during the construction of the Pacific Avenue/Vista Del Mar alignment.

Similar to the development of Project trip generation estimates described in the other Playa Del Rey alignment, the projected incremental change in V/C ratio during construction of the Pacific Avenue/Vista Del Mar alignment for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction of the entire Pacific Avenue alignment in combination with any of the three Marina Del Rey alignments would not result in an adverse impact at any of the study intersections south of the Ballona Creek Channel in Playa Del Rey, but could occur on two of the eight analyzed roadways in the Playa Del Rey area:

- Vista Del Mar from Pacific Avenue to Surf Street; and
- Pacific Avenue from 63rd Avenue to 64th Avenue.

(2) South Dockweiler Beach Alignment – Construction of the proposed 4,200-foot South Dockweiler Beach alignment would be similar to that described above for the North Dockweiler Beach alignment in the Marina Del Rey area, involving both open-trench and tunnel-boring construction methods. The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

The open-trench method would be performed to construct the South Dockweiler Beach alignment beginning from tunnel-boring shaft on the south shore of the Ballona Creek Channel, continuing within the existing 20-foot-wide sewer easement to a junction structure in Vista Del Mar near Waterview Street. The potential equipment laydown area would be adjacent to the shaft on 62nd Avenue and parking lot west of Pacific Avenue. Therefore, during the tunnel-boring construction, 62nd Avenue west of Pacific Avenue would be temporarily closed and would result in temporary loss of approximately 36 parking spaces for up to 2 months. Non-motorized transportation would be temporarily affected by the laydown area of the tunnel-boring construction. Diversion of pedestrians and cyclists on the Ballona Creek Bike Path would be required to avoid the construction laydown area and the cut-and-cover trenching section on the beach. During the open-trench construction when connecting the beach alignment with the existing junction structure on Vista Del Mar near Waterview Street, travel lanes in each direction on Vista Del Mar could be maintained by temporarily displacing on-street parking on Vista Del Mar between Waterview Street and Napoleon Street (nine metered spaces on the west side and one metered space on the east side). No relocation of transit stops would be required during the construction of the South Dockweiler Beach alignment.

Like the development of Project trip generation estimates, as described in the other Playa Del Rey alignment, the projected incremental change in V/C ratio during construction of the South Dockweiler Beach alignment for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction of the entire South Dockweiler Beach alignment in combination with any of the three Marina Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments south of the Ballona Creek Channel in Playa Del Rey.

CONTINUOUS (FULL-LENGTH) TUNNEL ALIGNMENTS

(1) Dockweiler Beach – Construction of the first full-length large-tunnel alternative via Dockweiler Beach would be excavated (mined) with a TBM to connect the VPP and the existing junction structure on Vista Del Mar near Waterview Street directly. Two short cut-and-cover open-trench connectors are proposed at the north end along Hurricane Street to connect the VPP with the TBM-extraction shaft site on Venice Beach and at the south end to connect the single (starter) beach shaft located outside of residential areas west of Vista Del Mar with the junction structure near Waterview Street.

Project impacts of the cut-and-cover section would result in same localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal, as described in the North Dockweiler Beach alignment above for the Marina Del Rey alignment alternatives. As indicated, street

parking on Hurricane Street would be displaced to provide two-way traffic along Hurricane Street. During the construction of the open cut-and-cover section across the intersection of Hurricane Street and Pacific Avenue or the intersection of Hurricane Street and Speedway Avenue, traffic would be diverted to either Galleon Street or Ironsides Street and return to Pacific Avenue or Speedway Avenue when either of the intersections is closed. Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary. Local access to residences and businesses on Hurricane Street would be restricted during construction hours. In addition, during the cut-and-cover construction when connecting the beach shaft with the existing junction structure on Vista Del Mar near Waterview Street, two travel lanes in each direction on Vista Del Mar could be maintained by temporarily displacing parking on Vista Del Mar between Waterview Street and Napoleon Street (nine metered spaces on the west side and one metered space on the east side).

Given the Project trip generation estimates and distribution, as described in the previous discussions of construction assumptions, the construction traffic volumes generated by this full-length Dockweiler Beach alignment and future traffic volumes with construction traffic for this beach alignment could be developed, as illustrated in Appendix E. The projected incremental change in V/C ratio during construction for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1 of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

(2) Dockweiler Beach to LAX Shaft – Construction of the second full-length, large-tunnel alternative via Dockweiler Beach would involve the use of a TBM to connect the VPP and starter shaft on LAX property east of Vista Del Mar and south of Waterview Street. Only one short cut-and-cover open-trench connector is proposed at the north end along Hurricane Street to connect the VPP with the TBM-extraction shaft site on Venice Beach.

Project impacts of the cut-and-cover section would result in same localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal, as described in the previous full-length, large-tunnel alternative beneath Dockweiler Beach. Localized impacts would occur on the non-motorized transportation system under this alternative in the vicinity of the of the Hurricane Street cut-and-cover segment. Like the development of Project construction traffic volumes and future Project traffic volumes described in the other tunnel alignments, the projected incremental change in V/C ratio during construction for the 9 analyzed intersections, and the 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on Hurricane Street would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

(3) Venice Pumping Plant to LAX Shaft via Dockweiler Beach – Construction of the third full-length, large-tunnel alternative via Dockweiler Beach would involve the use of a TBM to connect the VPP and the starter shaft on LAX property east of Vista Del Mar and south of Waterview Street directly. Since most of the tunnel construction would avoid in-street activities, no localized impacts would occur on the non-motorized transportation system during the large worker-entry tunneling beneath the beach. Like the development of project construction traffic volumes and future Project traffic volumes as described in the other tunnel alignments, the projected incremental change in V/C ratio during construction for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

(4) Venice Pumping Plant to LAX Shaft via Inland Route – Construction of the fourth full-length large-tunnel alternative via the inland area of Dockweiler Beach would involve TBM to connect the VPP and the starter shaft on LAX property east of Vista Del Mar and south of Waterview Street directly. Since most of the tunnel construction would avoid in-street activities, no localized impacts would occur on the non-motorized transportation system during the large man-entry tunneling beneath the beach. Like the development of Project construction traffic volumes and future Project traffic volumes as described in the other tunnel alignments, the projected incremental change in V/C ratio during construction for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

CONSTRUCTION ALTERNATIVES

(1) Cut-and-Cover Construction – A discussion of the project impacts due to the cut-and-cover construction method is included above for each of the three project alignment alternatives in the Marina Del Rey area and for each of the two Project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the tunnel-boring method in several Project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(2) Tunnel-boring – A discussion of the Project impacts due to the tunnel-boring construction method is included above for each of the three Project alignment alternatives in the Marina Del Rey area and for each of the two Project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the cut-and-cover method in several Project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(3) Large-Diameter Tunneling – A discussion of the Project impacts due to the use of large-diameter tunneling is included in the alternatives above for each of the four proposed larger tunnel alignment alternatives. These alternatives would result in fewer circulation impacts than those employing cut-and-cover and tunnel-boring methods.

Table 5.4-3 summarizes the results of the analysis discussed in Section 5.4.3. Based on this analysis, the project alternatives are not expected to result in significant impacts to the transportation system upon completion of the proposed sewer facilities. The construction of the sewer facilities, however, could result in temporary adverse traffic and parking impacts, the introduction of temporary bicycle, pedestrian, or vehicular safety hazards and the temporary relocation of access points to public transit.

During the various construction phases of each project alignment, travel by construction workers and truck hauling of supplies and disposal would generate trips on the regional and local transportation system surrounding each construction shaft site or zone. These trips would represent temporary increases during defined phases of construction and, upon completion of construction, would cease. Adverse short-term impacts, as shown in Table 5.4-3 could result, but because they would be of limited-duration, they are not considered to be significant.

In addition, temporary lane closure due to open-trench construction activities for the six Project combinations of Marina Del Rey and Playa Del Rey alignment alternatives and the short open-and-cut section for the Dockweiler Beach full-length tunnel alternative and the Dockweiler Beach – LAX Shaft full-length alternative would result in adverse impacts on up to four affected streets. Surface construction, however, would result in only temporary transportation impacts, which while adverse, would not be considered significant.

Similarly, during the construction period at locations where construction activity would occur within public street ROW or in areas accessible to the public (i.e., locations other than within the site of the VPP), increased safety risks to vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to affected sites due to narrowed lanes, altered travel patterns, and temporarily obstructed sidewalks. Adverse short-term impacts could result but, because they would be of limited duration, they are not considered to be significant for any of the 10 project alignment alternatives.

Finally, as shown Table 5.4-3, construction of 8 of the 10 proposed alignment alternatives involving the open-trench method and tunnel-boring method would result in temporary loss of parking spaces either at the public parking lot adjacent to the channel or at on-street locations. This would be considered adverse, but not significant due to the temporary nature of the impacts.

5.4.4 Mitigation Measures

Proposed mitigation consists of the following measures to reduce the temporary adverse impacts associated with construction-period activity in the vicinity of each construction shaft site or construction zone. The implementation of the following mitigation measures would reduce the Project traffic/transportation impacts for all Project alignment alternatives to a less than significant level.

For all construction sites, TRA-1 would apply.

Table 5.4-3 Project Alignment Alternative Impact Summary

Project Alignment Alternatives	Traffic V/C increase	Transportation Safety	Parking
Open-trench and Tunnel-boring Alternatives			
Marquesas Way/ Via Marina - Pacific Avenue	Potentially adverse Impacts during construction at three analyzed locations: Via Marina (SB) South of Tahiti Way (p.m.) Pacific Av (SB) from 63rd Av to 64th Av (a.m./p.m.) Vista Del Mar (NB) from Pacific Av to Surf St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street east of Pacific Avenue, at the two tunnel-boring sites across the marina entrance channel and Ballona Creek Channel, and Pacific Avenue between 62nd Avenue and Vista Del Mar
Marquesas Way/Via Marina - South Dockweiler Beach	Potentially adverse impact during construction at one analyzed location: Via Marina (SB) South of Tahiti Way (p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street east of Pacific Avenue and at the two tunnel-boring sites across the marina entrance channel and Ballona Creek Channel
Pacific Avenue	Potentially adverse impact during construction at four analyzed locations: Pacific Av (NB) from Privateer St to Quarterdeck St (a.m./p.m.) Pacific Av (NB) from Westwind St to Yawl St (a.m./p.m.) Pacific Av (SB) from 63rd Av to 64th Av (a.m./p.m.) Vista Del Mar (NB) from Pacific Av to Surf St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street east of Pacific Avenue, at the tunnel-boring site adjacent to Ballona Creek Channel, and Pacific Avenue between 62nd Avenue and Vista Del Mar
Pacific Avenue - South Dockweiler Beach	Potentially adverse impact during construction at two analyzed locations: Pacific Av (NB) from Privateer St to Quarterdeck St (a.m./p.m.) Pacific Av (NB) from Westwind St to Yawl St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially averse impacts during construction on Hurricane Street east of Pacific Avenue and at the tunnel-boring site adjacent to Ballona Creek Channel
Dockweiler Beach - Pacific Avenue	Potentially adverse impact during construction at two analyzed locations: Pacific Av (SB) from 63rd Av to 64th Av (a.m./p.m.) Vista Del Mar (NB) from Pacific Av to Surf St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction Hurricane Street west of Grand Canal, at the tunnel-boring site adjacent to Ballona Creek Channel, and Pacific Avenue between 62nd Avenue and Vista Del Mar
Dockweiler Beach	None during construction	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street west of Grand Canal and at the tunnel-boring site adjacent to Ballona Creek Channel
Full Length (Mined) Large-tunnel Alternatives			
Dockweiler Beach	Potentially adverse impact during construction at three analyzed locations: Pacific Av& Washington Bl (p.m.) Nicholson St & Culver Bl (p.m.) Culver Bl east of Nicholson St (p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction during construction on Hurricane Street west of Grand Canal
Dockweiler Beach Shaft to LAX Shaft	Potentially adverse impact during construction at one analyzed location: Pacific Av & Washington Bl (p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street west of Grand Canal
VPP to LAX Shaft via Dockweiler Beach	Potentially adverse impact during construction at one analyzed location: Pacific Av & Washington Bl (p.m.)	None during construction	None during construction
VPP to LAX Shaft via Inland	Potentially adverse impact during construction at one analyzed location: Pacific Av & Washington Bl (p.m.)	None during construction	None during construction

Source: Kaku Associates, Inc.

TRA-1 For each construction site, a construction traffic management plan shall be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work. This plan shall include such elements as the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turning movement restrictions, temporary traffic control devices or flagmen, travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, and designated staging and parking areas for workers and equipment.

Where construction would occur within a public street ROW, including during the open-trench construction activities for all six combinations of Marina Del Rey and Playa Del Rey alignment alternatives and at the short cut-and-cover portion on both ends of the two full-length tunnel alternatives (Dockweiler Beach alignment and Dockweiler Beach to LAX Shaft alignment), the following mitigation measures would also apply:

TRA-2 A site-specific construction work site traffic control plan shall be prepared for each construction site and submitted to the LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas.

TRA-3 Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on restriped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when absolutely necessary.

TRA-4 Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.

TRA-5 Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.

TRA-6 Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.

TRA-7 Coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.

5.4.5 Unavoidable Adverse Impacts

In-street construction associated with each of the Project alternatives could result in adverse traffic and parking impacts in the immediate vicinity of each active construction site leading to localized congestion

and increased competition for available parking. Because these impacts would be of limited duration, however, they are considered to be less than significant. No feasible mitigation measures have been identified to reduce these temporary impacts to a less than significant level.

5.4.6 Cumulative and Secondary Impacts

CUMULATIVE IMPACTS

The traffic analysis above provides projections of future traffic growth by increasing background traffic by CMP-derived annual percentages and by adding development. The addition of background growth over time approximates traffic from development that is expected to occur under the General Plan and other jurisdictional plans and growth projections; consequently, the traffic analysis is therefore a cumulative evaluation. Operation of the proposed Project after the completion of the sewer line would result in periodic vehicle trips associated with inspection and maintenance activities that would generate negligible traffic volumes over the life of the Project. Since the construction traffic would be temporary in nature and would cease after the completion of the Project, none of the proposed 10 project alignment alternatives would result in substantial contribution to cumulative traffic impacts. In addition, in-street construction in the city and other jurisdictions requires permits for the regulating transportation agency. These agencies require the preparation of traffic control plans for in-street construction and require certain practices to be incorporated into the plans for implementation to maintain traffic flow and accommodate emergency response vehicles. The preparation of such traffic control plans would ensure that construction-related traffic impacts do not represent a substantial contribution to cumulative traffic impacts no matter which Project alternative alignment is chosen.

Construction could temporarily reduce parking in the vicinity of construction zones, but such reductions are not considered significant. None of the other related projects are expected to result in construction that could affect the same Project construction areas at the same time; consequently, significant cumulative parking impacts during construction are not anticipated.

SECONDARY IMPACTS

If the avoidance and minimization measures above were implemented successfully, no secondary parking, traffic or safety hazard would be associated with any of the proposed Project alternative alignments.

5.5 CULTURAL/PALEONTOLOGICAL RESOURCES

5.5.1 Cultural Resources

5.5.1.1 Environmental Setting

The general location of the Project areas are the residential section north of the Marina Del Rey Channel and the mixed use area south of the channel in Playa Del Rey.

MARINA DEL REY AND VENICE

Marquesas Way and Via Marina – contain high-density residential housing on the west side of the streets, a planted median, two traffic lanes running in each direction, and mixed use residential housing and commercial structures on the east side. Ground visibility is intermittent on the west side of the streets constrained by ivy, ornamentals and short sections of sidewalk and curvilinear paths. The median is densely planted with trees and various shrubs. The east side of Via Marina is primarily sidewalk with some grassy areas and open ground.

Pacific Avenue – is lined with residential units, including apartments, condominiums and single-family residences. The street is paved with asphalt with very few areas of open ground and hardscape planters.

Dockweiler Beach – is open beach with residential units, apartments, condominiums and single-family residences on the east side. Housing meets the sand in some areas with the beach extending some 900 feet west to the Pacific Ocean.

WESTCHESTER/PLAYA DEL REY

The combined alternatives south of Marina Del Rey Channel include residential units, park areas, parking areas, sand dunes, commercial structures and eroded bluffs near the southern terminus. The alignment follows Pacific Avenue, which turns northeast near Culver Boulevard and transitions to Vista Del Mar. The beach area alignment is sand, two cement curvilinear paths and sand dunes.

Archaeological records indicate that sedentary populations once occupied the Project area. Numerous artifacts and multiple burials were encountered in the general area. Excavation of a major burial ground (300 people) is ongoing in the area north Lincoln Boulevard, at the site of the Playa Vista housing development. These investigations serve to highlight the sensitivity of the Project areas for archaeological resources, which are described in the technical report provided in Appendix F to this EIR.

Historical records also identify the presence of oil well structures resulting from the Ohio Oil Companies wildcat drilling east of Venice's Grand Canal and throughout the Project area. Playa Del Rey was once the fourth largest oil field in California and home to over 50 oil wells. By the end of 1931, there were 325 active oil wells in the Ballona Lagoon area, highlighting the sensitivity of the Project areas expanding from Playa Del Rey and north of the Venice Project areas. Table 5.5-1 shows a summary of archaeological investigations in the VPP Project area.

Table 5.5-1 Archaeological Investigations Summary

Reference Number	Name of Project	Type of Investigation	Author/Date	Results
L-873	373-375 Fowling Street	Records search and survey	Singer, 1980c	No impact
L-1157	Job No. 1GOL0601	Records search and survey	Dillon, 1982	Negative
L-4868	Sempra Energy Gas	Record search	Shepard, Mason, Lander, 2000	CA-LAN-64, -65, -203, -204, -206
L-4910	LAX	Survey	Raschke, Stadum and Bissell, 1995	19-000202, 19-000214, 19-000691, 19-001118; NR#9200095, 74000522, 86001666
L-5556	Vista Del Mar, Culver Boulevard to Napoleon Street	Historic survey	Tillman, 1977	Nothing historic, mentions an archaeological site
L-5559	AT&T Wireless Services Facility Number R319	Records search and survey	Lapin, 2000a	19-001716, 19-000066
L-5561	Pacific Bell Wireless Facility	Records search and phase I survey	Lapin, 2000b	Negative
L-5563	Request for Determination of Effect, 07-LA-187, P.M. 2.0/3.5	Road construction	U.S. Department of the Interior, National Park Service	19-167308, 19-167310
L-5761	Facility No. Sm 018-01 (appears to be a duplicate)	Records search	Duke, 2001	Negative

Source:
Historical maps consulted:
U.S. Geological Survey Redondo Beach 15' Quadrangle, 1986, no structures.
U.S. Geological Survey Redondo Beach 15' Quadrangle, 1944, 3 structures north of Ballona Creek; many structures south of Ballona Creek.

5.5.1.2 Thresholds of Significance

A significant impact on archaeological resources would occur if an activity would permanently destroy, misplace or alter the integrity of the physical site and or the physical findings of the site and area of findings. A significant impact to a historical or prehistoric resource would occur if a project causes a substantial adverse change in the qualities that contribute to the significance of the resource.

5.5.1.3 Environmental Impacts

Direct impacts are those that may result from the immediate disturbance of resources, whether from removal of vegetation, demolition of structures, earth-moving activities or excavation. Since the Project will entail surface and subsurface disturbance of the ground, the proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources.

One archaeological site is recorded in the vicinity of the Vista Del Mar alignment area, as shown in the above table. The area has been repeatedly impacted by development. It is possible that if the location retains any integrity, remnants may be present under the pavement of the Vista Del Mar alignment area; however, it is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, no impact is expected.

5.5.1.4 Mitigation Measures

The following mitigation measures will reduce impact on cultural resources to a level below significance:

CR-1 Avoid areas where cultural resources are known to exist.

CR-2 When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented.

CR-3 If previously unknown cultural resources are encountered during site clearance and preparation, or during project construction, and they can not be avoided, then contingency measures must be in place to react promptly to protect the resources and ameliorate the impacts to a level of not significant.

CR-4 Monitor all construction in the vicinity of the CA-LAN-66 site located in Vista Del Mar by an Archaeologist qualified to recognize and assess both prehistoric and historical resources.

CR-5 A contingency plan should be developed by the City before project construction activities; the plan shall address unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings.

CR-6 If significant cultural resources are found during Project construction activities, they shall be recovered from the Project site, curated by an archaeologist recommended by the City and offered to an area museum whose collection is available for reviewing by the public.

5.5.1.5 Unavoidable Adverse Impacts

There are no unavoidable impacts to the cultural resources resulting from this Project with appropriate mitigation in place.

5.5.1.6 Cumulative and Secondary Impacts

There are no cumulative and/or secondary impacts to the cultural resources resulting from this Project with appropriate mitigation in place.

5.5.2 Paleontological Analysis

5.5.2.1 Environmental Setting

Paleontologic resources of the Project site include sedimentary or stratigraphic rock units that immediately underlie the surface and have a potential for yielding particular types of fossil remains because they have yielded similar fossil remains at previously recorded fossil sites near the Project site. Fossils, the remains or indications of once-living organisms, are a very important scientific resource because of their use in 1) Documenting the evolution of particular groups of organisms, 2) Reconstructing the environments in which they lived, and 3) Determining the ages of the strata in which they occur and of the geologic events that resulted in the deposition of the sediments constituting these strata.

The Project site lies on the western shelf of the Cenozoic Los Angeles Basin (Wright, 1991), which, in turn, is situated at the northwestern corner of the Peninsular Ranges Province, where major linear geographic features (i.e., mountains, valleys) and the underlying geologic structures (i.e., faults, folds) trend in a northwesterly direction (Jahns, 1954). The western shelf is composed of sedimentary or stratigraphic rock units consisting of late Cenozoic marine and stratigraphically overlying nonmarine strata reflecting the final filling of the basin and its accompanying emergence above sea level.

Regional surficial geologic mapping of the Project site and vicinity is provided by Jennings (1962) at a scale of 1:250,000. Larger-scale (1:31,680) geologic mapping of the area by Poland and others (1959) indicates that the project site is underlain by three Quaternary rock units. In ascending stratigraphic order, these rock units include the Pleistocene marine Palos Verdes Sand and Holocene dune sand, which form the lower portion of the bluff at the southeastern corner of the Project site; and by Holocene coastal deposits, which underlie the remaining flat-lying portion of the Project site.

5.5.2.2 Thresholds of Significance

The paleontologic importance (high, moderate, low, none, undetermined) of a rock unit present at the Project site is the measure most amenable to assessing the scientific importance of the paleontologic resources of the Project site because the areal distribution of a rock unit can be delineated on a topographic map. The paleontologic importance of a rock unit reflects 1) its potential paleontologic productivity and 2) the scientific importance of the fossils it has produced locally.

The potential paleontologic productivity (high, moderate, low, none, undetermined) of a rock unit present at the project site is based on the abundance/densities of fossil specimens and/or unrecorded/previously recorded fossil sites in exposures of the unit at and near the Project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities similar to those previously recorded from the unit at and near the Project site, or to contain fossil sites at similar densities. The criteria for establishing the potential paleontologic productivity of a rock unit present at the Project site are described below.

1. High potential: rock unit contains comparatively high density of unrecorded/previously recorded fossil sites and has produced numerous fossil remains at and/or near the Project site, and is very likely to yield additional similar remains at the Project site.
2. Moderate potential: rock unit contains relatively moderate density of unrecorded/previously recorded fossil sites and has produced some fossil remains at and/or near the Project site, and is somewhat likely to yield additional similar remains at the Project site.
3. Low potential: rock unit contains no or comparatively low density of previously recorded fossil sites and has yielded very few or no fossil remains near the Project site, and is not likely to yield any remains at Project site.
4. Undetermined potential: rock unit has limited or no exposure at and/or near the Project site, is poorly studied, contains no previously recorded fossil site, and has produced no fossil remains near the Project site. However, in the Project site region, same or correlative and/or lithologically similar rock unit contains sufficient recorded fossil sites to suggest rock unit at the Project site has at least a moderate potential for containing unrecorded fossil sites (note: elsewhere in California, exposures of rock units with few or no previously recorded fossil sites have recently proven abundantly fossiliferous during surveying, monitoring, or processing of fossiliferous rock samples as part of mitigation programs for other earth-moving projects).
5. No potential: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units with no potential for containing any unrecorded fossil site or yielding any fossil remains.

A fossil specimen is considered scientifically highly important if it is 1) Identifiable, 2) Complete, 3) Well preserved, 4) Age diagnostic, 5) Useful in environmental reconstruction, 6) A type or topotypic specimen,

7) A member of a rare species, 8) A species that is part of a diverse assemblage, and/or 9) A skeletal element different from, or a specimen more complete than those now available for its respective species. Identifiable fossil land mammal remains, for example, are considered scientifically highly important because of their potential use in providing very accurate age determinations and environmental reconstructions for the rock units in which they occur. The geologic age of some fossil mollusk and land mammal and plant remains can be determined by carbon-14 dating analysis. Moreover, land mammal and plant remains are comparatively rare in the fossil record.

Using the definitions presented above, the paleontologic or scientific importance of a rock unit present at the Project site would be assessed using the following criteria.

1. High importance: rock unit has comparatively high potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at the Project site similar to those previously recorded from rock unit at and/or near the Project site.
2. Moderate importance: rock unit has relatively moderate potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at the Project site similar to those previously recorded from rock unit near the Project site.
3. Low importance: rock unit has comparatively low potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at the Project site.
4. Undetermined importance: rock unit for which too few data are available from the Project site and vicinity to allow an accurate assessment of its potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at the Project site.
5. No importance: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units having no potential for containing any unrecorded fossil site or for yielding any fossil remains.

Note, however, that any fossil site containing identifiable fossil remains and the fossil-bearing strata are considered highly important paleontologically, regardless of the paleontologic or scientific importance of the rock unit in which the site and strata occur.

The following tasks were conducted in compliance with SVP (1995) guidelines for assessing the significance of construction-related adverse environmental impacts on paleontologic resources, or the paleontologic sensitivity of a particular rock unit to adverse impacts.

5.5.2.3 Environmental Impacts

An inventory of the paleontologic resources of the rock units present at the project site is listed below. The scientific importance of these resources is assessed in the Appendices. Although neither the literature review, the archival search nor the field survey conducted for this inventory documented any previously recorded fossil site as occurring at the project site, a number of previously recorded fossil sites were documented as occurring in areas mapped as being underlain by these rock units near the project site. The fossil remains from some of these fossil sites were uncovered as a result of earth-moving activities associated with other major construction projects.

The occurrence of several previously recorded fossil sites near the Project site suggests that there probably is a high potential for additional similar, scientifically highly important fossil remains at the Project site being encountered by earth-moving activities at unrecorded fossil sites in the Palos Verdes

Sand. Identifiable fossil remains recovered from this rock unit at the Project site would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. Moreover, the recovery of remains representing environmentally sensitive species would be critical in paleo-environmental and habitat reconstruction. The remains would contribute to a more comprehensive documentation of the diversity of animal life that existed at and near the Project site during the Pleistocene Epoch (Figure 5.5-1).

VISTA DEL REY

LAX Launch Shaft Location – Although no previously recorded fossil site is reported as occurring in the dune sand at the Project site, fossilized remains representing an extinct species of elephant might have been recovered from this rock unit at LACM fossil site 3264, which was encountered at a depth of 25 feet below previous grade approximately 2.4 miles east-southeast of the Project site at LAX. However, the fossil site also might have been in the stratigraphically underlying terrace cover, which is mapped with the Palos Verdes Sand and has yielded the fossilized bones and teeth of extinct species of land mammals, including mastodon, mammoth, horse, bison, and rabbit, near the airport at LACM fossil sites 1180, 3789, 4942, and 7332 (Jefferson, 1991b; Miller, 1971). These sites were encountered at depths 13.5 to 16 feet below previous grade. The occurrence of fossilized remains representing an extinct species of Pleistocene bison (*Bison*), which defines the beginning of the Rancholabrean North American Land Mammal Age (Savage, 1951), indicates that the terrace cover is Rancholabrean in age.

Playa Vista – Although no previously recorded fossil site is reported as occurring in the coastal deposits at the Project site, fossilized shells of marine mollusks were encountered below the water table at depths of 2 to 31 feet below previous grade in 28 borings from Playa Vista, immediately east of the Project site, and fossilized wood was encountered in one of the borings at a depth nearly 70 feet below previous grade (Converse Consultants, Inc., 1981; Lander, 1990, 2003; LeRoy Crandall and Associates, 1988).

Direct impacts would result mostly from earth-moving activities (primarily trenching and boring for pipeline) in previously undisturbed strata. Although earth-moving activities would be comparatively short term, the possible accompanying loss of some fossil remains, unrecorded fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata is a potentially significant long-term adverse environmental impact.

The Palos Verdes Sand has yielded abundant fossil remains at several previously recorded fossil sites near the Project area. For this reason, adverse environmental impacts on the paleontologic resources of the Palos Verdes Sand that would result from earth-moving activities at the Project site would be considered to be of high paleontologic significance because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

EXPLANATION

Qal	coastal deposits (Holocene at/near surface, Pleistocene at depth; marine)	low sensitivity at/near surface, high sensitivity at depth
Qs	dune sand (Holocene at/near surface, Pleistocene at depth; continental)	low sensitivity at/near surface, undetermined sensitivity at depth
Qpu	Palos Verdes Sand (Pleistocene, marine)	high sensitivity
Qsp	San Pedro Formation (Pleistocene, marine)	(not present at project site)
——	geologic contact	

PALEONTOLOGICAL RESOURCE SENSITIVITY MAP

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.5-1

DOCKWEILER BEACH

Dune Sand – The dune sand possibly has yielded fossil remains at only one previously recorded fossil site near the Project site. For this reason and because this fossil site was encountered at tunnel boring depth, adverse environmental impacts on the paleontologic resources of the dune sand that would result from earth-moving activities at the Project site would be considered to be of undetermined (but probably no more than moderate) paleontologic significance at depth because the potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities is undetermined.

On the other hand, any adverse environmental impact on the paleontologic resources of the dune sand that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the dune sand probably is too young at and near the surface to contain remains old enough to be considered fossilized.

Coastal Deposits – The coastal deposits have yielded fossil remains at numerous previously recorded fossil sites near the Project site. For this reason and because these fossil sites were encountered at ??" above depth, adverse environmental impacts on the paleontologic resources of the coastal deposits that would result from earth-moving activities at the Project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

Any adverse environmental impact on the paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

5.5.2.4 Operational Impacts

There would be no impact on paleontologic resources during the operational phase of the Project if there were no earth-moving activity.

5.5.2.5 Mitigation Measures

The following measures comprise a paleontologic resource impact mitigation program that would reduce, to an insignificant level, the direct, indirect, and cumulative adverse environmental impacts on paleontologic resources that might accompany earth-moving activities (primarily trenching and boring for pipeline) associated with Project construction in the selected alignment. The program would allow for the recovery of some scientifically highly important fossil remains, should any be encountered by these activities, as well as associated specimen data and corresponding geologic and geographic site data; their preservation in a recognized museum repository; and their availability for future study by qualified scientific investigators. These specimens and data otherwise might have been lost to the earth-moving activities and unauthorized fossil collecting. Specimen recovery would be allowed under CEQA Appendix G (5.c).

Monitoring would not be required in an area underlain by artificial fill or a rock unit of no paleontologic importance (unless a rock unit of higher importance would be encountered at depth), or one in which a

rock unit would be buried, but not otherwise disturbed. No rock sample would be processed if the rock were too coarse grained or resistant to breaking down in water.

The discovery and subsequent recovery of fossil remains as part of the mitigation program might result in a slight delay of some earth-moving activities. However, the mitigation measures presented below have been designed to eliminate or reduce any delay to the greatest extent possible by 1) Ensuring that a paleontologic construction monitor would be present when and where fossil remains were most likely to be uncovered by earth-moving activities; 2) Allowing for the rapid recovery of fossil remains, should any be encountered by these activities, and associated specimen and site data; and 3) If necessary, diverting the activities temporarily around a newly discovered fossil site until the remains had been removed by the monitor and the activities allowed to proceed through the site. Similar paleontologic resource impact mitigation programs usually have resulted in no delay of earth-moving activities.

All mitigation measures presented below should be directed by a vertebrate paleontologist approved by the City of Los Angeles and LACMVP. The paleontologist should have substantial experience designing and conducting paleontologic resource impact mitigation programs in areas underlain by fossil-bearing strata. The paleontologic monitor and other paleontologic staff working under the direction of the paleontologist should have experience monitoring earth-moving activities, recovering large vertebrate fossil specimens, and recovering and processing large samples of fossiliferous rock or sediment.

The mitigation measures described below would be in compliance with any City of Los Angeles environmental guideline and with SVP (1995, 1996) standard guidelines for mitigating adverse construction-related impacts on paleontologic resources. The paleontologist would ensure implementation of these measures and verify the effectiveness of the measures. The results of the program would be summarized in a final technical report of results and findings submitted to the City of Los Angeles.

PAL-1 Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program, including monitoring, during earth-moving activities at the project site.

PAL-2 The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.

PAL-3 The qualified monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.

PAL-4 Earth-moving activities will be monitored by the qualified monitor only in those areas of the Project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.

Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to proceed through the site immediately. The location and proper geologic context of any fossil occurrence will be documented, as appropriate. Any recovered rock sample will be processed to allow for the recovery of smaller fossil remains.

Rock samples will be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor. No more than 6,000 pounds (12,000 pounds total) of rock will be processed from either the Palos Verdes Sand or coastal deposits.

PAL-5 All fossil specimens recovered from the Project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.

PAL-6 The monitor will maintain daily monitoring logs that include the particular tasks accomplished, the earth-moving activity monitored, the location where monitoring was conducted, the rock unit encountered, fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings will be prepared by the paleontologist in accordance with any City of Los Angeles requirement.

5.5.2.6 Unavoidable Adverse Impacts

Development of the Project could lead to the permanent loss of fossil-bearing strata in rock units. The loss of any paleontologic resources could pose potentially significant long-term adverse environmental impacts, however, the Project would not impose adverse environmental impacts with proper mitigation monitoring in areas where excavation and or boring is to occur.

5.5.2.7 Cumulative Impacts

Development of the Project, in combination with other projects in the region where a project site is underlain by the Palos Verdes Sand might lead to the progressive loss of fossil-bearing strata in these rock units that could be prospected for fossil remains and unrecorded fossil sites. The loss of these additional paleontologic resources is another potentially significant long-term adverse environmental impact.

5.6 GEOLOGY, SOILS AND SEISMICITY

5.6.1 Environmental Setting

This analysis is based on a review of available information and data on the geotechnical and geological conditions of the various components of the proposed Project. The primary information reviewed for this analysis was site-specific geological and geotechnical investigations performed for the proposed Project and both published and unpublished geological and geotechnical reports and maps.

REGIONAL GEOLOGIC AND SITE SETTING

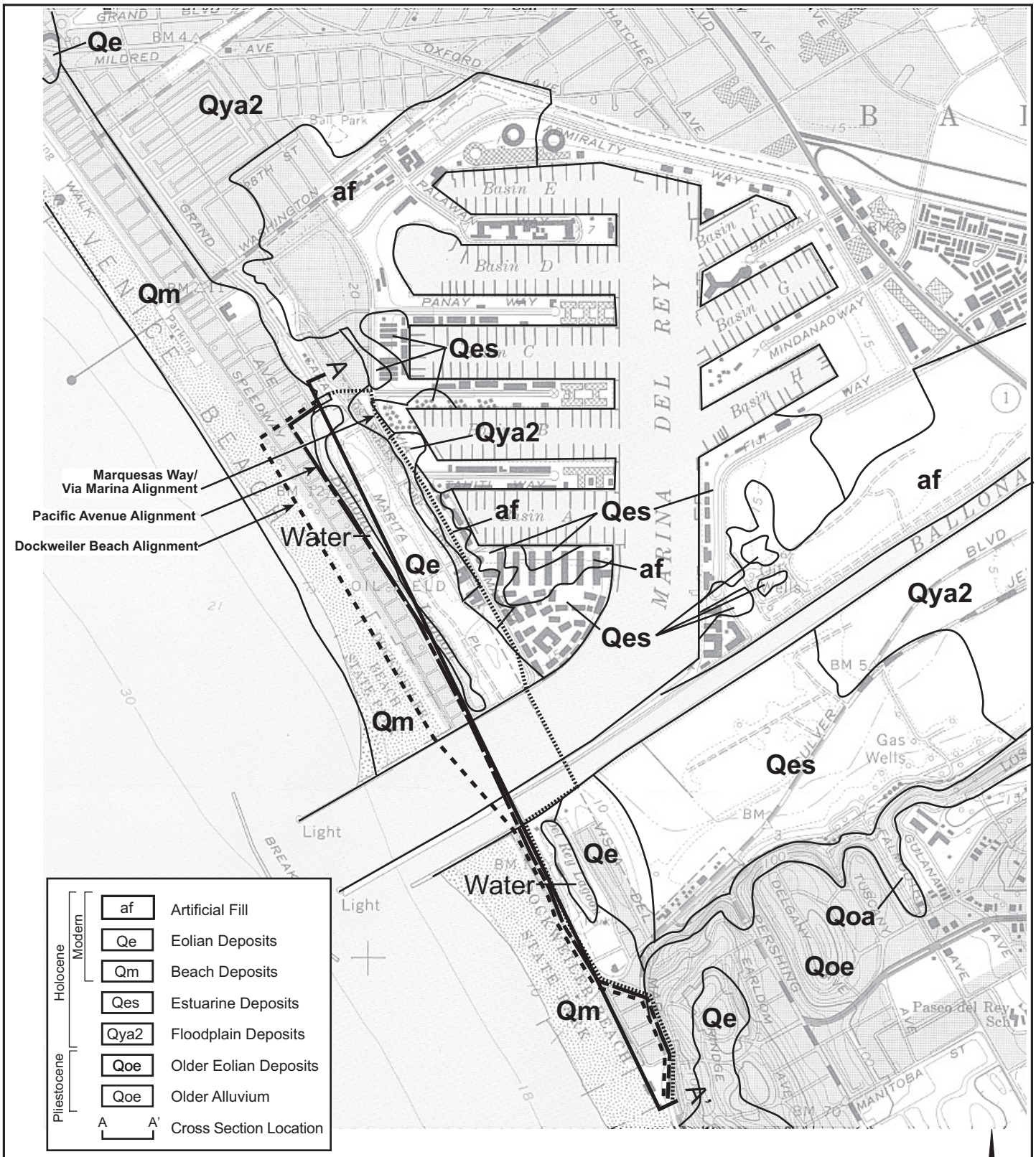
The Project area lies within a portion of the Los Angeles Basin known as the "Ballona Gap." The Ballona Gap is a broad alluvium filled valley developed as a result of stream incision occurring along the ancestral Los Angeles River (Poland, 1959). Before 1825, the Los Angeles River flowed westward through the Ballona Gap. Flooding in 1825 changed the course of the river to its present day course southward into San Pedro Bay (Poland, 1959). Presently, Ballona Creek drains westward across the project area in a concrete-lined drainage channel.

The Project area is generally bounded by Santa Monica Bay to the west, Marina Del Ray harbor to the east-northeast, marsh and wetlands of Playa Del Ray to the east, and stream-cut bluffs that delineate the southern margin of the Ballona Gap to the southeast. The entrance to the Marina Del Ray harbor crosses the project area and is parallel to, and lies just north of, Ballona Creek. The Venice Grand Canal and Ballona Lagoon lie within the Project area between the Santa Monica Bay and the Marina Del Ray harbor.

The topography in the Project area is relatively flat lying with an elevation of about 13 feet (above mean sea level datum) north of Ballona Creek. South of Ballona Creek, the topography is relatively flat lying at about elevation 14 feet until reaching Sunridge Street where the topography rises southward at an approximate grade of 3 to 4 percent up to about an elevation of 51 feet at the south end of the proposed Project. The slopes that lie to the southeast of the southern end of the project rise approximately 110 feet above the Project area at inclinations ranging from about 8:1 (horizontal: vertical) to 1:1.

GENERAL SITE GEOLOGY

The main surficial and subsurface materials within the Project area include artificial fill, eolian deposits, beach deposits, estuarine deposits, and alluvial sediments. The surficial sediments are underlain at an elevation of about -80 feet by sedimentary rock of the San Pedro formation. The areal distribution of the surficial materials within the Project area is shown on the Geologic Map, Figure 5.6-1. A geologic cross section showing the generalized distribution of the subsurface materials is provided on Figure 5.6-2. The following paragraphs provide brief, generalized descriptions of the subsurface materials along the proposed Project alignments.



Notes:
1. Geology from CDMG (1998) Open-File Report 98-27.
2. Base map topography from USGS Venice Quadrangle, photorevised 1981.

0 1/2
Scale in Miles

N

GEOLOGIC MAP

Project No.: 29870322	Date: AUGUST 2004	Project: VENICE DUAL FORCE MAIN EIR	Figure 5.6-1

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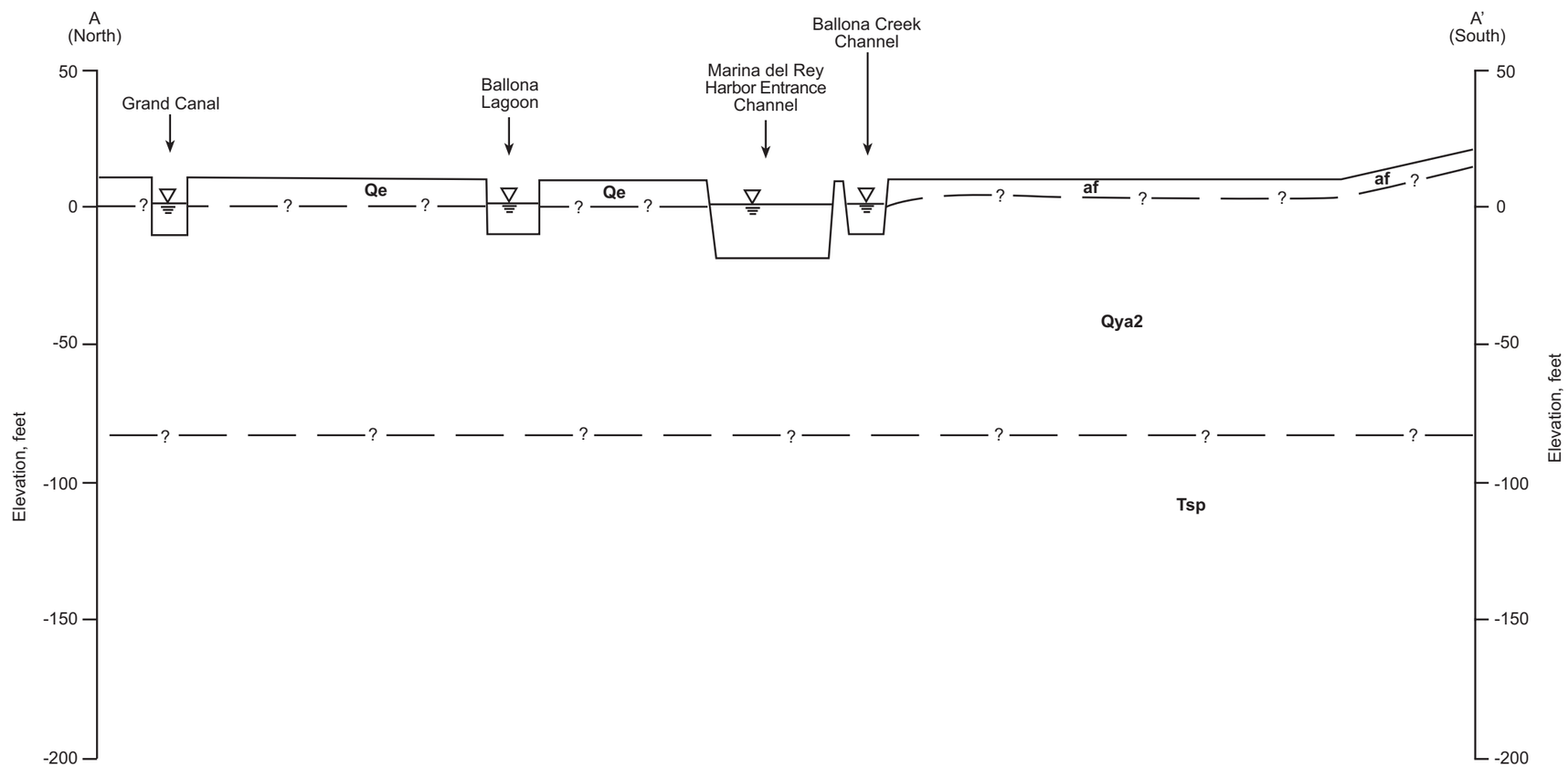

LEGEND

af = Artificial Fill (Note: Observed in borings by URS (2000a) south of Ballona Creek. Areal extent unknown and therefore, is not shown on geologic map

Qe = Eolian deposits

Qya2 = Alluvial deposits

Tsp = San Pedro Formation

Horizontal Scale: 1" = 1000 Feet
Vertical Scale: 1" = 50 Feet

Note: See Geologic Map, Figure _, for Cross Section Location

GENERALIZED GEOLOGIC CROSS SECTION ALONG PROPOSED FORCE MAIN

Project: VENICE DUAL FORCE MAIN EIR

Project No.: 29870322

Date: AUGUST 2004

Figure 5.6-2

URS

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Young Surficial Sediments (Holocene) – Artificial fill materials exist throughout the Project area. Where encountered south of Ballona Creek, the artificial fill typically ranges in thickness from about 5 to 17 feet below the ground surface (URS, 2000a). The artificial fill generally consists of sand and silty sand with occasional gravel and debris. The artificial fill is typically very loose to loose, but has occasional dense to very dense layers. Note that the artificial fill is not shown on the Geologic Map, Figure 5.6-1, along the proposed alignments because the areal extent of this material is not currently known:

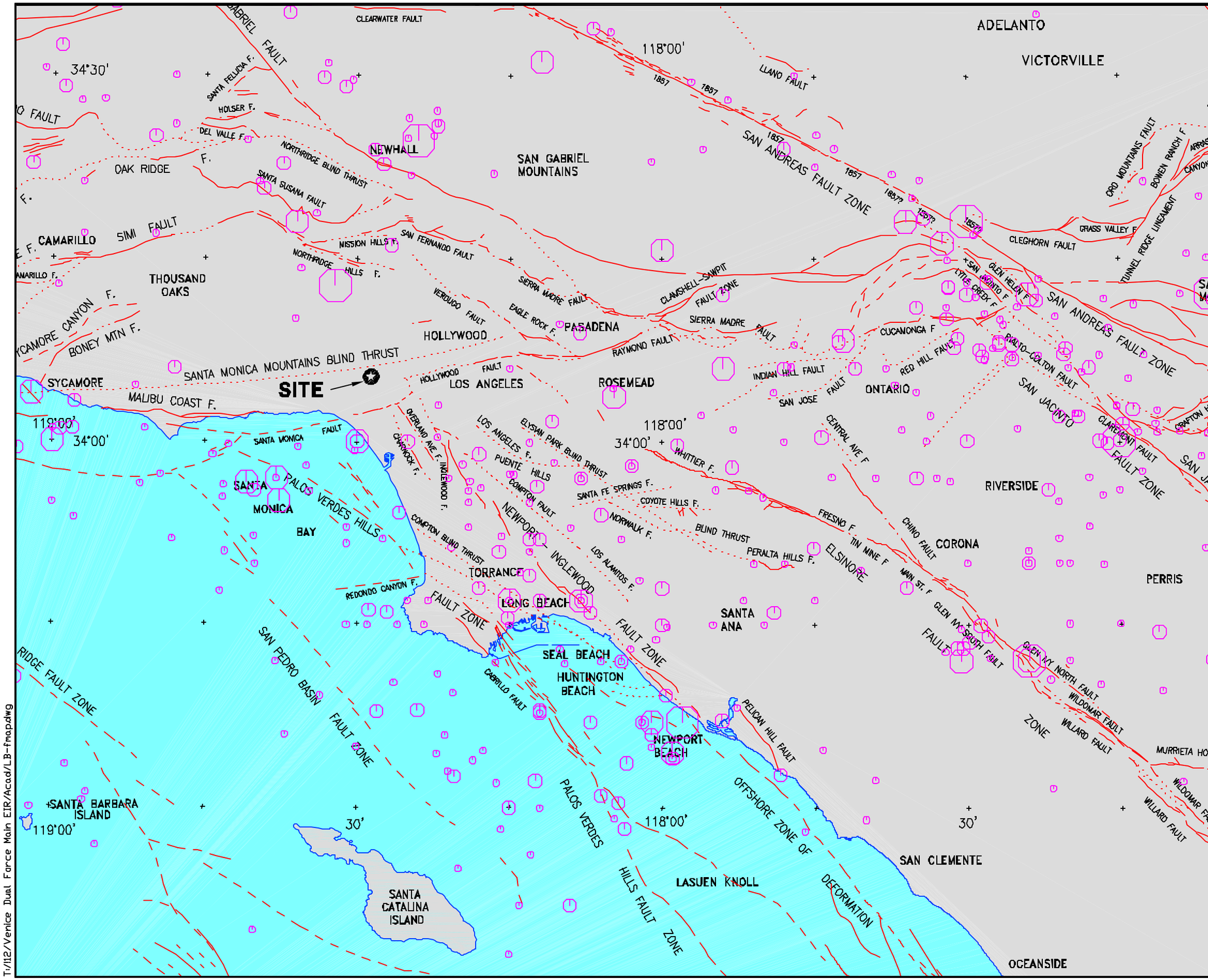
- Beach deposits (Qm) – Modern beach deposits consisting of loose to medium dense coarse sand and gravelly sand up to 23 feet thick [California Division of Mines and Geology (CDMG), 1998].
- Eolian deposits (Qe) – Windblown deposits that lie immediately inland from the modern beach. The eolian deposits consist of fine sand less than 10 feet in thickness (CDMG, 1998).
- Estuarine deposits (Qes) – Marsh deposits that typically include silt, sand, and clayey sand that are loose to medium dense (CDMG, 1998). The thicknesses of the estuarine deposits are likely less than 20 feet.
- Alluvial deposits (Qya2) – Young floodplain sediments derived primarily from the ancestral Los Angeles River. The alluvial deposits generally consist of intervals of sand, silty sand, silt, sandy to silty clay, and clay (URS, 2000a; 2000b). Occasional gravel and shells occur in the coarse-grained alluvium (sand). An approximately 15-foot-thick layer of gravelly sand to sandy gravel was encountered in borings in the area of the entrance channel and Ballona Creek at elevations ranging from –64 to –73 feet (URS, unpublished). This gravelly layer is likely the "50-foot gravel" of Poland (1959) and is the lower division of the younger alluvial deposits. The 50-foot gravel is a widespread relatively thin and irregular gravel and sand body laid down by the ancestral Los Angeles River. The consistency of the coarse-grained alluvium ranges from very loose to very dense, but is typically medium dense to dense (URS, 2000a; 2000b). The consistency of the fine-grained alluvium (silt and clay) ranges from soft to very stiff (URS, 2000a; 2000b).

SAN PEDRO FORMATION (EARLY PLEISTOCENE)

- Tsp – Weakly lithified deposits of non-marine to shallow marine origin that generally consist of stratified and cross-bedded sand with occasional beds of fine gravel, silty sand, and silt (Poland, 1959). The rock likely underlies the alluvial deposits at about elevation -79 to -88 feet.

FAULTS AND SEISMICITY

- Southern California is crossed by numerous northwest-trending active and potentially active surface faults and underlain by several "blind" thrust faults (i.e., a low-angle reverse fault with no surface exposure). The locations of the known active and potentially active faults and epicenters of earthquakes with magnitudes of 3.5 or greater with respect to the proposed Project are shown on the Regional Fault and Epicenter Map, Figure 5.6-3.
- No active surface fault traces are known to cross the proposed project area. In addition, the Project area is not underlain by a blind thrust fault that is recognized by the California Geological Survey (2003) as a potential seismic source. However, as shown on Figure 5.6-3, the Project area is located near several active or potentially active faults. Based on the known activity of faults in the region and on the recorded seismicity, the project site is likely to experience strong ground shaking from future earthquakes. Significant historical earthquakes that have occurred near the Project area include:
  - The 1933 Long Beach earthquake (Magnitude (M) 6.4) on the Newport-Inglewood Fault south of Huntington Beach;
  - The 1971 San Fernando earthquake (M6.6) on the San Fernando Fault;
  - The 1987 Whittier earthquake (M6.0); and
  - The 1994 Northridge earthquake (M6.7).



0 15 30

APPROXIMATE SCALE, kilometers

LEGEND

REPORTED EARTHQUAKE MAGNITUDES.

- 3.5 TO 3.9
- 4.0 TO 4.9
- 5.0 TO 5.9
- 6.0 TO 6.9
- 7.0 AND GREATER

SOUTH OF LATITUDE 35°N, EPICENTER AND MAGNITUDE DATA ARE FROM THE CALTECH EARTHQUAKE CATALOG FOR THE PERIOD FROM 1800 TO JUNE 1994. ONLY EARTHQUAKES OF MAGNITUDE 3.5 AND LARGER ARE SHOWN. AFTERSHOCKS ARE NOT INCLUDED.
NORTH OF LATITUDE 35°N, DATA ARE FROM THE CNSS EARTHQUAKE CATALOG (UC BERKELEY) FOR THE PERIOD FROM 1932 TO DECEMBER, 1998. ONLY EARTHQUAKES OF MAGNITUDE 4.0 AND LARGER ARE SHOWN. SIGNIFICANT AFTERSHOCKS OF THE 1952 KERN COUNTY EARTHQUAKE ARE INCLUDED.

? ? ?

APPROXIMATE LOCATION OF HOLOCENE AND PLEISTOCENE FAULTS, DOTTED WHERE CONCEALED, QUERIED WHERE CONJECTURAL. FAULT LOCATIONS BASED ON: ZIONY AND JONES, 1989; CDMG GEOLOGIC MAP SERIES OF CALIFORNIA, 1977–1986 (1:250,000 SCALE); CDMG GEOLOGIC MAP SERIES, CALIFORNIA CONTINENTAL MARGIN, 1987 (1:250,000 SCALE); HAUKSSON, 1990; SHAW AND SHEARER, 1999; WRIGHT, 1991; AND DOLAN ET AL., 1995; GRANT ET AL. 1999.

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REGIONAL FAULT AND EPICENTER MAP

Proj. No.: 29865195	Date: MARCH 2004
Project: LEO BAECK TEMPLE PARKING FACILITY	Figure: 6

T:/112/Venice Dual Force Main EIR/Acad/LB-fmap.dwg

The geoseismic characteristics of some of the faults considered by the California Geological Survey (2003) as potential seismic sources within about 50 kilometers of the proposed project are listed in Table 5.6-1, including an estimate of the maximum earthquake magnitude that might be generated by each fault.

As noted in Table 5.6-1, the closest active or potentially active faults to the project area are the Palos Verdes, Santa Monica, and the Newport-Inglewood fault zone, as discussed briefly below.

Table 5.6-1 Summary of Potential Seismic Sources

Fault or Fault Segment	Fault Type(1)	Dip (deg.)	Dip Direction	Approx. Fault Length (km)(2)	Approx. Closest Distance to Site (km)(3)	Approx. Max Magnitude, Mw(4)
Palos Verdes	RL	90	--	96	5¾	7.3
Santa Monica	O/LL, R	N	75	28	9	6.6
Newport-Inglewood (onshore)	RL	90	--	66	10½	7.1
Malibu Coast	O/LL, R	75	N	37	10½	6.7
Hollywood	O/LL, R	70	N	17	13½	6.4
Raymond	O/LL, R	75	N	23	20	6.5
Anacapa-Dume	O/LL, R	45	N	75	25	7.5
Verdugo-Eagle Rock	R	45	NE	29	28	6.9
San Fernando	R	45	N	18	36	6.7
Santa Susana	R	55	N	27	38	6.7
Sierra Madre	R	45	N	57	38	7.2
Northridge	R	42	S	31	39½	7.0
Whittier	O/RL, R	75	NE	38	40	6.8
San Andreas (Mojave)	RL	90	--	103	72	7.4

The Palos Verdes Fault, located about 3½ miles (5¾ kilometers) to the southwest, is a northwest-trending right-lateral strike-slip fault zone. The fault extends from near the southern boundary of the Transverse Ranges beneath Santa Monica Bay southeastward across the northeastern base of the Palos Verdes Hills before trending offshore to where it bifurcates around Lausen sea knoll offshore of San Clemente (Nardin and Henyey, 1978). The fault continues south and possibly connects with the offshore Coronado Bank fault within the Continental Borderlands Province. Segments of the Palos Verdes Fault are considered by Jennings (1994) as a Holocene fault (indicating displacement within the past 10,000 years). The Palos Verdes Fault has not produced any moderate or large earthquakes in the historical record.

The Santa Monica Fault, located about 5½ miles (9 kilometers) to the north, is part of the Transverse Ranges Southern Boundary fault system, a west-trending system of reverse, oblique-slip, and strike-slip faults that extends for more than 124 miles (200 kilometers) along the southern edge of the Transverse Ranges (Dolan et al., 2000). This fault system consists of a series of predominantly left-lateral, strike-slip surficial faults (from west to east, Santa Rosa Island, Santa Cruz Island, Anacapa-Dume, Santa Monica, Hollywood, and Raymond faults). The Santa Monica Fault is considered a late Quaternary fault (indicating displacement within the past 700,000 years) (Jennings, 1994) and has not produced any moderate or large earthquakes in the historical record.

The Newport-Inglewood Fault zone, located about 6½ miles (10½ kilometers) to the east, is an active right lateral wrench fault system that extends southwest from Beverly Hills to offshore of Newport Beach

for a total length of about 41 miles (66 kilometers). The Newport-Inglewood Fault zone is considered to connect with features south of Newport Beach (the Offshore Zone of Deformation, and the Rose Canyon Fault) to form a major zone of deformation that extends from Baja California to the southern front of the Santa Monica Mountains. The Newport-Inglewood Fault zone is considered a Holocene fault in the project vicinity (Jennings, 1994). The most recent earthquake on the Newport-Inglewood Fault zone was a magnitude M6.4 that occurred on March 10, 1933, on a segment of the fault south of Huntington Beach.

Two other nearby faults, the Charnock and the Overland Avenue faults, lie within approximately 3 miles (5 kilometers) and 4½ miles (7¼ kilometers) to the east of the proposed Project, respectively. Both of these faults were located by well log and water level data and have no surface expression (Poland, 1959). The Charnock and Overland Avenue faults are considered late Quaternary faults (Jennings, 1994). However, the California Geological Survey (2003) does not consider the Charnock and the Overland Avenue faults as potential seismic sources with respect to seismic shaking.

5.6.2 Thresholds of Significance

A project would normally create a significant impact on geology or soils if it would:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death;
b. Be subject to the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault, or be subject to the following;

    - Strong seismic ground shaking.
    - Seismic-related ground failure, including liquefaction.
    - Landslides.

c. Result in substantial soil or loss of topsoil;
d. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; and
e. Be located on expansive soil, as defined in Table 18- 1-B of the Uniform Building Code (UBC) (1994), creating substantial risks to life or property.

5.6.3 Environmental Impacts

Seismic hazards associated with seismic activity are described as follows:

Ground Shaking – As indicated by the numbers and distribution of recorded earthquake epicenters shown on Figure 5.6-3, the proposed Project will continue to be subjected to periodic seismic shaking, perhaps of considerable intensity. The degree of shaking that is felt at a given site depends on the distance from the earthquake source and on the type of subsurface material on which the site is situated. Based on our review, we anticipate that the highest levels of ground shaking at the proposed Project are anticipated to result from an earthquake on the nearby Palos Verdes Fault. All of the alternative alignments of the proposed project will be equally impacted by strong ground shaking.

Liquefaction – Defined as significant and relatively sudden reduction in stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. Potential for seismically induced liquefaction exists whenever relatively loose, sandy soils exist with high groundwater level and/or potential for long duration, high seismic shaking. When liquefaction occurs, the site can experience damage induced by permanent ground movements resulting in differential settlement and flotation of structures, tanks and pipelines.

Recent geotechnical studies performed for the proposed project encountered saturated sandy soils at relatively shallow depths along most of the Pacific Avenue alignment (URS, 2000a; 2000b). Standard Penetration Test (SPT) blow counts indicate the consistency of some of these sandy soils is relatively loose and therefore prone to liquefaction.

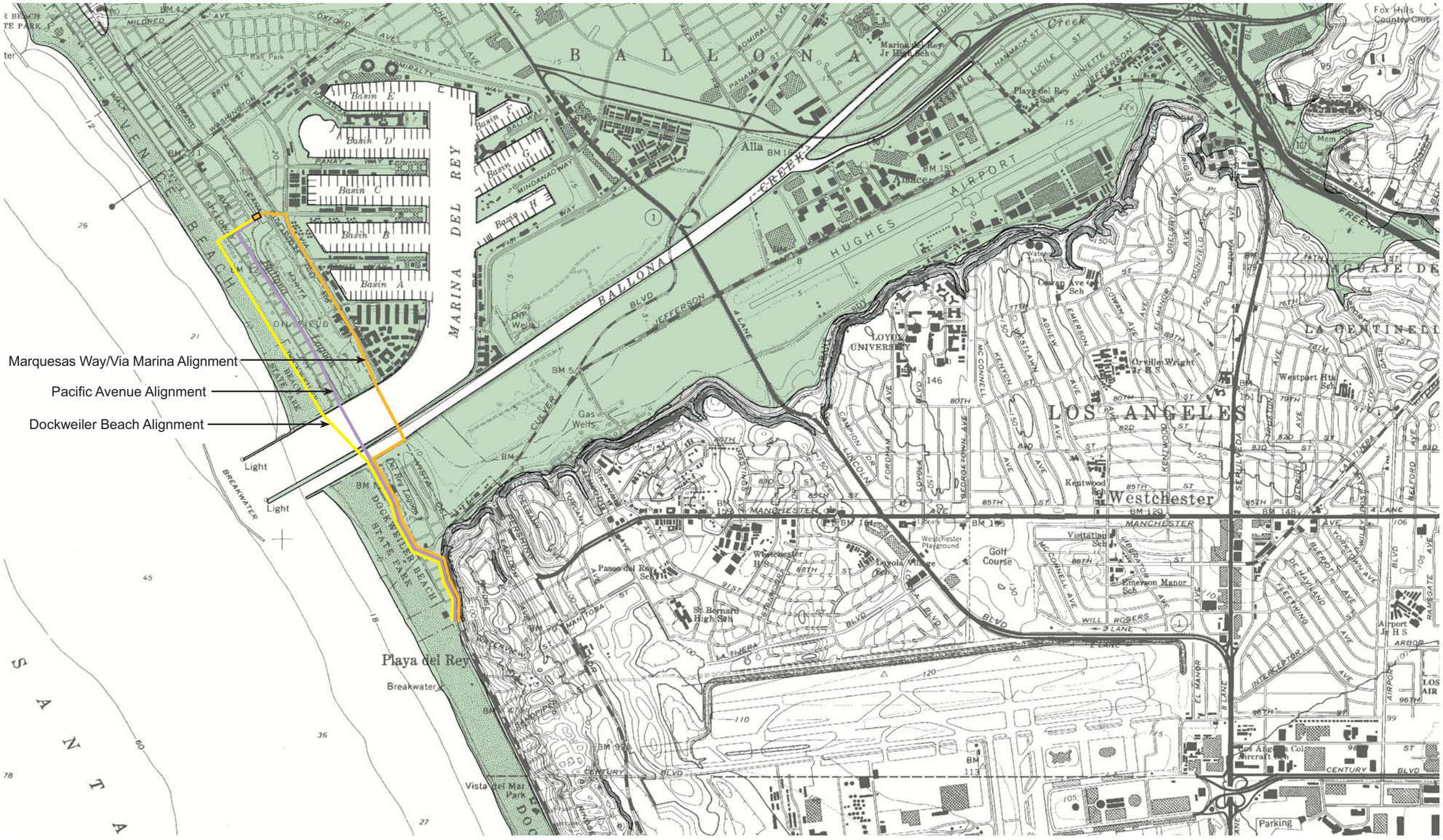
The California Geological Survey has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at greater risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow groundwater table. As shown on Figure 5.6-4, the California Geological Survey has identified the project area as being in a potential liquefaction hazard zone (CDMG, 1999).

Because of the combination of sands and shallow groundwater in the project area, liquefaction is considered a significant potential seismic hazard along all of the alternative alignments for the Project.

Differential Seismic Settlement – Differential seismic settlement occurs when seismic shaking causes one type of soil or rock to settle more than another type. It may also occur within a soil deposit with relatively homogeneous properties if the seismic shaking is uneven, which could occur due to variable geometry, for example, and variable depth of the soil deposit. Differential seismic settlement is most likely to occur in areas that transition between rock formations and more recently deposited alluvial soils or human-placed artificial fill. The components of the project are situated entirely upon saturated soils, which would be prone to differential settlement, primarily if liquefaction occurred. Differential settlement represents a potential seismic hazard along all of the alternative alignments for the Project.

Surface Fault Rupture – No known active or potentially active fault traces have been recognized as crossing any of the proposed Project areas, and the California Geological Survey does not delineate any part of the proposed Project area as being within an Alquist-Priolo Earthquake Fault Zone (CDMG, 1997). The potential for surface fault rupture is not considered a significant seismic hazard along any of the alternative alignments of the Project.

Tsunami – A tsunami is a great sea wave (commonly called a tidal wave) produced by a significant undersea disturbance, such as tectonic displacement of the sea floor associated with large, shallow earthquakes. Tsunamis are characterized by their high speed, long wavelength and long periods. They generally have low observable amplitude in the open sea, but in extreme cases may pile up to heights of 100 feet (30 meters) or more upon entering shallow water. Tsunamis can cause great damage in near-shore areas.



MAP EXPLANATION

Zones of Required Investigation:

Liquefaction

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE:
Base map taken from State of California, Seismic Hazards Zones, Venice Quadrangle, Official map, released March 25, 1999.

SCALE 1:24,000

1 .5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

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SEISMIC HAZARD ZONES MAP

Project: VENICE DUAL FORCE MAIN EIR

Project No.: 29870322

Date: JULY 2004

Figure 5.6-4

URS

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Compared with most coastal regions in the circum-Pacific region, tsunamis have represented a relatively minor threat to coastal areas of southern California in the historical period. The tsunami from the 1964 Alaskan earthquake, the only tsunami that has caused extensive damage to California since 1812, was measured at about 9 feet (3 meters) at Santa Monica and 5 feet (1.5 meters) at Los Angeles Harbor (McCulloch, 1985).

Numerically modeled heights of potential major tsunamis along the southern California coast with distant and local sources are reported by McCulloch (1985) for 100- and 500-year recurrence intervals. For the proposed Project, potential wave (and run-up) heights are reported at about 7½ feet (2¼ meters) and 14 feet (4¼ meters) for the 100- and 500-year events, respectively. The elevation of the Project site [approximately 10 feet mean sea level (MSL), or 6 meters] stands below the highest of these potential tsunami events.

It is well known that a tsunami can cause substantial erosion and scour on the shore. For example the 1960 Chilean tsunami scoured out the port entrance by more than 30 feet at Kesen-numa Port in Japan. Although the pipeline would be buried at depths no shallower than 10 feet below the surface, the possibility of damage to the proposed pipeline cannot be disregarded. A catastrophic tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment alternative.

Seiche – A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank, resulting from earthquakes or other large environmental disturbances. The nearby semi-enclosed Marina Del Ray harbor could be subject to seiche during a seismic event. However, because the proposed Project components will be buried in the subsurface, it is unlikely that impacts from seiche, if any, would affect the project. Therefore, seiches are not considered a significant seismic hazard along any of the alternative alignments for the proposed Project.

Seismically Induced Landslides – The potential for landslides induced by seismic shaking is not anticipated to pose a significant seismic hazard to the proposed Project. The proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. In addition, the Potential Liquefaction Hazard Zone map for the Venice quadrangle, referenced as Figure 5.6-4, indicates that the Project elements do not lie within areas designated as having the potential for earthquake-induced land sliding (CDMG, 1999). These are areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement during a seismic event. Landslides from other mechanisms are discussed further in this section.

Subsidence – The extraction of water or petroleum from sedimentary source rocks can cause the permanent collapse of the pore space previously occupied by the removed fluid. The compaction of subsurface sediment caused by fluid withdrawal will cause subsidence of the ground surface overlying a pumped reservoir. If the volume of water or petroleum removed is sufficiently great, the amount of resulting subsidence may be sufficient to damage nearby engineered structures. Significant quantities of water or petroleum are not currently being extracted in the area occupied by the proposed Project. However, dewatering of the excavations made during construction of the proposed Project could result in potentially damaging subsidence adjacent to the construction area.

The Project area is in proximity of the Playa Del Rey oil field, which is used by the Southern California Gas Company as a natural gas storage facility. Although a detailed study has not been performed for this report, it is anticipated that the continued operations at the natural gas storage facility would not result in measurable subsidence in the Project area, barring such extraction in the future. Because of the potential for subsidence to occur as a result of construction dewatering, subsidence is considered a potential geologic hazard to the proposed Project.

Expansive Soils – Expansive soils are fine-grained soils (clay) that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Changes in the water content of an expansive soil can result in severe distress to structures constructed upon the soil. The soils in the Project area consist primarily of coarse-grained sands that are not susceptible to expansion. Therefore, expansive soils are not anticipated to pose a significant hazard to any of the alternative alignments of the proposed Project.

Collapsible Soils – Collapsible soils are soils that undergo settlement upon wetting, even without the application of additional load. Most elements of the proposed Project would be founded in materials that are below the groundwater level and are unlikely to be affected by collapsible soils. Therefore, collapsible soils are not likely to affect any of the alternative alignments of the proposed Project.

Landslides – The same site conditions that are conducive to seismically induced landslides are also conducive to landslides associated with high rainfall or a rise in groundwater and involve slopes underlain by both surficial deposits (generally colluvium) and bedrock. As noted above, the proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. The potential for landslides induced by other mechanisms is not anticipated to pose a significant hazard to any of the alternative alignments of the proposed project. It is not anticipated that the project would cause any slope instability to the adjacent Del Ray Bluffs.

Methane – The proposed project lies within an area delineated by the City of Los Angeles (2004) as a "Methane Zone" indicating the potential for seepage of methane gas to occur in buildings within the Project area. Therefore, methane gas is considered a potential hazard to all of the alternative alignments of the proposed Project, primarily during construction, or at permanent structures, such as vaults, where gas could accumulate.

Mineral Resources – No mineral resources extraction projects in the vicinity of the Project site, therefore no effect on geological resources is expected from construction or operation of the proposed project. With proper mitigation, natural resources occurring within the region include sand as a potential aggregate resource and oil and gas. There are currently no significant sand and gravel mines in the Project area. The proposed Project site lies above the Playa Del Ray oil field (Munger Map Book, 2001). The proposed Project would be constructed in a previously developed area already incompatible with mining, and given the urban setting, there is little or no potential for new production in the area.

The proposed Project is located in an existing urbanized area and is designated by the California Geological Survey (CDMG, 1979) as being in an MRZ-1 and MRZ-3 area. A MRZ-1 area corresponds to "areas where adequate information indicates that no significant mineral deposits are present, or where it is

judged that little likelihood exists for their presence." A MRZ-3 area corresponds to "areas containing mineral deposits the significance of which cannot be evaluated from available data."

None of the alternative alignments of the proposed Project would have an adverse impact on aggregate resources or oil and gas resources in the state of California.

CONSTRUCTION

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. We have also evaluated the impact of the proposed Project on the existing geologic condition of the site.

The Project site is suitable for the proposed construction. It is noted that this is a preliminary site assessment; for any given aspect of the development, final geotechnical conclusions and recommendations should be provided in a separate report after plans become more finalized and the appropriate field investigations have been performed.

5.6.4 Mitigation Measures

The following measures are proposed to mitigate potentially significant geologic hazards to less than significant levels for the Project components. No unavoidable adverse impacts that cannot be mitigated have been identified for any of the Project components. These mitigation measures are more accurately described as project design features and are presented here for clarity.

GEO-1 Earthquake Ground Shaking – The proposed Project and associated facilities will likely be subjected to moderate or strong earthquake motions in their lifetime. The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum. Proper design and construction of the Project components will reduce impacts from ground shaking to less than significant.

GEO-2 Liquefaction and Differential Seismic Settlement – Mitigation measures with respect to liquefaction and differential seismic settlement hazards are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on these potential hazards will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline. The mitigation measures will reduce impacts from liquefaction and differential seismic settlement to less than significant.

GEO-3 Subsidence – Mitigation measures with respect to subsidence as a result of construction dewatering are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on this potential hazard will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or constructing the pipeline in a "wet" excavation. The mitigation measures will reduce impacts from subsidence to less than significant.

GEO-4 Methane – Mitigation measures with respect to methane gas hazards may be necessary for the proposed Project. Site-specific investigations that focus on the potential methane hazard will be

performed as part of the design studies. Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary. The mitigation measures will reduce impacts from methane to less than significant.

GEO-5 Tsunami – A tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment. Proper design and construction of the Project components, including erosion control measures or choosing an alternate alignment off of the beach, will reduce impacts from a tsunami to less than significant levels.

5.6.5 Unavoidable Adverse Impacts

With the implementation of proper engineering practices and mitigation measures prior to and during construction, no unavoidable or adverse impacts on the geologic footprint of this area from the Project are expected.

5.6.6 Cumulative and Secondary Impacts

Cumulative impacts on the geologic footprint of this area are not expected from the Project with the implementation of proper engineering practices and mitigation measure prior to and during construction.

5.7 HAZARDOUS WASTE AND MATERIALS

5.7.1 Environmental Setting

Hazardous wastes are hazardous materials that have been discharged, spilled, contaminated; are being discarded as no longer of practical use, have an expired shelf-life; or are being stored prior to proper disposal.

In compliance with CEQA and the State CEQA Guidelines, a more specific description of types of impacts is considered, including foreseeable accidents involving hazardous materials releases, handling of acutely hazardous materials within a quarter mile of a school (Public Resources Code Section 21151.4), and interference with emergency response plans and emergency evacuation plans. CEQA also requires a search of databases for sites that any agency has identified as having been contaminated by hazardous materials releases (Public Resources Code Section 21092.6). A detailed report is provided in Appendix G of this EIR.

The environmental setting of the Project area is determined by performing a site reconnaissance, researching historical use, storage, or disposal of hazardous materials or petroleum products, reviewing previous environmental reports, and reviewing databases generated by regulatory agencies. The site reconnaissance revealed that most of the properties alongside the proposed alignments are residential.

Abandoned oil wells are located along the proposed alignment routes. Therefore, this section also addresses risks that could result from exposure to toxic chemicals as a result of potential accidental releases of methane gases in quantities sufficient to result in fires or explosions that could cause injury, or the accidental release of hydrogen sulfide (H_2S) gas, an acutely hazardous substance (Figure 5.7-1).

Historical Sanborn Maps were obtained from the Los Angeles Public Library website. The maps dated from 1950 (updated from 1918) and showed most of the proposed alignment route along Pacific Avenue. The east-west trending area displayed extended from the edge of the beach just west of Ocean Front Walk to just east of Ballona Lagoon (Grand Canal). The north-south trending area of coverage extended from 34th (Catamaran) Avenue in the north to roughly the end of Del Rey Lagoon (Lake Del Rey), also showing a portion of Culver Boulevard and the area north of Esplanade to the Los Angeles County boundary. Copies of the maps reviewed are included in Appendix G of this EIR.

Most of the area is depicted as occupied by residential development or undeveloped lots. The area occupied by the VPP is not depicted. The lots shown to the north of Pacific Avenue from 39th (Hurricane) Avenue to 41st Avenue are undeveloped. Oil wells are shown at the terminus of 41st Avenue and at the southeast corner of 41st and Pacific Avenue, as well as across the lagoon between 41st and 42nd avenues. Oil wells and derricks are depicted along the west side of the lagoon, south of 42nd Avenue (with two storage tanks) and 44th Avenue. Almost every city block from Pacific Avenue to Ocean Front Walk is developed with at least one oil well derrick, platform, and/or tank between 38th (Galleon) Avenue to 60th Avenue. The only businesses depicted are an unnamed store at the northwest corner of 49th (Reef) and Pacific Avenues, a life guard station at 66th Avenue and Ocean Front Walk, and a restaurant at 6615 Speedway.

ABANDONED OIL WELL LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.7-1

Data regarding areas of known contamination were obtained from a variety of sources. Consistent with CEQA Section 21092.6, a search of several database lists was conducted to determine if other agencies have identified sites within, or close to, the proposed alignments as having been contaminated by hazardous materials releases.

The database report was provided by Environmental Data Resources, Inc. (EDR) and reviewed to evaluate whether activities on or near the proposed alignments have the potential to create adverse environmental impacts on the proposed project. EDR reviews databases compiled by federal, state, and local government agencies. It should be noted that this information is reported as received from EDR, which in turn, reports information as it is provided in various government databases. It is not practicable to verify the accuracy or completeness of information contained in these databases. However, the use of and reliance on this information is a generally accepted practice in the conduct of environmental due diligence.

Table 5.7-1 describes the regulatory agency databases searched, which have been reviewed for the applicable search distances as specified in American Society for Testing and Materials (ASTM) Standard E1527-00, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", at a minimum. The complete database report is provided in the Appendix G of this EIR.

The topography in the vicinity of the site slopes generally to the southwest. Surface water flow would generally follow the topographic gradient and flow to the southwest. According to groundwater well data obtained from the Los Angeles County of Public Works, Water Resources Division, deep groundwater flows to the south-southwest. Therefore, sites located generally to the northeast of the proposed alignments are considered to be hydrologically upgradient.

Listed facilities identified close to, or upgradient of, each of the proposed alignments within the database search radii indicated above are identified in Table 5.7-2. The final column in the table assigns a potential for each database listing of a given facility to represent a risk in any proposed alignment. The potential is classified as "Low", "Medium", or "High" based upon the facility's distance relative to the proposed alignments and projected groundwater gradient; and its regulatory status on that particular database. Facility listings representing a moderate or high potential for environmental concern at the proposed alignments are further discussed after the table.

Table 5.7-1 Regulatory Database Descriptions and Corresponding ASTM Search Distances

Type of Database/Date	Description of Database	Radius Searched
Required Federal Database Listings		
NPL	The National Priorities List (NPL) identifies uncontrolled or abandoned hazardous waste sites. To appear on the NPL, sites must have met or surpassed a predetermined hazard ranking system score, been chosen as a state's top priority site, pose a significant health or environmental threat, or be a site where the EPA has determined that remedial action is more cost-effective than removal action.	1.0 mile
CORRACTS	Resource Conservation & Recovery Act (RCRA) facilities ordered to implement corrective actions.	1.0 mile
CERCLIS	The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database identifies hazardous waste sites that require investigation and possible remedial action to mitigate potential negative impacts on human health or the environment.	0.5 mile
RCRA TSDs	RCRA treatment, storage, or disposal (TSD) sites.	0.5 mile
CERCLIS- NFRAP	No Further Remedial Action is Planned (NFRAP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for these sites and they have been removed from CERCLIS list based on findings of site investigations.	Site and Adjoining
RCRA Generators	RCRA regulated hazardous waste generator notifiers list; both large quantity and small quantity generators are included in this list.	Site and Adjoining
ERNS	EPA's Emergency Response Notification System (ERNS) list contains reported spill records of oil and hazardous substances.	Site
Supplemental Federal Database Listings		
CONSENT	Superfund (CERCLA) Consent Decrees by the Department of Justice. Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.	1.0 mile
ROD	Record of Decision (ROD) documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.	1.0 mile
DELISTED NPL	NPL Deletions. The National Oil and Hazardous Substances Pollution Contingency Plan establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 Code of Federal Regulations (CFR) 300.425 (e), sites may be deleted from the NPL where no further response is appropriate.	1.0 mile
DOD	Department of Defense (DOD) Sites. This data set consists of federally owned or administered lands, administered by the DOD, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.	1.0 mile
INDIAN RESERVE	This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.	1.0 mile
FUDS	Formerly Used Defense Sites (FUDS). The listing includes locations of FUDS properties where the USACOE is actively working or will take necessary cleanup actions.	1.0 mile
US ENG CONTROLS	Engineering Controls Sites List. A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.	0.5 mile
ODI	Open Dump Inventory (ODI). An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.	0.5 mile
UMTRA	Uranium Mill Tailings Sites. Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.	0.5 mile
FINDS	The Facility Index System (FINDS) database identifies different databases that contain information regarding federally listed sites.	Site and Adjoining
MINES	Mines Master Index File. Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.	Site and Adjoining
TSCA	Toxic Substances Control Act (TSCA). TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.	Site and Adjoining

Type of Database/Date	Description of Database	Radius Searched
SSTS	Section 7 Tracking Systems. Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the EPA by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.	Site and Adjoining
TRIS	The Toxic Release Inventory System (TRIS) database identifies facilities that release toxic chemical to the air, water, or land in reportable quantities.	Site and Adjoining
FTTS	Tracks administrative cases and pesticide enforcement actions and compliance activities related to the Federal Insecticide, Fungicide, and Rodenticide Act, the TSCA, and the Emergency Planning and Community Right-to-Know Act.	Site and Adjoining
HMIRS	The Hazardous Material Information Reporting System records of spills or hazardous materials incidents reported to the Department of Transportation.	Site
MLTS	Material Licensing Tracking System (MLTS). The MLTS is maintained by the Nuclear Regulatory Commission (NRC) and contains a list of approximately 8,100 sites, which possess or use radioactive materials and which are subject to NRC licensing requirements.	Site
NPL LIENS	Federal Superfund Liens. Federal Superfund Liens. Under the authority granted the EPA by the CERCLA of 1980, the EPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. EPA compiles a listing of filed notices of Superfund Liens.	Site
PADS	Polychlorinated Biphenyl (PCB) Activity Database System. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify the EPA of such activities.	Site
RAATS	RCRA Administration Action Tracking System (RAATS). RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.	Site
Required State Database Listings		
AWP/ Former BEP	Annual Work Plan (formerly known as Bond Expenditure Plan [BEP]) sites – known hazardous waste sites targeted for cleanup. This is the state-equivalent to the NPL.	1.0 mile
CalSites	The CalSites database contains potential or confirmed release properties. This is the state equivalent to CERCLIS.	0.5 mile
VCP	Voluntary Cleanup Program sites – low-threat sites with either confirmed or unconfirmed releases and that have requested DTSC oversight and cleanup activities and have agreed to cover cleanup costs. (Similar to Brownfields sites below)	0.5 mile
TOXIC PITS	Toxic Pits Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.	0.5 mile
STATE LANDFILL	Solid Waste Information System. Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.	0.5 mile
WMUDS/SWAT	State inventory of solid waste disposal and landfill sites.	0.5 mile
LUST	List of information pertaining to all reported leaking underground storage tanks (LUSTs). This includes listings at the state and local level.	0.5 mile
Cortese	The Hazardous Waste & Substances Sites list identifies older LUST sites and sites listed by the Department of Health. It is no longer updated.	0.5 mile
INDIAN LUST	LUSTs on Indian land in Arizona, California, New Mexico and Nevada.	0.5 mile
CA UST	State listing of active underground storage tank (UST) sites.	Site and Adjoining
INDIAN UST	USTs on Indian land in Arizona, California, New Mexico and Nevada.	Site and Adjoining
CA FID UST	State listing of active and inactive UST sites. This list is no longer updated.	Site and Adjoining
HIST UST	State listing of historical UST sites. This list is no longer updated.	Site and Adjoining

Type of Database/Date	Description of Database	Radius Searched
NOTIFY 65	Proposition 65 Notification Records. The NOTIFY 65 list contains facility notifications about any release that could impact drinking water and thereby expose the public to a potential health risk.	Site and Adjoining
CHMIRS	The California Hazardous Material Incident Report System records of spills or hazardous materials incidents.	Site
Supplemental State and Local Database Listings		
SLIC	The Regional Water Quality Control Board issues this list of sites with non-tank spill, leaks, investigations, and cleanups.	0.5 mile
Brownfields	Database of low-threat properties with either confirmed or unconfirmed releases that have requested DTSC oversight and cleanup activities and have agreed to cover cleanup costs. (Similar to VCP sites above)	0.5 mile
DEED	Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.	0.5 mile
City of L.A. Landfills	The City Engineering and Construction Division maintain a list of landfills within city limits.	0.5 mile
L.A. County SWLF	The Los Angeles County Department of Public Works maintains a list of historic, current, and potential landfills within the county.	0.5 mile
WDS	The State Water Resources Control Board generates this list of industrial wastewater dischargers.	Site and Adjoining
HAZNET	Facility and manifest data is gathered for this database from hazardous wastes manifests that are submitted to DTSC.	Site and Adjoining
EMI	Database of facilities reporting toxic and criteria pollutant emissions data to the local air pollution agencies.	Site and Adjoining
NFA	No Further Action Determination. This category contains properties at which DTSC has made a clear determination that the property does not pose a problem to the environment or to public health.	Site and Adjoining
REF	Unconfirmed Properties Referred to Another Agency. This category contains properties where contamination has not been confirmed and which were determined as not requiring direct DTSC Site Mitigation Program action or oversight. Accordingly, these sites have been referred to another state or local regulatory agency.	Site and Adjoining
SCH	School Property Evaluation Program. This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.	Site and Adjoining
NFE	Properties Needing Further Evaluation. This category contains properties that are suspected of being contaminated. These are unconfirmed contaminated properties that need to be assessed using the PEA process. PEA in Progress indicates properties where DTSC is currently conducting a PEA. PEA Required indicates properties where DTSC has determined a PEA is required, but not currently underway.	Site and Adjoining
Dry Cleaners	EDR compiles a database of dry cleaning facilities based on their having a hazardous waste generator ID and certain SIC codes.	Site and Adjoining
L.A. County HMS	The Los Angeles County Department of Public Works maintains a listing of files they maintain for sites with USTs or facilities with industrial wastewater permits.	Site and Adjoining
Site Mitigation List	The L. A. County Department of Public Health maintains a listing of industrial sites that have had some sort of spill or complaint.	Site and Adjoining
AST	Registered Aboveground Storage Tanks.	Site

Table 5.7-2 Regulatory Database Findings for Proposed Venice Force Main Alignments

EDR Map ID	Facility Name Address	Proximity to Via Marina Alignment Alternative	Proximity to Pacific Ave Alignment Alternative	Proximity to Beach Alignment Alternative	Database Lists	Description	Current Agency Status	Recognized Environmental Condition Potential
5	LA Pumping Plant #46 140 Hurricane Street	On site	On site	On site	RCRS-SQG	Small quantity generator of hazardous waste	No violations reported	Low
					Notify 65	Site has notified the State Water Resources Control Board that a release of hazardous substances could potentially impact drinking water	Not applicable-notification only	Low
					FINDS	Included on RCRIS	Not provided	Low
18	7332 Vista Del Mar	On site	On site	On site	ERNS	Sewer collapsed on 4/17/1992; release to land only.	Not provided	Low
7	Timberlake Group Int'l 4100-5000 Pacific	Approx. 900 feet. southwest	On site	Approx. 500 feet northeast	CA SLIC	Total petroleum hydrocarbons (TPH) contamination	Case closed	Low
11	S. California Gas Co. 5400 Pacific Avenue	Approx. 900 feet. southwest	On site	Approx. 500 feet northeast	CA SLIC	TPH contamination	Case closed	Low
					HAZNET	Generator of contaminated soil from site cleanup	Not provided	Low
Unmapped	S. California Gas Co. 143 Union Jack	Approx. 700 feet southwest	Approx. 200 feet northeast	Approx. 700 feet northeast	CA SLIC	TPH contamination	Case closed	Low
12	OHN Kearney 6512 Pacific Avenue	Approx. 1000 feet southwest	On site	Approx. 400 feet northeast	HAZNET	One-time generator of asbestos-containing waste.	Not provided	Low
8	Unocal #0407 13800 Bora Bora Way	Approx. 0.25 mile east	<0.25 mile east	<0.25 mile east	Cortese	Leaking UST site	Not provided	Low
					LUST	Release of gasoline to groundwater in 1991 as a result of piping failure. Methyl tert-butyl ether (MTBE) detected.	Case closed in 1997	Low
9	Unocal Corp SS 0407 1 Bora Bora Way (File review indicates actually same location as above)	Same as above	Same as above	Same as above	CA FID UST	UST location	Active	Low
9	Service Station No. 1 Bora Bora Way (Same as above)	Same as above	Same as above	Same as above	HIST UST	Historic UST site with 10,000-gallon Product 10,000-gallon Premium 10,000-gallon Unleaded 10,000-gallon Diesel (1) 550-gallon Waste oil (1) Unidentified contents	Not provided	Low

EDR Map ID	Facility Name Address	Proximity to Via Marina Alignment Alternative	Proximity to Pacific Ave Alignment Alternative	Proximity to Beach Alignment Alternative	Database Lists	Description	Current Agency Status	Recognized Environmental Condition Potential
9	Pegasus Carriers, Inc. (Same as above)	Same as above	Same as above	Same as above	RCRIS-SQG	Small Quantity Generator of hazardous waste	No violations reported	Low
					FINDS	Identified on RCRIS	Not provided	Low
3	Via Dolce Acquisition Area 3 3700-3706 Canal North-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	CA SLIC	TPH contamination	Case closed	Low
3	Via Dolce Acquisition Area 2 3600-3615 Canal North-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	CA SLIC	TPH contamination	Case closed	Low
4	Via Dolce Acquisition Area 1 3602 Pacific Avenue Northwest	Approx. 1000 feet northwest	Approx. 1000 feet northwest	Approx. 1000 feet northwest	CA SLIC	TPH contamination	Case closed	Low
10	Southern California Gas Company 5101 Ocean Front Walk West	Approx. 200 feet southwest	Approx. 1200 feet southwest	Less than 100 feet northeast	CA SLIC	TPH contamination	Case closed	Low
14	Del Rey Cleaners 310 Culver Blvd. Northeast	Approx. 200 feet northeast	Approx. 200 feet northeast	Approx. 2000 feet southeast	CA SLIC	Perchloroethylene, VOC (volatile organic compounds) release from non-tank source	Site assessment	Moderate
					RCRIS-SQG	Small quantity generator of hazardous waste	No violations reported	Low
					FINDS	Identified on RCRIS	Not provided	Low
					HAZNET	Generator of hazardous waste: Halogenated solvents; Liquids with halogenated organic compounds >1,000 milligrams per liter.	Not provided	Low
					Cleaners	Dry cleaning establishment	Not provided	Low

According to records, there are a few hazardous materials-related sites on, or near, the proposed alignments. These have a low potential to have impacted the proposed alignments, unless contamination not yet discovered and abated is encountered during construction.

One site, Del Rey Cleaners, located approximately 200 feet north of the intersection of Culver Boulevard and Pacific Avenue, is reportedly currently undergoing site assessment activities. It is possible that contamination from that site may have migrated to the proposed alignments near Culver Boulevard. Precautions should be taken in this area to monitor for concentrations of dry cleaning fluids that may be present in the soils disturbed during construction.

The potential for facilities located more than 0.25 mile from the proposed Project alignments to have contaminated an alignment is considered low based on the relative distance of those facilities from the Project area and/or regulatory status.

5.7.2 Thresholds of Significance

A significant hazardous materials impact would occur if either direct, or indirect, changes in the environment caused by a particular Project alignment construction alternative would potentially result in one or more of the following conditions:

- Create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a substantial hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites and as result create a substantial hazard to the public or the environment; and/or
- Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.

5.7.3 Environmental Impacts

The proposed Project could pose potentially significant hazard impacts. These include the potential for exposure to gas leaking from abandoned wells in areas excavated during the Project, and/or potential effects from accidental releases of hazardous substances during construction.

OIL WELL FIELD HAZARDS

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations).

As part of the existing environment, hazardous materials and wastes may be encountered at each of the abandoned oil wells within the surrounding residential community. H_2S and other odorous substances,

such as methyl mercaptan, benzene, as well as other aromatic hydrocarbons, are all byproducts of natural gas production. These toxins may be present at active or abandoned wells.

There are three types of gas that may exist within the geological and soil units underlying the Project area: biogenic (or swamp) gas, thermogenic (field) gas, and processed natural gas (or piped gas). Biogenic gases are not toxic at low (ppm) levels; however, they act as asphyxiants at high concentrations. Biogenic gases contain trace quantities of other chemicals which are toxic at low levels (in the ppm range), including benzene, toluene, ethylbenzene, and xylenes (BTEX).

Thermogenic gas and butane, as well as trace amounts of toxic gases, including H_2S, exhibit distinct chemical characteristics, which permit "fingerprinting" or differentiation between gas types. In addition to lacking heavier gas components (propane, butane, ethane, etc.), the presence of helium in detectible amounts is a primary fingerprint for natural gas imported from the central United States and previously stored in the deep storage zone.

Migration Pathways – Natural gas can migrate via a variety of manmade structures through the subsurface soil both vertically and laterally. The most common manmade structures that may serve as conduits include:

- Old abandoned oil and gas wells or dry holes;
- Previously undocumented wells and dry holes;
- Recently plugged and abandoned oil and gas wells (abandoned in accordance with current CDOGGR regulations);
- Existing water extraction or injection wells;
- Old abandoned water wells;
- Monitoring wells;
- Utility trenches;
- Stormdrain systems; and
- Sewer lines.

Gas can also reach the surface through natural geologic features, which may facilitate migration. The geologic features most likely to serve as potential pathways include:

- Surficial deposits;
- Porous and permeable formations;
- Aquifers;
- Fracture systems;
- Fault planes; and
- Other geologic features and structures, such as unconformities.

The potential for gas migration to reach the surface is considered to be the greatest through or along human-made structures as geologic pathways are relatively "tight" and provide less space to facilitate migration. Within the Project area, wells penetrate shallow and deep gas zones at various depths. While a poorly constructed or abandoned well can serve as a conduit for upward migration of natural gas, even when proper construction and abandonment methods have been applied, such conduits can develop as wells deteriorate over time.

RISK OF EXPLOSION

The generation, transmission, and distribution of natural gas may pose a risk of explosion. Natural gas has a flammable property that needs to be strictly regulated in order to reduce the risk of explosion to the public and the environment. Explosion can occur as a result of leakage from abandoned wells and pipelines, and/or from third party interaction with the wells, transmission lines, and distribution lines. In addition, releases of gas from the abandoned wells may occur if construction activities accidentally puncture an abandoned well, leading to a possible explosion.

POTENTIAL SPILLS OR RELEASES

Land uses along the proposed alignment alternatives include mostly single- and multiple-family residences and a restaurant. Types of hazardous materials associated with these activities would typically include mostly common household janitorial supplies.

Potential impacts associated with increases in hazardous materials use and hazardous waste generation can result from hazardous materials releases during handling or transport, interference with emergency response plans, and limited hazardous waste disposal capacity.

An increase in hazardous materials use and hazardous waste generation during construction would increase the chances of a spill or release of hazardous substances. If a spill were to occur, emergency response procedures would be implemented to contain and clean up the spill. There are regulations in place regarding such procedures, and provisions would be in place from the onset of Project activities in order to eliminate, or at least minimize, potential spills and releases that might create a hazard to the public or the environment, or result in contamination of soil or groundwater. Therefore, impacts would be less than significant.

EXPOSURE TO CONTAMINATION

During construction, there is the potential for the disturbance of contaminated soils and groundwater that could pose a risk of exposure to construction workers, the public, and the environment as contaminants may be encountered during excavation activities. These contaminants would be expected to be petroleum-related substances given the extensive oil well development in the area; or, as discussed above, there is the possibility of contamination from other sources, such as dry cleaning establishments.

In addition, emissions of diesel particulate matter from the construction equipment would result in increased exposure near the construction activities. However, these emissions would be temporary and would not contribute significantly to chronic long-term exposure. Ongoing compliance with regulatory requirements under any alternative would provide an environment in which workers, visitors, and tenants located in, and near, the Project site would be protected.

There are a few electrical transformers located along the portions of the proposed alignments located along city streets. Should project activities require disturbance or relocation of these units, the Los Angeles Department of Water and Power records should be consulted to ascertain the potential polychlorinated biphenyl (PCB) content of the units. PCBs were commonly used in fluids contained in electrical equipment, primarily transformers and capacitors, and are known to have toxic and carcinogenic health effects. Manufacture of PCBs was completely banned in the U.S. in January 1979, and their

distribution in commerce was prohibited effective July 1979. Regulations require workers to wear protective clothing or equipment to protect dermal contact or inhalation of PCBs or materials containing PCB materials. All disposal activity of PCB material must adhere to EPA regulations. Disposal of PCB liquid and waste are also regulated at the state level.

HAZARDOUS WASTE GENERATION

Hazardous wastes generated during construction activities for each of the alignments would include miscellaneous motor vehicle fluids, potentially contaminated soil, and spent materials used during construction; such as fuels, lubricants, paints, and solvents. Hazardous wastes generated during project activities should be removed by licensed waste haulers and transported for treatment, disposal, or recycling at authorized off-site facilities.

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS AND WASTES

Transportation of hazardous materials and hazardous wastes is strictly regulated by federal and state laws. These laws include the Hazardous Material Transportation Act of 1994, administered by the United States Department of Transportation (USDOT), which includes standards for classification of hazardous materials, labeling, and placarding of containers, and vehicles, vehicle equipment standards, training of transport personnel, and incident reporting.

5.7.4 Mitigation Measures

The following mitigation measures are included in the project to reduce its impacts on hazards and hazardous material to below a level of significance for each of the alignments:

HAZ-1 A surface sweep is a method for measuring combustible vapors which may be emitted from the ground surface. The technique utilizes a sensitive portable gas detector, called a flame ionization detector (FID) to detect methane. The FID is capable of measuring methane concentrations as low as several ppm. When conducting the surface sweep, more attention can be taken in areas where underground gas would tend to exit the surface, such as at cracks in the ground.

Surface sweep measurements are intended to identify any flow of gas from the surface of the ground. Finding such “advective” flow is a good indicator of potential pressurized flow of undiluted gas in the soil.

HAZ-2 The City of Los Angeles Building Code requires that methane mitigation be implemented when construction occurs at these sites to ensure public safety. These measures include the installation of membrane barriers and vent piping, as well as trench dams and electrical seal-offs for each of these properties. Since these measures would already be required by City regulation, no additional mitigation measures are required.

Continued compliance with the many federal, state, and local requirements pertaining to the handling of hazardous materials/wastes would maintain acceptable levels of health and safety. These regulatory requirements are specifically designed to avoid any unauthorized and uncontrolled releases of hazardous materials to the environments and protect workers who may be exposed to hazardous materials/wastes, as well as provide a level of safety for the general public.

Strict compliance with local, state, and federal regulatory requirements provides the primary method of mitigating against hazardous waste impacts.

Handling of contaminated materials encountered during construction of any of the alignments should be coordinated centrally in order to ensure compliance with all applicable regulations. Construction bid documents should incorporate provisions for identification, segregation, handling and disposal of contaminated materials. In addition, bid documents should require all construction contractors to prepare site-specific Health and Safety Plans.

5.7.5 Unavoidable Adverse Impacts

Provided that all federal, state, and local regulations pertaining to project activities are followed and project-specific Health and Safety and Emergency Response Plans are developed and implemented, significant or long-term adverse impacts will be avoided.

5.7.6 Cumulative and Secondary Impacts

The three main aspects of hazardous materials addressed in this analysis are (1) the use, storage, transport, and disposal of hazardous materials and waste; (2) hazardous materials contamination and remediation; and (3) hazardous building materials.

Development of any of the proposed alignments would result in increased use of hazardous substances such as fuels, cutting fluids, other lubricants, solvents, and waste oils. The increase in the presence of these substances could increase the chances of a spill or release of hazardous substances during handling or storage. The use of hazardous materials and the generation of hazardous wastes from the construction activities would also increase the transportation of hazardous materials and hazardous wastes on public roadways. The likelihood of an accident involving hazardous materials or wastes would therefore increase, resulting in a greater potential for people and the environment to be exposed to these substances.

These alternatives would also increase demand for hazardous waste disposal capacity. During the extensive construction activities associated with each of the alignment alternatives, it is possible that contaminated soils would be unearthed, potentially exposing construction workers or the public to hazardous materials. However, this material will be collected, put in containers and disposed of at a Class 1 Landfill.

Proper packaging and handling of hazardous materials and wastes, coupled with employee training and emergency response, would reduce potential cumulative impacts of increased ground transport of hazardous materials/wastes to a level that is less than significant. With respect to the cumulative demand for treatment, recycling, and disposal, because sufficient capacity is expected to be available, the impact of cumulative increases is hazardous.

5.8 HYDROLOGY, WATER QUALITY / STORMWATER RUNOFF

5.8.1 Environmental Setting

The VPP Project is located within the Ballona Creek Watershed (watershed). The watershed is located on the coastal plain in the western portion of the Los Angeles Basin with the Santa Monica Mountains on the north and the Baldwin Hills on the south. Ballona Creek flows downstream from the Santa Monica Mountains through the City of Culver City and flows into the ocean at Playa Del Rey. Except for its estuary, Ballona Creek is a concrete-lined channel extending through a complex underground storm drainage system that drains approximately 130 square miles of urban developed land area. Tributaries of Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous other stormdrains all of which are either concrete channels or underground box culverts.

Cities within the watershed area consist of Culver City, Beverly Hills, West Hollywood, parts of Santa Monica, parts of Inglewood, parts of Los Angeles and portions of unincorporated areas of Los Angeles County. Adjacent to the downstream portion of the Ballona Creek Channel are the Marina Del Rey Harbor, Ballona Lagoon and Venice canals, Del Rey Lagoon and Ballona Wetlands. These waterbodies do not discharge into Ballona Creek, but are grouped as waterbodies in this subwatershed because of their proximity and various forms of hydrological connection to Ballona Creek (Los Angeles RWQCB, 2004).

Portions of the watershed are underlain by oil deposits. In 1892, extraction of oil began in the watershed, with the discovery of oil in Echo Park. In subsequent decades, oil wells were drilled throughout portions of the watershed. Initially, production was generally limited to downtown Los Angeles, but exploration continued to move west. With the discovery of the Inglewood oil field in 1924, production began in and around the Baldwin Hills. Oil was discovered in the Venice area in 1930, which initiated an oil boom along the coast. Today, the Project area is dotted with sixty-nine plugged and abandoned oil wells.

The watershed is within the Mediterranean climate zone of California, which is characterized by wet winters and long dry summers. The proximity and steep rise of the San Gabriel Mountains from the coast creates a barrier that traps moist ocean air against the mountain slopes and partially blocks summer heat coming from the desert and winter cold coming from the interior northeast. Average daytime summer and winter temperatures range from 71/63°F at the coast. The long-term annual rainfall average along the coast is 12.5 inches with most precipitation falling in a few major storm events between November and March. Most winter storms come from the northwest, moving across southern California into Arizona. Typical storms in the watershed bring ¾ inch or less of rainfall. Storms from the south or southwest are less common, but because they may stall off the coast, they may bring 3 to 6 inches of rain over portions of the watershed. Summer rains are rare, but when they occur, they are a result of tropical thunderstorms originating in the Gulf of Mexico or late summer hurricanes off the West Coast of Mexico.

Most of the storm drainage system, within the watershed, is managed through flood control structural features consisting of debris basins, storm drains, underground culverts, and open concrete channels. Many of these flood control features were designed and implemented by the USACOE. Ballona Creek is an underground box culvert throughout the eastern portion of the watershed, then converting to an open channel near the vicinity of Venice Boulevard and Pickford Street, and continuing downstream for approximately 9 miles to Santa Monica Bay. Only a few channels remain open for major portions of their length, including the Sepulveda Wash and Centinela Creek. Natural, undisturbed streams are located

primarily within the Santa Monica Mountains and Baldwin Hills area, where the water flow is seasonal and the channels are small. A few channels within major canyons area have been channelized and remain open channels, including Stone Canyon Creek.

Due to historical modification to Ballona Creek and its tributaries, natural hydrologic conditions have been significantly modified within the watershed. Today, approximately 40 percent of the watershed is covered with impervious surfaces and therefore, runoff enters the Ballona Creek and its tributaries at a more accelerated rate, and in greater volume than in prior years due to an increase in urban development. Since most channels are concrete-lined or within underground box culverts, the natural processes of erosion and sedimentation runoff have been altered. Under current conditions, eroded sediment material is transmitted downstream to the mouth of Ballona Creek where it collects and causes periodic closure of the public boating facility entrance at Marina Del Rey.

The construction of levees along portions of Ballona Creek and the construction of Marina Del Rey have significantly reduced the extent of tidal wetlands, and tidal flushing in the estuary and associated lagoons (i.e., Del Rey Lagoon and Ballona Lagoon). With an increase of imported water supply and an increase of landscape material to the area, surface runoff from irrigation systems has resulted in year-round flow conditions within most channels which are typically dry throughout most of the year.

Groundwater resource is located under most of the Ballona Creek Watershed area in groundwater formations known as the West Basin and a small portion of the Central Basin under the southeastern portion of the watershed. Groundwater in the Ballona Creek Watershed is replenished by percolation of rainfall and stream flow from the Santa Monica Mountains to the north and the Baldwin Hills to the south. With approximately 40 percent of the watershed covered by impervious surfaces and concrete lining most tributary channels, the land area open to direct infiltration of rainfall and percolation from stream channels has been substantially reduced (Los Angeles Department of Public Works, 2004).

The Water Quality Control Plan for the Los Angeles Region identifies the following beneficial uses for Ballona Creek, the Ballona Creek Estuary, the Ballona Lagoon, the Venice canals and the Del Rey Lagoon within the project area as shown in Table 5.8-1:

Table 5.8-1 Beneficial uses for Ballona Creek, Ballona Creek Estuary, Ballona Lagoon, Venice Canals and Del Rey Lagoon

• Navigation	• Migration of aquatic organisms
• Recreation	• Spawning/reproduction/early development
• Commercial and sport fishing	• Shellfish harvesting
• Estuarine habitat	• Warm freshwater habitat
• Marine habitat	• Municipal and domestic supply
• Rare, threatened or endangered species	

Source: Water Quality Control Plan for Los Angeles Region

Under Section 303(d) of the CWA, the proposed Project is required to identify the water bodies that do not meet water quality objectives necessary to support designated beneficial uses. Water bodies that have been identified as impaired are often referred to as the "303(d) List". Once a water body has been deemed impaired, a total maximum daily load (TMDL) must be developed for each water quality constituent that

compromises a beneficial use. A TMDL is an estimate of the total load of pollutants that a water body may receive without impairing applicable water quality standards.

The VPP is located within the area of Venice Beach, Venice canals, Marina Del Rey, Marina Del Rey Channel, Ballona Creek and its estuary, the Del Rey Lagoon and Dockweiler State Beach. Table 5.8-2 below summarizes the 2002 303(d) (approved by EPA in 2003) listings for these water bodies, as well as the associated TMDL completion dates.

Table 5.8-2 2002 CWA Section 303(D) Listed water bodies in the project area

Name	Pollutant/Stressor	Potential Sources	TMDL Priority	Est. Size Affected	Proposed TMDL Completion
Ballona Creek	Cadmium (sediment)	Nonpoint/Point Source	High	6.5 miles	2004
	ChemA (tissue)	Source Unknown	High	6.5 miles	2004
	Chlordane (tissue)	Nonpoint/Point Source	High	6.5 miles	2004
	Copper, Dissolved	Nonpoint Source	High	6.5 miles	2004
	Dichlorodiphenyltrichloroethane (DDT) (tissue)	Nonpoint/Point Source	High	6.5 miles	2004
	Dieldrin (tissue)	Nonpoint/Point Source	High	6.5 miles	2004
	Enteric Viruses	Nonpoint/Point Source	High	6.5 miles	2003
Ballona Creek Estuary	Chlordane (tissue & sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	DDT (sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	High Coliform Count	Nonpoint/Point Source	High	2.3 miles	2003
	Lead (sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	PAHs (sediment)	Nonpoint/Point Source	Low	2.3 miles	2004
	PCBs (tissue & sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	Sediment Toxicity	Nonpoint/Point Source	High	2.3 miles	2004
Marina Del Rey Harbor Beach	Beach Closures	Nonpoint/Point Source	High	.29 miles	2003
	High Coliform Count	Nonpoint/Point Source	High	.29 miles	2003
Dockweiler Beach	Beach Closures	Nonpoint Source	High	4.6 miles	2002
	High Coliform Count	Nonpoint Source	High	4.6 miles	2002
Venice Beach	Beach Closures	Nonpoint Source	High	2.5 miles	2002
	High Coliform Count	Nonpoint Source	High	2.5 miles	2002

The Regional Board has adopted a trash TMDL (zero trash in the water) for the Ballona Creek and wetland, a metal TMDL for Ballona Creek, and at toxic pollutants TMDL for the Ballona Creek Estuary. The metals and toxic pollutant TMDLs are summarized Table 5.8-3 and 5.8-4 on the following page.

Dry-weather numeric targets are expressed in terms of dissolved and total recoverable fraction.

Table 5.8-3 Metals TMDL (Dry-Weather Numeric Targets)

Metal	Target* (µg/L) Dissolved	Conversion Factor	Target (µg/L) Total Recoverable
Copper	23	0.96	24
Lead	8.1	0.631***	13
Selenium**	---	---	5
Zinc	300	0.986	304

**Freshwater targets are based on a hardness of 300 µg/L*
***Selenium is expressed in the total recoverable form*
****Conversion factor is hardness dependent, based on a hardness of 300 µg/L*
Source: Los Angeles RWQCB, May 31, 2005
µg/L – micrograms per liter

Wet-weather numeric targets expressed in terms of dissolved and total recoverable fraction.

Table 5.8-4 Metals TMDL (Wet-Weather Numeric Targets)

Metal	Target* (µg/L) Dissolved	Conversion Factor	Target (µg/L) Total Recoverable
Copper	11	0.62	18
Lead	49	0.829***	59
Selenium**	---	---	5
Zinc	94	0.79	119

**Freshwater targets are based on a hardness of 77 µg/L.*
***Selenium is expressed in the total recoverable form*
****Conversion factor is hardness dependent, based on a hardness of 77 µg/L*
Source: Los Angeles RWQCB, May 31, 2005

Numeric targets for sediment quality in Ballona Creek and Estuary as shown in Table 5.8-5 below.

Table 5.8-5 Numeric Targets for Sediment Quality in Ballona Creek and Estuary

Organics	Numeric Target for Sediment
Chlordane	0.5 micrograms per kilogram (µg/kg)
Total DDT	1.58 µg/kg
Total PCBs	22.7 µg/kg
Total PAHs	4,022 µg/kg
Metals	Numeric Target for Sediment
Cadmium	1.2 milligrams per kilogram (mg/kg)
Copper	34 mg/kg
Lead	46.7 mg/kg
Silver	1.0 mg/kg
Zinc	150 mg/kg

Since only the cities of Beverly Hills and Santa Monica use groundwater for domestic water supplies, information regarding groundwater quality in most of the watershed is limited. “Hard” water (water with high levels of dissolved solids, which contribute to the formation of calcium and other deposits on shower walls and other surfaces), is common throughout southern California. Other contaminants from urban land uses may also be present in groundwater such as volatile organic compounds (VOCs), hexavalent

chromium (or Chromium 6), and N-nitrosodimethylamine (NDMA) from industrial activities and nitrates from the use of fertilizers and septic tanks. In 1996, the discovery of a gasoline additive, methyl tert-butyl ether (MTBE) in groundwater extracted from a well in the City of Santa Monica prompted the shutdown of City wells and lead to the removal of MTBE from gasoline. However, the extent of possible MTBE contamination in soil and/or groundwater in the watershed is currently unknown (Los Angeles Department of Public Works, 2004).

5.8.2 Thresholds of Significance

The proposed Project would cause a significant impact to the hydrologic (surface water) if conditions from the Project would:

- Result in flood damages from a 50-year or greater storm even and have the potential to cause significant impact to the general public and environmental resources;
- Result in a substantial reduction or increase in the amount of surface water associated in a water body; or
- Result in a permanent or adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.

The proposed Project would cause a significant impact on surface water quality if discharges associated with the Project would:

- Result in creating an increase to pollution, contamination or nuisance as defined in Section 13050 of the California Water Code or that cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body.

The proposed Project would cause a significant impact to groundwater resources if it would:

- Result in a change in available potable water supply levels due to:
    - A significant reduction in the groundwater supply and the inability of a water supply agency to use the groundwater resources for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or to respond to emergencies and drought;
    - Reduced yields of adjacent wells or well fields (public or private); or
    - Adversely change the rate or direction of flow of groundwater; or
    - Result in a demonstrable and sustained reduction of groundwater recharge capacity.

The proposed Project would cause a significant impact on groundwater quality if it would:

- Result in a change to the rate or direction of movement of existing contaminants;
- Result in the expansion of an area affected by contaminants;
- Result in an increased level of groundwater contamination (including that from direct percolation, injection or salt water intrusion); or
- Result in regulatory water quality standards at an existing production well to be violated, as defined in the CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act;
- Result in a changed condition to the surface water hydrology;
- Result in causing minor flooding during a projected 50-year developed storm event. However, it would not likely have the potential to harm people or damage property or sensitive biological resources;

- During construction and in the case of dewatering, result in a potential increase to the amount of surface water into local water bodies; and
- The proposed Project would not result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow. The proposed Project is located within an urban developed area.

SURFACE WATER QUALITY THRESHOLDS OF SIGNIFICANCE

It is technically infeasible that completion of the proposed Project, within any of the proposed three alternative locations, will cause any unwarranted discharge that would affect the current surface water quality condition. Unless there is a catastrophic event (e.g., high magnitude earthquake) the proposed Project is designed to provide additional mitigation of possible sewage spills from the existing pumping station/sewer main system.

During construction, the surface water quality condition may be affected by discharges associated with the Project including accidental spills, dewatering, construction maintenance and storage, equipment parking, spoil pile and debris stockpiles. Miscellaneous nuisance water flows may also be discharged during the construction of this project at the location of the jacking pits. These possible discharges would be managed as required by the project-specific construction SWPPP.

GROUNDWATER CONDITIONS

Implementation of the proposed Project would not extend into a groundwater aquifer nor would it involve the pumping of any water from an underlying aquifer. Therefore, the proposed Project is not expected to cause any adverse impact to groundwater resources.

Perched groundwater, however, may likely be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer.

EXISTING GROUNDWATER CONDITIONS

The proposed Project lies within the Santa Monica Sub-basin in the northwestern part of the Coastal Plain of the Los Angeles Groundwater Basin. The Santa Monica Sub-basin is bounded by the Santa Monica Mountains on the north, the Ballona Escarpment on the south, the Pacific Ocean on the west, and the Newport-Inglewood Fault to the east. The Santa Monica Sub-basin includes several distinct aquifers in the vicinity of the proposed Project, the semiperched aquifer, the Ballona aquifer, and the Silverado aquifer.

The shallowest aquifer within the vicinity of the Project area is the semiperched aquifer, which is found to consist of coarse sands and gravel material that are at or near the ground surface [California Department of Water Resources (CDWR), 1961]. The semiperched aquifer varies in regional depth from zero to approximately 60 feet and in some instances may contain significant amounts of unconfined water with more than 20 feet in depth. The semiperched aquifer is considered of little beneficial use because wells in the aquifer yield very small quantities of water (CDWR, 1961). The semiperched aquifer is confined

from the underlying aquifer by the Bellflower Aquiclude, which consists of sediments of lower permeability that restrict vertical movement of groundwater (CDWR, 1961). The Bellflower Aquiclude is estimated to be less than 20 feet in depth in the Project area.

The Ballona aquifer is estimated to be located beneath the Bellflower Aquiclude and the Project area at a depth of approximately 40 to 60 feet below the ground surface (elevations -30 to -50 feet) and is estimated to vary in depth from approximately 10 to 30 feet within the Project area boundary (CDWR, 1961). The Silverado aquifer is merged with the Ballona aquifer within the Project vicinity (CDWR, 1961). The base of the Silverado aquifer is estimated to lie at a depth of approximately 110 feet below the ground surface (elevation -100 feet). The Silverado aquifer is a main groundwater producing unit in the Santa Monica Sub-basin.

Historical regional data have recorded the highest groundwater level, within this area, to be as high as approximately 5 feet below the ground surface (CDMG, 1998). Recent geotechnical studies conducted for the proposed Project have documented the current groundwater levels to be estimated at a depth of approximately 10 to 15 feet below the ground surface (URS, 2000a; 2000b).

GROUNDWATER LEVEL THRESHOLDS OF SIGNIFICANCE

The proposed Project will be constructed within a developed, urban area and located within the coastal zone. It is not proposed that this Project will have any significant impact to surface water quality thresholds of significance are described in Section 5.8.2., of this document. The groundwater within the Project area boundary is not used as a potable water source.

GROUNDWATER QUALITY THRESHOLDS OF SIGNIFICANCE

The proposed Project is located within a historical, developed coastal zone with land uses consisting of residential, industrial and recreation areas. The Project will maintain the City of Los Angeles compliance with the NPDES Municipal Separate Storm Sewer System (MS4) Permit. The permit requires that the permittees (City of Los Angeles) maintain their current sanitary sewer systems in order to prevent accidental discharges. Without the proposed Project, the existing sanitary sewer system cannot be adequately maintained without causing a disruption in service to the users (the local public).

- The proposed Project will be located within saturated subgrade soils and it is unlikely to affect the rate or change the direction of movement of existing contaminants. The proposed Project is not designed to restrict, impede or delineate movement of existing groundwater contamination. The proposed Project is designed to minimize and/or prevent the risk of accidental sewage releases into the local waterways and/or groundwater.
- The proposed Project is not designed to further expand the area currently affected by known contaminants.
- The completed Project would not result in an increased level of groundwater contamination (including that from direct percolation, injection or saltwater intrusion). The location of this Project, in reference to the ocean and local waterways, provides for a very high watertable. During construction, there is a possibility that an accidental pollutant release could contaminate a localized groundwater area.
- The proposed Project will not impact any existing production wells, as defined in the CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.

5.8.3 Environmental Impacts

All proposed alternatives will cause similar construction operations impact to the project boundary and adjacent area. The completed Project will be in compliance with the NPDES Municipal Separate Storm Sewer System (MS4) Permit and meet the necessary sanitary sewer service standards. Without the installment of the new sanitary sewer main, the current sanitary system will continue to deteriorate and run a high risk of overflowing the system, cause a potential break in the system, and cause a potential health risk to the local waterways.

From a hydrology and water quality position, all alternatives cause a similar temporary disturbance to the current site conditions. All three proposed alignments cross under the Marina Del Rey Channel and Ballona Creek via tunneling, and the Marquesas Way alignment crosses under the Grand Canal via tunneling. Tunneling would occur below the bottom of these waterways, and have no effect on the waterways.

5.8.4 Mitigation Measures

The following mitigation measure has been added to the project to minimize the proposed Project's impacts on water quality and hydrologic conditions.

H/WQ-1 Appropriate BMP measures (sandbags, plastic lining covering stormwater inlets, temporary detentions basins, etc.) will be implemented during the construction period to retain excavated soil material on site and minimize the potential risk of contaminated soil being removed off site. Also, monitoring activities will be conducted during the installation of the BMP measures and throughout the construction period.

5.8.5 Unavoidable Adverse Impacts

Provided that all federal, state, and local regulations pertaining to Project activities are followed accordingly and stormwater prevention plans are implemented and monitored, then the potential for significant or long-term adverse impacts should be avoidable.

5.8.6 Cumulative and Secondary Impacts

The Project area is not within a sensitive environmental setting. Change to the existing site conditions will be temporary and the site will be restored back to a similar pre-construction condition. Pre- and post-construction hydrologic conditions will be similar and any change in condition will be minimal. All proposed alternatives have similar construction applications and procedures and no one alternative is superior to another. Therefore, there are no foreseen hydrologic or water quality cumulative or secondary impacts.

5.9 LAND USE PLANS

5.9.1 Environmental Setting

The Project lies within the bounds of Los Angeles County and the City of Los Angeles. Within these two jurisdictions, each community has a local land use. The Community Plans in this Project area are designed to ensure that each area within the City meets the state requirements of the California Coastal Act.

EXISTING LAND USES

Existing land uses within the Venice area, extending north from Via Marina Way on the south, consist of six major land-use designations: single- and multi-family residential, commercial, industrial, open space, and public utilities. The proposed alignments north of the Marina Del Rey Channel and on the southeast side of the Ballona Lagoon are in areas zoned single and multi-family residential. Areas to the west are zoned open space along the Ballona Lagoon and low to medium residential. The area surrounding the VPP is primarily zoned multi-family residential to the north, and open space on the south along the Ballona Lagoon. Along the alternative alignments south of the channel, and under consideration by the City, the zoning is also primarily residential and light commercial.

The proposed new force main does not require a zone change, as the Project is a component of the municipal infrastructure and is a not a land use, nor does the proposed Project require a change in a land use.

Land uses within the Westchester/Playa Del Rey are and adjacent to the Project footprint include public facility open space. There are no land use impacts associated with this Project because the Project will not require changes to the land uses designated in Westchester/Playa Del Rey land use map.

5.9.1.1 Relationship to Regional and/or Local Plans

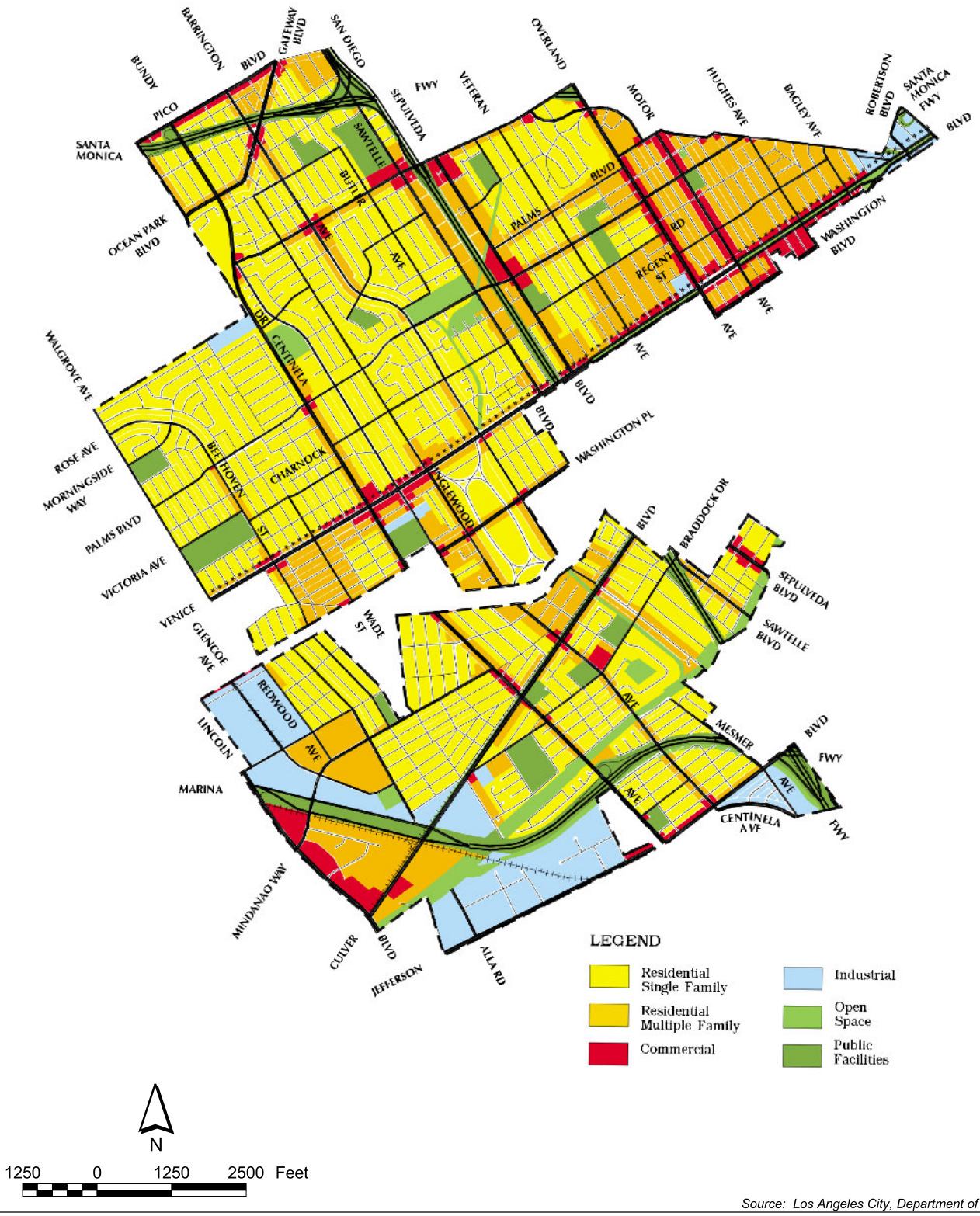
The project is subject to meeting the requirements of the following regional and local plans.

MARINA DEL REY

Los Angeles County General Plan

A portion of the project lies within the jurisdiction of Los Angeles County, as well as in the City of Los Angeles' community of Marina Del Rey. The General Plan is comprised of LUPs (see Figure 5.9-1), which describe designated land uses and policies. The policies set forth in the LUP for Marina Del Rey address future land use, new access, recreation and resource protection areas, and improvement of existing facilities. In accordance with the California Coastal Act, and in consideration for this project, the Marina Del Rey LUP provides for the following:

- Minimizing risks to life and property in areas of high geologic, flood, and fire hazard;
- Assuring stability and structural integrity, and neither creating, nor contributing to erosion, geologic instability, or destruction of the site or surrounding area or in any way requiring protective devices that would substantially alter natural land forms along the coastal land; and
- Being consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development.



Source: Los Angeles City, Department of City Planning

MARINA DEL REY LAND USE PLAN

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-1

Figure 5.9-1 Marina Del Rey Land Use Plan

The County General Plan Ordinance No.30254 states that new or expanded Public Works facilities shall be designed and limited to accommodate the needs generated by development or uses permitted consistent with these provisions; provided, however, that it is the intent of the Legislature that State Highway Route 1 (Pacific Coast Highway) in rural areas of the coastal zone remain a scenic two-lane road. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

County policies and actions described in the Marina Del Rey LUP that are associated with infrastructure are listed below:

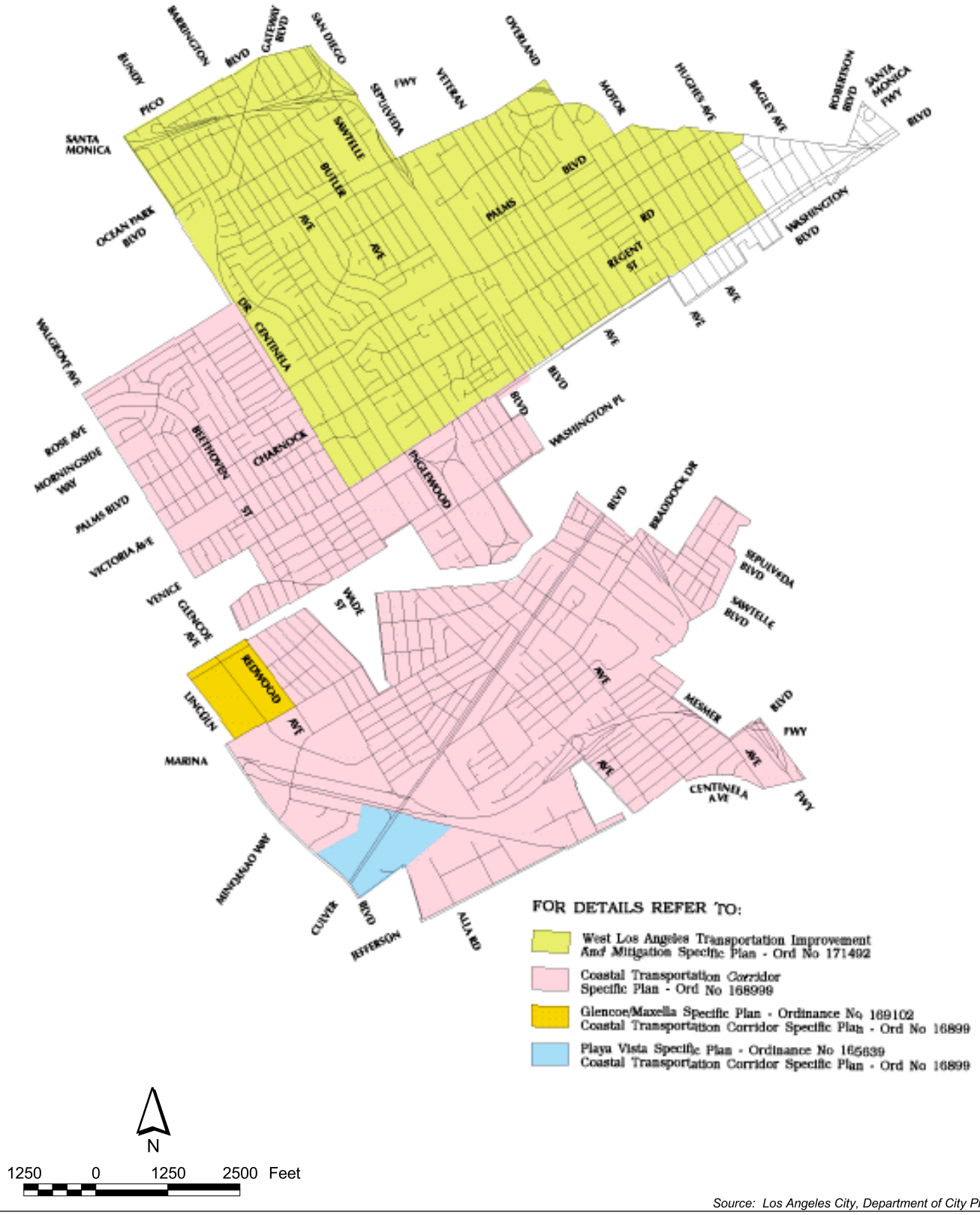
- Public works in the study area shall be designed to accommodate new development permitted in the area and provide for future public access needs;
- As indicated in Section 22.46.1090 of the County's Marina Del Rey Specific Plan, phasing of developing also requires necessary public improvements to be constructed in a timely and orderly manner, to minimize possible adverse impacts of new development on coastal resources (such as sensitive habitat resources or recreation areas) and to protect the ability of the public to travel to coastal attractions; and
- Installation of new sewer and water lines shall be accomplished via the least environmentally damaging method.

MARINA DEL REY LOCAL COASTAL PROGRAM IMPLEMENTATION PLAN

The certified Marina Del Rey LCP Implementation Plan has been integrated into the Los Angeles County Zoning Ordinance as the Marina Del Rey Specific Plan, beginning at Section 22.46.900.

MARINA DEL REY SPECIFIC PLAN

Major infrastructure systems serving the Marina Del Rey Specific Plan Area (see Figure 5.9-2) include sewer, water, storm drains and utilities. The County of Los Angeles maintains a contractual agreement with the City of Los Angeles to provide sewer services for the marina area. The purchase of flow rights includes the use of the sewers and pumping system, as well as treatment at the Hyperion Treatment Plant near Imperial Highway. Maintenance of the sanitary sewers within the marina is the responsibility of the Department of Public Works, Waterworks, and the Sewer Maintenance Division. The Marina Del Rey Specific Plan indicates that there is currently sufficient sewage capacity to handle only a portion of the development permitted by this Specific Plan.



Source: Los Angeles City, Department of City Planning

MARINA DEL REY SPECIFIC PLAN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-2

The Marina Del Rey Specific Plan constitutes the primary implementation mechanism for the Marina Del Rey LUP as certified by the CCC in December 1986 and subsequently amended. Applicable Marina Del Rey Specific Plan guidelines within the Project area include site-specific development guidelines under Section 22.46.1130 which state the following:

- Section 22.46.1090 states that phasing of development also requires necessary public improvements to be constructed in a timely and orderly manner, to minimize possible adverse impacts of new development on coastal resources (such as sensitive habitat resources or recreation areas) and to protect the ability of the public to travel to coastal attractions.
- Appropriate phasing of new development may be necessary because of capacity limitations at the Hyperion Treatment Plant. Proof of adequate sewer and waste treatment capacity for new development will be required per the provisions of subsection (A) (14) of Section 22.46.1180 of the Marina Del Rey Specific Plan.
- Installation of new sewer and water lines shall be accomplished via the least environmentally damaging method.

The Project supports the intent of Section 22.46.1130 for the Marina Del Rey Specific Plan by providing added capacity for potential new development within the area.

VENICE

City of Los Angeles General Plan

The City of Los Angeles General Plan is comprised of 11 citywide elements: transportation, infrastructure systems, housing, noise, air quality, conservation, open space, historic preservation and cultural resources, safety, and public facilities and services, and the land use element. The land use element is composed of 35 local area plans, known as community plans, with associated counterpart plans for the Port of Los Angeles and LAX. The parts of these plans, which are relevant to the project, are considered in each of the studies and analysis in Chapter 5.0 of this EIR.

The following are brief descriptions of the plans for the Project areas are as follows:

Venice Land Use Plan (LUP)

The LUP 1998-0119 LCP consists of the City of Los Angeles land use plans, zoning ordinances, and other actions, which implement the provisions and policies of the California Coastal Act at the local level. The CCC has the authority to approve the City's alignment of the proposed Project. Specifically, the CCC is responsible for key issues of concern in the Venice LUP, which may be impacted by this Project, which are as follows:

- Enforcement and regulation of encroachments into public ROW;
- Protection of existing natural and recreational resources, including the Venice Canals Ballona Lagoon, Grand Canal south of Washington Boulevard, and Venice Beach;
- Protection of coastal views and vistas;
- Preservation of significant archaeological sites;
- Conflict between residential and beach visitor parking;
- Inadequate off-street parking near or on the beach frontage for visitors and residents;
- Intrusion of non-resident vehicles on residential streets to locate available parking spaces;

- Preventing polluted stormwater runoff from parking lots from entering the Venice canals and Ballona Lagoon;
- Lack of adequate alternate public transportation systems, including shuttle systems, park and ride facilities (bikeways) and public bus services;
- Inadequate traffic management to facilitate coastal access to and within the Venice Coastal Zone;
- Inadequate access to walkways due to lack of adequate parking facilities;
- Impacts to recreation and visitor-serving facilities;
- Impacts to water and marine resources;
- Impacts to ESHA;
- Enhancement and maintenance of habitat value, including foraging habitat for the least tern, an endangered species; and
- Prevention of hazards, such as liquefaction and flooding.

VENICE COMMUNITY PLAN

The Venice Community Plan (see Figure 5.9-3, Venice Community Plan Land Use Designations) is comprised of specific plan areas (see Figure 5.9-4, Venice Specific Plan Areas). Each are described as follows:

Venice Coastal Zone Specific Plan

The Venice Coastal Zone Specific Plan (Ordinance No. 175, 963 effective January 19, 2004) is divided into eight sub-areas. The following describes only those areas within the Venice Coastal Zone Specific Plan, which may be impacted by the Project (see Figure 5.9-5).

Ballona Lagoon West Bank Sub-area: This area is bounded by Driftwood Street on the north, Via Marina on the south, Ballona Lagoon on the east, and Strongs Drive, Canal Court and Pacific Avenue on the west. The Pacific Avenue alignment alternative is located in this area.

Ballona Lagoon (Grand Canal) East Bank Sub-area: This area is bounded by Washington Boulevard on the north, the northern terminus of the Ballona Lagoon on the south, Via Dolce on the east, and Grand Canal on the west. The VPP is located at the southwest corner of this area where the Grand Canal and the Ballona Lagoon intersect at Hurricane Street.

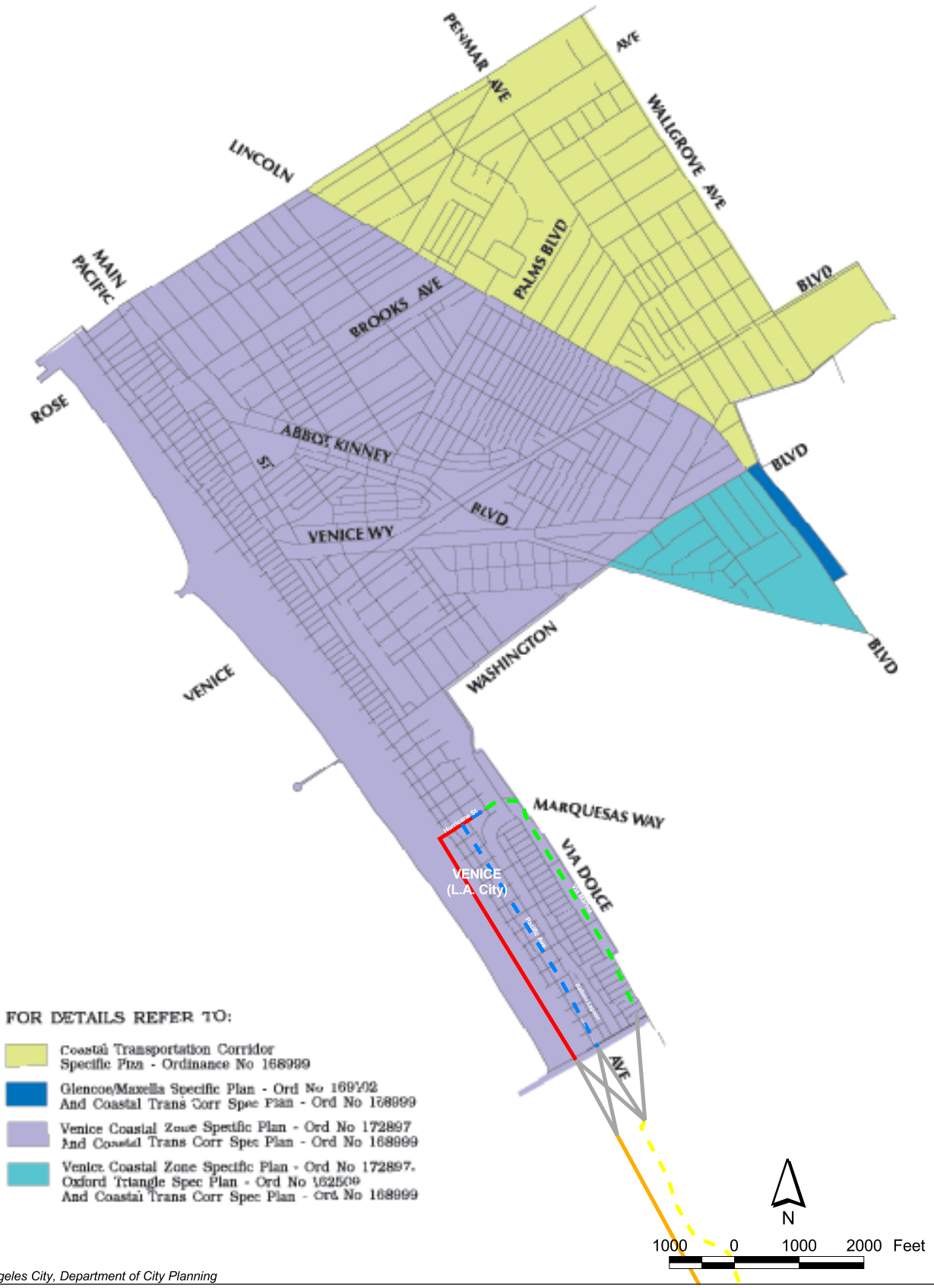
Silver Strand Sub-area: This area is bounded by the eastern extension of Driftwood Street on the north, Via Marina on the south, the Los Angeles County boundary on the east, and Ballona Lagoon on the west. Both the VPP and the proposed Via Marina/Marquesas Way alternative alignment are located in this area.

Marina Peninsula Sub-area: This area is bounded by Thirtieth Place and the Washington Boulevard Pier on the north, Via Marina on the south, Strongs Drive, Canal Court and Pacific Avenue on the east, and the Pacific Ocean on the west. Both the VPP and the proposed Pacific Avenue and Dockweiler Beach alternative alignments are located in this area.

Source: Los Angeles City, Department of City Planning

VENICE COMMUNITY PLAN LAND USE DESIGNATIONS

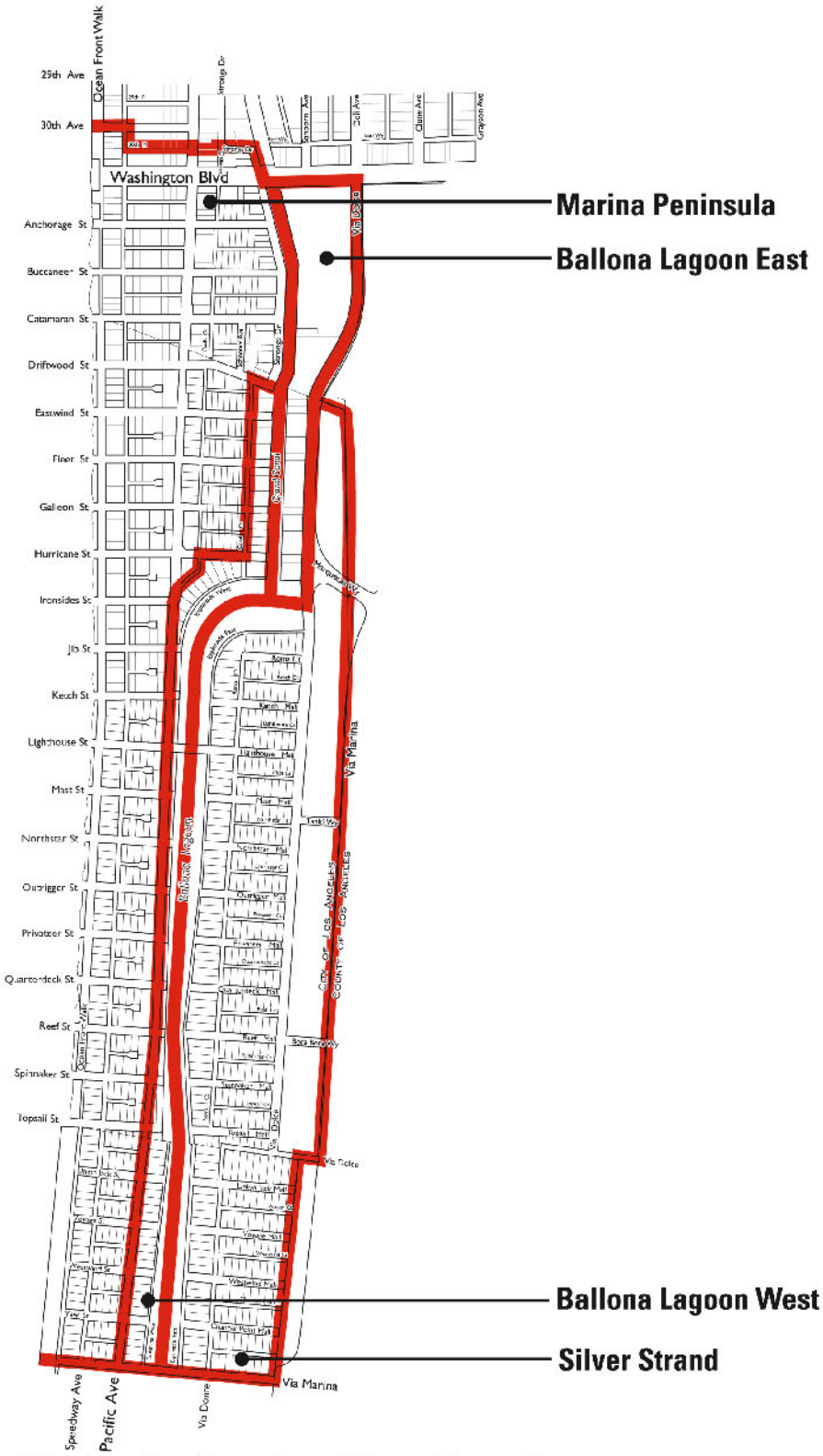
URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-3



Source: Los Angeles City, Department of City Planning

VENICE SPECIFIC PLAN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-4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Ballona Lagoon East
Ballona Lagoon West
Silver Strand
Washington Blvd
Ocean Front Walk
25th Ave
30th Ave
Anchorage St
Buccaneer St
Catamaran St
Driftwood St
Eastwind St
Flair St
Galleon St
Hurricane St
Ironsides St
Jib St
Keuch St
Lighthouse St
Mast St
Northstar St
Outrigger St
Privateer St
Quarterdeck St
Reef St
Spinnaker St
Topsail St
Via Marina
Pacific Ave
Speedway Ave
Via Dolce
Via Donna
Grand Canal
Ballona Lagoon
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One Hundred Eighteen Ave
One Hundred Nineteen

The purposes of the Venice Specific Plan are as follows:

- To implement the goals and policies of the California Coastal Act;
- To implement the LCP for that portion of the Venice community within the coastal zone as designated by the state legislature;
- To protect, maintain, enhance and, where feasible, restore the overall quality of the coastal zone environment and its natural and human-made resources;
- To assure that public access to the coast and public recreation areas is provided as required by the California Coastal Act and the LCP;
- To prepare specific provisions tailored to the particular conditions and circumstances of Venice coastal zone, consistent with the general policies of the adopted Los Angeles General Plan; and
- To regulate all development, including use, height, density, setback, buffer zone and other factors in order that it is compatible in character with the existing community and to provide for the consideration of aesthetics and scenic preservation and enhancement, and to protect environmentally sensitive areas.

The regulations of the Venice Specific Plan are in addition to those set forth in the planning and zoning provisions of Chapter 1 of the Los Angeles Municipal Code, as amended, and any other relevant ordinances. They do not convey any rights not otherwise granted under those provisions except as specifically provided in the Venice Specific Plan. Wherever provisions of Venice Specific Plan differ from the provisions contained in Chapter 1 of the Municipal Code (with regard to use, density, lot area, floor area ratio, height of buildings or structures, setbacks, yards, buffers, parking, drainage, fences, landscaping, design standards, light, trash and signage, etc.), the Venice Specific Plan supersedes those other regulations. Whenever the Venice Specific Plan is silent, the regulations of the Municipal Code apply.

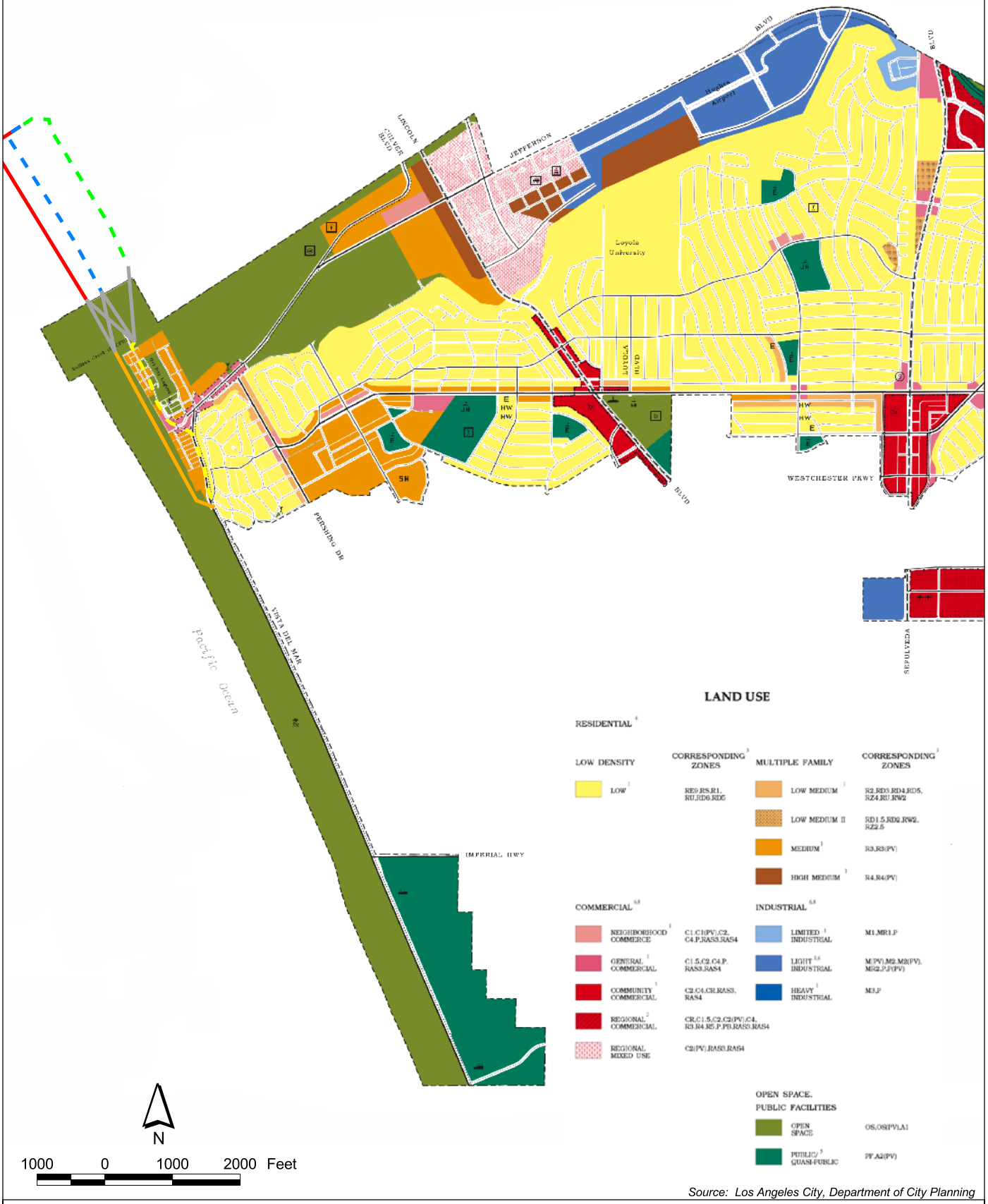
WESTCHESTER/PLAYA DEL REY

Westchester/Playa Del Rey Community Plan

The Westchester Playa Del Rey Community Plan area (Ordinance No. 160.521 - Effective December 27, 1985) is located in the western portion of the Los Angeles Basin, adjacent to LAX (see Figure 5.9-6). This area is located south of Palms- Mar Vista-Del Rey and Venice; adjacent to the Cities of Culver City, Inglewood, El Segundo; and the Los Angeles County unincorporated areas of Del Aire, Ladera Heights, Lennox, and Marina Del Rey.

Westchester/Playa Del Rey Specific Plans

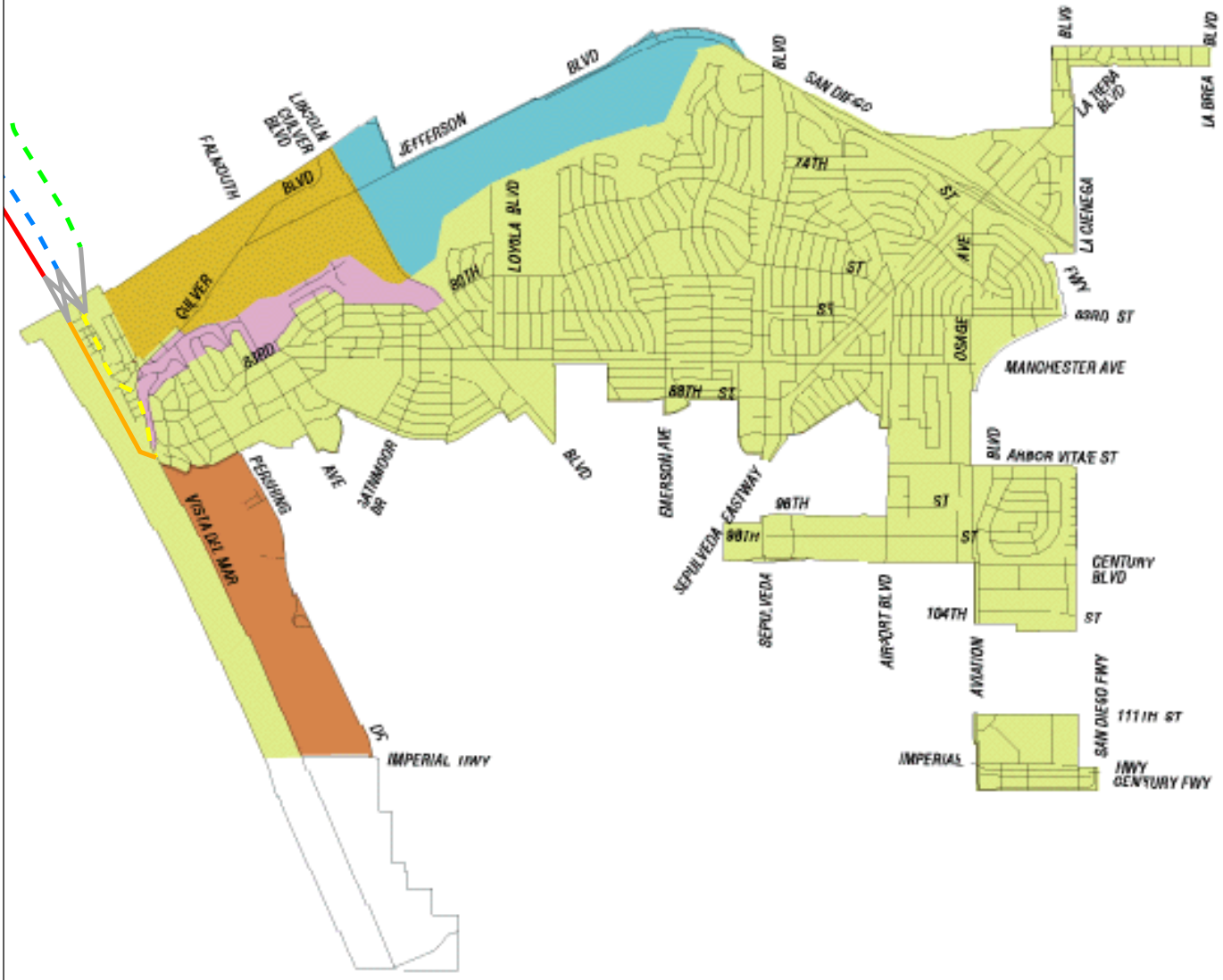
The Westchester/Playa Del Rey Specific Plan area (see Figure 5.9-7) is located within the County of Los Angeles. Land uses adjacent to the project footprint include the Los Angeles Airport/El Segundo Dunes Specific Plan and the Coastal Transportation Corridor Specific Plan (SP-3).



Source: Los Angeles City, Department of City Planning

WESTCHESTER/PLAYA DEL REY COMMUNITY PLAN LAND USE DESIGNATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-6



FOR DETAILS REFER TO:

- Coastal Transportation Corridor Specific Plan - Ordinance No 168999
- Los Angeles Airport/El Segundo Dunes Spec Plan Ordinance No 167940 (not a part of Westchester Plan)
- Coastal Trans Corr Spec Plan - Ord No 168999 And Playa Vista Specific Plan - Ord No 160523
- Coastal Trans Corr Spec Plan - Ord No 168999 And Playa Vista Specific Plan - Ord No 165638
- Coastal Bluffs Specific Plan - Ordinance No 170046 And Coastal Trans Corr Specific Plan - Ord No 168999

N

2000 0 2000 4000 Feet

Source: Los Angeles City, Department of City Planning

WESTCHESTER/PLAYA DEL REY SPECIFIC PLAN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-7

5.9.2 Thresholds of Significance

Land use thresholds are determined by a project's location, its relationship to the immediate plan area, and its ability to meet specified zoning requirements and land use ordinances. A project that cannot meet land use requirements can mitigate the effect of the project and its inability to meet land use requirements, by petitioning for a variance or an exemption approved by the City/County Planning Commission, the City Council, and the County Board of Supervisor, the ruling authorities of the local General and/or Local Plans.

5.9.3 Environmental Impacts

Protection of the environment against impacts resulting from a project are generally achieved through the land use process by providing means of regulatory requirements specified within a given land designation, as adopted by the regulating agency from City and County authorities.

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Rules set forth in specific plan areas pose certain limitations to various activities within those areas that may be impacted as a result of potential Project requirements.

The Project could impose temporary construction impacts in the Coastal Transportation Corridor Specific Plan area due to construction-related transport to and from construction areas north of the Marina Del Rey/Ballona Lagoon channels.

5.9.4 Mitigation Measures

Potential impacts to the Coastal Transportation Corridor Specific Plan should be addressed with the county prior to starting Project activities.

5.9.5 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts to local LUP or policies resulting from this Project.

5.9.6 Cumulative and Secondary Impacts

There are no cumulative or secondary impacts to local LUPs or policies resulting from this Project.

5.10 NOISE AND VIBRATION

5.10.1 Environmental Setting

This section describes the existing levels of environmental noise at sensitive receptors along the alignments of the Project alternatives, identifies the applicable regulatory background, and presents the predicted noise and vibration impacts associated with the Project alternatives. Mitigation measures are recommended for consideration where appropriate.

The terms and metrics associated with noise that are used can be complex and are discussed in detail in Appendix A of the Noise and Vibration Technical Study, which is included in Appendix H of this EIR.

As shown in Figure 5.10-1, the proposed Project is located on the immediate coastline and inland adjacent to the coastline in the southern portion of the community of Venice, and in the community of Playa Del Rey. The primary land uses in these areas are medium- to high-density residential with some recreational and light commercial designations, particularly in the Playa Del Rey and Marina Del Rey areas.

Two ESHAs are located close to most of the potential alignments: the Grand Canal/Ballona Lagoon in the Venice and Marina Del Rey area and the Del Rey Lagoon situated in Playa Del Rey. These ESHAs, as well as Dockweiler State Beach, are designated as conservation and open space. The Project area is near LAX, with the southern end approximately 0.5 mile away from the westbound departure flight path of the northernmost runway (Runway 24/6) and the northern end approximately 2.5 miles away. Overflights by departing commercial aircraft are frequent, and are particularly noticeable in the Project area south of the Marina Del Rey Channel.

In order to characterize the existing noise in the Project area and as a point of comparison for the Project alternatives, ambient noise and meteorological conditions were measured along the proposed alignments during a 3-day period from Wednesday, June 8 through Friday, June 10, 2005. The Noise and Vibration Technical Report (Appendix H) contains a more detailed description of the measurements and analysis used to arrive at the results presented herein.

NOISE

Two types of ambient noise measurements were conducted: short-term and long-term. The short-term measurements consisted of separate measurements at 16 representative noise-sensitive locations, and were each 15 minutes in duration. These sampling measurements are considered representative of the hourly noise levels at the measurement sites. “Precision” grade (Type 1) sound level meters (SLMs) were used to conduct the short-term noise measurements. All of the short-term measurements were attended (i.e., performed by persons with training and experience in measuring environmental sound). In addition to operating the SLMs, the noise specialists actively observed and noted the acoustical, weather, and community activity conditions. The long-term noise measurements were unattended. Automated “Engineering” grade (Type 2) community noise analyzers were deployed at four representative locations along the proposed alignments to collect continuous hour-by-hour sound level data for 24 hours at each location. Noise levels are reported here using the equivalent noise level (Leq) and community noise equivalent level (CNEL), which are described further in the Noise and Vibration Technical Report.

PROJECT AREA OVERVIEW, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.10-1

The measurement locations are shown on Figures 5.10-2 and 5.10-3, and the short-term and long-term noise measurement data are summarized in Tables 5.10-1 and 5.10-2. Noise associated with typical coastal residential activity (e.g., traffic, pedestrian, and wind/waves) dominates in the Project area north of the Marina Del Rey Channel. The measured noise levels were typical for the Project area's land uses. Near the southern end of the project area, the predominant noise sources are traffic on Vista Del Mar and overflights of commercial aircraft taking off from LAX.

The 15-minute Leqs measured at the eight short-term locations south of the Marina Del Rey Channel ranged from 56 decibels, A-weighted (dBA) at the beachfront patios of houses just south of 62nd Avenue (Short-Term 8) to 66 dBA in the parking lot abutting Vista Del Mar between Sunridge Street and Surf Street (Short-Term 1). Street traffic was the predominant noise source at Short-Term 1 and Short-Term 3, while aircraft overflights were the predominant noise source at Short-Term 2 and Short-Term 4 through Short-Term 8. At the eight short-term locations north of the Marina Del Rey Channel, 15-minute Leqs ranged from 55 dBA at the beachfront sites (Short-Term 9, Short-Term 15, and Short-Term 16) to 62 dBA at some inland sites (Short-Term-12, Short-Term-13, and Short-Term 14). CNELs at the four long-term locations ranged from 52 dBA at the east end of 62nd Avenue (Long-Term 1) to 70 dBA near the intersection of Vista Del Mar and Waterview Street.

VIBRATION

An ambient vibration survey was performed along the Pacific Avenue Alignment in October 2002 (Behrens, 2002). The survey measured existing ground vibration levels at four locations along Pacific Avenue north of the Marina Del Rey Channel. The major sources of vibration were trucks and buses traveling on Pacific Avenue. The maximum ground vibration level for vibration "events" (i.e., bus or truck passbys) at any of the measurement sites was 0.02 inches per second peak-to-peak velocity. This level is within the range of human perception, but well below the threshold levels for architectural or structural damage.

VENICE PROJECT AREA, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.10-2

PLAYA DEL REY PROJECT AREA, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.10-3

Table 5.10-1 Short-Term Noise Measurement Data Summary

Site ID	Measurement Location	Measurement Period				Measurement Results, dBA					
		Date	Start Time	Duration (mins)	Predominant Noise Source	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
ST-1	Parking lot abutting W side of Vista Del Mar, S of Culver Blvd	6/8/2005	15:30	15:00	Vista Del Mar traffic, LAX aircraft takeoff overflights, rustling leaves, birds, distant landscaping	65.5	80.7	45.8	55.6	63.2	68.7
ST-2	Oceanfront patios of condos S of Surf St	6/8/2005	15:45	15:00	Wind, ocean surf, LAX aircraft takeoff overflights, Vista Del Mar traffic, distant landscaping & vacuum cleaner	62.8	80.2	42.6	46.0	50.0	64.5
ST-3	Montreal St @ Vista Del Mar	6/8/2005	15:45	15:00	Pacific Ave traffic, LAX aircraft takeoffs, rustling leaves, distant barking dogs	64.1	81.7	45.5	50.4	60.1	67.5
ST-4	Oceanfront patio of house between 6987/9 and 6995/7 Trolleyway	6/8/2005	16:15	15:42	LAX aircraft takeoffs, distant house construction (hammer & saw) & workers talking, birds, ocean surf, helicopter flyby along shore	61.8	77.4	42.6	46.0	50.0	63.5
ST-5	Park S of Del Rey lagoon	6/8/2005	16:10	15:00	Coach talking @ nearby baseball practice, rustling leaves, distant children playing	57.2	69.8	45.5	47.9	50.9	59.9
ST-6	Oceanfront patio of 3rd building S of 66th Ave	6/8/2005	17:05	15:02	LAX aircraft takeoffs, distant volleyball practice, ocean surf, motorboat, helicopter passby along shore	61.7	77.7	43.6	49.5	55.0	65.5
ST-7	Park @ Pacific Ave N of 64th Ave	6/8/2005	17:00	15:00	LAX aircraft takeoffs, rustling leaves, birds, wind chimes	59.5	74.6	44.2	46.9	51.7	69.2
ST-8	Oceanfront patio of 3rd building S of 62nd Ave	6/8/2005	17:30	15:07	LAX aircraft takeoffs, people on beach & bike path, distant portable radio	55.9	69.8	41.4	43.5	49.0	60.0
ST-9	W end of Yawl St, even w/ building facades @ beach	6/9/2005	10:55	15:00	LAX aircraft, nearby pedestrians talking, rustling leaves	55.4	65.5	46.3	48.4	52.2	59.5
ST-10	Park @ S curve of Via Marina, N of Marina Del Rey Channel	6/9/2005	10:55	15:00	Via Marina traffic, LAX aircraft, rustling leaves, distant landscaping, bids, distant back-up alarm	57.9	70.4	47.3	51.0	55.5	61.0
ST-11	Westwind St & Pacific Ave, S of 5315 Pacific Ave	6/9/2005	11:25	15:00	Distant home construction, distant LAX aircraft, rustling leaves, birds	56.5	69.9	46.4	49.8	53.5	60.2
ST-12	NW corner of Via Marina & Tahiti Way	6/9/2005	11:45	15:12	Via Marina traffic, distant circular saw, birds	61.9	75.5	44.4	49.5	57.5	66.0
ST-13	Pacific Ave @ Outrigger St	6/9/2005	11:55	15:00	Pacific Ave traffic, distant LAX aircraft, rustling leaves, barking dogs, birds	61.8	79.6	43.2	45.5	51.5	66.7
ST-14	SW corner of Via Marina @ Marquesas Way	6/9/2005	15:00	15:00	Via Marina & Marquesas Way traffic, distant LAX aircraft, rustling leaves	62.3	82.7	47.9	51.4	58.0	65.1
ST-15	W end of Outrigger St, even w/ building facades @ beach	6/9/2005	16:10	15:00	Distant LAX aircraft, distant traffic	54.8	67.9	45.5	47.7	51.4	57.4
ST-16	Oceanfront patio of 3901 Speedway, S of Hurricane St	6/9/2005	16:15	15:00	Ocean surf, distant LAX aircraft, distant dogs playing	54.9	70.3	46.0	48.0	50.5	57.0

Table 5.10-2 Long-Term Noise Measurement Data Summary

Site ID	Location	Measurement Period			Measurement Results, dBA				
		Start Date	Start Time	Duration (hours)	L_{eq}	L_{90}	L_{50}	L_{dn}	CNEL
LT-1	Back P/L of vacant lot N of 6206 Pacific Ave @ 62nd St	6/8/2005	13:00	24:00	52.3	46	49	57.2	57.5
LT-2	W side of Vista Del Mar @ Waterview St	6/8/2005	14:00	24:00	69.5	55	67	72.7	73.3
LT-3	N side of Hurricane St @ Grand Canal	6/9/2005	16:00	24:00	52.5	47	50	56.0	56.6
LT-4	Via Marina @ S end of Ballona Lagoon	6/9/2005	16:00	0:00	61.1	49	55	64.0	64.4

5.10.2 Thresholds of Significance

Operations and construction noise and vibration are treated separately in the following four subsections.

OPERATIONS NOISE

Screening criteria are given in the Los Angeles CEQA Guidelines: If the proposed project triggers a "yes" response to the following questions, further study would be required:

- Would the project introduce a stationary noise source likely to be audible beyond the property line of the project site?
- Would the project include 75 or more dwelling units, 100,000 square feet or greater of nonresidential development, or have the potential to generate 10,000 or more average daily vehicle trips?

In the operational noise evaluation outlined in the Los Angeles Draft CEQA Guidelines, the thresholds for impact are based on the net change in the environmental noise level due to the Project alternative. Similarly noise-sensitive land uses are grouped, and ambient noise levels are classified according to their compatibility with the various land use types. For each land use group, the ambient level is either normally acceptable, conditionally acceptable, normally unacceptable, or clearly unacceptable. The land use compatibility categories and their associated noise levels are given in Table 5.10-3.

Table 5.10-3 Land Use Compatibility Categories and Noise Levels

Land Use	Ambient Community Noise Exposure Level (dBA CNEL)		
	Normally/Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Single-family, duplex, mobile homes, multi-family homes	50 – 70	70 – 75	above 70
Schools, libraries, churches, hospitals, nursing homes, motels, hotels	50 – 70	70 – 80	above 80
Auditoriums, concert halls, amphitheatres	50 – 70	***	above 65
Sports arenas, outdoor spectator sports	50 – 75	***	above 70
Playgrounds, neighborhood parks	50 – 70	67 – 75	above 72
Golf courses, riding stables, water recreation, cemeteries	50 – 75	70 – 80	above 80
Office buildings, business and professional commercial	50 – 77	Above 75	***
Industrial, manufacturing, utilities, and agriculture	50 – 80	Above 75	***

**** values not given in Thresholds Guide*
Source: Draft L.A. CEQA Thresholds Guide, Section I.2.A.

A project would have a significant impact on community noise if the operations caused the ambient noise level at the property line of the affected uses to either:

- Increase by 5 dBA CNEL or more; or
- Increase by 3 dBA CNEL and rise into either the normally unacceptable or clearly unacceptable category.

These criteria apply to various noise sources, respond to heightened community annoyance caused by late-night or early-morning noise, and respond to varying sensitivity of communities under different ambient conditions to noise from projects.

The County of Los Angeles addresses noise in Chapter 12.08 (Noise Control) of the County Code. Section 12.08.390 lists exterior noise standards for various land use zones. These noise standards are listed in Table 5.10-4. The noise standards shown in Table 5.10-4 would apply at residential and commercial structures that are within the unincorporated County and adjacent to the portion of the Via Marina Alignment Alternative taking place in the unincorporated County.

Table 5.10-4 Los Angeles County Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dBA)
I	Noise-Sensitive Area	Anytime	45
II	Residential Property	10:00 p.m. to 7:00 a.m. 7:00 a.m. to 10:00 p.m.	45 50
III	Commercial Property	10:00 p.m. to 7:00 a.m. 7:00 a.m. to 10:00 p.m.	55 60
IV	Industrial Property	Anytime	70

Source: Los Angeles County Code, Section 12.08.390

If any Project alignment alternative exceeded the relevant noise criteria for impact, then noise abatement actions would be considered. Noise from any Project alignment alternative, that is predicted to exceed the criteria for impact under CEQA, would result in a significant adverse effect. In such a case, feasible/effective noise mitigation measures would need to be considered. If feasible/effective mitigation actions were not available, then unavoidable adverse impacts would occur if the particular alternative were to be selected.

CONSTRUCTION NOISE

Depending upon the method of construction chosen, short-term increases in noise from construction would result from the operation of heavy equipment needed to construct the tunnels or cut, dig and re-fill the trenches and insert the pipeline for the Project. The City of Los Angeles regulates noise from construction, and the contractor will be required to adhere to these regulations.

The City of Los Angeles Noise Ordinance (L.A.M.C. Section 112.03) regulates construction noise by referencing Section 41.40 of the Los Angeles Municipal Code. Section 41.40(a) prohibits use of any noise-producing device or powered equipment for construction or repair work on any building or structure between the hours of 9:00 p.m. and 7:00 a.m. on weekdays. Section 41.40(c) prohibits non-emergency grading or construction, other than by an individual homeowner on his/her own single-family residence, on or within 500 feet of residential land before 8:00 a.m. and after 6:00 p.m. on Saturdays and national

holidays, and at any time on Sundays. These sections also prohibit operation, repair, or servicing of construction equipment and job-site delivering of construction materials during those hours.

The County of Los Angeles addresses noise from construction activities in Section 12.08.440 (Construction Noise) of the Los Angeles County Code. The operation of any tools used for construction or related activities such that a noise disturbance is created at a residential or commercial land use is prohibited on weekdays between 7:00 p.m. and 7:00 a.m. or at any time on Sundays or holidays. The noise standards listed in Table 5.10-5 are applicable to construction activities conducted within the unincorporated County.

Table 5.10-5 Los Angeles County Noise Standards for Mobile Construction Equipment

	Single-Family Residential	Multi-Family Residential	Semi-Residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sundays and legal holidays	60 dBA	64 dBA	70 dBA

Source: Los Angeles County Code, Section 12.08.440

OPERATIONS AND CONSTRUCTION VIBRATION

The City of Los Angeles does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this Project.

The County of Los Angeles addresses vibration in Section 12.08.560 of the County Code. Vibration from any device is prohibited that creates vibration above the threshold of perception at a distance of 150 feet from the source if the source is on a public space or public ROW. The threshold of perception is defined as 0.01 inch per second over the range of 1 to 100 Hertz.

5.10.3 Environmental Impacts

Potential noise and vibration effects from operation and construction of the Project were analyzed as described in Section 5.10-2, and are discussed below.

5.10.3.1 Operational Noise

The following discussion applies to all "Build" Alignment Alternatives: Marquesas Way/Via Marina Alignment; Pacific Avenue Alignment; Dockweiler Beach/Pacific Avenue Alignment; Dockweiler Beach Alignment.

No additional powered, noise-producing machinery, such as pumps, compressors, motors, etc., will be installed as part of this Project. The physical elements of the Project would consist of underground sewer pipe, which under normal operation would not produce audible or measurable noise at nearby noise-sensitive land uses. No significant noise effect is anticipated from operation of this project for any of the alignment alternatives.

5.10.3.2 Construction Noise

Construction activities have the potential to temporarily increase noise levels at noise-sensitive land uses located near the Project alignment or along construction vehicle routes.

Potential noise impacts from the construction phase of the various Project alignment alternatives were assessed for each of the applicable construction methods, such as open trench, tunneling, and large-diameter tunneling, and are discussed in greater detail in the Noise and Vibration Technical Study. The impacts are summarized below:

MARQUESAS WAY/VIA MARINA ALIGNMENT

Open-Trench Method – The open-trench method (also known as cut-and-cover) for underground pipeline installation would include driving of sheet-piles, trenching (approximately 8 feet wide by up to 12 feet deep), pipe installation and backfill, compaction and repaving. Construction of the proposed 3,200-foot-long Marquesas Way/Via Marina Alignment is expected to result in temporary increases in noise levels in the vicinity of construction sites for a period of up to 2 weeks around each active open trench zone, up to 2 months around the tunneling, jacking, and extraction shafts between the estimated star (year 2008) and end (year 2010) of construction.

Construction noise would be taking place at different locations along the route at any given time, and noise impacts at any one point are short term, typically lasting less than 2 weeks. Construction is planned to take place during normal weekday working hours. Table 5.10-6 lists the predicted noise levels from pipeline construction activities for the Project at a reference distance of 50 feet. As Table 5.10-6 shows, the predicted noise levels from pipeline construction range from approximately 87 to 90 dBA at a distance of 50 feet.

Table 5.10-6 Noise Levels from Typical Open-Trench Construction Activities

Construction Activity[1]	Average Noise Level @ 50 feet dBA
Pile Driving (Vibratory)	Varies; up to 90
Trench Excavation	87
Pipe Laying	87
Pipe Bedding and Backfill	88

1- Note that each of these activities are inclusive of the typical number and type of equipment necessary for that activity, and would take place separately from the standpoint of any one noise-sensitive receiver.
Source: Acentech, 1999 (all levels except pile driving. For pile driving noise level, Technical European Sheet Piling Association, 2001

The pipeline alignment along the Marquesas Way/Via Marina Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences. Because construction noise increases and decreases at a rate of approximately 6 decibels per doubling (or halving) of distance, residences that are directly adjacent to an active open-trench zone would experience noise levels of approximately 93 to 96 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 dBA to 84 dBA. Noise levels of this magnitude would violate the County of Los Angels noise standards for construction activities taking place within the unincorporated County (i.e., at Marquesas Way and Via Marina), and would constitute a short-term but significant impact unless mitigation measures are implemented. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 a.m. to 9:00 p.m. on weekdays, 8:00 a.m. to 6:00 p.m. on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area,

the noise levels at residences along the entire Marquesas Way/Via Marina Alignment would be of a magnitude that would constitute a short-term, but significant, impact unless mitigation measures are implemented. Mitigation measures for open-trench construction activities are listed in Section 5.10.4.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

The incremental increase in traffic volumes associated with the Project alternative using open-trench construction was examined for the potential to increase off-site traffic noise levels. Because of the widespread nature of the workforce and the relatively low number of workers for the project, the small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 15 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the truck would use.

Micro-Tunneling Method – Micro-tunneling is a trenchless construction method, which utilizes hydraulic jacks to push pipes through the ground behind a remotely operated TBM. Excavation for micro-tunneling is limited to the endpoints for each drive at designated launching (jacking) and receiving pits. The launching pit contains the hydraulic jacks used to push the pipes. The receiving pit is used to recover the TBM at the end of each drive. The excavated material is carried via augers and conveyors, or by recycled slurry through closed-system pipelines to the surface for processing and disposal. The remote control cabin for operating the TBM, as well as cranes and other construction equipment, is at the surface near the jacking pit. Because of the nature of the work, micro-tunneling operation may extend beyond normally permitted hours for construction activities.

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7.

Table 5.10-7 Noise Levels from Typical Micro-Tunneling Equipment Operations

Equipment Type	Average Noise Level@ 50 feet dBA
Power Unit for TBM	84
Crane	81
Supply or Muck Truck	81
Generator/Air Compressors (2)	80
Combined Noise Level	**88**

Source: Boyle Engineering, 2003.

The proposed locations of the launch and receiving pit work areas for the Marquesas Way/Via Marina Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 100 feet (at the receiving pit located near the VPP at Hurricane Street) of adjacent residences. Residences located 50 feet from an active micro-

tunneling work area would experience noise levels of approximately 88 dBA. Residences located 100 feet from the micro-tunneling activity would experience noise levels of approximately 82 dBA. Noise levels of this magnitude would violate the County of Los Angeles noise standards for construction activities taking place within the unincorporated County (i.e., at Marquesas Way and Via Marina), and would constitute a short-term but significant impact unless mitigation measures are implemented. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction taking place within the City of Los Angeles would not violate the noise ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. Because of the widespread nature of the workforce and the relatively low number of workers for this Project, the small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated eight round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

PACIFIC AVENUE ALIGNMENT – NORTH AND SOUTH

Similarly to the Marquesas Way/Via Marina Alignment, the Pacific Avenue Alignment project alternative was assessed for both the open-trench and the micro-tunneling construction method.

Open-Trench Method – The pipeline alignment along the Pacific Avenue Alignment would result in open trench construction activities taking place within approximately 25 feet of adjacent residences along most of the Project alignment. Residences that are directly adjacent to an active open-trench zone would experience noise levels of approximately 93 to 96 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 to 84 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 dBA to 102 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction would not violate the noise ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area, the noise levels at residences along the entire Pacific Avenue Alignment would be of a magnitude that would constitute a short-term, but significant, impact unless mitigation measures are implemented. Mitigation measures for open-trench construction activities are listed in Section 5.10.4.

Based upon the construction noise data, noise levels on the construction site could exceed federal OSHA and Cal-OSHA regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

The incremental increase in traffic volumes associated with the Project alternative using open-trench construction was examined for the potential to increase offsite traffic noise levels. Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Pacific Avenue Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience noise levels of approximately 88 dBA. Residences located 100 feet from the micro-tunneling activity would experience noise levels of approximately 82 dBA. Residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, the construction would not violate the noise ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. As for the Pacific Avenue Alignment alternative, Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

DOCKWEILER BEACH ALIGNMENT – NORTH AND SOUTH

Similarly to the Marquesas Way/Via Marina and Pacific Avenue Alignments, the Dockweiler Beach Alignment Project alternative was assessed for both the open-trench and the micro-tunneling construction method.

Open-Trench Method – The pipeline alignment along the Dockweiler Beach Alignment would not result in open-trench construction activities, however, micro-tunneling activities at shaft site areas may take place within approximately 25 feet of adjacent residences along Hurricane Street and within approximately 100 feet of residences along The Strand. Residences that are directly adjacent to an active open trench zone or micro-tunnel would experience noise levels of approximately 93 to 96 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 to 84 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction would not violate the noise ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area, the noise levels at residences near the Dockweiler Beach Shafts would be of a magnitude that would constitute a short-term, but significant, impact unless mitigation measures are implemented. Mitigation measures for open-trench construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using open-trench construction was examined for the potential to increase off-site traffic noise levels. As with the Marquesas Way/Via Marina and Pacific Avenue Alignment alternatives, Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Dockweiler Beach Alignment would result in construction activities taking place within approximately 100 feet (at the receiving pit near the VPP, at the west end of Hurricane Street and at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Because noise decreases at a rate of approximately 6 decibels per doubling of distance, residences located 100 feet from the construction activity would experience noise levels of approximately 82 dBA. Residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction taking place within the City of Los Angeles would not violate the noise ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. As with the Marquesas Way/Via Marina, and Pacific Avenue alternatives, project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

MARINA DEL REY CHANNEL ALIGNMENTS

The Marina Del Rey and Ballona Creek Channels would be crossed using micro-tunneling construction methods. For any combination of north and south alignments, the launching shaft would be located on the southern shore of the channel and the receiving shaft would be on the northern shore of the channel. The proposed locations of the launch and receiving pit work areas for the Marina Del Rey Channel Alignments would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 150 feet (at the two launch pits just south of the Ballona Creek Channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience noise levels of approximately 88 dBA. Residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. As with the Marquesas Way/Via Marina, Pacific Avenue, and Dockweiler Beach Alignment alternatives, project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

LARGE-DIAMETER TUNNELING ALIGNMENT ALTERNATIVES

The four full-length, large-diameter tunneling alignments with short open-trench segments were evaluated as part of this Project. The following tunnel alignment alternatives are being evaluated:

1. Beach alignment with open-trench connections to VPP in the north and Coast Interceptor Sewer (CIS) along Vista Del Mar in the south;
2. Beach alignment with open-trench connection to VPP and direct tunnel connection to North Outfall Sewer (NOS) or CIS – via a shaft on LAX property;
3. Beach alignment with direct tunnel connections to VPP and NOS or CIS – via a shaft on LAX property; and.
4. Direct (inland) tunnel connection between VPP and NOS or CIS – via a shaft on LAX property.

Activities from large-diameter tunnel construction would be similar in type but larger in scale, compared with micro-tunneling. Crew size and equipment type and number would be greater, although much of the equipment and crew would remain underground while in operation and thus would not materially contribute to aboveground noise levels. The typical noise level from large-diameter tunneling activity would be 91 dBA at a distance of 50 feet, as shown in Table 5.10-8. Large-diameter tunnel operations would likely continue around the clock, although nighttime activities would be arranged so as to avoid noisy and otherwise disturbing events at nearby sensitive receptors whenever practicable.

Table 5.10-8 Noise Levels from Typical Large-Diameter Tunneling Equipment Operations

Equipment Type	Average Noise Level @ 50 feet dBA
Power Unit for TBM	87
Crane	81
Supply Trucks (2)	84
Fans (2)	77
Generator/Air Compressors (4)	83
Combined Noise Level	**91**

Source: Boyle Engineering, 2003; URS Corporation 2005

The proposed locations of the tunnel construction shafts would result in activities taking place within approximately 100 feet (near the VPP at Hurricane Street) to 200 feet (at the proposed shaft on LAX property) of adjacent residences. Residences located 100 feet from the large-diameter tunneling activity would experience noise levels of approximately 82 dBA. Residences located 200 feet from an active large-diameter tunneling work area would experience noise levels of approximately 76 dBA. Because large-diameter tunneling activities are expected to take place outside the prescribed hours of operation set forth in the City of Los Angeles Noise Ordinance, and because of the proximity to noise-sensitive land uses to the work areas, construction noise would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using large-diameter tunneling was examined for the potential to increase off-site traffic noise levels. As for the other alternatives, Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

5.10.3.3 Operation Vibration

No additional powered machinery such as pumps, motors etc. will be installed as part of this Project. Thus, the operation of the pipeline is not anticipated to cause measurable or perceptible levels of vibration at adjacent land uses.

5.10.3.4 Construction Vibration

Groundborne vibration from heavy equipment operations during Project construction was evaluated and compared with relevant vibration impact criteria as discussed in the Noise and Vibration Technical Study. The following summarizes the results of the analysis conducted for each of the alternative construction methods, by alignment alternatives.

MARQUESAS WAY/VIA MARINA ALIGNMENT

The Marquesas Way/Via Marina Alignment Project alternative was assessed for both the open-trench and micro-tunneling construction methods.

Open-Trench Method – The pipeline alignments along the Marquesas Way/Via Marina Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences. Assuming that vibratory pile-driving methods are utilized to install the sheet-piles during open-trench construction, the Los Angeles County vibration standard of 0.01 inches per second would be exceeded at a distance of 150 feet as specified in the County Code. Thus, a significant impact would result from pile-driving activities during open-trench work, unless mitigation measures are implemented. Other activities associated with open-trench construction such as loaded truck movements, backhoe loader/compactor, etc. would result in less-than-significant levels of vibration. Mitigation measures for pile-driving during open-trench construction are listed in Section 5.10.4.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Marquesas Way/Via Marina Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Mariana) to 100 feet (at the receiving pit located near the VPP at Hurricane Street) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience vibration levels of less-than-significant magnitude. No significant vibration impacts from micro-tunneling activities are predicted for the Marquesas Way/Via Marina Alignment.

PACIFIC AVENUE ALIGNMENT – NORTH AND SOUTH

Open-Trench Method – The pipeline alignment along the Pacific Avenue Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences along most of the Project alignment. A significant impact from vibration would result from pile-driving activities during open-trench work, unless mitigation measures are implemented. Vibration levels from

other activities associated with open-trench construction would be of a less-than-significant magnitude. Mitigation measures for pile-driving during open-trench construction are listed in Section 5.10.4.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Pacific Avenue Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Residences located 50 feet and 150 feet from an active micro-tunneling work area would experience vibration levels of a less-than-significant magnitude.

DOCKWEILER BEACH ALIGNMENT – NORTH AND SOUTH

Open-Trench Method – The pipeline alignment along the Dockweiler Beach Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences along Hurricane Street, and within approximately 100 feet of residences along The Strand. A significant impact from vibration would result from pile-driving activities during open-trench work unless mitigation measures are implemented. Vibration levels from other activities associated with open-trench construction would be of a less-than-significant magnitude. Mitigation measures for pile-driving during open trench construction are listed in Section 5.10.4.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Dockweiler Beach Alignment would result in construction activities taking place within approximately 100 feet (at the receiving pits located near the VPP, at the west end of Hurricane Street and at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from micro-tunneling activities are predicted for the Dockweiler Beach Alignment.

MARINA DEL REY CHANNEL ALIGNMENTS

The proposed locations of the launch and receiving pit work areas for the Marina Del Rey Channel Alignments would result in construction activities taking place within approximately 50 feet (at the receiving pits located at the southern end of Via Marina) to 150 feet (at the two launch pits located just south of the Ballona Creek Channel) of adjacent residences. Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from micro-tunneling activities are predicted for the Marina Del Rey Channel alignments.

LARGE-DIAMETER TUNNELING ALIGNMENT ALTERNATIVES

The proposed locations of the tunnel construction shafts would result in construction activities taking place within approximately 100 feet (near the VPP at Hurricane Street) to 200 feet (at the proposed shaft on LAX property) of adjacent residences. Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from large-diameter tunneling activities are predicted for this alternative.

5.10.4 Mitigation Measures

OPERATIONAL NOISE MITIGATION

Operational noise levels from the proposed alignments are predicted to be less than significant. Therefore, no abatement measures are recommended for the operational phase of the Project.

CONSTRUCTION NOISE MITIGATION

Potential construction noise mitigation measures may include limiting the hours of noisy construction activities to daytime hours near residences and other sensitive receptors. Other measures could include limiting the number of construction equipment operating at any one time. Following are additional construction noise mitigation measures that should be followed, to the extent feasible:

NOI-1 Trucks shall be limited to designated truck routes and shall avoid residential streets to the extent practicable.

NOI-2 Temporary soundwall barriers shall be erected for launch and receiving pits and large-diameter tunnel shaft work areas. Such soundwall barriers shall be of a sufficient height, length and configuration so as to provide substantial noise reduction and effectively block the line-of-sight between nearby noise-sensitive receivers and the work zone.

NOI-3 Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.

NOI-4 Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

NOI-5 Construction site and haul-road speed limits shall be established and enforced during the construction period.

NOI-6 The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.

NOI-7 No project-related public address or music system shall be audible at any adjacent receptor.

NOI-8 The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Bureau of Engineering shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

NOI-9 The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.

OPERATIONAL VIBRATION MITIGATION

Because no vibration impacts are predicted for operation of the pipeline, no mitigation measures are required or recommended for the operational phase of the project.

CONSTRUCTION VIBRATION MITIGATION

The only vibration impact identified for the construction phase of the Project was from pile-driving during open-trench-type construction. Vibration levels from pile-driving using vibratory methods would exceed the Los Angeles County threshold of perceptibility standard. Use of the following mitigation measure would reduce construction vibration to a level below significance.

Pile-driving: "Press-in" pile drivers shall be utilized rather than vibratory pile-drivers, if feasible. Use of this alternative pile driving technology would reduce vibrations from pile-driving to a level below significance.

5.10.5 Unavoidable Adverse Impacts

There would be no unavoidable adverse impacts as a result of this Project.

5.10.6 Cumulative and Secondary Impacts

There would be no cumulative and secondary impacts as a result of this Project.

5.11 PUBLIC FACILITIES AND SERVICES

RECREATIONAL FACILITIES AND PUBLIC RESOURCES

This section of the EIR includes a description of the existing recreational facilities and public resources in the proposed Project area. Thresholds to determine if the proposed Project could result in significant adverse impacts to recreational facilities and public resources are provided. An analysis of anticipated recreation impacts (project and cumulative), mitigation measures and level of significance after mitigation is provided.

The potential for significant impacts to recreation due to the proposed Project was evaluated in accordance with the methodologies and information provided by the CEQA Guidelines[2].

5.11.1 Environmental Setting

REGULATORY SETTING

The CCC maintains jurisdiction for development in the coastal zone. California coastal act policies promote and protect recreational and visitor serving uses in the coastal zone.

The CDFG maintains stewardship for the state over those open space portions of the Ballona Wetlands lying generally southwest of the Marina Expressway to the developed areas of Marina Del Rey and Playa Del Rey. These areas are designated as Areas A, B and C, with the exception of two portions of Area B – the Freshwater Marsh located southwest of the Lincoln and Jefferson Boulevard intersection, and the Expanded Wetlands parcel – under the jurisdiction of the State Lands Commission (SLC). Additionally, the Area B Freshwater Marsh is held by the non-profit Ballona Wetlands Conservancy (BWC) in a conservation easement. The CDFG conducts its stewardship mission, in part, through a network of access agreements with authorized users/co-stewards.

A wide range of access agreements are in place with the following organizations for a variety of highly specific recreational activities:

1. Security Patrols & Trash Removal: Ballona Wetlands Land Trust and Trust for Public Land;
2. Water and Sediment Sampling: Loyola Marymount University (LMU);
3. Workdays, Maintenance and Land Management: Ballona Wetlands Land Trust, Friends of Ballona Wetlands, and Center for National Lands Management (CNLM);
4. Environmental Monitoring: BWC, CNLM and City of Los Angeles Environmental Monitoring Division;
5. Invasive Species Removal: Ballona Wetlands Land Trust and Friends of Ballona Wetlands;
6. Dune Restoration: Friends of Ballona Wetlands;
7. Scientific Symposia: Ballona Wetlands Foundation and Friends of Ballona Wetlands;
8. Environmental Education, Tours and School Field Trips (K-12): Audubon Society, Ballona Wetlands Land Trust and Friends of Ballona Wetlands;
9. Special Projects and Events: Audubon Society, Ballona Wetlands Land Trust and Friends of Ballona Wetlands; and

[2] California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 – 15387. *Available at: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/*

10. Recreation:
    a. Birding & Bird Counts: Audubon Society and Wetlands Action Network.
    b. Natural History & Site Tours: Ballona Wetlands Land Trust, Fiends of Ballona Wetlands and Wetlands Action Network.
    c. Organized Sports Recreation: Playa Vista Little League Program.
    d. Free-form Recreation - Walking, Biking, Boating and Fishing: General Public.

Interim stewardship and access management is shared and coordinated by the following three State agencies in and around the vicinity of the project: State Coastal Conservancy (SCC), CDFG and SLC. These agencies have drafted the Ballona Wetlands Interim Stewardship and Access Management Plan (Draft) dated March 28, 2005. A Ballona Wetlands Restoration Plan is being developed by them and will guide all future restoration efforts.

EXISTING CONDITIONS

The natural and developed recreation resources in the Project area make it highly desirable for residents, visitors, and tourists who all share and enjoy the local beachfront, parks and recreational facilities in the vicinity of the proposed project. Recreational facilities and resources in the vicinity of the proposed project are described below.

Venice, Including Ballona Lagoon Marine Reserve – This area provides year-round recreational activities including walking, biking, birding, sightseeing, and volley ball.

Venice Municipal and Dockweiler State Beach from Hurricane Street to Waterview and Napoleon Streets, Playa Del Rey – Year-round recreational activities include ocean-based swimming, surfing, boating and fishing (resident species); and beach-based walking, cycling, roller-blading, frisbee-tossing, and sightseeing. Seasonal recreational activities include ocean-based whale watching excursions, fishing (transient species); and beach-based volleyball and special-interest birding (Venice California least tern colony located north of Ballona Creek).

Marina Del Rey and Marina Del Rey Channel, Including Aubrey E. Austin Park and North Jetty Promenade – Marina Del Rey is the world's largest developed yacht/small-craft marina. Famous beaches make it a favored destination for local residents and domestic and international tourists. Year-round recreational activities in Marina Del Rey include yachting, boating, sailing, biking, walking, sightseeing, dining and shopping. Special events such as whale watching excursions, swimming, wading, and sunbathing at Mother's Beach. Year-round recreational activities in the Marina Del Rey Channel include yachting, boating, sailing, fishing, biking, walking and sightseeing.

Ballona Wetlands and Ballona Creek – The Ballona Wetlands is the largest remaining coastal estuary/wetlands habitat within the Los Angeles Basin (State Coastal Conservancy, 2005). The Ballona Wetlands serves migrating avian populations using the Pacific Flyway that extends from Alaska to Central America (Santa Monica Bay Restoration Commission, 2005). Shore birds use Ballona Wetlands for nesting, feeding, wintering grounds and resting stopovers. As a result, the Ballona Wetlands is the premier bird watching destination in the Los Angeles Basin. Year-round recreational activities include creek-based kayaking, small pleasure-craft boating and fishing. Wetlands-based recreational activities include birding, walking, cycling, sightseeing, environmental stewardship and education activities.

Playa Del Rey, including Del Rey Lagoon and Park (inland areas only) – Year-round recreational activities include walking, biking, birding and sightseeing.

Del Rey Lagoon Park – Recreational activities include baseball, basketball, children's play area, picnicking and outdoor grilling, community center classes and programs The El Segundo blue butterfly habitat exists west of LAX. Also nearby is a rare dune beach in Playa Del Rey. The Ballona Escarpment extends along the southern edge of the wetlands.

5.11.2 Thresholds of Significance

Under the CEQA Guidelines, a significant impact related to recreational facilities and public resources would occur if the proposed Project would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

5.11.3 Public and Recreational Facilities Impacts

OPERATIONAL IMPACTS

Operation of the proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities in the Project area. Upon completion of the Project construction, all areas that experienced surface disturbance during construction would be returned to their present condition. The improved reliability of the sewer lines and the reduction in the potential for overflow into the adjacent waterways and the ocean would ensure the availability of existing recreational resources for residents and domestic and international tourists. A beneficial long-term impact on existing recreational resources is anticipated. There would be no long-term adverse impacts that require mitigation measures to the study areas affected.

SHORT-TERM CONSTRUCTION IMPACTS

Although the proposed Project would not involve permanent adverse impacts to recreational facilities and public resources, site-specific adverse impacts may occur during the construction period. These short-term impacts are listed below by the affected community:

Venice

- Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
- All or most of the parking along Via Marina at the entrance channel would be removed;
- Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
- The Class II Bike Trail along Pacific Avenue would be closed during construction;
- Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
- Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
- Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments.

Marina Del Rey - Aubrey E. Austin Park

- Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
- The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.

Playa Del Rey

- The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
- The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
- Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
- The Napoleon Street residential foot path could be interrupted by construction activities.

While the overall length of Project construction is multi-year, construction impacts at specific recreational resource locations would be much shorter. Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

Although there would be impacts of existing recreational activities and use of public recreational resources during Project construction, the construction activities and related adverse impacts are considered short term and not significant. No permanent substantial physical deterioration of recreational facilities or public recreational resources would occur or be accelerated. Therefore, no significant impacts to recreation are anticipated.

5.11.4 Mitigation Measures

Although no significant impacts to recreation are anticipated, the following mitigation measures would minimize adverse short-term construction related impacts in the Project area.

REC-1

In order to minimize competition between construction-related equipment and activities and Dockweiler State Beach users for parking space at Vista Del Mar and the resulting temporary impacts to recreation, special parking arrangements should be made for construction workers (see Section 5.4 Circulation, Traffic and Transportation).

REC-2

In order to minimize recreational access and use issues during the course of construction, additional consultation and coordination with key stakeholders, local residents, members of the general public and City/County planners should occur to balance the needs of the recreational users and construction related activities (see Section 5.4 Circulation, Traffic and Transportation).

REC-3

The City should coordinate with the sponsors of local and major regional, national and international beach events to schedule the events and/or construction activities to minimize conflicts.

REC-4

The City should coordinate all construction scheduling and activities with the Los Angeles County Department of Public Works for the purpose of eliminating or reducing construction-related impacts.

5.11.5 Unavoidable Adverse Impacts

No significant long-term impacts to recreational facilities are anticipated. Project construction activities would adversely affect the enjoyment of local recreational facilities, including use of the beach, natural lagoons, parking lots, bikeways, sidewalks and public trails. Although temporary, these adverse short-term construction impacts for the duration of Project construction cannot be avoided.

5.11.6 Cumulative and Secondary Impacts

The impacts of the proposed Project, when considered in combination with the environmental effects of other related projects shown in Table 1.7-1, Related Projects, would not involve long-term or significant cumulative impacts; however, construction-related impacts could be cumulative should two projects be constructed in the same area at the same time. Specifically, should construction of the Los Angeles County Marina Del Rey Tide-Gates Rehabilitation Project, located at the intersection of Pacific Avenue and Via Marina Way near the Grand Canal, occur at the same time as construction of the VPP Dual Force Main Project, impacts may occur along the recreational walkway on Via Marina Way. However, these impacts would not occur with adequate coordination between the City of Los Angeles and its departments, and between the City and County Departments of Public Works to ensure that construction-related activities do not create additional impacts to the aforementioned areas.

5.12 VISUAL AND AESTHETIC RESOURCES

5.12.1 Environmental Setting

In accordance CEQA Guidelines and the City of Los Angeles Draft CEQA Threshold Guide (1998) for determining impact significance, this section addresses the potential impacts to Visual and Aesthetic Resources (Visual Resources) in the project vicinity which may result from the construction of the force main and the significance of such impacts. The visual resources assessment includes the following information:

- Identifies those views potentially affected by the Project over which the public is most likely to express concern (critically sensitive public views);
- Describes the existing character and quality of those potentially affected critically sensitive views;
- Estimates the intensity of possible adverse visual impacts on those views;
- Evaluates the significance of the possible impacts; and
- As applicable, considers possible mitigation measures that could lessen the impacts to negligible levels of intensity.

Visual Sensitivity – Sensitivity is the social setting for visual resources. As applied to visual impact analyses, sensitivity refers to public attitudes about specific views, or interrelated views, and is the key to assessing how important a visual impact may be and whether or not it represents a significant impact.

To assess visual sensitivity, indicators of public concern were identified and sensitivity rated accordingly. The indicators are listed in Table 1 of Attachment A in Appendix I and reflect the concepts and methods of several federal agencies that treat sensitivity as a function of viewer activity, awareness, values, and goals.

The four levels of sensitivity are high, moderate, low and no sensitivity.

- **High Sensitivity.** High sensitivity suggests that at least some part of the public is likely to react strongly to a threat to visual quality. A highly concerned public is assumed to be more aware of any given level of adverse change and less tolerant than a public that has little concern. A small modification of the existing landscape may be visually distracting to a highly sensitive public and represent a substantial reduction in visual quality.
- **Moderate Sensitivity.** Moderate sensitivity suggests that the public would probably voice some concern over substantial visual impacts. Often the affected views are secondary in importance or are similar to others commonly available to the public. Noticeably adverse changes would probably be tolerated if the essential character of the views remains dominant.
- **Low Sensitivity.** Low sensitivity is considered to prevail where the public is expected to have little or no concern about changes in the landscape. This may be because the affected views are not "public" (not accessible to the public) or because there are no indications that the public values the affected views.
- **No Sensitivity.** There is no sensitivity where the potentially affected views are not "public" (not accessible to the general public) or because there are no indications that the affected views are valued by the public.

Sensitivity of Project Locale – By definition, views from areas serving residential, recreational and tourism land uses, as well as from the transportation routes serving those land uses, are considered to be

highly sensitive. The public is expected to value such views and to potentially react strongly to adverse changes to the visual character and quality of their surroundings.

The CCC's primary concern over visual resources within the coastal zone is:

> *"…the protection of ocean and coastal views from public areas such as highways, roads, beaches, parks, coastal trails and accessways, vista points, coastal streams and waters used for recreational purposes, and other public preserves rather than coastal views from private residences where no public vistas are involved."*

This assessment considers the collective views throughout the Project area, which are important to the consideration of the significance of visual impacts. The following narrative describes the existing visual conditions within the Project areas and identifies the various levels of impacts to the visual character posed by the Project at each alternative location.

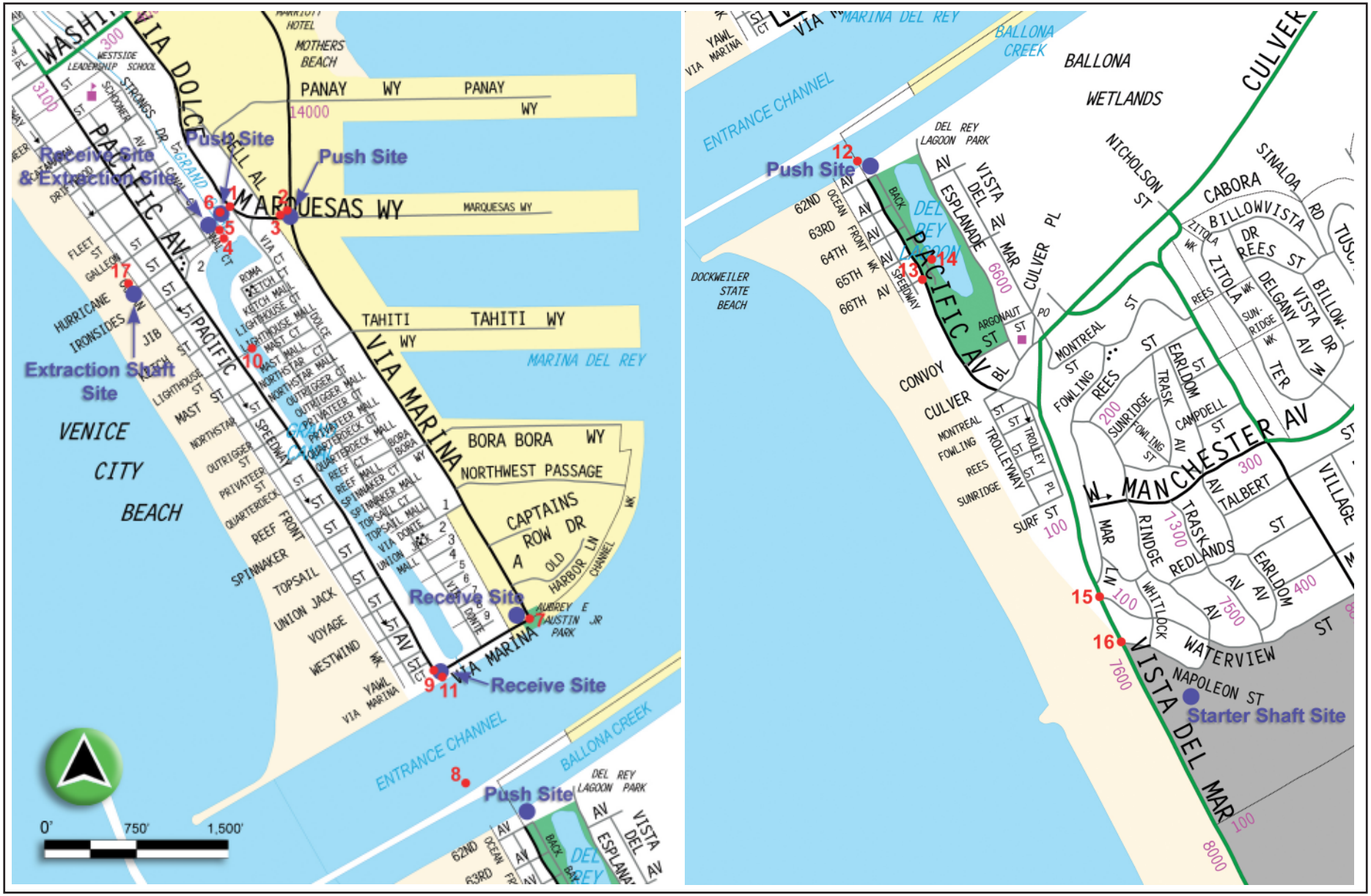
MARINA DEL REY

Marquesas Way/Via Marina Alignment

Sensitivity – Figure 5.12-1 shows the viewing positions used in this assessment. There are numerous highly sensitive viewing positions within and around Marina Del Rey, given its scenic, recreation and tourist-oriented attractions. Foremost among these are views from Via Marina, Admiralty Way and Fiji Way, which form a route designated as a scenic highway and also to be designated as a scenic drive (Scenic Highway Element, Los Angeles County General Plan; Coastal Plan Policies). Of specific importance to the proposed Project is Via Marina, from its intersection with Marquesas Way to where it turns sharply to the southwest to parallel the entrance channel for the marina. Along this stretch of road there would be cut-and-cover pipeline installation, as well as the construction of receive and push sites for micro-tunneling.

A number of recreation and tourist attractions are to be found in the marina: Burton Chace Park, Fisherman's Village, Admiralty Park, Mother's Beach, and the picturesque marina itself. Views from these locations, however, are not important to the analysis, as they do not include Project construction activities and sites. On the other hand, at the southeast end of Via Marina, where it turns to the southwest, there is a small park called Aubrey E. Austin Park. There, too, is the northeast end of the North Jetty Promenade, a popular walk along the scenic Marina Del Rey entrance channel. Views from Aubrey Park and the Promenade are also, by definition, highly sensitive, and the receive site for the micro-tunneling connection to the Marina Del Rey Alignment would be within full view of these recreation resources across Via Marina.

A moderately high-density multi-family residential area lines both sides of Marquesas Way and the west side of Via Marina. Both of these roads serve as the primary access to the residential areas flanking Ballona Lagoon and the Grand Canal to the west. The collective views from the residences on Via Marina and Marquesas Way are highly sensitive. Because these roads are part of the primary access to these residential areas, road-based views would be considered to be highly sensitive. As noted, Via Marina is also highly sensitive due to its scenic highway/scenic drive status.



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Viewing Positions Corresponding to
Figures 5.12-2 - 15

Figure 5.12-1

Also, some aspects of the Project alternatives would be seen from boats passing along the entrance channel, and such views, being recreation oriented, are highly sensitive.

Critical Views – Critical views are partly defined as those that are the most sensitive, as described in the previous section. Where the public is considered to be potentially moderate to highly sensitive to changes in visual quality, there is likely to be a substantial concern over noticeably adverse visual impacts. An extensive, detailed account is provided in Appendix I.

Figures 5.12-2 and 5.12-3, show representative views of Marquesas Way and Via Marina, in the vicinity of the two optional push sites for micro-tunneling under Ballona Lagoon to the receive site opposite the VPP. Also shown in these figures are optional construction/laydown areas that would support the construction and operation of the two alternative push sites. Figure 5.12-4 shows the receive site at the VPP, which is in the vacant lot opposite the VPP, as well as push site Option 2, in the vacant lot on the east side of the canal. These sites would be within full view from the residences lining the east side of Ballona Lagoon/Grand Canal across from the plant, as well as those walking along the lagoon/canal or boating on it.

Figure 5.12-5 is a panoramic view from a residence along the east bank of the Grand Canal across from the VPP. This view shows the point where the canal becomes "Ballona Lagoon," which is at the left corner of the VPP, in the upper image. Recreationists walking along the canal and the lagoon, or boating on these waters, would be expected to be highly sensitive to visual impacts. As noted above, the receive site for the Marquesas Way/Via Marina alignment alternative would be in the vacant lot shown in Figure 5.12-5.

Figure 5.12-6 shows the view from Aubrey E. Austin Park, looking to the northwest along Via Marina. This view shows the location of one option for the receive site for the under-channel micro-tunneling construction alternative. The site is within the parking lot shown in the upper image, and the construction/laydown area would also be within this parking lot. The view shown also represents that from the North Jetty Promenade and Via Marina.

Figure 5.12-7 is a panoramic view from the entrance channel that includes the Via Marina receive site, as well as Aubrey E. Austin Park. Views from the channel would not be the most critical, as they would be comparatively distant, relative to views from Via Marina, Aubrey E. Austin Park, and the North Jetty Promenade. While boats may pass along the northwest side of the channel and be within about 240 feet of the nearest Project feature, the North Jetty would block such views. From points nearer the center of the channel but within the ocean-bound lane, points from which the Project could be seen; the viewing positions would be not closer than about 350 feet or more. By contrast, from Aubrey E. Austin Park and Via Marina, one is only about 80 - 90 feet from where the receive site may be within the parking lot northwest of the park. Consequently, views from the entrance channel would not be considered further, as the focus of the assessment is on the most critical views.

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Panorama Showing Site for Push Option 2 for
Marquesas Way/Via Marina Cut-and-Cover Alternative,
Seen from Marquesas Way/Via Dolce Intersection (VP 1).

Figure 5.12-2

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Views of Via Marina/Marquesas Way Intersection, the Site for Site Push Option 1 for Marquesas Way/Via Marina Cut-and-Cover Alternative, Seen from, and near, Marquesas Way/Via Dolce Intersection (VPs 2 and 3).

Figure 5.12-3

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(Top): View along the Grand Canal Showing Residences from Which Receive and Push Sites, Cut-and-Cover, or Extraction Shaft Construction Activities Would Be Seen (VP 4). **(Bottom):** Hurricane St. at the Venice Pumping Plant, Showing Receive and Alternative Extraction Shaft Sites (VP 5).

Figure 5.12-4

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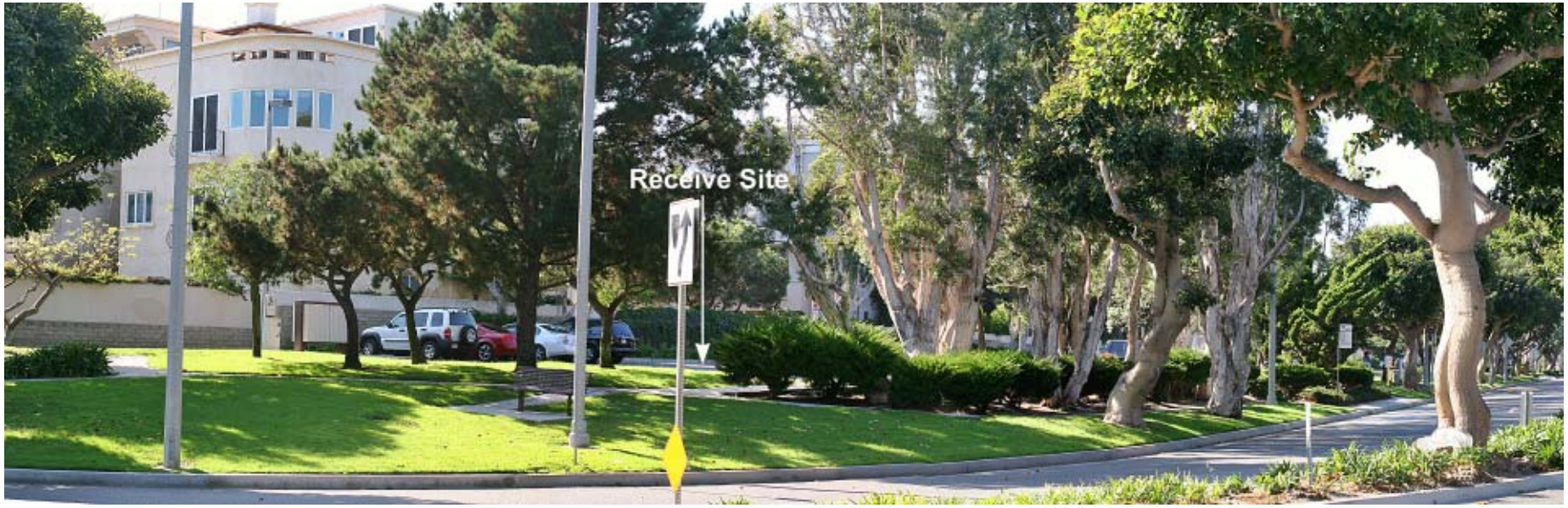
View from Residence on East Side of Ballona Lagoon/Grand Canal Showing the Venice Pumping Plant, a Receive Site for Micro-Tunneling, and Optional Mined Tunneling Extraction Site (VP 6).

Figure 5.12-5



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Panoramic View from Aubrey E. Austin Park, Looking Northwest along Via Marina. **(Top):** The Receive Site and Cut-and-Cover Construction for the Via Marina/Marqesas Way Alignment Alternative would be in the Parking Lot (VP 7)

Figure 5.12-6

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A Panoramic View from the Marina del Rey Entrance Channel, Showing the Locations of the Receive Sites at Pacific Ave. and Via Marina, the Entrance to the Grand Canal, and Aubrey E. Austin Park (VP 8).

Figure 5.12-7

VENICE

Pacific Avenue Alignment

Sensitivity – In general, the Pacific Avenue Alignment Alternative would be within highly sensitive public views that include the collective residential views along the alignment, along Hurricane Street and Pacific Avenue, from Ballona Lagoon/Grand Canal, and those from a pedestrian trail lining the east side of the lagoon.

The collective residential views along Pacific Avenue and Hurricane Street are treated in this analysis as highly sensitive. Cut-and-cover activities would be visible from residences lining the east side of the Grand Canal across from the VPP and those along Hurricane Street Residents along Pacific Avenue south of Hurricane Street to Via Marina would view cut-and-cover construction activities while approaching their homes and from their residences as construction progresses along the street.

Recreational opportunities within the community of Venice occur to the north of the Project site, including the famous Venice Beach, bike path and Ocean Front Walk. In general, public recreation use of area of the Project is less intensive than that of the North Venice Beach portion. Uses are primarily sunbathing, swimming, picnicking, active recreational uses on the sand, and fishing from the Marina Channel jetty. The walkways and waterways along the Venice Canals and Ballona Lagoon provide opportunities for more passive recreational and educational uses, such as bird watching, nature study, strolling, and sightseeing. A Class II Bikeway runs along Pacific Avenue, and non-motorized boating is permitted in the Venice Canals. Potentially, the Project activities would be seen by boaters along the lagoon, those walking along the beach access trail in the vicinity, and bicyclists using Pacific Avenue. Also, where Pacific Avenue intersects with Via Marina, there is the North Jetty Promenade, a frequently used walkway featuring observation decks from which the entrance channel may be appreciated. Fishing is a popular activity below the Promenade.

The south terminus of the subject alignment may be seen from the numerous pleasure craft that use the entrance channel.

Critical Views – The critical views would be any of those from along the alignment from Ballona Lagoon/Grand Canal, pedestrian beach access, Hurricane Street and Pacific Avenue and their adjoining residences, the bikeway along Pacific Avenue, the North Jetty Promenade, and from the entrance channel.

Figure 5.12-4 shows the route for the Pacific Avenue Alignment along Hurricane Street, within view of residences lining this street. Figure 5.12-5 shows the proximity of Ballona Lagoon/Grand Canal to the VPP and the north end of the Pacific Avenue Alignment Alternative. Figure 5.12-8 shows the length of Pacific Avenue from the pedestrian bridge at Lighthouse Street southeast to Via Marina, as well as Ballona Lagoon flanking it on the northeast side. The latter figure also shows that residences line both sides of Pacific Avenue at its southeast end where it meets Via Marina.

Figure 5.12-7 discloses the view of the receive site area as seen from the entrance channel, while Figure 5.12-9 shows the southeast terminus of this alignment alternative and the receive site for micro-tunneling under the Marina Del Rey entrance channel and Ballona Creek. The receive site would be close to the observation platform overhanging the revetment (upper image).

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(Top): Looking Northwest along Pacific Ave. from the Intersection with Via Marina (VP 9). **(Bottom):** Looking Southeast along Ballona Lagoon and Pacific Ave. from the Pedestrian Bridge at Lighthouse St.(VP 10).

Figure 5.12-8

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(Top): View of Receive Site and Construction/Laydown Area from the Corner of Pacific Ave. and Via Marina, Looking Northeast (VP 9). **(Bottom):** View along the North Jetty Promenade from Observation Platform at End of Pacific Ave. and Via Marina (VP 11).

Figure 5.12-9

DOCKWEILER BEACH ALIGNMENT

The cut-and-cover method of construction for this alternative was considered in the EIR but was deemed not viable due to numerous construction-related impacts; therefore, it is not detailed in this assessment. However, the tunneling method of construction is analyzed in this section

WESTCHESTER/PLAYA DEL REY

Pacific Avenue/Vista Del Mar Alignment

Sensitivity – At the northerly end of this alignment, the alignment extends to a push site for micro-tunneling under the entrance channel to either the Pacific Avenue or the Via Marina Alternative Alignments on the north side of the entrance channel. Here there is a boat launch ramp that may be affected due to construction of the push site, a bicycle path, a fishing bridge, and a residential area. The construction/laydown area that would support the micro-tunneling activities would be in the parking lot along the southwest side of the bridge. Views from areas of recreation and residential land uses, including the associated access routes, are highly sensitive.

The parking lot for Del Rey Lagoon Park provides access not only to the park, but also to Dockweiler Beach via a path that leads from the parking lot. Views from Pacific Avenue, the residences along it, Del Rey Lagoon Park, the parking lot at the park, and the beach access path, are all highly sensitive.

Critical Views – All of the views noted would be considered critical, as they are of the highest sensitivity and would include the proposed Project construction activities within the foreground. Most critical of these along Pacific Avenue would be the ones from the bicycle path, the fishing bridge, the residential area along Pacific Avenue, Del Rey Lagoon Park, and the beach access path. Figure 5.12-10 shows views from the bridge over Ballona Creek, looking southeast. The upper image shows the push site area to the north of the bridge (left). The lower image is a better view of the residential area along Pacific Avenue. The bridge links the bicycle path, which is along the jetty separating the entrance channel and Ballona Creek and the stretch of Dockweiler Beach south of the channel and creek.

Figure 5.12-11 shows the scene from the intersection of 66th Avenue and Pacific Avenue, looking northwest and north, which includes the residential area along Pacific Avenue, with a glimpse of Del Rey Lagoon Park. Figure 5.12-12 presents two panoramas of this park, which abuts Pacific Avenue and from which details of Project construction activities would be visible. Along Vista Del Mar, there are multi-story residences, as seen in Figure 5.12-13, which presents photographs from the intersection at Waterview Street and a representative view from the Vista Del Mar. These street-based views are considered to generally represent those from the residences.

CHANNEL CROSSING

The launch shafts and the two alternative receptor sites, associated with micro-tunneling under the Marina Del Rey entrance channel and Ballona Creek, would be within public view. These sites are addressed relative to the cut-and-cover alternative alignments.

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Views from Pacific Ave. Bridge; **(Top):** Push Site in Parking Lot for Under-Channel Alignment; **(Bottom):** View to Southeast along Pacific Ave., Showing Bicycle Path in Foreground (VP 12).

Figure 5.12-10

City of Los Angeles
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(Top) Pacific Ave. and 66th Ave. Looking Northwest, and **(Bottom)** Looking North (VP 13); Del Rey Lagoon Park is Seen to the Right.

Figure 5.12-11

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Panoramic Views of Del Rey Lagoon Park **(Top):** Looking to the Northwest, and **(Bottom):** Looking to the Southeast (VP 14).

Figure 5.12-12

City of Los Angeles
Venice Pumping Plant
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(Top) Vista del Mar and Waterview St. Looking Northwest to North; and **(Bottom)** Looking East to Southeast (VP 15).

Figure 5.12-13

LARGE-DIAMETER (MINED) TUNNELING ALIGNMENT ALTERNATIVES

There are four Mined-Tunnel Alignment alternatives, which would present noticeable disturbance above ground at the sites for the starter and extraction shaft sites. These sites are within highly sensitive views from beach recreation sites, residential areas, and a designated scenic highway (Vista Del Mar). Alternatives 1 and 2 call for cut-and-cover construction as well, which would also be within recreational oriented and/or residential views.

Alternative 2: LAX - Dockweiler Beach

Sensitivity – This alternative calls for a mined-tunnel connection from the LAX property launch shaft to the extraction shaft on Dockweiler Beach and cut-and-cover connections between the VPP and the extraction shaft. The views affected by starter shaft and associated laydown area would be from Vista Del Mar (scenic highway) and residences lining the northeast side of Napoleon Street. As noted earlier, residential views and those from designated scenic highways are highly sensitive. The sensitive views potentially affected by the extraction shaft and the cut-and-cover part of the alignment were described relative to Alternative 1.

Critical Views – Figure 5.12-14, upper image, shows the general area for the starter shaft and laydown area for this alternative. Foreground views from the designated scenic highway (Vista Del Mar) and residences shown are of the greatest sensitivity and are highly critical. Critical views including the extraction shaft site for this alternative and the cut-and-cover part of the alignment are the same as for Alternative 1.

Alternative 3: Direct Mined-Tunnel Connection from LAX Property to Venice Pumping Plant Via Dockweiler Beach

Sensitivity and Critical Views – This alternative alignment would be a mined-tunnel construction alternative from the starter shaft on the LAX property directly to the extraction shaft in the vacant lot northwest of Hurricane Street and opposite the VPP, via Dockweiler Beach. Views of the starter shaft have been discussed relative to Alternative 2. As for Alternative 2, there would be as much as 300 feet of cut-and-cover construction from the starter shaft to the junction with the existing CIS under Vista Del Mar to the southwest.

The extraction shaft would be in the vacant lot across Hurricane Street from the VPP, as shown in Figure 5.12-5. The sensitivity and critical nature of the affected views potentially affected by the extraction shaft have been discussed relative to the Via Marina/Marquesas Way cut-and-cover alignment alternative.

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Views from the Vista del Mar-Napoleon St. Intersection; **(Top):** LAX Site, Looking East to Southeast; and **(Bottom):** Dockweiler Beach and Vista del Mar, Looking Northwest (VP 16).

Figure 5.12-14

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

(Top): Extraction Shaft Alternate Sites at Dockweiler Beach near Hurricane St. (VP 17); and **(Bottom)**: at Venice Pumping Plant (VP 6).

Figure 5.12-15

Alternative 4: Direct Mined-Tunnel Connection from LAX Property to Venice Pumping Plant Under Ballona Lagoon

Sensitivity and Critical Views – This alternative alignment would be a continuous mined-tunnel construction alternative from the starter shaft on LAX property to the extraction shaft in the vacant lot on the northwest side of Hurricane Street, across from the VPP. The tunnel would be inland from the beach and generally under Vista Del Mar, Pacific Avenue and Ballona Lagoon. The starter shaft site and associated laydown site areas are shown in Figure 5.12-14, and sensitive and critical views relative to it have been described regarding Alternatives 2 and 3. Figure 5.12-15 shows the area within which the extraction shaft would be constructed. The laydown area is also expected to be within this vacant lot. The sensitivity and criticality of views from residences and the Grand Canal have been discussed relative to the Marquesas Way/Via Marina Alignment and the Pacific Avenue Alternative alignments.

VISUAL CHARACTER

In conformance with CEQA, detailed descriptions of the existing visual character and quality of the Project vicinity are limited to those views deemed to be "critical," as defined in Section 2.1 of the Technical Study (provided in Appendix I). Accordingly, attention is directed primarily to those moderately to highly sensitive views that would be most affected by a Proposed Action. Where the greatest of impact intensity may occur, low sensitivity views will also be considered. The assessment of visual character serves as the baseline for the quality of Visual/Aesthetic Resources. The estimated visual impacts of the Project will be compared with the baseline conditions to assess the degree of adverse change (intensity) and significance of the potential impacts to the following:

- Inherent landscape features;
- Patterns; and
- Existing visual conditions.

Landscape character and existing visual conditions within critical public views are provided in Appendix I.

5.12.2 Thresholds of Significance

CEQA defines significant impacts as those having a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including … objects of … aesthetic significance" (Article 20, Section 15382).

Appendix G of CEQA (Environmental Checklist) more specifically identifies four areas of concern regarding a project's potential impact on aesthetics:

- Substantial, adverse effects on a scenic vista;
- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within [view from] a state scenic highway;
- Substantial degradation of existing visual character or quality of a site and its surroundings; and
- Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

A significant impact is, in accordance with the CEQA definition, a substantial, or potentially substantial, adverse change in the visual resources of the affected environment. An adverse "change," relative to

visual impact assessment occurs when features are changed, introduced, made less visible, or are removed, such that the resultant effect on public views is perceptibly incongruous with their inherent character. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting. The intensity of a visual impact depends upon how noticeable the adverse change may be. Noticeability is a function of project features and their context and viewing conditions (angle of view, distance, primary viewing directions, lighting, etc.). Four levels of visual impact intensity (noticeability) may occur. These are termed "Visual Modification Classes" (VM Classes) and are defined in Table 2, Attachment A of Appendix I. Significant (substantial) changes (significant visual impacts) are further defined as those that would:

- Result in an inconsistency with laws, ordinances, regulations, and standards (LORS) applicable to the protection of visual resources; or
- Cause a perceptible reduction of visual quality. The perception that visual quality has been reduced is partly a function of public sensitivity to adverse visual impacts. Table 2, Attachment A of Appendix I summarizes the relationship of impact intensity, sensitivity, and the perceived reduction in visual quality.

A third criterion is generally applied which stipulates that an impact must endure for greater than 1 year before it may be considered to be significant. However, in this assessment, no particular duration is stipulated because much of the sensitivity for the potentially affected views is due to recreation activities and sites in the vicinity of the Project.

The value to the public of a single peak-use season is assumed to be extremely important, and any substantial, adverse visual impacts on the aesthetics of the area during this period are considered to be significant, even if temporary or short term. Since no information is available regarding when Project construction would commence, it is assumed that construction would occur during the late spring and summer months.

According to CEQA, Threshold of Significance is that point where an adverse visual impact is deemed to be substantial (i.e., a perceptible reduction in visual quality). CEQA offers no specific criteria for what is deemed "substantial." Therefore, criteria from other sources have been used to provide a systematic approach to this issue, which is summarized in Table 3, Attachment A of Appendix I. The matrix in the table illustrates the relationship of public sensitivity, impact intensity, and what is considered to be a substantial visual impact. The criteria are based upon the principles common to the three primary federal systems for visual resource management and analysis (United States Department of Agriculture, Soil Conservation Service, 1995; United States Department of Interior, Bureau of Land Management, 1978; USDOT, Federal Highway Administration, 1981). This approach has been applied to numerous CEQA-compliant documents over a 15-year period.

CITY OF LOS ANGELES CEQA THRESHOLDS

The City of Los Angeles Draft CEQA Thresholds Guide offers a list of 12 areas of concern to consider in assessing the significance of an impact in accordance with the CEQA Checklist. However, no specific significance criteria accompany this guideline to use in making that determination. Moreover, the Marquesas Way/Via Marina Alignment Alternative is not within the City of Los Angeles, so the City Guidelines do not apply to this alignment alternative.

In the absence of specific significance criteria in the City of Los Angeles Draft CEQA Thresholds Guide or for projects within the County of Los Angeles, the methodology in Attachment A, specifically the matrix in Table 3 in Attachment A of Appendix I has been applied to the determination of significance. Note that all of the City of Los Angeles "Thresholds Guide" issues of concern are considered, as appropriate, in this assessment but are grouped relative to the four CEQA Checklist issues. An exception occurs for the City's concern over Project-caused shading. The current CEQA Checklist does not require consideration of shading. That notwithstanding, this City issue of concern is listed along with the CEQA-related issues.

AES-1: Would the proposed Project or its alternatives cause a substantial degradation of existing visual character or quality of a site and its surroundings?

The City of Los Angeles Draft Thresholds Guide directs that; "The determination shall be made on a case-by-case basis, considering the following factors:"

- The amount or relative proportion of existing features or elements that substantially contribute to the valued visual character or image of a neighborhood, community, or localized area, which would be removed, altered, or demolished;
- The amount of natural open space to be graded or developed;
- The degree to which proposed structures in natural open space areas would be effectively integrated into the aesthetics of the site, through appropriate design, etc;
- The degree of contrast between proposed features and existing features that represent the valued aesthetic image of an area;
- The degree to which a proposed zone change would result in buildings that would detract from the existing style or image of the area due to density, height, bulk, setbacks, signage, or other physical elements; and
- The degree to which the project would contribute to the aesthetic value of an area.

AES-2: Would the proposed Project or its alternatives cause substantial, adverse effects on a scenic vista?

This CEQA issue of concern is interpreted in this assessment as addressing the degree to which Project-related features interfere with a scenic vista, either by obstructing it or interfering with access to it. The City of Los Angeles Draft CEQA Thresholds Guide is relevant to this CEQA issue as follows:

- The extent of obstruction (e.g., total blockage, partial interruption, or minor diminishment) of recognized or valued views (such as natural topography, settings, manmade or natural features of visual interest, and resources such as mountains or the ocean); and
- The extent to which the Project affects recognized views available from a length of a public roadway, bike path, or trail, as opposed to a single, fixed vantage point.

AES-3: Would the proposed Project or its alternatives cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway ?

One issue expressed by the City of Los Angeles Draft CEQA Thresholds Guide is relevant to this CEQA issue:

- Whether the project affects views from a designated scenic highway, corridor, or parkway.

AES-4: Would the proposed Project or alternatives result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Relative to the City of Los Angeles Draft CEQA Thresholds Guide, the factors that are to be considered in determining whether the Project would have a significant impact through nighttime illumination are:

- The change in ambient illumination levels as a result of Project sources; and
- The extent to which project lighting would spill off the Project site and affect adjacent light-sensitive areas.

AES-5: Would the proposed Project or alternatives result in substantial negative shadow effects on nearby shadow-sensitive uses?

The City of Los Angeles Draft CEQA Thresholds Guide requires the consideration of the potential impact of shading by project-related structures. The current CEQA Checklist does not require consideration of shading; however, it did so at the time the Draft Thresholds Guide was prepared and is, therefore, listed here as an issue to be addressed. However, the analysis does not address this issue because the Project has no potential to create any shading impacts as defined by the City guidelines.

AES-6: Would the proposed Project or alternatives result in visual impacts that would not be consistent with applicable rules and regulations?

This impact is not expressed in the CEQA Checklist, but is listed in the City of Los Angeles Draft CEQA Thresholds Guide. As stated above, it is interpreted as asking whether the Project and its alternatives would result in any inconsistencies with applicable plans, policies, objectives, standards, ordinances, regulations or statutes.

5.12.3 Environmental Resources Impacts

The visible changes that would be brought about by the proposed Project and its alternatives, and their potential to create aesthetic impacts, are evaluated in detail in this section relative to each alignment alternative, as well as relative to the several construction alternatives to the propose Project (Mined-Tunneling Alignment alternatives). The significance of these visual impacts has been determined by applying criteria summarized is Section 5.12-2 (and detailed in Attachment A of Appendix I), and the guidelines developed by the City of Los Angeles.

Marina Del Rey Alternative: Marquesas Way/Via Marina

Critical sensitive public views and existing visual conditions are described in Sections 2.1 and 2.2 of this Technical Appendix. The methodology for the following impact assessment is presented in detail in Attachment A of Appendix I.

The critical sensitive viewing positions along this alignment alternative include those from:

- Via Marina, a scenic highway and scenic drive;
- Aubrey E. Austin Park;
- North Jetty Promenade, east end;
- Marina Del Rey entrance channel;
- Marquesas Way, Via Dolce, and adjoining residences;
- Residences along the Grand Canal near the VPP;
- Grand Canal; and
- Residences at the northeast end of Hurricane Street.

OVERVIEW: EXISTING VISUAL CONDITIONS RELATIVE TO PROPOSED PROJECT FEATURES

Via Marina, Aubrey E. Austin Park, North Jetty Promenade, and Entrance Channel

The existing visual conditions for these critical views are all VMC 1: from positions along or within these sensitive public roads and areas, features within view have not been noticeably modified unfavorably by past activities (see Section 2.2 of the Technical Study provided in Appendix I). That is, no noticeably incongruous features are in sight. These existing views are shown in Figures 5.12-2 – 5.12-7. The Project activities and equipment associated with cut-and-cover pipeline installation and the construction and operation of the push and receive sites along this alignment alternative would be industrial in visual character. As such, these Project features would be incongruous with the established settings for the several potentially affected views.

From Via Marina, at its intersection with Marquesas Way, for about 0.5 mile to the southeast, cut-and-cover construction would occur in one of the two lanes serving travel to the southeast. At end of the in-street construction, the alignment would angle to the south into a parking lot serving nearby residences and proceed for approximately 1,000 feet to the tie-in with the under-channel pipeline at the receive site. For the length of the in-street construction, motorists would be restricted to one lane of travel and pass close to the cut-and-cover construction activities in the second lane. Where the alignment crosses over into the parking lot, one or more mature trees would be removed due to trenching activities and the movement of equipment. In the parking lot mentioned, cut-and-cover construction would be within the immediate foreground of residences along the southwest side of the lot, as well as in the foreground of views from the scenic highway/drive. To a limited extent, such activity would also be noticed from Aubrey E. Austin Park and the east end of the North Jetty Promenade. However, it would not be visible from the entrance channel due to intervening structures and vegetation.

The construction activity associated with the receive site would be in the foreground of views from the park and promenade, the residences noted, Via Marina, and, to a lesser extent, from the northwest lane of the entrance channel.

Marquesas Way, Via Dolce, and Adjoining Residences

The existing visual conditions for views from Marquesas Way and the adjoining residences is VMC 1 (Section 2.2). No incongruous features are within view.

Under push site Option 1, there would be no construction along Marquesas Way or within the “island” at the intersection with Via Dolce. Here, micro-tunneling would occur from the push site northeast of the Via Marina/Marquesas Way intersection to the receive site in the vacant lot across from the VPP. A small part of the cut-and-cover construction at Via Marina would be briefly in view but would be at a distance and not within primary views from most of the residences or along much of the street. An exception would occur for motorists driving on Marquesas Way when approaching the stop light at Via Marina. Here in-street construction would be seen for a relatively short part of the alignment where it would tie in with the micro-tunneling from the nearby parking lot northeast of the intersection.

Under push site Option 2, however, construction/laydown site for this option would be in the foreground of views from Marquesas Way, Via Dolce, and their adjoining residences. It would be located in the island defined by the intersection of Marquesas Way and Via Dolce (Figure 5.12-2, lower image).

Moreover, a public beach access path starts near the construction/laydown site and runs along the east side of Ballona Lagoon to the south. From the beginning of this path, the construction/laydown site would be within the foreground. The push site shaft would be in the vacant lot shown in the upper image of Figure 5.12-4. The construction activities here would be in the foreground of residences along the northeast side of Via Dolce at its intersection with Marquesas Way.

The activities and equipment associated with cut-and-cover pipeline installation along Marquesas Way, the construction/laydown area, and the construction and operation of push site Option 2. The shaft site would be screened by an acoustic curtain from 20 – 30 feet tall on four sides. Cranes would be substantially in view above these curtains, and truck traffic to and from the sites would occur intermittently throughout the construction shifts. As such, these Project features would be incongruous with the established settings for these potentially affected views.

Grand Canal Residences, Grand Canal, and Hurricane Street Residences

From residences along the east side of the Grand Canal and the Grand Canal itself, the VPP dominates views and the existing visual condition is VMC 4. This would also be true for residences along the northeast end of Hurricane, for views to the east. Given the visual dominance of the plant, the existing visual conditions are rated VMC 4. This means that for the views from the residences noted and the canal the existing visual quality is at its lowest.

Push site Option 2 and the receive site, both shown in Figure 5.12-4, would be in the foreground of the residences lining the east side of the canal, the canal itself, and residences at the northeast end of Hurricane Street. The receive site, like the push site, would be screened by an acoustic curtain 20 to 30 feet tall. Cranes would be well in view above these curtains, and truck traffic to and from the sites would occur at different points of the day. The curtained construction area and visible equipment would appear industrial and be incongruous with the generally residential setting.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 5.12.2.

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary as well as long term.

Concerning the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the visual impacts are summarized as follows:

- One or more mature street trees, which contribute substantially to the value of the scenic highway/drive status of Via Marina, would be removed;
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; or
- There would be no positive contribution to the aesthetic value of the area.

Certain critical public views would affected by the Project to the point that the impact would be significant. However, the duration would be temporary. Elsewhere, the VPP has adversely affected the quality of critical public views to the point that the additional impact of the Project would not significantly affect these views. The impact would worsen the existing visual quality, but the current visual condition, due to the VPP, is already at the lowest rating. A more detailed analysis follows.

Via Marina and Adjoining Residences – As noted, the Existing Visual Conditions for views from this designated scenic highway/drive are VMC 1. From this road the following Project features would be within foreground views, proceeding from its intersection with Marquesas Way to where it turns to the southwest:

- The 10- 12,000 square feet construction/laydown area for push site option 1;
- The push site option 1 shaft construction area within the Via Marina/Marquesas Way intersection;
- Cut-and-cover construction along 0.5 mile of roadway and approximately 1,000 feet of parking lot;
- The receive site near the entrance channel.

These activities and their associated equipment and workforce would dominate views from this road and its flanking residences and would be industrial in character and incongruous with the setting. Note that the push site would occupy much of the Via Marina/Marquesas Way intersection and would be surrounded by an acoustic curtain 20 – 30 feet high. The equipment and activity within the curtains would be screened from view, but a crane would be substantially taller than the curtains. The site would have an apparent mass of a two- to three-story building due to the curtains.

The construction/laydown area, if square in configuration, would occupy an area 110 feet on a side. This storage of industrial equipment in a parking lot currently serving recreation and commercial uses within Marina Del Rey would appear discordant and dominate views.

Cut-and-cover construction along a 0.5-mile length of Via Marina would be immediately proximate to residences and motorists using this scenic highway. The associated activity and equipment would displace the current positive aesthetic features along the drive and dominate the views. A separate concern is the transition of the in-street construction to the parking lot, which would require the removal of one or more trees on the southwest side of Via Marina. This would be a noticeable loss of a valued visual resource.

From northwest end of Via Marina to the southeast where it passes by Aubrey E. Austin Park, the visual conditions would change from VMC 1 to VMC 4 (dominant), representing an Impact Intensity Level 3 (Table 3, Attachment A of Appendix I). Within a highly sensitive view, such an impact would be significant.

The loss of the street tree(s) would be long term, requiring many years to be mitigated by the maturation of new plantings. The duration of the other impacts is uncertain, as it is not known to what degree certain activities would occur concurrently. The cut-and-cover construction would last for about 3 months, and it is likely that most of the push and receive site construction would be completed concurrently. If not, the cumulative construction could last for about 5 months. In either case, the time frame would be considered to be temporary. *Conclusion: the impact would be significant and primarily temporary, except for the loss of mature street trees, which would be a long-term impact*.

Aubrey E. Austin Park, North Jetty Promenade, East End, and Marina Del Rey Entrance Channel – The Existing Visual Condition for views from this these critical public viewing areas is VMC 1. The most critical of these views is that from the park, followed by those from the promenade and the entrance channel. The only Project feature that would affect views from the park and promenade would be the 5,000 square feet construction/laydown area for receive site for the under-channel tunnel boring and the shaft site itself. The cut-and-cover construction would be largely obscured by the intervening street trees and hedges (see Figure 5.12-6).

The receive site would be surrounded by a 20- to 30-foot-tall acoustic curtain and would be peripheral to the primary views from the park. Given the parks proximity to the entrance channel, it is assumed that views most usually would be directed away from the receive site and toward the boating activity in the entrance channel and the ocean to the southwest. This would also be true for views from the North Jetty Promenade, which is proximate to the entrance channel. Also, views from the promenade toward the receive site are screened by mature trees within the park. Regarding views from the entrance channel, they would tend to be focused along the entrance channel either to the northeast or southwest, in the directions of travel.

The most critical of these views are those from the park. Although most viewing might be away from the receive site, the park is oriented for viewing to the northwest as well (toward the receive site). A conservative approach would be to assume that substantial attention is directed toward Via Marina and the receive site. Accordingly, the site would attract considerable attention to the point of competing with other features in view, if not dominating attention. The two- to three-story curtained area would appear out of place and discordant, not appearing to be an inherent feature of the largely residential area. The resulting visual condition would be VMC 3 (co-dominant). The change in visual conditions would be Intensity Level 2. *Within a highly sensitive view, such impact intensity would be considered to be significant, although the cumulative duration of construction activities at the receive site would be 7 weeks and, therefore, temporary.*

Due to the primary direction of views from the promenade and the entrance channel, coupled with screening by vegetation and attenuation by distance (for the Channel views), the affect of constructing the receive site at Via Marina is not expected to be substantial (not significant).

Marquesas Way, Via Dolce, and Adjoining Residences – The existing visual conditions for potentially affected views from these roads and residences is currently VMC 1. From these roads and residences, the following Project features would be within foreground views:

- The 10- to 12,000 square feet construction/laydown area for push site option 2;
- The push site option 2 shaft construction area;
- Cut-and-cover construction along Marquesas Way/Via Dolce that would connect with the push site Option 2 shaft site.

These activities and associated equipment and workforce would dominate views from the roads and residences noted. They would be industrial in character and incongruous with the setting. The construction/laydown area, if it were square in configuration, would occupy an area up to 110 feet long on each side, or an equilateral triangle up to 155 feet on a side (the available space is triangular). It would

appear that there is insufficient area in the designated "island" location at the intersection of these two streets, as there is less than 6,000 square feet of space there. Use of this space for a construction/laydown area is further complicated by the alignment of the cut-and-cover construction needed to bring the pipeline to push site Option 2. The alignment seemingly would need to traverse the laydown area in order to directly reach the push site, thereby diminishing the area available for laydown. Additional laydown space may be available in the vacant lot next to the push site construction area, but that space is limited as well. Consequently, some additional part of Via Dolce or Marquesas Way may have to serve as a construction/laydown area.

Using the island for a construction/laydown area would likely cause the damage and removal of the large, mature tree, as well as all of the landscape materials in the island. This island (see Figure 5.12-2) is an entry statement for residential area and the visual focus of traffic along both streets. The loss of the tree and other plantings would cause an irretrievable loss of visual quality.

The Option 2 push site, the 20 to 30-foot-tall acoustic curtained site would largely fill the vacant lot. This two- to three-story curtain wall would be on all four sides of the site, and would look like a featureless block structure incongruous with the setting. The crane inside the site would protrude well above the curtain walls, and the necessary truck traffic would be visible intermittently throughout the day.

The effect of cut-and-cover construction would be the same as described for the Via Marina views. Views from the roads would be dominated by the proximate construction. Additionally, since open-trench construction would need to proceed more or less straight to the push site in the vacant lot, the planted island area described above would be traversed by the alignment. The trench construction would unavoidably destroy plantings and cut the roots of the mature tree in the island. Using the area as a laydown site most likely would damage the tree, and trench construction would cause further damage. Together, the activities could cause the tree to be removed.

The visual impacts associated with the construction of the Option 2 push site, its operation, the use of the intersection island for a laydown site, and cut-and-cover construction would severally and together dominate views with features incongruous with the setting. The existing visual conditions would change from VMC 1 to VMC 4, representing and impact intensity of Level 3. Given the sensitivity of the views affected, the impact would be significant.

The duration of the construction activities note is as follows. The Option 2 push site shaft would be constructed within about 2 months, and the approximately 500 feet of cut-and-cover construction along Marquesas Way that would be required for this push site would take about 3 to 4 weeks. It is assumed that shaft construction and cut-and-cover activities would be concurrent, but at worst, if they were not, the duration would extend to 3 months instead of 2. *The impacts, while significant, would be temporary in duration.*

Grand Canal Residences, Grand Canal, and Hurricane Street Residences – The existing visual conditions for potentially affected views from these roads and residences is currently VMC 4 due to the presence of the VPP. From the residences and the canal, the following Project features would be within foreground views:

- The Option 2 push site; and
- The receive site in the vacant lot opposite the VPP.

These activities and equipment, activity, and workforce associated with the push site and receive site would be co-dominant with the VPP. The appearance of the acoustic curtain-enclosed sites, the protruding crane, and truck traffic have has been described relative to AES-1. These features would be industrial in character and incongruous with the generally residential setting. However, because the Existing Visual Conditions are VMC 4, the conditions could not substantially worsen and the impact, while adverse, would not be significant. This adverse impact would endure for six weeks of construction for the receive site, but this would be concurrent with the construction of the push site, which would last for about 2 months. The adverse impact would, therefore, be temporary.

AES-2 The proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant, primarily temporary but to a limited extent long term.
The impacts of the Project, relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, are summarized as follow:

- There would be a significant impact due to partial obstruction of recognized and valued views due roadside cut-and-cover construction, construction/laydown areas, and optional push sites.
- The impact would significantly affect the recognized views currently available from lengths of public roadways (Via Marina, Marquesas Way, and Via Dolce).

Via Marina is a designated scenic highway/drive, and the views from this road represent a continuous series of scenic vistas culminating in view of the entrance channel. Also, there are scenic vistas from Aubrey E. Austin Park and the North Jetty Promenade, which extend out across the entrance channel, but in the case of the park, also extend along Via Marina. Furthermore, the views from the residences lining the east bank of the Grand Canal near the VPP are highly scenic vistas, which include the canal and the Ballona Lagoon to the southeast. The adverse impact on the views noted has been assessed in detail relative to AES-1. That on views from Via Marina and Aubrey E. Austin Park would be significant and primarily temporary, excepting the loss of street trees, which would be a long-term impact. The impact on views from the Grand Canal residences, the Grand Canal, and Hurricane Street residences would be adverse but not significant due to the existing effect of the VPP.

AES-3 The proposed Project or its alternatives would cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway. The impact would be significant and long term.
The Los Angeles City Threshold factor for significance that is under AES-3 is as follows:

- The Project would significantly impact views from a designated scenic highway. This has been discussed.

The Project would result in the loss of mature street trees along Via Marina, a designated scenic highway (designated by the County of Los Angeles) and one mature tree at the intersection of Via Dolce and Marquesas Way. The impact of the loss of these trees has been described relative to AES-1, and would be significant and long term.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

The applicable regulatory setting is the Los Angeles County LCP for Marina Del Rey, embodied in the Marina Del Rey LUP and discussed in Section 3.2. Policy "e-3" of the Plan established Via Marina as a scenic drive, and the Scenic Highway Element of the County General Plan identifies Via Marina as a scenic highway. It is assumed that unfettered and access to Via Marina and its continuous enjoyment by the public is implicitly a policy of the Plan, as would be the protection from adverse impacts the views from this road. The adverse impacts from Via Marina have been described and are deemed in this assessment not to be consistent with the Plan. The impact would be temporary, however.

Venice Alignment Alternatives: Pacific Avenue Alignment

The critical sensitive viewing positions along this alignment alternative include those from:

- Hurricane Street and adjoining residences;
- Pacific Avenue and adjoining residences;
- Bikeway along Pacific Avenue;
- Ballona Lagoon/Grand Canal;
- Public beach access path along easterly side of Ballona Lagoon; and
- The North Jetty Promenade.

OVERVIEW: EXISTING VISUAL CONDITIONS RELATIVE TO PROPOSED PROJECT FEATURES

Hurricane Street, Grand Canal at Hurricane Street, and Adjoining Residences

The existing visual condition for views from the northeast end of Hurricane Street, the Grand Canal in that immediate vicinity, and the residences nearby is VMC 4, as described in Section 2.2 of the Technical Study (Appendix I). As noted there, the views are dominated by the VPP. It and the chain-link fenced lot on the opposite side of the street are industrial in character. The VPP and lot are incongruous with the residential context, with the VPP being the subject of the view.

Cut-and-cover construction would occur in one of the two lanes of Hurricane Street and would be in the immediate foreground of motorists and residents along the street. Construction activities would also be noticeable from the residences lining the east side of the Grand Canal just northeast of the end of the street, as demonstrated in Figures 5.12-4 and 5.12-5.

Pacific Avenue and Residences, Southwest End of Via Marina, Bikeway, Ballona Lagoon, Beach Access Path and North Jetty Promenade

From these sensitive viewing positions, the existing visual conditions include no anomalous features incongruous with the character of the area and are rated VMC 1. Cut-and-cover construction would be within the foreground of views from the streets and residences listed, the bikeway, and the lagoon, but would be viewed at a distance of over 270 feet from the beach access path running along the easterly side of the lagoon. In addition, this alternative would require that a receive site be constructed along the North Jetty Promenade at the intersection of Via Marina and Pacific Avenue. To construct the receive site and the open-trench pipeline, one lane of Via Marina along the entrance channel and the adjoining public parking would be used for a construction/laydown area.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 5.12.2.

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished;
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; and
- There would be no positive contribution to the aesthetic value of the area.

Most of the critical public views would be affected by the Project such that the impact would be significant. However, the duration would be temporary. For views from Hurricane Street and residences at its northeast end, as well as the Grand Canal and residences close to this end of the street, the VPP has adversely affected the quality of critical public views to the point that the additional impact of the Project would not significantly affect these views. The impact would worsen the existing visual quality, but the current visual condition due to the VPP is already at the lowest rating. A more detailed analysis is available in Appendix I.

AES-2 The proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant, primarily temporary but to a limited extent long term.

Relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, the impacts may be summarized as follows:

- There would be a significant impact due to partial obstruction of recognized and valued views due to roadside cut-and-cover construction, construction/laydown areas, and a receive site; and
- The impact would significantly affect the recognized views currently available from lengths of public roadways (Via Marina and Pacific Avenue) and the bike path along Pacific Avenue.

Via Marina is a designated scenic highway/drive and the views from this road represent a continuous series of scenic vistas culminating in views of the entrance channel. Also, there are scenic vistas from the North Jetty Promenade, which extend out across the entrance channel. As well, scenic vistas of the Ballona Lagoon from the Class II bikeway along Pacific Avenue would be significantly impacted by cut-and-cover construction within the roadway. The potential adverse impact on the views noted has been assessed in detail relative to AES-1 and has been considered to be significant but temporary.

AES-3 The proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

The Los Angeles City Threshold factor for Significance relevant to this CEQA issue and is summarized as follows:

- The Project would significantly impact views from a designated scenic highway (see AES-1), but would not impact any specific scenic resources.

The Project would not directly damage features contributing to the visual aesthetics of the potentially affected views. Rather, the Project would introduce features into these views which are incongruous with the established setting and would block specific views (for instance, the receive site would interfere with views of the entrance channel from various viewing positions). These impacts have been addressed under AES-1 and AES-2.

Views from a designated scenic highway (Via Marina) would be adversely affected, but aesthetic features in view would not, as noted, be adversely impacted. A separate impact not specifically addressed by the City of Los Angeles Thresholds is that access to a designated scenic highway would be eliminated, temporarily (traffic would be restricted to local residence and controlled along one lane), as would access to the Promenade and the entrance channel views by the temporary elimination of public parking in the area. In essence, eliminating access to views represents an irretrievable loss of the resource (the scenic highway and public parking at least partly serving as access to scenic views) for the period of construction. This impact is addressed under AES-6 and would be temporary.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

The applicable regulatory documents are the Venice Community Plan and the Venice LCP LUP, as this alignment alternative lies entirely within the boundaries of Venice. Section 5.9 details the applicable plans

and policies. Coastal Resources Goal 18 of the Venice Community Plan calls for the preservation of the scenic and visual qualities of coastal areas. The policy is to assure that projects are visually compatible with the character of surrounding areas. Moreover, design principles set forth in the Venice LUP requires that views of distinctive visual resources not be significantly disturbed. As discussed relative to AES-1, the Project would introduce features into view that are visually incompatible with the character of the affected area. Also, views of the entrance channel would be directly impacted, and the entrance channel arguably presents a distinctive visual resource. Because the Project would not be consistent with the regulatory setting, the visual impacts described would be considered significant. They would, however, be short term, lasting for about 7 months.

Westchester/Playa Del Rey Alignment Alternatives: Pacific Avenue/Vista Del Mar Alignment

The critical sensitive viewing positions along this alignment alternative include those from:

- Pacific Avenue Fishing Bridge;
- Bikeway along Pacific Avenue Bridge;
- Pacific Avenue and 62nd Street, including adjacent residences;
- Del Rey Lagoon and adjacent parking area;
- Dockweiler Beach Access from Pacific Avenue; and
- Vista Del Mar (scenic highway) and adjacent residences.

OVERVIEW: EXISTING VISUAL CONDITIONS RELATIVE TO PROJECT FEATURES

Pacific Avenue Fishing Bridge, Bikeway, Boat Launch, Pacific Avenue and 62nd Street, Residences Along 62nd Street

The existing visual condition for these critical views is VMC 1, as described in Section 2.2 of the Technical Study (Appendix I). Within views from positions along the bridge and bikeway, in the vicinity of the boat launch, at the northwest end of Pacific Avenue, and along 62nd Street, there are no noticeably incongruous features in sight. The existing views are shown in Figure 5.12-10. In this vicinity, the activities and equipment associated with cut-and-cover construction, as well as the construction and operation of the push site, would be within the immediate foreground. Such equipment and activities would have a decidedly industrial appearance that would be incongruous with the recreation and residential land uses and character there.

Pacific Avenue and Adjoining Residential Area, Del Rey Lagoon Park, Beach Access Path

From these sensitive viewing positions, the potentially affected views include no anomalous features incongruous with the character of the area and are rated VMC 1. On Figures 5.12-11 and 5.12-12, the residential area along Pacific Avenue, the adjacent Del Rey Lagoon Park, and one of its parking lots are shown. Cut-and-Cover construction would be within the foreground of views from the street and residences listed, Del Rey Lagoon Park and its parking lot, and the beach access path. Cut-and-cover construction would occur in one of the two lanes of Pacific Avenue and would be in the immediate foreground for park users, local residents, and those using the beach access path leading from the parking area along Pacific Avenue that also serves the park.

Vista Del Mar and Adjacent Residences

As is the case for the other views from this alignment alternative, the existing visual conditions are VMC 1, there being no noticeably incongruous features within view. On Figures 5.12-13 and 5.12-14, the

terminus of the alignment where the new pipeline would tie in with the existing CIS, as well as the character of the residential area and the quality of the ocean views available from this road, are shown. Cut-and-cover construction would be within one lane of Vista Del Mar and, therefore, be in the immediate foreground of views from the street and residences noted.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 5.12.2.

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished;
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; and
- There would be no positive contribution to the aesthetic value of the area.

The critical public views noted would be affected by the Project such that the impact would be significant. The affected views are highly sensitive and Project construction activities would be within the immediate foreground of these views. Of particular importance is that Vista Del Mar is a scenic highway; and therefore, views from this road are especially important. However, the duration of the impacts noted would be temporary.

A detailed impact assessment follows:

Pacific Avenue Fishing Bridge, Bikeway, Boat Launch, Pacific Avenue and 62nd Street, Residences along 62nd Street

From these critical viewing positions, the following Project features would be within the foreground:

- The 10- to 12,000 square feet construction/laydown area for the push site;
- The push site; and
- Cut-and-cover construction at the northwest end of Pacific Avenue south of the entrance channel.

The activities, equipment, and workforce associated with these Project features would dominate these views and be incongruous with the setting, as noted. The push site would be located in the parking lot abutting the bridge on its northeast side. It would also have to accommodate some space for construction/laydown, as the primary location for this, the parking lot abutting the southwest side of the bridge, would be too small. Therefore, it is assumed that the push site would occupy the entire area between the boat launch and the bridge, including the northeast end of 62nd Street. The associated

construction/laydown site would occupy the entire parking lot flanking the southwest side of the bridge, as well.

As has been noted before, the push site (like the receive sites) would be surrounded by an acoustic screen that would be 20 to 30 feet high. A crane would be substantially higher than the curtain, so not all of the equipment would be shielded from view. Also, truck traffic required for the delivery of materials and supplies and muck hauling would be periodically within the subject views.

A limited stretch of cut-and-cover construction would affect the views noted, as this aspect of the Project terminates at the push site. Here the trenched pipeline would be tied in with the under-channel pipeline. Cut-and-cover construction would require a moveable construction/laydown area alongside of the open-trench construction, as well as a portion of the parking lots noted.

The existing visual conditions would change from VMC 1 to VMC 4 (dominant, incongruous features), representing an impact intensity of Level 3 (Table 3, Attachment A of Appendix I). Within a highly sensitive view, such an impact would be significant.

The duration of the impact on the subject views, the push site must be completed prior to tunnel boring and would require 2 months to construct. Tunnel boring would require from 1 to 2 months (Section 4.4, Project Description). Cumulatively, push site construction and boring would therefore be completed over a 4-month period. It is assumed that the short stretch of cut-and-cover construction within the subject views would occur within this time frame. Consequently, the visual impact of construction would be temporary.

Pacific Avenue and Adjoining Residential Area, Del Rey Lagoon Park, Beach Access Path

Relative to these critical viewing positions, it primarily would be cut-and-cover construction that would adversely impact the visual quality of the area. However, truck traffic required for the construction and operation of the push site, and for delivery of materials for open-trench construction, would also be within view and pose an adverse impact.

The activities, equipment, and workforce associated with pipeline installation, and the truck traffic noted, would occur within a few feet of the edge of Del Rey Lagoon Park, the nearby residences, parking for the residences and lagoon, and the beach access path. The scale, proximity, contrast, and movement of the equipment and workforce would unavoidably draw focused attention and dominate the scene. The existing visual conditions would change from VMC 1 to VMC 4 (dominant, incongruous features), representing an impact intensity of Level 3. Within the highly sensitive views noted, such an impact would be significant.

There would be about 2,000 feet of cut-and-cover construction along Pacific Avenue up to where it intersects with Vista Del Mar. At the rates of advance described in the summary Project Description in Section 4.4, construction along this road would be complete within about 3.5 months. Consequently, the visual impact of construction, while significant, would be temporary.

Vista Del Mar and Adjacent Residences

As would be the case for the Pacific Avenue stretch of the alignment, along Vista Del Mar, the primary aspect of the Project that would be within view would be cut-and-cover construction within one lane of the roadway. The impact of this construction would be as described earlier relative to other foreground views. There would be an impact of Level 3 intensity, and it would therefore be significant. The length of Vista Del Mar that would be affected would be about 1,600 feet long. At the rate of advance projected, it would take about 3 months to complete this part of the alignment. Therefore, the impact, while significant, would be temporary.

AES-2 The proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant, primarily temporary but to a limited extent long term.

Relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, the impacts may be summarized as follows:

- There would be a significant impact due to partial obstruction of recognized and valued views due to the construction and operation of a push site; and
- The impact would substantially affect recognized views currently available from a length of a public roadway and a portion of a bikeway.

Vista Del Mar is a designated scenic highway, and the views from this road represent a continuous series of scenic vistas of the Pacific Ocean and Dockweiler Beach. Also, there are scenic vistas from the bikeway along the South Jetty, the Pacific Avenue Fishing Bridge, and 62nd Street, which extend out across the entrance channel. The potential adverse impact on the views noted has been assessed in detail relative to AES-1 and has been considered to be significant but temporary.

AES-3 The proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

One Los Angeles City Threshold factor for Significance is relevant to this CEQA issue and the impact is summarized as follows:

- The Project would significantly impact views from a designated scenic highway (see AES-1 and -2), but would not impact any specific scenic resources within view of a scenic highway.

The Project would not directly damage features contributing to the visual aesthetics of the potentially affected views, particularly views from a scenic highway. Rather, the Project would introduce features into these views which are incongruous with the established setting. These impacts have been addressed under AES-1 and AES-2.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4, therefore, do not apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

Section 5.9 details the applicable plans and policies. The applicable regulatory document is the Coastal Resources chapter of the Westchester-Playa Del Rey Community Plan. Objective 18-5 is relevant: "Preserve coastal visual resources by protecting and enhancing scenic views of the ocean and wetlands from designated Scenic Highways, and public view sites." Vista Del Mar is a designated scenic highway.

Policy 18-5.1 for this objective calls for the following relevant stipulations for siting and designing development in order to:

- Protect public views to and along the ocean and scenic coastal areas;
- Be visually compatible with the character of the surrounding area; and
- Retain existing views from designated public view areas and scenic highways.

Under this policy, "all new development in the Coastal Zone, including public works and recreational facilities, should be subordinate to its setting, and minimized in height and bulk to the extent feasible to accomplish view protection (emphasis added)." Siting the pipeline construction within a designated scenic highway is inconsistent with this policy. Doing so does not protect views to and long the ocean; the activities, equipment and workforce needed will be visually incompatible with the character of the surrounding area; and closing off one lane of this highway will substantially limit public enjoyment of this scenic highway.

Consequently, the impact of the Project is significant due to its inconsistency with Policy 18-5.1. The duration of the impact would be about 2 months, so, while significant, the impact would be temporary.

MINED-TUNNEL CONSTRUCTION ALTERNATIVES

The Mined-Tunnel Construction Alternatives comprise three viable alternative alignments. All require a starter shaft on LAX land southeast of the Napoleon Street/Vista Del Mar intersection. Alternative 2 requires an extraction shaft on Dockweiler Beach at the end of Hurricane Street and cut-and-cover construction to tie the pipeline to the VPP. Alternatives 3 and 4 entail direct, continuous tunneling from the LAX starter shaft to an extraction shaft in a vacant lot at the northeast end of Hurricane Street across from the VPP. Alternatives 3 and 4, relative to aboveground features, would be identical. Rather than by alternative, the impacts will be assessed relative to:

- The starter shaft;
- The extraction shaft at Dockweiler Beach;
- The extraction shaft at the VPP. and

To summarize, Alternatives 3 and 4 would have the potential for significant, but short-term visual impacts due to the starter shaft, but would affect primarily private, residential views. Alternative 2 would have same "starter shaft" impacts--significant, but short term—but would also have the potential for

significant—albeit temporary—"extraction shaft" impacts that would affect private residential views, but also public views from Dockweiler Beach. Additionally, Alternative 2 would have the potential for significant, temporary visual impacts due to cut-and-cover construction of the Hurricane Street part of the alignment.

There will be no detailed discussion of the Hurricane Street cut-and-cover construction, as the impact on residential views along this street has been discussed relative to the Pacific Avenue Alternative Alignment within Venice. For Alternative 2, cut-and-cover construction would extend from the southwest end of Hurricane Street about 785 feet to the VPP, whereas for the Pacific Avenue alignment, it would extend about 450 feet from Pacific Avenue to the Plant. The nature and intensity of the impact would be the same. The Existing Visual Conditions are VMC 1 until reaching the plant, where they are VMC 4. The construction activities, equipment and workforce would dominate views (VMC 4), representing a substantial reduction in visual quality for views from most of Hurricane Street (impact intensity Level 3). The impact would, therefore, be significant. The 785-foot alignment would be completed in less than 6 weeks, so it will be temporary in duration.

IMPACT INTENSITY, SIGNIFICANCE AND DURATION

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but short term.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished;
- Natural open space would be graded or developed;
- A Structures is proposed for a natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; and
- There would be no positive contribution to the aesthetic value of the area.

The critical public views noted would be affected by the Project such that the impact would be significant. The affected views are highly sensitive and Project construction activities would be within the foreground of these views. Of particular importance are views from nearby residences and Vista Del Mar, a scenic highway. However, the duration of the impacts noted would be short term, lasting for about 2 years.

A detailed impact assessment follows:

STARTER SHAFT

The critical sensitive viewing positions potentially affected by the construction and operation of the starter shaft are from:

- The residences lining the northeast side of Napoleon Street and facing the Site;
- The beach access path along Napoleon Street; and
- Vista Del Mar, a scenic highway.

The existing visual conditions are VMC 1 for these potentially affected views. The starter shaft site would require about 12,000 square feet of space, including space for a construction/laydown site, and would be enclosed by a 20- to 30-foot-tall acoustic curtain just as would the push and receive sites relative to the bored tunneling construction alternatives. There will be two cranes on site that will be taller than the curtains, so these would be visible. The remainder of the facilities within this site would be screened from view. However, the 15 daily truck round trips would be noticeable, and there would be as much as 300 feet of cut-and-cover construction to tie the pipeline to the existing CIS within Vista Del Mar.

Residences and Beach Access Path

The beach access path runs along the fence skirting the northerly side of the LAX property along Napoleon Street. Views from there are closely similar to those from the residence on the other side of Napoleon, except that the residences are multi-story and views from the upper stories would be more elevated. Figure 5.12-14 shows the vacant LAX land in which the starter shaft would be sited, seen from viewpoint (VP) 16 (see Figure 5.12-1). This land appears substantially natural; there are no structures, but there are several unobtrusive roads within this area. The location of the site is approximate in this photograph. If it were to be sited as shown in Figure 5.12-1, it would be over 700 feet away from the viewing position from which the photograph was taken. By way of contrast, the nearest residence on Napoleon Street would be about 224 feet from the center point of this site, as shown in Figure 1. If the configuration of the starter shaft site were to be square, the site would be about 110 feet on a side (12,000 square feet). This means that the edge closest to the residences would be at least 55 feet closer than the center of the site, or just 164 feet. Seen at that distance, which is about half the length of a football field, a 20- to 30-foot-tall "box" 110 feet on a side would attract considerable attention, particularly since the open land around the site is featureless and some of the residences are oriented directly toward the site. Stated differently, the shaft site would be as tall as the residences from which it would be viewed, but it would occupy substantially more square footage.

Given that the land around the starter shaft site is vacant and that the starter shaft site would command attention to the point of at least competing with the ocean views to the southwest. The acoustic curtained "box" would not be a feature that would be mistaken for a building. The presence of the cranes extending above the curtains and the truck traffic would, together with the screening, lend an industrial character to the site. Moreover, it is not clear that all equipment would be within the enclosure. For instance, with a construction crew of 20 to 25 persons, 20 to 25 vehicles may need to be parked on site in order to allow the pubic to park along Vista Del Mar. Were the site to compete for attention, the visual conditions would be rated VMC 3, a reduction by two ratings from the current VMC 1. The impact intensity would be Level 2. Given the sensitivity of residential views, the impact would be significant.

The length of time needed to construct the starter shaft is not known at this time. However, it would be in operation for up to about 28 months during the mined tunneling. It is assumed that from the start of construction to completion, the shaft would be within view for at least 2.5 years but not longer than 3 years. The significant impact noted, then, would be short term.

Vista Del Mar – Views from Vista Del Mar (scenic highway) would tend to be directed toward the scenic Pacific Ocean and the beach below the road. The site would be oblique to the directions of travel and

peripheral to the main views to the southwest. For most of the public, the starter shaft might have to be pointed out to be noticed, given the primary direction of viewing, either along the road (to safely operate the vehicle) or toward the ocean, away from the site. In views from this road, visual quality would likely not be substantially lessened.

EXTRACTION SHAFT—DOCKWEILER BEACH

The critical sensitive viewing positions potentially affected by the construction and operation of the starter shaft are those from:

- The residences lining the Dockweiler Beach; and
- Dockweiler Beach

The existing visual conditions are VMC 1 for these potentially affected views. The extraction shaft site would require about 5,000 square feet of space, including the construction/laydown area and would be enclosed by a 20- to 30-foot-tall acoustic curtain just as would the starter shaft, and the push and receive sites (bored tunneling). There would be a crane on site that would be taller than the curtains, so it would be visible. The remainder of the facilities within this site would be screened from view. However, the daily truck round trips would be noticeable.

Apart from the multi-story residences, there is "Ocean Front Walk," a pedestrian beach access running along the beach side of the residences. A few feet away from the extraction shaft site is a beach volleyball court, and passive beach uses may occur anywhere in the vicinity of the site. The extraction shaft site would be much smaller than the starter shaft site, being only 5,000 square feet in size. This would be a square 70 feet on a side. However, the site may be within 50 feet or less of the residences and pedestrian beach access path. It would inevitably dominate views from the residences with its industrial appearance, as it could be as tall as the residences (VMC 4). Moreover, the associated truck traffic would also be a distraction. The impact would be intensity Level 3, as the existing conditions are VMC 1. Relative to the highly sensitive views affected, the impact would be significant.

The period of its initial construction would be 10 weeks. After it is constructed, all equipment would be removed from the site and a steel plate would be placed over the shaft. It can be expected not to be especially noticeable at that point, as sand would naturally tend to cover the plate over time. The shaft would become operational at the point that the TBM needs to be extracted from the mined tunnel, which would be about 28 months later. The TBM would be extracted, and the pipeline tied into the pipeline installed with cut-and-cover construction, over a 1-week period. The cumulative 7-week period in which the shaft would be constructed and operated would be temporary.

EXTRACTION SHAFT—VENICE PUMPING PLANT

The critical sensitive viewing positions potentially affected by the construction and operation of the starter shaft are those from:

- The residences lining the east side of the Grand Canal near the VPP;
- The Grand Canal; and
- Residences along Hurricane Street at its northeast end.

The existing visual conditions are VMC 4 for these potentially affected views. The extraction shaft site has been described relative to the Dockweiler Beach extraction shaft site. It would appear industrial and be as large as the nearby multi-story residences. The visible part of the crane and truck traffic, coupled with the acoustic screened site, would attract considerable attention and compete for it with the existing VPP. However, the existing conditions are VMC 4, and while there would be and adverse visual impact, no substantial reduction in visual quality would occur. Moreover, the duration of the impact would be temporary, lasting cumulatively just 7 weeks.

AES-2 The proposed Project or its alternatives would not cause substantial, adverse effects on scenic vistas

The Los Angeles City Thresholds for Significance that are grouped under AES-2, the impacts may be summarized as follows:

- There would be no significant impact due to partial obstruction of recognized and valued views; and
- The impact would not substantially affect recognized views currently available from a length of a public roadway and a portion of a bikeway.

Alternatives 2, 3 and 4 would not have the potential to obstruct any recognized or valued views, nor would they substantially affect recognized views from a public roadway or bikeway.

AES-3 The proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

The Los Angeles City Threshold factor for Significance is relevant to this CEQA issue and the impact is summarized as follows:

- The Project would neither significantly impact views from a designated scenic highway (see AES-1 and -2) nor significantly impact any specific scenic resources within view of a scenic highway.

Alternatives 2, 3 and 4 would not significantly impact views from Vista Del Mar, the only scenic highway in the vicinity of these alternatives. Moreover, the construction of the starter and extraction shafts would not adversely affect any landscape features contributing to scenic quality.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4, therefore, do not apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The Proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impacts would, therefore, be significant, but they would be temporary and short term.

Section 5.9 details the applicable plans and policies. The applicable regulatory document is the Coastal Resources chapter of the Westchester-Playa Del Rey Community Plan, relative to the starter shaft site. Concerning the two alternate extraction shaft sites, both are in Venice; the relevant regulatory documents are the Venice Community Plan and the Venice LCP LUP.

The Westchester-Playa Del Rey Community Plan, Objective 18-5 is relevant: "Preserve coastal visual resources by protecting and enhancing scenic views of the ocean and wetlands from designated Scenic Highways, and public view sites." Vista Del Mar is a designated scenic highway. However, views from this scenic highway would not be significantly impacted.

Policy 18-5.1 for this objective calls for the following relevant stipulations for siting and designing development in order to:

- Protect public views to and along the ocean and scenic coastal areas;
- Be visually compatible with the character of the surrounding area; and
- Retain existing views from designated public view areas and scenic highways.

Under this policy, "all new development in the Coastal Zone, including public works and recreational facilities, should be subordinate to its setting, and minimized in height and bulk to the extent feasible to accomplish view protection (emphasis added)."

The starter shaft would not interfere with public views to and along the ocean. There are no public view areas in the vicinity, and the shaft site would not interfere with scenic highway-based views. However, the shaft site would not be visually compatible with the natural open space character of the LAX property. Consequently, the impact of the Project would not be entirely consistent with Policy 18-5.1 of the subject Plan. The impact, though, would be short term.

Coastal Resources Goal 18 of the Venice Community Plan calls for the preservation of the scenic and visual qualities of coastal areas. The policy is to assure that projects are visually compatible with the character of surrounding areas. Moreover, design principles set forth in the Venice LUP requires that views of distinctive visual resources not be significantly disturbed. As discussed relative to AES-1, the starter and extraction shafts would be visually incompatible with the character of the affected area. Because the Project would not be consistent with certain policies and goals of the Venice regulatory setting, the visual impacts described would be considered to be significant. They would, however, temporary and short term in duration, lasting for 7 weeks in the case of the extraction shaft sites, and less than 3 years in the case of the extraction shaft.

5.12.4 Mitigation Measures

As noted in Section 5.12.3, the cut-and-cover, micro-tunneling, and mined-tunneling alternative construction activities, and their associated equipment and workforce, would all have the potential to cause significant visual impacts, to varying degrees, that would primarily be temporary in duration. With one exception, the Project or its alternatives would cause no damage to scenic resources (features contributing to the positive visual quality of potentially affected views), no new source of light and glare, and no negative shadow effects. Instead, depending on the alternative, the impacts would variably be due to:

- The introduction to views of features not congruent with the existing visual character of the area;
- Partial obstruction of views, or the limiting of access to the views;
- Adverse effects on views from scenic highways or the temporary elimination of access to these highways; and
- Inconsistency with one or more regulatory goals, objectives or policies.

Mitigation measures either entail redesigning a project so as to site it in an area not within sensitive public views, screening the Project features from view with landscaping, or re-designing the Project features to mimic those that are characteristic of the area. In the case of the Project, the visual impacts are due to construction activities, equipment and the presence and movement of the workforce, and not because of its appearance once it is complete. Because the visual impacts of construction are all temporary or short term, they end with the completion of the Project. No feasible measures can mitigate the impacts of construction to a level that is less than significant, for it is assumed that, by definition, such measures must occur within the context of undertaking the Project. That is, construction activities must occur. Regarding re-siting the alignment of the Project, the alignments are constrained by the starting and ending points. The area in between is characterized by dense, residential development, the presence of scenic highways, and the attraction of recreation opportunities. It would not be possible to avoid sensitive views.

Where specific positive landscape features are damaged, obscured, or removed, direct mitigation may take the form of adjusting the siting of an aspect of the project to avoid the impact, or replacing the feature if it is damaged or removed. In the case of the Marquesas Way/Via Marina Alignment Alternative, several mature street trees will be removed by cut-and-cover construction and/or the use of an area as a construction/laydown site. Based on available information, a choice to re-align the pipeline to avoid crossing from Via Marina into the parking lot serving the receive site, and re-locating the Option 2 push site construction/laydown area at the Via Dolce/Marquesas Way intersection, are not viable. The only feasible mitigation measure is:

AES-1 Replace street trees destroyed by construction activities with very large-diameter, mature trees. Depending on the species, this may or may not be possible.

Where impacts may not be directly mitigated, they may be offset by actions taken elsewhere to compensate for the loss of visual quality. It would be speculative to definitively list specific offsetting actions at this time. However, such actions generally would include:

- Landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly;
- Screening from public view existing features that are incongruous with the character of their surroundings (such as the VPP); and/or
- Creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking.

During public scoping meetings, some suggested that the existing VPP could be made to be more aesthetically pleasing. Currently, this industrial facility has reduced visual conditions in its vicinity to VMC 4. One most obvious measure would be to paint the facility a color matching nearby residences and removing the art deco-like treatment of the wall facing the Grand Canal. Plantings which soften the VPP's profile or cover its walls with vines might be investigated, if there is the physical space available to

landscape the perimeter. A walkway abutting the blue wall fronting the Grand Canal (Figure 5.12-5, upper image) might be converted into a planter, or several large, decorative planters with tall shrubs or small trees might be installed along that part of the walk (since the walk ends here, the loss of this stretch of sidewalk would not be important to pedestrians). A small strip of fill at the northeast end of Hurricane Street could provide room for large trees that would block some views of the VPP. In the upper image of Figure 5.12-4, large trees are growing along the edge of the sidewalk. In the lower image in Figure 5.12-5, it is apparent that such plantings could be installed between the chain-link fence along the vacant lot and the sidewalk next to it. These trees, in time, would screen the lot and provide a more aesthetic edge to the Grand Canal. The residual impact of offsetting mitigations would be inversely proportional to the degree of public acceptance of the measures.

Regarding the improvement of the visual quality in public spaces, Figure 5.12-10 discloses, in the upper image, the opportunity to improve the appearance of the parking lot along the bridge in the vicinity of where the push site for under-channel tunneling would occur. The bank in the foreground might be planted to shield from view the parking lot and conceal or replace the jumbled chunks of concrete riprap. Similar plantings on the other side of the bridge along the parking area there (the site for the construction/laydown area) would aesthetically frame the bikeway's entrance into Playa Del Rey.

5.12.5 Unavoidable Adverse Impacts

All of the significant, temporary and short-term impacts described in Section 5.12.3 are unavoidable. These impacts will end, however, with the completion of construction. These impacts may be offset by actions taken elsewhere within the affected communities to improve the aesthetics of existing views. The acceptability of any measures contemplated are best addressed through public involvement.

The long-term impact of the destruction of mature street plantings along Via Marina and Marquesas Way might be improved to the point that the duration would be short term (less than 5 years in duration), if trees of a large size are planted. Several years of growth would be required for the trees to approach in height those that would be removed.

5.12.6 Cumulative and Secondary Impacts

Of the projects listed as related to the proposed Project in the Introduction, Section 1.0, Table 1.7-1, only two would be relevant. In neither case would there be significant cumulative impacts.

Marina Del Rey Tide Gates Project – This Project entails the removal, rehabilitation and improvement of portions of the existing outlet structure for the Grand Canal located at the southeast end of the Grand Canal where it passes under Via Marina, along with where portions of the proposed Project would also occur. The one aspect of construction that would be relevant to cumulative impacts is that the "Gates" project may require the closure of one lane of Via Marina Street during construction, with traffic controlled by a flagman. The proposed Project also calls for such closure and traffic control. At the time of this assessment, no specific time frames for construction of either project had been identified. It can only be said that if the projects do not occur simultaneously, sequential construction would result in a prolonged period during which views from a designated scenic highway/drive (Via Marina) are unavailable to the public; e.g., it would seem likely that traffic along Via Marina would be restricted to local residential access because there would be no public parking along the road and, therefore, no place

to stop and enjoy the view. The impact of closing one lane due to the proposed Project would, by itself, represent a significant, albeit, temporary visual impact. Lane closure due to the Gates project would also be a temporary but significant visual impact. If the two projects were to occur sequentially, the combined effect would solely be to lengthen the duration of the impact to the point of being short term (1 to 5 years' duration).

To mitigate the impact to visual resources, both projects should be completed within the same time frame if it is feasible to do so, thereby limiting the time during which the one lane of Via Marina would have to be closed.

Venice Pumping Plant Sluice Gate Replacement Project – This project involves the temporary diversion of sewer flows in order to bypass the VPP while the sluice gate within the VPP is rehabilitated. The bypass would be via a pipeline placed above ground along the Grand Canal from Driftwood Street to Hurricane Street along the Esplanade. The pumping mechanisms and pipeline would be in place for about 1 month. This project is relevant to the proposed Project in consideration of cumulative impacts because activities associated with the Project would occur in the same area as the southeast end of the "Sluice Gate" project (near the VPP).

The Initial Study for the Sluice Gate project found that there would be no significant visual impacts, based partly on their short duration. CEQA does not recognize specific time limits as thresholds of significance, nor does the City of Los Angeles Thresholds Guide. However, as noted, the existing visual condition for views potentially affected by the Sluice Gate project is VMC 4 due to the presence of the VPP. This industrial facility dominates the views from points in its vicinity. For that reason, not due to the duration of the impact, the Sluice Gate project would not be a significant impact, as the condition of the affected views cannot worsen. Likewise, together with the proposed Project, the Sluice Gate project would not cumulatively cause a significant impact, due to the existing condition of the area.

6.0 PROJECT ALTERNATIVES ANALYSIS

6.1 INTRODUCTION TO PROJECT ALTERNATIVES ANALYSIS

The Initial Study for this Project determined that the Project would not impose any long-term or lasting negative impacts or lasting effects to the environment, living species or human beings. All temporary impacts resulting from the Project are directly related to construction activities.

Because the estimated time duration to construct the Project is anticipated to last over an extended period of time (18 to 24 months) resulting in long-term interruption to the proposed alternatives locations, the impacts identified in this report represent IMPACTS WHICH MAY OCCUR AS A RESULT OF THE PROJECT DURING THE CONSTRUCTION PERIOD ONLY and are not to be confused with standard CEQA Guidelines covering the lifetime of the Project and its locations.

6.2 NO PROJECT ALTERNATIVE

The No Project alternative could result in potentially significant adverse effects to the environment due to the existing sewer force main's current lack of conveyance capacity and the current inability to perform regularly scheduled maintenance on the existing force main. An overflow of untreated wastewater into the Ballona Lagoon and areas surrounding the Project areas could result, causing harm to the environment.

Under this alternative, no new pipelines would be installed and the sewer system would continue to operate in the current manner.

6.3 SECOND NEW CONVEYANCE LINE (SECOND NEW FORCE MAIN)

A new force main would provide redundancy to the existing sewer, allowing for adequate conveyance in from the VPP to the Hyperion Treatment Plant in Playa Del Rey, and by providing the ability to conduct maintenance to the existing force main. The cut-and-cover/micro-tunneling method of construction is proposed for the following alignments, with the exception of the beachfront alignments. This method of construction was considered for those beachfront alignments, but deemed to be not viable. Each cut-and-cover alignment has either one or two shafts at either end for the purpose of entering and/or exiting the channel as required to install the sewer pipe under the channel.

MARQUESAS WAY/VIA MARINA WAY ALIGNMENT

This alignment and the micro-tunnel launching and receptor shafts associated with it are subject to impacts associated with construction staging of equipment, parking and related traffic throughout the 18- to 24-month duration of construction along Hurricane Street, Marquesas Way and Via Marina Way respectively. This alternative is within a designated segment of scenic highway requiring the preservation of scenic views which will be diminished and immitigable from construction activities during the tourist season. Unmitigatable impacts to parking and pedestrian traffic would result from tunnel activities on each side of the Grand Canal at the junction with Hurricane Street, and in the empty lot between residential housing west of Marquesas Way and leading to the sidewalk next to the Grand Canal.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. Although this proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

PACIFIC AVENUE ALIGNMENT ALONG HURRICANE STREET AND PACIFIC AVENUE

Impacts from this alternative would result from construction-related activities associated with cut-and-cover construction along Hurricane Street and Pacific Avenue and at a micro-tunnel receptor shaft at Pacific Avenue near Via Marina Way, and at a launching shaft located on the south side of the channel on the east side of the Pacific Avenue pedestrian bridge. The Project will impose significant unavoidable impacts to visual aesthetics of the vicinity and parking and traffic to residents and tourists, who live and visit the area. Access to parks and parking facilities for Dockweiler Beach, the pedestrian bridge and public parking facilities at Pacific Avenue on the south side of the channel will be reduced as a result of construction-related staging, vehicles and mobile equipment for a period of 18 to 24 months. Noise impacts associated with the proximity of construction-related equipment to residents and visual impacts due to equipment staging are anticipated.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

DOCKWEILER BEACH TO PACIFIC AVENUE ALIGNMENT

The cut-and-cover method of construction for this alignment has been considered, but deemed not viable; however, deep mined-tunneling construction alternatives are also proposed for the beachfront and are described in Section 4.0. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersect of Dockweiler Beach and Hurricane Street would impose noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Construction activities may result in temporary effects on least terns (see Appendix D, Biological Technical Report). Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

PACIFIC AVENUE/VISTA DEL MAR ALIGNMENT

This southern extension of the Pacific Avenue alternative, located on the south side of the Via Marina channel, is listed as a scenic highway and is subject to site monitoring during the course of construction near the area where Pacific Avenue transitions to Vista Del Mar to mitigate the potential for impacts to historic/cultural/Paleo resources finds as described in the Cultural Resource section (Section 5.5) of this EIR. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. Although this proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

DOCKWEILER BEACH ALIGNMENT

This southern extension of Dockweiler Beach alternative is located on the south side of the Via Marina Channel. The cut-and-cover method of construction for this alignment has also been considered, but deemed not viable; however, deep-mined tunneling construction alternatives are also proposed for the beachfront and are described in Section 4.0. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersect of Dockweiler Beach and Hurricane Street would impose noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Visual impacts associated with potential construction equipment and activities methane venting.

DEEP MINED-TUNNEL ALTERNATIVES

Each starter shaft and receptor shaft for the deep mined-tunnel construction alternatives have their own numeric identifier, shown in Section 4.0 on Figure 6.3-1.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Based upon the outcome of the impact analysis for this project, it has been determined that the environmentally superior alternative is the mined tunnel Alternative #4 (Inland Alignment, LAX to VPP). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion and noise and vibration. The proposed alignment as shown on figure 4.3-10, would begin at launch shaft #2 located in Vista Del Mar and run due north toward the pumping plant on Hurricane Street and tie in at the #10 receptor shaft. Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the city would work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way.

ALTERNATIVES IMPACT ANALYSIS TABLE

The following Table reflects the results of the studies and analysis devoted to each alternative (As indicated, Construction method +Alignment/or shaft = Alternative). Each alternative location/area that may be impacted is identified with a unique number representing its location and type (see Figures 4.2-2). The alternatives are located in the column on the left hand side of the table. All resources, which may be impacted, are listed in the column along the top of the table. The overall impact to each resource, at each location, is rated with a symbol located at the intersection of each location/resource. The ratings are as follows:

✔ Insignificant or no impact

⚠ Impact that can be mitigated to a level of insignificance

⚠ Impact that cannot be mitigated to a level of insignificance

Impact Area's in the Project Analysis

Micro Tunnel Alternatives

Alternative	Impact Area/Associated Shaft Locations
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9, 10

Cut and Cover Alignment Alternatives

Alternative	Impact Area/ Associated Shaft Locations
Marquesas Way/Via Marina Way	8, 10, 11, 12, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	7, 10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment
Dockweiler Beach Alignment	1, 3, 5, 6, 9

Large Diameter (Mined) Tunnel Alternatives

Alternative	Impact Area/ Associated Shaft Locations
1. Mined-Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined-Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined-Tunnel - Beach Alignment (LAX to Hurricane)	2, 9, 10, Mined-Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined-Tunnel - Beach Alignment (LAX to VPP)	2, 10, Mined-Tunnel - Beach Alignment (LAX to VPP)
4. Mined-Tunnel - Inland Alignment (LAX to VPP)	2, 10, Mined-Tunnel - Inland Alignment (LAX to VPP)

Table 6.3-1 Impact Analysis Table

Impact Analysis

Legend:

✓ Insignificant or no impact
⚠ Impact that can be mitigated to a level of insignificance
⚠ Impact that cannot be mitigated to a level of insignificance

Alternatives/ Impact Areas	Air Quality	Biology	Circulation and Traffic	Cultural Resources	Geology	Hazardous Waste	Hydrology	Land Use	Noise	Paleontology	Public Facilities and Services	Visual and Aesthetics	Water Quality
Marquesas Way/Via Marina Way													
8	✓	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
10	✓	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
11	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
12	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	✓	⚠
Marquesas Way/Via Marina Way	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Pacific Avenue Alignment													
7	✓	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
10	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Pacific Avenue	⚠	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
Pacific Avenue/Vista Del Mar													
1	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	✓	✓	✓	⚠	⚠
3	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
4	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
5	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
Westchester/Playa Del Rey Alignment	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
9	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Mined Tunnel - Beach Alignment (Waterview to Hurricane)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
9	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠

Alternatives/ Impact Areas	Air Quality	Biology	Circulation and Traffic	Cultural Resources	Geology	Hazardous Waste	Hydrology	Land Use	Noise	Paleontology	Public Facilities and Services	Visual and Aesthetics	Water Quality
10	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Mined Tunnel - Beach Alignment (LAX to Hurricane)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
3. Mined Tunnel - Beach Alignment (LAX to VPP)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
10	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Mined Tunnel - Beach Alignment (LAX to VPP)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
4. Mined Tunnel - Inland Alignment (LAX to VPP)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
10	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Mined Tunnel - Inland Alignment (LAX to VPP)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Dockweiler Beach to Pacific Avenue Alignment													
4	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
6	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
9	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
10	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Dockweiler Beach Alignment													
1	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
3	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
5	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
6	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
9	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠

Legend:

✓ Insignificant or no impact

⚠ Impact that can be mitigated to a level of insignificance

⚠ Impact that cannot be mitigated to a level of insignificance

MICRO-TUNNEL/DEEP-TUNNEL ALTERNATIVES NUMERIC IDENTIFIERS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 6.3-1

6.3.1 Impact Analysis

6.3.2 Marina Del Rey

Air Quality

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	10, 11, 12, 8
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The use of construction equipment on site would potentially result in localized air quality impact. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way

Due to the close proximity of housing to the shaft area, extended periods of running construction related equipment could pose impacts to localized air quality.

Biology

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2
Marquesas Way/Via Marina Way	10, 8, Marquesas Way/Via Marina Way

Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from

the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	1
Marquesas Way/Via Marina Way	11, 12
Pacific Avenue Alignment	10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal during construction, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area.

2. Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

3. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Circulation

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	1, 3
Dockweiler Beach to Pacific Avenue Alignment	6
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	1, 3, Westchester/Playa Del Rey Alignment

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Marquesas Way/Via Marina Way	10, 11, 12

1. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way.

2. Temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina.

pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks

Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle

The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437.

temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.

Cultural Resources

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7

It is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, no impact is expected.

Geology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. The impact of the proposed Project on the existing geologic condition of the site. The Project alternatives are suitable for the proposed construction with proper mitigation.

Hazardous Waste

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations). In addition, other hazardous substances, such as methane and other hazardous materials may be present in the project area.

Mitigation measures prior to and during construction will insure less than significant impacts during construction for the project.

Hydrology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)

(LAX to VPP)	
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Perched groundwater, may be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer. Impacts will be less than significant during construction with proper mitigation.

Land Use

✔ **Insignificant or no impact**

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Noise

✔ **Insignificant or no impact**

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 6
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	12
Pacific Avenue/Vista Del Mar	1, 3

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	5
Dockweiler Beach to Pacific Avenue Alignment	9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach Alignment	9
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 8

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7. Noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact during construction.

Paleontology

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7
Pacific Avenue/Vista Del Mar	1, 3

There have been no Paleontological findings within this portion of the project area and no impacts are anticipated as a result of construction related activities to the project in this area.

Public Facilities and Services

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11
Pacific Avenue/Vista Del Mar	1

Impacts to these areas may be mitigated to levels of less then significant with appropriate mitigation as defined in Section 8 of this document.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9
Dockweiler Beach Alignment	5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	12, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	4, 5

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

There would be adverse impacts of existing recreational activities and use of public recreational resources during Project construction, however there will be no long term adverse affects.
• Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
• The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.
• Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
• All or most of the parking along Via Marina at the entrance channel would be removed;
• Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
• The Class II Bike Trail along Pacific Avenue would be closed during construction;
• Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
• Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
• Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments. The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
• The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
• Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
• The Napoleon Street residential foot path could be interrupted by construction activities.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Marquesas Way/Via Marina Way	8
Pacific Avenue Alignment	7, Pacific Avenue

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

Visual/Aesthetics

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment	2

(LAX to Hurricane)	
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 12

Visual impacts are less than significant at this location.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section 5.12 for detailed impact information.

Water Quality

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Impact to Water Quality in this area can be reduced to less than significant by implementing mitigation measures as defined in Section 8 of this document.

6.3.3 Playa Del Rey

Air Quality

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	10, 11, 12, 8
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The use of construction equipment on site would potentially result in localized air quality impact. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Biology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	1
Marquesas Way/Via Marina Way	11, 12
Pacific Avenue Alignment	10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal during construction, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area.

2. Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

3. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Circulation

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2

Dockweiler Beach Alignment	1, 3
Dockweiler Beach to Pacific Avenue Alignment	6
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	1, 3, Westchester/Playa Del Rey Alignment

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

• Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Pacific Avenue Alignment	7
Pacific Avenue/Vista Del Mar	4, 5

1. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way,

2. Temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina.

pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks

Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle

The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437.

temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.
Pacific Avenue Alignment

localized construction impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways,

leading to reductions in roadway capacity.

Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue
The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas.

Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period.

Dockweiler Beach to Pacific Avenue Alignment

The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.
Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437 would be necessary

Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street.

Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront.

Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Pacific Avenue/Vista Del Mar Alignment

Localized construction related impacts on the transportation system would occur as a result of a reduction in roadway capacity due to construction traffic and the closure of roadway travel lanes.

During the tunnel-boring and open-trench construction, 62nd Avenue east of Pacific Avenue would be temporarily closed and would result in the temporary loss of approximately 15 parking spaces in the public parking lot.

Non-motorized transportation would be temporarily affected by establishment of the laydown area of the tunnel-boring construction. Pedestrian pathways to Back Bay Place and the Del Rey

During the in-street construction on Pacific Avenue between 66th Avenue and Culver Boulevard, temporary removal of street parking on one side of the would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue.
The Lagoon waterfront would need to be diverted around the construction laydown area.

Dockweiler Beach Alignment

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary.

Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1 of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

Mined Tunnel Construction

Project impacts at the shaft would result in unavoidable localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal during construction.

Cultural Resources

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources. There is only one site alternative that may be impacted by the Project located at the Viista Del Mar alignment. Mitigation monitoring to insure no disturbance to potential cultural resources in the area will reduce potential impacts.

Geology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. The impact of the proposed Project on the existing geologic condition of the site. The Project alternatives are suitable for the proposed construction with proper mitigation.

Hazardous Waste

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations). In addition, other hazardous substances, such as methane and other hazardous materials may be present in the project area.

Mitigation measures prior to and during construction will insure less than significant impacts during construction for the project.

Hydrology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Perched groundwater, may be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project

alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer. Impacts will be less than significant during construction with proper mitigation.

Land Use

✔ **Insignificant or no impact**

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Noise

✔ **Insignificant or no impact**

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 6
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	12
Pacific Avenue/Vista Del Mar	1, 3

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	5
Dockweiler Beach to Pacific Avenue Alignment	9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Paleontology

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7
Pacific Avenue/Vista Del Mar	1, 3

There have been no Paleontological findings within this portion of the project area and no impacts are anticipated as a result of construction related activities to the project in this area.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

Paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

The paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

There have been no recorded paleontologic recordings in the project area except for the LAX Dunes. Monitoring by a qualified paleontologist in this area should be conducted to insure proper evaluation and handling of any potential findings.

Public Facilities and Services

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11
Pacific Avenue/Vista Del Mar	1

Impacts to these areas may be mitigated to levels of less then significant with appropriate mitigation as defined in Section 8 of this document.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)

3. Mined Tunnel - Beach Alignment (LAX to VPP)	2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	3, Westchester/Playa Del Rey Alignment

Impacts to this area will be less than significant with proper mitigation as defined in Section 8 of this document.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9
Dockweiler Beach Alignment	5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	12, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	4, 5

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

There would be adverse impacts of existing recreational activities and use of public recreational resources during Project construction, however there will be no long term adverse affects.

• Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
• The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.
• Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
• All or most of the parking along Via Marina at the entrance channel would be removed;
• Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
• The Class II Bike Trail along Pacific Avenue would be closed during construction;
• Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
• Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
• Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments. The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
• The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
• Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
• The Napoleon Street residential foot path could be interrupted by construction activities.

Visual/Aesthetics

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section 5.12 for detailed impact information.

Water Quality

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Impact to Water Quality in this area can be reduced to less than significant by implementing mitigation measures as defined in Section 8 of this document.

6.3.4 Venice

Air Quality

Insignificant or no impact

Alternative	Impact Area
Pacific Avenue Alignment	7

No Air Quality impacts due to mined tunneling activities are anticipated at this location.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2

Air Quality impacts are not anticipated at this location.

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	10, 11, 12, 8
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The use of construction equipment on site would potentially result in localized air quality impact. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way

Due to the close proximity of housing to the shaft area, extended periods of running construction related equipment could pose impacts to localized air quality.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Pacific Avenue Alignment	Pacific Avenue

No Air Quality impacts due to mined tunneling activities are anticipated at this location.

1. Construction activities produce combustion emissions from various sources such as site grading, generators, worker's vehicles, on-site heavy-duty construction vehicles, and trucks hauling materials to and from the site. Exhaust and fugitive dust emissions from construction activities on site would vary daily as construction activity levels change. The use of construction equipment on site would potentially result in localized air quality impacts. The combination of open trench and micro-tunneling construction is expected to have a significant impact on air quality, unless mitigation measures for NO_x are implemented.

2. Fugitive dust emissions are generally associated with demolition, land clearing, exposure, and cut and fill operations. Dust generated during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions.

3. Depending on construction schedules of all the projects in the area, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts.

4. Construction activities produce combustion emissions from various sources such as site drilling, generators, worker's vehicles, on-site heavy-duty construction vehicles, and trucks hauling materials to and from the site.

5. Exhaust and fugitive dust emissions from construction activities on site would vary daily as construction activity levels change. The use of construction equipment on site would potentially result in localized air quality impacts. The combination of open trench and micro-tunneling construction is expected to have a significant impact on air quality, unless mitigation measures for NO_x are implemented.

6. Dust generated during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions.

7. Depending on construction schedules of all the projects in the area, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts.

Biology

Insignificant or no impact

Alternative	Impact Area
Pacific Avenue Alignment	7

The Via Marina at Pacific Avenue is located 600 linear feet from the least tern nesting area. Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from

the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2
Marquesas Way/Via Marina Way	10, 8, Marquesas Way/Via Marina Way

Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach to Pacific Avenue Alignment	9

Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
Dockweiler Beach to Pacific Avenue Alignment	10

Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will

be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	3, 5, 6, 9

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. 2. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance within 500 feet of the nesting site. Although the shaft is over 500 feet from the Least Tern area, proper mitigation should be implemented for worker related activity on the beach near the construction site.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach to Pacific Avenue Alignment	4, 6

1. The proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area during construction with proper mitigation as defined in section 5.3. 1. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance within 500 feet of the nesting site. Although the shaft is over 500 feet from the Least Tern area, proper mitigation should be implemented for worker related activity on the beach near the construction site.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	1
Marquesas Way/Via Marina Way	11, 12
Pacific Avenue Alignment	10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal during construction, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area.

2. Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

3. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Circulation

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

• Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	1, 3
Dockweiler Beach to Pacific Avenue Alignment	6
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	1, 3, Westchester/Playa Del Rey Alignment

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

• Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Pacific Avenue Alignment	7
Pacific Avenue/Vista Del Mar	4, 5

1. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way,

2. Temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina.

pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks

Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle

The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437.

temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.
Pacific Avenue Alignment

localized construction impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue
The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas.

Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period.

Dockweiler Beach to Pacific Avenue Alignment

The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.
Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437 would be necessary

Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street.

Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront.

Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Pacific Avenue/Vista Del Mar Alignment

Localized construction related impacts on the transportation system would occur as a result of a reduction in roadway capacity due to construction traffic and the closure of roadway travel lanes.

During the tunnel-boring and open-trench construction, 62nd Avenue east of Pacific Avenue would be temporarily closed and would result in the temporary loss of approximately 15 parking spaces in the public parking lot.

Non-motorized transportation would be temporarily affected by establishment of the laydown area of the tunnel-boring construction. Pedestrian pathways to Back Bay Place and the Del Rey

During the in-street construction on Pacific Avenue between 66th Avenue and Culver Boulevard, temporary removal of street parking on one side of the would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue.
The Lagoon waterfront would need to be diverted around the construction laydown area.

Dockweiler Beach Alignment

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary.

Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1 of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

Mined Tunnel Construction

Project impacts at the shaft would result in unavoidable localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal during construction.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Pacific Avenue Alignment	10, Pacific Avenue

Localized construction impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue
The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas.

Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach to Pacific Avenue Alignment	4

The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437 would be necessary

Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street.

Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront.

Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	5, 6, 9

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary.

Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1

of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

Cultural Resources

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7

It is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, no impact is expected.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources. There is only one site alternative that may be impacted by the Project located at the Viista Del Mar alignment. Mitigation monitoring to insure no disturbance to potential cultural resources in the area will reduce potential impacts.

Geology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. The impact of the proposed Project on the existing geologic condition of the site. The Project alternatives are suitable for the proposed construction with proper mitigation.

Hazardous Waste

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations). In addition, other hazardous substances, such as methane and other hazardous materials may be present in the project area.

Mitigation measures prior to and during construction will insure less than significant impacts during construction for the project.

Hydrology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)

(LAX to VPP)	
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Perched groundwater, may be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer. Impacts will be less than significant during construction with proper mitigation.

Land Use

✔ **Insignificant or no impact**

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Noise

✔ **Insignificant or no impact**

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 6
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	12
Pacific Avenue/Vista Del Mar	1, 3

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2

Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from large-diameter tunneling activities are predicted for this alternative.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	5
Dockweiler Beach to Pacific Avenue Alignment	9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach Alignment	9
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 8

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7. Noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact during construction.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Pacific Avenue Alignment	10, 7

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7. Noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant.

Paleontology

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3

paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)

3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7
Pacific Avenue/Vista Del Mar	1, 3

There have been no Paleontological findings within this portion of the project area and no impacts are anticipated as a result of construction related activities to the project in this area.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9

The paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

There have been no recorded paleontologic recordings in the project area except for the LAX Dunes. Monitoring by a qualified paleontologist in this area should be conducted to insure proper evaluation and handling of any potential findings.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

Paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

The paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at

depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

There have been no recorded paleontologic recordings in the project area except for the LAX Dunes. Monitoring by a qualified paleontologist in this area should be conducted to insure proper evaluation and handling of any potential findings.

Public Facilities and Services

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11
Pacific Avenue/Vista Del Mar	1

Impacts to these areas may be mitigated to levels of less then significant with appropriate mitigation as defined in Section 8 of this document.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	3, Westchester/Playa Del Rey Alignment

Impacts to this area will be less than significant with proper mitigation as defined in Section 8 of this document.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9
Dockweiler Beach Alignment	5, 6, 9
Dockweiler Beach to Pacific Avenue	4, 6, 9

Alignment	
Marquesas Way/Via Marina Way	12, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	4, 5

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

There would be adverse impacts of existing recreational activities and use of public recreational resources during Project construction, however there will be no long term adverse affects.

• Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
• The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.
• Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
• All or most of the parking along Via Marina at the entrance channel would be removed;
• Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
• The Class II Bike Trail along Pacific Avenue would be closed during construction;
• Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
• Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
• Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments. The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
• The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
• Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
• The Napoleon Street residential foot path could be interrupted by construction activities.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Marquesas Way/Via Marina Way	8
Pacific Avenue Alignment	7, Pacific Avenue

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

Visual/Aesthetics

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment	10

(LAX to VPP)

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section5.12 for detailed impact information.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 12

Visual impacts are less than significant at this location.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section 5.12 for detailed impact information.

Water Quality

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Impact to Water Quality in this area can be reduced to less than significant by implementing mitigation measures as defined in Section 8 of this document.

7.0 GROWTH-INDUCING AND CUMULATIVE IMPACTS

7.1 GROWTH-INDUCING IMPACTS

Section 15126.2(d) of the CEQA Guidelines requires a discussion of the growth-inducing impacts of proposed projects. Growth-inducing impacts are secondary, or indirect, impacts that could occur as a result of the project that are manifested as changes in land use patterns, population density and growth rates; and related effects on traffic, public services, air, water, biological and other environmental resources.

Over the past several decades, the Bureau of Engineering has designed and constructed numerous wastewater conveyance system projects. The issue of potential growth inducement resulting from an increase in sewer conveyance capacity has been raised in the past by various individuals and organizations. The primary issue is whether the provision of sewer capacity induces growth, which would otherwise not occur. This section addresses the role that wastewater conveyance capacity plays in the growth of the City.

The primary types of growth that occur in the City are land use development and population. Because these types of growth are distinct, and interrelated, this section examines the relationship of sewer conveyance capacity with each type of growth.

LAND USE DEVELOPMENT AND WASTEWATER CONVEYANCE

The development of land in the City is governed by the land use and zoning designations of particular parcels. Unless conditional use permits, density transfers or variances are obtained from the Planning Department, development must conform to the type and density designated for that parcel. Zoning reflects the land use policies contained in the General Plan.

The decision of a land owner to develop a single parcel or numerous parcels of land may be based on personal or economic reasons. Whether personal, economic or both, the availability of wastewater conveyance capacity is not likely to be a consideration in the decision to develop. Once the decision to develop a parcel has been made, permission to connect to the wastewater collection system must be obtained as part of the building permit process. A sewer connection permit can only be obtained if adequate capacity to serve the proposed development is available. Sewer connection and other building permit fees are charged in proportion to the density of development proposed. The high sewer connection fees and other building permit fees associated with the most intensive levels of development increase the costs of developing land in the City and can be considered economic disincentives to development.

In a mature urbanized area such as Los Angeles, the provision of wastewater conveyance capacity would not induce land development that would not otherwise occur.

POPULATION GROWTH AND WASTEWATER CAPACITY

Population within southern California and the City of Los Angeles is anticipated to grow significantly over the next 20 years and further into the future. The projected increase in population will come from two sources, natural increases and in-migration. SCAG predicts that approximately 60 percent of

projected future population growth would occur from natural causes (births minus deaths) and 40 percent would come from the in-migration of people from other areas.

Wastewater conveyance capacity is required to accommodate the increases in wastewater flows associated with the population increases. The provision of wastewater conveyance capacity will not induce either natural population growth or in-migration. SCAG has established the policy that conveyance systems, including interceptors, are not subject to its air quality conformity procedures, because of the absence of effects on population growth.

GROWTH MANAGEMENT IN LOS ANGELES

SCAG, which includes the City of Los Angeles among its member jurisdiction, has prepared the Regional Comprehensive Plan and Guide and the Growth Management Plan. These plans address regional growth and related issues. In addition, the City of Los Angeles' General Plan governs land use development within its jurisdiction.

The Regional Comprehensive Plan and Guide (March 1996) serves as a comprehensive overview of the issues and opportunities facing the region. This plan consists of three sections, core chapters, ancillary chapters, and bridge chapters. Core chapters include plans such as the Growth Management Plan, the Regional Mobility Plan, Air Quality Plan, and other documents that SCAG is required to produce (by federal and/or state mandates). Ancillary chapters address such issues as the economy, housing, and reflect other plans but serve only an advisory purpose for member governments. Bridge chapters link the core and ancillary chapters for other areas of concern.

The Growth Management Plan presents forecasts and policies for anticipated growth to the year 2020. The Growth Management Plan is based upon the amount of growth that is likely to occur and recognizes that there are no viable ways in which to control total growth. The Plan, however, seeks to control the distribution of growth in order to improve the balance between jobs and housing by encouraging housing growth in job rich areas and vice-versa.

The City's General Plan (comprised of the 35 Community Plans) governs the location and density of land use in the City through the zoning process. The Los Angeles City Planning Department revised the General Plan and the new plan, termed the "General Plan Framework," is intended to balance land use development, transportation, projected future population and projected future employment within the City of Los Angeles. The General Plan Framework's options include areas of targeted growth with higher land use designations and densities around commuter rail stations and along transportation corridors.

The planned growth of population along corridors would result in higher demands on infrastructure. There would be a need to accommodate greater quantities of wastewater that would be generated. Consequently, new wastewater conveyance facilities must be constructed, or existing facilities must be improved or upgraded.

CONCLUSIONS REGARDING GROWTH INDUCEMENT

Wastewater conveyance capacity is an infrastructure component of the urban environment that is necessary to safely accommodate the needs of existing and future populations. The provision of wastewater conveyance capacity, in and of itself, will not induce population growth or land use

development. Rather, wastewater conveyance capacity would allow population growth to occur within the General Plan Framework while minimizing sewage spills and the associated environmental, health and safety problems. Future land uses would generally not occur in densities higher than those allowed by the land use planning process. Any development projects beyond the scope of the City's General Plan would undergo individual environmental analysis (including impacts to the wastewater system) and would have to be approved by the City Council.

In wastewater planning, the sizing of collection and treatment facilities, as well as the overall system configuration, is dependent on the future system-wide flow and the distribution of that flow within the system. Since the timing of necessary improvements is partly a function of growth, a realistic estimate of the future population to be served is fundamental to effective wastewater system planning.

The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. No significant growth-inducing impacts are therefore associated with the project.

7.2 CUMULATIVE IMPACTS

Cumulative impacts assessment is required under Section 15130 of the CEQA Guidelines when such impacts are potentially significant. Cumulative impacts, defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects, that when considered together, are considerable or that increase other environmental impacts. Cumulative impact assessment must consider not only the impacts of the proposed Project, but also the impacts from other City and private projects, which would occur during the period of performance and geographic area of the proposed Project.

There would likely be construction activities occurring in the vicinity of the VPP Dual Force Main Project as a result of other projects being built in the same general time frame. These related projects are described in Section 1.0. Some of these projects have the potential for ongoing construction at the same time and within the same general vicinity as the VPP Dual Force Main construction. Should this be the case, the VPP Dual Force Main Project, along with other construction projects, could contribute to temporary cumulative noise and vibration effects that would not otherwise occur.

However, the VPP Dual Force Main Project would have long-term beneficial cumulative effects with regards to improvements to the City of Los Angeles' wastewater collection system. The proposed Project would result in cumulative public health benefits by minimizing or eliminating the potential for the public to be exposed to wastewater that could overflow onto streets during rainy weather and flow into area channels and the Pacific Ocean. Public safety, in the short and long-term, would be improved by minimizing the potential for sewer and street collapses associated with deteriorated sewers.

The VPP Dual Force Main Project is an integral part of the City of Los Angeles' overall wastewater improvement program. The program includes major improvements to the City's wastewater treatment and water reclamation plants, as well as improvements to the vast array of smaller conveyance and collection systems. As these various improvements are completed, substantial improvements to the City's water quality will be realized. When taken together, these collective improvements will result in full secondary treatment of all wastewater collected by the City of Los Angeles, the minimization of dry and wet weather

overflows that currently occur and the provision of adequate handling capacity to serve the wastewater needs of the City's service areas for the future.

As a major element of the City's overall wastewater program, the VPP Dual Force Main Project would provide much needed corrections for deficiencies that exist. Currently, during wet weather, peak flows to the VPP have exceeded the capacity of the existing force main, which carries wastewater away from the plant to the Hyperion Treatment Plant. All of the wastewater from the VPP is carried in one sewer. As a result, that sewer cannot be shut down for maintenance.

The benefits of construction and operating the VPP Dual Force Main to work in conjunction with the existing force main would include the following:

For the reasons above, the VPP Dual Force Main Project is judged to have long-term beneficial cumulative effects with regard to the City of Los Angeles' long-term wastewater treatment and handling objectives, in terms of long-term water quality objectives of the City of Los Angeles and the Southern California region, and in terms of the public's health and safety.

Construction activities may result in cumulative effects of the following nature:

Noise and Vibration – Local residents in the near vicinity of construction activities would be exposed to noise and possible vibration. The cumulative effects, both in terms of added noise and vibration at multiple VPP Dual Force Main construction sites, and in the context of other related projects, are not considered significant due to the temporary nature of noise increases.

Air Quality – The VPP Dual Force Main Project will produce additional emissions of criteria pollutants and slightly elevated levels of carbon monoxide during construction. Emission of criteria pollutants resulting from the Project's construction would exceed the thresholds established by the SCAQMD, and therefore the Project, in conjunction with all other construction activity, would cumulatively contribute to the region's non-attainment status during the construction period. The SCAQMD prepared the AQMP (2003) to bring the region into compliance with the National Ambient Air Quality Standards as set by the EPA under the Clean Air Act Amendments (1990). The AQMD is essentially designed to address the cumulative air pollutants released into the SCAB. Because these construction-related emissions are temporary (18-24 months, depending on the construction method) and because the AQMD addresses cumulative air pollution in the SCAB, the Project would not result in long-term significant cumulative air quality impacts. In the short term, cumulative impacts could be significant if the combined emissions from the projects exceed the threshold criteria for the individual pollutants.

Transportation and Circulation – The VPP Dual Force Main Project would involve construction activities occurring simultaneously at a number of surface sites along the Project alignment. Construction of the VPP Dual Force Main Project may be occurring in the same general time and space as other related projects. In these instances, surface construction activities from both sets of Project could produce cumulative traffic effects which may be significant, depending upon a range of factors including the specific location involved and the precise nature of the conditions created by the dual construction activity (see Traffic-Related Project Construction Schedule in Table 4.2-1). Special coordination efforts

may be necessary to reduce the combined effects to an acceptable level. Overall, significant cumulative impacts are not anticipated.

Public Services – The cumulative effects on public services in the VPP Dual Force Main study area would be limited to traffic inconveniences discussed above. These effects are not considered significant.

Aesthetics – Construction activities associated with other related projects may be ongoing in the vicinity of one or more VPP Dual Force Main construction sites. To the extent that combined construction activities do occur, there would be temporary adverse visual effects of less-than-significant proportions.

8.0 MITIGATION MEASURES

Table 8.0-1 Mitigation Monitoring Program

	Environmental Issue/Action	Mitigation Measure
		Air Quality
AIR 1	To minimize NO_x emissions in construction areas.	Extend timeline for construction, thereby utilizing less equipment on a daily basis
		Utilize newer construction equipment that meet tier emissions standards
		Use of alternative fuel such as biodiesel, liquid natural gas, and propane
		Adjust engine timing to reduce NO_x emissions
		Biological Resources
BIO 1	If the Venice Beach/Dockweiler Beach alignment is selected and construction is to be aboveground, or if tunneling is used and the jacking and/or receiving pit is within 500 feet of the nesting site, and any construction activities are to occur during the least tern nesting season (April 1 through August 31)	A biological monitor with experience observing and documenting disturbance to least terns shall be present during all construction activities within 500 feet of the nesting site to ensure that construction activities do not adversely affect least terns using the nesting site. In addition, the monitors will ensure that work crews properly dispose of all garbage in covered containers.
BIO 2	If any tunneling activities are to occur during the least tern nesting season (April 1 through August 31)	A water quality specialist or biological monitor shall conduct surveys at tunneling locations a minimum of once daily to ensure that tunneling does not increase water turbidity.
	If any turbidity from the tunneling activities is discovered in least tern foraging areas	The tunneling activities shall cease until the leak from the tunnel that is resulting in turbidity is repaired or managed.
BIO 3	Existing and potential values in environmentally sensitive habitat areas shall be protected, enhanced, and where feasible, restored. If any habitat is disturbed	Based on the City of Venice LUP and LCP, restore to ESHAs to previous undisturbed condition.
	Marine resources shall be maintained, enhanced, and where feasible, restored. If any marine resources are disturbed	Based on the City of Venice LUP and LCP, restore to previous undisturbed condition.
		Circulation, Traffic and Parking
TRA 1	To coordinate with the city to ensure adequate traffic signals and controls are in place prior to and during times of construction	For each construction site, a construction traffic management plan shall be prepared and submitted to the City for review and approval prior to the start of any construction work.
TRA 2	To adequately control traffic to ensure compliance with all local and state safety standards and specifications	A site-specific construction worksite traffic control plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas. Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.
TRA 3	To reduce traffic congestion	Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on re-striped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when absolutely necessary.
TRA 4	To protect pedestrian and recreational traffic	Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.
TRA 5	To ensure ingress/egress to all properties adjacent to the project and surrounding areas	Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.
TRA 6	To avoid impacts to public transportation	Coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.

	Environmental Issue/Action	Mitigation Measure
		Cultural Resources
CR 1	To avoid impacts to areas where cultural resources are known to exist	A qualified cultural monitor shall be on site in areas of known cultural finds where grading is to occur.
CR 2		When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented;
CR 3	In the event of the discovery and subsequent recovery of fossil remains	A qualified monitor should halt construction temporarily while remains are analyzed prior to resuming construction.
CR 4	At CA-LAN –66 location	Monitor all construction in the vicinity of the CA-LAN-66 site located in Vista Del Mar by an Archaeologist qualified to recognize and assess both prehistoric and historical resources
CR 5	If new discovery is encountered	Develop a contingency plan for addressing unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings
CR 6	If significant cultural resources are found during construction	Those significant cultural resources found shall be recovered from the project site, curated by an archaeologist recommended by the city and offered to an area museum whose collection is available for the viewing by the public
PAL 1	The discovery of paleontologic resources may be present in specific project areas where grading and other excavation activities are to occur	Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program during earth-moving activities at the project site.
PAL 2		The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.
PAL 3		The paleontologist or monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.
PAL 4		Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.
PAL 5		All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.
PAL 6		Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to commence.
		Geology/Soils/Seismicity
GEO 1	Project improvements would be subject to earthquake ground shaking	The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum.
GEO 2	Liquefaction and differential seismic settlement may occur on the project	Design and construction of the proposed project will include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline.
GEO 3	Subsidence may occur to the project area	Design and construction of the proposed project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or construction the pipeline in a “wet” excavation.

	Environmental Issue/Action	Mitigation Measure
GEO 4	Methane gas may be detected along the project alignments	Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary.
GEO 5	Tsunami could strike the project area	To mitigate erosion of surficial soils covering the proposed pipeline in the event of a tsunami, proper design and construction of the project components could include erosion control measures or choosing an alternate alignment off of the beach.
		Hazardous Waste and Materials
HAZ 1	Well abandonment may occur in the marina channel areas and in various alignment areas	For any wells that may need to be re-abandoned, well abandonment should be done in accordance with applicable regulations; other subsurface structures may be encountered during development work. The soils may contain methane or other gases from previous oil well field development. Site chemicals must be handled and disposed in accordance with applicable regulations. Hazardous materials would be used and waste generated during the construction and operation of the project.
HAZ 2	Employees may be exposed to hazardous materials during construction	Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.
HAZ 3	Storage of hazardous materials will occur on the project sites	As required in SWPPP and project specifications.
HAZ 4	Methane gas may be located in alignment areas where tunneling activity is to occur along the project alignment	A surface sweep is a method for measuring combustible vapors which may be emitted from the ground surface. When conducting the surface sweep, more attention can be taken in areas where underground gas would tend to exit the surface, such as at cracks in the ground.
HAZ 5	To ensure public safety where methane may be present along the project alignments	The City of Los Angeles Building Code requires that methane mitigation be implemented when construction occurs at these sites to ensure public safety. These measures include the installation of membrane barriers and vent piping as well as trench dams and electrical seal-offs for each of these properties.
		Hydrology
HYDRO/ WQ 1	Runoff may occur from the project site during construction activities	A SWPPP shall be submitted for review and approval. The SWPPP shall recommend interim and permanent improvements to existing drainage features to prevent uncontrolled runoff during construction and to accommodate any temporary increase in runoff associated with construction activities.
		Compliance with the SWPPP shall be demonstrated by obtaining a NPDES construction permit for all construction activities including clearing, grading, or excavation that result in the disturbance of at least 1-acre of total land area or activity which is part of a larger common plan of development of 1 acre or greater. Copies of said NPDES permit(s) and related SWPPP shall be available for inspection at the City and at the construction site prior to land disturbing activity. Total disturbance area includes the staging and material storage areas. Although this project may not total over one acre of actual disturbance area, because of the highly sensitive habitat areas within the project, a SWPPP should be a required mitigation element.
HYDRO/ WQ 2	Dewatering discharge is expected to occur during the initial phase of pit construction,	Hydraulic isolation of the pits can be accomplished by the contractor by various methods of his choice, including interlocking sheet pile walls, soil cement walls constructed with Deep Mixing Methods, or slurry diaphragm walls. Water removed from the pits will be discharged to the storm drain system after proper treatment in accordance with local regulations Solid particles will be removed by using sedimentation tanks and filtration. If petroleum contamination is encountered, free product, if any, will be skimmed off the surface and oil/water separators will be used to remove the remaining contamination. Granular activated carbon could be used to remove any dissolved organic or other contaminants. Alternatively, discharged water will be shipped to authorized vendors for treatment and disposal.
		Noise and Vibration
NOI 1	Construction noise levels that exceed city and county standards may be created during project construction activities.	All construction activities shall be limited to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. No construction or construction-related activities shall take place on any Sunday or national holiday.
NOI 2		Heavy trucks engaged in the removal of muck from tunneling operations off site via heavy trucks shall be limited to major arterial streets and away from residential roadways, to the extent practicable.
NOI 3		All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for such type of equipment.
NOI 4		All mobile or fixed noise-producing equipment used on the project, and that is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.
NOI 5		The erection of temporary soundwall barriers shall be considered where project activity is unavoidably close to noise-sensitive receptors.
NOI 6		Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.
NOI 7		Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

	Environmental Issue/Action	Mitigation Measure
NOI 8		Construction site and haul-road speed limits shall be established and enforced during the construction period.
NOI 9		The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.
NOI 10		No project-related public address or music system shall be audible at any adjacent receptor.
NOI 11		The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.
NOI 12		The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.
VIB 1	Vibration may occur in the project area during construction activities	Installation of instruments throughout a sensitive building, to be used in monitoring and recording building behavior (movements, vibrations) due to adjacent tunneling activities.
VIB 2		Any physical, chemical or biological method, or any combination of such methods, used to increase the bearing capacity or decrease the permeability of soils under the foundation of existing buildings.
VIB 3		A specialized form of grouting used to compensate for movements and settlements caused by tunneling adjacent to or beneath existing buildings.
Recreational Resources and Facilities		
REC 1	Construction-related activities may impact areas and facilities used by the public for sporting events and recreational activities	Provide advanced notice to the public, businesses, sports/ recreation groups and property owners indicating time and duration of non-use or partial use of facilities/areas to be impacted by construction.
Visual/Aesthetics		
AES 1	Where impacts may not be directly mitigated, they may be offset by actions taken elsewhere to compensate for the loss of visual quality. It would be speculative to definitively list specific offsetting actions at this time.	The city shall consider landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly. The city shall consider screening from public view existing features, which are incongruous with the character of their surroundings (such as the VPP). The city shall consider creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking.

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APPENDICIES

VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

FINAL ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NUMBER: 2003031001

VOLUME II

City of Los Angeles
Bureau of Engineering
Department of Public Works
1149 South Broadway, Suite 600
Los Angeles, California 90015

Contact: Mr. Jim Doty; (213) 485-5759

December 2007

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12	CLARIFICATIONS AND REVISIONS	12-1

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VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

EXECUTIVE SUMMARY FINAL ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NUMBER: 2003031001

City of Los Angeles
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EXECUTIVE SUMMARY

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1.0 INTRODUCTION

1.1 PURPOSE OF THE EIR

An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effect and describe reasonable alternatives to the project[1] .

This EIR the evaluates the environmental impacts which could occur if the City of Los Angeles constructs and operates a new two-mile long, 54-inch diameter force main sewer pipeline from the existing Venice Pumping Plant (VPP) in the community of Venice to a junction structure on the Coastal Interceptor Sewer in the community of Playa Del Rey on Vista Del Mar near Waterview Street (the proposed Project). The new force main would supplement the existing 48-inch force main between the two locations. From the Coastal Interceptor Sewer, effluent would be carried through an existing line to the Hyperion Treatment Plant. The EIR provides mitigation measures to avoid or reduce the severity of the identified significant impacts. It considers alternatives to the project which could reduce environmental impacts while meeting the project objectives. The no project alternative is evaluated and the environmentally superior alternative is identified.

This Executive Summary briefly summarizes the Final EIR and describes areas of controversy and issues to be resolved by the decisionmakers including the choice among the project alternatives.

1.2 LEAD AGENCY AND DOCUMENT FORMAT

The City of Los Angeles is the lead agency for the EIR[2] and has supervised its preparation. The City of Los Angeles City Council has primary responsibility for the certification of the Final EIR and adoption and implementation of the proposed Project.

This EIR is organized into four volumes:

Volume I. Draft Environmental Impact Report
Volume II. Final Environmental Impact Report
Appendices Part One: A through E
Appendices Part Two: D through I

The EIR contains all of the components required by the CEQA Guidelines. These requirements and their location in the EIR are listed in Table 1.2-1. During the course of the EIR preparation, the City of Los Angeles' Department of Public Works consulted with affected agencies and organizations. Responses to the City's Notice of Preparation (NOP) are provided in Appendix A in the Draft EIR. Within the 45-day public review and comment period on the Draft EIR, the City conducted one public comment meeting

[1] Section 15121(a) of the State Guidelines for the implementation of the California Environmental Quality Act (CEQA) California Code of Regulations (CCR), Title 14, Division 6, Chapter 3 "Guidelines"
[2] Section 21067 of CEQA

(see Appendix J). Agency and public comments on the Draft EIR and the City's written responses to these comments are provided in the Final EIR, Section 11, Responses to Comments.

Table 1.2-1. Required Contents of an EIR – CEQA Guidelines

Required Analysis (CEQA Guidelines Section Number)	In Draft EIR
Table of Contents (Section 15122)	TOC
Summary (Section 15123)	1
Project Description (Section 15124)	2
Environmental Setting (Section 15125)	3 and 5
Environmental Impacts (Section 15126)	5
Significant Environmental Effects of Proposed Project [Section 15126.2(a)]	5
Unavoidable Significant Environmental Effects [Section 15126.2(b)]	5
Mitigation Measures Proposed to Minimize Significant Effects [Section 15126.4]	5
Alternatives to the Proposed Project [Section 15126.6]	4 and 6
Significant Irreversible Environmental Changes Resulting From Implementation of the Proposed Project [Section 15126.2(c)]	5
Growth Inducing Impacts of the Proposed Project [Section 15126.2(g)]	7
Effects Found Not to Be Significant (Section 15128)	5
References, Persons Contacted and Preparers of the Draft EIR (Section 15129)	9 and 10
Cumulative Impacts (Section 15130)	5 and 7
Required Analysis (CEQA Guidelines Section Number)	**In Final EIR**
Comments and Recommendations on Draft EIR [Section 15132(b)]	11
List of persons, organizations, and public agencies commenting on the draft EIR [Section 15132(c)]	11
Lead Agency Responses to significant environmental points raised in the review and consultation process. [Section 15132(d)]	11

Technical studies were prepared to provide substantial evidence to support this EIR and are provided in the appendices to the Draft EIR. Appendix D, Biological Resources is reprinted in full in the Final EIR. Other technical reports and studies providing substantial evidence in support of the EIR and its appendices are listed in the Draft EIR, Section 10.0: References and Persons Contacted, and are available for public review at the City of Los Angeles' Bureau of Engineering, Department of Public Works at 1149 South Broadway, Los Angeles, 90015-2237.

1.3 FOCUS OF THE EIR

This is a "project" level EIR[3] for the construction and operation of the proposed new force main sewer. The EIR is focused on the expected environmental effects that may occur with the approval of and the subsequent implementation of the proposed force main sewer project: air quality, biological resources, circulation, traffic and transportation, cultural resources, geology, soils and seismicity, hazardous waste and materials, hydrology, water quality/stormwater runoff, land use plans, noise and vibration, public facilities and services, and visual and aesthetic resources. These issues were identified in the Initial Study prepared by the City of Los Angeles (included in Appendix A to the Draft EIR) and reconfirmed after considering the comments received on the Draft EIR. Fiscal issues and impacts are not addressed in the EIR as such analysis is not required by CEQA.

[3] Section 15180 of the CEQA Guidelines

1.4 INTENDED USE OF THE EIR

The City of Los Angeles City Council, as Lead Agency under CEQA, will consider the Final EIR and must certify it prior to considering approval of the Venice Force Main Sewer Project. Other state, regional, and local agencies will also use the Final EIR prior to their consideration of any subsequent discretionary approvals (see Section 1.6 below).

1.5 REVIEWING AGENCIES

The following agencies will review this Project:

- Los Angeles County (various departments);
- California Coastal Commission (CCC);
- California Department of Fish and Game (CDFG);
- Department of Conservation;
- Department of Parks and Recreation;
- Native American Heritage Commission;
- State Lands Commission;
- California Department of Transportation (Caltrans), District 7;
- National Marine Fisheries Service;
- United States Fish and Wildlife Service (USFWS);
- Regional Water Quality Control Board (RWQCB), Region 4;
- South Coast Air Quality Management District (SCAQMD);
- United States Army Corps of Engineers (USACOE); and
- Others as determined.

1.6 PERMITS AND APPROVAL REQUIREMENTS

Table 1.6-1 identifies the names of agencies responsible for review and approval of the proposed Project and the permits required. Others not listed may also apply:

Table 1.6-1. Permit Requirements

Agency	Permit/Requirement	Issues of Concern
Los Angeles County	▪ Geotechnical/Grading/Hauling Permits ▪ Dept. of Beaches and Harbors; Right-of-Entry Permit ▪ Right-of-Way (ROW)/Easements for construction and future maintenance and operations	▪ Impacts from dewatering, tunneling ▪ Staging areas and additional easement

Agency	Permit/Requirement	Issues of Concern
Regional Water Quality Control Board, Los Angeles Region	▪ National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Pollution Prevention Plan (SWPPP) Permit ▪ 401C Section Certification	Water Quality and placement of discharges associated with dewatering activities. No permit required for discharges to sewer. General Permit saves time with RWQCB.
United States Defense Department, Army Corps of Engineers	Section 10 or Section 404 Permit required if excavated material discharged to waters and construction permit.	▪ Location, placement and depth of pipeline ▪ Obstruction of navigation or other channel activities ▪ Channel safety ▪ Impacts to wildlife ▪ Dredging/filling activities
California Department of Fish and Game	1600 et seq. (Streambed Alteration)	Impacts to fish habitat
California Coastal Commission	Coastal Development Permit	▪ Obstruction of recreation and beachfront facilities ▪ Impacts to animal species and habitat ▪ Impacts to parking and traffic
California State Lands Commission	Possible lease requirement	Verification of jurisdiction
National Marine Fisheries Service	Consultation notification	Impacts to aquatic and marine life
California Department of Conservation, Division of Oil, Gas and Geothermal Resources	A construction notification form should be submitted to the Division prior to any activity.	Project is inside administrative bounds of the Playa Del Rey Oil Field containing numerous plugged and abandoned oil wells
State of California Department of Health Services	Project Review for compliance with Title 22, Section 64630 (Conducted through County Environmental Services Division)	Separation of water and sewer mains
United States Fish and Wildlife Service	Notification	Impacts to habitat (i.e., least tern)

Source: URS Corporation

1.7 RELATED PROJECTS

This EIR evaluates the cumulative impacts of the proposed Project. "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts[4]. Cumulative impacts may be analyzed by considering a list of past, present, and probable future projects producing related or cumulative impacts[5]. Table 1.7-1 provides a list of related projects in the City and County of Los Angeles within an approximate 2-mile radius of the project site at the time of the Notice of Preparation of the EIR. The list includes 15 projects of various land uses, including residential, retail, general commercial, and mixed uses.

Table 1.7-1. Related Projects

Project No.	Jurisdiction	Location	Type of Project	Status
1	County of Los Angeles	Bora Bora Way	120 D.U.s; Net decrease of 271 slips; Demolish 4 KSF offices	10/18/2000 (approval date)

[4] CEQA Guidelines Section 15355
[5] CEQA Guidelines Section 15130(b)(1)(A).

Project No.	Jurisdiction	Location	Type of Project	Status
2	County of Los Angeles	Tahiti Way	Remodel existing apartments (no increase in D.U.s)	10/18/2000 (approval date)
3	County of Los Angeles	Marquesas Way	Net increase of 282 D.U.s; 354 senior apartments; Net decrease of 3.6 KSF retail; Net decrease. of 237 slips	12/6/2000 (approval date)
4	County of Los Angeles	Panay Way	68 D.U.s; 60 Congregate Care units	6/13/1996 (approval date)
5	County of Los Angeles	Panay Way	Net increase of 250 D.U.s; 47 senior apartments; Net decrease of 41 slips; Demolish 4.4 KSF restaurant	12/6/2000 (approval date)
6	County of Los Angeles	Panay Way	99 D.U.s; Net increase of 4.94 KSF Yacht Club; 2.3 KSF Office; Transfer of 97 D.U.s from DZ1 to DZ4	10/2/2000 (approval date)
7	County of Los Angeles	Palawan Way/ Beach Ave	450 s.f. net retail increase	6/25/2003 (approval date)
8	County of Los Angeles	Palawan Way/ Beach Ave	Net increase of 115 D.U.s	12/10/2003 (approval date)
9	County of Los Angeles	Admiralty Way	Library expansion – 2,454 S.F.	3/5/1997 (approval date)
10	County of Los Angeles	Mindanao Way	4.7 KSF retail increase	To Be Announced (TBA)
11	County of Los Angeles	Via Marina	11.4 KSF net retail increase, 288 restaurant seats, 1.3 KSF reduction in office	6/16/2004 (approval date)
12	County of Los Angeles	Marina Del Rey Tide Gates	Tide Gate Rehabilitation	11/2007 (permits pending)
13	County of Los Angeles	Hotel at Via Marina	TBA	TBA
14	City of Los Angeles	Grand Canal	Gates at Washington Street	TBA
15	City of Los Angeles	Grand Canal	Between Driftwood Street and Hurricane Street Temporary VPP bypass pipeline for sluice gate replacement in VPP	11/2007 (permits pending)

Sources: City of Los Angeles Planning Department; County of Los Angeles Department of Regional Planning, Bureau of Engineering and Los Angeles County Department of Public Works.

1.8 AREAS OF PUBLIC CONCERN OR KNOWN CONTROVERSY

A community meeting was held on May 31, 2005, at the Westchester Community Center, to discuss the scope of the Draft EIR. The scoping meeting participants were introduced to the EIR process and the proposed Project and were invited to provide information and/or comments regarding potential impacts to the environment resulting from construction of the proposed Project (see Appendix J, Public Participation). During the preparation of the Draft EIR, the City of Los Angeles considered the comments received in response to the Notice of Preparation and during the public meeting. The Draft EIR was released for a 45-day public review period on February 1, 2006 and a public comment meeting was conducted on February 23, 2006. The public comment period closed on March 17, 2006. Substantive comments received on the Draft EIR along with written responses are provided in the Final EIR, Section 11, Responses to Comments.

The primary issues and areas of concern identified by the public regarding the proposed Project, which are addressed in the EIR, are:

- Noise impacts during project construction;
- Limited on-street parking availability during construction;
- Aesthetic and visual impacts during construction;
- Air quality impacts during construction;
- Possible impacts to the Least Tern and other wildlife during and after construction;
- Potential impacts to recreational facilities and public events on the beachfront;
- Staging and operation of construction equipment on existing bike paths, walking trails and bridges;
- Impacts to water quality in both the Marina Del Rey Channel and Ballona Creek Channel;
- Impacts to traffic circulation and emergency access during construction;
- Impacts to residential access to and from housing during construction; and
- Impacts to structural foundations resulting from construction-related activities.

1.9 EIR PARTICIPANTS AND PUBLIC REVIEW

This EIR has been prepared in conformance with the local and state CEQA Guidelines, as amended. URS Corporation provided environmental consultation services to the City for the EIR. The City of Los Angeles proposed responses to agency comments on the Draft EIR are being provided to public agencies and private organizations prior to City of Los Angeles consideration of certification of the Final EIR and project approval.

The City of Los Angeles circulated an NOP for this EIR to responsible agencies on May 2, 2005, to solicit comments on issues relevant to their agency or jurisdiction, and for subsequent consideration of the proposed Project. The City considered all comments received during the scoping period in the preparation of the Draft EIR. The Notice of Availability of the Draft EIR was issued on February 1, 2006 [see Final EIR Appendix J, Public Outreach]. The Draft EIR was made available for a 45-day public review period ending on March 17, 2006. The document was made available to the public at the City of Los Angeles Bureau of Engineering, Environmental Management Division and at the City of Los Angeles Central Library, Venice Branch Library, Westchester Library, and Playa Vista Public Library. The City conducted one public community meeting on the Draft EIR February 23, 2006 at the Westchester Municipal Building in Westchester, CA. The City provided written responses to all comments received on the Draft EIR in the Final EIR (see Final EIR, Section 11.0, Responses to Comments).

1.10 PROJECT LOCATION

The proposed project is in the City of Los Angeles in the communities of Venice and Playa Del Rey (see Figure ES-1, Regional Project Location Map). The City of Los Angeles is proposing to construct and operate a new force main sewer extending from the existing Venice Pumping Plant at 140 Hurricane Street and the westerly bank of the Grand Canal and the northerly bank of the Ballona Lagoon in the community of Venice, and extends southerly under both the Grand Canal and Ballona Creek, to a junction

REGIONAL PROJECT LOCATION MAP

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-1

The project's intent is to construct a second force main sewer (54-inch diameter) to be used in tandem with the existing force main sewer. The City's three key project objectives include 1) Sewage Conveyance Capacity, 2) Pipeline Redundancy, and 3) Ability to Perform Maintenance. These are summarized below.

Sewage Conveyance Capacity

The Venice Pumping Plant is the largest pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City through an existing 48-inch pipeline and transports it to the Hyperion Treatment Plant in Playa Del Rey (see Figure ES-2). Over the years, the existing pipeline has gradually approached maximum capacity placing substantial strain on the system forcing the water level in the wet-well of the Venice Pumping Plant basement to rise.

The City of Los Angeles first identified the need for additional sewer capacity during the heavy storms of 1995 when sewage and infiltrated stormwater in the sewage system exceeded the capacity of the existing 48-inch line, creating a potentially serious human and environmental health risk. Although the pumping plant had all five pumps running during peak rainfall, the existing downstream sewer force main that runs along the beach could only handle approximately 60 percent of the flows that would otherwise run through the pumps – the pipeline was serving as a bottleneck in the system. The amount of sewage and infiltrated stormwater in the sewage system exceeded its capacity, forcing the water level in the wet-well of the Venice Pumping Plant to rise. In an effort to prevent potential sewage spillage as a result of an overload situation, the City proposes to install an additional 54-inch pipeline to convey the sewage and infiltrated stormwater flows. The new force main would be used in tandem with the existing force main; together, the two force mains would provide the necessary capacity to meet current and future peak wet weather flow demands.

Pipeline Redundancy

The new force main would provide force main redundancy in the case where either one of the pipelines was taken out of service for any reason. This redundancy is not provided by the current single force main pipeline. The installation of the proposed 54-inch force main bypass capability would also allow repair and maintenance of the existing pipeline as described below.

Ability to Perform Maintenance

The existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. Development of the new 53-inch would allow the first opportunity for rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods. One of the two force mains would be taken out of service for maintenance while the second force main would continue to convey sewage wastewater to the Hyperion Treatment Plant.

2.0 PROPOSED PROJECT AND ALTERNATIVES

The Initial Study for the proposed Project determined that the Project would not result in significant effects to the environment during the operations phase of the project. Temporary significant impacts resulting from the Project would be directly related to construction activities. This EIR considers a range of reasonable alternatives that would meet the project objectives and would also avoid or substantially reduce the significant effects of the proposed Project.

The EIR considers four (4) route alignment alternatives, and three (3) alterative construction methods in order to balance their ability to meet the project objectives and avoid or substantially reduce the significant environmental impacts of the proposed Project. The No Project Alternative is also evaluated in the EIR.

2.1 ROUTE ALIGNMENT ALTERNATIVES

The EIR considers three primary alternative pipeline route alignments between the Venice Pumping Plant and the Coastal Interceptor Sewer in the community of Playa Del Rey (see Figure ES-2, Alignment Alternatives):

- Via Marina / Pacific Avenue
- Pacific Avenue
- Dockweiler Beach

Via Marina/Pacific Avenue

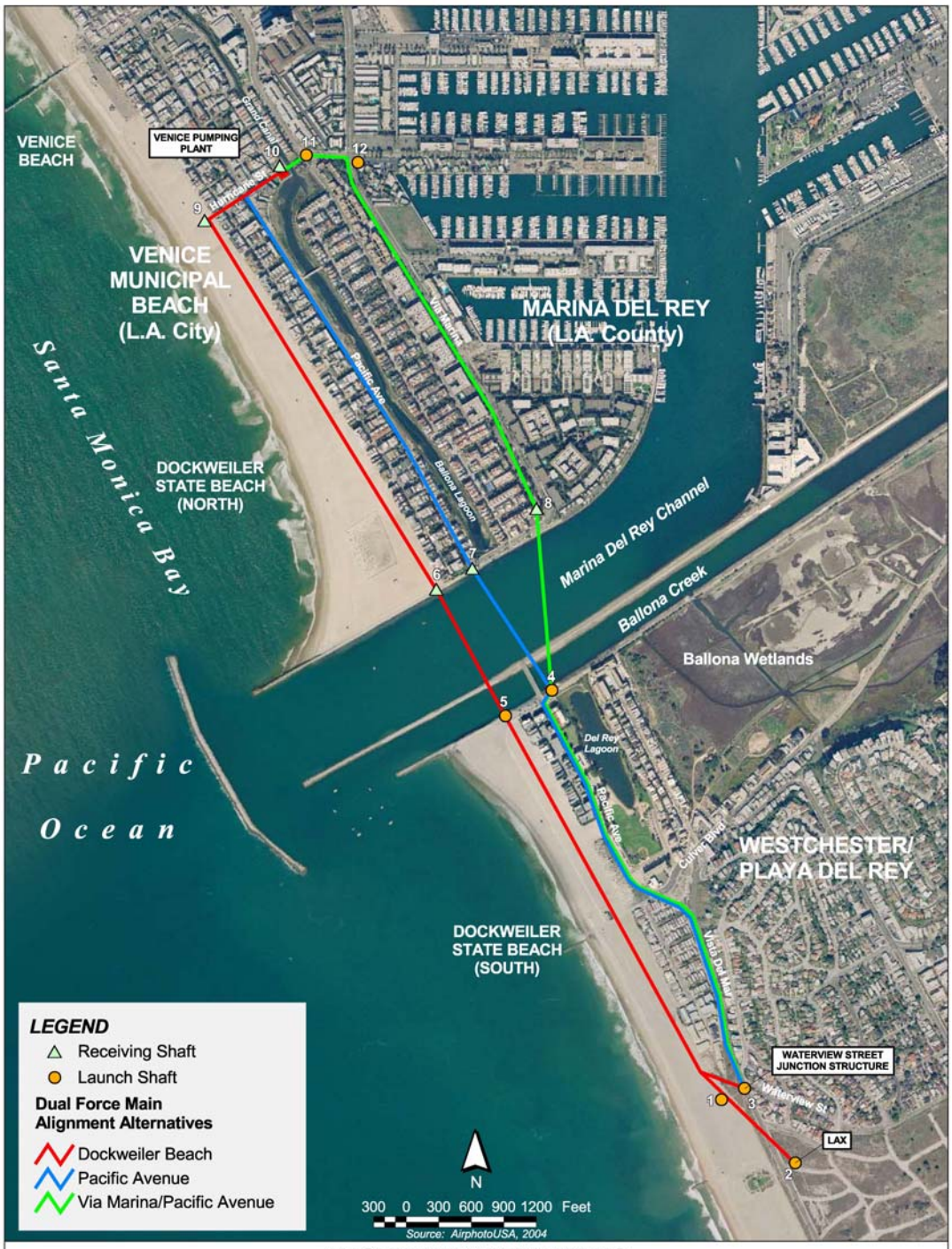
From the existing Venice Pumping Plant on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel. The route crosses the channel to Pacific Avenue. From there, the alignment continues south along Pacific Avenue to Vista Del Mar to the Coastal Intercept Sewer junction connection near Waterview Street. This alignment is about 10,400 feet long.

Pacific Avenue Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn southeast and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue southeast within Pacific Avenue and Vista Del Mar to the junction structure under Vista Del Mar near Waterview Street.

Dockweiler Beach Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point, the line runs easterly to the junction structure under Vista Del Mar near Waterview



ALIGNMENT ALTERNATIVES

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-2

Street. If the mined large-diameter tunnel construction method is used, the construction shaft and staging area could be on the Los Angeles Airport property (LAX) slightly further to the southeast.

CHANNEL CROSSING

As noted above each of the alignments under consideration crosses the Marina entrance channel and Ballona Creek and would require approximately 1,800 feet of tunneling under the two channels.

SHAFTS AND LAYDOWN AREAS

Boring and tunneling operations and pipeline staging and laydown areas would also be required. Boring shaft locations along the three alternative routes (that is, locations where construction equipment would be used on the surface and visible during the construction of the particular alignment) may be located at any of the numbered locations shown on Figure ES-2).

2.2 CONSTRUCTION METHODS

The City's project objectives can be achieved by using one or more of three construction methods considered in this EIR. These are:

(1) Cut-and-cover,

(2) Small-Diameter Micro-tunneling ("Boring"), and

(3) Large-diameter ("Mined") tunneling.

CUT-AND-COVER CONSTRUCTION METHOD

URS	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-3

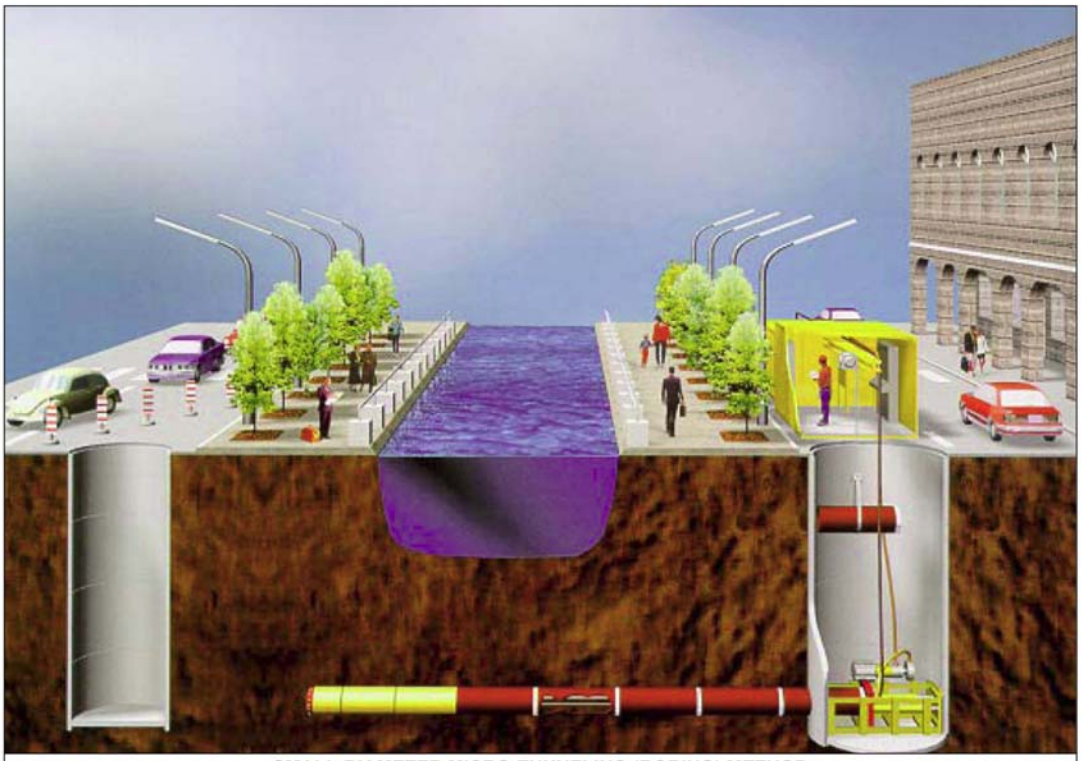
Each method could provide both benefits and issues of concern for the project. A combination of construction methods could be used for each of the alternative routes described in Section 2.1 above. The construction methods are described below.

2.2.1 Cut-and-Cover Construction

Cut-and-cover construction is a very common method of linear pipeline construction (see Figure ES-3, Cut-and-Cover Construction Method). The contractor would not work in all areas of the pipeline corridor at the same time, but would open relatively short segments of the corridor (about 1,000 feet), install the pipeline, and proceed with back-filling, finishing and restoring the segments. Underground utilities that conflict with the surface trenched construction would be temporarily relocated as necessary. With this approach, major construction activities could be limited to within the relatively short corridor segments. During the preparation of this EIR, the cut-and-cover method of construction was considered and determined to be not viable for the Dockweiler Beach Alignment because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes.

2.2.2 Small-Diameter Micro-Tunneling (Boring)

Boring is a trenchless construction method, which uses hydraulic jacks located in surface pits to drive pipes through the ground behind a remotely operated Tunnel Boring Machine (TBM) (see Figure ES-4,



SMALL-DIAMETER MICRO-TUNNELING (BORING) METHOD

URS	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-4

Small-Diameter Micro-Tunneling (Boring) Method). Drive lengths are generally limited to about 1,000 feet, depending upon ground conditions and pipe size; but intermediate jacking stations can be used to extend the drive length. Unlike conventional cut-and-cover trenching techniques that require excavation for the entire length of pipeline as described in Section 2.2.1 above, excavation for micro-tunneling is limited to the endpoints of each drive within designated launching (jacking) and receiving pits. The launching pit contains the hydraulic jacks used to push the pipes, and the receiving pit is used to recover the TBM at the end of each drive. Tunneling can proceed intermittently; although, it is often necessary to proceed continuously, particularly on long drives through sticky soils, to prevent the pipe from getting stuck short of the receiving pit. Tunnel advance rates are typically between 30 and 50 feet per 8-hour work shift, depending on soil conditions and pipe size.

2.2.3 Large-Diameter (Mined) Tunneling

In contrast to small-diameter micro-tunnels, which are constructed by remote-controlled TBMs and pipe-jacking, large-diameter tunnels (i.e., minimum excavated diameter = 10 to 12 feet) can be constructed with staffed TBMs) (see Figure ES-5, Large Diameter (Mined) Tunnel Method). In addition to the difference in tunnel diameter, the most important difference between these larger TBMs and the micro-tunneling machines discussed in Section 2.2.2 above is that the concrete tunnel liner is erected in segments immediately behind the TBM. This type of tunnel liner does not need to be continuously pushed (jacked) forward, and there is no length limitation due to frictional resistance building up with increasing tunnel length. For tunneling below the groundwater level without the need for dewatering, pressurized-face TBMs are used to stabilize the tunnel face and prevent the water from entering the TBM.

LARGE-DIAMETER (MINED) TUNNEL METHOD

URS	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-5

3.0 ENVIRONMENTAL IMPACT ANALYSIS

As stated above, the Initial Study for the proposed project concluded that there would be no significant environmental impacts during the operations phase of the project. All potential significant impacts would be associated with the construction phase of the project. The summary environmental impact analysis below addresses the alternative route alignments and alternative construction methods. The environmental effects of the No Project Alternative are summarized. The Environmentally Superior Alternative is also identified.

3.1 SUMMARY OF PROJECT ALTERNATIVES

The potential project alternatives analyzed in the EIR are briefly described in Sections 3.1.1 and 3.1.2 below. The summary of the comparative environmental analysis follows Section 3.2 below.

3.1.1 New Force Main Sewer Line Alternatives

A new force main would provide redundancy to the existing sewer, allowing for adequate conveyance from the Venice Pumping Plant to the Hyperion Treatment Plant in Playa Del Rey, and would provide the ability to periodically shut-down and conduct maintenance on the existing 48-inch force main.

- Micro-tunneling could be used along the Dockweiler Beach alignment, Via Marina/ Pacific Avenue alignment and the Pacific Avenue Alignment (see Figure ES-2 Alignment Alternatives).

- The cut-and-cover/micro-tunneling method of construction may be used for the Via Marina/ Pacific Avenue alignment and the Pacific Avenue Alignment. Each cut-and-cover alignment also involves micro-tunneling under the Marina Del Rey Channel and includes shafts on either side of the channel for the purpose entering and/or exiting the tunnel as required to install the sewer pipe under the channel. Note that cut-and-cover construction was considered for the beachfront alignment initially, but deemed to be not viable because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes.

- The Large-diameter tunneling method could be used for the Dockweiler Beach alignments. Under this alignment option, the large tunnel could terminate either on the beach west of the Waterview Street Junction Structure or at Los Angeles Airport (see Figure ES-2). From these large tunnel termination points, cut-and-cover or boring would be used to tie-in to the junction structure.

Table 3.1, Project Alternative Impact Areas, lists the project areas (streets) subject to environmental impact during project construction. The numbers in the table refer to the associated shaft locations for tunneling construction along each route depicted on Figure ES-2, Alignment Alternatives.

Table 3.1-1. Project Alternative Impact Areas

Cut and Cover Alternatives	Impact Areas/ Associated Shaft Locations
• Via Marina/ Pacific Avenue	Marquesas Way, Via Marina Way, Pacific Ave., Vista del Mar, and Sites10, 11, 12, 8, 4, 3
• Pacific Avenue	Hurricane Street, Pacific Ave, Vista del Mar, and Sites 10, 7, 4, 3

Micro Tunnel Alternatives	Impact Areas/ Associated Shaft Locations
• Dockweiler Beach Alignment	Sites 10, 9, 6, 5, 3
• Via Marina/ Pacific Avenue	Sites 10, 11, 12, 8, 4, 3
• Pacific Avenue	Sites 10, 7, 4, 3

Large Diameter Alternatives	Impact Areas/ Associated Shaft Locations
• Beach Alignment	Sites 10, 2, and Beach Alignment
• Beach Alignment (with cut and cover ends)	Hurricane Street, Site 9, Beach Alignment, Site 1
• Inland Alignment	Sites 10, 2, and Inland Alignment

The EIR provides sufficient analysis of the project alternatives to determine which of the alternatives would meet the City's objectives while substantially avoiding or reducing significant environmental impacts. The Lead Agency is not required to select the environmentally superior alternative identified in this EIR but must provide findings of fact explaining its decision not to select this alternative.

3.1.2 No Project Alternative

Under this alternative, no new sewer force main would be constructed and the existing sewer system would continue to operate in its current configuration.

The No Project alternative could result in potentially significant adverse effects to the environment due to the lack of conveyance capacity of the existing 48-inch sewer force main downstream of the Venice Pumping Plant and the current inability to perform regularly scheduled maintenance on this pipeline. If inflows to the Venice Pumping Plant exceed the capacity of the force main leaving the plant, an overflow of untreated wastewater into the Ballona Lagoon and other areas in the vicinity of the Venice Pumping Plant Force Main corridor could result, causing significant harm to the environment.

3.2 SUMMARY ENVIRONMENTAL IMPACT ANALYSIS

3.2.1 Comparative Impact Analysis

The environmental impacts of each alternative project configuration are summarized in Table 3.3-1. The alternatives are listed in the row along the top of the table. The first column on the left hand side of the table identifies each impact category. A text summary of each alternative's environmental impacts follows the table.

Table 3.3-1. Environmental Impacts Summary Table

Impact	Cut-and-Cover		Small-Diameter Micro-Tunneling (Boring)			Large-Diameter Tunneling (Mined)		
	Pacific	Via Marina	Beach	Pacific	Via Marina	Beach	Beach w/ cut & cover ends	Pacific
Air Quality	Significant Short-term	Significant Short-term	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Biological Resources	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity; Temporary risk to Least Tern	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity
Parking	Temporary loss of 55 parking spaces	Temporary loss of 52 parking spaces	Temporary loss of 27 parking spaces	Temporary loss of 55 parking spaces	Temporary loss of 52 parking spaces	none	Temporary loss of 37 parking spaces	none
Circulation	Temporary impact to 4 street segments	Temporary impact to 3 street segments	none	Temporary impact to 4 street segments	Temporary impact to 3 street segments	Temporary impact to 1 street segment	Temporary impact to 2 intersections & 1 street segment	Temporary impact to 1 intersection
Cultural Resources	Not Significant with mitigation	Not Significant with mitigation	none	Not Significant with mitigation	Not Significant with mitigation	none	none	none
Paleontological Resources	Not Significant with mitigation	Not Significant with mitigation		Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation
Geology, Soils	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation
Seismicity/liquifaction	Significant	Significant	Significant	Significant	Significant	Significant	Significant	Significant
Subsidence	Risk from dewatering	Risk from dewatering	If dewatering	If dewatering	If dewatering	If dewatering	If dewatering	If dewatering
Nearby Oil/Gas Wells	14 wells	12 wells	41 wells	14 wells	12 wells	41 wells	41 wells	14 wells
Nearby contamination	5 sites	2 sites	2 sites	5 sites	2 sites	2 sites	2 sites	5 sites
Hydrology, Water Quality / Stormwater Runoff	Dewatering Required	Dewatering Required	Dewatering not required	Dewatering not required	Dewatering not required	Dewatering not required	Dewatering not required	Dewatering not required
Land Use Plans	no effect	no effect	no effect	no effect	no effect	no effect	no effect	no effect
Noise And Vibration Disturbance Factor[6]	120	82	21	17	40	3	21	7
Public Facilities & Services	Temporary impacts to: Ballona Creek & Dockweiler Beach Bike Path, Del Rey Lagoon Park parking, Napoleon Street foot path	Temporary impacts to: Esplanade East access, parking at Marquesas Way and Via Marina, Via Marina scenic highway, Aubrey E. Austin Park, Marina Channel viewpoint, Parking, Ballona Creek & Dockweiler Beach Bike Path,	Temporary impacts to: Beach access & use, Napoleon Street foot path	Temporary impacts to: Ballona Creek & Dockweiler Beach Bike Path, Del Rey Lagoon Park parking, Napoleon Street foot path	Temporary impacts to: Esplanade East access, parking at Marquesas Way and Via Marina, Via Marina scenic highway, Aubrey E. Austin Park, Marina Channel viewpoint, Parking, Ballona Creek & Dockweiler Beach Bike Path,	Temporary impacts to: Napoleon Street foot path	Temporary impacts to: Beach access & use, Napoleon Street foot path	Temporary impacts to: Napoleon Street foot path

[6] Approximation of relative amount of disturbance to residents computed as the sum of the number of addresses within 200 feet of construction multiplied by the duration of the activity at that location.

Impact	Cut-and-Cover		Small-Diameter Micro-Tunneling (Boring)			Large-Diameter Tunneling (Mined)		
	Pacific	Via Marina	Beach	Pacific	Via Marina	Beach	Beach w/ cut & cover ends	Pacific
		Del Rey Lagoon Park parking, Napoleon Street foot path			Del Rey Lagoon Park parking, Napoleon Street foot path			
Degrade existing visual character	Significant but temporary from Construction activities	Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities	Significant but temporary from Construction activities	Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities	Significant but temporary from Construction activities	Significant but temporary from Construction activities
Impact scenic vista	Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities; Significant long term from loss of mature trees		Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities; Significant long term from loss of mature trees	none	Significant but temporary from Construction activities	none
Damage scenic resource	not significant	Significant long term from loss of mature trees		not significant	Significant but temporary from Construction activities; Significant long term from loss of mature trees	none	Significant but temporary from Construction activities	none
Add light or glare	none	none		none	none	none	none	none
Shade/shadow	none	none		none	none	none	none	none
Inconsistent with regulations	Significant temporary from construction in Scenic Hwy	Significant temporary from construction in Scenic Hwy		Significant temporary from construction in Scenic Hwy	Significant temporary from construction in Scenic Hwy	Significant temporary	Significant temporary	Significant temporary

MARQUESAS WAY/VIA MARINA WAY SEGMENT OF THE VIA MARINA ALIGNMENT

This alignment and the channel micro-tunnel launching and receptor shafts associated with it are subject to impacts associated with construction staging of equipment, parking and related traffic throughout the 18- to 24-month duration of construction along Hurricane Street, Marquesas Way and Via Marina Way respectively. This alternative is within a designated segment of a scenic highway requiring the preservation of scenic views, which would be infeasible resulting in a significant and unavoidable impact from construction activities during the tourist season. Unavoidable impacts to parking and pedestrian traffic would result from micro-tunnel activities on each side of the Grand Canal at the junction with Hurricane Street and in the empty lot between residential housing west of Marquesas Way and leading to the sidewalk next to the Grand Canal.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities, although this alignment is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

HURRICANE STREET/PACIFIC AVENUE SEGMENT OF THE PACIFIC AVENUE ALIGNMENT

Impacts from this alternative would result from construction-related activities associated with cut-and-cover construction along Hurricane Street and Pacific Avenue and at a micro-tunnel receptor shaft at Pacific Avenue near Via Marina Way, and at a launching shaft located on the south side of the channel on the east side of the Pacific Avenue pedestrian bridge. This alternative would cause significant unavoidable impacts to visual aesthetics of the vicinity and parking and traffic impacts to residents and tourists, who live and visit the area. Access to parks and parking facilities for Dockweiler Beach, the pedestrian bridge and public parking facilities at Pacific Avenue on the south side of the channel would be reduced as a result of construction-related staging, vehicles and mobile equipment for a period of 18 to 24 months. Noise impacts associated with the proximity of construction-related equipment to residents and visual impacts due to equipment staging are also anticipated.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This alternative is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

HURRICANE STREET/DOCKWEILER BEACH SEGMENT OF THE BEACH ALIGNMENT

The cut-and-cover method of construction for this beach alignment has been considered, but deemed not viable; however, deep mined-tunneling construction alternatives are also considered for the beachfront. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersection of Dockweiler Beach and Hurricane Street would result in noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Construction activities may result in temporary effects on least terns (see Appendix D, Biological Technical Report). Temporary impacts to water quality and marine resources could occur through the

unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This alternative is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

DOCKWEILER BEACH ALIGNMENT

This southern extension of Dockweiler Beach alternative is located along the beach of the south side of the Via Marina Channel. The cut-and-cover method of construction for this alignment has also been considered, but deemed not viable; however, deep-mined tunneling construction alternatives are also proposed for the beachfront and are described in Section 4.0. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersection of Dockweiler Beach and Hurricane Street would impose noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Visual impacts associated with potential construction equipment and activities methane venting.

PACIFIC AVENUE/VISTA DEL MAR SEGMENT OF THE VIA MARINA AND PACIFIC AVENUE ALIGNMENTS

This is the southern extension of both the Pacific Avenue alternative and the Via Marina alternative, located on the south side of the Marina del Rey and Ballona Creek channels. Construction along Vista del Mar, a scenic highway, would have temporarily visual/aesthetic impacts. Monitoring during the course of construction would be required to mitigate the potential for impacts to historic/cultural/paleontological resources as described in the Cultural Resource section (Section 5.5) of this EIR. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. Although this alternative is unlikely to result in a long-term reduction in water quality or the loss of individuals or habitat.

LARGE-DIAMETER (MINED) TUNNEL ALTERNATIVES

Each starter shaft and receptor shaft for the deep mined-tunnel construction alternatives have their own numeric identifier, shown on Figure ES-2. Construction impacts would be as described above and summarized in Table 3.3-1.

3.2.2 Growth-Inducing Impacts

Growth-inducing impacts are secondary, or indirect, impacts that could occur as a result of the project that are manifested as changes in land use patterns, population density and growth rates; and related effects on traffic, public services, air, water, biological and other environmental resources[7].

[7] Section 15126.2(d) of the CEQA Guidelines

The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. As summarized below and more fully discussed in Section 7.0 of the Draft EIR, no significant growth-inducing impacts are associated with the proposed Project. This section of the Executive Summary addresses the role that wastewater conveyance capacity plays in the growth of the region. The primary types of growth that occur in the City and vicinity are land use development and population. Because these types of growth are distinct, and interrelated, this section examines the relationship of sewer conveyance capacity with each type of growth.

LAND USE DEVELOPMENT AND WASTEWATER CONVEYANCE

The development of land in the City is governed by General Plan and Zoning land use designations of particular parcels. Zoning implements the land use policies contained in the General Plan and is consistent with the General Plan. Unless conditional use permits or density transfers are obtained from the Planning Department, development must conform to the use type and density designated for that parcel. The decision of a land owner to develop a single parcel or numerous parcels of land may be based on personal or economic reasons. Whether personal, economic, or both, the availability of wastewater conveyance capacity is not likely to be a consideration in the decision to develop. Once the decision to develop a parcel has been made, permission to connect to the wastewater collection system must be obtained as part of the building permit process. A sewer connection permit can only be obtained if adequate capacity to serve the proposed development is available. Sewer connection and other building permit fees are charged in proportion to the density of development proposed. The high sewer connection fees and other building permit fees associated with the most intensive levels of development increase the costs of developing land in the City and can be considered economic disincentives to development.

In a mature urbanized area such as Los Angeles with sufficient wastewater treatment capacity, the provision of wastewater conveyance capacity would not induce land development that would not otherwise occur.

POPULATION GROWTH AND WASTEWATER CAPACITY

Population within southern California and the City of Los Angeles is anticipated to grow significantly over the next 20 years and further into the future. The projected increase in population will come from two sources, natural increases and in-migration. SCAG predicts that approximately 60 percent of projected future population growth would occur from natural causes (births minus deaths) and 40 percent would come from the in-migration of people from other areas.

Wastewater conveyance capacity is required to accommodate the increases in wastewater flows associated with the population increases. The provision of wastewater conveyance capacity will not induce either natural population growth or in-migration. SCAG has established the policy that conveyance systems, including interceptors, are not subject to its air quality conformity procedures, because of the absence of effects on population growth.

GROWTH MANAGEMENT IN LOS ANGELES

The Southern California Association of Governments, which includes the City of Los Angeles among its member jurisdiction, has prepared the Regional Comprehensive Plan and Guide and the Growth

Management Plan. These plans address regional growth and related issues. In addition, the City of Los Angeles' General Plan governs land use development within its jurisdiction.

The Regional Comprehensive Plan and Guide (March 1996) serves as a comprehensive overview of the issues and opportunities facing the region. This plan consists of three sections, core chapters, ancillary chapters, and bridge chapters. Core chapters include plans such as the Growth Management Plan, the Regional Mobility Plan, Air Quality Plan, and other documents that SCAG is required to produce (by federal and/or state mandates). Ancillary chapters address such issues as the economy, housing, and reflect other plans but serve only an advisory purpose for member governments. Bridge chapters link the core and ancillary chapters for other areas of concern.

The Growth Management Plan presents forecasts and policies for anticipated growth to the year 2020. The Growth Management Plan is based upon the amount of growth that is likely to occur and recognizes that there are no viable ways in which to control total growth. The Plan, however, seeks to control the distribution of growth in order to improve the balance between jobs and housing by encouraging housing growth in job rich areas and vice-versa.

The City's General Plan (comprised of the 35 Community Plans) governs the location and density of land use in the City through the zoning process. The Los Angeles City Planning Department revised the General Plan and the new plan, termed the "General Plan Framework," is intended to balance land use development, transportation, projected future population and projected future employment within the City of Los Angeles. The General Plan Framework's options include areas of targeted growth with higher land use designations and densities around commuter rail stations and along transportation corridors.

The planned growth of population along corridors would result in higher demands on infrastructure. There would be a need to accommodate greater quantities of wastewater that would be generated. Consequently, new wastewater conveyance facilities must be constructed, or existing facilities must be improved or upgraded.

CONCLUSIONS REGARDING GROWTH INDUCEMENT

Wastewater conveyance capacity is an infrastructure component of the urban environment that is necessary to safely accommodate the needs of existing and projected future populations. The provision of wastewater conveyance capacity, in and of itself, will not induce population growth or land use development. Rather, wastewater conveyance capacity would allow population growth to occur within the General Plan Framework while minimizing sewage spills and the associated environmental, health and safety problems. Future land uses would generally not occur in densities higher than those allowed by the land use planning process. Any development projects beyond the scope of the City's General Plan would undergo individual environmental analysis (including impacts to the wastewater system) and would have to be approved by the City Council.

In wastewater planning, the sizing of collection and treatment facilities, as well as the overall system configuration, is dependent on the future system-wide flow and the distribution of that flow within the system. Since the timing of necessary improvements is partly a function of growth, a realistic estimate of the future population to be served is fundamental to effective wastewater system planning.

The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. No significant growth-inducing impacts are therefore associated with the project.

3.2.3 Cumulative Impact Analysis

Cumulative impacts refer to two or more individual effects, that when considered together, are considerable[8]. Cumulative impact assessment considers not only the impacts of the proposed Project, but also the impacts from other City and private projects, which would occur during the period of performance and geographic area of the proposed Project. There would likely be construction activities occurring in the vicinity of the VPP Dual Force Main Project as a result of other projects being built in the same general time frame. These related projects are listed in Table 1.7-1 above. The VPP Dual Force Main Project, along with other construction projects, could contribute to temporary cumulative noise and vibration effects. Construction activities may result in cumulative effects of the following nature:

Noise and Vibration – Local residents in the near vicinity of construction activities would be exposed to noise and possible vibration. The cumulative effects, both in terms of added noise and vibration at multiple VPP Dual Force Main construction sites, and in the context of other related projects, are not considered significant due to the temporary nature of noise increases and the recommended mitigation measures.

Air Quality – The VPP Dual Force Main Project will produce additional emissions of criteria pollutants and slightly elevated levels of carbon monoxide during construction. Emission of criteria pollutants resulting from the Project's construction would exceed the thresholds established by the SCAQMD, and therefore the Project, in conjunction with all other construction activity, would cumulatively contribute to the region's non-attainment status during the construction period. The SCAQMD prepared the Air Quality Management Plan (2003) to bring the region into compliance with the National Ambient Air Quality Standards as set by the EPA under the Clean Air Act Amendments (1990). The Air Quality Management Plan is essentially designed to address the cumulative air pollutants released into the South Coast Air Basin. Because these construction-related emissions are temporary (18-24 months, depending on the construction method) and because the Air Quality Management Plan addresses cumulative air pollution in the South Coast Air Basin, the Project would not result in long-term significant cumulative air quality impacts. In the short term, cumulative impacts could be significant if the combined emissions from the projects exceed the threshold criteria for the individual pollutants. Mitigation measures are in place to reduce impacts on air quality.

Transportation and Circulation – The VPP Dual Force Main Project would involve construction activities occurring simultaneously at a number of surface sites along the Project alignment. Construction of the VPP Dual Force Main Project may be occurring in the same general time and space as other related projects. In these instances, surface construction activities from both sets of Project could produce cumulative traffic effects which may be significant, depending upon a range of factors including the specific location involved and the precise nature of the conditions created by the dual construction activity (see Traffic-Related Project Construction Schedule in Table 4.2-1 of the EIR). Special

[8] Section 15355 of the CEQA Guidelines

coordination efforts may be necessary to reduce the combined effects to an acceptable level with the adoption of mitigation measures. Overall, with implementation of mitigation measures, significant cumulative impacts are not anticipated.

Public Services – The cumulative effects on public services in the VPP Dual Force Main study area would cause traffic and circulation inconveniences in some locations due to reduce parking, lane closures and potential schedule adjustments to public transportation as discussed in the EIR; however, these impacts would be temporary and would be limited to traffic inconveniences discussed above.

Aesthetics – Construction activities associated with other related projects may be ongoing in the vicinity of one or more VPP Dual Force Main construction sites. To the extent that combined construction activities do occur, there would be temporary adverse visual effects during construction in some locations. However, these impacts would be temporary.

Beneficial Effects – The VPP Dual Force Main Project would also have long-term beneficial cumulative effects with regards to improvements to the City of Los Angeles' wastewater collection system. The proposed Project would result in cumulative public health benefits by minimizing or eliminating the potential for the public to be exposed to wastewater that could overflow onto streets during rainy weather and flow into area channels and the Pacific Ocean. Public safety, in the short and long-term, would be improved by minimizing the potential for sewer and street collapses associated with deteriorated sewers.

3.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Following consideration of public comments on the Draft EIR, the analysis of the various construction and alignment alternatives was finalized and the environmentally superior alternative was identified (see Section 3.2).

Based upon the comparative impact analysis for this project and as shown in Table 3.3-1, it has been determined that the environmentally superior alternative is the large-diameter (mined) tunnel along the inland (Pacific Avenue) alignment from LAX to Venice Pumping Plant (identified as mined tunnel alternative 4 in the DEIR). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion, noise and vibration. The proposed alignment as shown on Figure 4.2-2, would begin at launch shaft #2 located in Vista Del Mar and run due north toward the pumping plant on Hurricane Street and tie in at the #10 receptor shaft. Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the City would provide community outreach to work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way.

3.4 MITIGATION MEASURES

The EIR describes mitigation measures which are expected to avoid or substantially reduce the significant environmental impacts of the proposed Project. Table 3.4-1 presents the impacts, recommended mitigation measures, and the level of significance after mitigation.

Table 3.4-1. Environmental Impacts and Mitigation Measures

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
		Air Quality	
AIR 1	NO_x emissions in construction areas.	Extend timeline for construction, thereby utilizing less equipment on a daily basis.	Less than Significant
		Utilize newer construction equipment that meet tier emissions standards	Less than Significant
		Use of alternative fuel such as biodiesel, liquid natural gas, and propane.	Less than Significant
		Adjust engine timing to reduce NO_x emissions.	Less than Significant
		Biological Resources	
BIO 1	If the Venice Beach/Dockweiler Beach alignment is selected and construction is to be aboveground, or if tunneling is used and the jacking and/or receiving pit is within 500 feet of the nesting site, and any construction activities are to occur during the least tern nesting season (April 1 through August 31)	A biological monitor with experience observing and documenting disturbance to least terns shall be present during all construction activities within 500 feet of the nesting site to ensure that construction activities do not adversely affect least terns using the nesting site. In addition, the monitors will ensure that work crews properly dispose of all garbage in covered containers.	Less than Significant
BIO 2	a: If any tunneling activities are to occur during the least tern nesting season (April 1 through August 31)	A water quality specialist or biological monitor shall conduct surveys at tunneling locations a minimum of once daily to ensure that tunneling does not increase water turbidity.	Less than Significant
	b: If any turbidity from the tunneling activities is discovered in least tern foraging areas	The tunneling activities shall cease until the leak from the tunnel that is resulting in turbidity is repaired or managed.	Less than Significant
BIO 3	a: Existing and potential values in environmentally sensitive habitat areas shall be protected, enhanced, and where feasible, restored. If any habitat is disturbed, restore to previous undisturbed condition.	Based on the City of Los Angeles LUP and LCP, restore to ESHAs to previous undisturbed condition.	Less than Significant
	b: Marine resources shall be maintained, enhanced, and where feasible, restored. If any habitat is disturbed, restore to previous undisturbed condition.	Based on the City of Los Angeles LUP and LCP, restore to previous undisturbed condition.	Less than Significant
		Circulation, Traffic and Parking	
TRA 1	To coordinate with the city to ensure adequate traffic signals and controls are in place prior to and during times of construction	For each construction site, a construction traffic management plan shall be prepared and submitted to the City for review and approval prior to the start of any construction work.	Less than significant
TRA 2	To adequately control traffic to ensure compliance with all local and state safety standards and specifications	A site-specific construction worksite traffic control plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas. Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
TRA 3	To reduce traffic congestion	Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on re-striped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when absolutely necessary.	Less than significant
TRA 4	To protect pedestrian and recreational traffic	Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.	Less than significant
TRA 5	To ensure ingress/egress to all properties adjacent to the project and surrounding areas	Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.	Less than significant
TRA 6	To avoid impacts to public transportation	Coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.	Less than significant
		Cultural Resources/ Paleontology	
CR 1	To avoid impacts to areas where cultural resources are known to exist	A qualified cultural monitor shall be on site in areas of known cultural finds where grading is to occur.	Less than significant
CR 2		When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented;	Less than significant
CR 3	In the event of the discovery and subsequent recovery of fossil remains	A qualified monitor should halt construction temporarily while remains are analyzed prior to resuming construction.	Less than significant
CR 4	At CA-LAN –66 location	Monitor all construction in the vicinity of the CA-LAN-66 site located in Vista Del Mar by an Archaeologist qualified to recognize and assess both prehistoric and historical resources	Less than significant
CR 5	If new discovery is encountered	Develop a contingency plan for addressing unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings	Less than significant
CR 6	If significant cultural resources are found during construction	Those significant cultural resources found shall be recovered from the project site, curated by an archaeologist recommended by the city and offered to an area museum whose collection is available for the viewing by the public	Less than significant
PAL 1	The discovery of paleontology resources may be present in specific project areas where grading and other excavation activities are to occur	Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program during earth-moving activities at the project site.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
PAL 2		The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.	Less than significant
PAL 3		The paleontologist or monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary.	Less than significant
PAL 4		Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.	Less than significant
PAL 5		All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.	Less than significant
PAL 6		Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to commence.	Less than significant
Geology/Soils/Seismicity			

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
GEO 1	Project improvements would be subject to earthquake ground shaking	The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum.	Less than significant
GEO 2	Liquefaction and differential seismic settlement may occur on the project	Design and construction of the proposed project will include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline.	Less than significant
GEO 3	Subsidence may occur to the project area	Design and construction of the proposed project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or construction the pipeline in a "wet" excavation.	Less than significant
GEO 4	Methane gas may be detected along the project alignments	Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary.	Less than significant
GEO 5	Tsunami could strike the project area	To mitigate erosion of surficial soils covering the proposed pipeline in the event of a tsunami, proper design and construction of the project components could include erosion control measures or choosing an alternate alignment off of the beach.	Less than significant
		Hazardous Waste and Materials	
HAZ 1	Well abandonment may occur in the marina channel areas and in various alignment areas	For any wells that may need to be re-abandoned, well abandonment should be done in accordance with applicable regulations; other subsurface structures may be encountered during development work. The soils may contain methane or other gases from previous oil well field development. Site chemicals must be handled and disposed in accordance with applicable regulations. Hazardous materials would be used and waste generated during the construction and operation of the project.	Less than significant
HAZ 2	Employees may be exposed to hazardous materials during construction	Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.	Less than significant
HAZ 3	Storage of hazardous materials will occur on the project sites	As required in SWPPP and project specifications.	Less than significant
HAZ 4	Methane gas may be located in alignment areas where tunneling activity is to occur along the project alignment	A surface sweep is a method for measuring combustible vapors which may be emitted from the ground surface. When conducting the surface sweep, more attention can be taken in areas where underground gas would tend to exit the surface, such as at cracks in the ground.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
HAZ 5	Methane may be present along the project alignments	The City of Los Angeles Building Code requires that methane mitigation be implemented when construction occurs at these sites to ensure public safety. These measures include the installation of membrane barriers and vent piping as well as trench dams and electrical seal-offs for each of these properties.	Less than significant
		Hydrology/ Water Quality	
HYDRO/	Runoff may occur from the project site during construction activities	A SWPPP shall be submitted for review and approval. The SWPPP shall recommend interim and permanent improvements to existing drainage features to prevent uncontrolled runoff during construction and to accommodate any temporary increase in runoff associated with construction activities.	Less than Significant
WQ 1		Compliance with the SWPPP shall be demonstrated by obtaining a NPDES construction permit for all construction activities including clearing, grading, or excavation that result in the disturbance of at least 1-acre of total land area or activity which is part of a larger common plan of development of 1 acre or greater. Copies of said NPDES permit(s) and related SWPPP shall be available for inspection at the City and at the construction site prior to land disturbing activity. Total disturbance area includes the staging and material storage areas. Although this project may not total over one acre of actual disturbance area, because of the highly sensitive habitat areas within the project, a SWPPP should be a required mitigation element.	Less than Significant
HYDRO/ **WQ 2**	Dewatering discharge is expected to occur during the initial phase of pit construction	Hydraulic isolation of the pits can be accomplished by the contractor by various methods of his choice, including interlocking sheet pile walls, soil cement walls constructed with Deep Mixing Methods, or slurry diaphragm walls. Water removed from the pits will be discharged to the storm drain system after proper treatment in accordance with local regulations Solid particles will be removed by using sedimentation tanks and filtration. If petroleum contamination is encountered, free product, if any, will be skimmed off the surface and oil/water separators will be used to remove the remaining contamination. Granular activated carbon could be used to remove any dissolved organic or other contaminants. Alternatively, discharged water will be shipped to authorized vendors for treatment and disposal.	Less than Significant
		Noise and Vibration	
NOI 1	Construction noise levels that exceed city and county standards may be created during project construction activities.	All construction activities shall be limited to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. No construction or construction-related activities shall take place on any Sunday or national holiday.	Less than significant
NOI 2		Heavy trucks engaged in the removal of muck from tunneling operations off site via heavy trucks shall be limited to major arterial streets and away from residential roadways, to the extent practicable.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
NOI 3		All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for such type of equipment.	Less than significant
NOI 4		All mobile or fixed noise-producing equipment used on the project, and that is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.	Less than significant
NOI 5		The erection of temporary soundwall barriers shall be considered where project activity is unavoidably close to noise-sensitive receptors.	Less than significant
NOI 6		Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.	Less than significant
NOI 7		Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.	Less than significant
NOI 8		Construction site and haul-road speed limits shall be established and enforced during the construction period.	Less than significant
NOI 9		The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.	Less than significant
NOI 10		No project-related public address or music system shall be audible at any adjacent receptor.	Less than significant
NOI 11		The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.	Less than significant
NOI 12		The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.	Less than significant
VIB 1	Vibration may occur in the project area during construction activities	Installation of instruments throughout a sensitive building, to be used in monitoring and recording building behavior (movements, vibrations) due to adjacent tunneling activities.	Less than significant
VIB 2		Any physical, chemical or biological method, or any combination of such methods, used to increase the bearing capacity or decrease the permeability of soils under the foundation of existing buildings.	Less than significant
VIB 3		A specialized form of grouting used to compensate for movements and settlements caused by tunneling adjacent to or beneath existing buildings.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
Recreational Resources and Facilities			
REC 1	Construction-related activities may impact areas and facilities used by the public for sporting events and recreational activities	Provide advanced notice to the public, businesses, sports/ recreation groups and property owners indicating time and duration of non-use or partial use of facilities/areas to be impacted by construction.	Less than Significant
Visual/Aesthetics			
AES 1	Where impacts may not be directly mitigated, they may be offset by actions taken elsewhere to compensate for the loss of visual quality. It would be speculative to definitively list specific offsetting actions at this time.	The city shall consider landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly. The city shall consider screening from public view existing features, which are incongruous with the character of their surroundings (such as the VPP). The city shall consider creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking.	Significant short term

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11.0 RESPONSES TO COMMENTS

This section of the Final EIR includes comments received by the City of Los Angeles on the Draft EIR, and responses to these comments. The comments include both written comments received by the City and oral comments presented to the City at a public hearing on the Draft EIR held on February 23, 2006. As required by the California Environmental Quality Act (CEQA), responses to comments are provided for the written and oral comments received by the City.

A complete list of commenting public agencies and private individuals is provided below. Written comment letters and comments made during the public comment meeting on the Draft EIR are provided in Sections 11.3 and 11.4 of this Chapter. Section 11.3 provides copies of all written letters submitted to the City, and Section 11.4 provides a complete transcript of the public hearing conducted by the City on the EIR. Written responses to the comments are provided in Section 11.5 of this Chapter (see page 11-100).

11.1 LIST OF PUBLIC AGENCIES AND INDIVIDUALS PROVIDING WRITTEN COMMENTS

STATE AGENCIES

Department of Transportation ..... Page 11-9
District 7, Regional Planning
IGR/CEQA Branch
Attn: Cheryl J. Powell
100 Main Street, MS #16
Los Angeles, CA 90012-3606
Letter dated: 02/22/06

California Coastal Commission ..... Page 11-10
South Coast Area Office
Attn: Pam Emerson
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302
Letter dated: 03/16/06

LOCAL AGENCIES

County of Los Angeles ..... Page 11-13
Department of Public Works
Attn: Ms. Clarice Nash
900 South Fremont Avenue
Alhambra, CA 91803-1331
www.ladpw.org
Letter dated: 03/15/06

PRIVATE INDIVIDUALS

Brett W. Hawkins, Jr. ..... Page 11-14
President & Founder
Global Gaming League
brett@ggl.com
Letter dated: 02/09/06

Carol Kapp ..... Page 11-15
127 Rees Street
Playa Del Rey, CA 90293
Letter dated: 02/20/06

Gene Haberman..... Page 11-19
genehabe@yahoo.com
Later dated: 03/04/06

John B. Kilroy ..... Page 11-20
5306 Pacific Ave.
Marina Del Rey, CA 90292
JBKMDR@AOL.COM
Letter submitted: 03/14/06

Attachment 1 to John B. Kilroy Letter ..... Page 11-23
Marina Peninsula Neighborhood Association
Attn: Lowell Safire
11 Mast Street
Marina Del Rey, CA 90292
Letter dated: 04/09/03

Attachment 2 to John B. Kilroy Letter ..... Page 11-26
John S. Perkins
5209 Ocean Front Walk #101
Marina Del Rey, CA 90292
Letter dated: 11/27/02

Don Hollands..... Page 11-29
6400 Pacific Ave., #304
Playa Del Rey, CA 90293
don-hol@comcast.net
Letter dated: 03/16/2006

Mark Van Gessel, P.E. ..... Page 11-31
vangessel@comcast.net
Letter dated: 03/16/06

COMMENT CARDS FROM PUBLIC MEETING
Madeline Dinonno ..... Page 11-49
Comment dated: 02/23/06

Susan Papadakis ..... Page 11-50
Grass Roots Venice Neighborhood Council
Los Angeles, CA 90291
Comment dated: 02/23/06

Phil Raider ..... Page 11-51
Grass Roots Venice Neighborhood Council
Comment dated: 02/23/06

FEBRUARY 23, 2006 PUBLIC MEETING TRANSCRIPT ..... Page 11-52

11.2 SUMMARY OF COMMENTS

Table 11-1, below, provides a summary of comments received from the public and private agencies on the adequacy of the EIR. Many of the comments relate to the same issue, although sometimes in different ways or with a slightly different emphasis. Nonetheless, there are redundancies or overlapping of the comments. In summary, the comments relate to forty-four (44) environmental issues described in Table 11-1. Responses to these comments are provided in section 11.5 and are presented and identified by the comment identification number shown in Table 11-1.

Table 11-2 notes the comment issue areas raised in the eleven (11) written responses received by the City from public agencies and the general public. Finally, Table 11-3 notes comment issue areas raised in the oral and written comments received by the City at the February 23, 2006 public hearing. Tables 11-2 and 11-3 show that many letters and oral comments addressed the same issue: for example, three written letters commented on construction-related parking impact, which is comment "CON-1"; this issue was also raised by two people at the public hearing.

Table 11-1: Comments on Draft EIR

Comment ID	Comment Name	Comment Description
ALGN-1	Preferred Alignment - Beach	The beach alignment of the project is preferred because it is the least disruptive to local residents.
ALGN-2	Preferred Alignment - Non-beach	The beach alignment of the project is not preferred because of potential environmental impacts to the coast.
ALT-1	Alternative - No Project Analysis	The no-project alternative is preferred because it would limit development and growth.
ALT-2	Alternative - New Alternative	The EIR should consider additional alternatives.
ALT-3	Alternative - Alternative Bias	The City has a bias for the Pacific Avenue alignment, and an independent review is necessary.
ALT-4	Alternative - New Beach "Cut and Cover"	Consider a new beach "cut and cover" alternative.
AQ-1	Air Quality - Odor	Will the project cause sewage odors?
BIO-1	Biology	What are the construction-related impacts to biological species such as the El Segundo Blue Butterfly, Least Tern, and California Brown Pelican?
CLI-1	Climate Change	Rising sea level and beach erosion need to be addressed.
CON-1	Construction - Parking	Where will construction equipment be parked during construction of the project?

Comment ID	Comment Name	Comment Description
CON-2	Construction - Schedule	Can the project construction schedule be met?
CON-3	Construction - Traffic	Which streets will be closed and how will traffic be impacted due to construction? Specifically, will the intersection of Pacific and Via Marina be closed during construction?
CON-4	Construction - Beach access	How will construction of the project impact beach access?
CON-5	Construction - Timing	What is the construction schedule and how much time will it take for project completion?
CON-6	Construction - Noise	What are the noise impacts due to construction?
CON-7	Construction-Management	How will construction practices and mitigation measures be enforced? Can financial penalties be imposed if the construction contractor fails to implement the mitigation measures?
CON-8	Construction - Vibration	What are the vibration impacts due to construction?
CON-9	Construction - Trench Covering	Add a “bullet item” requiring trench covering during construction of pipeline.
EIR-1	EIR - Recirculation	Recirculation of the EIR has been requested due to lack of sufficient analysis.
EIR-2	EIR - Extend Review Period	The review period for the EIR should be extended because of insufficient time to review the document.
EIR-3	EIR - Piecemeal CEQA Analysis	This is a piecemeal CEQA analysis of a larger project: 3-4 story development in Venice.
EIR-4	EIR - Mitigation Measures	Do not allow “or equivalent” mitigation measures.
EMG-1	Emergency Access	During construction of the project, how will emergency services be provided given street closures and construction on streets?
FLD-1	Flooding	How will the project handle storm water and other flooding events?
GEO-1	Geology - Settling/ Dewatering	Construction of the project may result in on- or off-site landslides.
GEO-2	Geology - Liquefaction	The project is being constructed in an area where liquefaction may occur.
GEO-3	Geology - Seismic	Seismic events may impact the project.
GRWTH-1	Growth Inducing Impacts	How will the project induce growth in the local area?

Comment ID	Comment Name	Comment Description
GRWTH-2	Growth Inducing Impacts - Hyperion Plant	Can the Hyperion Plant handle the increased flows of the sewer line in addition to the large expansive housing projects that the City continues to approve?
NOI-1	Noise - Noise Curtain	Provide more specificity concerning the noise curtain mitigation measure.
NOI-2	Noise - New Mitigation Measure	Suggest new Noise mitigation measure, NOI-10, for Pacific Avenue project alignment.
OS-1	Open Space – Mitigation	Dedicate City owned drill site for public open space.
PRMT-1	Permitting	Several permits are necessary to proceed with the Pacific Avenue alignment.
PROJ-1	Project Related - Project Life	What is the lifespan of the project, and when will renovation of the project be required?
PROJ-2	Project Related - Capacity of Force Main	Is the pipeline adequate to serve the projected population?
PROJ-3	Project Related - Sewage Spill Plans	Will the project include plans for shutdown and containment in the event of sewage spill?
PROJ-4	Project Related - Sewer Capacity	Will the project release untreated sewage into the ocean during heavy rain?
PROJ-5	Project Related - Project Updates	Regular community updates of the project status are requested.
PROJ-6	Project Related - Safety	Which project alternative is the safest over the long-term?
PROJ-7	Project Related - Project Cost	Request more detailed project and alternatives cost information.
PROJ-8	Project Related - Impact to County Facilities	The project has the potential to impact Los Angeles County facilities.
TAX-1	Tax Reduction	Request tax reduction for property owners who are affected by project.
TRA-1	Traffic Impacts	Construction of the proposed project will cause disruption to the traffic flow in the area.
WQ-1	Water Quality	Is the pumping plant sending untreated sewage into the ocean; and will the plant adversely affect groundwater supply?

Table 11-2: Comment Letters

	CA. Dept. of Transportation (2/22/06)	CA. Coastal Commission (3/16/06)	County of L.A. Dept. of Public Works (3/15/06)	Perkins, John (11/27/02)	Marina Peninsula Neighborhood Assn. (4/9/03)	Kapp, Carol (2/20/06)	Haberman, Gene (3/7/06)	Kilroy, John (3/14/06)	Hollands, Don (3/16/06)	Van Gessel, Mark (3/16/06)	Van Gessel, Mark (Report)
ALGN-1					●	●		●	●		●
ALGN-2		●									
ALT-1											
ALT-2				●	●					●	
ALT-3					●						
ALT-4											
AQ-1											
BIO-1		●									●
CLI-1		●									●
CON-1						●			●		
CON-2									●	●	
CON-3										●	
CON-4		●									
CON-5		●									
CON-6									●		●
CON-7								●	●		
CON-8										●	
CON-9										●	
EIR-1											
EIR-2										●	
EIR-3											
EIR-4											
EMG-1										●	
FLD-1											
GEO-1						●				●	●
GEO-2		●				●		●		●	●
GEO-3											●
GRWTH-1									●		
GRWTH-2									●		
NOI-1										●	
NOI-2										●	
OS-1											
PRMT-1	●										●
PROJ-1		●									
PROJ-2							●			●	
PROJ-3		●									
PROJ-4										●	
PROJ-5						●					
PROJ-6								●			
PROJ-7										●	
PROJ-8			●								
TAX-1											
TRA-1								●			
WQ-1		●									

Table 11-3: Public Meeting Comments

	Dinonno, Madeline (Written Comment)	Papadakis, Susan (Written Comment)	Raider, Phil (Written Comment)	Audet, DeDe (Oral Comment)	Hanscom, Marcia (Oral Comment)	Kapp, Carol (Oral Comment)	Krauch, Bob (Oral Comment)	Sharkey, Dan (Oral Comment)	Van de Hoek, Roy (Oral Comment)	Van Gessel, Mark (Oral Comment)
ALGN-1			●							●
ALGN-2										
ALT-1									●	
ALT-2									●	
ALT-3										
ALT-4						●				
AQ-1										●
BIO-1					●				●	
CLI-1										
CON-1	●					●		●		
CON-2										●
CON-3	●									
CON-4										
CON-5										●
CON-6								●		●
CON-7								●		●
CON-8										●
CON-9										●
EIR-1					●	●				
EIR-2										
EIR-3									●	
EIR-4										●
EMG-1										
FLD-1				●						
GEO-1						●				●
GEO-2					●					
GEO-3										
GRWTH-1					●				●	
GRWTH-2										
NOI-1										
NOI-2										
OS-1					●					
PRMT-1										
PROJ-1							●			
PROJ-2				●						
PROJ-3										
PROJ-4							●			
PROJ-5		●				●				
PROJ-6							●			
PROJ-7										
PROJ-8										
TAX-1						●				
TRA-1										
WQ-1										●

11.3 *Annotated Letters Received by the City on the Adequacy of the EIR*

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, REGIONAL PLANNING
IGR/CEQA BRANCH
100 MAIN STREET, MS # 16
LOS ANGELES, CA 90012-3606
PHONE: (213) 897-3747
FAX: (213) 897-1337

Flex your power!
Be energy efficient!

IGR/CEQA No. 060208AL, DEIR
IGR/CEQA No. 030308AL
Venice Pumping Plant Dual Force Main
Vic. LA-01 / PM 30.16
SCH#: 2003031001

February 22, 2006

Mr. James E. Doty
Los Angeles Bureau of Engineering
200 N. Spring Street, M165
Los Angeles, CA 90012

Dear Mr. Doty:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. This is a wastewater conveyance project to increase the capacity of the City's sanitary sewer system by placing a new sewage pipeline in parallel with the existing force main that conveys flow from the Venice Pumping Plant to the Hyperion Treatment Plant.

Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful that projects need to be designed to discharge clean run-off water. WQ-1

Any transportation of heavy construction equipment and/or materials which requires the use of oversized-transport vehicles on State highways will require a Caltrans transportation permit. We recommend that large size truck trips be limited to off-peak commute periods. In addition, a truck/traffic construction management plan is needed for this project. Thank you for the opportunity to have reviewed this project. PRMT-1

If you have any questions, please feel free to contact me at (213) 897-3747 or Alan Lin the project coordinator at (213) 897-8391 and refer to IGR/CEQA No. 060208AL.

Sincerely,

Cheryl Powell

CHERYL J. POWELL
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

"Caltrans improves mobility across California"

STATE OF CALIFORNIA - THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION

South Coast Area Office
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302
(562) 590-5071

March 16, 2006

Jim Doty
City of Los Angeles
Bureau of Engineering
Department of Public Works
650 South Spring St.
Suite 11000
Los Angeles, CA 90014-1918

Subject: Draft EIR, Venice Pumping Plant Dual Force Main Project 2003031001

Dear Mr. Doty,

Staff of the California Coastal Commission would like to provide the following initial comments on the Venice Pumping Plant Dual Force Main Project. The project would replace an existing sewer main that connects the existing Venice pumping plant at Hurricane Avenue and the Grand Canal with the Hyperion Treatment Plant. The City has provided three alternative routes and three alternative methods of construction. The staff provided comments on the initial study several years ago. We understand that the various routes could be combined if the City found a combination of two routes would have less environmental impact.

In general, the staff agrees with the City's assessment of the risks and potential impacts of the various routes, with one exception. Placement of a major sewer line on the beach raises significant issues because, in a situation of rising sea level and increased coastal erosion, the sewer line could, in a few years be attacked by waves and require a revetment or other coastal protection structure. Section 30253 of the Coastal Act requires that new development shall minimize risks to life and property in areas of high geologic, flood and fire risk. New projects must be able to demonstrate that they have minimized risks over the foreseeable life of the development, which, for public works projects can be at least 30 to 40 years. During the next 30 to 40 years a combination of beach erosion and rising sea levels could result in the proposed line being within the wave run up zone and at great risk from both flooding and erosion hazards. Also, the Commission has found it becomes more and more difficult to establish new utility corridors through upland areas. As a result, even though the proposed sewer line may have only a 30- to 40-year expected life, the corridor itself may have a much longer expected life. Use of the beach route now, without any future plans to develop safer routes in the future, may greatly reduce options for safe and efficient management of sewer service in the future. ALGN-2

The City's assessment of the various routes needs to consider the safety of the sewer line under the worst case conditions that can be foreseen for the proposed sewer line. For the beach route, that would be a 100-year storm event (similar to the 1982-83 storms, or the 1988 storms), occurring when the beach is eroded due to both seasonal beach loss and long-term erosion, and when the oceanic conditions are most conducive to wave impacts and scour (a combination of high tide, atmospheric forcing and long-term sea level rise). Since the long-term beach change has been influenced of historic beach nourishment, the beach conditions should be extrapolated for both conditions of continued beach CLI-1

Venice Pumping Plant Dual Force Main Project Draft EIR Comments
Page 2 of 3

nourishment and conditions of no additional nourishment. Key points of vulnerability to the line should be considered, such as the higher elevation portions of the line, the channel crossing and transitions to the crossing, and situations where the line may have little or no flow and thus could be excessively buoyant. Also, the sewer line is a critical facility and it should be examined for risk from some extreme events, such as a tsunami with drawdown that would likely be focused in the channel area. CLI-1

In addition to potential risks from beach erosion, staff would want the EIR to consider fully the following potential impacts that can result from construction, maintenance, or routine operation:

1) Impacts on beach access. The three proposed routes are along roads that are used for beach access or are located on the beach. Several staging areas are located on the sand or in the case the Marquesas/Via Marina route on a public parking lot. Methods of construction which require long term closing of beach access routes or occupancy of recreation areas will reduce the ability of the public to get to the beach. The beach and recreation areas in question are: CON-4

a) Dockweiler State Beach (both north and south of the Marina Entrance channel)
b) The County parking spaces adjacent to the Marina Entrance Channel at the southern ends of Pacific Avenue and Via Marina.
c) County Parking Lot 13 located on Via Marina.
d) Pacific Avenue in both Venice and Playa del Rey
e) Vista del Mar Boulevard, which provides principal access to Dockweiler State Beach.

2) Impacts on the Least Tern nesting colony. The staging area shown for the Venice Beach small diameter tunnel is located close to the Least Tern nesting area. We would be concerned about impacts of noise and foot traffic on this site. BIO-1

3) Visual and noise impacts during construction. While such impacts are temporary, the level of impact varies among the methods chosen for construction and the location of the route chosen. The Marquesas/Via Marina route would have little impact on beach views or on major public access routes. All of the alternatives in Playa del Rey would have impacts. The tunneling alternatives would seem from your analysis to have the least impact on beach access routes. CON-6 CON-7

4) Water quality impacts can potentially occur with any major construction project; it will be necessary to design and schedule the project to minimize potential water quality impacts, require the use of Best Management Practices as well as to impose strict mitigation measures. WQ-1

5) All three routes would traverse liquefiable soils. This geologic hazard needs to be considered in the analysis of all route and construction alternatives. GEO-2

Venice Pumping Plant Dual Force Main Project Draft EIR Comments
Page 3 of 3

6) Plans for shut-off and containment in the event of a sewerage spill should be provided for each proposed route. Special care should be taken for the channel crossing, areas less than 100 feet from Ballona and Del Rey Lagoons, and with the entire beach route. PROJ-3

7) There is some finite life to all sewer projects. There should be some consideration in the EIR as to the eventual disposal of the sewer line once it reaches the end of its economic line. While staff is not recommending the beach route alternative, should the City choose this alternative, there should be some identified triggers that would provide sufficient time to plan, finance and construct a replacement line before the beach line would be threatened. Triggers indicative of a future need to replace the line or to install shore protection to avoid damage from wave attack include beach width change, increased damage during storm conditions, or back beach elevation changes. PROJ-1

Some of the impacts may be mitigated either by locally imposed mitigation measures, or by special conditions imposed by local government or the Coastal Commission. However, coastal staff would urge the City to chose a route and a construction method that 1) avoids the beach, 2) minimizes disruption of public access to and use of the beach and other coastal recreation resources, 3) and does not disturb the Least Tern nesting area during nesting season (mid-March to late August). ALGN-2

When the final project is submitted to the Commission for a coastal development permit, the staff will undertake a more through analysis, and if necessary, impose special conditions to assure its consistency with the California Coastal Act. Thank you for allowing us the opportunity to comment on this project at the early stages of planning.

Sincerely

Pam Emerson
Los Angeles Area Supervisor

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

DONALD L. WOLFE, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
www.ladpw.org

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

March 15, 2006

IN REPLY PLEASE
REFER TO FILE: LD-0

Mr. James E. Doty
City of Los Angeles
Public Works Engineering
c/o Public Affairs Office
200 North Spring Street, Room M165
Los Angeles, CA 90012

Dear Mr. Doty:

REVIEW OF DRAFT ENVIRONMENTAL IMPACT REPORT
VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
CITY OF LOS ANGELES

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) for the Venice Pumping Plant Dual Force Main project. Based on the DEIR, this project has the potential to impact Los Angeles County facilities. Specifically, we are concerned that two of the proposed alignments could have significant construction related impacts to County residents, roadways, and facilities. Public Works recommends considering the Pacific Avenue alignment as the preferred alignment since it creates the least amount of impact to the County. PROJ-8

Also, it should be noted that any operational impacts to the County infrastructure will need to be reviewed and permitted by Public Works.

If you have any questions regarding these comments, please contact Ms. Clarice Nash at (626) 458-5910.

Very truly yours,

DONALD L. WOLFE
Director of Public Works

ROSSANA D'ANTONIO
Assistant Division Engineer
Land Development Division

CRN:jmwP:\CEQA\CLARICE\VENICEPPDEIR

From: Brett Hawkins <brett@ggl.com>
To: <environment@eng.lacity.org>
Date: Thu, Feb 9, 2006 11:36 AM
Subject: Venice Duel Force Main

I³m all for getting this overflow and repair problem fixed!

Thanks,

Brett W. Hawkins Jr.
President & Founder
Global Gaming League
+1 310 828 5252
²Stop Playing With Yourself!²
www.GGL.com

127 Rees Street
Playa del Rey, Ca. 90293
Feb. 20, 2006

Dear James Doty, Environmental Group
L A City Public Works

Re: Venice Pumping Plant Force Main Project EIR

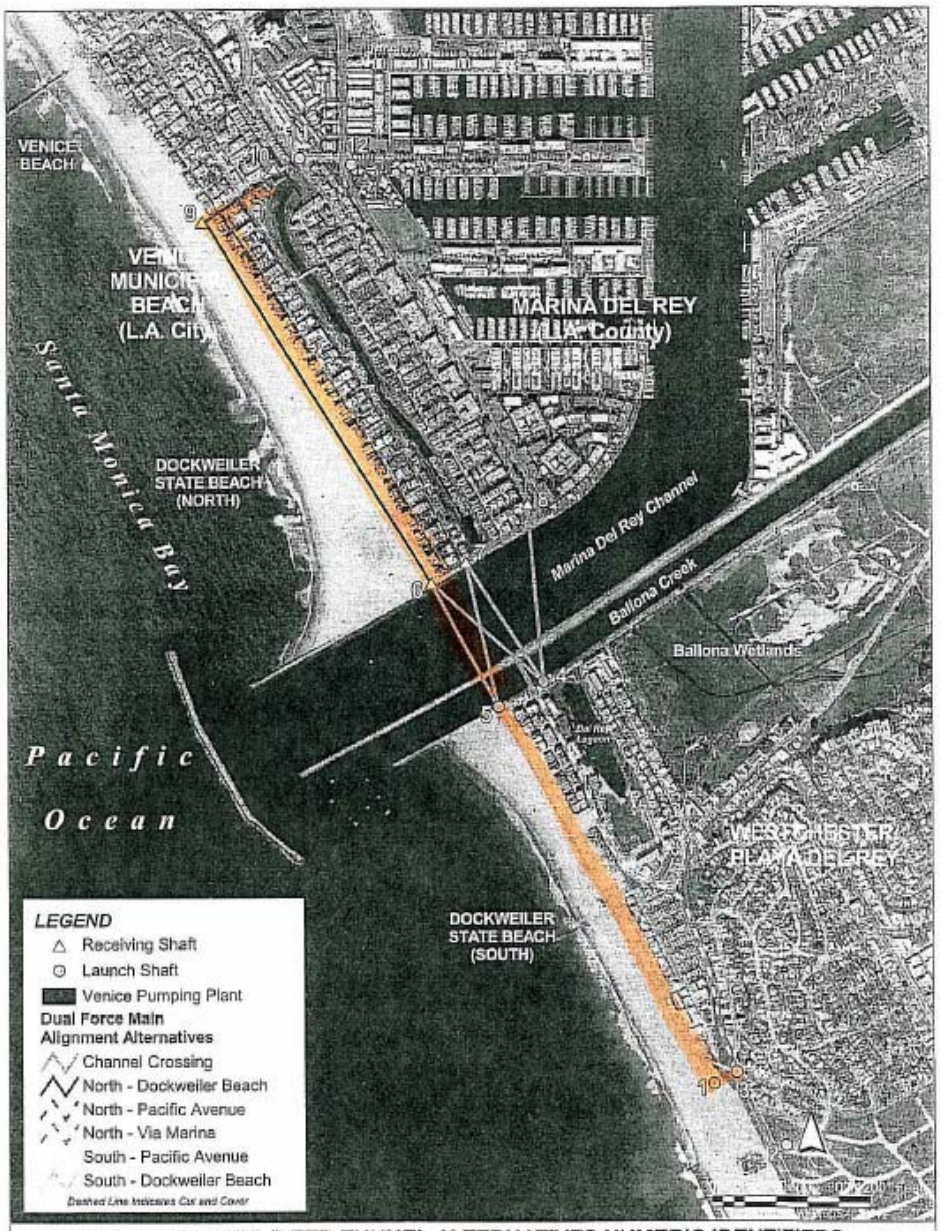
I want to compliment you and the staff. I have read the entire EIR . You were very thorough!!

I am supporting the route which I believe is described,in the EIR,but I feel that it should be put in writing so that there is no confusion. Using Fig. 6.3-1 I want to support the most straight forward way to complete the project. Begin at # 11 go west to #10, west to # 9 and south to #6 cross under Marina channel , under Ballona Creek to #5 continue on the beach tunneling to #1 east to #3 south to #2 and tie into Hyperion plant.

The route I support would use the Lay down areas to store equipment in the existing parking area adjacent 62nd Ave. and the parking east of Pacific in the Lagoon area.

The Lagoon and Jungle areas of Playa del Rey can not FUNCTION If the roads are reduced. Using the beach for tunneling will disrupt the least of local Residents. We all lived with the Thompson Pumping Plant Fiasco in 1998!!!! We can not and will not live with or through another Public Works Project that is not neighborhood friendly. We come before the Least Tern or any other bird or lower species!!! ALGN-1

The original 1958 pipe is laid in the beach. The new pipe can be laid next to or in close proximity employing tunneling or open trench method. Traffic disruption would be of a minimum. The Dockweiler(North and South) Alignment would eliminate traffic and parking issues as described for the "Pacific And Vista del Mar" Inland route. The residents should not have to live with the negative



MICRO-TUNNEL/DEEP-TUNNEL ALTERNATIVES NUMERIC IDENTIFIERS

URS | Project No.: 29870322 | Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR | Figure 6.3-1

impacts associated with a project of this magnitude. Please put the project on the beach for as much as is possible.

By using the beach route, the pipes can be tied together for future use. As the demand increases, both pipes can be used. If there is a big storm, the old pipe can be used so that "nasty" spillage does not wash down our beaches. ALGN-1

By using the beach route, the parking in the Lagoon would be preserved for those using the Park, Basketball courts or Grand Parents attending Little League games, and residents who do not have a garage. Parking is at a premium and must be maintained at the current level.

Please note that we recognize the need for the project. We want to maintain the current quality of life. The ingress and egress for residents, businesses and LAPD and LAFD, and Lifeguards' equipment during the short 18-24 month project.
The beach route would be further away from the bluffs along Vista del Mar. Vibrations from equipment could trigger land slides. The hill properties to the immediate east of Vista del Mar and those in the Jungle to the immediate west of Vista del Mar appear on the City Earthquake maps as being in a liquification zone. The project could potentially result in on or off site slides, lateral spreading, liquification or collapse. Good planning and engineering can not predict a land slide. The La Conchita, in Ventura, 2005 and The June, 2005, Blue Bird Canyon ,La Guna Beach Slides give us all reason to pause and Plan very carefully. Planning is the key. Does The City have enough Liability Insurance to cover similiar happenings??? The seismic shaking and vibrations would be greatly reduced if the Beach route were used. GEO-1 GEO-2

Throughout the EIR there were references to moving equipment and workers. Arrangements could be made with LA City for workers to park at empty areas along Pershing or open the section of Sandpiper that was shutoff after the 2001 Terrorists attacks. The Sand Piper area could be used for parking and a shuttle bus could run employees as needed. LA County operates parking on the west side of Vista del Mar slightly south of Waterview-Napoleon. There are CON-1

County lots inthe Marina that could be used for workers. The parking in Venice, Marina and Playa del Rey is precious. Careful Consideration should be given to ways to preserve parking in all areas affected!!!! CON-1

To make it very clear----The Jungle is a high density residential area. The parking area located westerly adjacent Vista del Mar, f rom Montreal South to Surf Alley can not be used in any manner at any time during this project. This area allows Beach access for visitors during the day and provides residential parking in the evening.

I would like to suggest that this Project have an ongoing update bi-weekly in The Argonaut Newspaper.
This is a local free paper that is widely read in the affected area. Additionally, Before the Project really starts, A community meeting should be held at the Council office at night and so that the last minute changes could be made public. The LAPD, LAFD, Lifeguards, and local hospital should be invited. PROJ-5

Representatives of West Beach Playa del Rey Property Owners Association will be available to meet with you at night with some notice.

Lastly, Contingency plans must be in place so that our Community does not live through a repeat of the Thompson Pumping Plant fiasco. The City owes this neighborhood a well planned project without any glitches.

Sincerely,
Carol Kapp

Carol Kapp Property Owner, Board of directors WB PdR POA

From: Gene Haberman <genehabe@yahoo.com>
To: <environment@eng.lacity.org>
Date: Tue, Mar 7, 2006 5:20 PM

Dear Mr. Doty,

I am a Marina del Rey resident involved in reviewing a Draft EIR on the Shores Project proposed to be built on Via Marina, North of Marquesas Way. Over 300 additional resideential units are being proposed. It is part of over 2000 residential units now being build or in the planning cycle on the west side of the Marina. Are these units served by the Venice Pumping Plant?

GRWTH-1

If they are served by the VPP is there enough capacity. The reason for my concern is the information you furnished regarding the proposed Venice Pumping Plant Dual Force Main Sewer appears to indicate that the sewer system is over capacilty during wet weather. Therefore you are proposing to add a sewer to ensure continuous safe flow during projected wet weather and to help prevent sewer spillage onto city streets and adjacent surface waters. Based on information from your office, the sewer would be completed in 2011. The Shores Project, if approved, would begin occupancy in 2008. Some of the other additional residential units are currrently under construction.

Please answer this inquiry at your earliest convenience. The Shores Project is in the Regional Planning Commission hearing process.

Thanks you.

Sincerely,

Eugene Haberman

Marina del Rey

JOHN B. KILROY

March 14, 2006

Attn: James E. Doty
City of Los Angeles
Department of Public Works Bureau of Engineering
c/o Public Affairs Office
200 N. Spring Street
Room M165
Los Angeles, CA 90012

Re: Draft EIR – Venice Pumping Plant Dual Force Main

The matter of this Dual Force Main has previously been discussed with the Department of Public Works in writing and verbally in the 2002 and 2003 period – during public hearings and private meetings.

We call to your attention such correspondence which should be on file with the City of Los Angeles Department of Public Works and also enclose letters from Marina Peninsula Neighborhood Association to the following dated April 9, 2003:

- Mr. Christopher Westhoff, City Attorney's Office, City of Los Angeles
- Councilwoman Cindy Miscikowski, City of Los Angeles, District 11
- Mr. Vitaly Troylan, City Engineer, City of Los Angeles
- Commissioner Ronald Low, Dept. of Public Works, City of Los Angles
- Russell Ruffing, Department of Public Works, City of Los Angeles

These letters and other letters from Marina Peninsula Neighborhood Association and the undersigned, John B. Kilroy, provided foundational documents, facts and objections to installation of such a Dual Force Main on Pacific Avenue.

5306 PACIFIC AVE.
MARINA DEL REY, CA 90292
JBKMDR@AOL.COM

A current review of Pacific Avenue shows the following additional facts which would have tremendous impact upon construction cost, construction time, traffic flow and the standard of living and convenience of all owners and renters within the area from the Canal to the Ocean Beach.

The count of driveways which enter off Pacific Avenue to single-family or multi-family residence totals 38.

The count of streets which enter Pacific Avenue between Galleon Street to Via Marina totals 18. These streets serve hundreds of more driveways which primarily are multi-family home driveways and the driveways on Pacific Avenue represent residences with underground sewer, water, gas, cable and other services, all of which interfere with rapid construction, substantially increasing cost of such a Dual Force Main.

Pacific Avenue is the primary access street to Speedway, which also serves hundreds of residences, garages and related parking with underground installation. ALGN-1 TRA-1

Pacific Avenue is a loop access road to Washington Boulevard and Via Marina for busses, school busses, trucks, service vessels and cars, heavily used during daylight hours.

A review and study of the impositions and traffic flow will significantly interrupt access and living conditions should construction be considered on Pacific Avenue, as well as substantially increasing cost and construction time.

Neither the Via Marina proposed site nor the proposed beach installation impose such adverse or costly installation upon the residents and upon the construction itself for such a lengthy time as Pacific Avenue.

There are virtually no obstructions to rapid and low-cost construction, nor is there such a serious potential and likely problem of liquefaction as there is on Pacific Avenue. GEO-2

Contrary to prior presentation by a consultant to the City, the width of the beach at this area for a sewer line has been accretive for many years since installation of the breakwater and erosion is highly unlikely. Environmentally, there should be only a temporary construction impact, much less than the Pacific Avenue site.

5306 PACIFIC AVE.
MARINA DEL REY, CA 90292
JBKMDR@AOL.COM

The Via Marina site is also a highly favorable site as compared to Pacific Avenue, a short tunnel under the canal, a short distance on Via Dolce, then along the south two-lane of a four-lane divided roadway with no driveways to multi-family dwellings, and little, if any, sewer connections, water lines, telephone, gas or other lines obstructing rapid and low-cost construction along the south side of Via Marina.

Traffic management on the Via Marina four-lane divided roadway is relatively easy, particularly in view of the lack of driveways, garages, and utilities obstructive to high speed construction.

It is simply illogical, structurally unsafe, with a high increase of cost in money and time to consider Pacific Avenue as a site for the Venice Plant Dual Force Main. PROJ-6

All of this is aside from the tremendous imposition upon living and environmental conditions during construction of Pacific Avenue if selected as the construction site. CON-7

Sincerely,

John B. (Jim) Kilroy

Encl.

cc: *Mark VanGessell*
Commissioner Ronald Low, Dept. of Public Works
Cindy Miscikowski, City of Los Angeles District 11
John S. Perkins
Russell Ruffing, Bureau of Engineering
Al Sackler
Lowell Safire, MPNA President
Vitaly Troyan, City Engineer
Christopher Westhoff, City Attorney

5306 PACIFIC AVE.
MARINA DEL REY, CA 90292
JBKMDR@AOL.COM

Marina Peninsula Neighborhood Association

April 9, 2003

Mr. Vitaly Troyan, City Engineer
Lead City Agency
City of Los Angeles
Bureau of Engineering
650 S. Spring Street, Rm 574
Los Angeles, CA 90014
Attn: Russell Ruffing

Re: Venice Pumping Plant -Dual Force Main
1. CEQA – Notice of Preparation
2. Initial Study – Article IV Letter dated Feb. 25, 2003
3. Attachment – Issues: Pages 5 –17 inclusive

Dear Mr. Troyan:

We have received the attached documents and have studied the City's proposed responses to the Issues Section in detail.

Proposed Routes for EIR
To date, we are aware of five proposed locations for the construction of the Venice Pumping Plant Dual Force Main. These are listed below with the source of the information:

Community News Bulletin – October 2002

1. Pacific Avenue Alternative – Preferred by the City and apparently the subject of considerable effort by the Public Works Department having prepared detailed and possibly final plans for placement. Also, the route used as the basis of the Initial Study baseline dated 25 February, 2003.

2. Beach Alternative – Alignment near the existing Force Main on Venice Beach. Apparently rejected by the City due to some potential Coastal Commission requirements. This route is preferred and supported by numerous local residents.

Community Meeting at the Marriott Hotel – 15 October 2002

3. Alternative #1 – Presented in a vu-graph presentation as a route around the Marina staying completely on Los Angeles City right of way. Rejected by the Public Works Department as technically unsound due to pressure drops in the sewer line without the construction of additional pump stations.

4. Alternative #2 – Presented in a vu-graph presentation as a route second route around the Marina staying completely on Los Angeles City right of way. Rejected by the Public Works Department as technically unsound

11 Mast Street
Marina del Rey, CA 90292

Mr. Vitaly Troyan
Page 2 of 3

due to pressure drops in the sewer line without the construction of additional pump stations.

Letter to Commissioner Low from John Perkins – 27 November 2002

5. Via Marina Alternative – Proposed as a solution that would be less disruptive to Marina traffic, may be shorter in total length, would allow more rapid completion, and possibly less expensive.

We believe another location should also be considered. That the proposed force main be constructed by micro tunneling below the right of way of the Ballona Lagoon Canal. The canal is immediately adjacent to the pumping plant and extends to the Marina del Rey Channel.

We believe that either the beach location or the canal location provides the least disruptive location, the safest locations; and the most environmentally sound locations, and the lowest cost locations. Further, that the Via Marina location is the third most responsible location and the Pacific Avenue location is the most disruptive, the most costly, the worst environmentally, as well as exposing the City to the greatest potential for serious ongoing liability in connection with vibration damage to homes and other issues.

For the purpose of the Initial Study, we believe that the staff should be directed to prepare the study around four of the above named routes. These are:

1. Ballona Lagoon Micro Tunnel Alternative
2. Beach Alternative
3. Pacific Avenue Alternative
4. Via Marina Alternative

Impartial Objective Study

As we read the documents provided, it is obvious that the City has a strong bias toward the Pacific Avenue designed installation. It is also obvious that the answers provided are, in many cases, incorrect and misrepresented known facts.

The City has prepared final or near final plans for the Pacific Avenue Alternative. It is customary that the design team for such near final or final plans be restricted from involvement in the CEQA process due to the probability of bias towards their design.

We believe that such bias is clearly evident. We recommend a new team be assigned to complete the EIR.

We also recommend that a qualified independent Oversight Board be formed to assure that such bias does not continue.

Clarity of Initial Study Matrix/EIR Report

Further, it is impossible to set forth specifically related issues for each proposed location in the single format proposed by the City.

Mr. Vitaly Troyan
Page 3 of 3

A response by the City to specific issues for each of the four proposed locations should be provided. This is essential for an equitable determination of the respective benefits and liabilities for each location.
We have attached a marked up copy of the issues sections, which more clearly represents appropriate responses to the issues.

We again emphasize the importance of accuracy and facts and that a separate list of issues and responses should be prepared for each proposed location.

Recommendations
In summary, we request that you assure:

1. the routes to be studied are specifically identified
2. the assignment unbiased staff to prepare the EIR
3. Form an Independent Oversight Board to assure a bias free study
4. Prepare a specific issues study for each site

We look forward to your response. Thank you for your cooperation.

Sincerely,
Marina Peninsula Neighborhood Association

Lowell Safire, President

John B. Kilroy
5306 Pacific Ave.
MDR, CA 90292

Mark VanGessell

John S. Perkins

Al Sackler

cc: Cindy Miscikowski, City of Los Angeles District 11
Commissioner Ronald Low, Dept. of Public Works, City of Los Angeles
Russell Ruffing, Bureau of Engineering, Environmental Group, City of Los Angeles
Christopher Westhoff, City Attorney, City of Los Angeles

John S. Perkins

5209 Ocean Front Walk #101
Marina del Rey, CA 90292
(310) 301-8018

27 November 2002

Commissioner Ronald Low
City of Los Angeles
Board of Public Works
200 North Spring Street; Suite 361
Los Angeles, CA, 90012

RE: Venice Dual Force Main Project

Dear Commissioner Low:

The purpose of this letter is to make sure that you are aware that other reasonable alternatives exist for the Venice Dual Force Main Project other than those currently proposed and that the additional alternatives are explored prior to submission to the community for comment.

I am a Marina del Rey Peninsula community resident and attended the 15 October 2002 meeting held in the Marina del Rey Courtyard by Marriott Hotel. At the conclusion of that meeting I discussed another alternative with the City's Project Manager, Sean Zahed, in addition to the four alternatives he presented.

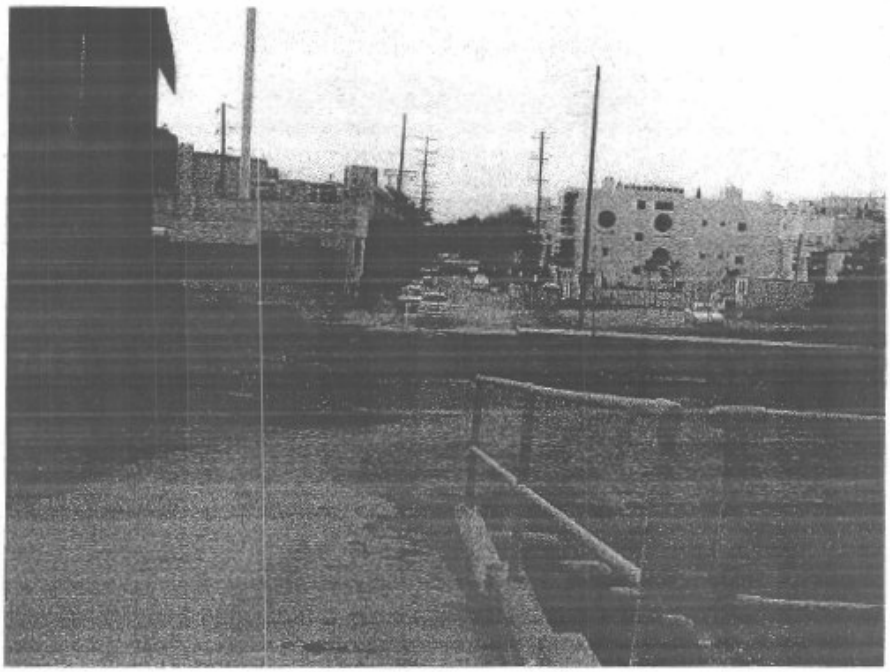
The Alternative (Reference Attachment 1)
Instead of exiting the existing pumping station and going west on Hurricane, I would suggest that the sewer line should go east, under the small canal and then cross Via Dolce and continue along Marquesas Way. It would then turn south and run under the west side of Via Marina to the channel. From there it could continue across and run on the east side of the currently developed area, or turn and follow either of the two plans presented for crossing the channel in this area.

While the construction along Via Marina would be on County right-of-way, instead of solely in the City, the County should be able to support this path since the sewer carries waste from the marina area (i.e. County property). Some of the benefits of this alternate route are:

- The disruption of traffic on the peninsula would be greatly reduced.
- Residences on the west side of Via Dolce do not front on the street. Access to the properties is from other streets, in contrast to the numerous residences on Hurricane and Pacific Avenue whose front doors and driveways are on the street.
- The divided roadway of Via Marina would allow the project to be accelerated while still allowing two way travel along the east side of the road while each of the four major sections of road were under construction. This area also affords alternative streets for residents to leave the area.

Attachment 2: View West across empty lot, small channel and down Hurricane. (Currently proposed route).

Venice Pump Station across channel on left.



Attachment 3: View East across Via Dolce down Marquesas Way.

From: "Don Hollands" <don-hol@comcast.net>
To: "Environment" <environment@eng.lacity.org>
Date: 3/16/2006 11:40:26 AM
Subject: Venice Dual Force Main

Venice Pumping Plant: Dual Force Main Project.

Observations:

The peak flows to the Venice Pumping Plant exceeding its capacity is a result of poor City planning; allowing large expansive housing developments prior to having the required infrastructure in-place.

All large expansive housing developments should be put on hold (stopped) until the infrastructure is in-place that can support the increased capacity they require. These large housing developers should provide significant funds with upfront payments to the City for expansion of existing infrastructure. Current tax-payers should only be responsible for repairing and maintaining original infrastructure. GRWTH-1 GRWTH-2

The proposed project for expanding the capacity of the pipeline will not resolve the larger problem; the Hyperion Sewerage Treatment Plant is currently unable to deal with the increasing capacity, which has already resulted in untreated waste being released into the sea in 'emergency situations'.

Comments:

1. Firstly, it is important to reconsider the benefits for existing residents and tax payers for a 'No Action Alternative'.

2. In the event that a second pipe line is installed; as a condominium homeowner, located on Pacific Ave., I favor the Dockweiler Beach alternative being used as the construction site for south of the Marina Inlet. This choice will reduce the impact and risks to both homeowners and properties. The Draft EIR understates the impact and the major risk to properties, which is the potential for damage to property foundations e.g. impacts, subsidence, and vibration. The Dockweiler Beach alternative reduces health hazards, dust, etc. and the potential interruption of utility services, which occurs when a channel, or tunnel construction is in the streets e.g. Pacific Ave. This alternative is far safer for the general public and will have the least negative affect for accessing the area, e.g. emergency services. ALGN-1

3. The Draft Report refers to potential impacts to recreational facilities and public events on the beachfront, however, the Dockweiler Beach alternative for south of Marina Inlet: ALGN-1

a) Only impacts a mile of beachfront and bike path - we have many, many more miles of beaches and bike paths available for our recreation.

b) Will allow normal use by the general public of the recreational facilities in the Playa Del Rey Lagoon Park (parks, barbeques, basketball court, baseball park, etc.). ALGN-1

c) This alternative has the least negative effect for residents and the general public with fewer street closures, lower noise, lower vibration and allows for better residential access and emergency access during the construction period.

4. RE: Operation of Construction equipment, Equipment laydown, Construction Workers parking, Dust containment, Safety.

a) Strong Contract terms should be used to control how the construction company operations are undertaken and managed, thereby to ensure the least amount of disturbance to local residents. Special Assessments (fines) should be applied for violations by the construction company, or its workers. CON-1 CON-2 CON-6 CON-7

b) Trucks carrying loose materials, sand, dirt, etc. should be required to use covers.

c) There are many unused roadways, near Sandpiper Street, which should be made available for construction workers parking, equipment laydown, etc. this will help avoid our local streets becoming choked by construction vehicles and equipment.

Thank you for your considerations,

Don Hollands: 310 306 8522. Organization - HOA - Laguna Del Mar Assn Inc.

6400 Pacific Ave. #304, Playa Del Rey, CA 90293.

From: "mark van gessel" <vangessel@comcast.net>
To: <environment@eng.lacity.org>, <carol.armstrong@lacity.org>, <jim.doty@lacity.org>
Date: 3/16/2006 8:56:08 PM
Subject: Venice Dual Force Main - Comments to the EIR

Attached are my comments on the Venice Dual Force Main project.

Sincerely

Mark Van Gessel

Mark Van Gessel's
Comments on Dual Force Main EIR Page 1 of 7

Comments to EIR

1. General Comment
   a. In the alignment for the North area (north of Marina channel to pumping plant) you are showing the following alignments
      i. Deep Tunnel Pacific
      ii. Deep Tunnel Beach
      iii. Cut and Cover Pacific
      iv. Cut and Cover Marquesas
   b. You should have a cut and Beach alignment
   c. Below is my opinion on alignments when considering all the factors (environment, money, impacts, time, feasibility) in order
      i. Cut and cover beach
      ii. Cut and cover Marquesas
      iii. Cut and cover Pacific
      iv. Deep tunnel beach
      v. Deep Tunnel pacific
2. The EIR is a very large document (with appendices) it is several 3 inch 3 ring binders. The law requires a minimum review period, which is what you are providing. It took the City over 1 year on a fulltime basis to write this document and the City is only providing a very short (minimum) review period. The City should not use the minimum duration for such a large project. EIR-2
   a. I request that the City extend the review period to allow enough time to review the entire package.
3. Add to list shown in 1.8
   - Impacts to structures and the permanent settlement of ground due to dewatering GEO-1
   - Access to homes if cut and cover is the chosen method of construction on the Venice peninsula CON-3
4. In 2.2 Please clarify that the VPP has never had a spill due to capacity issues.
5. In 2.2 please clarify that the VPP has been upgraded over the years so that the pumping capacity now exceeds the pipe capacity. PROJ-2
   a. As part of the EIR the EIR should provide a detailed analysis of the number of times that the VPP is anticipated to exceed the capacity of the pipe so that people can have a realistic understanding of the damage that can be done to the environment. PROJ-4
   b. It should also be made very clear that the plant was near (but never release wastewater) releasing wastewater in 1992 and 2004 that the wastewater was very diluted compared to normal wastewater.
   c. Please also clarify if other City sewage facilities released wastewater during these storms. This is critical in evaluating the no-build option. If the report shows that all that would happen is that the increased capacity would just pump most wastewater to a facility that than does not have the capacity all one has done is shift the problem and not really solved it. If anything one ahs created a large problem by concentrating and increasing the wastewater discharge. PROJ-2

Mark Van Gessel's
Comments on Dual Force Main EIR Page 2of 7

6. In 2.3 (Page 2-9) the cut and cover construction. The construction duration is to short for construction on Pacific the duration would be more in the range of 14 to 18 months. CON-2
    a. For a detailed discussion please see other sections of comments.
7. In 2.3 (page2-9) under starter tunnel
    a. Please revise the sentence regarding acoustic curtain. To read NOI-1
        i. "To minimize the transmission of noise, the contract will require the installation of an acoustical curtain that is at least 25 feet high and surrounds the entire site, and be closed when any construction activities occur."
8. In 2.3.1 Project alternatives:
    a. Why is the cut and cover not a feasible alternative for the beachfront areas and is a feasible alternative for the street alignment.
    b. By not including a cut and cover construction method for the beachfront alternative you are not providing an alternative that may be the least environmentally friendly and cost effective.
    c. If the initial construction used to build the 48" line was a cut and cover construction method what has changed to make that construction method not viable. ALT-2
    d. I also believe that when the project was first proposed (several years ago) the construction method for the beach alternative was a cut and cover. The City speaker at the time said that they were refusing to consider the beach alternative because they did not want to deal with the coastal commission.
    e. A cut and cover alternative on the beach would be a more environmentally friendly and cost effect solution than the street alternative for the Venice peninsula portion of the project.
    f. Please make a clear chart showing the options so they can easily be understood. Since to the chart shown in the presentation that showed all the 6 alternatives. This gets expanded since the cut and cover beach alterative should be included.
9. In 4.1.1 –
    a. The estimated durations are to short. After 80 feet of trench is opened the mud mat is placed. That has to cure (several days) than the gravel bedding is placed (this is at least a 2 day process. 1 day to place another day to set grade and compact. The backfill process again is several days (at least a week) especially since the there is no adjacent property to store any material and trucks have to work only from one end not along the side of the trench. There is no time for installing the shoring. There is no time for removing the shoring. You also have no inspection time by City inspection forces. City has to inspect bottom of trench (1Day) City has to inspect mud slab (1 day) City has to inspect gravel bed (1 day). Once the trench is backfilled you have to make sub-grade City has to inspect. City requires that back can only be in 8" lifts so that takes time. Then the AC has to be placed and the City has to inspect. You are requiring the street to be paved in very short sections and this is very time consuming. CON-2

b. The production rate should be in the range of 10 feet a day or less. That would equate to approximately 500 working days or 700 calendar days (1.92 years). I am civil engineer with over 10 years in pipeline design and construction and believe that my estimate is very accurate I could be considered and expert witness on the subject. I can go over your detailed work schedule if necessary. CON-2

c. The other street construction alignment Marquesas / Via Marina way I believe is longer than necessary. This area has a larger street and can allow construction access adjacent to the trench making construction quicker and easier and cheaper.

10. In section 4 page 4-5 you provide cost estimates. In order to have a public process on the cost estimates detailed information on how the costs were arrived at need to be included. Please provide a detailed cost estimate for each alignment so the costs can be publicly discussed.

a. More detailed costs analysis of all alignments are required as part of the EIR in order for the public to comment properly. Please provide.

b. You show the Marquess way/via marina way alignment having the same cost as the Pacific Avenue alignment. This is not correct. From a simple oversight review and a ROM estimate the Marquess way alignment is more expensive than the Pacific Alignment by at least 15%. Please provide the detailed backup data so that I can show where you are off in the estimate. PROJ-7

c. There is no cost estimate for a cut and cover alignment along the beach. In the revised document this needs to be include. From a ROM estimate the cut and beach alignment should be less expensive than the Pacific avenue alignment.

11. I believe that the Marina del Rey and also the beach alignment (cut and cover) would be less costly than the Pacific Avenue alignment.

12. In the cut and cover alignment along Pacific Avenue you should discuss that the pipeline would require the shutting down of the corner of Pacific and Via Marina. In a previous detailed review the plans that have been generated for this alignment I held a meeting and showed the City staff that this alignment would have to shut down the street in order for it to be completed. I can have a meeting to go over this. Also the Bus or large vehicle traffic (Moving van or other large trucks) will not be able to make the turn when the pipeline is constructed in this area. Fire trucks would also not be able to make the turn when the pipe is under construction at this location. It is anticipated that this construction would be for at least a 1 month if not longer. CON-3 EMG-1

a. I have not seen the fire department comment on this issue. The Fire Department should be contacted about this issue if this alignment is taken and have input on construction and access restrictions.

b. In the event that a fire occurs in the neighborhood and fire response is limited and extra damage occurs would the City pick up the additional cost?

c. The contractor should be required to post signs at specific locations coordinated with the communities that large vehicles can not exit and make the turn at Pacific and Via Marina

13. Previously mentioned in the past public hearing prior to the City realizing an EIR was required it was discussed that if the beach alignment was chosen additional costs and improvements to the area would have to be incurred driving up costs. Other City department should not impose additional un-necessary improvements to one alignment and not the others this appear to make the City look as if they are forcing one alignment to be chosen over another. If other city departments or agencies are requesting improvements for one alignment over another such improvements should be required for all alignments.

14. On page 4-6
    a. All construction durations appear short could the person have converted working days directly into calendar days. Meaning 5 working days = 1 calendar week. Unless the City plans on having this work be performed 7 days a week and that is not stated in the EIR.
    b. The duration of Hurricane to Pacific 3 weeks in short it should be at least 9 weeks.
    c. The length of the pacific alignment is approximately 5,000
    d. The duration for the pacific alignment is to short and should be 95 weeks based upon the restriction you state in the EIR

CON-2

15. On Page 4-6
    a. Please detail which are receiving pits and which are the tunneling shafts.

CON-2

16. In 5-1 (page 5-1) you state that there are no significant environmental impacts once this project is built. This needs to be revised.
    a. If you built the Pacific avenue alignment that alignment has numerous air vacuum valves. These valves will release tapped air from the system into the environment. The air from sewage has methane and hydrogen sulfide in it and also other gases with odors. The wind pattern will have these vapors go immediately into the air of the Ballona reserve. This could impact the wildlife. The air could also impact the residents in the area as smell and gas.
    b. Please revise the EIR to state that there permanent environmental impacts for the pacific avenue alignment.
    c. The Marquesas / Via Marina way alignment can be placed deeper and there are less pipes and other utilities to cross. The marquesas alignment may not require any air/vac valves but if it does they would be less and not impact the wildlife reserve.

AQ-1

17. On page 5-128 you provide clear mitigation measures.

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Comments on Dual Force Main EIR Page 5of 7

18. Please include similar bullets for other sections;
    a. Vibration
        i. Have a clear vibration specification similar to MTA's vibration specification. (see attached)
        ii. Have the Contractor assessed (see attached language) damages if he exceeds the vibration limits
        iii. For the Pacific alignment please have a detailed vibration limit. Se attached specification

CON-8

    b. For other areas such as dust and operation hours hove clear bullet points that he is required to meet
        i. Operation hours. As stated in the meeting for the Pacific avenue alignment:
            1. No excavation prior to 10:00 am
            2. No plate remove of open trenches prior to 10:00 am
            3. All trenches shall be plated at end of the shift and than open to evening and morning traffic
            4. All excavation shall stop by 3:00 pm.
        ii. These were verbal statements made during the presentation regarding the pacific avenue alignment Please incorporate these as bullet items in the EIR so that the community will be assured that if the pacific avenue alignment is chosen these are part of the contract.
        iii. Please include special assessment language(see attached) if the above items are not adhered to by the contractor.

CON-9

    c. There is no discussion on the dewatering and settlement of adjacent homes for the Pacific ave alignment. Please expand on this issue on the previous documents it stated that dewatering is required to build the pacific ave alignment and that settlement is likely with dewatering.

GEO-1

19. In the EIR for the Marquesas / Via Marina way alignment you require that a tunnel be required to cross the canal.
    a. In order to allow for easy of construction the EIR should allow this to be open cut with a requirement that the contractor should not impact the water flow. The contractor could construct an cut and cover and divert the water around the excavation. This would allow the construction contractor alternatives and help reduce costs.
20. I believe that the Venice coastal specific plan and/or the Venice Land use Plan shows the building at Ironside (building shaped like a ship. Is a historic building. The Pacific avenue alignment could damage that building. Nether the beach alignment or the Marquesas alignment would impact that building during construction.

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Comments on Dual Force Main EIR Page 6of 7

21. For the Pacific avenue alignment at Pacific and Via Marina (page 5-43) you assume that jacking will be the construction method used to avoid traffic.
    a. Jack is not feasible for this portion of the alignment. In pervious meeting (2002) on the pacific avenue alignment the city engineering group conceded that the corner area of pacific and via marina would have to be completely closed to make the pipe turn. This would have to be an open cut construction. This would greatly impact traffic and access.
    b. For a period of time (weeks) no access be allowed through pacific and via marina.
    c. Please revise and discuss in detail this impact.
        i. Please get specific input from fire department regarding this
        ii. Please get specific input from the police department regarding this
        iii. Please get specific input from the MTA regarding bus routes
        iv. Please get specific input from the City Transit system (Express service) regarding this.
    d. If your response is that this corner will not be closed a detailed meeting is required to explain what changed from 2002.
    e. If you hold that con be constructed without closing the corner, please make is a specific bullet item in the EIR and state that if a construction breaks such a rule they will get assessed damages for closing the corner.

CON-3

22. For the Pacific alignment please include in the EIR that you have resident parking only in the neighborhood during construction to make it possible for residents to park due to all the parking that is being removed during construction. Please see page 5-43 where you discuss all the parking you are temporarily removing to build this alignment.
    a. If the Beach or the Marquesas alignment is chosen this is not an issue, since those alignments do not impact parking.
23. On page 5-128:
    a. NOI-8 This is not adequate for any alignment. This should be revised to read:
        i. "The contract shall have detailed noise specification which will provide maximum noise levels (instantaneous and 8 hour averages) Violations of the contract shall result in monetary assessments to the Contractor."
    b. Add a NOI-10 for pacific avenue alignment
        i. "Truck hauling shall start no earlier than 9:00 am and end no later than 3:00 pm
        ii. Truck hauling shall be limited to Monday through Friday.
        iii. Truck staging shall no occur on the Marina peninsula
        iv. Only 2 truck may be permitted on the project site at on time. A in the operation of being filled or depositing material and a truck preparing for such operation.
        v. A contract clause shall be included in the construction contract that each item above that is not complied to, each time, shall be special assessment to the contractor.

NOI-2

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Comments on Dual Force Main EIR Page 7of 7

24. On page 5-129
    a. Add similar bullets for vibration like on the previous page
    b. For the Pacific avenue alignment please revise the EIR to allow the community to understand the vibration that they will expect and provide maximum vibration limits for this area. This alignment is different than any other alignment since the cut and cover alignment is going to be with 50 feet of residential homes. The EIR needs to revised and recirculated so the community can understand the vibration impacts that could occur if this alignment is chosen. CON-8
25. On page 5-72
    a. If the Pacific avenue alignment is chosen liquefaction is an issue for the pipeline. The pipe will sit immediate adjacent to a slope that can liquefy and undermine the pipe and cause it to break and spill waste into the wildlife reserve. No other alignment has such issues. A portion of the pacific avenue alignment has city owned property that will not be developed and as such the property will erode with time making erosion and liquefaction a major issue for the pacific avenue alignment. GEO-2
        i. If the City proposed to reinforce this section this will drive up costs and increase construction time. This makes the Marquesas alignment a better alternative.
26. I have attached a past report that discusses several items regarding the pacific avenue alignment. These issues do not appear to have been covered in the EIR. Please address.
    a. Page 5 of report on regarding seismic
    b. Page 5 of report on Liquefaction
    c. Page 6 of report on Groundwater and settlement
    d. Page 6 of report on Vibration and noise
    e. Page 7 of report on Receiving pit
    f. Page 8 of the report on the corner of Pacific and Via Marina
    g. Page 8 and 9 of the report on the construction along Pacific

REPORT ON THE PROPOSED SEWER PIPELINE IN THE VENICE PENINSULA

By
Mark Van Gessel, P.E. – Civil & Ocean Engineer

October 15, 2002

Report on Proposed Sewer Pipeline in the Venice Peninsula

By

Mark Van Gessel, P.E. – Civil & Ocean Engineer

EXECUTIVE SUMMARY

This report has been generated to discuss the different alignment options for a proposed 54 inch future sewer line. Presently only two alignments have been proposed: A Pacific Avenue alignment and a beach alignment adjacent to the existing sewer line.

After a detailed review of the available information (Moffatt & Nichol report and Dames & Moore Geotechnical report) this report provides conclusive evidence that a beach alignment is a preferable alignment.

A beach alignment is the preferred alignment when you compare the alignment options for the following issues: environmental protection, safety, effects to neighbors, cost, and time.

The City should consider revising their preferred alignment option to a beach alignment, which is environmentally better, cost effective and easier to construct and maintain.

AUTHOR'S BACKGROUND

Mark Van Gessel holds a Bachelors of Science in Ocean Engineering and is also a Licensed Civil Professional Engineer. He has worked in the field of pipeline/tunnel design and construction for over 18 years. He has worked on numerous projects with varying sizes of pipes from 4 inches to as large as 144 inch pipelines and numerous size tunnels and pipe-jacking projects up to 16 feet in diameter. This technical background and actual work experience allows him to provide an expert opinion on the proposed project.

COMMENTS ON THE MOFFATT & NICHOL REPORT

Below are general comments and concerns regarding the Moffatt & Nichol report prepared by Russell H Boudreau. A review of this report show that it contains fundamental errors as well as incorrect and incomplete information. I have cataloged the comments into groups; project location, permits, beach erosion, and sea level predictions. It is the author's opinion that the Moffatt & Nichol report contains so much incorrect and missing information that it needs to be completely rewritten and cannot be used to make any decision to eliminate a beach pipeline alignment option.

Project Location:

This report specifies the location as adjacent to the existing 48" sewer. The actual location of a future pipeline has not been finalized and a specific location should not be analyzed but a general alignment with possible locations should be discussed. While the alignment, adjacent to the 48" line, may have been dictated by others the author has the professional obligation to discuss the ability to shift the alignment if such a shift mitigates concerns.

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The ability to locate the proposed pipeline is not limited to the stated alignment and can be located anywhere within the sand zone. By shifting the alignment East just 23 feet would remove the erosion concern (which is an incorrect concern). By shifting the pipeline location 100 feet (± 20 feet) East of the existing pipeline numerous issues outlined in the paper would be avoided. This shifting of the alignment would have far less impact to the beach and will provide better construction access making the project cheaper and quicker to build plus provide easier access for future service.

Permits:

Several very critical permits were not listed in the M&N report. It should be noted that this report makes it appear that only the beach alignment will require the permits discussed in the report. This is incorrect. All the permits that are listed in the report are required for any alignment.

There are several additional permits that are required for the Pacific Avenue Alignment that are not mentioned and are critical in evaluating the different alignments. Below are several permits that were missed and required for this project.

Permit	Agency	Issue
CEQA	City of LA	This project requires a full Environmental Impact Report (EIR) report to be prepared in order to proceed. It must be filed and also allow for public input and review. Any present meetings or discussion do not substitute for public review once the report has been prepared. Additionally all public comments must be addressed.
NEPA	Federal Government	This project shall require a federal clearance. Similar to the above report and can potentially be combined. But never the less a NEPA Clearance is required.
Police Noise Variance	City of LA	For the Pacific Avenue alignment the project will exceed the allowable noise levels and potentially the hours of construction and shall require a variance. * This permit is only required for the pacific avenue alignment.
Street Easement Permit	City of LA	A permit to work in the street is required. Additionally the City of Los Angeles has also added a special clause to require the City to be reimbursed for cutting and patching streets based upon damage done to the street. Based upon past experience the amount of pavement being removed in the Pacific Avenue alignment it is more economical to remove and replace the entire street, including subgrade, than to pay the fee associated with the cutting and patching. It has been stated, by the City, that other City agencies are not exempted from this requirement. * This permit is most likely only required for the pacific avenue alignment.

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Beach Erosion:

While the report discussed, in very generic terms, the concept of beach erosion it generalizes and claims that all beaches are sooner or later going to be eroded. This is incorrect.

The Army Corp of Engineers (Corps.) has performed a detailed report of this specific area and the associated beach as part of the Marina del Rey Dredging project. This report discusses the problem that is occurring along this stretch of beach, which is increased sediment, not beach erosion. If the author of the Moffatt & Nichol report had reviewed the Corps. report they would have been able to properly indicate that the beach for this proposed sewer project is actually growing and will continue to do so.

Where the report discusses other areas of Venice Beach that are eroding the report neglected to state the specific reasons why the erosion was occurring. All of the features that are causing the erosion elsewhere do not exist at the specific Marina del Rey site.

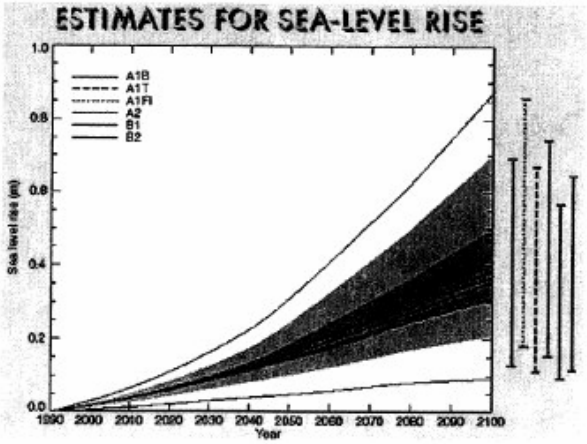
If the M&N author had used the bible in beach design; "The Shore Protection Manual" the beach area where this proposed project is located would be shown to be a stable or expanding beach rather than a contracting beach.

The report needs to be updated to properly reflect the state if this beach.

Sea Level Rising:

In the Moffatt & Nichol report several documents regarding sea level estimates were quoted. These documents are not current industry standard or what is presently being used in the professional environment to estimate future sea level elevations. The numbers provided and are based upon unrealistic variables.

Just recently, 2001, there was a conference on ocean issues where sea level predictions were presented. At that conference the numerous estimates were combined and the chart showing that information is presented below. As one can see the experts in the field all agree that the sea level elevation is increasing but no where near the erroneous levels stated in the Moffatt & Nichol report.



Estimates for sea-level increase from the IPCC Climate Change 2001

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The Moffatt & Nichol report needs to be revised to accurately reflect what is being used in the professional industry for future sea level elevation increases.

A review of the worst-case scenario shown in the char is a sea level elevation increase of less than 0.9 meters (less than 3 feet). If the report used such proper information the stated beach alignment would be feasible.

If the report is correct, which in my professional opinion it is not, the proposed project could be moved just 23 feet East and avoid the erosion problem. It would also require the Sanitation District to perform some kind of relocation or protection project for the existing 48 inch line. The report also neglects to take into account the depth of the pipeline and the protection (concrete encased) being proposed for the pipeline, both of which would allow a beach pipeline alignment. Additionally the report fails to discuss the positive attributes of allowing for the rehabilitation of the existing sewer line.

The Moffatt & Nichol report needs to be revised to accurately reflect that the rise in the sea level elevation is not a concern for any proposed beach alignment.

COMMENTS ON THE DAMES & MOORE GEOTECHNICAL REPORT

The Dames & Moore geotechnical report provides even further evidence that a Pacific Avenue alignment is not a practical, cost effective, or realistic alignment. Within the report numerous items are discussed that are major concerns only to a Pacific Avenue alignment that are not a concern with a beach alignment.

Due to the seismic concerns, liquefaction, dewatering, settlement and vibration issues a Pacific Avenue alignment should be abandoned. The correct alignment based upon the Dames & Moore report should be a beach alignment.

Seismic issues:

The Dames & Moore report clearly states, in Section 8.1, that seismic activities are a concern to the structural integrity of the pipeline. In the event of a seismic event large enough to damage the pipeline so many negative effects to the environment and the community would occur with a Pacific Avenue that it should be not be considered. An actual pipe rupture would release raw sewage into the local community and also the Ballona Lagoon killing the wildlife and permanently contaminating the lagoon.

Depending upon where a rupture occurs along the Pacific Avenue alignment the ability to repair the pipeline would take longer to repair. This again is critical because while the pipeline is under repair raw sewage could be released from the pumping station. This means that a future pipeline needs to be easily accessible to repair in case of a rupture so as not to cause damage to the wildlife of the lagoon.

When considering seismic concerns a beach alignment is the preferable alignment.

Liquefaction:

The Dames & Moore report states in Section 8.2 that liquefaction is a major concern when designing and selecting the alignment for this pipeline. This report does not compare the two alignments but a review shows that a Pacific Avenue alignment has far more engineering problems in the event of a liquefaction event. Since the Pacific Avenue alignment is adjacent to the canal and lagoon a liquefaction event along has the potential to collapse a portion of the street and cause the pipeline to become exposed and rupture. The East side of the Pacific Avenue alignment has an exposed slope

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that would fail and provides no support in a liquefaction event. This potential does not exist for a beach alignment.

Recommended mitigation measures discussed in the report include compaction grouting. What is not discussed with compaction grouting is the environmental impact of grouting. Grout will migrate through the soil and will containment the groundwater and also flow into the lagoon contaminating the environment. Specialized grout such as ultrafine or polyurethane grout may be required to control liquefaction. Such specialized grouts have an even greater impact on the environment and needs to analyzed. Grouting should not be required for a beach alignment.

When considering liquefaction concerns a beach alignment is the preferable alignment.

Groundwater and Settlement:

The Dames and Moore report, Section 9, clearly states that a Pacific Avenue alignment has numerous problems when compared to a beach alignment.

Dewatering is required to be performed and the water is required to be treatment and disposal of. This is a major issue and has not been addressed. Proper treatment of groundwater and the installation of wells is not covered or discussed in any documents provided. The equipment necessary requires a large space and easy access, none of which is not available in a Pacific Avenue alignment but is available for a beach alignment.

The other major issue with dewatering is settlement. Section 9 states that settlement is usually associated with dewatering activities. In the soils located within this area major settlement should be expected. When the water is removed from the soils the material will consolidate and settle. It should be anticipated that effects from settlement would extend beyond the street too the adjacent properties on both sides of the street. This settlement issue is a major concern especially with properties adjacent to the Lagoon in that such settlement could cause the slopes to become unstable and collapse. A major slope failure could impact the street, the existing water line and the proposed sewer line, in addition to structures.

Settlement will occur with a Pacific Avenue alignment and the City needs to properly plan for settlement.

Groundwater and settlement is not an issue with a beach alignment.

When considering groundwater and settlement a beach alignment is the preferable alignment.

Vibration and noise due to construction activities:

In Section 9 of the Dames & Moores report it clearly states that the Pacific Avenue alignment construction will create noise and vibration that will impact the neighbors. What the report fails to discuss is the noise impact to the environment.

Due to the proximity of construction site to the lagoon the construction impacts of a Pacific Avenue alignment will require environment mitigation. Such restrictions are most likely going to be far more onerous than the environmental mitigation measures and restrictions associated with a beach alignment.

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The vibration will also impact the adjacent properties. Construction activates so close to properties have similar concerns as for settlement and seismic issues. Due to vibration the Pacific Avenue alignment has a high potential for slope failure, damage to adjacent building, and streets.

Such concerns do not exist for a beach alignment.

When considering vibration and noise the beach alignment is the preferable alignment.

COMMENTS ON THE PACIFIC AVENUE ALIGNMENT AND COMPARISON WITH BEACH ALIGNMENT

Based upon the information that has been provided to me I have enough information to provide expert opinion that the Pacific Avenue alignment as presently proposed is not a constructible project and is substantially more expense and time consuming than a beach alignment and impacts the environment far more than a beach alignment.

Receiving Pit:

The Pacific Avenue alignment presently shows a receiving pit for the tunneling operation under the marina channel. From the information provided, it is obvious that the person who proposed this pit has never constructed or worked on a tunneling project.

Pacific Avenue Pit:

- A receiving pit is rectangular, not a circular.
- The size of the pit is too small to allow for a tunnel machine to be retrieved. The pit must be twice that size. Based upon experience with similar projects a minimum of a 100-foot pit would be need.
- The location of the Pit is to close to the breakwater. An analyzes of the underlying material needs to be performed. From drawings of the breakwall design, that I have seen, there is a high likelihood that boulders will be present in this location. A pit can be located in such an area and needs to be moved further back to ensure that the break-wall is safe.
- Having two turns in the pipe at the pit is not constructible, practical or advisable. The pit would needs to extend even further back beyond the elbows, as a minimum, to allow for construction of the pipeline.
- A proper pit would require the entire corner area to be shut to through traffic.
- The drawing forgets to show where all the dewatering facilities will be located. They need to be located adjacent to the pit and require additional space that is not available.
- This location cannot be enlarged to allow for it to be a tunneling pit. There is just not enough room for a tunneling pit at this site. Tunneling from this side is not possible. This limits the construction options. This will lead to an oversized machine costing more money to construct.
- An analysis of the ability for Ductile Iron Pipe of this size to make all of the turns as shown and at the pressures proposed needs to be provided so that the community and the environment is protected from a breaking and leaking pipe.
- No details on the concrete encased for this portion a critical item.

Beach Pit:

- A receiving pit for a beach alignment can be located in the proper location to ensure that it avoids the boulders that make up the break-wall and also be located far enough back to provide proper safety to the break-wall.
- The open space allows for proper area to provide the necessary dewatering and water treatment facilities that are required for such a pit.
- The pit would only have a single angle pipe and not the double curve making the pit smaller and the construction easier.
- By having a pit on the beach the Contractor will not be forced to tunnel from only one direction and could have the option to tunnel from either side.

It should be noted that the location of the pit, either at Pacific or on the beach does not effect where the tunnel ends at the other side. The alignment can stay where the City believes is best on the South side of the Marina channel. Thus any costs south of the channel are equal.

Construction at the corner of Pacific and Via Marina:

Pacific Avenue Alignment

- You have not provided a detailed discussion of the construction sequencing at this corner.
- Based upon the alignment that that you propose the construction at this corner will require that entire street to be closed in order to complete. This construction cannot be accomplished without shutting down the intersection for some time. This is in contradiction with your statements on the project.
- It will be impossible to allow buses to travel past the construction site. This is in contradiction with your statements on this project.

Beach Alignment

- Not problems

Construction Along Pacific Alignment:

There are so many problems and difficulties that have not been addressed that make this alignment impractical compared to the beach alignment that it is impossible to justify a pacific avenue alignment over a beach alignment. Below are items that exist in the pacific alignment that are not present for the beach alignment.

- The Pacific Avenue site is requiring a concrete encasement as I would guess would a beach alignment. The big difference is that due to narrow trench for the Pacific Avenue alignment a grout mix would be required to ensure that the material could get underneath the pipe. This would not be required to a beach alignment because the trench width is not restricted. Grout is 3 times more expense than concrete. This cost is not reflected in the present design or cost analysis.
- Traffic issues are numerous compared to the beach alignment. There are so many that it would take several pages to list them all.
    - The biggest is that the based upon the drawings that you provided there is not enough room for buses to travel down the street.
    - You have not shown the dewatering equipment or the water treatment facility.
    - You have not provided enough trench width to place concrete around pipe nor build a proper and safe trench
    - You have not addressed existing utilities and how they are handled
    - You have not provided enough space for a crane that is capable of lifting and placing the pipes.

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- You have not provided enough width for the trucks that deliver the pipe pieces.
- You have not discussed the fact that the area slated as temporary parking is sand and sloped and unsuitable for parking and needs to be improved and such improvement will have effects on the Ballona Lagoon.
- The Section view is incorrect in that the pipe at Pacific and Via Marina is substantially deeper. This is especially important when you consider the impacts of a pit and the depth of a trench at the above corner.
- A profile of the pipeline is needed.
- The section does not show the concrete encased discussed in the drawings.
- The drawings do not show how the K rail impacts the traffic and makes the travel lane to narrow.
- You neglect to provide details of construction sequences between Topsail and Via Marina and how access to the East side property owners will be provided.
- You neglect to state how you are going to enforce residential parking only requirements a restriction that will not be possible to enforce.
- You neglected to discuss the impact to the birds and other wildlife in the ballona lagoon and potential construction restrictions due to migrating birds causing extended construction duration.
- Discussion of potentially contaminated soil under Pacific Avenue compared to the beach alignment. This area was a major oil construction site in its past and most likely contains contaminated soils whereas the beach alignment does not have such a problem.

- Existing material at both sites is exactly the same thus any solid stabilization requirements for the beach option would also be required to the Pacific avenue location. Any claims piles are required to the beach site but not required for the Pacific site are incorrect.

All of these are issues exist for a Pacific Avenue alignment and do not exist for a beach alignment. The beach alignment can be done with a cut and cover V trench construction method that is substantially less money.

BEACH ALIGNMENT ALONG THE VENICE PENINSULA

While issues exist for different alignments a proposed beach alignment has far fewer issues than any other alignment. Any concerns with an alignment along the Venice peninsula beach are all mitigatable whereas that is not the cause for a Pacific Avenue alignment. Based upon my expert opinion this alignment is also economically far less costly than compared to the pacific avenue alignment. A Pacific Avenue alignment would be at least twice as expensive as a beach alignment to construct.

This makes a beach alignment thorough in the Venice peninsula the preferred alignment.

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Constructability:

There are several construction methods that could be used depending upon the temporary and permanent easements that could be obtained. They could include a non-shored trench, partially shored trench or completely shored trench. Even with the most expense method of completely shored trench, it would far more economical that building a trench within the street right-of-way. Construction along the beach is better because; there are no existing utilizes to work with, no minimum open trench restrictions, easier construction if shoring is required.

Easement:

While an easement must be obtained, from my personal experience in obtaining easements for similar projects, an easement is obtainable and could easily be obtained to support any construction schedule. The easement that would be required could be started during the permitting process and be available immediately after the permitting process has been completed and thus would not impact any construction schedule.

From past experience the costs for such an easement are not nearly as expense as the City is stating. As a matter of fact, City and County agencies usually work together and only charge actual time incurred if they charge any costs.

Concerns about Least Tern Refuge:

While there is a concern about least tern, such a concern is easily mitigatable by putting construction restrictions on the contractor so that the contractor only constructs within a specified distance of the least tern refuge during non-mating season. Since the construction is far easier and quicker that in the pacific alignment this would not cause any real cost impact to the construction. Any reasonable contractor would not put any additional money for such a restriction but would just make sure to schedule the work correctly so construction would not occur in that area during that time. In today's modern construction industry this is a normal construction restriction. It would also be advisable to design the alignment outside of the actual fenced off area of the least turn refuge thus not disturbing the habitat.

Requiring an entire beach alignment if the Venice peninsula alignment in used:

This requirement is not a proper design nor should such a requirement be imposed. Any discussion of fixing an alignment or having a Venice peninsula beach alignment incur more costs for a southern portion are not correct need to be deleted.

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City of Los Angeles Department of Public Works

Venice Pumping Plant Dual Force Main Project

ENGINEERING

COMMENTS

Please use this page to submit your comments regarding the Draft Environmental Impact Report (EIR) for the Venice Pumping Plant Dual Force Main Project. You may comment on any aspect of the report. Your input will become part of the public record and will be responded to in the Final EIR, **if received by 5:00 p.m. on March 17, 2006** (the end of the public comment period).

When making your comments, please be as specific as possible:

- Where will the equipment be stored if the project begins at Hurricane + Pacific? CON -1
- Where will trash receptacles + port-a-potties be located?
- Will access to Pacific Ave (N + S of Hurricane be open - if only 1 way access? CON -3

(If necessary, please use the reverse side of the paper.)

Please complete the information below and print clearly to ensure that your comments are addressed in the Final EIR.

Name: Madeline DiNonno Phone: 310-305-1958

Organization (if any):

Address:

City: State: Zip:

You may drop your comments in the comment box at the Comments station or mail them to the following address. All comments must be received no later than 5:00 p.m. on March 17, 2006.

James E. Doty
City of Los Angeles
Department of Public Works Bureau of Engineering
C/o Public Affairs Office
200 N. Spring Street, Room M165
Los Angeles, CA 90012
environment@eng.lacity.org
Subject heading should read "Venice Dual Force Main".

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City of Los Angeles Department of Public Works

Venice Pumping Plant Dual Force Main Project

ENGINEERING

COMMENTS

Please use this page to submit your comments regarding the Draft Environmental Impact Report (EIR) for the Venice Pumping Plant Dual Force Main Project. You may comment on any aspect of the report. Your input will become part of the public record and will be responded to in the Final EIR, **if received by 5:00 p.m. on March 17, 2006** (the end of the public comment period).

When making your comments, please be as specific as possible:

Notify residents on a monthly basis of the construction schedule and street and alley closures

PROJ-5

(If necessary, please use the reverse side of the paper.)

Please complete the information below and print clearly to ensure that your comments are addressed in the Final EIR.

Name: Susan Papadakis Phone:

Organization (if any): GRUNC

Address: District 2

City: LA (Venice) State: Zip: 90291

You may drop your comments in the comment box at the Comments station or mail them to the following address. All comments must be received no later than 5:00 p.m. on March 17, 2006.

James E. Doty
City of Los Angeles
Department of Public Works Bureau of Engineering
C/o Public Affairs Office
200 N. Spring Street, Room M165
Los Angeles, CA 90012
environment@eng.lacity.org
Subject heading should read "Venice Dual Force Main".

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

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When making your comments, please be as specific as possible:

BEACH ROUTE!

ALGN-1

(If necessary, please use the reverse side of the paper.)

Please complete the information below and print clearly to ensure that your comments are addressed in the Final EIR.

Name: PHIL MAIDEN Phone: 310.399.4449

Organization (if any): GRVNC

Address:

City: State: Zip:

You may drop your comments in the comment box at the Comments station or mail them to the following address. All comments must be received no later than 5:00 p.m. on March 17, 2006.

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11.3. ANNOTATED TRANSCRIPT OF FEBRUARY 23, 2006 PUBLIC HEARING CONDUCTED BY THE CITY OF LOS ANGELES ON THE ADEQUACY OF THE EIR

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CITY OF LOS ANGELES -- DEPARTMENT OF PUBLIC WORKS

VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

PUBLIC HEARING

FEBRUARY 23, 2006 AT 6:00 P.M.

-oo0oo-

-ooOoo-

MS. DURRELL: Good evening. My name is Tonya Durrell. I'm with the Department of Public Works, Public Affairs. I am your official public hearing officer for the evening. I want to point out that you are here attending a public hearing for the Venice Dual Force Main Sewer Environmental Impact Report.

And please excuse my notes, but I want to be sure to cover everything this evening. I hope that everyone has had an opportunity to sign in tonight, and if you haven't, please be sure to do so at the table in the back.

Also, we have an agenda at the table. We will be making project team member introductions in just a few minutes. We also have speaker cards available if you wish to be heard tonight. And if you need one throughout the presentation, please just raise your hand and one of our representatives will be sure to get one to you.

You obviously can be heard tonight so that all of your comments are part of an official record that will be a part of the final EIR, and everything that is being said tonight will be recorded by our court reporter who is here with us

3

1 tonight.

2 I'd like to start, then, with our team

3 introductions. We'll start with Mr. Doty.

4 MR. DOTY: Welcome. I'm glad you took

5 time out of you regularly scheduled events to come

6 help us out on this project. It's very good to see

7 you here.

8 The project we're talking about tonight

9 is a project that's needed because we need

10 additional capacity for the Venice Pumping Plant.

11 MS. DURRELL: We're going to do other

12 instructions, and then we'll come back to you, Jim.

13 MR. DOTY: I'm Jim Doty. I am the

14 manager for the Environmental Impact Report that

15 we're discussing tonight.

16 MR. DELKHASTE: And I'm Jon Delkhaste,

17 and I'm the project engineer.

18 (Additional member

19 introductions.)

20 MS. DURRELL: As I said before, all of

21 the comments will be recorded tonight by a court

22 reporter and will be part of the final EIR. As

23 with any project of this magnitude, the Venice

24 Force Main Project must follow the California

25 Environmental Quality Act Guidelines, and as part

of that process, we obviously want to hear back from you, the community.

We want to share our expertise, disclose analysis, and we want to discover the public concerns and also solicit counter proposals. So, obviously, we welcome all of your comments. Just so you know, it is helpful when your comments suggest additional specific alternatives or mitigation measures. Be sure that your comments include your name, your organization, if you're representing an organization, and any other information including a phone number.

This public hearing is your opportunity to be heard. We are going to be listening tonight to your concerns. We will not be responding to any questions, but please be assured that all of your concerns will be on record, and we will be responding in writing to your questions and concerns.

And with that, I'd like to now introduce Jim Doty to begin tonight's presentation.

MR. DOTY: Okay. The reason that we called you out and the reason that we're doing this is that we need to provide additional capacity for the Venice Pumping Plant, and the project engineer

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will go into that in greater detail.

The plant is fine. It has plenty of capacity, but the line that leads from the plant down southward towards the Hyperion Treatment Plant does not have sufficient capacity. And also, we would like to provide redundancy for that line, because right now all of the sewage coming out of that plant goes through one single line. We cannot take it out of service to inspect it. And if something untoward should happen, we have no alternative way to handle the sewage.

The goals of CEQA are to make sure that when your decision makers make a decision whether to construct a project or how to construct a project, that they are informed of what the environmental consequences of that decision will be.

They also need to know what mitigation measures are available to reduce the effects of a project or what alternatives would have lesser effects than the originally proposed project. And all of that is so that we can maintain a quality environment for the people of California.

The reason we're coming to you is because we want to disclose to you what our analysis is,

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what we have found. We're hoping that if you have expertise, you will share that with us so that that can improve the quality of the work going into this project. We want you to check our work, make sure that it's accurate, make sure that it's complete. If there's something missing, let us know about it.

If you have a counter proposal, most importantly, we need to know what your concerns are. There is no way we can tell what your concerns are other than to come to you and ask you. You know your neighborhoods best, and we need to know what you know. So that's why we've asked you to come tonight.

What we've looked at so far and in a very large masterful work are three potential alignments connecting the dots between the Venice Treatment Plant and the southern connection point, where we need to go, and three different construction techniques. So the EIR is rather large because we have this matrix of possibilities that we have looked at.

With that, John.

MR. DELKHASTE: Thank you. Basically, what you see here is a map showing all the major sewers in the city. Here, what you see is a map of

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1 all the major sewers in the City of Los Angeles,
2 and here's the valley and here we are.
3 Now, all these sewers around the coast --
4 these are the sewers -- go here to Hyperion -- I
5 mean, to the Venice Pumping Plant at this point.
6 Because up to this point, it is a gravity flow. It
7 goes down to that point.
8 Now, to get it from here, from Venice to
9 Hyperion Treatment Plant before being discharged
10 into the ocean, we have a slope going up, and
11 that's why we need the Venice Pumping Plant, which
12 is the largest pumping plant in the City of
13 Los Angeles.
14 This is something you guys are all
15 familiar with -- Venice Pumping Plant. And as you
16 can see, one of the alternatives -- we are going to
17 be going over the alternatives later on, but this
18 is the area of one of the shafts. If you choose
19 one of the routes, that's where it's going to go.
20 And this is Hurricane Street as you all are
21 familiar.
22 To give you a very brief -- those people
23 who haven't been here -- briefly, in 1928 Venice
24 Force Main was built, and at that time it was a
25 36-inch line. Population increased, and the demand

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1 went up. Then in 1958, the Venice Force Main
2 was -- it went up to 48-inch line, and we added one
3 more pump to it. It was four pumps at the time.
4 And in 1987, again, due to population
5 increase and the need for more capacity, we have
6 another pump, which is the fifth pump we added.
7 However, at that time they didn't think there was a
8 need for extra capacity in terms of the pipe, so
9 they kept it as a 48-inch line.
10 Now, what happened is in 1995, due to
11 El Nino, we have heavy rain. And last year, again,
12 due to heavy rain, what we discovered was that the
13 amount of sewer that we were carrying, at the same
14 time the rain was infiltrating into our sewers,
15 which happens a lot of times during rain.
16 But this time, since it was heavy rain,
17 it increased it to the point that they had all the
18 five pumps working to push the sewer up the hill to
19 Hyperion, and what happened is they found out it
20 was like a bottleneck. The 48-inch line was not
21 capable to carry all that sewer, so it was carrying
22 maybe about 60 percent of it.
23 The rest of it started backing up into
24 our manholes, and we were really close to disaster.
25 We were really minutes away from the sewer

9

1 overflowing and going to the Grand Canal and onto
2 the streets. So we were lucky then, and we were
3 lucky last year. That's the reason we really need
4 what we are proposing, a 54-inch sewer.
5 Now, this is going to give us -- the good
6 thing about having the sewer is going to give us
7 the capacity to be able -- during the wet season
8 that we had, as I mentioned, we are going to have
9 the capacity to have the sewer going to Hyperion
10 without fearing about the overflow.
11 And the other thing that we have to
12 remember is in 1958 -- that's when this was
13 built -- the sewers were -- the capacity wasn't
14 really -- it was great for the time, but it's been
15 1958 until now. It's, like, 48 years old, and
16 these are old. The pipe is old, and I don't know
17 how long it's going to last.
18 So we need to perform some maintenance
19 work maybe, but we need to do inspection first. In
20 order to find out if it really needs rehab or
21 not -- and we cannot perform any inspection as long
22 as the line is in operation.
23 So now, what we came up with so far,
24 before we get any comments from you -- so far what
25 we have is three alignments, and I'm sure all of

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you are with EIR, so you are very familiar with this. Here is Venice Pumping Plant. So from Hurricane Street, one is going to go on Via Marina and then going down here. From here we are going to have -- and then it goes under the channel, Pacific, and it's going to continue on Vista Del Mar.

Then we have alternate alignment going west on Hurricane Street, going south on Pacific, under the channel, and continuing to go to Vista Del Mar. And all of them end up the same place, which is the CIS. That's where they're all going to go.

And the third alternative that we have is going to go to the beach. From there, down the Dockweiler, under the channel, and continue. And eventually it's going to end up in the same place.

These are the three alignments that we have. To do this, we have three construction methodologies set which we are considering. And one of them is open cut.

As you can see, it's an open trench, and that's the easiest way for contractors to do the job. Normally, it is the least expensive way to do it. That's what it's going to kind of look like in

11

1 your neighborhood. And this is the construction
2 you're going to see from outside.
3 And here you can see the advantage and
4 disadvantage of this. Primarily, the shortest
5 construction time, and the cost is going to be the
6 cheapest -- the least expensive, I should say. And
7 another thing is, this open cut, it always moves.
8 It is in front of someone's home for a few days.
9 It can vary every week.
10 It can move about 200, 250 feet or more
11 depending on the conditions we are going to have,
12 which means they are going to be laying the pipes.
13 As they lay the pipe, they are going to come back,
14 fill it, and then they are going to put asphalt
15 right after that. So it's not going to be in front
16 of your house for more than only a few days. Now,
17 the thing is, your neighbor is going to have it,
18 but it's going to move on. So that's the good
19 thing about it.
20 Now, the problem with this is, I know
21 that if I'm living there, I don't want work in
22 front of my house. I don't care for it too much,
23 but most of the impact is going to be on the
24 surface street in terms of traffic and all the
25 other environmental issues that I don't need to go

12

over.

Now, this one is a small tunnel method. This one is going to have much less interruption on the surface street. Primarily what it does is we have pits here, and then we are going to have jacking and the pipes -- as you can see we have a machine that is digging under the surface street. And then as it is going, we have jacking that is going to be pushing the pipes in.

And as you can see, we are not going to be cutting the street here; however, if your house is here, this pit is going to be in front of your house for maybe a couple of months. But if your house is in between, that can be about 1,000 feet, so you are not going to have problems. So that's the good thing about this method.

The depths of it is going to vary; for example, in this case we are going to go -- on the street surface is going to be lower. When we get under the channel, we are going to be at least 25 feet below the channel. So what happens is this method -- the drawback of that is, we cannot keep going. We have to have 1,000 feet, and then you need another pit, so we are not going to be totally disrupting the traffic flow.

13

Now, the good thing about it, as I said, we are going to be avoiding a lot of surface impact. It's great for the intersection, and the minuses is duration of impact is longer at the pit locations.

Now, the last construction methodology that we are using is deep tunnel. And for deep tunnel, we have different alternatives; for example, this is under Pacific -- can go this route. Or from here, Venice Pumping Plant, we go down by the beach and from here going all the way down here.

Now, to explain to you a little bit about deep tunnel, basically, what deep tunnel is, is we're going to have a starting shaft at this point or maybe it is going to be farther here. We don't want to be close to the neighborhood because we are going to be there for a long time, actually, almost during the whole entire operation. We don't want to be close to the neighborhood, so right now it is here, but it is possible to push it a little farther back.

Now, this pit here, the shaft is going to take a few months to build. After they build it, the beauty of this is, then they can go all the way

14

1 to this point, and from here, they can either go
2 large tunneling or small tunneling or they can have
3 open cuts and get to Venice Pumping Plant or they
4 can just go all the way to this point without
5 having any interruption on the surface street.
6 This is how it's going to look under the
7 ground. We are talking about activity 80 feet
8 under the ground, so you won't really feel
9 anything. But that's what the machine looks like.
10 And this is showing the location from outside.
11 This is how the operation is going to look from
12 outside.
13 The good thing is, this is the
14 construction site during the whole project. Now,
15 as I said, fewer construction sites. And then the
16 minuses of this are impacts at the insertion shaft
17 for entire duration of the construction,
18 rights-of-way, and the cost. Of course, the cost
19 is one of the factors, and duration of the
20 construction is the longest than the rest of the
21 projects.
22 Those are the alternative methods;
23 however, when we have the alternatives, I have to
24 add that you see three alignments, but we can have
25 different kinds of alternatives; for example,

15

1 tunneling can be combined with open cut or other
2 methods. So altogether, we can have seven or eight
3 kinds of alternatives.
4 Thank you very much. Jim?
5 MR. DOTY: Thank you. So here we are
6 back to that table we introduced at the beginning.
7 And just in gross math permutations, there would be
8 nine alternatives, but the EIR really concentrates
9 on six because the cut and cover construction
10 method down the beach alignment, we believe may be
11 infeasible for environmental reasons.
12 It's not something that we feel
13 comfortable coming out strongly for, but we have --
14 in during the public comment period, we have
15 received some public comment in favor of that
16 alignment.
17 The small tunnel method down Pacific
18 Avenue, because of the size of footprint needed for
19 the shaft site for driving those tunnels, we
20 believe may be infeasible for environmental
21 reasons. And we did not look into detail in a
22 large tunnel going under the Via Marina alignment
23 because it offered no advantages over the other
24 possible alignments for the large tunnel, so there
25 was no reason to go into that.

16

This is what the EIR finds in one page. First of all, no operational long-term impact. That's kind of a no-brainer. Once we finish the tunnel and restore the surface to its preexisting condition, we're out of there. There are construction impacts, and we've gone over them a couple of times already.

Normally, in a typical project, you usually find construction impacts -- short-term impacts as insignificant because they're short term in duration. Because of the magnitude of this project, short term is no longer a couple of weeks or something. It, although temporary, will be there for a while.

And because of the sensitivities of the project area, we are calling those temporary construction impacts significant. This project is not going to affect your land use or planning. We're not going to turn an environmentally sensitive area into a Wal-Mart or something.

A whole bunch of mitigated impacts that can be mitigated to an acceptable level. Air quality: Here we're talking mostly about the air emissions from construction vehicles and dust caused by handling the soils and so on.

17

1 Cultural resources and paleontological
2 resources: We have done surveys of the area.
3 There are no known resources in the areas that
4 we're looking at, but you just never know because
5 they're under ground.
6 Geology and soils: As you know, there's
7 sand out there. There's oil wells. We know about
8 these things, and we can take care of it. We're
9 pretty experienced at that.
10 Since I've mentioned oil wells, we'll get
11 to hazards and hazardous materials. We know the
12 area is likely to be gassy, and we know there are
13 lots of abandoned oil wells. We know that there
14 are a few that are not on the map. We have
15 tunneled through such area before successfully --
16 knock, knock. We can mitigate that to an
17 acceptable level.
18 Biological resources: We know we're in a
19 sensitive area, and the EIR identifies measures to
20 avoid a biological impact, such as having
21 knowledgeable monitors checking to make sure that
22 sensitive species do not have an adverse response
23 to what we're doing.
24 And hydrology and water quality: There
25 are a whole lot of standard measures that we do in

18

1 public works projects to address and avoid
2 pollution of surface waters. Even with that, there
3 are a few subject areas where we cannot avoid a
4 significant impact, and those are aesthetics.
5 Even though there are people that really
6 enjoy big machines doing big boy stuff and just
7 love to come down to our construction sites and
8 watch things happen, most people who are used to
9 looking out to the beach would probably think that
10 our construction sites are not a positive. So
11 we're calling that a significant impact. We will
12 be out of there when we're down.
13 Noise is another. We will reduce noise,
14 but, ultimately, we cannot eliminate noise. We put
15 up a noise wall to reduce noise; however, then you
16 run into the old aesthetics impact. People who
17 liked looking at the beach and the sailboats going
18 in and out of the marina channel are now looking at
19 what looks like a three-story tall building.
20 They can sleep at night, but they're not
21 getting to see the boats. Either way, those two
22 will run against each other and we'll have to do
23 what we can to mitigate them, but we can't promise
24 to make them go away.
25 Public services: Access to the beach,

19

1 public recreation events at the beaches and parks
2 and so on, there may be some access problems while
3 we're in the area. And that brings us right to
4 transportation and traffic.
5 Interestingly enough, most of the
6 alternatives we looked at will have a relatively
7 small impact on traffic and transportation -- much
8 less than what we anticipated when we developed the
9 scenario and then went to our experts and said,
10 "What do you think?" But, nonetheless, there will
11 be a significant impact on transportation and
12 traffic while we are constructing the project.
13 Back to our table. These flowers here
14 are just kind of a graphic way -- there is no way
15 in these environmental impacts that you can just
16 add up numbers and then come back and identify this
17 as your best alternative.
18 For instance, as we said before, if we
19 choose a tunneling method and you're in the middle
20 of the project and the tunnel is passing by you,
21 you know, 50 feet below ground, you love that
22 alternative. But if you're living next to the
23 tunnel driving shaft or the tunnel retrieving
24 shaft, you're not as happy with it. You just
25 can't -- it's not a mathematical thing.

20

So that's why we've just got spots here. We've got flowers. The more flowers, the more environmentally superior, the more environmentally friendly that particular alternative is. And the EIR identifies a large tunnel roughly along the Pacific Avenue alignment as the environmentally superior alternative, although the beach alignment would be a close second.

I want to take this opportunity to point out that this is identified as the environmentally superior alternative. It is not the recommended alternative. At this point we do not have a recommended alternative. There is no project that we're hiding in our pocket that we're going to come out with after we go through our show here and tell the council people, "Yeah, we told the public."

No. Really, we don't have a preferred alternative. We will have to develop one, but we need to hear from you first because the information we're going to get from you is important to developing the alternative that we're going to recommend. We do eventually have to build something, so we do have to come up with a recommendation.

Okay. Money: This is a subject that I

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have to admit I'm very uncomfortable with, because in environmental analysis, we don't like to get tied up with dollars. Tonight's meeting is about protecting the environment. There will be other meetings about protecting the bank account, but tonight's meeting is about protecting the environment.

But during the notice of preparation and the scoping phase of this EIR, we got several strong comments saying we want to know what the relative cost of your alternatives are. That's why we've got this in here, and you notice there are no hard numbers. There are some concept level numbers in the EIR, actual dollar amounts, but we stress these are concept level.

They are not based on a design. They will change. But their relative size should not change. In other words, the one we're identifying as cheapest in the EIR should not later turn out to be the most expensive. So there you are. One dollar sign means cheaper, and three dollar signs means a lot more expensive.

And then here's the summary of the period of time we would be out there. Notice that the first two construction methods, cut and cover and

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small tunnel -- small tunnel being either jacking or microtunnel or a combination -- both of those would involve small tunneling under the marina channel.

We are not proposing an open cut method across the marina channel. I have seen it done. You don't actually hold back the water, but you dig a trench in the bottom. But it's messy and not really worth it.

Cut and cover: Overall project, 12 months. It goes very fast. Up to five days passing any particular point along the route, like, your house. It can vary, because it depends on the precise conditions in that location. Cut and cover would mean, then, that we would have a small tunnel shaft on the one side of the marina entrance channel and a receiving pit on the other side of the channels.

Small tunnel would take longer, about 14 months with up to four months in a particular location. Again, if you're lucky enough to be away from that shaft, it's a good deal. If you're at that shaft -- and of course, we would try to pick shafts that are the most friendly -- but if you're the nearest one to that shaft, four months and

23

you're really glad when we're out of there.

The large shaft takes a little longer -- 36 months. A large portion of that is actually setting up the construction as opposed to the actual process of driving the big steel digging worm through the soil. And we would be up to seven months at the receiving shaft, which would be up in the vicinity of the Venice Pumping Plant, so neighbors close by. The payback we get with a large tunnel is no surface presence in between the points.

So what do we do next? We're going to launch right into a period where we listen to your thoughts and comments, but you don't have to say it all tonight. Think about it. You can write to me by March 17th.

I'm giving my address as c/o Public Affairs Office. I'm not trying to dodge you. Our offices, including the design office -- we're busy in a move. We're moving out of our leased space downtown to a newly purchased building. The City bought one of those towers for the Department of Public Works. Today I spent getting all my stuff out of the boxes, but right now I don't have e-mail or anything, and I wanted to make sure that your

24

comments got to the right place.

So send your comments c/o Public Affairs Office. If you'd like to e-mail, there's the e-mail address. And it would be helpful if you put in the subject line, Venice Dual Force Main, because we have a little sorting program that will look, and if it sees that, it will send it directly to me. It will get to me immediately.

Otherwise, every few days we go into that account and we manually look at that. But it will save a little time if you put that in there. It's not critical. You won't be sent to Mars or anything if you forget to do that.

So that's all. Thank you very much.

MS. DURRELL: Okay. Thank you, Jim. And as Jim stated, we are going to get started with our official public comment period. I did want to mention that we do, of course, have copies of the draft EIR at the table in the back. We also have a computer here, so if you'd like to submit your comments electronically, you can do that as well.

I just want to tell you about the ground rules. We're going to be working from speaker cards, and Julia will call out your name. You can come here to the microphone, and please speak

25

clearly. Please state your name and any organization that you are representing.

Also, we have three minutes per speaker, so please try to adhere to that. So we'll get started with our public comment period and get the first person up here.

MS. BROWN: Carol Kapp, please.

MS. KAPP: Hi. I want to compliment Jim Doty and his team. I can tell from the EIR that some of our comments from the May 24th scoping meeting did show up in the EIR. That's probably one of the first times in the city that our thoughts actually made it to paper. So kudos to you on that.

I do want to say that my name is Carol Kapp. I live on Rees Street in Playa Del Rey, which is adjacent to Vista Del Mar. And because of that, I want to support the beach alignment all the way.

I also want to talk about the fact that the reason I'm in favor of the beach is because the part of Vista Del Mar that we live in has a palisade, and I certainly do not want to see a repeat performance of slides, such as La Conchita in Ventura or Blue Bird Canyon, which we all saw GEO-1

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how horrible that was. And I believe that the vibrations from this project could trigger those kind of lateral slides. GEO-1

There are references in the EIR to moving equipment and staff. I would like to tell you that there is a street called Sandpiper, and it has been closed since 2001 or a little thereafter because of the terrorist attacks. I think that this could be opened up. You can have your workers park there, and you could buy a second-hand shuttle bus and run them back and forth to wherever they're doing their work.

Also, Los Angeles County beaches and harbors have parking lots in the marina, and you could probably get parking permits from your staff there and, again, use some sort of a shuttle bus. So I think that might help with some of those concerns. Also, the county runs a parking lot on Vista Del Mar south of Napoleon Street, and that's another place to look for parking for your staffing. CON-1

I don't know what the time is looking like, so the last thing that I want to make a big emphasis on is that there is a parking strip adjacent to Vista Del Mar from Surf Alley north to

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Montreal. And that is used for beach access parking during the day and local residential parking at night.

There has been no discussion of using it. I just want to go on record and say there is no way you can look at that for equipment lay down or anything. So thank you very much.

MS. BROWN: Next we have Mark VanGessel.

MR. VANGESSEL: I think the community first really appreciates the fact that you actually did an EIR rather than try to push through a project previously in 2002.

Quick question that I think needs to be addressed to the public tonight is right now, [illegible] going to have comments. And it appears to me that it's not really complete and needs to be revised. Do we get another chance to review this, or is the City going to give us this one chance for us to review, then make a decision, say that they had public comment, and go forward? That way we do not know what your preferred alternative is. So we really need to understand that from the City tonight.

In looking at this, you claim that you have six different alternatives; I've read it in

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1 the summary. You really only discussed three. It
2 got pointed out a little later that there were six.
3 We'll all be realistic. You're saying that it's
4 $68 million to do a tunnel versus $45 million to do
5 cut and cover.
6 The City is under a budget crisis; we all
7 know that. The tunnel is not going to be a viable
8 option. Let's all realize that. So the City is
9 going to go with the cheaper method and do some
10 impacts.
11 Previously in 2002, the City had only two
12 alignments. One was a cut and cover along the
13 beach, and the second was going down Pacific Avenue
14 with cut and cover. In this EIR, for some reason
15 with no explanation at all, it just says the cut
16 and cover method along the beach is not viable.
17 That, to me, does not provide an explanation why in ALGN-1
18 2002, in 1957, and in 1938, cut and cover was the
19 way to go.
20 Now all of a sudden, it's no longer
21 allowed. To me, that makes no sense whatsoever.
22 Cut and cover along the beach is one of the
23 quickest ways possible.
24 I'd like to point out, I -- will run out
25 the time -- but the slices they showed you on the

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1 trenching are incorrect to go down Pacific. They
2 have slides there showing trucks going down the
3 side. That is not going to be possible for Pacific
4 and most likely for the Vista Del Mar area either.
5 Discuss overflow: This is an important
6 item. People should realize that right now during
7 the last heavy rain of last year, Hyperion had to
8 dump water, overflow, which means that right now,
9 this Venice plant did not. All it's doing is
10 literally dumping more of it into the ocean.
11 So while they're increasing capacity
12 here, the Hyperion plant still couldn't handle it WQ-1
13 anyway, and it would dump into the ocean anyway.
14 So the no-build alternative actually, to me, seems
15 like a potential viable solution until such time
16 that the location where you're going to send
17 everything can actually handle it. First, you
18 build a location, and then you do the upstreet
19 areas.
20 Next thing is, you say that there is no
21 environmental impact after the project is built.
22 For the Pacific Avenue alignment, cut and cover,
23 that is absolutely false.
24 People should realize who live in the
25 marina area, whether you live on the beach side or

30

the canal side, after this project is built, they will have big air-vac valves once every three streets to go underneath utilities. Those air-vac valves will release hazardous gases into the environment. I hope Jim Doty will explain that. I can actually show you the drawings that show it will occur.

So the EIR is incorrect. Hazardous gases, smelly gases -- who's been by Hyperion? What does it smell like? We all know. What is this pipe pumping? That same material. The gases that get trapped in the pipe have to be released. They're going to blow right across the creek to all of the residents who live on the other side. And anybody who's living next it will actually smell it, too. AQ-1

A few days in front of the houses when they trench -- absolutely incorrect. I used to be construction manager in the valley. Putting 12-inch line in front of somebody's house took over a week. The City has to do inspection after inspection after inspection. A 12-foot deep trench will require at least -- at least two weeks for the City to physically inspect it. CON-5

And if we want, I could go through it,

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because the City has to inspect things. They have to inspect the concrete that goes down. That takes a day. They have to inspect the gravel road that goes down. That is what their own document says. CON-5

I'm a manager for MTA Construction. I've watched this. I know what the inspection does. It says when you backfill, for every 6-inches, it has to come up. So if this is in front of your house, you will be impacted especially along Pacific. If you go along Pacific and do a cut and cover, they will have to de-water that trench. So if you live adjacent to that, your house will settle. GEO-1

I will say that I most likely ran out of the three minutes, and I will let other people go, but I have numerous comments, and I will submit them in writing. And I just hope that the City will give us a second round to look at this and show us what the preferred alternative is.

MR. DELKHASTE: Just for the record, a lot of comments that you made, I totally disagree with you. I think a lot of them were inaccurate. It was an incorrect representation.

MS. BROWN: Bob Krauch.

MR. KRAUCH: I do defer my three minutes except for the underground large pipe or anything

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that goes deeper. Is that more difficult and as secure to get the material that's in there back up to level? That's my concern. PROJ-6

Which of the three methods is the longest range, safe way to do it? Is there any reference to that?

MS. BROWN: Your comment is going to be included in the final.

MR. KRAUCH: The infrastructure always wears out. You're talking about 48 years. Is there any method that is more long range that's proposed here than any of the others? PROJ-1

MS. BROWN: The next person is Dan Sharkey.

MR. SHARKEY: I'm Dan Sharkey. I live within maybe 200 meters of all of these people. I'd like to echo Carol Kapp's comment. Regardless of what happens, it's easy to make promises and it's sincere, but once you hire a contractor, we're the victims.

Let's talk about parking. We don't have it, and it doesn't help when the City drives a truck that says "contract administration" around every month. Whatever you decide, you need to stick with it. We don't have parking. We're a CON-1

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very tiny area. If you drop a pin on the beach, we have a 250-foot bluff that acts like nothing more than a large speaker and echo chamber. CON-6

We're a very unique geological neighborhood. And whatever you do, we just asking that you come up with the plan, stick with the plan, and more importantly, force your contractors to stick with the plan, and all those points about which Carol spoke. But primarily, it's parking. That's it. CON-7

MS. BROWN: Marcia Hanscom.

MS. HANSCOM: My name is Marcia Hanscom. I live in Playa Del Rey near the Del Ray Lagoon, and I'm also with the Wetlands Action Network and the Sierra Club Restoration Committee.

I have a few comments related to -- I haven't actually reviewed the draft EIR yet, but based on some of the things that were said, I have some concerns. One is related to whether or not we need this and it is sufficient capacity -- you're saying that Venice pumping station is already at sufficient capacity, but the line may not be in the future.

So the question I have is how does the EIR analyze whether this is a growth inducing plan GRWTH-1

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and if so, how much new development is going to be handled by this. And one of the reasons I have this concern is I know, like, the Grassroots Venice Neighborhood Council has made development requests to the councilman.

There's a lot of concern of over development on this side of town, and right now there's sort of an assumption that more development will happen. And all of that, of course, will affect the traffic and quality of life and, of course, the natural resources. GRWTH-1

And I would suggest that the city council needs to have a discussion and a conscious decision about that and a discussion about how much growth and development we do want in the future and how much we can really handle with public input, so it's not just saying that it's going to happen, but that we actually have a real conscious decision about how much and that stuff.

And if you don't do that, you're really eliminating your no-action alternative, which is required under the California Environmental Quality Act. Somebody said it is going to happen no matter what, but if you eliminate the no-action alternative, that's a violation of the law.

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1 Secondly, liquefaction is a concern. I'm GEO-2
2 wondering how the construction on this is going to
3 be impacted by that. Thirdly, it was talked about
4 on the south end that you might move the site
5 further into the El Segundo Dunes -- the
6 construction site, and I would want to make sure BIO-1
7 that the El Segundo Blue Butterfly habitat is not
8 being looked at. That is an endangered species,
9 and it's something that you have to look at in
10 terms of this.
11 I can tell you that the coastal
12 commission has been very concerned about that, and
13 they've required LAX to take out some palm trees
14 that were not allowed there. So the kind of
15 construction impacts you're talking about, they
16 might be very concerned about that.
17 On the north end, I think it's important
18 to note when you determine each of these
19 alternatives that you're going to have a preferred EIR-1
20 one. And I do agree that the draft EIR does have
21 to be recirculated to show which one of those is
22 preferred before you go to the final EIR.
23 On the north end, not only is the
24 California lease term of concern because it feeds BIO-1
25 right in that channel where you're talking about

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1 having the longer term impacts, right by the Venice
2 pumping station, but also the California brown
3 pelican, which is also an endangered species, feeds
4 in that channel. And that species, for some
5 reason, is never thought about or considered.
6 Please remember the pelicans as well.

BIO-1

7 So you asked for some specific
8 mitigations because obviously, no matter what thing
9 you choose -- if you do choose one of these and not
10 the no-action alternative -- you will have obvious
11 disruptions to the community and to the
12 environment, et cetera.
13 Some of the mitigations that I would
14 suggest need to be looked at is that extraction
15 shaft site on Hurricane. That is a city parcel of
16 land. If you do this project, and when you're
17 done, that parcel of land ought to be rezoned into
18 open space. Don't sell it for more development.
19 That area is highly overdeveloped
20 already. They need some open space, and the
21 habitat there at the lagoon needs open space around
22 it as well. There are two underdeveloped lots
23 which also could be likewise rezoned for open
24 space. They're also owned by the City.
25 And in the Playa Del Rey neighborhood,

OS-1

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you obviously are going to be causing some major disruptions. One of the biggest concerns we have there is Toes Beach Dunes, which is threatened by development, and the Patriot Homes Site. Perhaps the City could have some mitigation by helping put some money towards the purchase of those sites.

Thank you.

MS. BROWN: DeDe Audet.

MS. AUDET: Thank you. My name is DeDe Audet, and I live in Venice, California. I think what has been mentioned by Marcia and alluded to by Mark, we need to know in considering environmental impacts exactly what density the current pipe size and pumping is designed for and what density the items you are proposing will provide for. PROJ-2

I think it's very important information in order for people to make decisions. If we're going to open up streets or the beach or whatever it is, let's make sure we're doing it right, and we don't have to come back in 20 years and open it up again. So let's try to look ahead and give these people that information so that they know, because they're the ones that are going to have to pay for it. And let them know exactly what they're going

to get.

And on the issue of flooding, I don't know how long you fellas have been around here, but I can tell you I have seen rowboats on Washington Street. We get some pretty darn good floods. And there's some very important people living down there off of the speedway on both sides of the channel, and I'm sure that I will hear from them at the Grassroots Venice Neighborhood Council. FLD-1

So please, try to get comprehensive information. That's what we need. Comprehensive. Because I just don't see how people can understand the environmental impact without knowing what you intend to serve. Thank you.

MS. BROWN: Roy Van de Hoek.

MR. VAN DE HOEK: I support what she just said and your other speakers who all seem to have an opinion of being generally opposed to the project. My name is Roy Van de Hoek for the record. I'm a citizen and resident on Vista Del Rey Avenue and will be very close to the routes. I'm also a biologist and EIR expert-in-process.

I would like to see you do no-action alternative that is twice as long -- written twice as many words, twice as much text as your preferred ALT-1

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1 alternative. And what I want you to focus on in
2 your no-action alternative is how doing no changing
3 of the pipes will have to cause politicians to
4 address no growth, more density of population of
5 people.
6 Doing a no-action alternative that shows
7 the limit of how much sewage can go, will show that
8 you can't go anymore to three-story, four-story,
9 five-story buildings anymore around the marina;
10 that you can't think about 20 years from now
11 doubling the population or tripling the population
12 on the west side, because that's what this is
13 facilitating by having such a large sewage line
14 there.

ALT-1
GRWTH-1

15 It's a piecemealing. And to define what
16 "piecemealing" is, when we first sent troops in the
17 '50s with Eisenhower to Vietnam, that was just a
18 few advisors. Then Kennedy sent more; that was the
19 second piecemealing. Then Johnson expanded; that
20 was piecemealing. Now we have 100,000-plus troops
21 and 70,000 killed. That's all part of
22 piecemealing.
23 And what you're doing here is earlier on
24 before you started approving the towers in the
25 marina and started approving more and more

EIR-3

1 high-rises all over, that's causing you now to want
2 to do this project. You should have done this at
3 the time when you were approving that. And that's
4 how you piecemealed it, and now you have a mess.
5 And now you're going to have an even bigger mess.
6 If you do this, the only route I see
7 feasible for travel and other reasons is to go down
8 Via Marina, get rid of that city tree of
9 Los Angeles in that median and that grassy lawn,
10 and run it right down the middle of that. Do a cut
11 and fill, cheaper route, and you won't affect
12 traffic. The cars will still be able to go back
13 and forth.
14 If you have to go down to one lane each
15 way, it needs to have an impact on traffic. If you
16 try to go down Pacific, you're only going to have
17 the width of one lane and cars won't be able to go.
18 Once your route hits the marina, it should go at
19 whatever angle is required and then hit the beach.
20 But that doesn't mean I'm advocating that
21 as a preferred alternative. I think the no-action
22 alternative is my opinion. I think there will be
23 an abundance of biological impacts, and I think you
24 haven't anticipated all of them.
25 There is going to be a lot of other

EIR-3

ALT-2

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1 federal listed, state listed, state sensitive,
2 federal sensitive, other animals and plants that
3 are proposed for listing in the future. And I'll
4 give you more written comments later.
5 MR. DELKHASTE: Thank you very much.
6 MS. DURRELL: Thank you all. Do we have
7 any more comment cards?
8 MR. VANGESSEL: If you do a cut and cover
9 method, they said they could do 50 feet a day
10 excavation. I did the calculations for you, and I
11 can run them through. That's 22 construction
12 trucks that they have to get in between 9:00 a.m.
13 and 3:30. Can't be possible.
14 So they're saying they can do 50 feet of
15 excavation a day with cut and cover. Technically,
16 physically, that's not possible, at least along
17 Pacific. The alternative along Via Marina, it's CON-2
18 absolutely possible because there is a lot more
19 room. So I could, again, explain in detail.
20 So one of the other comments that I'd
21 like to point out is you have the Via Marina and
22 Pacific Avenue cut and cover at the same exact
23 costs. Well, I don't know anything that costs
24 exactly the same out there. Via Marina is
25 definitely a cheaper method to go.

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You have it required to do boring underneath Hurricane to get across the street -- the channel. Why you can't do a cut and cover to make that less expensive, unknown to me. You can cut off that canal, have it float around, cut the other half. We do it all the time in construction. CON-7

Couple items: If you do cut and cover, couple of things that should be required. As a minimum, cover all vehicles after they're filled with dirt. They're driving through this neighborhood. Right now that is not a requirement.

Once you go, they use this document to write the technical specs. So we want that, and we don't want it -- as it says here, "or do something else." We want it standard. No "or" allowed. EIR-4

You have on page 5-128 a whole bunch of line items. We should make these very clear so the people that write the technical specs, they should do this. Everyday the trenches have to be covered. CON-9 Right now that is not in there as a requirement. Everyday, have your trucking operation, as you mention and discuss, in your construction method. Make it a requirement.

Make it a bullet item, like you said -- like you said in your construction thing. 9:00 to

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1 3:30 so it will not impact the residents in the
2 neighborhood. That's what you discussed that you'd
3 like to see happen, but you don't make it a CON-9
4 requirement by making it a bullet item. Make it a
5 bullet item. We all know in the EIR, it becomes a
6 requirement.
7 The City does and different organizations
8 have such things as special assessments so that if
9 a contractor breaks any of these rules, he gets
10 fined. If you want to make sure, put it in here as
11 a requirement in the EIR that you will have special CON-7
12 assessment language put into the contract so that
13 if the contractor breaks any of these rules --
14 doesn't have his truck covered, works outside the
15 proper hours, doesn't park in the right location --
16 he gets a fine.
17 Another one is similar things for such
18 things as noise and vibration to disturb the
19 residents. The City may argue that such things
20 have never been done. I can guarantee you -- I
21 work for MTA. We put it in our jobs because we CON-8 CON-8
22 want to make sure when we build things that the
23 resident is happy. We did this on the project to
24 build the orange line. We had assessments of over
25 $200,000 to our contractor when he was annoying the

neighbors. I hope the City does the same thing.

MS. DURRELL: Thank you. We are going to conclude our public comment period. I'm sorry that I strayed away from the rules.

MR. VAN DE HOEK: You allowed him to speak, and he got the longest amount of time. I appreciate that you were nice to do that.

MS. DURRELL: I did lay out the ground rules at the beginning that you had to fill out the comment card, and you had that opportunity. We are taking comments through March 17th.

MR. VAN DE HOEK: I don't believe this is fair. This process needs to start all over again. If you're going to allow one person to have a second comment, I deserve and earn a second comment.

To add and supplement to doing a negative or no-action alternative and making it twice as long, I want you to, in that twice as long, have ten pages about how our piece of mind will be heightened by not doing the project; that we will enjoy no new noise. ALT-1

We will -- all these positive things that will happen under no-action that none of the other alternatives can compare to -- how it will be

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1 quiet, how we will be able to continue our lives
2 the way they are right now, that we won't have to
3 think about more people coming, that we'll have
4 nature and the sunrises and dusk, that everything
5 will be so much more beautiful and just give it -- ALT-1
6 you call it the no-action alternative, which makes
7 it sound negative, but the no-action alternative
8 needs to be written maybe five times longer than
9 all the other alternatives together.
10 And just talk about how beautiful it's
11 going to be if this project doesn't happen. We now
12 have the highest number of pelicans anywhere in
13 California, from the Mexican border to San Luis
14 Obispo -- 2,200 pelicans. We have -- you add up
15 all the other pelicans in Southern California, and
16 for six months of the year, Playa Del Rey and
17 Marina Del Rey have the highest number of pelicans BIO-1
18 anywhere on the west coast. And that might be
19 harmed.
20 So please do 30 pages of the brown
21 pelicans ecology. And have a team of five brown
22 pelican experts who aren't paid by you, but
23 volunteer to step forward and write independent
24 reports from the Federal government to say that it
25 would be better not to have the project and how

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good it would be for nature and for all of us.

MR. DELKHASTE: Thank you.

MS. DURRELL: Anyone else have comments?

MS. KAPP: My name is Carol Kapp. I would like to ask about cut and cover being used along the beach. Then I would like to make a couple of housekeeping suggestions, because I know that something is going to happen. ALT-3

I like Mark's idea and Mr. Van de Hoek's about maybe nothing, but I believe that the Argonaut newspaper serves our community quite well. And I believe that the staff from this project should have to make, at the minimum, a bi-weekly report to the community about what's going on, about what the contractor did or did not do, and how contractual issues are being resolved, and just really keep us up to date. I think that would be really good. PROJ-5

I also think that we need to have another community meeting in this room at night so that whatever the last-minute changes are -- unless we get a whole nother EIR -- could be made public. And also, that the LAPD, the LAFD, life guards, and hospital should be invited so that all these safety providing people know what they're going to need to EIR-1

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1 possibly come up with at any time during the three EIR-1
2 to five-year program that's going to be going on.
3 And then I would also like to ask that if
4 this does go by people's homes, that these people
5 have a tax break. Yes, I think that they should TAX-1
6 not have to pay taxes, at least prorated for the
7 months that they're put through whatever hell is
8 going on. And I am being very serious about it.
9 Thank you.
10 MS. DURRELL: Okay. I think everyone has
11 had a second opportunity to be heard. We
12 appreciate that. Again, this -- I'm sorry. You're
13 going to make a statement?
14 MR. KRAUCH: I'd like to take my three
15 minutes that I earlier relinquished. Carol Kapp
16 mentioned the Argonaut. Twice in the last 25
17 years, the Argonaut, because of excessive rains, I
18 have read this. And I want somebody up here, maybe
19 Doty, to verify this.
20 At Farragut Avenue in Culver City,
21 legally, when it's raining excessively, there's a
22 legal right for the sewer system, which comes from PROJ-4
23 the valley through the Hollywood tunnel -- they put
24 that in in the '50s. They can release anything.
25 If the Hyperion reaches an over-capacity

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of so much, they open that up, and all the sewage from the valley comes right down. Is that true? Can you explain what is true on that subject? PROJ-4

MS. DURRELL: Okay. We will be on hand. Again, we have an EIR copy here if you'd like to review it. We have all kinds of handouts for you.

Again, the deadline for your comments and writing would be March 17th by the close of business. We appreciate you coming out. We know how important this is to you, and we appreciate your feedback. Thank you very much.

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11.5 RESPONSES TO COMMENTS

Responses were developed by the Lead Agency (City of Los Angeles) in accordance with Section 15088 of the CEQA Guidelines. They address environmental issues in the comments and follow the comment identification convention found in Table 11-1.

Response to Comment ALGN-1: Preferred Alignment - Beach

Several residents in the area of the proposed project indicate their support for the beach alternative as the environmentally superior alternative.

As required by CEQA, the EIR identifies an environmentally superior alternative (see Section 6.0, page 6-3 of the Draft EIR). The Draft EIR concludes that:

> "Based upon the outcome of the impact analysis for this project, it has been determined that the environmentally superior alternative is the mined tunnel Alternative #4 (Inland Alignment). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion and noise and vibration. The proposed alignment, as shown on Figure 4.3-10, would begin at launch shaft #2 located in Vista Del Mar and run due north toward the pumping plant on Hurricane Street and tie in at the #10 receptor shaft. Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the City would work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way."

This conclusion is based on an objective analysis based on the documentation and analysis provided in the EIR and does not support a preference for the beach alignment.

CEQA does not require decision-makers to approve the environmentally superior alternative identified in the EIR, but does require the decision-maker to determine findings that support any decision not to approve the environmentally superior alternative identified in the EIR. As noted in the EIR, the City's Department of Public Works has not identified a preferred alignment; rather, the Department is relying on the Draft and Final EIR, including public comments on these documents, to provide the City's decision makers (the Board of Public Works and the City Council) with information sufficient to weigh the effects of each alternative alignment prior to making a final decision on the project alignment.

In conclusion, the analysis provided in the EIR provides a detailed description of the impacts of alternatives, including the beach alignment. No additional analysis or research is necessary regarding impacts due to the beach alignment to the project area.

Response to Comment ALGN-2: Preferred Alignment – Non-beach

The California Coastal Commission stated that its concern with the beach alignment is due to the potential for erosion caused by a rising sea level over the life of the project. As noted more specifically in response to comment CLI-1, Climate Change, the EIR analyzes the potential impacts caused by beach erosion and the potential risk to the force main if it is constructed along the beach. The EIR evaluates the potential alignments without a recommendation for the selection of one alignment over another. Specifically, section 2.3.1 (page 2-10 of the EIR) notes that:

> "A preferred alternative for the project has not been determined at this time. Equal analysis has been given to each alternative associated with the Project, allowing for a decision to be made in accordance with CEQA Guidelines, which states that sufficient information must be provided to allow meaningful evaluation, analysis, and comparison of the proposed Project."

However, as required by CEQA, the EIR identifies an environmentally superior alternative, which is not the beach alignment, but the mined tunnel Alternative #4 (Inland Alignment); see Section 6.2, page 6-3 in the Draft EIR which states:

> "This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion and noise and vibration. . . . Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the city would work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way."

The concerns of the Coastal Commission are reasonable and consistent with the impact analysis provided in the EIR. The City's decision-makers, the Public Works Commission and the City Council, will consider the EIR and weigh the comments of the Coastal Commission, the public and other agencies in selecting which alternative alignment to approve.

In conclusion, the analysis provided in the EIR provides a detailed description of potential impacts from all alternatives, including non-beach alignments. No additional analysis or research is necessary regarding impacts of this alternative to the project.

Response to Comment ALT-1: Alternative – No Project Analysis

The comment asserts that the No Project Alternative would limit future development and growth in the area served by the Venice Pumping Plant Dual Force Main Project (VPP).

Under the No Project Alternative, no new pipelines would be installed and the sewer system would continue to operate in the current manner. Neither the No Project Alternative nor the other alternatives under consideration and evaluated in the EIR would either induce or limit growth. As noted in the EIR, analysis of the No Project Alternative (see Section 6.2 of the Draft EIR), the No Project Alternative could result in potentially significant adverse effects to the environment due to the existing sewer force main's current lack of conveyance capacity and inability to perform regularly scheduled maintenance on the existing force main. In addition, an overflow of untreated wastewater into the Ballona Lagoon and areas surrounding the project could result from the No Project Alternative because of the age and condition of the existing main from the VPP which, in turn, could cause substantial harm to the environment. The proposed new force main is not designed to accommodate increased development in the areas served by the VPP, beyond that contained in approved land use plans; the objective of the proposed new force main is to ensure that the outflow from the VPP can be safely conveyed to the City's Hyperion Treatment Plan by having a new force main that is less likely to leak and/or break which would result in untreated sewage in the area's underground environment and, perhaps, the local ocean waterfront and creeks, lagoons, and other surface waterways. Finally, the amount of sewage that would flow in the proposed new force main would be largely determined by the capacity of the VPP. There are no plans to increase the capacity of the VPP and therefore, the potential growth-inducing impacts of the project are limited.

In conclusion, the analysis provided in the EIR provides a detailed description of a range of project alternatives and notes existing conditions, conditions during construction of each alternative, and conditions following project completion. No additional analysis or research is necessary regarding impacts to the project area from project alternatives.

Response to Comment ALT-2: Alternative – New Alternative

Three comments were received requesting consideration of additional alternatives.

The Department of Public Works has considered and compared a reasonable range of alternatives in the EIR. The Department did conduct a preliminary analysis of a larger number of alternatives that were screened prior to selection of alternatives for detailed analysis in the EIR. These additional alternatives were rejected for various reasons including: substantial increased construction costs; non-availability of right-of-way for construction; and the need to acquire additional land. The preliminary analysis prepared by the City for the project, as presented in the Initial Study, (and provided as Appendix A to the Draft EIR), focused on and was limited to feasible alternatives in terms of cost, right-of-way, and technical or engineering characteristics. The EIR evaluates and compares the alternatives identified in the Initial Study and the EIR scoping process. The alternatives analysis in the EIR allows for a decision to be made in accordance with CEQA Guidelines, which states that sufficient information must be provided to allow meaningful evaluation, analysis, and comparison of alternatives to the proposed project. Based upon the analysis conducted of the alternatives identified in the EIR, the cut-and-cover method of construction for two of the proposed alignments was deemed not viable; therefore, a detailed impacts analysis is not provided for them. The environmentally

superior alternative is identified as required by CEQA. A matrix displaying the major characteristics and significant environmental effects of each alternative is provided in Section 8.0 of the Draft EIR, which may be used by the public and decision-makers to make comparisons prior to selecting the preferred alternative alignment for the VPP dual force main sewer.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, conditions during construction of the project alternatives, and impacts following project completion. No additional analysis or research is necessary regarding impacts from project alternatives, and an additional alternative is not required.

Response to Comment ALT-3: Alternatives – Alternatives Bias

The Department of Public Works has no bias for one alternative over another. As stated in the Draft EIR, there is no preferred alternative at the present time. The purpose of the alternatives analysis provided in the EIR is to analyze the impacts of alternatives to provide a basis by which the public and decision-makers can compare feasible project alternatives that would achieve the project objectives described in the EIR; (see Section 2.2, page 2-1, of the Draft EIR). The process prescribed by CEQA for the preparation of a Draft EIR, and ultimately the Final EIR, provides for review by objective experts within local, regional, state, and federal agencies and the public to ensure that the Draft EIR and Final EIR provide accurate, current, and applicable data, as well as ensure that the impact analysis is accurate and consistent with state-of-the-art environmental analysis methodologies. As noted in other written comments received by the City in response to the Draft EIR, these agencies did not find any bias in the analysis, nor did they negatively comment on the conclusions reached in the EIR's impact analysis. Finally, as prescribed by CEQA, the Initial Study, Draft EIR, and Final EIR are subject to public review and comment. The purpose of this public review is to ensure that the documents provide answers to substantive comments by the public and that issues of concern to the public are not overlooked and are given due consideration. As noted in several public comments, the Department of Public Works' EIR process provides an opportunity for the public to offer their comments and raise questions. The Department of Public Works has seriously considered the comments made during the EIR scoping process and the comments made on the Draft EIR. Public concerns have been seriously considered both in the preparation of the Draft EIR as well as in the preparation of these responses to comments.

Responses to Comment ALT-4: Alternative – New Beach "Cut and Cover" Alternative

An additional alternative is requested – specifically, the use of the cut-and-cover construction method for the beach alignment of the new force main. As noted in the Draft EIR (see Section 4.1.1 and Alternatives, Section 6.0), cut-and-cover construction is a very common method of linear pipeline construction and replacement. However, with the cut-and-cover approach, major construction activities could be limited to within relatively short segments of about 1,000 feet at any given time (see Figure 4.1-1, Cut-and-Cover Construction). This alternative was determined to be not viable for the

Dockweiler Beach Alignment because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes. This alternative, therefore, is not addressed in the EIR and its inclusion would not result in a reduction of project-related impacts.

In conclusion, the analysis provided in the EIR provides a detailed description of alternatives to the project. No additional analysis or research is necessary regarding impacts to the environment in the project area.

Response to Comment AQ-1: Air Quality – Odor

Based on the operational characteristics, the proposed project is not likely to impede the progress of the SCAQMD in complying with federal and state ambient air quality standards, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. A significant air quality impact is not expected due to air releases from force main valves because they are expected to be rare, involve only small quantities of trapped air, and would dissipate quickly. The existing force main in Dockweiler Beach, which has been in continuous operation since it was built in 1960, has two air release valves (one opposite Culver Boulevard and another opposite Yawl Street). These have not caused any significant air quality impact. As noted in Section 5.2.3.2 of the Draft EIR (Air Quality Operational Impacts), the proposed project is anticipated to emit minimal odors. Once operational, the proposed project would operate with minimal need for on-site maintenance under normal conditions. The total amounts of emissions from maintenance worker vehicle exhaust are considered negligible and would not have a significant impact on air quality.

In conclusion, the analysis provided in the Draft EIR provides a detailed description of current conditions and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding project-related air quality impacts in the project area.

Response to Comment BIO-1: Biology

Section 5.3.3 (see pages 5-20 through 5-25 of the Draft EIR) provides substantial discussion of the plant and animal communities in the project area, including an analysis of the habitat for both the least tern and the El Segundo Blue butterfly. The identification and analysis of potential impacts describes the proximity of their habitat to the construction areas of each alternative (including alternative alignments and alternative construction methods). Recognizing potential environmental impacts during construction of these habitats, a series of mitigation measures are identified to reduce the impacts to a less than significant level (see Section 5.3.5 which states that if the mitigation measures are implemented successfully, “no unavoidable adverse impacts on biological resources are expected as a result of the proposed project.”). The City’s mitigation monitoring program, as a requirement of CEQA, would provide the means to ensure the implementation of mitigation measures.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding impacts to biological resources in the project area.

Response to CLI-1: Climate Change – Rising Sea Level

The Coastal Commission expressed concern that "in a situation of rising sea level and increased coastal erosion, the sewer line could, in a few years, be attacked by waves and require a revetment or other coastal protection structure." The City acknowledges this possible impact to the beach and the potential impact on both the existing force main and the potential alignment of the new force main on the beach. Such beach erosion would be comparable to that resulting from a tsunami. The Draft EIR (page 5-74) notes the potential beach erosion could result from a tsunami:

> "It is well known that a tsunami can cause substantial erosion and scour on the shore. For example the 1960 Chilean tsunami scoured out the port entrance by more than 30 feet at Kesen-numa Port in Japan. Although the pipeline would be buried at depths no shallower than 10 feet below the surface, the possibility of damage to the proposed pipeline cannot be disregarded. A catastrophic tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment alternative."

The potential short-term impact to the beach from a tsunami would be comparable to the potential long-term effects from a rise in sea level. The existing line has been in use for nearly 50 years (since 1958) and the proposed new force main is expected to have a comparable life-span. If sea levels do rise in the next 30 to 50 years, the City would take necessary steps to develop a new route for the force main. The Coastal Commission's concerns are addressed in the Tsunami Analysis in the EIR. As noted in the Draft EIR (see Section 5.6.4, page 5-77), the potential damage to the proposed force main cannot be disregarded and mitigation measure GEO-5 is recommended:

> "**GEO-5 Tsunami –**A tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment. Proper design and construction of the Project components, including erosion control measures or choosing an alternate alignment off of the beach, would reduce impacts from a tsunami to less than significant levels."

In addition, consideration of potential beach erosion contributes to the conclusion in the EIR that the Beach Alignment Alternative is not the environmentally superior alternative. In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding impacts from beach erosion in the project area.

Response to Comments CON-1: Construction – Parking

The EIR includes an analysis of construction-phase parking impacts for each alternative alignment. For example, on page 5-43 of the Draft EIR the analysis states that "During construction, two-way traffic could be maintained along Hurricane Street by displacing parking along Hurricane Street (approximately 17 spaces on the north side and 10 spaces on the south side) and northbound traffic would be detoured to Speedway Avenue where necessary. One-way traffic would be maintained along the west side of Pacific Avenue (southbound movement). Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue."

The identified impacts would be mitigated to less than significant levels by the measures identified in the Draft EIR (see page 5-52). The mitigation measures relating to the identified potential parking impacts include:

> **"TRA-1**: For each construction site, a construction traffic management plan shall be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work. This plan shall include such elements as the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turning movement restrictions, temporary traffic control devices or flagmen, travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, **and designated staging and parking areas for workers and equipment** (emphasis added). Where construction would occur within a public street ROW, including during the open-trench construction activities for all six combinations of Marina Del Rey and Playa Del Rey alignment alternatives and at the short cut-and-cover portion on both ends of the two full-length tunnel alternatives (Dockweiler Beach alignment and Dockweiler Beach to LAX Shaft alignment), the following mitigation measures would also apply:"

With the implementation of these mitigation measures, the parking-related impacts of the project's construction would be reduced to less than significant levels.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, future conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related parking impacts.

Response to Comment CON-2: Construction – Schedule

The construction schedule (again, as provided in the Draft EIR in Table 4.2-1) has been developed by the City's Department of Public Works and reflects the complexity of the project. The schedule is a realistic projection of the time to complete each phase of construction. Specifically, as noted in the Draft EIR (see page 4-6), "In an effort to provide accurate information regarding the length of time associated with these impacts, Table 4.2-1 outlines the estimated duration of time it would take to install the sewer for each of the proposed alignment alternatives.

As presented in the Draft EIR (page 7-4), the "VPP Dual Force Main Project would involve construction activities occurring simultaneously at a number of surface sites along the Project alignment. Construction of the VPP Dual Force Main Project may be occurring in the same general time and space as other projects in the area. In these instances, surface construction activities from both sets of projects could produce cumulative traffic effects which may be significant, depending upon a range of factors including the specific location involved and the precise nature of the conditions created by the dual construction activity (see Traffic-Related Project Construction Schedule in Table 4.2-1). Special coordination efforts may be necessary to reduce the combined effects to an acceptable level. Overall, significant cumulative impacts are not anticipated."

In conclusion, the analysis provided in the EIR provides a detailed description of construction schedules under for the proposed project and no additional analysis is necessary regarding construction schedules.

Response to Comment CON-3: Construction - Traffic

The information requested in this comment is provided in the Draft EIR. Regarding Pacific Avenue, the Draft EIR notes that "construction of the proposed (3,000-foot-long) Pacific Avenue alignment would involve both open-trench construction and tunnel-boring. As noted in the Draft EIR (see Section 5.4.3.3, page 5-43), the temporary localized impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity. The open-trench construction method would be performed to construct the Pacific Avenue alignment, including the intersection of Pacific Avenue and Via Marina. As further described in the EIR, during construction one-way traffic would be maintained along the west side of Pacific Avenue (southbound movement). Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue.

The City's Initial Study, provided as Appendix A to the Draft EIR, identified impacts related to street closure for construction of the new force main, regardless of alignment; such impacts include short-term rerouting of traffic around construction sites. Specifically, as noted in the Draft EIR (see Section 5.4.3.3, Project Impacts) "the construction-period impacts for each of the build alternatives are assessed in this section. This analysis includes general traffic impacts caused by construction traffic and reduction of roadway segment capacities, if any, and localized impacts related to access, pedestrian movement, bus routes and stops, and on- and off-street parking in the vicinity of each of the construction sites." The identification and analysis of impacts included evaluation of impacts related to alternative force main alignments and alternative construction methods.

The following summarizes the impact analysis provided in the Draft EIR for each alignment and for each construction method; see Section 5.4.3 for the full text of the impact analysis:

Marquesas Way/Via Marina Alternative Alignment: It was assumed that the entire Marquesas Way/Via Marina alignment would be performed simultaneously by two teams of construction workers (for trench and tunneling) as the worst-case scenario, resulting in peak trip generation estimates of 45 worker trips and no construction truck trips during the morning and afternoon peak hour. The projected incremental change in V/C ratio during construction of the Marquesas/Via Marina alignment for the nine analyzed intersections and 23 analyzed roadway segments are identified in Appendix E of the Draft EIR. Project trips generated by the construction of the entire Marquesas Way/Via Marina alignment in combination with either of the two Playa Del Rey alignments would not result in an adverse impact at any of the four study intersections north of the Marina Del Rey Channel in Marina Del Rey, but adverse impact could occur at Via Marina south of Tahiti Way (one of the 23 analyzed roadway segments) in Marina Del Rey with a southbound lane closure.

Pacific Avenue Alternative Alignment: Similar to the development of project trip generation estimates for the other two alternative Marina Del Rey alignments, the projected incremental change in V/C ratio during construction of the beach alignment for the nine analyzed intersections and the 23 analyzed roadway segments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Channel Segment: The Marina Del Rey and Ballona Creek channels would be crossed using the tunnel-boring method. For any combination of north and south alignments, the launching shaft would be on the southern shore of the channel, while the receiving shaft would be located on the northern shore. Depending on which combination of north and south alignments is selected, the channel crossing would be about 1,300-1,900 feet long. As the tunnel-boring would occur at the same time as the open-trench construction, a discussion of the project impacts for the channel segments is included in the discussion above and in the Draft EIR's discussion of the two project alignment alternatives in the Playa Del Rey segment.

Regarding the traffic impacts associated with the alternative construction methods, the analysis provided in the Draft EIR, beginning on page 5-49, addresses each alternative and concludes the following:

(1) Cut-and-Cover Construction – A discussion of the project impacts due to the cut-and-cover construction method is included in the Draft EIR for each of the three project alignment alternatives in the Marina Del Rey area and for each of the two Project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the tunnel-boring method in several project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(2) Tunnel-boring – A discussion of the project impacts due to the tunnel-boring construction method is included in the EIR for each of the three project alignment alternatives in the Marina Del Rey area and for each of the two project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the cut-and-cover method in several project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(3) Large-Diameter Tunneling – A discussion of the project impacts due to the use of large-diameter tunneling is included in the alternatives in the EIR for each of the four proposed larger tunnel alignment alternatives. These alternatives would result in fewer circulation impacts than those employing cut-and cover and tunnel-boring methods. Based on this analysis, the project alternatives are not expected to result in significant impacts to the transportation system upon completion of the proposed sewer facilities. The construction of the sewer facilities, however, could result in temporary adverse impacts on traffic and parking, the introduction of temporary bicycle, pedestrian, or vehicular safety hazards, and the temporary relocation of access points to public transit. During the various construction phases of each project alignment, travel by construction workers and truck hauling of supplies and disposal would generate trips on the regional and local transportation system surrounding each construction shaft site or zone. These trips would represent a temporary increase during defined phases of construction and, upon completion of construction, would cease. Adverse short-term impacts could result, but because they would be of limited duration, they are not considered to be significant. In addition, temporary lane closure due to open-trench construction activities for the six project combinations of Marina Del Rey and Playa Del Rey alignment alternatives and the short open-and-cut section for the Dockweiler Beach full-length tunnel alternative and the Dockweiler Beach-LAX Shaft full-length alternative would result in adverse impacts on up to four streets. Surface construction, however, would result in only temporary transportation disruption, which while adverse, would not be considered significant. Similarly, during the construction period at locations where construction activity would occur within public street Right of Way (ROW) or in areas accessible to the public (i.e., locations other than within the site of the VPP), increased safety risks to vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to affected sites due to narrowed lanes, altered travel patterns, and temporarily obstructed sidewalks. Adverse short-term impacts could result, but because they would be of limited duration, they are not considered to be significant for any of the 10 project alignment alternatives. Finally, construction of 8 of the 10 proposed alignment alternatives involving the open-trench method and tunnel-boring method would result in temporary loss of parking spaces either at the public parking lot adjacent to the channel or at on-street locations. This would be considered adverse, but not significant because of the temporary nature of the impact.

As shown above, the EIR presents a detailed analysis of traffic impacts of the proposed project. For each of the impacts identified in the analysis, the mitigation measures

provided in Section 5.4.4 would reduce potential significant impacts to less than significant levels. Key mitigation measures to reduce impacts to less than significant levels are summarized as follows (the full text of the mitigation measures is provided in the Draft EIR, page 5-50):

TRA-1 For each construction site, a construction traffic management plan shall be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work. This plan shall include such elements as:

- the designation of haul routes for construction-related trucks;
- the location of access to the construction site;
- any driveway turning movement restrictions, temporary traffic control devices or flagmen;
- travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways; and
- designated staging and parking areas for workers and equipment.

Where construction would occur within a public street ROW, including during the open-trench construction activities for all six combinations of Marina Del Rey and Playa Del Rey alignment alternatives, and at the short cut-and-cover portion on both ends of the two full-length tunnel alternatives (Dockweiler Beach alignment and Dockweiler Beach to LAX Shaft alignment), the following mitigation measures would also apply:

TRA-2 A site-specific construction work site traffic control plan shall be prepared for each construction site and submitted to the LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as:

- the location of any lane closures;
- restricted hours during which lane closures would not be allowed;
- local traffic detours;
- protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs); and
- access to abutting properties, and provisions to maintain emergency access through construction work areas.

TRA-3 Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on restriped street segments to facilitate the movement of through traffic. Eliminate travel lanes only when absolutely necessary.

TRA-4 Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.

TRA-5 Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site, and, where existing property access will be reduced, identify alternative means of access.

TRA-6 Coordinate with emergency service providers, (police, fire, ambulance and paramedic services), to provide advance notice of any lane closures, construction hours and changes to local access, and to identify alternative routes where appropriate.

TRA-7 Coordinate with pubic transit providers to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions and conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related traffic impacts.

Response to Comment CON-4: Construction – Beach Access

The beach is a valuable asset in the Venice community. The EIR addresses the short-term impacts to beach access as well as impacts to views of the beach during project construction. The analysis and documentation in the Draft EIR (Section 5.11.3, page 5-132) notes that "although the proposed Project would not involve permanent adverse impacts to recreational facilities and public resources, site-specific adverse impacts may occur during the construction period. Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball."

The EIR evaluates the short-term construction impacts and notes that "a public beach access path starts near the construction/laydown site and runs along the east side of Ballona Lagoon to the south. From the beginning of this path, the construction/laydown site would be within the foreground. The push site shaft would be in a vacant lot. The construction activities here would be in the foreground of residences along the northeast side of Via Dolce at its intersection with Marquesas Way."

Public access to the beach would be directed around any construction sit, and therefore beach access would not be interrupted, limited or made impossible during the construction phase of the project. No additional analysis or mitigation is necessary as the impact of construction on beach access would be less than significant.

Response to Comment CON-5: Construction – Timing

See response to Comment CON-2, Construction Schedule, regarding the schedule for the phases of project construction. The Draft EIR (Table 4.2-1) provides detailed information regarding the time of each phase and the relationship between the schedules

for each phase. No additional information is necessary to describe the planned schedule for the project. The schedule would be used by the Department of Public Works and the contractor(s) selected by the City to construct the new force main to monitor the progress of the project.

In conclusion, the analysis provided in the EIR provides a detailed description of the timing of phases of construction. No additional analysis is necessary regarding construction timing.

Response to Comment CON-6: Construction - Noise

The EIR provides a detailed analysis of the existing noise environment in the area of VPP and each of proposed alignments and construction methods being considered by the City for the new force main (Section 5-10 of the Draft EIR). A part of the analysis, the criteria to determine a construction-related noise impact is presented, noting the following:

- Depending upon the method of construction chosen, short-term increases in noise from construction would result from the operation of heavy equipment needed to construct the tunnels or cut, dig and re-fill the trenches and insert the pipeline for the Project. The City of Los Angeles regulates noise from construction, and the contractor would be required to adhere to these regulations.

- The City of Los Angeles Noise Ordinance (L.A.M.C. Section 112.03) regulates construction noise by referencing Section 41.40 of the Los Angeles Municipal Code. Section 41.40(a) prohibits use of any noise-producing device or powered equipment for construction or repair work on any building or structure between the hours of 9:00 p.m. and 7:00 a.m. on weekdays. Section 41.40(c) prohibits non-emergency grading or construction, other than by an individual homeowner on his/her own single-family residence, on or within 500 feet of residential land before 8:00 a.m. and after 6:00 p.m. on Saturdays and national holidays, and at any time on Sundays. These sections also prohibit operation, repair, or servicing of construction equipment and job-site delivering of construction materials during those hours.

- The County of Los Angeles addresses noise from construction activities in Section 12.08.440. The operation of any tools used for construction or related activities such that a noise disturbance is created at a residential or commercial land use is prohibited on weekdays between 7:00 p.m. and 7:00 a.m. or at any time on Sundays or holidays. The noise standards listed in Table 5.10-5 are applicable to construction activities conducted within the unincorporated County.

In addition to the analysis of construction-related noise impacts, the Draft EIR also identifies and evaluates impacts relating to operations and construction vibration; (Section 5.10.2, page 5-119). The City of Los Angeles does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this Project. The County of Los Angeles addresses vibration in Section 12.08.560 of the County Code. Any device is prohibited that creates vibration above the

threshold of perception at a distance of 150 feet from the source if the source is on a public space or public ROW. The threshold of perception is defined as 0.01 inch per second over the range of 1 to 100 Hertz.

To reduce construction-related noise impacts and post-construction noise impacts to less than significant levels, the EIR states that "potential construction noise mitigation measures may include limiting the hours of noisy construction activities to daytime hours near residences and other sensitive receptors. Other measures could include limiting the number of construction equipment operating at any one time." Following are the specific project-related construction noise mitigation measures (page 5-128 of the Draft EIR) that should be followed, to the extent feasible:

- **NOI-1** Trucks shall be limited to designated truck routes and shall avoid residential streets to the extent practicable.

- **NOI-2** Temporary soundwall barriers shall be erected for launch and receiving pits and large-diameter tunnel shaft work areas. Such soundwall barriers shall be of a sufficient height, length, and configuration so as to provide substantial noise reduction and effectively block the line-of-sight between nearby noise sensitive receivers and the work zone.

- **NOI-3** Electrically powered equipment shall be used instead of pneumatic, or internal combustion powered equipment where feasible.

- **NOI-4** Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

- **NOI-5** Construction site and haul-road speed limits shall be established and enforced during the construction period.

- **NOI-6** The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.

- **NOI-7** No project-related public address or music system shall be audible at any adjacent receptor.

- **NOI-8** The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Bureau of Engineering shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

- **NOI-9** The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.

Since no vibration impacts are predicted for operation of the pipeline, no mitigation measures are recommended or necessary for the operational phase of the project.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, future conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related noise impacts.

Response to Comment CON-7: Construction – Management

The City's future contractor for the construction of the proposed new force main would prepare a construction management program that would, among other requirements of the City, identify a project manager and support staff to direct all phases of construction. The City would approve the contractor's project management staff based on the construction manager's experience, qualifications and commitment to the assignment. The construction management program would also identify the communications between the City and the contractor during all phases of project construction to ensure that the City is kept informed of construction activities, any problems or delays encountered by the contractor, and adherence and compliance with the agreed-upon schedule for completion of the project. In effect, the construction management plan is an assurance to the City, its residents, and in particular to those who live and work in proximity to the project area that the project is proceeding as planned and that City-imposed mitigation measures are implemented at appropriate phases of construction.

Response to Comment CON-8: Construction – Vibration

As noted in more detail in response to comment NOI-1, the EIR includes an extensive analysis of potential vibration impacts due to project construction; see the noise and vibration analysis is provided in Section 5.10.3 beginning on page 5-119 of the Draft EIR. To address these impacts, several mitigation measures are recommended (see Draft EIR, page 5-128). With the implementation of these mitigation measures, noise and vibration impacts will be reduced to a less than significant level. No additional analysis or research is necessary to identify measures to reduce construction noise-related impacts to less than significant levels.

Response to Comment CON-9: Construction – Trench Covering

The description of trench covering for the various alignments under consideration is provided in the Draft EIR; for example, in page 5-43 it is noted that the Pacific Avenue alignment would involve both the open-trench construction and tunnel-boring. The EIR further notes that the "temporary localized impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity." The analysis provided in the EIR notes that the "open-trench method would be performed to construct the Pacific Avenue alignment in Marina Del Rey, beginning at the VPP on Hurricane Street, proceeding west to Pacific Avenue, and turning south and proceeding along Pacific

Avenue and ending at the receiving shaft for the tunnel-boring construction at the southern end of Pacific Avenue on vacant land west of the Los Angeles County parking lot."

The potential construction-related impacts to local streets and circulation due to the cut-and-cover construction method can be reduced to less than significant levels by the implementation of mitigation measures identified in the EIR, including TRA-1, TRA-2 and TRA-3. The combined effects of these three mitigation measures would reduce potential significant impacts to a less than significant level by requiring that the City prepare for each construction site a construction traffic management plan, and that the plan be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work.

In conclusion, the EIR addresses the issue of construction impacts, including trench covering methods, providing an analysis and documentation of the impact and identified mitigation measures so that the potential impact is reduced to a less than significant level.

Response to Comment EIR-1: Recirculation of EIR

CEQA requires the recirculation of a EIR in cases in which the EIR needs to be revised extensively to address substantial new information that may require additional analysis, to provide additional analysis of issues not addressed in the EIR, when there are substantial changes in the project description, and when there have been errors in the noticing and distribution of the EIR for public review. None of these reasons for recirculation of the EIR are relevant to this EIR. As shown in the comments on the adequacy of the EIR and in these responses to comments, no additional analysis is required to respond to comments; these responses to comments on the EIR result in clarification of information already contained in the EIR and do not require any substantive change in the project description or the analysis of issues addressed in the EIR.

Response to Comment EIR-2: Extend Review Period of EIR

CEQA specifies a minimum review period of 30 days for a Draft EIR. For this project, and as permitted by CEQA, the City provided a longer review period of 45 days. In addition, the public review and the opportunity to provide comments to the City on the adequacy of the Draft EIR also included the public hearing on the Draft EIR, which was held on February 23, 2006. In essence, the public was provided ample opportunities to review and comment on the Draft EIR. In addition, and again consistent with CEQA, the City would hold public hearings on this Final EIR. This process provides additional time for public review and comments on the EIR, and proposed Responses to Comments well beyond the 45-day review period for the EIR.

Response to Comment EIR-3: Piecemeal CEQA Analysis

The EIR has been prepared consistent with the state's CEQA Guidelines that ensure that impact analysis in not piecemeal, but is comprehensive in both the description of the

proposed project and the analysis of impacts. Specifically, the City prepared an Initial Study to identify potential environmental impacts; this analysis provided the basis for the City to identify potentially significant impacts and also provided a basis for the Notice of Preparation (NOP) of the EIR. The Initial Study was also used by the City in the public scoping meetings for preparation of the EIR. Both the NOP and the public scoping meeting provided opportunities for public comment on the range of environmental issues to be analyzed in the EIR. The EIR provides analysis of all issues identified in the Initial Study as well issues identified by public agencies in response to the NOP and issues identified by the public at the public scoping meeting. For example, at the scoping meeting the public requested that the EIR address the issue of risk to pedestrians and bicyclists during the cut-and-cover phase of project construction. This issue is evaluated in the EIR. The impact analysis is not piecemeal nor is it selective. The project description provides a substantial description of the project's objectives, needs and purpose, an identification of alternatives to achieve the objectives and analysis of the alternatives, and all other requirements of CEQA. Based on the project description, no analysis has been deferred.

One commentor has suggested that the proposed project is part of a larger project, the continued development of 3-4 story residential development in Venice. This new development is consistent with the General Plan for the area. The General Plan has been subject to previous environmental review, prior to its adoption. The environmental effects of the 3-4 story residential development now occurring in the Venice area were analyzed the General Plan EIR. Thus, the Venice Force Main Project does not represent piecemeal CEQA analysis of the larger General Plan build-out.

Response to Comment EIR-4: Mitigation Measures

The state's CEQA Guidelines allow lead agencies to substitute mitigation measures during project's development. In brief, a lead agency, such as the City of Los Angeles, may substitute one mitigation measure for another if: (a) the new measure is equivalent or more effective; (b) the City considers the matter at a public hearings; and (c) the City adopts a written finding that the new measure is equivalent or more effective, and that the new mitigation measure would not cause a significant effect. At this time no substitution is proposed or is being considered. The mitigation measures provided in the EIR are the measures that the City proposes to implement to reduce project-related impacts to less than significant levels.

Response to Comment EMG-1: Emergency Access

At the public workshop conducted by the City during the scoping period for the EIR the issue of emergency access during construction was raised by several people. The EIR acknowledges that during construction roadways may be narrowed to accommodate construction equipment and that lanes may be closed on a temporary basis. To address this, the EIR includes a mitigation measure to ensure that emergency access is not interrupted during project construction; specifically, mitigation measure TRA-2 provides that:

> "A site-specific construction work site traffic control plan shall be prepared for each construction site and submitted to the LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas."

With this measure, potential adverse impacts would be reduced to a less than significant level and no further analysis or mitigation is necessary. No additional analysis is necessary to describe the potential impacts of the project on emergency access.

Response to Comment FLD-1: Flooding

Flooding is a potential event throughout the City during major storms. Low-lying coastal areas and communities, such as Venice, are especially subject to flooding. The proposed project would not affect existing areas subject to flooding, nor increase the amount of water that would aggravate or increase flooding risks, frequency or areas subject to flooding by contributing to surface water sources. The project would not increase the impervious ground coverage in the area which could contribute to flooding. The existing force main and the proposed new force main are underground utilities and the proposed project would be protected from the effects of surface flooding. In extreme and unusual circumstances, the VPP may be shut-down in major flooding events. Therefore, the risks to the project from flooding, and the risks to the community of an increased flooding risk due to the project, would be less than significant.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding flooding impacts in the project area.

Response to Comment GEO-1: Geology – Settling and Dewatering

Page 5-75 of the Draft EIR provide a description of the potential for settling/landslides in the area and potential effects on the proposed project. As noted in the Draft EIR the:

> "The potential for landslides induced by seismic shaking is not anticipated to pose a significant seismic hazard to the proposed Project. The proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. In addition, the Potential Liquefaction Hazard Zone map for the Venice quadrangle, referenced as Figure 5.6-4, indicates that the Project elements do not lie within areas designated as having the potential for earthquake-induced land sliding (CDMG, 1999). These are areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement during a

seismic event. Landslides from other mechanisms are discussed further in this section."

To reduce the risk of landslides related to the project; the following mitigation measures have been identified in the Draft EIR (page 5-76) with emphasis added to note the specific relationship to landslides and settling:

> **"GEO-2 Liquefaction and Differential Seismic Settlement –** Mitigation measures with respect to liquefaction and **differential seismic settlement hazards** are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on these potential hazards will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as flexible connections that can accommodate **differential settlement**, compaction grouting to densify the soils, or structural anchors to secure the pipeline. The mitigation measures will reduce impacts from liquefaction and **differential seismic settlement** to less than significant."

Regarding dewatering, the Draft EIR's analysis (see pages 5-74 and 5-75) notes that:

> **"…** dewatering of the excavations made during construction of the proposed Project could result in potentially damaging subsidence adjacent to the construction area. The Project area is in proximity of the Playa Del Rey oil field, which is used by the Southern California Gas Company as a natural gas storage facility. Although a detailed study has not been performed for this report, it is anticipated that the continued operations at the natural gas storage facility would not result in measurable subsidence in the Project area, barring such extraction in the future. Because of the potential for subsidence to occur as a result of construction dewatering, subsidence is considered a potential geologic hazard to the proposed Project."

The mitigation measure relating specifically to subsidence and dewatering-related impacts is as follows:

> **"GEO-3 Subsidence –** Mitigation measures with respect to subsidence as a result of construction dewatering are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on this potential hazard will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or constructing the pipeline in a "wet" excavation. The mitigation measures will reduce impacts from subsidence to less than significant."

In conclusion, the EIR addresses the issues of settling and landslides, providing documentation and analysis of the potential risk, and identifying mitigation measures so that the potential impact is reduced to a less than significant level.

Response to Comment GEO-2: Geology - Liquefaction

The identification of liquefaction as a project-related risk was identified by the City in the proposed project's Initial Study. The City's Venice Community Plan identified liquefaction as a risk to persons and property, including the proposed project and similar utilities, The EIR provides and extensive discussion of liquefaction potential in the Venice community and the potential effect of liquefaction on the proposed project.

The description of the liquefaction risk in the Draft EIR (page 5-74) provides a clear analysis for the public and decision-makers of the potential risk. As noted in the Draft EIR:

> "Liquefaction is defined as significant and relatively sudden reduction in stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. Recent geotechnical studies performed for the proposed project encountered saturated sandy soils at relatively shallow depths along most of the Pacific Avenue alignment (URS, 2000a; 2000b). Standard Penetration Test (SPT) blow counts indicate the consistency of some of these sandy soils is relatively loose and therefore prone to liquefaction.
>
> "The California Geological Survey has identified the project area as being in a potential liquefaction hazard zone (CDMG, 1999). Because of the combination of sands and shallow groundwater in the project area, liquefaction is considered a significant potential seismic hazard along all of the alternative alignments for the Project."

In addition, the EIR (page 5-74) notes that:

> "The potential for landslides induced by seismic shaking is not anticipated to pose a significant seismic hazard to the proposed Project. The proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. In addition, the Potential Liquefaction Hazard Zone map for the Venice quadrangle, referenced as Figure 5.6-4, indicates that the Project elements do not lie within areas designated as having the potential for earthquake-induced land sliding (CDMG, 1999). These are areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement during a seismic event."

The Draft EIR (page 5-76) identifies two mitigation measures that address the potential significant impact of liquefaction on the proposed project:

> **"GEO-2 Liquefaction and Differential Seismic Settlement –**Mitigation measures with respect to liquefaction and differential seismic settlement hazards are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on these potential hazards would be performed as part of the design studies. Design and construction of the proposed

Project would include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline. The mitigation measures would reduce impacts from liquefaction and differential seismic settlement to less than significant.

"GEO-3 Subsidence –Mitigation measures with respect to subsidence as a result of construction dewatering are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on this potential hazard will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or constructing the pipeline in a "wet" excavation. The mitigation measures will reduce impacts from subsidence to less than significant."

With the implementation of proper engineering practices and mitigation measures prior to and during construction, no unavoidable or adverse impacts on the geologic footprint of this area from the project are expected. In addition, cumulative impacts on the geologic footprint of this area are not expected from the project with the implementation of proper engineering practices and mitigation measure prior to and during construction. No additional analysis is necessary to address the potential impact, nor are additional mitigation measures necessary to reduce the potential liquefaction impacts to less than significant levels.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions and conditions during construction and following project completion. No additional analysis or research is necessary regarding liquefaction, seismic settlement and subsidence impacts in the project area.

Response to Comment GEO-3: Geology - Seismic

As with the analysis provided in the EIR of liquefaction risk (see previous response to Comment GEO-2), the EIR provides extensive analysis and documentation of seismic risks to the project and the surrounding area. The EIR documents that the potential seismic risks are potentially significant and require mitigation measures. The following measure is proposed to mitigate potentially significant geologic hazards to less than significant levels for the project components. No unavoidable adverse impacts that cannot be mitigated have been identified for any of the project components. The mitigation measure is more accurately described as a project design feature and is presented in the Draft EIR (page 5-75), and are repeated again below for clarity:

"GEO-1 Earthquake Ground Shaking –The proposed Project and associated facilities will likely be subjected to moderate or strong earthquake motions in their lifetime. The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum. Proper design and construction of the

Project components will reduce impacts from ground shaking to less than significant."

Response to Comment GRWTH-1: Growth-inducing Impacts

As required by CEQA, the EIR provides an analysis of the potential for the project to induce growth in the area. In simple terms, a project would induce growth if an obstacle or barrier to future growth is removed. That is not the case with the proposed new force main from the VPP. As noted in the Draft EIR discussion of growth-inducing impacts (Section, 7.1 Growth-Inducing Impacts), Section 15126.2(d) of the CEQA Guidelines requires a discussion of the growth-inducing impacts of the proposed project. Growth-inducing impacts are secondary, or indirect, impacts that could occur as a result of the project that are manifested as changes in land use patterns, population density and growth rates, as well as related effects on traffic, public services, air, water, biological and other environmental resources. Over the past several decades, the Bureau of Engineering has designed and constructed numerous wastewater conveyance system projects. The issue of potential growth inducement resulting from an increase in sewer conveyance capacity has been raised in the past by various individuals and organizations. The primary issue is whether the provision of sewer capacity induces growth, which would otherwise not occur.

The proposed project would not change permitted land use in the community and surrounding areas; the project is the construction of new force main from the VPP to the Hyperion Treatment Plant. The size of the proposed force main is based on the existing and projected flow of sewage from the VPP and is not based on achieving an increase in capacity to address future growth that is not consistent with the City of Los Angeles' land use plans for the area. The development of land in the City is governed by the land use and zoning designations of particular parcels. Unless conditional use permits, density transfers or variances are obtained from the Planning Department, development must conform to the type and density designated for that parcel. Zoning reflects the land use policies contained in the General Plan. Again, no change in the permitted land uses, or density of development, is part of the proposed project.

As noted in the Draft EIR (see Section 7.1, page 7-1), the decision of a land owner to develop a single parcel or numerous parcels of land may be based on personal or economic reasons. Whether personal, economic or both, the availability of wastewater conveyance capacity is not likely to be a consideration in the decision to develop. Once the decision to develop a parcel has been made, permission to connect to the wastewater collection system must be obtained as part of the building permit process. A sewer connection permit can only be obtained if adequate capacity to serve the proposed development is available. Sewer connection and other building permit fees are charged in proportion to the density of development proposed. The high sewer connection fees and other building permit fees associated with the most intensive levels of development increase the costs of developing land in the City and can be considered economic disincentives to development. In a mature, urbanized area such as Los Angeles which is

adequately served by sewage treatment facilities, the provision of wastewater conveyance capacity would not induce land development that would not otherwise occur.

Wastewater conveyance capacity is required to accommodate the increases in wastewater flows associated with the population increases. The provision of wastewater conveyance capacity would neither induce natural population growth nor in-migration. The Southern California Association of Governments (SCAG), the regional planning agency, has established the policy that conveyance systems, including interceptors, are not subject to its air quality conformity procedures, because of the absence of their effects on population growth.

SCAG, which includes the City of Los Angeles among its member jurisdictions, has prepared the Regional Comprehensive Plan and Guide and the Growth Management Plan. These plans address regional growth and related issues. In addition, the City of Los Angeles' General Plan governs land use development within its jurisdiction.

The Los Angeles City Planning Department revised the General Plan and the new plan, termed the "General Plan Framework," is intended to balance land use development, transportation, projected future population and projected future employment within the City of Los Angeles. Wastewater conveyance capacity is an infrastructure component of the urban environment that is necessary to safely accommodate the needs of existing and future populations.

In conclusion, the analysis provided in the EIR provides a detailed description of current water quality conditions, future conditions during construction of the project and following project completion and no additional analysis is necessary regarding construction-related wastewater related growth inducing impacts.

Response to Comment GRWTH-2: Hyperion Plant

The commentor asks if the Hyperion Plant can handle the increased flows of the sewer line in the context of the large expansive housing projects that the City continues to approve. As noted in response to comment GRWTH-1, above, and in the EIR the provision of wastewater conveyance capacity, in and of itself, would not induce population growth or land use development. Rather, wastewater conveyance capacity would allow population growth to occur consistent with the City's adopted General Plan Framework while minimizing sewage spills and the associated environmental and health and safety problems. Future land uses would be at densities consistent with the Framework and generally not occur in densities higher than those allowed by the City's land use planning process. Any development projects beyond the scope of the City's General Plan would undergo subsequent environmental analysis (including analysis of impacts to the wastewater system) and would have to be approved by the City Council. In wastewater planning, the sizing of collection and treatment facilities, as well as the system's overall configuration, is dependent on the future system-wide flow and the distribution of that flow within the system. The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. No

significant growth-inducing impacts are, therefore, associated with the project and no additional research or analysis is necessary to address this issue.

Response to Comment NOI-1: Noise – Noise Curtain Mitigation Measures

The Draft EIR analyzes the noise and vibration impacts that would result from project construction (see Section 5.10.3 beginning on page 5-119). The construction phase would produce significant noise impacts on sensitive receptors in the vicinity of construction. To address these impacts, several mitigation measures are recommended (see Draft EIR, page 5-128). With the implementation of these mitigation measures, noise and vibration impacts would be reduced to a less than significant level. Other mitigation measures, such as the noise curtain recommended in this comment, are not necessary to mitigate impacts that would otherwise be mitigated by less costly and even more effective measures. Therefore, no additional research or analysis is necessary to identify measures to reduce construction noise-related impacts to less than significant levels.

Response to Comment NOI-2: Noise – Pacific Avenue Noise Mitigation Measures

Potential project-related noise impacts are analyzed in detail in the EIR. The Draft EIR (page 5-118) notes that existing City noise requirements and standards would be met during the project's construction.

> "If any Project alignment alternative exceeded the relevant noise criteria for impact, then noise abatement actions would be considered. Noise from any Project alignment alternative, that is predicted to exceed the criteria for impact under CEQA, would result in a significant adverse effect. In such a case, feasible/effective noise mitigation measures would need to be considered. If feasible/effective mitigation actions were not available, then unavoidable adverse impacts would occur if the particular alternative were to be selected."

To ensure that the City's noise standards are met during project construction, mitigation measures are provided in the EIR that are applicable to all project alternatives, including both alternative alignments and alternative construction methods. The Pacific Avenue alignment alternative, if selected by the City, would be subject to noise mitigation measures NOI-1 to NOI-9. These measures would reduce potential significant impacts to less than significant levels. No additional analysis is necessary to identify, analyze and mitigate noise impacts from the proposed project.

Response to Comment OS-1: Open Space – Mitigation

Section 5.9.1 of the Draft EIR describes existing land uses in the project area, clearly describing the open space resources present (such as the beach, the lagoon, and other water ways). Specifically, the Draft EIR notes that: "Existing land uses within the Venice area, extending north from Via Marina Way on the south, consist of six major land-use designations: single- and multi-family residential, commercial, industrial, open space, and public utilities. The proposed alignments north of the Marina Del Rey Channel

and on the southeast side of the Ballona Lagoon are in areas zoned single and multi-family residential. Areas to the west are zoned open space along the Ballona Lagoon and low to medium residential. The area surrounding the VPP is primarily zoned multi-family residential to the north, and open space on the south along the Ballona Lagoon. Along the alternative alignments south of the channel, and under consideration by the City, the zoning is also primarily residential and light commercial."

The analysis presented in Section 5.9.3 notes that "Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project would adhere to all local and regional regulatory requirements necessary for the construction of the sewer." The impact analysis further notes that the "Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas." The analysis concludes that the "Project could impose temporary construction impacts in the Coastal Transportation Corridor Specific Plan area due to construction-related transport to and from construction areas north of the Marina Del Rey/Ballona Lagoon channels."

In conclusion, there would be no loss of open space during project construction and no mitigation measures are, therefore, proposed or required.

Response to Comment PRMT-1: Permitting

Section 1.6 of the Draft EIR provides an extensive list of permits for the proposed project in Table 1.6-1. The list of permits includes permits that are necessary for all alignments and construction alternatives evaluated in the EIR, including permits necessary for the Pacific Avenue alignment.

Response to Comment PROJ-1: Project Related – Project Life

The existing force main is nearly 50 years old. One objective of the proposed project is to supplement that existing force main with a new line that has more carrying capacity but which would also be more reliable in handling maximum flows without leaking or breaking which would result in significant contamination of the area's groundwater and surface water resources. The Department of Public Works anticipates the new force main would have a life-span greater than 50 years. Following development of the new force main the Department would be able to inspect the existing line to determine what repairs can be made to extend its life further. With the proposed project, adequate carrying capacity would be provided for more than 50 years. There is little likelihood that additional construction to the force mains would be necessary for at least 50 years. Therefore, the impacts identified and analyzed in the EIR are the only impacts that can be reasonably foreseen at this time.

Response to Comment PROJ-2: Project Related – Capacity of Force Main

The EIR provides detailed information regarding the capacity of the existing force main, the capacity of the proposed new force main and the reasons why the City has proposed

the use of a tandem system of forces mains from the Venice Pumping Plan. As noted on page 2-1 and page 2-5 of the Draft EIR:

> "The VPP is the largest pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City through an existing 48-inch pipeline and transports it to the Hyperion Treatment Plant in Playa Del Rey (see Figure 2.2-1). Over the years, the existing pipeline that conveys sewage to the treatment plant has gradually approached maximum capacity placing substantial strain on the system forcing the water level in the wet-well of the VPP basement to rise.
>
> "The City of Los Angeles first identified the need for additional sewer capacity during the heavy storms of 1995 when sewage and infiltrated storm water in the sewage system exceeded the capacity of the existing 48-inch line, creating a potentially serious human and environmental health risk. Although the pumping plant had all five pumps running during peak rainfall, the existing downstream sewer force main that runs along the beach could only handle approximately 60 percent of the flows that would otherwise run through the pumps - serving as a bottleneck in the system. The amount of sewage and infiltrated storm water in the sewage system exceeded its capacity, forcing the water level in the wet-well of the VPP to rise. In an effort to prevent potential sewage spillage as a result of an overload situation, the City proposes to install an additional 54-inch pipeline to convey the flows."

Based on these events that clearly indicate the need for the City to address the capacity of the existing force main, the City proposes the Venice Force Main project. As further noted on page 2-5 of the Draft EIR:

> "In addition to the need to provide pipeline capacity to manage peak flows, the new 54-inch force main would be used in tandem with the existing force main; together, the two force mains would provide the necessary capacity to meet current and future peak wet weather flow demands. The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two objectives: expand the capacity of the Coastal Interceptor Sewer's force main segment from the VPP to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all projected wet weather flows can be safely conveyed without future threats of spilling onto city streets and adjacent surface waters; and to provide force main redundancy to allow for maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods."

In addition, a critical consideration by the Department of Public Works is the recognition that "the existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. The installation of the proposed 54-inch force main would provide bypassing capability allowing repair and maintenance of the existing pipeline, which is currently not possible" (page 2.5 of the Draft EIR).

In conclusion, the information provided in the EIR clearly describes the reasons why the City is proposing to increase the capacity of force mains from the VPP. No additional analysis is necessary to describe the purpose of the project, its benefits and its characteristics.

Response to Comment PROJ-3: Project Related: Sewage Spill Plans

The proposed project seeks to reduce the existing risk of sewage spills (discharge) that may result from the existing force main. First, as noted in the Draft EIR (see Section 7.1, page 7-3) "it is technically infeasible that completion of the proposed Project, within any of the proposed three alternative locations, would cause any unwarranted discharge that would affect the current surface water quality condition. Unless there is a catastrophic event (e.g., high magnitude earthquake) the proposed Project is designed to provide additional mitigation of possible sewage spills from the existing pumping station/sewer main system. Additional wastewater conveyance capacity would allow population growth to occur within the General Plan Framework while minimizing sewage spills and the associated environmental, health and safety problems.

Second, the Department of Public Works requires that all construction projects include requirements that the contractor meet all applicable, local, state and federal requirements to reduce the risk of spills and/or discharge during project construction. This is a contract provision that is supervised by the City on all construction contractors. No additional information or analysis is necessary to illustrate or demonstrate how the City would impose conditions to ensure that sewage spills and/or discharge related impacts would not occur during project construction.

Response to Comment PROJ-4: Project Related: Sewer Capacity

See previous responses to comments PROJ-2 regarding the need to ensure adequate capacity of the force mains from the VPP. In addition, the project is limited to construction and operation of an additional force main from the VPP. The project does not provide for additional sewer capacity in the project area nor is the project proposing increasing the capacity of the City's wastewater treatment system, specifically the Hyperion Treatment Plant.

Response to Comment PROJ-5: Project Related – Project Updates

The comments relate to the public's interest in being kept informed of the status of the project's planning, design and construction. Although not a CEQA-related requirement nor necessary to reduce or otherwise mitigate environmental impacts, the City would make available to the public brief summaries of project status and periodic mitigating monitoring reports completed by City staff that would indicate status of the project's progress, the status of the mitigation measures as they are implemented, and the remaining work to be completed by the City and/or its construction contractor.

Response to Comment PROJ-6: Project Related – Safety Concerns

The EIR addresses a wide variety of issues identified through the City's preparation of the Initial Study (provided in full in Appendix A to the Draft EIR) and issues raised by the public at the scoping sessions/workshops prior to the preparation of the EIR. There are a variety of safety concerns; for example, in a broad sense, the protection of the area's biological communities and habitat is a safety concern. Specific mitigation measures have been identified to reduce those impacts to less than significant levels. Further safety concerns relate to seismic risks and these too have been analyzed in the EIR and mitigation measures have been identified to reduce or mitigate these impacts to less than significant levels. The EIR also describes construction activities, such as exposed trenches and the presence of construction equipment in the project area. Again, mitigation measures have been identified to reduce safety-related issues to less than significant levels. As a result, the issue of public safety has been addressed among the full spectrum of environmental issues and mitigation measures have been identified to reduce safety-related risks to less than significant levels. No additional research or analysis is necessary to address this issue.

Response to Comment PROJ-7: Project Related – Project/Alternatives Cost Information

The purpose of an environmental impact report is to identify and evaluate the environmental effects of the propose project, to identify means to mitigate those impacts, to address alternatives which would meet most of the project objectives and would reduce environmental effects, and above all else, to provide the public and decision-makers with information about the project and project impacts. An environmental impact report is not a cost-benefit study, nor is it intended to provide a detailed cost analysis of the project and project alternatives. Specifically, the effects analyzed under CEQA must be related to a physical change in the environment. Economic and social effects, including costs associated with the proposed project and its alternatives, are not considered environmental effects under CEQA (CEQA Guidelines Section 15064, 15131, et al.). These effects need to be considered in EIRs only if they would lead to an environmental effect. The order of magnitude cost estimates provided in the EIR are intended to give the public and decision-makers information on the comparative feasibility of the alternatives. The EIR, therefore, does not provide information beyond that required by CEQA and no additional information is provided in the Final EIR.

Response to Comment PROJ-8: County Facilities

The proposed project would not require modification to County facilities or operations in the area, such as the in the unincorporated Marina Del Rey area. The County would be informed as the project construction progresses and would be notified of any change that could affect County facilities. Permits to construct and operate the new force main are included in the EIR and, as required for the permits, the County would be notified.

Response to Comment TAX-1: Property Tax Relief

The costs to plan, design, engineer and construct the proposed new force main would be born entirely by the City of Los Angeles' Department of Public Works. It has long been

the policy of the City not to provide tax relief to businesses, neighbors, residents and property owners in proximity to a public works projects in the form of property tax relief or other monetary compensation for environmental effects of City projects. Rather, as identified in the EIR, it is the City's responsibility to pay for the implementation of the mitigation measures to reduce adverse impacts to less than significant levels where feasible. The implementation of the mitigation measures would reduce impacts to acceptable levels. As a result, there would be no impacts anticipated from the proposed project that would create financial hardship on the area's businesses, residents and property owners and no property tax relieve is proposed.

Response to Comment TRA-1: Traffic

The comments raise questions regarding the breadth of the traffic impact analysis provided in the EIR and if the analysis accounts for the specific characteristics of the local street system. As described in the Draft EIR (see Circulation, Traffic and Transportation, Section 5.4.1, Environmental Setting), the analysis is based on the existing street network in the area, the current traffic conditions (volume and capacity), and proposed improvements to the street system. The issues raised in this comment are addressed in this section of the EIR. Based on the existing street network, the impacts of the proposed project — particularly the short-term construction impacts of the alternative non-beach alignments — are addressed in detail, including description of potential street and/or lane closures during construction on vehicles, bicyclists and pedestrians. The potentially significant short-term construction-related traffic impacts can be reduced to a less than significant level by the circulation and traffic mitigation measures in the Draft EIR (see Section 5.4.4, beginning on page 5-50). In conclusion, the concerns raised in the comments are consistent with the impacts identified and analyzed in the EIR and these impacts can be mitigated to less than significant levels.

Response to Comment WQ-1: Water Quality

One of the objectives of the proposed project is to reduce the potential contamination of the local surface and subsurface water resources that may occur from sewage spills, leaks and, in an extreme case, a break in the existing main leading from the VPP to the Hyperion Treatment Plant. The existing main from the VPP is old and may collapse or rupture creating substantial contamination of the local ground and/or surface water.

As noted in the EIR, all proposed alternatives would cause similar construction and operations impact to the project boundary and adjacent area. The completed project would be in compliance with the NPDES Municipal Separate Storm Sewer System (MS4) Permit and meet the necessary sanitary sewer service standards. Without the installment of the new sanitary sewer main, the current sanitary system would continue to deteriorate and run a high risk of overflowing the system, causing a potential break in the system, and causing a potential health risk to the local waterways. From a hydrology and water quality perspective, all alternatives cause a similar temporary disturbance to the current site conditions. All three proposed alignments cross under the Marina Del Rey Channel and Ballona Creek via tunneling, and the Marquesas Way alignment crosses

under the Grand Canal via tunneling. Tunneling would occur below the bottom of these waterways, and have no effect on the waterways.

The following mitigation measure to the project contained in the EIR would minimize the proposed Project's impacts on water quality and hydrologic conditions.

- **H/WQ-1** Appropriate Best Management Practices (BMP) measures (sandbags, plastic lining covering storm water inlets, temporary detentions basins, etc.) would be implemented during the construction period to retain excavated soil material on site and minimize the potential risk of contaminated soil being removed off site. Also, monitoring activities would be conducted during the installation of the BMP measures and throughout the construction period.

Provided that all federal, state, and local regulations pertaining to project activities are followed accordingly and storm water prevention plans are implemented and monitored, then the potential for significant or long-term adverse impacts would be avoidable.
In conclusion, the analysis provided in the EIR provides a detailed description of current water quality conditions, future conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related water quality issues or impacts. Moreover, as noted in the EIR, the project area is not within a sensitive environmental setting. Change to the existing site conditions would be temporary and the site would be restored back to a similar pre-construction condition. Pre- and post-construction hydrologic conditions would be similar and any change in condition would be minimal. All proposed alternatives have similar construction applications and procedures. Therefore, there are no foreseen hydrologic or water quality cumulative or secondary impacts.

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12.0 CLARIFICATIONS AND REVISIONS

This section of the Final EIR is intended to clarify certain elements of the Draft EIR and to identify revisions made after circulation of the draft.

12.1 CLARIFICATIONS

The Environmental Impacts Summary Table presented in the Executive Summary (Table 3.3-1) is intended to provide a simpler and clearer summary than provided in the Impact Analysis Table published in the Draft EIR (Table 6.3-1).

12.2 REVISIONS

During internal review, we discovered that some pages were omitted from Appendix A (Notice of Preparation), C (Air Quality Analysis) and D (Biological Resources), which were published in Appendices Volume I. Therefore, Appendices Volume I has been corrected and reissued with a cover date of December 2007. This correction does not introduce new information, since the information in the appendices was presented in the Draft EIR volume itself. In fact, we received no comments from reviewers expressing concern about the missing pages.

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MAYOR

February 25, 2008

#1 CE

City Council
Room No. 395
City Hall

Subject: VENICE DUAL FORCE MAIN SEWER - CERTIFICATION OF ENVIRONMENTAL IMPACT REPORT AND PROJECT APPROVAL BY THE CITY COUNCIL

As recommended in the accompanying report of the City Engineer, which this Board has adopted, the Board of Public Works recommends that your Honorable Body:

a. Certify that the final EIR has been completed in compliance with CEQA; that the City Council reviewed and considered the information contained in the final EIR prior to approving the project; the final EIR reflects the City Council's independent judgment and analysis; and that the documents constituting the record of proceedings in this matter are in the custody of the City Clerk, and in the files of the Department of Public Works Bureau of Engineering.

b. Adopt the Mitigation Monitoring Program.

c. Adopt the Findings and Statement of Overriding Considerations.

d. Approve the Project as described in the EIR.

FISCAL IMPACT

The project has an approved budget of approximately $65,315,000. Funding is available from the Sewer Capital Fund.

Respectfully submitted,

James A. Gibson, Executive Officer
Board of Public Works

JAG:mp

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Bureau of Engineering
Report No. 1

February 25, 2008
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VENICE DUAL FORCE MAIN SEWER - CERTIFICATION OF ENVIRONMENTAL IMPACT REPORT AND PROJECT APPROVAL BY THE CITY COUNCIL

RECOMMENDATIONS

1. Review and consider the Environmental Impact Report (EIR), which finds that the Project will have significant environmental impacts.

2. Certify that the EIR was completed in compliance with the California Environmental Quality Act (CEQA) and expresses the City's independent judgment and analysis.

3. Adopt this report and forward it to the City Council with the recommendation that Council:

    a. Certify that the final EIR has been completed in compliance with CEQA; that the City Council reviewed and considered the information contained in the final EIR prior to approving the project; the final EIR reflects the City Council's independent judgment and analysis; and that the documents constituting the record of proceedings in this matter are in the custody of the City Clerk, and in the files of the Department of Public Works Bureau of Engineering.

    b. Adopt the Mitigation Monitoring Program.

    c. Adopt the Findings and Statement of Overriding Considerations.

    d. Approve the Project as described in the EIR.

FISCAL IMPACT STATEMENT

The project has an approved budget of approximately $65,315,000. Funding is available from the Sewer Capital Fund.

TRANSMITTALS

1. Draft Environmental Impact Report (FEIR Volume I and Appendices).

2. Final Environmental Impact Report (FEIR Volume II).

3. Mitigation Monitoring Program.

4. Findings and Statement of Overriding Considerations.

DISCUSSION

Background

The City of Los Angeles is proposing to construct and operate a new force main sewer, 54 inches in diameter and extending about two miles from the existing Venice Pumping Plant (VPP) at 140 Hurricane Street in the community of Venice to a junction structure on the Coastal Interceptor Sewer in the community of Playa Del Rey on Vista Del Mar near Waterview Street. The new force main sewer would be used in tandem with the existing force main sewer for the purpose of fulfilling the City's objectives, purposes and needs for sewage conveyance capacity, pipeline redundancy, and maintenance.

Sewage Conveyance Capacity

The VPP is the largest wastewater pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City and pumps it to the Hyperion Treatment Plant in Playa Del Rey. The VPP's existing 48-inch diameter force main sewer, built in 1958, can handle only about 60 percent of the flows that could otherwise run through the VPP when all five of its pumps are running at full capacity. When flows into the VPP exceed flows out of the plant, wastewater will overflow directly into Ballona Lagoon. During heavy storms, such as those that occurred during the winters of 1994-95 and 2004-05, the excess wastewater at the plant came within minutes of overflowing into Ballona Lagoon. Additional conveyance capacity from VPP is needed to manage peak flows.

Pipeline Redundancy

The existing pipeline is a critical link in the City's wastewater conveyance system. A second, tandem line is needed to provide additional protection against the risk of system failure.

Maintenance

The existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. The existing pipeline is the only feasible way to convey sewage flows from the VPP to the Hyperion Treatment Plant and therefore must be operated continuously. A second, tandem line is needed to allow the existing line to be bypassed, allowing repair and maintenance of the existing pipeline, which is currently not possible.

Project Description

The City proposes to construct and operate the Venice Dual Force Main along the Via Marina/Pacific Avenue alignment described in the EIR and hereinafter referred to as the "preferred alternative." From the existing VPP on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via

Marina and portions of the county parking lot, then under the Marina Del Rey entrance and Ballona Creek channels to a point on the south side of Ballona Creek at Pacific Avenue. From there, the alignment continues south along Pacific Avenue and Vista Del Mar to the connection in Vista Del Mar near Waterview Street.

Construction would be by a combination of boring and cut-and-cover construction methods. Surface construction activities (construction management offices, materials staging, boring, etc.) would occur on or near the following sites:

- VPP (140 Hurricane Street) and vicinity, which may include Hurricane Street between Canal Court and Grand Canal, the city-owned lots at 139 Hurricane Street and the county-owned lot at 3821 South Via Dolce.

- An insertion shaft in the intersection of Marquesas Way and Via Marina.

- A receiving shaft in the south-bound side of Via Marina about 500 feet south of Marquesas Way.

- An insertion shaft in the south-bound side of Via Marina north of Bora Bora Way.

- A receiving shaft in the north-bound side of Via Marina about 300 feet north of the entrance to Los Angeles County Marina del Rey Parking Lot 13 (4601 Via Marina).

- An insertion shaft in the south end of Los Angeles County Marina del Rey Parking Lot 13 (4601 Via Marina)

- A receiving shaft in Pacific Avenue at 62nd Avenue and vicinity, which may include adjacent portions of 62nd Avenue, Los Angeles County 62nd Avenue Parking Lot, the access road along the south side of Ballona Creek channel, and 650 East 62nd Avenue.

- An insertion shaft in Pacific Avenue at 66th Avenue.

- A receiving shaft in Pacifica Avenue about 50 feet south of Convoy Street.

- An insertion shaft in Vista Del Mar at Montreal Street.

- A receiving shaft in Vista Del Mar at Sunridge St.

- Cut and cover in Vista Del Mar from Sunridge Street to about 150 south of Waterview Street. Construction activities may include adjacent portions of Dockweiler Beach, and minor portions of the “Los Angeles Airport (LAX) Dunes” property (such as the area recently used for the North Outfall Sewer rehabilitation project).

Field offices for construction management and staging of equipment and materials may also occur at nearby city properties such as 311 Thatcher Avenue (“Thatcher Yard”) and 3507 Via Dulce in addition to the foregoing areas.

This alternative route has an estimated construction cost of $48 million. The cost estimates herein are order-of-magnitude estimates intended to provide a measure of comparative feasibility. A more precise cost estimate can’t be made until a project is selected and designed.

Project Alternatives

In accordance with the requirements of CEQA, the EIR evaluated a range of project alternatives. In all, the City evaluated three alternative alignments, three alternative construction methods and the “no project” alternative. Detailed descriptions of the alternatives are contained in the EIR. The City’s reasons for not selecting the alternatives to the Preferred Alternative are described below. The cost estimates herein are the order-of-magnitude estimates used in the EIR to provide one measure of comparative feasibility.

No Project Alternative

Under this alternative, no new sewer force main would be constructed and the existing sewer system would continue to operate in its current configuration. The No Project alternative could result in potentially significant adverse effects to the environment due to the lack of conveyance capacity of the existing 48-inch sewer force main downstream of the VPP and the current inability to perform regularly scheduled maintenance on this pipeline. If inflows to the VPP exceed the capacity of the force main leaving the plant, an overflow of untreated wastewater into the Ballona Lagoon and other areas in the vicinity of the VPP Force Main corridor could result, causing significant harm to the environment.

Cut and Cover Along Preferred Alignment

Although construction via cut and cover is normally the fastest way to construct a pipeline, this alternative is not recommended because shallow groundwater in the area would necessitate extensive dewatering. The selected construction method, boring, greatly reduces the need for dewatering and therefore avoids the risks associated with dewatering (such as subsidence or altering the extent of any groundwater contamination). In addition, this alternative would have greater impacts to air quality, noise and vibration impacts to adjacent residents when compared with the selected project

Pacific Avenue Alignment

This alignment is about 10,100 feet long. From the pumping plant on Hurricane Street, the alignment would proceed westerly in Hurricane Street to Pacific Avenue, then turn

southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along Pacific Avenue and Vista Del Mar to the junction structure in Vista Del Mar near Waterview Street. Three alternative methods of constructing the force main sewer along Pacific Avenue were evaluated: cut and cover, boring, and mining.

Construction via cut and cover would take about 7 months and cost about $37 million. While this alternative would be the quickest and least expensive to construct, it is not recommended because, compared with the selected project, it would have greater impacts to air quality, parking, circulation, risks arising from dewatering, greater risk due to proximity of gas wells and contaminated sites and potential noise and vibration impacts to adjacent residents.

Construction via boring would take about 15 months and cost about $47 million. This alternative is not recommended because, compared with the selected project, it would have greater impacts to parking, circulation, greater risk due to proximity of gas wells and contaminated sites.

Construction via mining would take about 28 months and cost about $68 million. Although this alternative is the environmentally superior alternative, it is not recommended because of its significantly greater cost ($68 million) and construction time (28 months).

Dockweiler Beach Alignment

This alignment is about 10,300 feet long. From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point, the line runs easterly to the junction structure under Vista Del Mar near Waterview Street. If the mined large-diameter tunnel construction method is used, the construction shaft and staging area could be on the LAX property slightly further to the southeast. Two alternative methods of constructing the force main sewer along the beach were evaluated: boring and mining.

Construction via boring would take about 15 months and cost about $54 million. This alternative was not selected because, compared with the selected project, this alternative is more expensive, risks impacts to the rare and endangered California Least Tern and would have greater risk due to proximity of gas wells and contaminated sites.

Construction via mining would take about 27-28 months and cost about $65-68 million (depending on the construction method used for the connections at the north and south

ends). This alternative was not selected because of its significantly greater cost and construction time.

Environmentally Superior Alternative

The environmentally superior alternative is to mine a large-diameter tunnel along the Pacific Avenue alignment from the LAX Dunes to VPP (identified as mined tunnel alternative 4 in the DEIR). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion, noise and vibration. This alternative was not selected because of its significantly greater cost ($68 million) and construction time (28 months).

Other Alternatives

Combined alignments, such as an alignment along Dockweiler Beach north of the channel and along Pacific Avenue south of the channel, were also considered, but were not analyzed in detail, because they were not environmentally superior when considered in the whole and did not have any other significant benefit, such as substantially lower cost.

The environmental impacts of two combinations of construction method and alignment were not analyzed in detail. Mining a large-diameter tunnel along the eastern alignment was not considered, because it would be longer than the other alignments (and therefore require more time and money to construct) while not offering any advantages over the other alignments. Cut and cover along the beach was not considered because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes.

Public Participation

A project hotline was established to take calls from stakeholders regarding the project. The hotline number was publicized on all project-related documents that were distributed to the community. Project information is on the Bureau of Engineering's website (http://eng.lacity.org/projects/vpp). The Notice of Preparation (NOP) was mailed to stakeholders and over 3,500 community members. The notice identified where the document could be viewed, as well as providing a brief overview of project components. The notice also served as an invitation to the scoping meeting and described its purpose in relation to the environmental review process. The notice was mailed via the US Postal Service to elected officials, government agencies, residents, businesses and community-based organizations on Monday, May 9, 2005. A scoping meeting was held on May 24, 2005 from 6:00 p.m. to 8:00 p.m. in the community room at the Westchester Municipal Building located at 7166 West. Manchester Avenue, Westchester, CA 90045.

Draft EIR Review and Comments

The Draft EIR was circulated for public review from January 31, 2006 to March 17, 2006 (Transmittal No. 1). The Notice of Availability was sent to all known responsible and trustee agencies, numerous City of Los Angeles departments that could have interest or

discretionary approval regarding the Project, and individuals and organizations known to have interest in the Project, or type of project. Copies of the Draft EIR were sent to responsible and trustee agencies and to key community stakeholders. A newspaper notice was published on February 9, 2006, in the *Los Angeles Times* – a newspaper of citywide circulation. In addition, the Notice of Availability and Draft EIR were sent to the State of California Governor's Office of Planning and Research, State Clearinghouse, for further responsible and trustee agency distribution. As with the Notice of Preparation/Initial Study, the Draft EIR was also available at several local public facilities (i.e., Bureau of Engineering office, two libraries and the offices of Council District No. 11), as well as available on the Bureau of Engineering website. A total of eleven comment letters were received during the Draft EIR public review period. Ten speakers provided verbal comments, at the public hearing on February 23, 2006, which were recorded by a court reporter for inclusion in the Final EIR.

A Final EIR volume was prepared following the close of the public review period (Transmittal No. 2), which together with the Draft EIR and Appendices constitute the complete Final EIR. The Final EIR Volume contains an executive summary, comments received and responses to comments, and minor clarifications and modifications to the Draft EIR for administrative purposes. No clarifications or modifications have been made to the Draft EIR that would add a new significant unmitigated impact or a substantial increase in the severity of an impact already analyzed.

CEQA requires public agencies to adopt a reporting or monitoring program for the changes to the project that have been adopted to mitigate or avoid significant effects on the environment. The program must be adopted by the public agency at the time findings are made regarding the project (Public Resources Code Section 21081.6). The State CEQA Guidelines allow public agencies to choose whether its program will monitor mitigation, report on mitigation, or both (California Code of Regulations Title 14, Chapter 3, Section 15097(c)). A Mitigation Monitoring Program containing the elements required by CEQA for the VPP Dual Force Main Sewer Project is transmitted herewith for adoption by the City Council (Transmittal No. 3).

Because the EIR finds that the Project would result in significant and unavoidable air quality, cultural resources, noise and aesthetic impacts during construction, the project can not move forward unless the City Council adopts certain findings including a statement of considerations that override the unavoidable significant environmental impacts of the project. Proposed Findings and Statement of Overriding Considerations are transmitted herewith (Transmittal No. 4).

(AJK WAL WHH RTH DJW)

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Respectfully submitted,

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VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

DRAFT ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NUMBER: 2003031001

Prepared for

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December 20, 2005

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ACRONYMS

AQA	Air Quality Analysis
AQMP	Air Quality Management Plan
ASTM	American Society for Testing Materials
ATSAC	Automated Traffic Surveillance and Control
BACM	best available control measure
BMP	Best Management Practice
BTEX	benzene, toluene, ethylbenzene, and xylenes
BWC	Ballona Wetlands Conservancy
°C	degrees Celsius
CAAQS	California Ambient Air Quality Standards
CALCADB	Computer Assisted Level of Service Calculations and Database
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CDMG	California Division of Mines and Geology
CDOGGR	California Division of Oil, Gas, and Geothermal Resources
CDWR	California Department of Water Resources
CE	Commuter Express
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Information System
CFR	Code of Federal Regulations
CIS	Coastal Interceptor Sewer
CMA	Critical Movement Analysis
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNLM	Center for National Lands Management
CNPS	California Native Plant Society
CO	carbon monoxide
CWA	Clean Water Act
dBA	decibel, A-weighted
°F	degrees Fahrenheit
DDT	dichlorodiphenyltrichloroethane
DOD	Department of Defense
EDR	Environmental Data Resources, Inc.
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency

EPB	Earth Pressure Balance
ERNS	Emergency Response Notification System
ESHA	Environmentally Sensitive Habitat Areas
FID	flame ionization detector
FINDS	Facility Index System
FUDS	Formerly Used Defense Sites
H_2S	hydrogen sulfide
LADOT	Los Angeles Department of Transportation
LAX	Los Angeles International Airport
LCP	Local Coastal Program
Leq	equivalent noise level
LORS	laws, ordinances, regulations, and standards
LOS	level of service
LUP	Land Use Plan
LUST	leaking underground storage tank
µg/kg	micrograms per kilogram
µg/l	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
mg/kg	milligrams per kilogram
mg/m^3	milligrams per cubic meter
MLTS	Material License Tracking System
MND	Mitigated Negative Declaration
mph	miles per hour
MSL	mean sea level
MTA	Metropolitan Transportation Authority
MTBE	methyl tertiary-butyl ether
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NDMA	N-nitrosodimethylamine
NFRAP	No Further Remedial Action is Planned
NO_2	nitrogen dioxide
NOP	Notice of Preparation
NOS	North Outfall Sewer
NO_x	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRC	Nuclear Regulatory Commission
O_3	ozone
ODI	Open Dump Inventory
OSHA	Occupational Safety and Health Administration
PADS	PCB Activity Database System
PAH	polynuclear aromatic hydrocarbon
Pb	lead
PCB	polychlorinated biphenyl

PCE	passenger car equivalent
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
RAATS	RCRA Administration Action Tracking System
RCRA	Resource Conservation and Recovery Act
ROC	reactive organic compound
ROD	Record of Decision
ROM	rough-order-of-magnitude
ROW	Right-of-Way
RWQCB	Regional Water Quality Control Board
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCC	State Coastal Conservancy
SIP	State Implementation Plan
SLC	State Lands Commission
SLM	sound level meter
SMBRP	Site Mitigation and Brownsfields Reuse Program
SO_2	sulfur dioxide
SPT	Standard Penetration Test
SWPPP	Stormwater Pollution Prevention Plan
TBM	Tunnel Boring Machine
TMDL	total maximum daily load
TOC	table of contents
TPH	total petroleum hydrocarbons
TRIS	Toxic Release Inventory System
TSCA	Toxic Substances Control Act
TSD	treatment, storage and disposal
UBC	Uniform Building Code
USACOE	United States Army Corps of Engineers
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
UST	underground storage tank
V/C	volume-to-capacity
VM Classes	Visual Modification Classes
VOC	volatile organic compound
vplph	vehicles per lane per hour
VPP	Venice Pumping Plant
WRA	Wetlands Research Association

1.0 INTRODUCTION

1.1 PURPOSE OF THE EIR

The purpose of an Environmental Impact Report (EIR), as defined in Section 15121(a) of the State Guidelines for the implementation of the California Environmental Quality Act (CEQA) California Code of Regulations (CCR), Title 14, Division 6, Chapter 3 "Guidelines" is as follows:

> *An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effect and describe reasonable alternatives to the project.*

This document assesses the significant environmental impacts, including unavoidable adverse impacts and cumulative impacts, likely to occur if the City of Los Angeles constructs and operates a new proposed 54-inch pipeline from the existing Venice Pumping Plant (VPP).

Consistent with CEQA Guidelines (Section 15180), this EIR is a project EIR. The intent of this EIR is to provide a comprehensive analysis of the potential impacts that may result from the implementation of the goals and objectives of the proposed Project. This EIR is intended to evaluate the project-related, secondary, and cumulative impacts of the proposed Project within the areas of the proposed alignment alternatives in as much detail as possible and to identify and resolve all reasonably anticipated impacts. Moreover, this EIR focuses on the impacts associated with the long-range implementation of the Project.

1.2 LEAD AGENCY AND DOCUMENT FORMAT

The City of Los Angeles is the lead agency, as defined by Section 21067 of CEQA, for this EIR and has supervised its preparation. The City of Los Angeles' City Council has primary responsibility for the adoption and implementation of the proposed Project and the certification of the Project's Final EIR. The overall format of the EIR contains those components required by CEQA, as summarized in Table 1.2-1. During the course of the EIR preparation, the City of Los Angeles' Department of Public Works contacted all affected agencies and organizations. Responses to the City's Notice of Preparation (NOP) are provided in Appendix A to this EIR.

Table 1.2-1 Required Contents of an EIR – CEQA Law and Guidelines

Required Analysis (in Number)	In Draft EIR
Table of Contents (Section 15122)	TOC
Summary (Section 15123)	1
Project Description (Section 15124)	2
Environmental Setting (Section 15125)	3 and 5
Environmental Impacts (Section 15126)	5
Significant Environmental Effects of Proposed Project [Section 15126(a)]	5
Unavoidable Significant Environmental Effects [Section 15126(b)]	5
Mitigation Measures Proposed to Minimize Significant Effects [Section 15126(c)]	5
Alternatives to the Proposed Project [Section 15126(d)]	4 and 6
Significant Irreversible Environmental Changes Resulting From Implementation of the Proposed Project [Section 15126(f)]	5
Growth Inducing Impacts of the Proposed Project [Section 15126(g)]	7
Effects Found Not to Be Significant (Section 15128)	5
References, Persons Contacted and Preparers of the Draft EIR (Section 15129)	9 and 10
Cumulative Impacts (Section 15130)	5 and 7

Technical studies were prepared for this EIR and are provided in the appendices. The reports for these studies are listed in Section 10.0: References and Persons Contacted, and are available for public review at the City of Los Angeles' Bureau of Engineering, Department of Public Works at 650 South Spring Street, Suite 574, Los Angeles, 90014-1920.

1.3 FOCUS OF THE EIR

The analysis contained in this EIR reflects the level of detail necessary at this time for the City to consider the proposed Project. Consistent with Section 15180 of the CEQA Guidelines, this is a "project" EIR for the construction and operation of the proposed new force main sewer. This EIR, prepared for the City of Los Angeles, Venice and Dockweiler Beach vicinity, focuses on the effects that may be expected with the approval of and the subsequent implementation of the new Force Main Sewer Project resulting in the following potential impacts: air quality, biological resources, circulation, traffic and transportation, cultural resources, geology, soils and seismicity, hazardous waste and materials, hydrology, water quality/stormwater runoff, land use plans, noise and vibration, public facilities and services, and visual and aesthetic resources.

The environmental issues listed above were identified in the Initial Study prepared by the City of Los Angeles (included in Appendix A). Fiscal issues and impacts are not addressed in this EIR, as fiscal impacts are not required to be addressed in an EIR under current applicable CEQA requirements.

1.4 INTENDED USE OF THIS EIR

Article 1, Section 15002 of CEQA states that the basic purpose of an EIR is to: 1) Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities, 2) identify the ways that environmental damage can be avoided or significantly reduced, 3) prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible, and 4) disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

In accordance with CEQA Guideline 15063(a), an Initial Study was conducted to determine if this project may have a significant effect on the environment. Although it was determined that this project will not have any long-term or lasting effects to the environment, it was determined that an EIR should be prepared for the purpose of describing impacts associated with the long-term construction schedule for the project.

1.5 REVIEWING AGENCIES

The following agencies will review this Project:

- Los Angeles County (various departments);
- California Coastal Commission (CCC);
- California Department of Fish and Game (CDFG);
- Department of Conservation;
- Department of Parks and Recreation;
- American Heritage Commission;

- State Lands Commission;
- California Department of Transportation (Caltrans), District 7;
- National Marine Fisheries Service;
- United States Fish and Wildlife Service (USFWS);
- Regional Water Quality Control Board (RWQCB), Region 4;
- South Coast Air Quality Management District (SCAQMD);
- United States Army Corps of Engineers (USACOE); and
- Others as determined.

1.6 PERMITS AND APPROVAL REQUIREMENTS

Table 1.6-1 identifies the names of agencies responsible to review and approve the project and the permits required:

Table 1.6-1 Permit Requirements

Agency	Permit/Requirement	Issues of Concern
Los Angeles County	▪ Geotechnical/Grading/Hauling Permits ▪ Dept. of Beaches and Harbors; Right-of-Entry Permit ▪ Right-of-Way (ROW)/Easements for construction and future maintenance and operations	▪ Impacts from dewatering, tunneling ▪ Staging areas and additional easement
RWQCB	▪ National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Pollution Prevention Plan (SWPPP) Permit ▪ 401C Section Certification	Water Quality and placement of discharges associated with dewatering activities. No permit required for discharges to sewer. General Permit saves time with RWQCB.
USACOE	Section 10 or Section 404 Permit required if excavated material discharged to waters and construction permit.	▪ Location, placement and depth of pipeline ▪ Obstruction of navigation or other channel activities ▪ Channel safety ▪ Impacts to wildlife ▪ Dredging/filling activities
CDFG	1600 et seq. (Streambed Alteration)	Impacts to fish habitat
CCC	Coastal Development Permit	▪ Obstruction of recreation and beachfront facilities ▪ Impacts to animal species and habitat ▪ Impacts to parking and traffic
California State Lands Commission	Possible lease requirement	Verification of jurisdiction
National Marine Fisheries Service	Consultation notification	Impacts to aquatic and marine life
California Department of Conservation, Division of Oil, Gas and Geothermal Resources	A construction notification form should be submitted to the Division prior to any activity.	Project is inside administrative bounds of the Playa Del Rey Oil Field containing numerous plugged and abandoned oil wells
State of California Department of Health Services	Project Review for compliance with Title 22, Section 64630 (Conducted through County Environmental Services Division)	Separation of water and sewer mains
USFWS	Notification	Impacts to habitat (i.e., least tern)

Source: URS Corporation

1.7 RELATED PROJECTS

Sections 15126 and 15130 of the CEQA Guidelines provide that EIRs consider the significant environmental effects of a proposed project, as well as "cumulative impacts." Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines Section 15355). Cumulative impacts may be analyzed by considering a list of past, present, and probable future projects producing related or cumulative impacts [CEQA Guidelines Section 15130(b)(1)(A)].

Table 1.7-1 provides a list of related projects in the City and County of Los Angeles within an approximate 2-mile radius of the project site. The list includes 15 projects of various land uses, including residential, retail, general commercial, and mixed uses.

Table 1.7-1 Related Projects

Project No.	Jurisdiction	Location	Type of Project	Current Status
1	County of Los Angeles	Bora Bora Way	120 D.U.s; Net decrease of 271 slips; Demolish 4 KSF offices	10/18/2000 (approval date)
2	County of Los Angeles	Tahiti Way	Remodel existing apartments (no increase in D.U.s)	10/18/2000 (approval date)
3	County of Los Angeles	Marquesas Way	Net increase of 282 D.U.s; 354 senior apartments; Net decrease of 3.6 KSF retail; Net decr. of 237 slips	12/6/2000 (approval date)
4	County of Los Angeles	Panay Way	68 D.U.s; 60 Congregate Care units	6/13/1996 (approval date)
5	County of Los Angeles	Panay Way	Net increase of 250 D.U.s; 47 senior apartments; Net decrease of 41 slips; Demolish 4.4 KSF restaurant	12/6/2000 (approval date)
6	County of Los Angeles	Panay Way	99 D.U.s; Net increase of 4.94 KSF Yatch Club; 2.3 KSF Office; Transfer of 97 D.U.s from DZ1 to DZ4	10/2/2000 (approval date)
7	County of Los Angeles	Palawan Way/ Beach Ave	450 s.f. net retail increase	6/25/2003 (approval date)
8	County of Los Angeles	Palawan Way/ Beach Ave	Net increase of 115 D.U.s	12/10/2003 (approval date)
9	County of Los Angeles	Admiralty Way	Library expansion – 2,454 S.F.	3/5/1997 (approval date)
10	County of Los Angeles	Mindanao Way	4.7 KSF retail increase	To Be Announced (TBA)
11	County of Los Angeles	Via Marina	11.4 KSF net retail increase, 288 restaurant seats, 1.3 KSF reduction in office	6/16/2004 (approval date)
12	County of Los Angeles	Marina Del Rey Tide Gates	Tide Gate Rehabilitation	11/2005 – Design Completed
13	County of Los Angeles	Hotel at Via Marina	TBA	TBA
14	City of Los Angeles	Grand Canal	Gates at Washington Street	11/2005
15	City of Los Angeles	Grand Canal	Between Driftwood Street and Hurricane Street Temporary VPP bypass pipeline for sluice gate replacement in VPP	11/10/2005 MND

Sources: City of Los Angeles Planning Department; County of Los Angeles Department of Regional Planning, Bureau of Engineering and Los Angeles County Department of Public Works.

1.8 AREAS OF PUBLIC CONCERN OR KNOWN CONTROVERSY

The preparation of this EIR has included, to date, one public meeting. A community scoping meeting was held on May 31, 2005, at the Westchester Community Center. The scoping meeting participants were introduced to the EIR process and the proposed Project and were invited to provide information and/or comments regarding potential impacts to the environment resulting from construction of the proposed Project.

The primary issues and areas of concern identified by the public for the project, which are addressed in this EIR, are:

- Noise impacts created during project construction;
- Limited on-street parking availability during construction;
- Aesthetic and visual impacts during construction;
- Air quality impacts during construction;
- Possible impacts to the Least Tern and other wildlife during and after construction;
- Potential impacts to recreational facilities and public events on the beachfront;
- Staging and operation of construction equipment on existing bike paths, walking trails and bridges;
- Impacts to water quality in both the Marina Del Rey Channel and Ballona Creek Channel;
- Impacts to traffic circulation and emergency access during construction;
- Impacts to residential access to and from housing during construction; and
- Impacts to structural foundations resulting from construction-related activities.

1.9 EIR PARTICIPANTS AND PUBLIC REVIEW

The analysis in this EIR has been prepared in conformance with the local and state CEQA Guidelines, as amended. URS Corporation provided environmental consultation for the EIR. As required by CEQA, this EIR is being provided to public agencies and private organizations for review and comment.

The City of Los Angeles circulated a NOP for this EIR to responsible agencies on May 2, 2005, to solicit comments on issues relevant to their agency or jurisdiction, and for consideration for this project. A list of the agencies that received the NOP and copies of all comments on the NOP are included in Appendix A and B to this EIR.

This EIR may be reviewed by interested parties not included in the City's distribution list. The document will be available for a 45-day public review period at the City of Los Angeles Bureau of Engineering, Environmental Management Section. The document will also be available at the City of Los Angeles Central Library, Venice Branch Library, Westchester Library, and Playa Vista Public Library. Agencies and interested persons not involved in the preparation of the EIR will have the opportunity to provide comments during the 45-day public review period and at the public hearings held prior to draft consideration of the project's adoption and the EIR's certification.

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The proposed project is in the City of Los Angeles (Figure 2.1-1, Regional Project Location Map) in the communities of Venice and Playa Del Rey (see Figure 2.1-2, Project Vicinity). The project originates from the VPP, located on Hurricane Street and the westerly bank of the Grand Canal and the northerly bank of the Ballona Lagoon in the community of Venice, and extends southerly under both the Grand Canal and Ballona Creek, and ends in Vista Del Mar approximately 240 feet south of Waterview Street. The project site can be accessed via Imperial Highway and Vista Del Mar on the south, and from Pacific Coast Highway (SR-1)/Lincoln Boulevard and Washington Boulevard on the north (see Figure 2.1-1).

2.2 PROJECT OBJECTIVES

The City of Los Angeles is proposing to construct and operate a new force main sewer extending from the existing VPP at 140 Hurricane Street in the community of Venice to a junction structure on the Coastal Interceptor Sewer in the community of Playa Del Rey on Vista Del Mar near Waterview Street. The VPP's existing 48-inch-diameter force main sewer, built in 1958, is a force main (pressurized pipeline) that currently conveys the plant's wastewater flows to the Hyperion Treatment Plant. Figure 2.2-1 shows the Project location.

Currently, the existing force main sewer can handle only about 60 percent of the flows that could otherwise run through the VPP when all five of its pumps are running at full capacity. When flows into the VPP exceed flows out of the plant, wastewater will overflow directly into Ballona Lagoon. During heavy storms, such as those that occurred during the winters of 1994-95 and 2004-05, the excess wastewater at the plant came within minutes of overflowing into Ballona Lagoon.

The project's intent is to construct a second force main sewer to be used in tandem with the existing force main sewer for the purpose of fulfilling the three key objectives described below. The following describes each of the City's objectives, purposes and needs for the proposed new 54-inch sewage conveyance line.

SEWAGE CONVEYANCE CAPACITY

The VPP is the largest pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City through an existing 48-inch pipeline and transports it to the Hyperion Treatment Plant in Playa Del Rey (see Figure 2.2-1). Over the years, the existing pipeline that conveys sewage to the treatment plant has gradually approached maximum capacity placing substantial strain on the system forcing the water level in the wet-well of the VPP basement to rise.

The City of Los Angeles first identified the need for additional sewer capacity during the heavy storms of 1995 when sewage and infiltrated stormwater in the sewage system exceeded the capacity of the existing 48-inch line, creating a potentially serious human and environmental health risk. Although the pumping plant had all five pumps running during peak rainfall, the existing downstream sewer force main that runs along the beach could only handle approximately 60 percent of the flows that would otherwise run through the pumps - serving as a bottleneck in the system. The amount of sewage and infiltrated stormwater in the sewage system exceeded its capacity, forcing the water level in the wet-well of the VPP to rise. In an effort to prevent potential sewage spillage as a result of an overload situation, the City proposes to install an additional 54-inch pipeline to convey the flows.

Source: USGS 1:100,000 Topographic Quadrangle, Los Angeles (1983) and Long Beach (1981)

REGIONAL PROJECT LOCATION MAP

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 2.1-1

REGIONAL PROJECT LOCATION

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 2.1-2

VENICE PUMPING PLANT AND HYPERION TREATMENT PLANT

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 2.2-1

PIPELINE REDUNDANCY

In addition to the need to provide pipeline capacity to manage peak flows, the new 54-inch force main would be used in tandem with the existing force main; together, the two force mains would provide the necessary capacity to meet current and future peak wet weather flow demands. The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two objectives: expand the capacity of the Coastal Interceptor Sewer's force main segment from the VPP to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all projected wet weather flows can be safely conveyed without future threats of spilling onto city streets and adjacent surface waters; and to provide force main redundancy to allow for maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

INABILITY TO PERFORM MAINTENANCE

The existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. The installation of the proposed 54-inch force main will provide bypassing capability allowing repair and maintenance of the existing pipeline, which is currently not possible.

2.3 PROJECT DESCRIPTION

The City of Los Angeles is proposing to construct and install a new 54-inch diameter force main sewer extending from the VPP to a junction structure at the North Outfall Sewer under Vista Del Mar, approximately 240 feet south of Waterview Street in Playa Del Rey. The existing VPP force main is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Playa Del Rey.

The potential impacts resulting from the Project are construction related; no aspect of its operation applies to the Project. Therefore, the critical aspects of the Project address the spatial extent of construction, the equipment and activity associated with it, and the duration of the activities from the start of construction until Project completion.

Relevant aspects of construction associated with this project are as follows:

MICRO-TUNNELING (BORING) AND CUT-AND-COVER CONSTRUCTION

Boring would include excavation at the starting and ending points of the under-channel and under-canal sections of the alignments. The starting point is referred to as the "launch shaft," while the endpoint is referred to as the "receptor shaft." There are two launching shaft alternatives for under-channel boring, located at the northerly end of the Playa Del Rey Alignment Alternative, on the south side of the Marina Del Rey entrance channel, along the northeast side of the Pacific Avenue fishing bridge. Also, there are three alternative receptor shaft sites on the north side of the entrance channel. One would be in the parking lot northwest side of the corner where Via Marina turns 90 degrees to the southwest, one to the west of Via Marina located on the north side of the channel, and the other would be at the southeast end of Pacific Avenue.

PUSH SITE EQUIPMENT

The major elements of push site construction for the Project would be:

- Jacking pit [from which the hydraulic jacks push pipes through the ground behind a remotely operated Tunnel Boring Machine (TBM)];
- Remote control cabin for operating the TBM;
- Crane;
- Support facilities (generator, power pack, and bentonite lubrication unit);
- Slurry separation equipment and tanks;
- Construction/Laydown area, 10 – 12,000 square feet in area, for pipe and other equipment storage and staging;
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment (There would be eight truck round trips per day for muck removal and material supply.);
- Construction crew (There would be 17 construction crew on site and 17 passenger-car round trips daily.);
- Nighttime construction and lighting (It may be required to proceed continuously at the end of long drives through sticky soils to prevent the pipe from getting stuck short of the receiving site. In such cases, nighttime construction would be required. It is assumed that there would be a need for lighting at the push site throughout the night, on occasion.); and
- Acoustic curtain (sound barrier) (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the push site, except for the crane.).

LAUNCH SITE CONSTRUCTION DURATION

The launch sites would require about 2 months to complete and must be constructed prior to the start of boring under the entrance channel and the Grand Canal. The under-channel tunnel is approximately 1,800 feet long and boring rates range from 30 - 50 feet per 8-hour shift. A conservative estimate allows for no nighttime work however, the mined tunnel method of construction would require continuous boring until the tunnel is completed. In areas where the cut and cover, and short range micro tunneling (boring) method of construction is used, is assumed that there would be one shift per day. Under this assumption, short range boring could require from 36 to 60 days (about 1 to 2 months). Cumulatively, push site construction and boring would take up to 4 months and would be considered to be "temporary." Even if tunnel boring were to be sequential to cut-and-cover construction activities (see below), the cumulative total construction time would be less than 1 year and would also be considered to be temporary. However, it is assumed that boring and trench construction would be concurrent.

For under-canal boring, the rate of advance would be the same as for under-channel boring. The tunnel length would range from about 100 to 500 feet, depending on which of the alternative launch sites are used for the shafts. Tunneling could require from 10 to 16 days for the longer route, or 3 to 4 days for the shorter route. It is assumed that there would be no nighttime construction.

RECEPTOR SITE EQUIPMENT

Construction activity at the receptor sites would occur during two periods: the initial construction of the shaft, and then, later, when the TBM is extracted from the tunnel and the pipeline is connected at the receptor sites.

The major equipment that would be utilized at the receptor shaft sites would be:

- Crane;
- Jacking equipment;
- Construction/Laydown area (about 5,000 square feet in area for pipe and other equipment storage and staging);
- Truck traffic to and from the pit for transporting tunnel muck (Pipe sections and tunneling equipment are estimated to be approximately 15 truck round trips per day for muck removal and material supply.);
- Construction crew (There would be 25 construction crew on site daily.); and
- Acoustic curtain (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the receptor site, except for the crane, which will extend beyond the top of the curtain.).

RECEPTOR SHAFT SITE DURATION

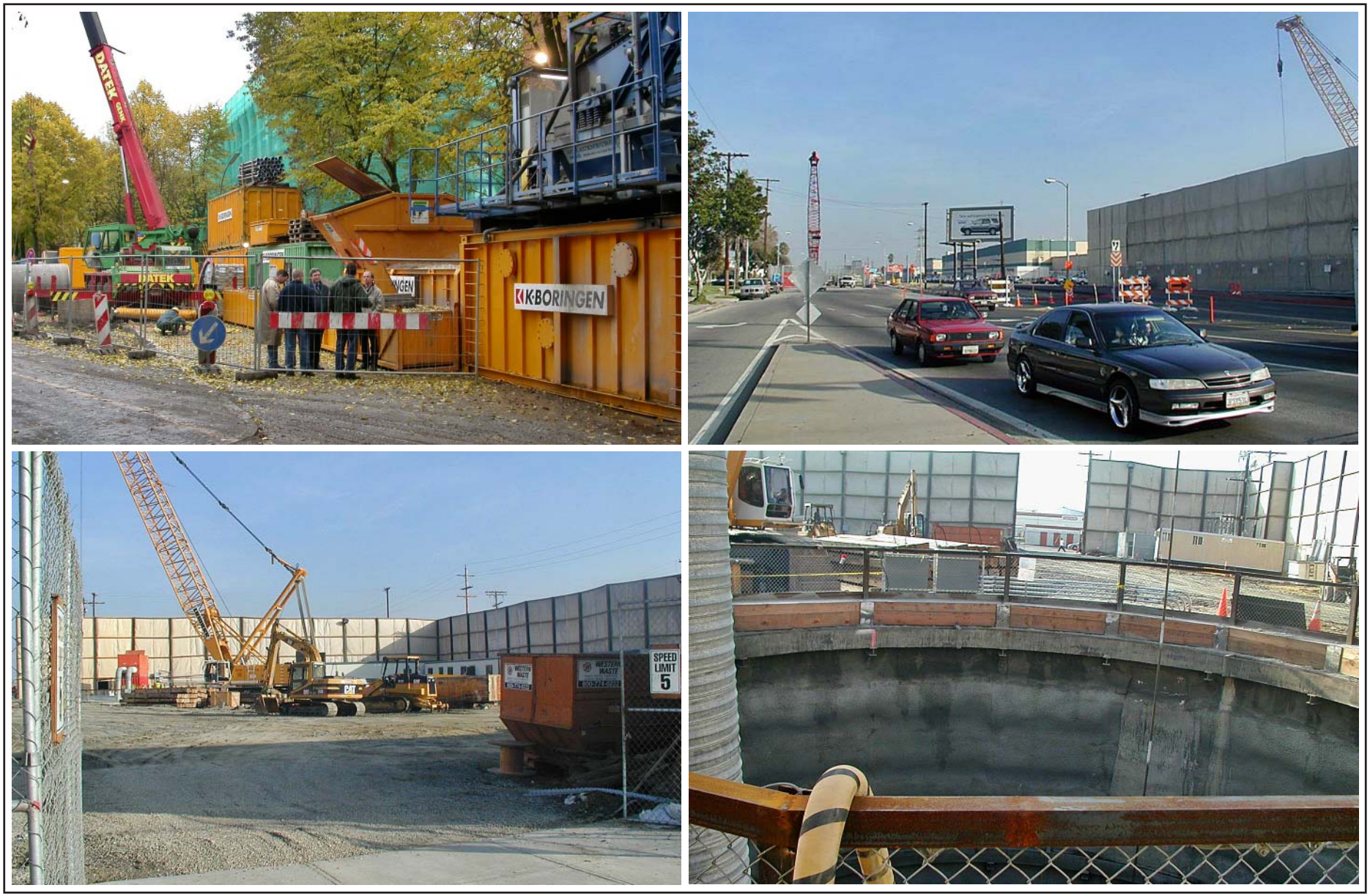
Construction of the receptor shafts would require about 6 weeks each to complete. Then all activity at the sites would cease until under-channel tunnel boring reaches them. At that point, the TBM would be extracted from the receptor shaft and the pipeline would be tied in with either the cut-and-cover alignment. It is estimated that the extraction and tie-in activities would require about 1 week. The receptor shaft site in the vacant lot opposite to the VPP would require 6 weeks to complete, then would lie dormant until under-canal tunnel boring reached the site. One week would be required for TBM extraction and tying the pipeline in with the VPP.

CUT-AND-COVER CONSTRUCTION SITE EQUIPMENT

Cut-and-cover construction is a common method of linear pipeline construction that involves an open trench and sequential activities. The trench would be excavated and then shored up with sheet piles that would be installed 200 to 300 feet ahead of the pipeline crew. Construction involves excavation, the pouring of a concrete foundation, backfilling with a bed of gravel, pipeline installation, backfill and compaction, restoration of curbs and utilities, and re-paving the affected road. Figure 2.3-1 shows one example of a typical array of equipment used in cut-and-cover construction along a public street.

The major visible elements of the cut-and-cover sites would be:

- Concrete saw;
- Pavement breaker;
- Pile driver;
- Excavator;
- Rubber tire loader;
- Cranes (2);
- Backhoe loader/compactor;
- Generator/compressor;
- Soil compactor;
- Asphalt paver;
- Sweeper;
- Water truck;
- Supply truck;
- Haul/dump truck;
- Minimum of 17 to 28 workers on site daily;
- A moving construction/laydown area along 1,000-foot stretches of the alignment; and
- A construction/laydown area next to push and receptor site construction activities.



City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Clockwise from Top: Construction Equipment for Typical Cut-and-Cover Construction. Sound Barriers, Seen from Street and from within Shaft Construction Area. Shaft, within Sound Barrier.

Figure 2.3-1

CUT-AND-COVER CONSTRUCTION DURATION

Given the proposed cut-and-cover construction sequence, within 12 weeks, approximately 1,800 feet of pipeline installation can be completed to the point that the affected road is returned to its pre-construction state (paved). Given the rate of construction, the duration of construction for the alignment alternatives north of the Marina Del Rey entrance channel would be approximately 7 months, and the alignment south of the entrance channel (Pacific Avenue/Vista Del Mar) would be the same duration. It is assumed that cut-and-cover construction north and south of the entrance channel would occur concurrently. The construction and operation of the launch and receptor sites would be concurrent with the cut-and-cover construction.

LARGE-DIAMETER (MINED) TUNNELING CONSTRUCTION

There are four alternative alignments for mined-tunneling construction; mined tunneling involves a launch shaft and an extraction shaft. The launch shaft would be located on Los Angeles International Airport (LAX) property about 300 feet northeast of Vista Del Mar and as close as 220 feet south of Napoleon Street. There are two alternative extraction sites, one on Dockweiler Beach at the southwest end of Hurricane Street, and the other at the northeast end of Hurricane Street in a vacant lot directly across from the VPP. Mined tunneling uses manned TBMs along a continuous alignment that may be of any length, so this construction alternative would require just the launch shaft and one extraction shaft. Additionally, two 3-foot-diameter escape shafts would be needed, one north and one south of the Marina Del Rey entrance channel, with construction requiring up to approximately 3 to 5 days.

STARTER SHAFT EQUIPMENT

The major equipment for the starter shaft sites would be:

- 30-foot-diameter starter shaft;
- One 160-ton crane to lift/set the TBM and hoist muck cars;
- One 35-ton RT crane to handle segments and load segment cars;
- Office facilities, change houses;
- Cut-and-cover equipment (see above) for open trench construction;
- Support facilities (generator for pumps, electrical substation);
- Construction/Laydown area (12,000 square feet in area for storage of tunnel liner and carrier pipe segments throughout the duration of the tunneling);
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment (There would be 15 truck round trips per mining shift.);
- Construction crew (There would be a 20 to 25-person construction crew on site and 20 to 25 passenger-car round trips daily.);
- Lighting may be required for security of the construction site and nighttime construction for mined tunneling; and
- Acoustic curtain (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the extraction site, except for the crane.).

STARTER SHAFT CONSTRUCTION DURATION

The starter shaft would require approximately 7 months to construct and the tunnel portion of construction would last from 27 to 28 months.

EXTRACTION SITE EQUIPMENT

The major visible elements of the starter sites would differ depending on the phase involved. The first phase is the construction of the shaft, and the second phase is the removal of the TBM and construction of the tie-in with the pipeline that would be installed along Hurricane Street. For construction of the shaft, the following equipment would be needed:

- 20-foot-diameter extraction shaft;
- Crane;
- Jacking equipment;
- Cut-and-cover equipment (see above) for open trench construction;
- Support facilities (generator for pumps, electrical substation);
- Construction/Laydown area (5,000 square feet in area);
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment;
- Construction crew;
- Lighting may be required for security of the construction site; and
- Acoustic curtain (To minimize the transmission of noise, it is proposed that a 20- to 30-foot-tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the extraction site, except for the crane.).

EXTRACTION SHAFT AND CUT-AND-COVER CONSTRUCTION DURATION

The extraction shaft would require approximately 10 weeks to construct and about 1 week for TBM removal after tunnel excavation has been completed. The cut-and-cover construction that is part of the mined-tunnel construction alternative is expected to occur concurrently with tunnel construction.

2.3.1 Project Alternatives

The City's objectives can be achieved by using one of several alternatives described in Section 6.0 of this EIR.

A preferred alternative for the project has not been determined at this time. Equal analysis has been given to each alternative associated with the Project, allowing for a decision to be made in accordance with CEQA Guidelines, which states that sufficient information must be provided to allow meaningful evaluation, analysis, and comparison of the proposed Project. A matrix displaying the major characteristics and significant environmental effects of each alternative are provided in Section 8.0 of this document, which may be used by decision-makers to make comparisons and ultimately choose a preferred alternative alignment for the VPP dual force main sewer.

Based upon the analysis conducted for the alternatives addressed in this EIR, the cut-and-cover method of construction for two of the proposed alignments were deemed not viable; therefore, a detailed impacts analysis is not provided for them. These two proposed alignments are the beachfront alignments on the

north, and south sides of the Via Marina/Ballona Lagoon channels. The deep-mined tunneling method of construction along the beachfront, however, has been analyzed for this project.

Unless otherwise stated, it is assumed that the Project, regardless of the alignment selected or the construction method used, will be designed, constructed and operated following all applicable laws, regulations, ordinances and other formally adopted City standards (e.g., *Los Angeles Municipal Code* and *Bureau of Engineering Standard Plans*). Also, the analysis provided in this EIR assumes that construction will follow the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., *Standard Specifications for Public Works Construction* and the *Work Area Traffic Control Handbook*) as specifically adopted by the City of Los Angeles [e.g., *City of Los Angeles' Department of Public Works Additions and Amendments to the Standard Specifications For Public Works Construction* ("The Brown Book")].

3.0 ENVIRONMENTAL SETTING

3.1 REGIONAL SETTING

The proposed project is located in the City of Los Angeles and lies along the immediate coastline of the Santa Monica Bay in the communities of Venice and Westchester/Playa Del Rey. Venice and Westchester/Playa Del Rey are bounded by Santa Monica on the north and El Segundo on the south and are known as popular beach communities with scenic parks, recreational areas and scenic vistas from upland areas on the east to the ocean fronting both communities on the west (see Figure 2.1-1 in Section 2.0, Project Description).

3.2 LOCAL SETTING

The VPP is located on Hurricane Street on the west bank of the Grand Canal and the Ballona Lagoon, at the junction of the two features in the Community of Venice. The VPP conveys sewage from the western part of the City of Los Angeles and transports it southerly under the Dockweiler Beach, under the Marina Del Rey Channel and through the communities of Westchester/Playa Del Rey, along Vista Del Mar Avenue to the Hyperion Treatment Plant in Playa Del Rey (see Figure 2.2-2 of Section 2.0, Project Description). There are parks and recreational areas surrounding the project to the east with public beaches and recreational facilities to the west, along the shoreline facing the Pacific Ocean.

3.3 RELATIONSHIP TO REGIONAL AND/OR LOCAL PLANS

The Project is subject to meeting the requirements of the following regional and local plans, which are more specifically described in Section 5.9, Land Use Plans:

- Los Angeles County General Plan;
- Marina Del Rey Local Coastal Program Implementation Plan;
- Marina Del Rey Specific Plan;
- City of Los Angeles General Plan;
- Venice Community Plan;
- Venice Coastal Specific Plan;
- Ballona Lagoon East/West Bank Sub-areas;
- Silver Strand Sub-area;
- Marina Peninsula Sub-area;
- Venice Land Use Plan (LUP);
- Westchester/Playa Del Rey Community Plan; and
- Westchester/Playa Del Rey Specific Plans.

4.0 ALTERNATIVES UNDER CONSIDERATION

Alternatives under consideration for this Project are defined by the alignment and construction method (alternative = alignment + construction method).

4.1 CONSTRUCTION METHODS

The three construction methods for consideration in this EIR are: (1) Cut-and-cover, (2) Micro-tunneling (or "boring"), which are proposed for optional alignments as described below, and (3) Continuous large-diameter (or "mined") tunneling, which is described below as an alternative means of constructing the sewer. Each method provides both benefits and issues of concern for the project. For example, while open trench with micro-tunneling construction costs less, mined tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels in Venice and can facilitate mitigation of other impacts such as noise and visual aesthetics.

4.1.1 Cut-and-Cover Construction

Cut-and-cover construction is a very common method of linear pipeline construction and replacement. The contractor would not start work in all areas on a site at the same time, but rather would proceed with finishing and restoring relatively short segments at a time. Underground utilities that conflict with the construction would be temporarily relocated as necessary.

For the purpose of this EIR, it is assumed that the 54-inch pipe would be placed on a 1-foot gravel bed on top of a 1-foot concrete mud slab placed at the bottom of an approximately 8-foot wide and 12-foot deep trench. A shoring-installation crew would get a head-start driving sheet piles approximately 200 to 300 feet in front of the pipeline crew. The latter would excavate approximately 80 feet of trench every day and pour the mud slab. The next day, 80 feet of pipe would then be installed and backfilled. This approach would yield an effective production rate of about 40 feet of completed pipe installation per day (i.e., 200 feet per week). Subsequent to pipe installation, a third crew would extract shoring, restore curbs and utilities, and repave about 600 feet of roadway every 3 weeks. With this approach, major construction activities could be limited to within relatively short segments of about 1,000 feet at any given time (Figure 4.1-1, Cut-and-Cover Construction).

4.1.2 Small-Diameter Micro-Tunneling (Boring)

Boring is a trenchless construction method, which utilizes hydraulic jacks to push pipes through the ground behind a remotely operated TBM. Drive lengths are generally limited to about 1,000 feet, depending upon ground conditions and pipe size; but intermediate jacking stations can be used to extend the drive length. Unlike conventional trenching techniques that require excavation for the entire length of pipeline, excavation for tunneling is limited to the endpoints of each drive at designated launching (jacking) and receiving pits. The launching pit contains the hydraulic jacks used to push the pipes, and the receiving pit is used to recover the TBM at the end of each drive. Tunneling can proceed intermittently; although, it is often necessary to proceed continuously, particularly on long drives through sticky soils, to prevent the pipe from getting stuck short of the receiving pit. Tunnel advance rates are typically between 30 and 50 feet per 8-hour work shift, depending on soil conditions and pipe size.

CUT-AND-COVER CONSTRUCTION

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.1-1

The tunnel face is supported by a thick liquid ("slurry"), which is a mixture of the excavated soil ("muck") and bentonite (a natural clay mineral). Keeping the slurry pressurized in a closed chamber behind the cutter-head of the TBM prevents groundwater and excess soil material from entering the TBM. This minimizes tunneling-induced ground settlements and associated damage to existing utilities and buildings along the tunnel alignment. A mixture of the excavated muck and slurry is pumped from the TBM to a slurry-processing plant on the surface, where soil particles are extracted from the slurry with vibrating screens and cyclones. The extracted soil is hauled away for disposal off-site, and the cleaned slurry is pumped (recycled) back to the TBM. The slurry-processing plant, remote control cabin for operating the TBM, as well as cranes and other construction equipment, are located near the jacking pit. The equipment setup is site specific, depending on available space. The jacking pipe, which is made of reinforced concrete or steel, serves as a temporary tunnel liner. Upon completion of the tunnel drive, the carrier pipe will be inserted and the space between it and the jacking pipe will be filled with grout.

4.1.3 Large-Diameter (Mined) Tunneling

In contrast to small-diameter micro-tunnels, which are constructed by remote-controlled TBMs and pipe-jacking, large-diameter tunnels (i.e., minimum excavated diameter = 10 to 12 feet) can be constructed with manned TBMs. The most important difference between these larger TBMs and the micro-tunneling machines discussed above is that the tunnel liner can be erected in segments immediately behind the TBM. This type of tunnel liner does not need to be continuously pushed (jacked) forward, and there is no length limitation due to frictional resistance building up with increasing tunnel length. For tunneling below the groundwater level without the need for dewatering, pressurized-face TBMs are used to stabilize the tunnel face and prevent the water from entering the TBM. There are two basic types of these machines: (1) Slurry TBMs and (2) Earth Pressure Balance (EPB) TBMs.

Both types of TBMs use pressurized muck to stabilize the tunnel face. The liquidized muck in Slurry TBMs is pumped in the same manner as described above for micro-tunneling. In contrast, the muck in EPB TBMs is more solid ("toothpaste-like"). Therefore, it is extracted from the face chamber of the TBM by means of a screw conveyor and then transported out of the tunnel by muck cars on rails or with a belt conveyor.

4.2 CUT-AND-COVER ALIGNMENT ALTERNATIVES

The City's objectives can be achieved by any one of several proposed construction alternatives under consideration in this section. During the course of this study and analysis, the cut-and-cover method of construction for two of the alignments proposed as alternatives to this project were "considered but determined to be not viable." They are: The South Dockweiler Beach to Pacific Avenue cut-and-cover alternative and the Dockweiler Beach cut-and-cover alternative, as described below. For the purpose of this EIR, these alignment alternatives are described without extended detailed analysis and the reason for their rejection are described in Section 6.0 of this document (Figure 4.2-1, Alignment Alternatives Overview).

ALIGNMENT ALTERNATIVES

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.2-1

MARINA DEL REY

Marquesas Way/Via Marina Way

From the existing VPP on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel to a boring shaft. From there, the alignment continues south along Pacific Avenue and Vista Del Mar to the connection near Waterview Street. This alignment is about 10,400 feet long. The new 54-inch line would be constructed by boring tunneling under the Grand Canal, cut-and-cover along Marquesas, Via Marina Way and Pacific Avenue/Vista Del Mar, and boring tunneling approximately 1,800 feet to cross the Marina Del Rey Channel and Ballona Creek. This alternative route has an estimated construction cost of $46,700,000.

VENICE

Pacific Avenue Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn southeast and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue southeast within Pacific Avenue and Vista Del Mar to a junction structure under Vista Del Mar near Waterview Street. This alternative would be constructed by using the cut-and-cover method in the streets and tunneling beneath the channels. The approximate cost is $46,700,000.

Dockweiler Beach to Pacific Avenue Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot-wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south within the Pacific Avenue and Vista Del Mar alignments to a junction structure under Vista Del Mar near Waterview Street. The cut and cover method of construction was initially considered for this alignment, however, due to the extensive number of impacts that it would impose along the beachfront, it was deemed not viable. The micro-tunnel method of construction is still an option for this alignment. The cost to micro-tunnel from Hurricane to the channel would be approximately $45,000,000.

Dockweiler Beach Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point, the line runs easterly to the junction structure under Vista Del Mar near Waterview Street. The cut and cover method of construction was initially considered for this alignment, however, due to the extensive number of impacts that it would impose along the beachfront, it was deemed not viable. The micro-tunnel method of construction is still an option for this alignment. The cost to micro-tunnel from Hurricane to the tie in near Waterview in Playa Del Rey would be approximately $45,000,000.

WESTCHESTER/PLAYA DEL REY ALIGNMENT ALTERNATIVES

The alignment alternatives located in Westchester/Playa Del Rey are identified in the narratives above as the southern portion of the alignment descriptions and are located on Pacific Avenue/Vista Del Mar and on Dockweiler Beach respectively (Figure 4.2.1).

CHANNEL CROSSING

As noted in the alignment alternatives descriptions, each alignment under consideration crosses the Marina entrance channel and Ballona Creek, requiring approximately 1,800 feet of tunneling under the two channels. The location and alignment of the channel crossing will ultimately be determined by the chosen alternatives for the north and south portions of the overall sewer alignment.

SHAFTS AND LAYDOWN AREAS

The shafts for the boring associated with the cut-and-cover alignments (that is, locations where construction equipment will be used on the surface and visible during the construction of the particular alignment) may be located at any of the following locations numbered from 4 to 12 respectively (Figure 4.2-2):

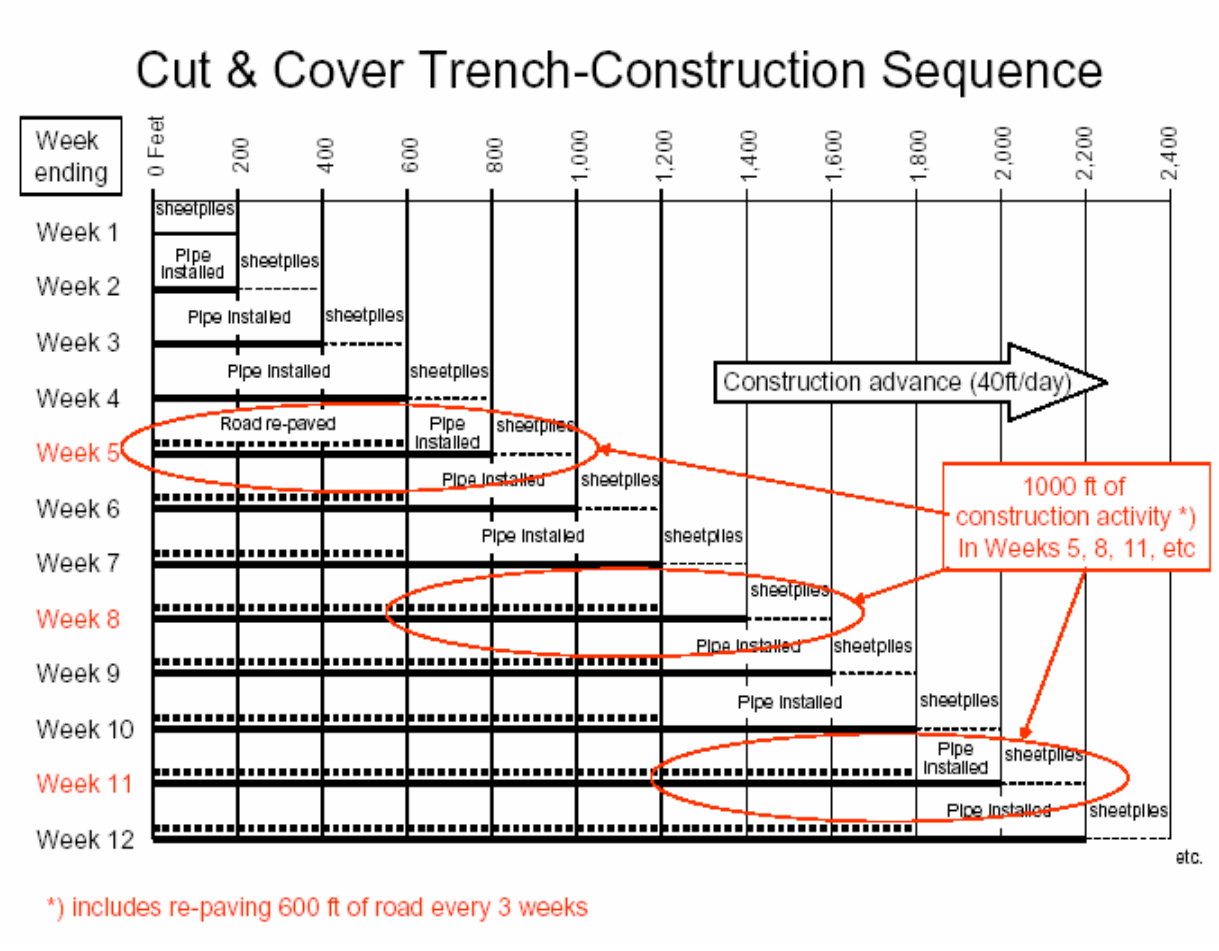
- #4 - 62nd Avenue at Pacific Avenue;
- #5 - The beach south of the Ballona Creek Channel;
- #6 - The beach at Waterview;
- #7 - Via Maria at Pacific Avenue;
- #8 - Marquesas Way at Via Marina;
- #9 - The beach at Hurricane Street;
- #10 - Hurricane at Canal Street;
- #11 - Hurricane at the Grand Canal; and
- #12 - Via Marina at the County surface parking lot.

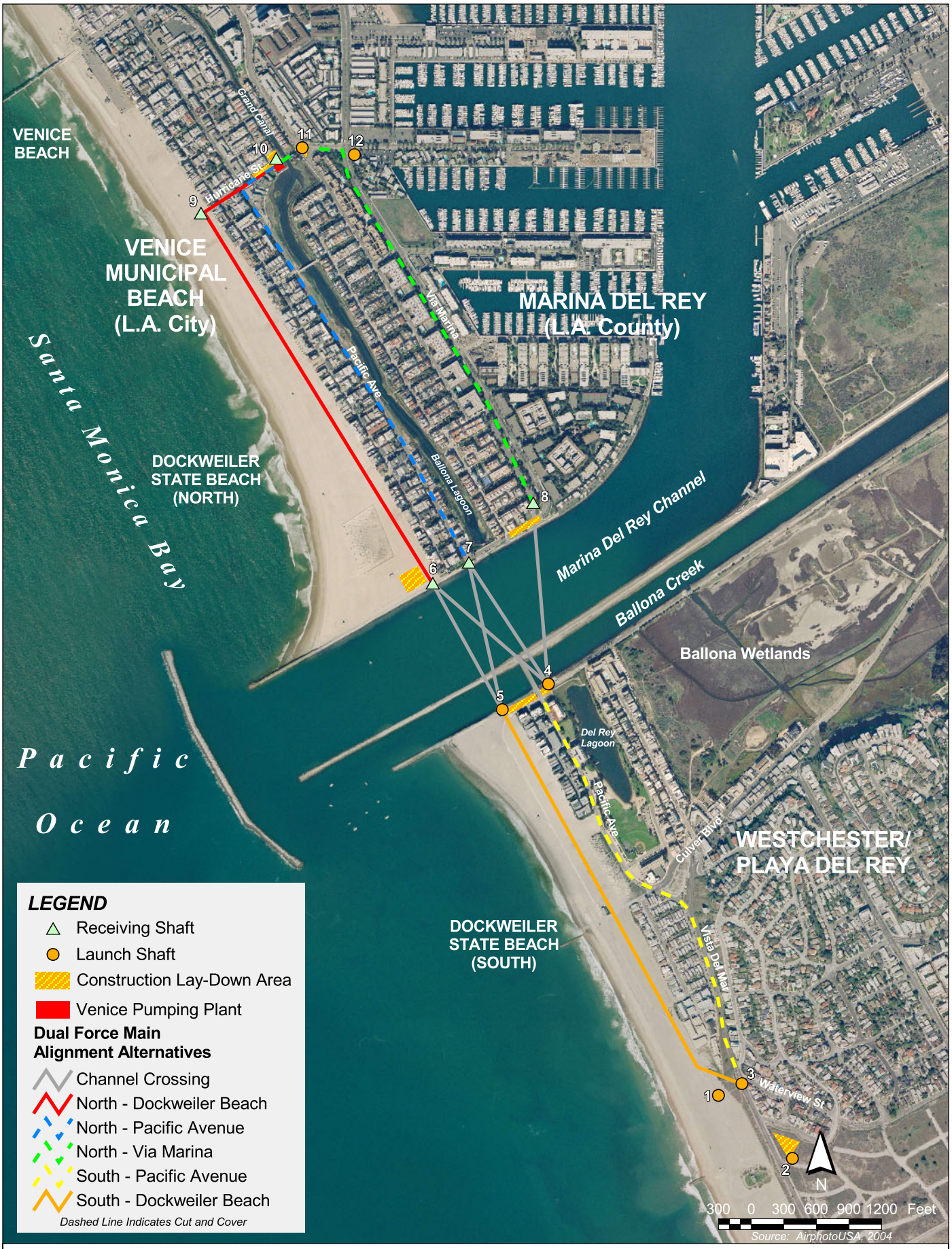
TIMELINES FOR CUT-AND-COVER / BORING CONSTRUCTION

Each method of construction will have temporary impacts to the immediate and surrounding vicinity of the chosen alignment. In an effort to provide accurate information regarding the length of time associated with these impacts, Table 4.2-1 outlines the estimated duration of time it will take to install the sewer for each of the proposed alignment alternatives.

Table 4.2-1 Construction Duration for Cut-and-Cover/Boring Method

Alignment	Cut-and-Cover Location	Boring/Tunneling Location	Approximate Length in Feet (Lft)	Duration +/-
Marina Del Rey		Grand Canal	500	10-16 days
	Marquesas/Via Marina Way (to #1)		3,800	25 weeks
	Marquesas/Via Marina Way (to #2)		4,300	29 weeks
Venice	Hurricane Street		400	3 weeks
	Pacific Avenue		4,000	27 weeks
		Via Marina/Ballona Lagoon Channel	1,800	8 weeks
Westchester/ Playa Del Rey	Pacific Avenue		2,400	16 weeks
	Vista Del Mar		1,700	12 weeks
For All cut-and-cover alignments		Marina entrance/Ballona Lagoon Channels	1,800	8 weeks


Cut & Cover Trench-Construction Sequence
Week ending
0 Feet
200
400
600
800
1,000
1,200
1,400
1,600
1,800
2,000
2,200
2,400
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
sheetpiles
Pipe Installed
Road re-paved
Construction advance (40ft/day)
1000 ft of construction activity *) In Weeks 5, 8, 11, etc
etc.
*) includes re-paving 600 ft of road every 3 weeks



SHAFTS AND LAYDOWN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.2-2

CONSTRUCTION LAYDOWN AREAS

It is important to provide adequate space for staging construction operations so that pipe installation can be completed efficiently. Construction areas for cut-and-cover trenching would "travel with" progress. An area 1,000 feet long and approximately one lane wide would be under construction at any given time for driving sheet piles, trenching, laying pipe, backfilling, and paving. Some laydown areas would "travel with" progress; others may remain in one location throughout the duration of the project and would be removed upon final completion of the project. At least 10,000 square feet would be added to shaft laydown areas for this purpose. Construction access to jacking pits would be provided for transporting tunnel muck, pipe sections, and tunneling equipment. A typical pit site utilizes enough space for the jacking pit, slurry separation tanks, a crane, the control cabin, pipe storage, and support facilities (e.g., generator, power pack, and bentonite lubrication unit). The jacking pit is placed a sufficient distance from overhead electrical lines to avoid hazards in operating the crane. A gantry system may be used instead of a crane for smaller pipe sizes. These areas will contain anywhere from 12,000 to 5,000 square feet of additional space at shaft locations.

4.3 MINED-TUNNEL ALTERNATIVES

The mined-tunneling method of construction of the sewer is under consideration for the following alignment areas/locations (Figure 4.3-1):

Alt. 1 - Beach Alignment (Waterview to Hurricane) (also see Figures 4.3-2, 4.3-3, and 4.3-5)

Alt. 2 - Beach Alignment (LAX to Hurricane) (also see Figures 4.3-4, 4.3-5, 4.3-6, and 4.3-7)

Alt. 3 - Beach Alignment (LAX to VPP) (also see Figures 4.3-6, 4.3-7, and 4.3-8)

Alt. 4 - Inland Alignment (LAX to VPP) (also see Figures 4.3-7 and 4.3-9)

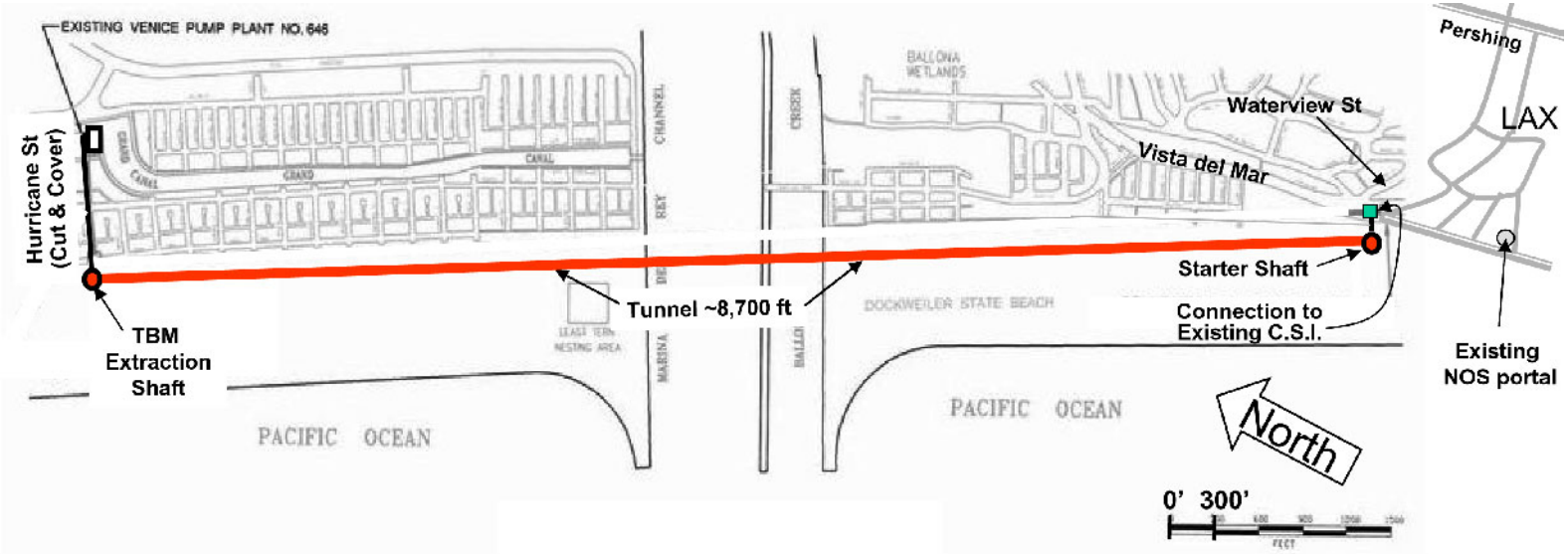
CONSTRUCTION-RELATED IMPACTS AND MITIGATION ACTIONS ASSOCIATED WITH MINED TUNNELING

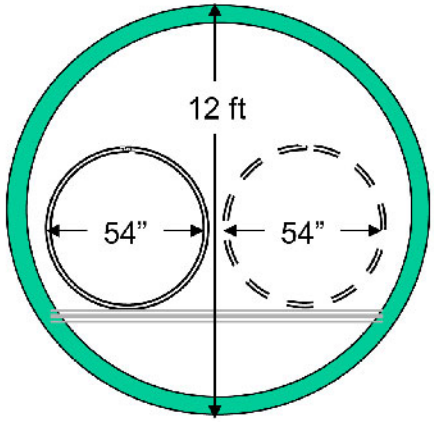
Oil Wells – There are hundreds of abandoned oil wells dotting the Venice area and Marina Del Rey Channel. Probing for possible oil wells ahead of the TBM will have to be performed during tunneling along any of the alternative alignments. This may be accomplished by magnetometer surveys performed in horizontal borings drilled from the TBM (Figure 4.3-10).

Methane Zones – Because the project area is designated as a "Methane Zone," emergency escape shaft(s) need to be provided during tunnel construction at intervals not exceeding 5,000 feet. With the alternative tunnel alignments being no more than 10,000 feet long, one escape shaft could be sufficient. However, since the Marina Del Rey Channel is right in the center of the alignment, it may be necessary to construct one of these shafts on either side of the channel. These shafts may be relatively simple consisting of nothing more than a 3-foot-diameter vertical casing accessible through the roof or side wall of the tunnel; and construction can be accomplished with a drill rig within a few days with minimal impact on the surface.

LARGE-DIAMETER (MINED) TUNNEL ALTERNATIVES

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-1





VENICE FORCE MAIN

Mined (Large-Diameter) Tunnel

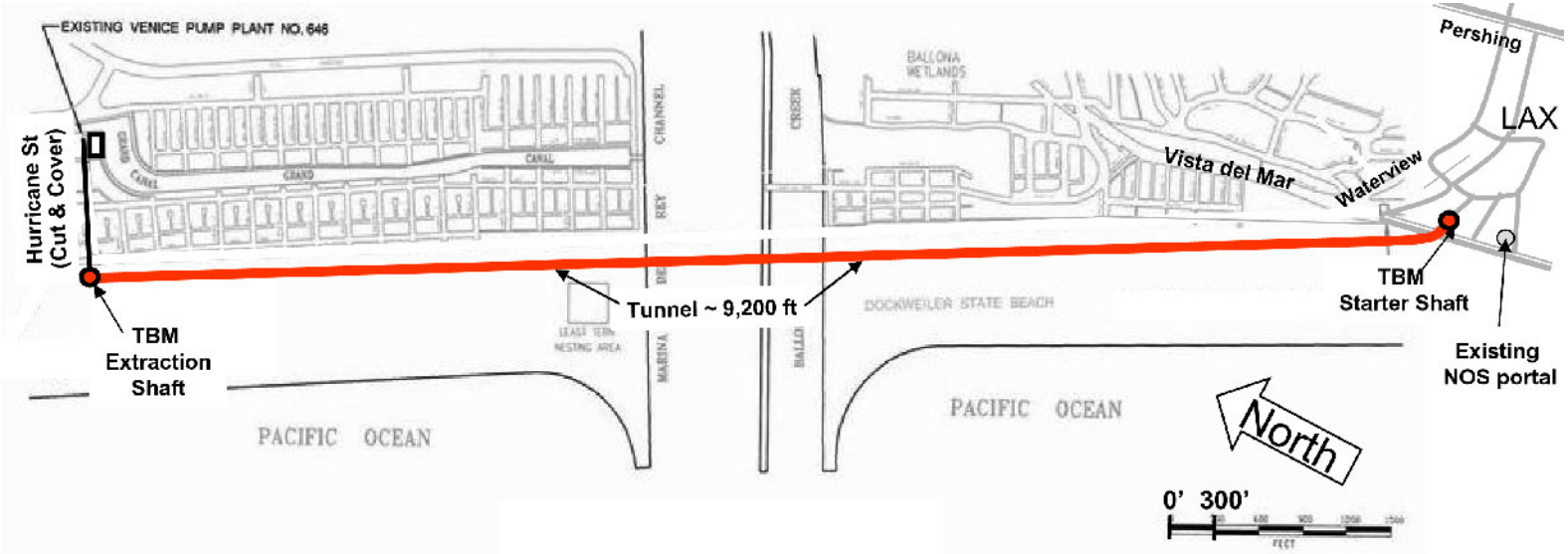
Alternative 1
Beach Alignment
Waterview St. to Hurricane St.

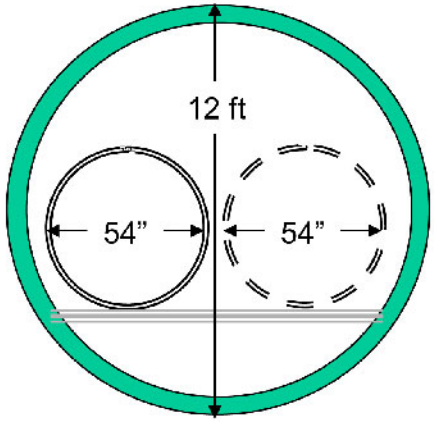
MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 1

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-2

MINED TUNNEL ALTERNATIVE 1: CUT-AND-COVER CONNECTION NEAR WATERVIEW ST.

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-3





VENICE FORCE MAIN

Mined (Large-Diameter) Tunnel

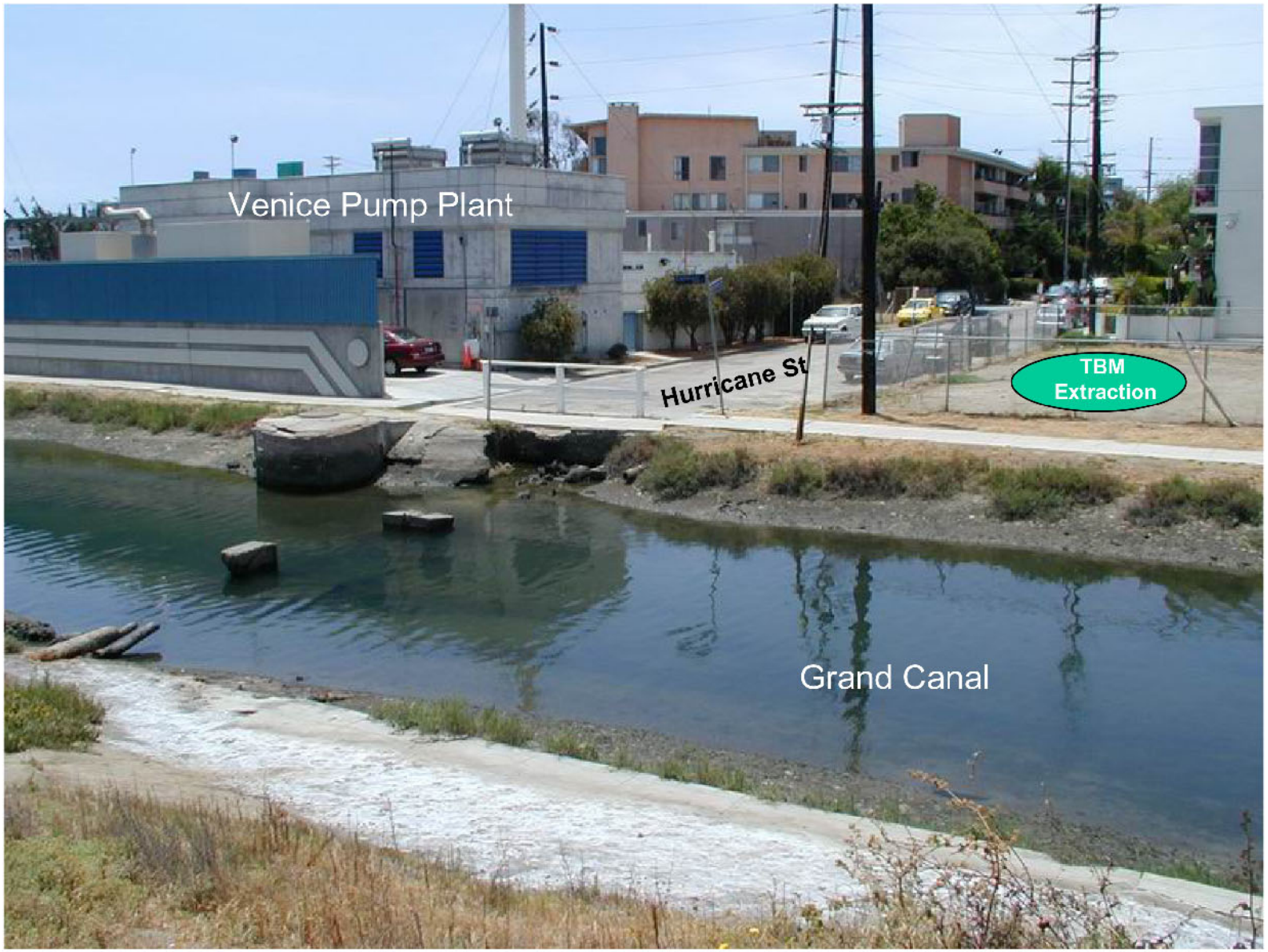
Alternative 2
Beach Alignment
LAX Shaft → Hurricane St

MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 2

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-4

MINED TUNNEL ALTERNATIVES 1 & 2: CUT-AND-COVER CONNECTION ALONG HURRICANE ST.

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-5

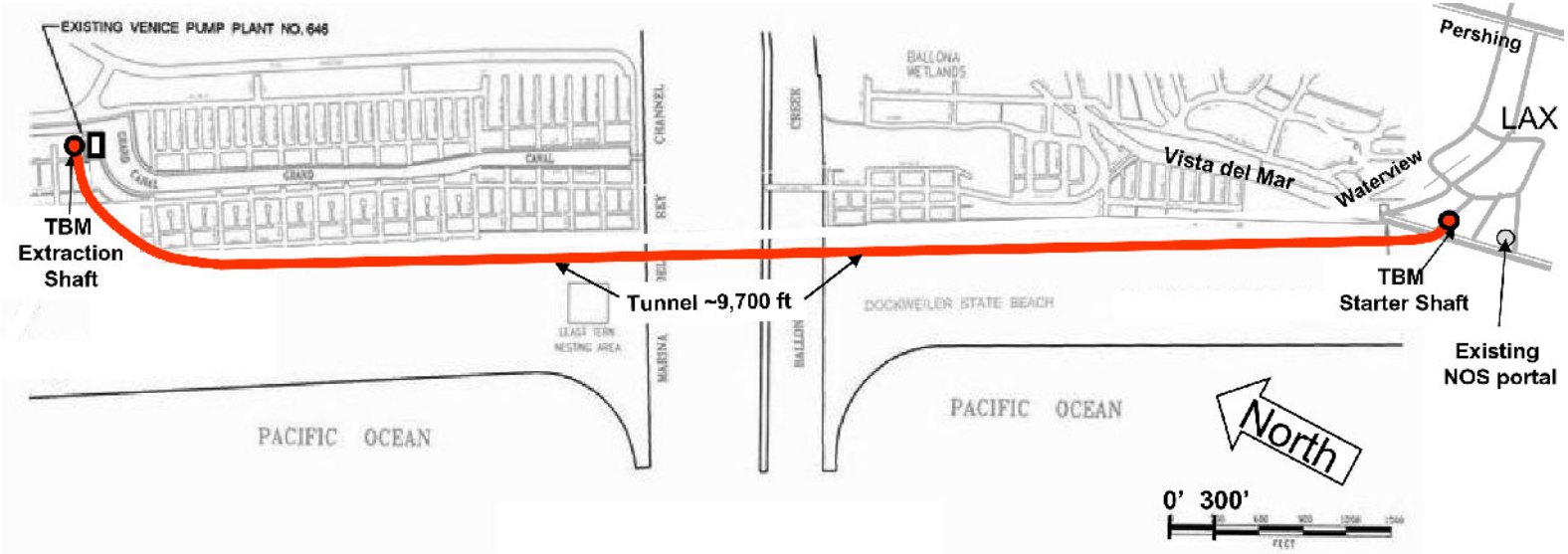


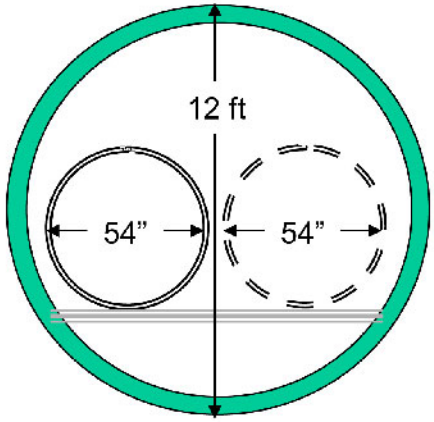
MINED TUNNEL ALTERNATIVES 2 & 3: TBM EXTRACTION SHAFT AT VENICE PUMP PLANT

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-6

MINED TUNNEL ALTERNATIVES 2, 3 & 4: TBM STARTER SHAFT AT LAX PROPERTY

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-7





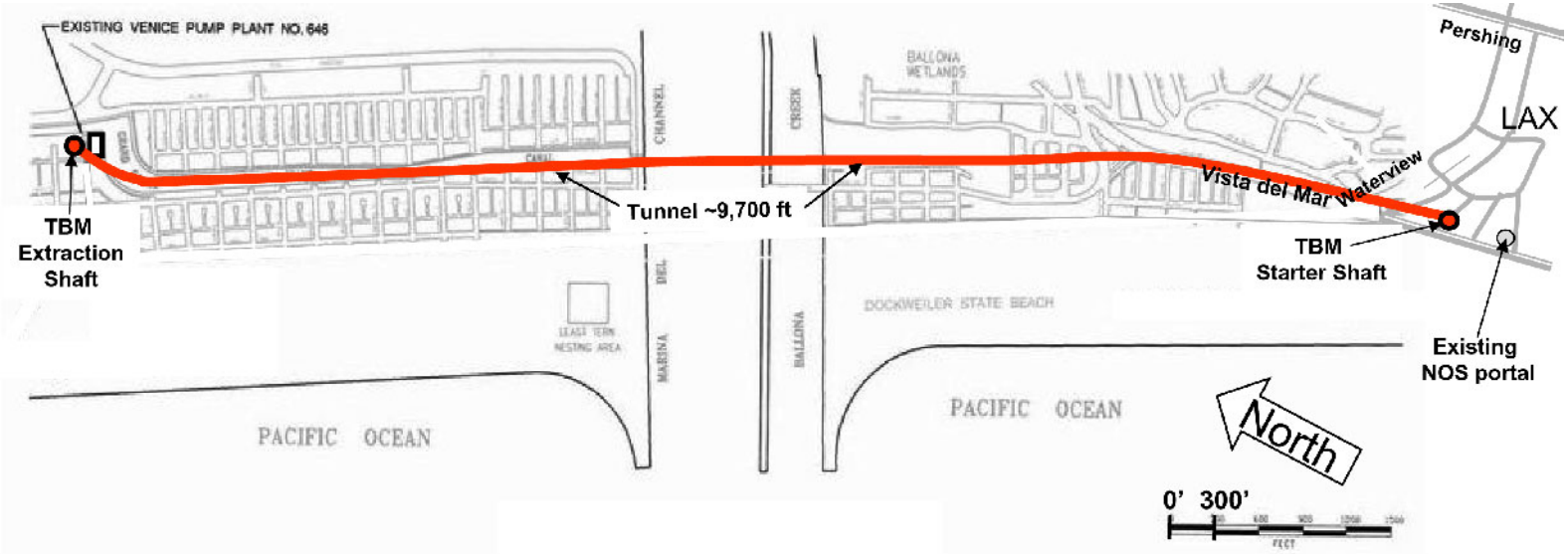
VENICE FORCE MAIN

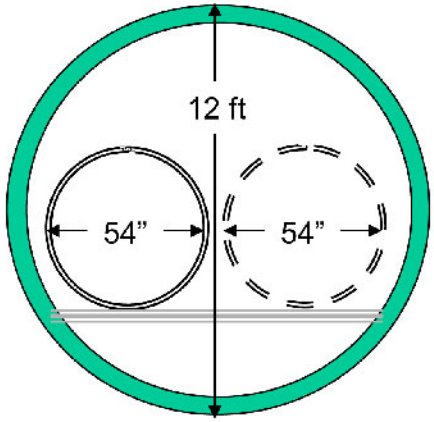
Mined (Large-Diameter) Tunnel

Alternative 3
Beach Alignment
LAX Shaft → Venice Pump Plant

MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 3

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-8





VENICE FORCE MAIN

Mined (Large-Diameter) Tunnel

Alternative 4
Inland Alignment
LAX Shaft → Venice Pump Plant

MINED (LARGE-DIAMETER) TUNNEL - ALIGNMENT 4

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-9

OIL WELLS MINED TUNNELING

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 4.3-10

TIMELINES ASSOCIATED WITH MINED-TUNNELING CONSTRUCTION ALTERNATIVE

Rough-order-of-magnitude (ROM) estimates have been prepared for consideration in the EIR. Table 4.3-1 below summarizes estimated construction costs and durations:

Table 4.3-1 Rough-Order-of-Magnitude for Mined-Tunneling Construction

Alternative	Length of Tunnel [feet]	Cost Estimate (tunnel only) [million $]	Construction Duration (tunnel only) [months]	Length of Cut-and-Cover Construction (in addition to tunnel) [feet]
1	8,700	64.7	27	1,300
2	9,200	66.8	27	1,000
3	9,700	67.8	28	300
4	9,700	67.8	28	300

CONSTRUCTION LAYDOWN AREAS

Construction laydown areas of at least 12,000 square feet would be required for the starter shaft sites which, in addition to construction of the shaft itself, will also handle muck disposal and storage of tunnel-liner and carrier-pipe segments throughout the duration of tunneling. An area of only about 5,000 square feet would be required for constructing the TBM extraction shafts for an approximate duration of 10 weeks; plus about 1 week for TBM removal after tunnel excavation has been completed (see Figure 4.2-2).

5.0 ENVIRONMENTAL ANALYSIS

5.1 INTRODUCTION

In accordance with Sections 15126.2 through 15130(a) through (e) of the CEQA Guidelines, this EIR examines the significant environmental effects of the proposed Project and discusses any significant irreversible environmental changes or growth-inducing impacts resulting from the Project. For each impact identified, this EIR describes proposed mitigation measures to minimize the significant effects caused by them.

TECHNICAL STUDIES

Technical studies and analyses were conducted for the purpose of establishing existing conditions, thresholds of significance and environmental impacts for each resource which may be impacted as a result of the Project. Information derived from each technical report is summarized in this EIR. The technical reports are located in Appendices C through I of this document.

POTENTIAL IMPACTS FOUND NOT TO BE SIGNIFICANT

The following impacts were found to be less than significant and therefore, are not analyzed in this EIR:

- Agricultural Resources – There are no agricultural resources in the project area.
- Mineral Resources – The project will not result in the loss of valuable mineral resources to the region or in the vicinity of the project.
- Population and Housing – The project will not impact growth in either population or housing or displace any existing numbers of people or housing.

ENVIRONMENTAL ANALYSIS

The following sub-chapters provide an analysis for each environmental resource of concern for this project as identified in the Initial Study located in Appendix A of this document. Although there will be no significant long term or permanent adverse impacts to the environment resulting from the construction of the proposed new sanitary sewer dual force main, mitigation measures have been identified for the purpose of reducing construction-related impacts only due to the extended duration of the project's construction phase, which is estimated to be from 18 to 24 months.

5.2 AIR QUALITY

5.2.1 Environmental Setting

The proposed Project is located in the South Coast Air Basin (SCAB) with SCAQMD monitoring and regulating air quality from stationary sources within the SCAB.

REGIONAL AIR QUALITY

The air quality in the SCAB is influenced by its climate, which is in turn determined by its terrain and geographical location. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern border, and high mountains surround the rest of the SCAB.

The SCAB is ensconced in the semi-permanent, high-pressure zone of the eastern Pacific, thus its climate is mild, tempered by cool ocean breezes, and its salubrious climatological pattern is interrupted by rare periods of extremely hot weather or winter storms.

Annual average temperature fluctuates minimally throughout the SCAB, ranging from the low to mid 60s, measured in degrees Fahrenheit (°F). Due to more pronounced oceanic influence, coastal areas have less variability in annual minimum and maximum temperatures than inland areas.

Precipitation in the SCAB occurs mainly between November and March. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB, along the coastal side of the mountains (see subsequent section for local precipitation data.).

A temperature inversion (increasing temperature with increasing altitude) persists over much of the SCAB as a result of the strength and position of the sub-tropical high-pressure cell over the Pacific Ocean. This inversion limits the vertical dispersion of air contaminants, thereby increasing their ground level concentration. With solar heating of the ground and the lower air layer, the temperature of the air at lower elevations approaches the temperature of the base of the inversion (upper) layer until the inversion layer is eroded, enabling vertical mixing within the planetary boundary layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning. During the fall and winter months, Santa Ana winds – strong, dry north or northeasterly winds – disperse air contaminants for several days at a time (See subsequent section for local wind data.).

Coupling stagnant wind conditions and low inversions yield the greatest air pollutant concentrations. Ambient air pollutant concentrations are generally lowest on days of no inversion or high wind speeds. The greatest pollution problems in winter are carbon monoxide (CO) and oxides of nitrogen (NO_x) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the more intense sunshine and longer daylight hours cause hydrocarbons and NO_x to react and form photochemical smog.

The California Legislature created the SCAQMD in 1977 by merging the air pollution control districts of the four counties sharing the SCAB. The SCAB covers an area of 6,745 square miles with a population of 14.6 million, while the larger SCAQMD boundary includes 10,743 square miles and a population of 15

million. The SCAB includes portions of Los Angeles, Riverside and San Bernardino counties and all of Orange County[1].

The SCAQMD is a non-attainment area for ozone (O_3), CO, and fine, suspended particulate matter less than 10 microns (PM_{10}) and 2.5 microns in diameter ($PM_{2.5}$)[1] and in attainment for the other criteria pollutants, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). To maintain the attainment status and reduce emissions for the non-attainment pollutants, the SCAQMD has established daily emission thresholds for all criteria pollutants to determine the significance of air quality impact from proposed projects. A significant impact would occur if the project resulted in substantial emissions during construction or operation that would exceed the established thresholds. For example, one of the proposed alternatives is to install the sewer line along the beach to minimize traffic impact to the project area. It should be noted that depending on wind conditions throughout the day, the excavation and transporting of sand, which also contains fine particulates, could potentially become airborne and cause a nuisance to nearby residences and sun bathers. To minimize airborne particulates, construction best management practices (BMPs) such as application of water should be implemented during the construction of the proposed sewer line.

LOCAL AIR QUALITY

Annual rainfall in the vicinity of the Project site can be characterized by historical average total precipitation data from Santa Monica Pier – National Climatic Data Center (NCDC), Cooperative Station, number 047953. NCDC data indicate that the bulk of annual precipitation occurs between November (1.46 inches) and March (1.94 inches), peaking in February (3.04 inches). Summer rainfall is minimal and the average total precipitation undergoes a seasonal reduction from 0.79 inches (April) to 0.02 inches (July).

Southwesterly winds dominate in the vicinity of the project site, as evidenced by historical meteorological data records from Santa Monica Airport. Annual average wind speed was 7.4 miles per hour (mph) with the highest winds occurring from April (8.5 mph) to May (8.4 mph) and the slowest winds in January (6.2 mph).

Ambient monitoring stations are used to collect ambient criteria pollutant data, which are used to determine whether the region is in attainment with the National Ambient Air Quality Standards (NAAQS) or the California Ambient Air Quality Standards (CAAQS). The NAAQS and CAAQS are designed to protect public health and to prevent degradation of the environment. The NAAQS and CAAQS are provided in Table 5.2-1. The California Clean Air Act (CCAA) of 1988 required non-attainment areas in the state to prepare air quality attainment plans. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of non-attainment pollutants, unless all feasible measures have been implemented. The SCAB is currently classified as a non-attainment area for O_3, CO, $PM_{2.5}$, and PM_{10}. The SCAB is technically in attainment for CO but has not been reclassified by the EPA; therefore, the current designation is considered as serious non-attainment. The attainment status for the SCAB is provided in Table 5.2-2.

[1] U.S. Environmental Protection Agency web page - http://www.epa.gov/air/data/monvals.html

Table 5.2-1 Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	0.12 ppm (235 µg/m^3)[8]	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)*		0.08 ppm (157 µg/m^3)[8]		
Respirable Particulate Matter (PM_{10})	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation*	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Geometric Mean	20 µg/m^3		50 µg/m^3		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	NDIR
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m^3)		--		
Lead[9]	30 days average	1.5 µg/m^3	Atomic Absorption	--	--	--
	Calendar Quarter	--		1.5 µg/m^3	Same as Primary Standard	High-volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.30 ppm (80 µg/m^3)	--	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm 105 µg/m^3)		0.14 ppm (365 µg/m^3)	--	
	3 Hour	--		--	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		--	--	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles of more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		NO FEDERAL STANDARDS		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			

** This concentration was approved by the California Air Resources Board (CARB) on April 28, 2005, and is expected to become effective in early 2006. (See Table notes provided on the following page*

Table 5.2-1 Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter-PM_{10}, $PM_{2.5}$, and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure that can be shown to the satisfaction of the CARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by EPA on July 18, 1997. Contact EPA for further clarification and current federal policies.
9. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Acronyms:
$\mu g/m^3$ – micrograms per cubic meter
°C – degrees Celsius
EPA – U.S. Environmental Protection Agency
mg/m^3 – milligrams per cubic meter
ppm – parts per million

Source: California Air Resources Board (11/29/05)

Table 5.2-2 State and Federal Attainment/Non-Attainment Designations for South Coast Air Basin

Criteria Pollutant	County	State	Federal	
CO	Los Angeles County (P)	A	N	Serious
	Orange County	A	N	Serious
	Riverside County (P)	A	N	Serious
	San Bernardino County (P)	A	N	Serious
NO_x		A	A	A
SO_x		A	A	A
PM_{10}		N	N	Serious
$PM_{2.5}$		N	N	
Ozone (1-hour)		N	N	Extreme
Ozone (8-hour)		N	N	Severe 17
Lead		A		

Source: www. arb.ca.gov

The SCAQMD maintains ambient air quality monitoring stations throughout the SCAB and the air quality monitoring stations nearest to the Project site are the Lynwood (11220 Long Beach Boulevard, Lynwood) and Hawthorne (5234 West 120th Street, Hawthorne) monitoring stations located approximately 19 and 13 miles, respectively, from the VPP. While the Hawthorne station is closer to the project site, use of air quality data from the less proximate Lynwood site is necessary because the Hawthorne station lacked $PM_{2.5}$ monitoring data. Table 5.2-3 shows the criteria pollutants monitored at the Hawthorne and Lynwood stations, which include CO, O_3, NO_2, and $PM_{2.5}$. SO_2 and Pb are not listed because there have been no exceedances of the federal or state standards in the past 10 years.

The ambient air quality data in Table 5.2-3 show that CO and NO_2 levels are below the relevant state and federal standards at the Hawthorne site for the past 5 years. Hawthorne 1-hour O_3 and PM_{10} levels are below the federal standards but have exceeded the state standards within the past 5 years. The $PM_{2.5}$ concentration monitored at the Lynwood station exceeded the federal standard most recently in 2001 and has not been exceeded in the last few years.

The following paragraphs briefly describe the adverse health effects of the six criteria pollutants monitored in the Basin.

Ozone – O_3 is formed by photochemical reactions between NO_x and reactive organic gases, rather than being directly emitted. O_3 is a pungent, colorless gas typical of southern California photochemical smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children. O_3 levels peak during the summer and early fall months.

Carbon Monoxide – CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. CO passes through the lungs into the bloodstream, where it interferes with the transfer of oxygen to body tissues.

Table 5.2-3 Ambient Air Quality at Air Monitoring Stations Close to the Project Site

	Carbon Monoxide (CO)				Ozone (O_3)				Respirable Particulate Matter (PM_{10})		Fine Particulate Matter[1] ($PM_{2.5}$)		Nitrogen Dioxide (NO_2)	
	Max 1-hour Conc. (ppm)	Number of Days Exceeded	Max 8-hour Conc. (ppm)	Number of Days Exceeded	Max 1-hour Conc. (ppm)	Number of Days Exceeded	Max 8-hour Conc. (ppm)	Number of Days Exceeded	Max 24-hour Conc. ($\mu g/m^3$)	Number of Days Exceeded	Max 24-hour Conc. ($\mu g/m^3$)	Number of Days Exceeded	Max 1-hour Conc. (ppm)	Number of Days Exceeded
State Standards	> 20 ppm/ 1 hour		> = 9 ppm/ 8 hour		> 0.09 ppm/ 1 hour		> 0.070 ppm/ 8 hour[2]		> 50 $\mu g/m^3$/ 24 hour		> 65 $\mu g/m^3$/ 24 hour		> 0.25 ppm/ 1 hour	
2004	5.8	0	4.43	0	0.069	0	ND[3]	ND[2]	52.0	2	55.8	0	0.084	0
2003	6.5	0	5.04	0	0.110	2	0.077	NA[3]	58.0	3	54.8	0	0.120	0
2002	6.8	0	6.00	0	0.087	0	0.072	NA[3]	121.0	12	64.0	0	0.099	0
2001	7.3	0	5.21	0	0.098	1	0.079	NA[3]	75.0	8	73.1	3	0.110	0
2000	8.7	0	7.14	0	0.095	1	0.075	NA[3]	74.0	9	82.1	2	0.128	0
Maximum	8.7	0	7.14	0	0.110	2	0.079	NA[3]	121.0	12	82.1	3	0.128	0
Federal Standards	> 35 ppm/ 1 hour		> = 9 ppm/ 8 hour		> 0.12 ppm/ 1 hour		> 0.08 ppm/8 hour		> 150 $\mu g/m^3$/ 24 hour		> 65 $\mu g/m^3$/ 24 hour		Annual Average > 0.053 ppm/ annual avg.	
2004	7.2	0	4.43	0	0.069	0	ND[2]	ND[2]	52.0	0	55.8	0	0.030	0
2003	10.4	0	5.04	0	0.110	0	0.077	0	58.0	0	54.8	0	0.024	0
2002	12.2	0	6.00	0	0.087	0	0.072	0	121.0	0	64.0	0	0.023	0
2001	15.8	0	5.21	0	0.098	0	0.079	0	75.0	0	73.1	3	0.024	0
2000	11.7	0	7.14	0	0.095	0	0.075	0	74.0	0	82.1	2	0.027	0
Maximum	15.8	0	7.14	0	0.110	0	0.079	0	121.0	0	82.1	3	0.030	0

Notes:
1. Fine particulate matter data are obtained from the Lynwood air monitoring station; all other tabulated data are from the Hawthorne air monitoring station.
2. NA – This standard was approved by the CARB on April 28, 2005 and is expected to become effective in early 2006.
3. ND – Insufficient data from the CARB on Hawthorne air monitoring station to determine this value.
ppm – parts per million
$\mu g/m^3$ – micrograms per cubic meter

Oxides of Nitrogen – NO_x contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2, a reddish-brown gas, and nitric oxide, a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as NO_x. NO_x is a primary component of the photochemical smog reaction. NO_2 decreases lung function and may reduce resistance to infection.

Sulfur Dioxide – SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels in the SCAB. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Reactive Organic Compounds – Reactive organic compounds (ROCs) are formed from combustion of fuels and evaporation of organic solvents. ROCs are a prime component of the photochemical smog reaction. Consequently, ROCs accumulate in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower.

Particulate Matter – Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 microns, or PM_{10}) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 microns, or $PM_{2.5}$) often come from fuel combustion, power plants, and diesel buses and trucks. Fine particles can also be formed in the atmosphere through chemical reactions.

Coarse particles (PM_{10}) can accumulate in the respiratory system and aggravate health problems such as asthma. The U.S. Environmental Protection Agency (EPA's) scientific review concluded that fine particles ($PM_{2.5}$) at concentrations that extend well below those allowed by the current PM_{10} standards, which penetrate deeply into the lungs, are more likely than coarse particles to contribute to the health effects listed in a number of recently published community epidemiological studies. These health effects include premature death, increased hospital admissions, and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.

REGIONAL AIR QUALITY PLANNING FRAMEWORK

The 1976 Lewis Air Quality Management Act established the SCAQMD and other air districts throughout the state. The Federal CAAA of 1977 required that each state adopt a State Implementation Plan (SIP) outlining pollution control measures to attain the federal standards in non-attainment areas of the state.

The California Air Resources Board (CARB) coordinates and oversees both state and federal air pollution control programs in California. The CARB oversees activities of local air quality management agencies and is responsible for incorporating Air Quality Management Plans (AQMPs) from local air basins into a SIP for federal EPA approval. The CARB also maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by the CARB to

classify air basins as "attainment" or "non-attainment" with respect to each pollutant and to monitor progress in attaining air quality standards.

The CARB has divided the state into 15 air basins. Significant authority for air quality control within them has been given to local Air Pollution Control Districts or Air Quality Management Districts, which regulate stationary source emissions and develop local attainment plans. The CCAA provides the Air District with the authority to manage transportation activities at indirect sources and regulate stationary source emissions. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution (e.g., the motor vehicles at an intersection, a mall, and highways). The Air Board regulates motor vehicles and fuels.

AIR QUALITY MANAGEMENT PLAN

The SCAQMD and South Coast Association of Governments (SCAG) are responsible for formulating and implementing the AQMP for the SCAB. Every 3 years, the AQMP is updated to reflect the overall plan for improving air quality in the region.

The 2003 AQMP was prepared pursuant to federal and state clean air legislation, and addresses 1990 CAA requirements with respect to particulate matter standards. Under the Clean Air Act (CAA), the AQMP must demonstrate attainment of PM_{10} standards by 2006 for both 24-hour and annual average ambient air quality standards. The 1997 AQMP responds to this requirement, relying mostly on the control measures outlined in the 1994 AQMP.

To ensure continued progress toward clean air and comply with state and federal requirements, the SCAQMD, in conjunction with the CARB, the SCAG, and the EPA, prepared and adopted the 2003 AQMP on August 1, 2003. The 2003 AQMP updates the demonstration of attainment with the federal standards for O_3 and PM_{10}, replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal NO_2 standard that the SCAB has met since 1992. The 2003 AQMP also incorporates a revised emissions inventory, the latest modeling techniques, and updated control measures remaining from the 1997/1999 SIP, as well as new control measures. As of March 4, 2005, SCAQMD determined that the region has satisfied the federal CO standards requirements and will request the EPA to redesignate the region as attainment for CO standards. The EPA will have 18 months to process the request.

More specially, the 2003 AQMP is designed to satisfy the CCAA tri-annual update requirements and fulfills the SCAQMD's commitment to update transportation emission budgets based on the latest approved motor vehicle emissions model and planning assumptions. The SCAQMD forwarded the Final 2003 AQMP to the CARB on October 15, 2003, and in turn, the CARB submitted the 2003 AQMP to the EPA for approval on January 9, 2004.

5.2.2 Thresholds of Significance

Air quality impacts are determined by the level of significance. The analysis for the proposed project involves estimating emissions based on planning data for construction and operational activities. Construction emissions are considered short term because of the time duration. Construction emissions were quantified using emission factors provided in the SCAQMD *CEQA Air Quality Handbook* (1993),

and other resources to provide an accurate impact assessment. Operational emissions were not quantified because preliminary data show that there is no change in equipment; therefore, emissions would have little to no changes and are considered negligible. As such, air quality impacts from operation of the proposed Project are considered to be less than significant and will be briefly mentioned in this analysis.

To determine significance of air quality impact from the proposed Project, either a quantitative or qualitative method can be used as both methods are accepted by regulatory agencies. A quantitative method is used when accurate and reliable project-specific data are available, which allows the estimation of criteria pollutants using an approved air quality model such as URBEMIS2002 and/or CALINE4; whereas a qualitative method is used when specific project data are inadequate for quantifying emissions. This analysis utilizes the quantitative method because construction data are available.

THRESHOLD FOR CONSTRUCTION EMISSIONS

The following significance thresholds for construction emissions have been established by the SCAQMD:

- 75 pounds per day of ROC;
- 100 pounds per day of NO_x;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10}; and
- 150 pounds per day of SO_x.

Projects in the SCAB with construction-related emissions that exceed any of the emission thresholds listed above are considered significant by the SCAQMD.

THRESHOLD FOR OPERATIONAL EMISSIONS

Specific criteria for determining whether the potential air quality impacts of a project are significant are set forth in the SCAQMD's *CEQA Air Quality Handbook* (1993 and on their web page). The criteria include operational emissions thresholds, compliance with state and national air quality standards, and consistency with the current AQMP.

SCAQMD has separate criteria for operational activities. The criteria include operational emissions thresholds, compliance with state and national air quality standards, and consistency with the current AQMP. SCAQMD established daily significance thresholds for operational emissions and are as follows:

- 55 pounds per day of volatile organic compound (VOC);
- 55 pounds per day of NO_x;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10}; and
- 150 pounds per day of SO_X.

EMISSION STANDARDS

- California state 1-hour CO standard of 20.0 parts per million (ppm);
- California state and federal 8-hour CO standard of 9.0 ppm;
- California state 1-hour average NO_2 standard of 0.25 ppm;

- Federal annual average NO_2 standard of 0.053 ppm; and
- California state annual arithmetic mean for PM_{10} of 20 micrograms per cubic meter (µg/m^3).

SCAQMD is in attainment for CO and NO_2 and non-attainment for PM_{10}; therefore, a project is considered to be significant if it causes or contributes to an exceedance of one or more of the above standards. Project PM_{10} emissions are considered to be significant if the project increases the PM_{10} 24-hour average by 10.4 µg/m^3 for construction and 2.5 µg/m^3 for operation, or annual (geometric) average concentrations by 1 µg/m^3.

5.2.3 Environmental Impacts

Air pollutant emissions associated with the project would occur over the short and the long term. Short-term emissions are from construction activities such as fugitive dust from site preparation, soil excavation, and emissions from construction equipment exhaust. Long-term emissions are from equipment used for the proposed Project such as maintenance vehicles traveling to and from the pump station to service the equipment or to take readings. To determine whether the proposed Project would have a significant impact on air quality, the analysis has to show that the implementation of the proposed Project would not generate an increase in emissions that would exceed the SCAQMD construction and operational significance thresholds.

Potential adverse air quality impacts could occur during the course of construction and is associated with exhaust emissions generated by heavy-duty construction equipment, off-road mobile sources (construction equipment), on-road mobile sources (e.g., construction worker vehicle trips, materials transport, etc.), and fugitive dust.

The net change in emissions from the operation of the proposed Project is expected to be negligible because preliminary data indicate that the same equipment would be used with the same operating hours. As such, there would not, or there are not expected to be, any long-term air quality impacts from the operation of the proposed Project and, therefore, these will not be discussed further in this analysis.

5.2.3.1 Construction-Related Impacts

EQUIPMENT EXHAUSTS AND RELATED ACTIVITIES

Construction activities produce combustion emissions from various sources such as site grading, generators, worker's vehicles, on-site heavy-duty construction vehicles, and trucks hauling materials to and from the site. Exhaust and fugitive dust emissions from construction activities on site would vary daily as construction activity levels change. The use of construction equipment on site would potentially result in localized air quality impacts. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's *CEQA Air Quality Handbook*. Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Preliminary plans assume that two independent construction worker teams would be involved for two different construction techniques. One team would be responsible for tunneling the 1,800-foot section that crosses the Marina and Ballona Creek Channel and the other team would perform the open trench

techniques elsewhere along each alignment (approximately 8,200 to 8,600 feet). The following assumptions were also made in the calculations of the emissions from construction activities:

- The construction activities would operate 6.5 hours per day (as per the Mayoral Directive restricting on-street construction work hours);
- The construction zones have a total area of approximately 0.5 acre each; and
- The TBM and some of its associated paraphernalia (slurry settling tank, slurry pump and control trailer) emit negligible quantities of criteria pollutants because they are electrically driven.

Tables provided in Appendix C list the construction equipment and associated exhaust emissions from open trench and micro-tunneling methods, respectively. The list of equipment is derived from the Kaku Draft Traffic Report, September 1, 2005 conducted for this project and included in Appendix.

Total daily construction emissions from open trenching and micro-tunneling are summarized and compared with the SCAQMD daily construction significance thresholds. The estimated construction emissions are under the SCAQMD significance thresholds for all criteria pollutants, with the exception of NO_x emission. Thus, the combination of open trench and micro-tunneling construction is expected to have a significant impact on air quality, unless mitigation measures for NO_x are implemented. To mitigate NO_x emissions, there are several alternatives such as:

- Strategize and plan ahead to minimize the transporting of construction equipment and excessive material to and from work area;
- Optimizing construction crew size and proper selection of equipment to reduce any unnecessary emissions such as to eliminate redundancy or similarity in equipment capable of doing similar work in the same construction zone, e.g., excavator vs. backhoe;
- Adjusting the electronic timing on the construction equipment to reduce NO_x emissions;
- Use newer construction equipment such as equipment meeting Tier 2 emission standards;
- Minimize idling emissions from construction equipment and haul trucks by turning it off when not in use or during potential long delays (i.e., over 5 minutes);
- Optimize the muck removal schedule to reduce emissions from haul trucks; and
- Use of alternative fuel such as biodiesel, liquid natural gas, and propane.

Another option for further investigation should NO_x emissions become a primary concern is the large (mined) tunneling method.

FUGITIVE DUST

Fugitive dust emissions are generally associated with demolition, land clearing, exposure, and cut and fill operations. Dust generated during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions. Table 5.2-4 presents the best available control measures for high wind conditions. Fugitive dust would also be generated as construction equipment travels on unpaved roads or on the construction site. The fugitive PM_{10} emissions rate used in the Air Quality Analysis (AQA), 0.42 tons per acre-month (30 days), is for road construction, which is applicable to this Project. Approximately 28 pounds per day is generated each day during construction of the proposed Project. To minimize fugitive dust, control measures are provided in Table5.2-4, 5.2-5 and Table 5.2-6.

Table 5.2-4 Best Available Control Measures For High Wind Conditions

Fugitive Dust Source Category	Control Measures
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of 6 months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas three times per day. If there is any evidence of wind-driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 5-2 of the technical study (Appendix C), Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 5-1 of the technical study (Appendix C) may be used.

Table 5.2-5 Dust Control Actions

Fugitive Dust Source Category	Control Actions	
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by American Society for Testing and Materials (ASTM) Method D-2216, or other equivalent method approved by the Executive Officer, the CARB, and the EPA. Two soil moisture evaluations must be conducted during the first 3 hours of active operations during a calendar day, and two such evaluations each subsequent 4-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: construction fill areas	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM Method D-2216, or other equivalent method approved by the Executive Officer, the CARB, and the EPA. For areas which have optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the CARB and the EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first 3 hours of active operations during a calendar day, and two such evaluations during each subsequent 4-hour period of active operations.
Earth-moving: construction cut areas and mining operations	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind-driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: completed grading areas	(2c)	Apply chemical stabilizers within 5 working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind-driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.
Unpaved roads	(4a)	Water all roads used for any vehicular traffic at least once per every 2 hours of active operations ; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 mph; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind-driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
<u>All Categories</u>	(6a)	Any other control measures approved by the Executive Officer and the EPA as equivalent to the methods specified in Table 5-2 of the technical study (Appendix C) may be used.

Table 5.2-6 Track-out Control Options

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the EPA as equivalent to the methods specified in Table 5-3 of the technical study (Appendix C) may be used.

The combination of the PM_{10} fugitive dust and PM_{10} exhaust emissions from construction equipment are added together and compared to the SCAQMD daily threshold for PM_{10} to determine whether the Project has a significant impact on air quality. Total PM_{10} emissions, 22.6 pounds per day, from both construction operations are significantly lower than the SCAQMD daily threshold for PM_{10} of 150 pounds per day.

5.2.3.2 Operational Impacts

The proposed Project is anticipated to emit minimal odors. Once operational, the proposed Project would operate with minimal need for on-site maintenance under normal conditions. The total amounts of emissions from maintenance worker vehicle exhaust are considered negligible and would not have a significant impact on air quality.

Based on the above operational characteristics, the proposed Project is not likely to impede the progress of the SCAB in complying with federal or state ambient air quality standards, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors.

5.2.4 Mitigation Measures

Mitigation measures are not required for the operation of the proposed project because there would not be a significant long-term impact upon air quality.

NO_x emissions arising from short-term construction activities may be addressed by implementing various innovative emission control technologies (e.g., use of fuel additives, electronic timing and metering and use of alternative fuel).

FUGITIVE DUST CONTROL MEASURES

The Project would be required to comply with regional rules, which would assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures (BACMs) so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 402 prohibits dust from creating a nuisance off site. These dust suppression techniques were summarized in Table 5.2-5 above. Implementation of these dust suppression techniques, as required by the SCAQMD, can reduce the fugitive dust generation (and thus the PM_{10} component) by 50 to 75 percent. Compliance with the following BACMs would reduce impacts on nearby sensitive receptors.

5.2.5 Unavoidable Adverse Project Impacts

Although the short-term construction emissions will contribute to the existing non-attainment status, the operation and construction of the proposed project is not expected to exacerbate long-term air quality. BACMs and other feasible control measures are suggested to reduce fugitive dust and other emissions from the construction zones.

5.2.6 Cumulative Impacts

CONSTRUCTION EMISSIONS

The implementation of the proposed Project and other development projects in the general vicinity of the Project area may be simultaneously under construction. Depending on construction schedules of all the projects in the area, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts. Traffic analysis conducted by Kaku Associates in September 1, 2005, has indicated that of the nine study intersections in the vicinity of the proposed project, six of study intersections currently operate at "acceptable" levels of service (LOS D or better) during the morning and afternoon peak traffic periods. LOS D may be defined as imposing delays that may be substantial during portions of the rush hours, but having enough lower volume periods to permit clearing of developing lines, thereby preventing excessive backups. Of these six intersections, four are operating at LOS B or better, i.e., reasonably unimpeded operations with slightly restricted maneuverability and stopped delays that are considered acceptable LOS.

PROJECT EMISSIONS

Currently, the SCAB is in non-attainment for O_3, PM_{10}, and $PM_{2.5}$. Preliminary data indicates that the maintenance schedule and equipment would remain the same; therefore, the operation of the proposed project should have an essentially negligible impact on the existing air quality status.

5.3 BIOLOGICAL RESOURCES

5.3.1 Environmental Setting

Biological resources within the proposed Project areas have been studied and analyzed for the purpose of determining any impacts to the environment resulting from the construction of the proposed sewer main. Resources were observed, studied, and analyzed within each of the alternative alignments to allow flexibility for construction staging, construction, and construction related activities.

This section summarizes the findings and conclusions contained in the Biological Technical Report prepared by Keane Biological Consulting (2005) and the Marine Resource report prepared by MBC Biological (2005) for the Project. The Biological Technical Report and Marine Resource Report are contained in Appendix D to this EIR. The reports were prepared to: (1) inventory, map and describe the types, current conditions, and value of existing on-site biological resources; (2) identify and evaluate the significance of all potential direct, indirect, and cumulative project impacts on existing resources; and (3) recommend mitigation measures to reduce impacts to a less than significant level.

This section also summarizes the findings and conclusions contained in the 404 and 1603 Jurisdictional Delineation Report prepared by URS for the Project site dated 2005 (Appendix D).

Marina Del Rey is one of the largest human-made marinas in the world with more than 6,000 berths (Pondella and Allen, unpublished data). Most of the Marina is silt-bottomed with little hard substrate other than various retaining walls, floats and pilings. Basin D, located on the west side of the marina, terminates in a sandy swimming beach, and eelgrass beds (*Zostera marina*) are present in the subtidal areas of the basin. The marina connects to Santa Monica Bay through an entrance channel bound by breakwaters running perpendicular to shore with a terminal breakwall running parallel to shore that protects the entrance.

The Ballona Creek flood control channel runs parallel to the Marina Del Rey entrance channel at the mouth of the Creek, emptying into Santa Monica Bay south of the Marina Del Rey Channel. Within the Project area, Ballona Creek is riprap-lined and primarily marine, providing tidal exchange for both Del Rey Lagoon and the nearby Ballona Wetlands. Ballona Creek drains most of Culver City and the surrounding areas [Wetlands Research Associates, Inc. (WRA), 1990].

To the west of the Project area, the Marina Del Rey and Ballona Creek entrances bisect Dockweiler State Beach. The north beach is adjacent to Venice Municipal Beach, the Ballona Lagoon and Marina Del Rey to the east. A protected California least tern (*Sterna antillarum browni*) avian nesting vegetated area is located near the southern end of the beach. The breeding area is fenced to exclude humans and predators.

The southern extent of Dockweiler State Beach is adjacent to Del Rey Lagoon, Playa Del Rey and LAX to the south. In the Del Rey Lagoon area, several fenced, vegetated dunes front the beach. Steeper slopes backing the beach are also vegetated. Two western snowy plover critical habitat units have been proposed for Dockweiler State Beach, the northernmost west section of the airport, slightly south of the southern extent of the project. Dockweiler State Beach, particularly the upper, dry back-beach area where proposed Project activities may occur are, for the most part, groomed with developed paths and volleyball courts.

Two Environmentally Sensitive Habitat Areas (ESHA) are located close to most of the potential alignments. To the north, three proposed project alignments are in proximity to the Grand Canal/Ballona Lagoon in the Venice and Marina Del Rey area. To the south, two proposed alignments are near Del Rey Lagoon situated in Playa Del Rey.

VEGETATION

The Ballona Lagoon area supports several coastal vegetative communities including Coastal Salt Marsh, characterized by vegetation that occupies intertidal areas and is periodically inundated by rising tides, Coastal Strand, which is characterized by vegetation typical of upland, beach and dune habitats, and Coastal Sage Scrub, a habitat that includes those species typically found higher, above the Coastal Strand community (Jones, 2003).

Del Rey Lagoon is surrounded by an urban park with manicured landscaping, lawns, a sandy beach, and recreational infrastructure along the southern end of the lagoon on level parkland about 10 feet above the elevation of the lagoon (WRA, 1990). Adjacent to Del Rey Lagoon to the south, between Pacific Avenue and Dockweiler State Beach, are several fenced, vegetated dunes. The dunes support a degraded Southern Dune Scrub habitat dominated by invasive iceplant, and to a lesser extent, native beach evening primrose.

Special-Status Species – For purposes of this EIR, a species is considered "special status" or "sensitive" if it is included in one of the following categories:

- Federal listing as threatened or endangered;
- State listing as rare, threatened, or endangered;
- Proposed for federal or state listing as threatened or endangered;
- Candidates for federal or state listing as threatened or endangered;
- Federal species of concern;
- Protected by the Migratory Bird Treaty Act;
- Designated by the CDFG as a Species of Special Concern; and
- Included in the sixth edition of the California Native Plant Society (CNPS) inventory of rare and endangered plants in California [California Natural Diversity Database (CNDDB), 2005].

Several species of plants or wildlife that occur (or could potentially occur) within Ballona and Del Rey Lagoons are listed by the federal and/or state governments as threatened or endangered. Additionally, some species are listed by government agencies and other entities as being of concern for various reasons. All marine mammals are protected by the Marine Mammal Protection Act, native birds by the Migratory Bird Treaty Act, and endangered plants and animals by the California Endangered Species Act.

Marina Del Rey Area – Sensitive insect species known to occur in the Marina Del Rey area, and that may potentially be found in the project area, include two species of butterflies, the federally listed endangered El Segundo blue butterfly (*Euphilotes battoides allyni)* and the wandering or saltmarsh skipper (*Panoquina errans*). Both butterflies are associated with host plant species that are known to occur in the Ballona Lagoon plant community. Historically three sensitive insect species, Dorothy's El Segundo dune weevil (*Trigonoscuta dorothea dorothea*), Belkin's dune tabanid fly (*Brennania belkini*),

and globose dune beetle (*Coelus globosus*), were reported to occur on the dunes of South Dockweiler State Beach (CNDDB, 2005). Recent occurrence of these species in the area has not been corroborated.

Venice Area – Several species of sensitive native plants were noted in the Ballona Lagoon area, including: red sand-verbena (*Abronia maritima*), southwestern spiny rush (*Juncus acutus ssp. leopoldii*), and woolly sea-blight (*Suaeda taxifolia*), which are sensitive species found in small populations of limited distribution. Three other plants, south coast saltbush (*Atriplex pacifica*), pink sand-verbena (*Abronia umbellata*), and California sea-blight (*Suaeda californica*) are considered to be rare, threatened or endangered in California.

Among avian species, the California least tern occurs in the Project area. It nests in a protected breeding site on North Dockweiler State Beach and feeding in shallow waters throughout the area. The Western snowy plover (*Charadrius alexandrinus nivosus*), another beach nesting species, is known to occur in the Project area in winter, feeding on lower beaches and tidal flats.

Playa Del Rey Area – Summer nesting in the Project area is not reported, but critical nesting habitat designation is proposed for Dockweiler State Beach south of the proposed Project area. Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) requires pickleweed habitat and is known to occur in the Marina Del Rey area. Belding's savannah sparrow could potentially be found foraging in or nesting near Del Rey Lagoon.

5.3.2 Thresholds of Significance

Direct impacts occur when sensitive biological resources are altered or destroyed as a result of project implementation. Examples of such impacts include removal of sensitive vegetation, filling of wetland habitats, or severing or physically restricting the width of wildlife corridors. Other direct impacts may include loss of foraging or nesting habitat and take of federal and state protected plant or animal species. Indirect impacts may occur due to elevated levels of noise or lighting, change in surface water hydrology within a floodplain, and increased erosion or sedimentation. These types of indirect impacts can affect vegetation communities or their potential use by sensitive wildlife species.

The CEQA Guidelines define "significant effect on the environment" as a "substantial, or potentially substantial, adverse change in the environment." The CEQA Guidelines further indicate that there may be a significant effect on biological resources if the project will:

a. Substantially affect an endangered, rare, or threatened species of animal or plant or the habitat of the species;
b. Interfere substantially with the movement of resident or migratory fish or wildlife species to the extent that it adversely affects the population dynamics of the species;
c. Substantially diminish habitat for fish, wildlife, or plants; or
d. Affect a substantial portion of the distribution of plant communities defined as threatened or very threatened by the Nature Conservancy Heritage Program or as designated in the CNDDB maintained by the CDFG.

5.3.3 Impact Analysis

MARINA DEL REY

Marquesas Way/Via Marina Way Alignment – Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

Temporary turbidity in the canal could occur with certain tunneling methods, and turbidity may affect least tern foraging either by reducing local prey availability and/or by compromising visibility of prey in the vicinity. However, in general, tunneling would occur below the bottom of the canal, and tunneling generally has no effect on the surface (Justin Brown, pers. comm.). Thus, no turbidity is expected in the canal near Hurricane and Marquesas Way where tunneling will occur.

VENICE ALIGNMENT

Pacific Avenue Alignment – Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment, although the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow). Since this alignment would be located a minimum of 600 feet from the least tern nesting site, activity at the receptor site would not have any temporary or permanent effects on the nesting site should construction activities occur during nesting season, if proper BMPs are incorporated. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Venice Beach/North Dockweiler Beach Alignment – Temporary impacts to water quality and marine resources could occur along the beach at launching and receiving pits through the unintentional release of sediments and water into the local environment. The cut-and-cover construction method for this alignment, though considered, has been deemed not viable.

Portions of the alignment (between Yawl and Topsail streets) would be located within 200 feet of the least tern nesting site. If any construction activities associated with tunneling occur during the least tern nesting season when terns are present, significant temporary impacts on least terns at the nesting site may result if noisy equipment is used, or if the micro-tunneling and jacking pit and/or receiving pit are within 500 feet of the nesting site. These impacts include noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the nesting site (crows). Construction activities may result in temporary effects on least terns [see Appendix D, Biological Technical Report (Keane,

2005)]. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Channel Crossings – Temporary impacts associated with construction are possible, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the Project area are anticipated for any of the proposed alignment alternatives.

Continuous (Full-Length) Tunnel Alignment Alternatives; Venice Beach/Dockweiler Beach – Temporary impacts to water quality and marine resources at shaft points associated with methane venting along the alignment surface could occur through the unintentional release of excavated sediments and water into the local environment. Potential impact to the least terns exists within 600 feet of the designated least tern nesting area.

Construction Alternatives – Tunneling construction methods have the advantage of reducing impacts by limiting construction activities to the launch and receptor shaft sites, which could be positioned away from sensitive areas, although the construction technique could lead to temporary impacts to water quality and marine resources, which could occur through the unintentional release of excavated sediments and water into the local environment.

MINED TUNNELING/SHAFT LOCATIONS

Alt. 1 – Beach Alignment (Waterview to Hurricane) – Temporary impacts to water quality and marine resources could occur at the #1 starter shaft or #9 receptor shaft locations (mined tunnel Alternative #1), through the unintentional release of excavated sediments and water into the local environment. However, the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

The Dockweiler State Beach #9 receptor shaft is located within 3,000 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Alt. 2 – Beach Alignment (LAX to Hurricane) – Temporary impacts to water quality and marine resources could occur at the #2 starter shaft and #9 receptor shaft locations (mined tunnel Alternative #2), through the unintentional release of excavated sediments and water into the local environment. However, the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the Project area are anticipated from this alignment.

The Dockweiler State Beach #9 receptor shaft is located within 3,000 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent

and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Alt. 3 – Beach Alignment (LAX to VPP) – Temporary impacts to water quality and marine resources could occur at the #2 starter shaft and #10 receptor shaft locations (mined tunnel Alternative #3), through the unintentional release of excavated sediments and water into the local environment. However, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

The Hurricane Street #10 receptor shaft is located within 3,400 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the project area are expected.

Alt. 4 –Inland Alignment (LAX to VPP) – Temporary impacts to water quality and marine resources could occur at the #2 starter shaft and #11 receptor shaft locations (mined tunnel Alternative #4), through the unintentional release of excavated sediments and water into the local environment. However, the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. In addition, impacts to least terns may occur at potential vent shafts. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

The Grand Canal #11 receptor shaft is located within 3,600 feet of the least tern nesting site. If any construction activities occur during the least tern nesting season when terns are present, no permanent and no significant temporary impacts on least terns at the nesting site are expected. Furthermore, no permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the project area are expected.

Other shaft locations which may be used for either method of tunneling are:

62nd Avenue – 62nd Avenue is located 1,800 linear feet from the least tern nesting area and is separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the project area.

The Beach at Hurricane Street – The beach at Hurricane Street is located 3,000 linear feet from the least tern nesting area. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the Project area.

The Beach at Waterview – The beach at Waterview is located 6,600 linear feet from the least tern nesting area and is separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with Project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the project area.

Marquesas Way at Via Marina – Marquesas Way at Via Marina is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the project area.

Hurricane at the Grand Canal – Hurricane at the Grand Canal is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site.

The Beach North of the Marina Entrance Channel – The beach north of the Marina entrance channel is located less than 400 linear feet from the least tern nesting area. Noise and other activities associated with project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from the least tern nesting area. Therefore, the alignment would result in temporary (and no permanent) effects on the nesting site.

The Beach South of the Ballona Creek Channel – The beach south of the Ballona Creek Channel is located 1,800 linear feet from the least tern nesting area and is separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site.

Hurricane at Canal Street (for the tunnel option only) – Hurricane at Canal Street is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

The Dunes at LAX (tunnel option only) – The dunes at LAX (tunnel option only) are located 600 linear feet from the least tern nesting area and are separated from the nesting area by Ballona Creek and Marina Del Rey Channel. Noise and other activities associated with project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the

nesting site. No other short-term impacts on least tern foraging habitat are expected to occur in the Project area.

Via Marina at the County Surface Parking Lot – Via Marina at the County surface parking lot is located 3,600 linear feet from the least tern nesting area and is separated from the nesting area by a housing development. Noise and other activities associated with Project construction would not affect least tern nesting if construction during the nesting season is located 1,000 linear feet or further from the least tern nesting area. Therefore, the alignment would not result in any permanent or temporary effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Via Marina at Pacific Avenue – The Via Marina at Pacific Avenue is located 600 linear feet from the least tern nesting area. Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

WATER QUALITY

Clean Water Act – The Clean Water Act (CWA) of 1972 was designed to restore and maintain the physical, chemical, and biological integrity of the nation's waters. Sections of the CWA control the discharge of waste and pollutants into aquatic environments. Section 404 of the CWA established a program to regulate dredging and/or filling in U.S. waters. Under Section 404, the USACOE can issue two types of permits: a general permit or an individual permit. The general permit is a type of permit issued to the public at large on a regional or national basis and is only issued when the activities would cause only minimal direct or cumulative impacts. An individual permit is required for an applicant that wishes to conduct activities not already allowed under a general permit.

Rivers and Harbors Appropriations Act of 1899 – The Rivers and Harbors Appropriations Act of 1899 authorizes the USACOE to exercise control over all construction projects in U.S. navigable waters. The Rivers and Harbors Act was originally designed with the intent to protect navigation and navigable capacity. These objectives were later expanded to include environmental protection. The key provision to this Act is Section 13, which makes it a crime to discharge refuse into any navigable water without the permission of the USACOE.

All areas of construction must adhere to the CWA by implementing National Pollutant Discharge Elimination System (NPDES) compliance. The following alternative locations are subject to WQ requirements and may be subject to agency notification or review.

Water quality is discussed here, because it relates to the protection of marine/aquatic species. The following alternative locations are subject to water quality requirements as follows:

Location	Agency	Permit/Requirement	Issues of Concern
All Alignments	Los Angeles County	▪ Geotechnical/Grading/Hauling Permits ▪ Dept. of Beaches and Harbors; Right-of-Entry Permit ▪ ROW/Easements for construction and future maintenance and operations.	▪ Impacts from dewatering, tunneling ▪ Staging areas and additional easement
All Alignments	RWQCB	▪ NPDES Construction SWPPP Permit ▪ 401C Section Certification	Water quality and placement of discharges associated with dewatering activities. No permit required for discharges to sewer. General Permit saves time with RWQCB.
Launch Sections	USACOE	Section 10 or Section 404 Permit required if excavated material discharged to waters and construction permit.	▪ Location, placement and depth of pipeline ▪ Obstruction of navigation or other channel activities ▪ Channel safety ▪ Impacts to wildlife – right-of-entry fauna ▪ Dredging/filling activities
All Alignments	CDFG	1600 et. seq. (Streambed Alteration)	Impacts to fish habitat
All Alignments	CCC	Coastal Development Permit	▪ Obstruction of recreation and beachfront facilities ▪ Impacts to animal species and habitat ▪ Impacts to parking and traffic
N/A	California State Lands	Possible lease requirement	Verification of jurisdiction
All Alignments	National Marine Fisheries Service		Impacts to aquatic and marine life
All Alignments from Vista Del Mar and Northward	California Department of Conservation, Division of Oil, Gas and Geothermal Resources	A construction notification form should be submitted to the Division prior to any activity.	Project is inside administrative bounds of the Playa Del Rey Oil Field containing numerous plugged and abandoned oil wells.
All Alignments	State of California Department of Health Services	Project Review for compliance with Title 22, Section 64630 (Conducted through County Environmental Services Division)	Separation of water and sewer mains
All Alignments	USFWS		Impacts to habitat (i.e., least tern)

Source: LUPIN Website, LA County Website, CERES, Website, 2005

5.3.4 Mitigation Measures

The following mitigation measures are expected to reduce the proposed Project's potential significant adverse impacts to biological resources to less than significant levels:

BIO-1 If the Venice Beach/Dockweiler Beach alignment is selected and construction is to be above-ground, or if tunneling is used and the jacking and/or receiving pit is within 500 feet of the nesting site, and any construction activities are to occur during the least tern nesting season (April 1 through August 31), a qualified and experienced biological monitor shall be present during all construction activities within 500 feet of the nesting site to ensure that construction activities do not adversely affect least terns using the nesting site. In addition, the monitors will ensure that work crews properly dispose of all

garbage in covered containers so that work crews do not attract predators (such as crows) into the area and thus contribute indirectly to depredation of least tern eggs and chicks.

BIO-2 Construction of any of the alternative alignments includes tunneling under the Marina Del Rey Channel and Ballona Creek, and the Marquesas Way alignment includes tunneling under the Grand Canal. All of these waterways have been documented as foraging habitat for the least tern. If any tunneling activities are to occur during the least tern nesting season (April 1 through August 31), a water quality specialist or biological monitor shall conduct surveys at tunneling access shaft locations at a minimum of once daily to ensure that tunneling does not increase water turbidity. If any turbidity is discovered in these areas, the tunneling activities shall cease until the leak from the tunnel that is resulting in turbidity is repaired.

BIO-3 Existing and potential values in environmentally sensitive habitat areas shall be protected, enhanced, and where feasible, restored. If any habitat and of marine resources are disturbed, in accordance with the City of Venice LUP and Local Coastal Program (LCP), ESHAs would be restored as necessary to previous undisturbed condition. Marine resources shall be maintained, enhanced, and restored, as necessary.

5.3.5 Unavoidable Adverse Impacts

If the avoidance and minimization measures described in this EIR are implemented successfully, no unavoidable adverse impacts on biological resources are expected as a result of the proposed Project.

5.3.6 Cumulative and Secondary Impacts

No significant cumulative impacts have been identified to biological resources or habitats in the Project area. Assuming the avoidance and minimization measures above are implemented successfully, the project would not contribute to cumulative adverse effects on least terns in southern California or result in secondary impacts on least terns, least tern nesting sites or least tern foraging habitat. There are no other known projects in the vicinity of the proposed project that, when considered together, would result in significant adverse impacts to the wildlife and habitats in the Marina Del Rey area.

5.4 CIRCULATION, TRAFFIC AND TRANSPORTATION

5.4.1 Environmental Setting

EXISTING STREET SYSTEM

The regional freeway and highway system serving the project alignment area is depicted in Figure 5.4-1. Primary regional access to the project site is provided by the Marina Freeway (SR 90), the San Diego Freeway (I-405), the Santa Monica Freeway (I-10) and the Glenn M. Anderson Freeway (I-105). SR 90 runs northeast of the VPP site along a diagonal east of Marina Del Rey. Access to the site from SR 90 can be obtained from Admiralty Way or Lincoln Boulevard. I-10 runs in an east/west direction in the northern portion of the study area approximately 4 miles north of the Ballona Creek, and I-105 runs east/west about 3 miles south of the Ballona Creek. Both I-10 and I-105 connect with I-405 to the north and south, respectively.

The main streets carrying project-related construction traffic (both worker trips and truck trips) to the construction pits or zones would be:

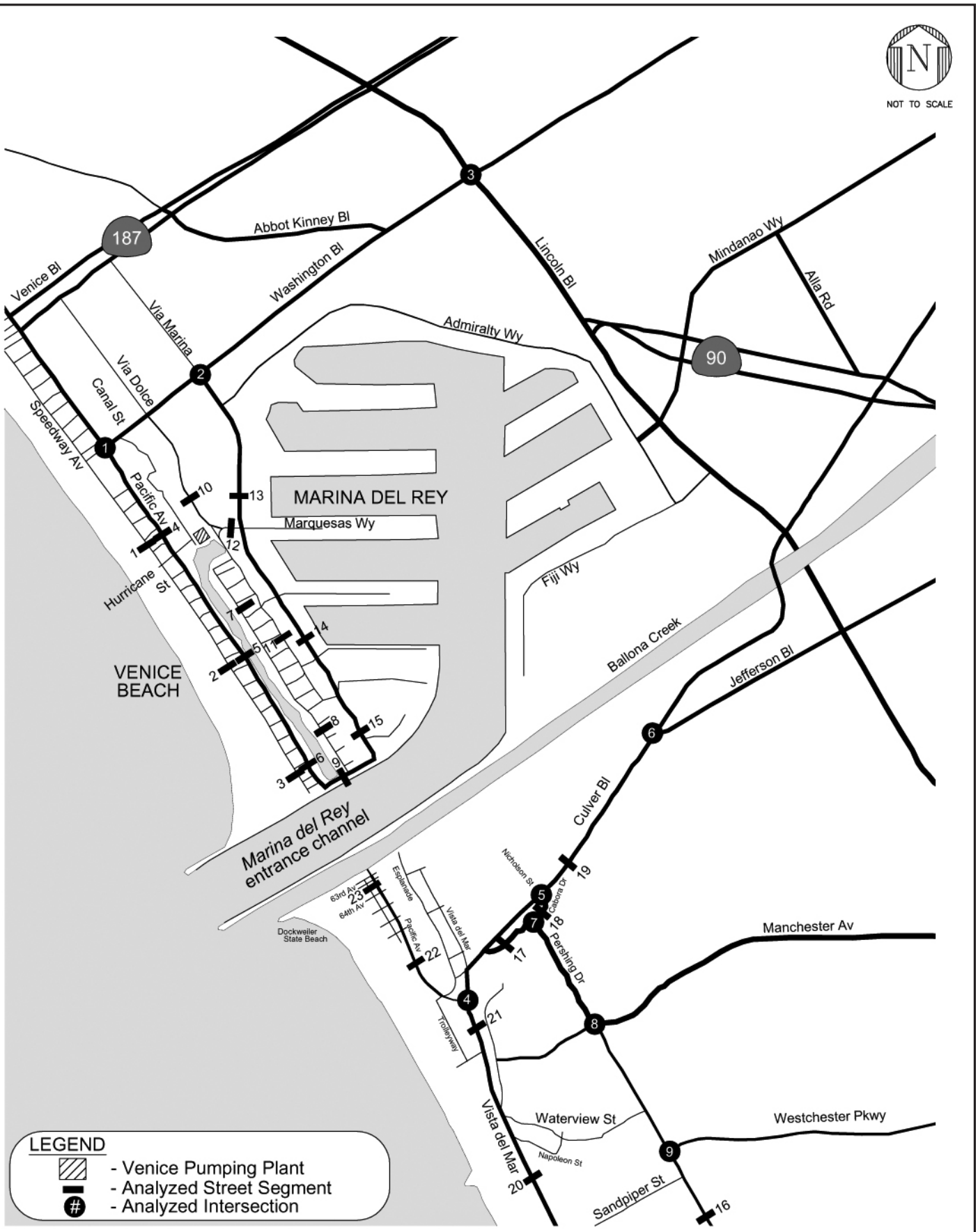
Venice and Marina Del Rey Areas – Lincoln Boulevard (SR 1), Washington Boulevard, Venice Boulevard (SR 187), Via Marina, Via Dolce, Pacific Avenue, and Hurricane Street adjacent to the VPP.

Westchester/Playa Del Rey Areas - Vista Del Mar, Culver Boulevard, Jefferson Boulevard, Pershing Drive, Westchester Parkway, Manchester Avenue, and Pacific Avenue.

These secondary highways, collectors and selected local streets in the project's study area offer sub-regional and local access and circulation opportunities. These facilities generally provide two to four travel lanes and allow parking on one side of the street. The physical characteristics and functional classifications for the above key streets in the project alignment area are summarized in Appendix E of this EIR. In addition, an inventory of the existing on-street parking supply along Pacific Avenue in the vicinity of the VPP and along the project alternative alignments both north and south of the Ballona Creek/Marina Del Rey Channels can also be found in Appendix E.

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

Twenty-three roadway segments and nine intersections in the vicinity of project alignment alternatives were analyzed in the project study area. New daily roadway traffic machine counts and morning and afternoon intersection peak hour traffic volumes (the highest 1-hour period between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m.) were conducted in July 2005 and are included in Appendix E. The volume-to-capacity (V/C) ratio and corresponding LOS of each segment was calculated. A capacity of 800 vehicles per lane per hour (vplph) was used on Major Arterials (Class II), 750 vplph for secondary arterials, 650 vplph for collectors, 600 vplph for local streets. In accordance with Los Angeles Department of Transportation (LADOT) practices, a 7 percent increase in capacity was assumed on major and secondary street segments to reflect the benefits of the existing Automated Traffic Surveillance and Control (ATSAC) system. Detailed assessment of the existing operating conditions at these 23 roadway segments and the LOS definitions for roadway segments are included in Appendix E. All but two of the 23 analyzed directional street segments in the project study area are currently operating at LOS D or better during morning and afternoon peak hours, the exceptions being Nicholson Street between Culver Boulevard and Pershing Drive, and Culver Boulevard east of Nicholson Street in the Playa Vista area south of the Ballona Creek (#5 and #6, respectively, in Figure 5.4-1).



REGIONAL FREEWAY AND HIGHWAY SYSTEM

Project No.: 29401783	Date: DECEMBER 2005	Project: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT	Figure 5.4-1

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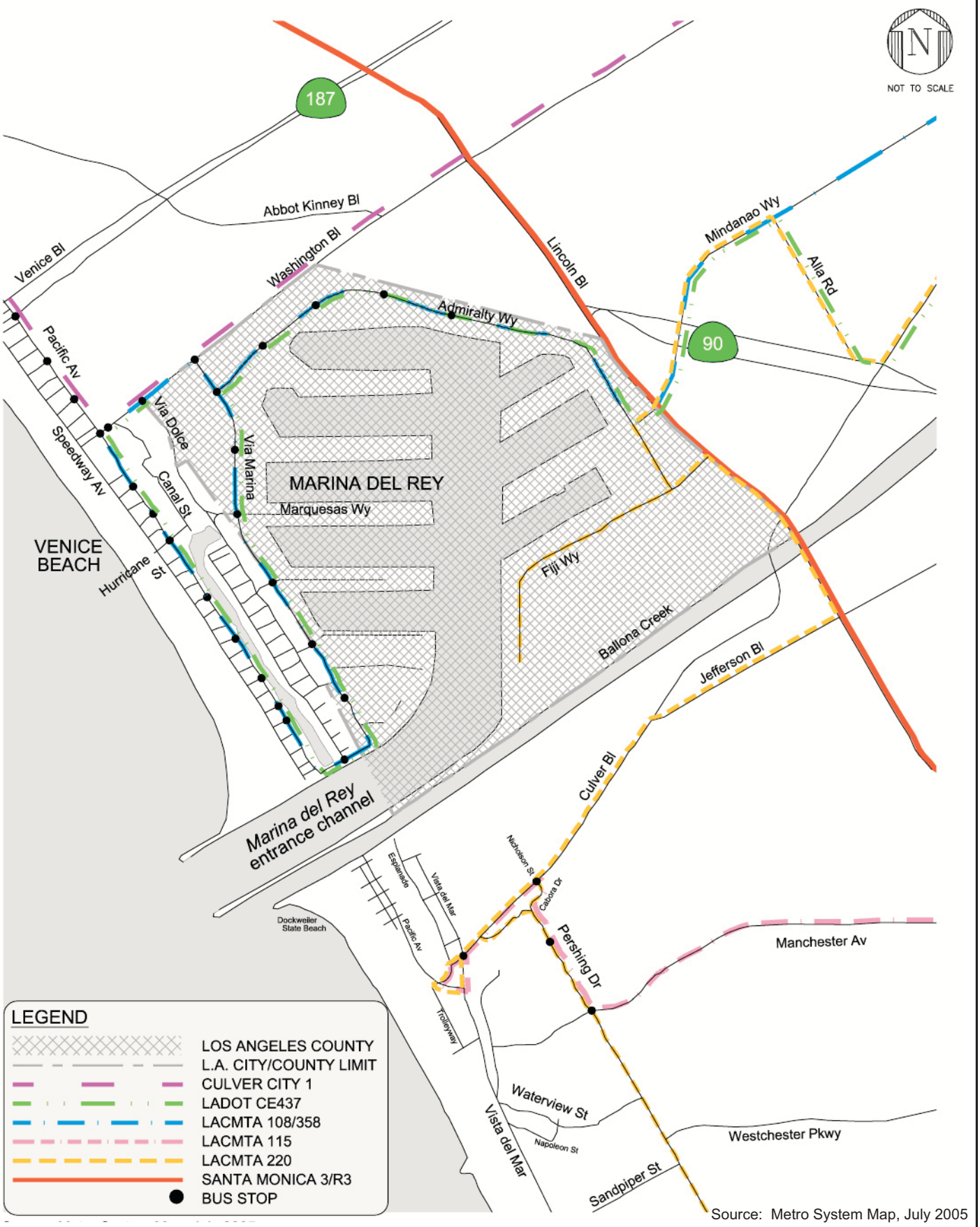
Of the nine analyzed intersections, three are located in the Marina Del Rey area and six are located south of the Ballona Creek. Seven intersections are currently controlled by traffic signals. The intersections of Vista Del Mar/Pacific Avenue and Pershing Drive/Cabora Drive are stop-controlled intersections. In accordance with LADOT procedures, the "Critical Movement Analysis-Planning" (Transportation Research Board, 1980) method of intersection capacity analysis was used to determine the intersection V/C ratio and corresponding LOS for the turning movements and intersection characteristics at the seven signalized study intersections. The Computer Assisted Level of Service Calculations and Database (CALCADB) software developed by LADOT was used to implement the Critical Movement Analysis (CMA) methodology. The ranges of V/C ratios and corresponding LOS for signalized intersections are included in Appendix E. The "Two-Way Stop Controlled" methodology and the "All-Way Stop Controlled" methodology from the 2000 Highway Capacity Manual were used to determine the average vehicle delay (in seconds) and the corresponding LOS for the two stop-controlled study intersections. The LOS definitions for the stop-controlled intersections are included in Appendix E. Detailed assessment of the existing operating conditions at the nine intersections, including the V/C ratio or delay (in seconds) and corresponding LOS at each of the study intersections during the morning and afternoon peak hour can be found in Appendix E. Six of the nine analyzed intersections currently operate at acceptable levels of service (LOS D or better) during both peak periods. The exceptions are the two signalized intersections of Lincoln Boulevard/Washington Boulevard and Pershing Drive/Nicholson Street/Culver Boulevard, and the stop-controlled intersection of Pershing Drive/Cabora Drive.

EXISTING TRANSIT SYSTEM

Public transit services operating in the Marina Del Rey and Playa Del Rey area include the Los Angeles County Metropolitan Transportation Authority (MTA) system, Los Angeles Department of Transportation Commuter Express (CE), Culver City Bus, and the Santa Monica City Big Blue Bus. The routes that serve the Project area are shown in Figure 5.4-2. Bus routes and their frequencies during the morning (7-9 a.m.) and afternoon (4-6 p.m.) peak periods are detailed as follows:

Line 108 – Line 108 is a local east/west line that travels from Pico Rivera to Marina Del Rey. Limited-stop Line 358 travels during the peak hours. These lines run primarily along Slauson Avenue and serve the Metro Blue Line Slauson Station and the Westfield Shoppingtown Fox Hills Transit Center. They travel along Centinela Avenue, Mindanao Way, Admiralty Way, Via Marina, Pacific Avenue, and Washington Boulevard. Both lines have stops on Via Marina and Pacific Avenue adjacent to the project area. Line 358 has an average a.m. and p.m. peak hour headway of 25 minutes, whereas Line 108 provides average midday headway of 40 minutes.

Line 115 is an east/west local line that travels primarily along Manchester Boulevard and Firestone Boulevard connecting Playa Del Rey and Norwalk and serves the Metro Blue Line Firestone Station and Metro Green Line I-105/I-605 Station. In the vicinity of the Project, this line travels along Manchester Avenue and serves a loop route starting from Pershing Drive, Culver Boulevard, Pacific Avenue, Vista Del Mar, and returning back to Pershing Drive. Line 115 has average a.m. and p.m. peak hour headways of 30 minutes and 40 minutes.



Source: Metro System Map, July 2005

EXISTING TRANSIT SYSTEM

Project No.: 29401783	Date: DECEMBER 2005	Project: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT	Figure 5.4-2

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Line 220 – Line 220 is a north/south local service that travels along Robertson Boulevard, Culver Boulevard, Pershing Drive, and Imperial Highway, connecting West Hollywood and LAX. In the vicinity of the Project, this line serves a loop route starting from Culver Boulevard, Esplanade, Pacific Avenue, Convoy Street and returning back to Culver Boulevard. Line 220 has an average headway of 60 minutes throughout the day.

LADOT CE 437 – This LADOT commuter express line serves the communities of Venice, Marina Del Rey, Mar Vista, and Culver City and travels along Santa Monica Freeway (I-10) to connect them with downtown Los Angeles. In the vicinity of the project, this line travels along Admiralty Way and Via Marina and terminates at Pacific Avenue and Washington Boulevard. This line provides average a.m. and p.m. peak hour headways of 25 minutes and 30 minutes.

Culver City Line 1 – This Culver City Bus line travels primarily along Washington Boulevard and Pacific Avenue, and connects the Venice Beach area, Culver City area, and West Los Angeles transit center. In the vicinity of the Project, this line has stops at Washington Boulevard and Pacific Avenue, with 15-minute headways throughout the day.

Santa Monica Line 3/Rapid 3 – Santa Monica Line 3/Rapid 8 travel primarily along Lincoln Boulevard and connect Santa Monica, Marina Del Rey and LAX. Line 3 provides a 10-minute headway throughout the day, and Rapid 3 provides additional limited-stop service during peak hours.

NON-MOTORIZED TRANSPORTATION

Biking and walking are non-motorized transportation modes that typically serve shorter trips than do motorized travel modes. In the VPP area, bikeways facilitate and encourage this mode of non-motorized transportation. According to LADOT, Class I bikeways are separate off-street paths, Class II bikeways are striped lanes within streets, and Class III bikeways are signed bicycle routes. The existing bicycle network in the vicinity of the project area is depicted in Appendix E. Pedestrian access at and near public transit, in local commercial and residential areas is facilitated by sidewalks, which are present on most streets.

5.4.2 Thresholds of Significance

The *Draft Los Angeles CEQA Thresholds Guide* presents traffic impact significance thresholds applicable to projects in the City's jurisdiction. Relevant thresholds are discussed below. The impact analysis discussion will address each pipeline alignment alternative's effects with respect to each of these thresholds.

TRA-1: A significant impact would occur if the project would permanently increase the V/C ratio of applicable intersections or street segments beyond the limits established by the City of Los Angeles, including the V/C ratio along Congestion Management Program (CMP) designated roads. The City has established operational traffic impact criteria for the assessment of potential impacts of a project on the local street system after completion and during operation. Those operational standards indicate that a project is considered to have a significant traffic impact if the increase in V/C ratio attributed to the project exceeds a specific threshold for each level of service (see Appendix E for the definitions of level of service for signalized intersections and for unsignalized intersections).

A sliding scale has been established under which the maximum allowable increase in the V/C ratio decreases as the V/C ratio increases using the following scale:

V/C Ratio with Project Traffic	Maximum Allowable Increase in V/C Ratio
0.701 to 0.800 (LOS C)	<0.040
0.801 to 0.900 (LOS D)	<0.020
0.901 or greater (LOS E or LOS F)	<0.010

Using these criteria, a project would not have a significant impact at an analyzed intersection if it were operating at LOS A or B after the addition of project operational traffic. Also, a project would not have a significant impact on an analyzed intersection if it were operating at LOS C and the incremental change in the V/C ratio were less than 0.04, or if it were operating at LOS D and the incremental change in the V/C ratio were less than 0.02. If the location were operating at LOS E or F after the addition of project operational traffic and the incremental change in the V/C ratio were greater than or equal to 0.01, a project would be considered to have a significant impact.

In addition, based upon discussions with the City staff, the following threshold criteria, set forth in the Draft L.A. CEQA Threshold Guide (City of Los Angeles, 1998) are used to determine if a project has an impact at a specific roadway segment for the roadway link-level analysis:

A proposed project would normally have a significant street segment capacity impact if proposed traffic causes an increase in the V/C ratio on the street segment operating condition after the addition of project traffic equal or greater than the following:

- V/C ratio increase > 0.080 if final LOS is C
- V/C ratio increase > 0.040 if final LOS is D
- V/C ratio increase > 0.020 if final LOS is E or F

Final LOS is defined as projected future conditions including project, ambient, and related project growth but without project traffic mitigation.

Although the methodologies and the criteria to calculate V/C ratios for intersections and segments are intended by LADOT to identify potential traffic impacts during operation, they can also be applied to construction. During project construction, however, LADOT considers such impacts as adverse but not significant since, while they introduce inconvenience for vehicular traffic, those impacts are only temporary. Where determinations of adverse impacts are made, motorists would experience inconveniences that range in intensity from slight to substantial.

TRA-2: The project would be considered to have a significant impact if it were to result in bicycle, pedestrian, or vehicular safety hazards, or if it results in the permanent removal of designated bike lanes or access points to public transportation.

TRA-3: The project would have a significant impact if it were to permanently eliminate a substantial amount of on-street or off-street parking.

5.4.3 Environmental Impacts

This section provides an assessment of the potential transportation impacts and effects associated with each project alternative, including both motorized and non-motorized transportation. The methodology used to assess these impacts and a discussion of the regulatory framework is provided. The significance of impacts is analyzed for each of the alternatives and the No Project alternative. Mitigation to reduce the impacts associated with each alternative is provided where applicable.

The City of Los Angeles regulations for the following are discussed below:

1. Significance of construction-related activities;
2. Designated truck routes and hours;
3. Noise restrictions due to construction and excavation activities; and
4. Construction clearance requirements.

The City of Los Angeles considers construction-related traffic effects adverse but not significant impacts because such effects, while sometimes inconvenient, are only temporary. Because of this, construction-related traffic effects are discussed but are not considered to be significant. Additionally, the City of Los Angeles requires implementation of Worksite Traffic Control Plans to ensure that any construction-related effects are minimized to the greatest extent possible. The City of Los Angeles allows major and secondary arterials to be used as truck routes. Some local streets, however, have weight limitations or restrictions that limit truck traffic. Typically, trucks would not travel on these streets except to obtain access to a specific site. The City of Los Angeles' policy is to allow trucks to travel in a "reasonable fashion" to and from a work site. The City of Los Angeles reviews each haul-route permit for specific application of its general guidelines.

The new Mayoral Executive Directive No. CP AV-1 (dated August 12, 2005) formalizes the prohibition on rush hour construction by any city department agency on major roads from 6:00 a.m. to 9 a.m., and 3:30 p.m. to 7:00 p.m. In recognition of the priority need to protect public health and safety, it is the intent of the Mayoral Executive Directive that construction activities related to emergency maintenance and repair are exempted from the rush hour construction ban, and formal traffic mitigation plans shall be required for projects that receive exemptions. Since the VPP is not related to emergency maintenance or repair, project construction activities are not exempted from the Mayoral Directive Executive.

The City of Los Angeles restricts the speed limit to 25 mph in construction areas. The City of Los Angeles' construction clearance requirements are as follows:

- Five-foot clearance between a traffic lane and the nearest vertical obstruction is required. This can be reduced to 3 feet with the approval of the City.
- Two-foot clearance to a raised curb is required. This can be reduced to zero with the approval of the City.
- A minimum 10-foot-wide traffic lane must be maintained through construction zones.

The minimum taper requirement for channeling traffic flow lanes is 25:1 to 30:1. Factors such as speed and type of facility, location and other geometric characteristics of the specific roadway under construction will dictate the actual taper ratio.

5.4.3.1 Future Cumulative Base Conditions

Future cumulative conditions during construction were evaluated for all street segments where in-street construction activities associated with Project alignment alternatives analyzed could result in temporary lane closures. These locations lie along the alignments under consideration for different construction methods. Although the Project would occur in several stages, it has been assumed that construction specified at all sites would be performed at any given time between the start and the end of construction (2008 – 2010 with the Pacific Avenue, Via Marina/Marquesas Way roadway alignments and 2008 – 2011 with the beach alignment). Therefore, to be conservative, all roadway segments and intersections in the vicinity of VPP Project area were evaluated for the future year 2011, which corresponds to the Draft EIR construction timeframe. The street and intersection improvements within the study that are programmed for implementation by 2011 are identified in Appendix E and were assumed in the analysis of future conditions.

An application of one percent per year growth factor was used to estimate total ambient growth to 2011. In addition, information was obtained from LADOT, Culver City and the Los Angeles County Department of Regional Planning and Department of Public Works Bureau of Engineering regarding known approved or planned development projects within a 2-mile radius of the project area. A list of these 10 projects and the estimated trip generation of each and the locations of these projects are illustrated in Appendix E. These related project volumes were then added to the existing traffic volumes after the adjustment for area-wide growth to represent cumulative base conditions (i.e., future conditions without the proposed project), and were analyzed to determine the projected V/C ratios and LOSs for the 23 study segments and nine intersections. Future cumulative base volumes, which represent future no project traffic conditions at the nine analyzed intersections, and the detailed level of service analysis results for the nine study intersections and the 23 roadway segments can be found in Appendix E. It is projected that the same five intersections and the 21 roadway segments that operate at LOS D or better under the existing conditions would continue to operate at LOS D or better under future cumulative base conditions.

5.4.3.2 Construction Assumptions

Trip generation estimates that were prepared for each Project alignment alternative estimate for construction phases were based upon projected staffing and truck activity levels. Future traffic conditions on these roadway segments prior to construction of the Project alignment alternatives, and the changes related to construction activities (additional vehicular traffic and reduction of roadway capacity due to the project), if any, at each of the worksites were evaluated to identify adverse impacts. This traffic analysis represents a worst-case scenario in that it considers the upper bounds of impacts likely to be experienced on the street system in the immediate vicinity of each site where in-street construction activities could result in temporary lane closures and loss of on-street parking at nearby locations.

The development of traffic generation estimates for the proposed Project involves the use of a three-step process similar to that discussed above for the cumulative projects, including traffic generation, trip distribution, and traffic assignment. It was assumed that approximately 40 to 50 feet of cut-and-cover section would be excavated per day with a maximum depth of 12 feet and a maximum width of 8 feet. The City's Wastewater Master Specifications (Section 02200 Earthwork, 3.3.C) states *"the maximum amount of open trench permitted in any one location shall be 500 feet or the*

length necessary to accommodate the amount of pipe installed in a single day, whichever is greater." The construction zone for the proposed Project would include approximately 1,000 feet of roadway during the 3-week cycle, as it is more feasible and cost effective to schedule asphalt paving every 3 weeks rather than every week. The construction zone would also be fully backfilled at the end of each day or be covered by heavy steel plates adequately braced and capable of supporting vehicular traffic in those locations, as required by the Wastewater Specifications.

A construction zone of 1,000 feet would include approximately four blocks of Pacific Avenue on the north side of the channel. During construction, one-way traffic would be maintained along the west side of Pacific Avenue (southbound movement), controlled by using the small one-way speedway that runs parallel to and west of Pacific Avenue. Work on the south side of the channel on Pacific Avenue and Vista Del Mar would be performed in a similar manner, but the traffic control would be different since there is only a short segment of Speedway Avenue to provide additional access. It appears appropriate to assume, therefore, that no more than one travel lane would be blocked on any street segment at any time, including the clear area beside the actual trench. Although the Project may occur in several stages, it has been assumed for the purpose of this analysis that construction specified at all sites would be performed at any given time between the start and end of construction (2008 – 2010 for the roadway alignments and 2008 – 2011 for the beach alignment). The construction activities are anticipated to occur simultaneously at two locations as a worst-case scenario.

It is assumed that up to two locations, a tunnel-boring operation near Hurricane Street and one trenched segment north of the channel or a tunnel-boring operation south of the channel and one trenched segment south of the channel could be in active construction at once. Traffic impacts associated with the three north and the two south alignments were evaluated. It is assumed that two independent construction teams would be involved, one for each of the two construction techniques. One construction team would be responsible for a 1,800-foot tunnel-boring construction section that crosses beneath the Marina entrance and Ballona Creek channels and, if necessary, beneath the Grand Canal near Hurricane Street. Elsewhere along each alignment totaling approximately 8,200 to 8,600 feet, open-trench technique, as performed by a second construction team, is assumed.

A list of equipment required for the open-trench and the tunnel-boring construction teams was obtained from the project team. As shown in Table 5.4-1, the total equipment (number and type of equipment) required for both construction techniques and for each construction segment section at any given time is approximately 22 vehicles for open-trench and 13 vehicles for tunnel-boring. The number of construction workers required for both techniques during each construction section was derived based on the estimated ratio of construction workers to equipment or supplies on site. The ratio of construction workers needed per piece of equipment was obtained from previous traffic studies for similar projects. Ratios range from 0.8 (minimum) to 1.3 (maximum) workers per piece of equipment.

Table 5.4-1 Derivation of Project Trip Generation Estimates

Part A. Equipment Required during Open-Trench for the Large Sewers			Part B. Equipment Required during Tunnel-Boring			Part C. Equipment Required during Large (Mined) Tunneling	
Equipment	**Horsepower**	**Approximate Number Required**	**Equipment**	**Horsepower**	**Approximate Number Required**	**Equipment**	**Approximate Number Required**
Concrete Saw	56	1	Hydraulic Jack	90	1	12 feet O.D. EPB TBM complete with trailing gear, segment, erector	1
Pavement Breaker	100	1	Crane	300	1	Diesel Locomotives	3 (includes 1 spare)
Pile Driver	100	1	Generator/Air Compressor	45	5	Five-cy Lift-off Muck Cars	12 (includes 2 spares)
Excavator	360	1	Slurry Settling Tank	0	1	Segment Cars	3
Rubber Tire Loader	110	1	Slurry Pump	0	1	100-hp fans	3 (1 spare)
Crane	300	2	Control Trailer	0	1	24 inch fanline (sufficient to construct the tunnel and vent up the shafts)	1
Backhoe loader/Compactor	100	1	Tunneling Machine	0	1	160+/- ton Crane (to lift/set TBM and hoist muck cars)	1
Generator/Compressor	45	1	Supply Truck	300	1	35 ton RT Crane (to handle segments and load segment cars)	1
Soil Compactor	100	1	Haul Truck/Cement Truck	0	1	4-cy FEL (to remove tunnel muck, load trucks, tic)	1
Asphalt Paver	102	1				Office facilities, change houses, electrical substations, and related equipment (standby generator for pumps)	N/A
Sweeper	97	1				Pumping system with sump and shaft pumps and stand-by units	N/A
Power Tools	N/A	N/A				Rail, ties, water, discharge lines	N/A
Water Truck	92	1				Electrical cable to power TBM and for lights, etc.	
Supply Truck	300	1				Transformers for fans, pumping, lighting	
Haul Truck/Dumper	300	8				Pipe jumbo or carrier for setting carrier pipe into tunnel once mining is complete	
						Small or midsize compressor for air supply	
Total # of Equipment		***22***	***Total # of Equipment***		***13***	***Total # of Equipment***	***N/A***
Minimum Workers on Site [a]		**17**	**Minimum Workers on Site [a]**		**10**		
Maximum Workers on Site [a]		**28**	**Maximum Workers on Site [a]**		**17**	**Crew Size on Site [f]**	**25**
Required Truck Loads Per Day for Muck Removal [b]		**10**	**Required Truck Loads Per Day for Muck Removal [d]**		**6**	**Required Truck Loads Per Day for Muck Removal [f]**	**15**
Required Truck Loads Per Day for supply [c]		**5**	**Required Truck Loads Per Day for Supply [e]**		**2**	**Required Truck Loads Per Day for Supply [f]**	**3**

Note:

[a] The required ratios of number of workers versus number of total equipment are assumed to be 0.8 (minimum) and 1.3 (maximum).

[b] Muck removal per day (1.5 bulking, 50% removed, 50% re-used): 1.5 bulking x 50% x 8 feet x 12 feet x 40 feet /27 = 106 cubic yards. Assuming truck load capacity of 10 cubic yards per truck, a total of 10 trucks loads per day would be required.

[c] Required truck loads per day for material supply (pipes, concrete, sheetpiles, etc.) assumed five truck loads per day.

[d] Muck removal per day (1.5 bulking, 100% removed): 1.5 bulking x 40 feet x 6 feet x 6 feet x 3.14 /4 /27 = 63 cubic yards. Assuming truck load capacity of 10 cubic yards per truck, a total of six trucks loads per day would be required. Required truck loads per day for material supply (bentonite, miscellaneous, etc.) assumed two truck loads per day. Therefore, a total of 8 truck round trips per day were estimated during the tunneling construction.

[e] Required truck loads per day for material supply (bentonite, miscellaneous, etc) assumed two truck loads per day.

*[f] A crew of about 20 to 25 would be required for constructing the large tunnel. Assuming an advance rate of 24 feet/8 hour shift, muck removal for a 12-foot-diameter tunnel per day: 1.5 bulking*36*3.14*24/27 = 151 cubic yards. Assuming truck load capacity of 10 cubic yards per truck, a total of 15 truck round trips per mining shift for mucking. Required trucks trips for material supplies assumed three truck round trips per mining shift per day. Therefore, a total of 18 truck round trips per mining shift per day were estimated during the large (mined) tunneling construction.*

Source: Required truck loads were prepared by URS Corporation staff based on the (peak) production rate of 40 feet per day given the prohibition of in-street construction between 6-9 a.m. and 3:30 – 7 p.m. (August 22, 2005).

As indicated, the peak estimate for daily commute workers due to the proposed Project is approximately 28 construction workers for the open-trench method and 17 construction workers for the tunnel-boring method. With the moderate construction speed of 40 feet per day due to the mayoral construction rush hour prohibition, the required number of delivery truckloads for materials and supplies was estimated at five truckloads per day for the open-trench and two truckloads per day for the tunnel-boring. The number of required truckloads for muck removal was estimated at 10 truck round trips per day for the open-trench, and 6 truck round trips per day for the tunnel-boring methods. Therefore, approximately 15 truck round trips and 28 construction workers would be needed for each construction section on a daily basis if the open-trench method was implemented. Approximately 17 construction workers and 8 trucks (or 2 trucks if no muck removal is required) were estimated for the underwater construction section beneath the two channels on a daily basis.

Using open-trench construction as the basis of comparison, approximately 30 one-way truck trips would be generated for each construction section if 15 truckloads would be needed on a daily basis. The 30 daily one-way truck trips were then converted with a passenger car equivalent (PCE) of 2.5 to 75 vehicle trips since trucks create a greater impact on the capacity of intersections than typical automobiles. Considering the Mayoral Directive limiting on-street construction work hours, all of the truck trips related to the VPP Project should only operate from 9:00 a.m. to 3:30 p.m. (6.5-hour workday). It is also assumed that the workers would be allowed to arrive before 9 a.m. and leave after 3:30 p.m., so the workers would be ready to start construction work at 9 a.m. sharp and stop at 3:30 p.m. The only exception would be the construction truck operations on the beach shafts during the full-length large (mined) alternatives, so that during the most intense construction period, 100 percent of the construction workers and 10 percent of truck trips at each site would arrive or depart during the peak hours of adjacent street traffic. Therefore, none of the estimated 75 PCE daily truck trips would occur during the morning and afternoon peak hour if the open-trench method were implemented on the street. However, all 28 construction workers would arrive during the morning peak hour and leave during the afternoon peak hour. As for the tunnel-boring, using the same trip generation methodology described above, approximately 10 total daily truck trips (in PCE) would occur for the underwater sewer section, none of which would arrive and leave during the morning or afternoon peak hour. In addition, 17 construction workers were estimated to be on the site for the same section, which would generate a total of 34 daily trips (17 inbound trips during the morning and 17 outbound trips during the afternoon peak hour).

The four large-diameter tunneling alternatives with short cut-and-cover segments were evaluated separately. For these alternatives, a receiving shaft location would be located on the beach west of Hurricane Street and a launch shaft would be located either on the beach or on LAX property at the southern end of the alignment. During the most intense phase of tunnel construction, there would be a 25-person crew on site per shift, generating 15 truckloads of soil per day and three supply truck trips per typical day. Since the majority of the large tunnel construction would occur on the beach shaft site off the street or outside of the residential area either east or west of Vista Del Mar, it is assumed that construction truck trips that travel to and from the large tunnel construction shafts would not be affected by the Mayoral Directive on construction hour prohibition. Assuming the same equipment and crew for the open-trench method would apply for the cut-and-cover segments, it is assumed that approximately 15 truck round trips and 28 construction workers would be needed at the cut-and-cover section on a daily basis.

The above trip generation estimates were derived assuming the presence of two independent construction groups for each of the two different construction techniques. As the worst-case scenario, it was assumed that the entire alignment would be constructed simultaneously by two teams of construction workers. Estimated worker trips and truck trips generated by each construction method were added accordingly, as shown in Table 5.4-2.

The geographic distribution of the traffic generated by each of the Project build alignments depends on several factors. These factors include the type and density of the proposed land uses, the geographic distribution of population from which the construction workers are drawn, the locations of the construction material suppliers and soil dump sites, and the locations of the shaft sites in relation to their surrounding street systems and available access to the regional freeway system. The generalized regional trip distribution applied in the analysis for construction workers is approximately 35 percent to and from the north, 35 percent to and from the south, 30 percent to and from the east, and negligible traffic to and from the west. The generalized trip distribution applied in the analysis for construction truck trips is approximately 35 percent to and from the northwest and 65 percent to and from the southeast. As the construction material suppliers of concrete and gravel and soil dump sites are located through Los Angeles and Orange counties, all truck deliveries would travel on the regional freeway networks and connect to the construction sites from the adjacent freeway ramps. Most of the construction workers would travel on the regional freeway network, while some portion of them would arrive from the local street network. Given the difference between the distribution of construction workers and that of truck trips, specific distribution patterns for each of the Project build alternative alignments were developed for both the construction worker commute trips and the truck delivery trips. The traffic expected to be generated by each of the project alignment alternatives, given concurrent construction activities as shown in Table 5.4-2, was assigned to the street network based on with the application of the generalized trip distribution. The assignment of construction traffic for each of the 10 project alignment alternatives is included in Appendix E, including the six combinations of alignments utilizing the open-trench method and the tunnel-boring method and the four larger full-length tunnel alternative alignments.

The project-generated construction traffic volumes were added to the cumulative base traffic projections, resulting in the Projected cumulative plus project a.m. and p.m. peak hour traffic volumes. These cumulative plus project volumes represent projected future weekday peak hour traffic conditions, including the presence of the construction traffic. The Project-generated construction traffic volumes on the 23 analyzed roadways and the resulting projected cumulative plus Project peak hour link volumes are included in Appendix E.

5.4.3.3 Project Impacts

The construction-period impacts for each of the build alternatives are assessed in this section. This analysis includes general traffic impacts caused by construction traffic and reduction of roadway segment capacities, if any, and localized impacts related to access, pedestrian movement, bus routes and stops, and on- and off-street parking in the vicinity of each of the construction sites.

Table 5.4-2 Project Trip Generation Estimates

Activities	Trip Types	Required Quantity	TRIP GENERATION ESTIMATES [a]						
			Daily	a.m. Peak Hour			p.m. Peak Hour		
			Trips	In	Out	Total	In	Out	Total
North Portion: Dockweiler Beach Alignment & Pacific Avenue Alignment									
Open-Trench	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	168	28	0	28	0	28	28
		Subtotal	*243*	*28*	*0*	*28*	*0*	*28*	*28*
Tunnel-boring Construction (one-time TBM removal from receiving shaft; no muck removal during tunneling)	Truck Deliveries	2 truckloads per day [b]	10	0	0	0	0	0	0
	Construction Workers	17 workers on site per day	34	17	0	17	0	17	17
		Subtotal	*44*	*17*	*0*	*17*	*0*	*17*	*17*
		Total	287	45	0	45	0	45	45
North Portion: Marquesas Way/Via Marina Alignment									
Open-Trench	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	56	28	0	28	0	28	28
		Subtotal	*131*	*28*	*0*	*28*	*0*	*28*	*28*
Muck removal from one jacking shaft during tunneling across Grand Channel (one-time TBM removal from receiving shafts; no muck removal during tunneling)	Truck Deliveries	8 truckloads per day [b]	40	0	0	0	0	0	0
	Construction Workers	17 workers on site per day	34	17	0	17	0	17	17
		Subtotal	*74*	*17*	*0*	*17*	*0*	*17*	*17*
		Total	205	45	0	45	0	45	45
South Portion: South Pacific Avenue/Vista Del Mar Alignment and South Dockweiler Beach and Pacific Avenue Alignment									
Open-Trench Construction	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	56	28	0	28	0	28	28
		Subtotal	*131*	*28*	*0*	*28*	*0*	*28*	*28*
Tunnel-Boring Construction (with muck removal from one jacking shaft during tunneling across marina)	Truck Deliveries	8 truckloads per day [c]	40	0	0	0	0	0	0
	Construction Workers	17 workers on site per day	34	17	0	17	0	17	17
		Subtotal	*74*	*17*	*0*	*17*	*0*	*17*	*17*
		Total	205	45	0	45	0	45	45
Full-length Large Diameter Tunnel Alignments									
Short Cut-and-Cover [e]	Truck Deliveries	15 truckloads per day	75	0	0	0	0	0	0
	Construction Workers	28 workers on site per day	56	28	0	28	0	28	28
		Subtotal	*131*	*28*	*0*	*28*	*0*	*28*	*28*
Large-Diameter Tunneling	Truck Deliveries	18 truckloads per day [d]	90	9	9	18	9	9	18
	Construction Workers	25 workers per shift on site per day (1 shift per day) [d]	50	25	0	25	0	25	25
		Subtotal	*140*	*34*	*9*	*43*	*9*	*34*	*43*
		Total	271	62	9	71	9	62	71

Note:

*[a] Truck trip assumes 2.5 passenger car equivalent (PCE). Daily truck trips = required daily truckloads *2 trips per truckloads. Except the off-street full-length large (mined) diameter Tunnel alignment, application of the Mayor's new directive of prohibition on construction hours indicated that no truck trips would be allowed to arrive or leave construction work zones during the peak periods between 6 to 9 a.m. and 3:30 to 6 p.m. for in-street construction.*

[b] The truck delivery trip estimates for muck removal during tunneling were excluded as part of the peak truck trip estimates.

[c] The truck delivery trip estimates for muck removal during tunneling across Grand Canal were included as part of the peak truck trip estimates.

[d] Required truck deliveries and construction workers trips were development by assuming 25-person crew on site, 15 truckloads of soil per shift per day, and three supply truck roundtrips per shift per day during the largest (mined) tunneling construction.

[e] Short cut-and-cover method would only be applied to the full-length Dockweiler Beach alignment alternative (on both the north and south ends) and the Dockweiler Beach to LAX Shaft alignment on the north end along Hurricane Street.

MARINA DEL REY SEGMENT

(1) Marquesas Way/Via Marina Alignment - Construction of the proposed (3,200-foot-long) Marquesas Way/Via Marina Alignment, including open-trench construction zone, tunneling shaft sites, and maintenance holes would produce temporary localized impacts on the transportation system for a period of up to 3 weeks around each active open-trench zone and up to 2 months around the tunnel-boring jacking and extraction shafts, all between the start (year 2008) and end (year 2010) of construction. The temporary localized impacts on the transportation system would involve the combined effects of additional construction traffic and closure of travel lanes on certain roadways, leading to reductions in roadway capacity.

During the construction of the Marquesas Way, alignment that begins at the VPP on Hurricane Street crosses under the Grand Canal and proceeds along Marquesas Way before turning southeast on Via Marina. Jacking will be performed at two optional launching sites and one extraction site. The extraction shaft (receiving) site is located on the northeast corner of the VPP property just west of the Grand Canal. The potential construction equipment laydown zone for this site would be on vacant land across from the VPP opposite Hurricane Street. One of the proposed shaft sites is located at the southwest corner of the intersection of Via Marina and Marquesas Way, and the alternative shaft site would be located on Marquesas Way adjacent to the raised triangle island at the intersection of Via Dolce and Marquesas Way. The raised island would also be the potential laydown zone for the two optional shaft sites east of the Grand Canal. If the shaft site adjacent to Via Marina were used, temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina. Alternatively, if the shaft site adjacent to Via Dolce were used, temporary closure of the eastbound travel lane on Marquesas Way between Via Dolce and Via Marina would be necessary to allow for jacking activities across the Grand Canal and the open-trench activities on Marquesas Way between the jacking site and the Via Marina alignment. To minimize the impact of closing Marquesas Way, the jacking method could be applied underneath the intersection to avoid blocking the northbound movement on Via Dolce at the intersection of Via Dolce and Marquesas Way. Otherwise, northbound traffic on Via Dolce would need to detour to travel through Tahiti Way or another parallel east-west roadway and use Via Marina to reach Marquesas Way. Also, pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks. With any shaft site, however, the tunneling or open-trench activities for the Marquesas Way alignment would be temporary in nature and are expected to be completed during a period of up to two months. None of the shaft sites under consideration would result in the loss of on-street or off-street parking.

During the construction of the Marquesas Way, alignment that begins at the VPP on Hurricane Street crosses under the Grand Canal and proceeds along Marquesas Way before turning southeast on Via Marina. Jacking will be performed at two optional launching sites and one extraction site. The extraction shaft (receiving) site is located on the northeast corner of the VPP property just west of the Grand Canal. The potential construction equipment laydown zone for this site would be on vacant land across from the VPP opposite Hurricane Street. One of the proposed shaft sites is located at the southwest corner of the intersection of Via Marina and Marquesas Way, and the alternative shaft site would be located on

Marquesas Way adjacent to the raised triangle island at the intersection of Via Dolce and Marquesas Way. The raised island would also be the potential laydown zone for the two optional shaft sites east of the Grand Canal. If the shaft site adjacent to Via Marina were used, temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina. Alternatively, if the shaft site adjacent to Via Dolce were used, temporary closure of the eastbound travel lane on Marquesas Way between Via Dolce and Via Marina would be necessary to allow for jacking activities across the Grand Canal and the open-trench activities on Marquesas Way between the jacking site and the Via Marina alignment. To minimize the impact of closing Marquesas Way, the jacking method could be applied underneath the intersection to avoid blocking the northbound movement on Via Dolce at the intersection of Via Dolce and Marquesas Way. Otherwise, northbound traffic on Via Dolce would need to detour to travel through Tahiti Way or another parallel east-west roadway and use Via Marina to reach Marquesas Way. Also, pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks. With any shaft site, however, the tunneling or open-trench activities for the Marquesas Way alignment would be temporary in nature and are expected to be completed during a period of up to 2 months. None of the shaft sites under consideration would result in the loss of on-street or off-street parking.

During the construction of the Via Marina alignment from Marquesas Way to the tunnel-boring shaft site at the end of Via Marina adjacent to Aubrey Austin Memorial Park, open-trench techniques performed by a second construction team are assumed. Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle at any time between years 2008 and 2010. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437. Since no street parking is present on this Via Marina segment, no parking loss would be expected due to the closure of the southbound lane. Increased safety risks for vehicles, bicyclists and pedestrians could result from construction activities within or adjacent to streets. Local pedestrian or vehicular access for residences and businesses immediately adjacent to the open-trench construction would be restricted between 9 a.m. and 3:30 p.m., but would be maintained with a metal cover or other replacement to provide access to these properties outside of active construction hours during the temporary construction period of up to 3 weeks.

During the construction of the 1,800-foot tunnel-boring section that crosses under the marina entrance channel and the Ballona Creek channel, the receiving shaft site would be located on a vacant site and the sidewalk adjacent to the end of southbound lane on Via Marina. The potential construction equipment laydown zone for this site would be located on the existing parking lot and would temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.

It was assumed that the entire Marquesas Way/Via Marina alignment would be performed simultaneously by two teams of construction workers (for trench and tunneling) as the worst-case scenario, resulting in

peak trip generation estimates of 45 worker trips and no construction truck trips during the morning and afternoon peak hour. The projected incremental change in V/C ratio during construction of the Marquesas/Via Marina alignment for the nine analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Project trips generated by the construction of the entire Marquesas Way/Via Marina alignment in combination with either of the two Playa Del Rey alignments would not result in an adverse impact at any of the four study intersections north of the Marina Del Rey Channel in Marina Del Rey, but could occur at Via Marina south of Tahiti Way (one of the 23 analyzed roadway segments) in Marina Del Rey with a southbound lane closure.

(2) Pacific Avenue Alignment – Construction of the proposed (3,000-foot-long) Pacific Avenue alignment would be similar to that described above for the Marquesas Way/Via Marina alignment and would involve both the open-trench construction and tunnel-boring. The temporary localized impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

The open-trench method would be performed to construct the Pacific Avenue alignment in Marina Del Rey, beginning at the VPP on Hurricane Street, proceeding west to Pacific Avenue, and turning south and proceeding along Pacific Avenue and ending at the receiving shaft for the tunnel-boring construction at the southern end of Pacific Avenue on vacant land west of the Los Angles County parking lot. The potential equipment laydown area will be located in the vacant land across from the VPP and on the beach area south of the least tern area. Hurricane Street is 36 feet wide from curb to curb with street parking and residential neighborhoods on both sides. Pacific Avenue is 42 feet wide from curb to curb with one lane in each direction, and street parking is only allowed on the west side (southbound) of this roadway. A construction zone 1,000 feet long and 8 feet wide would include all of Hurricane Street east of Pacific Avenue and approximately four blocks of Pacific Avenue on the north side of the channel at any time during the 3-week cycle. During construction, two-way traffic could be maintained along Hurricane Street by displacing parking along Hurricane Street (approximately 17 spaces on the north side and 10 spaces on the south side) and northbound traffic would be detoured to Speedway Avenue where necessary. One-way traffic would be maintained along the west side of Pacific Avenue (southbound movement). Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue.

To minimize the impact of closing the northbound lane of Pacific Avenue, it is assumed that the jacking method would be used to construct the 100-foot segment at the end of Pacific Avenue to avoid blocking traffic flow and transit buses traveling between Via Marina and Pacific Avenue. The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas. Since no street parking is allowed on the east side of Pacific Avenue, no parking loss would be expected due to the closure of the northbound lane for four blocks at a time on Pacific Avenue. In addition, Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period. Local access to residences and businesses on the east side of Pacific Avenue and the pedestrian bridge across the Ballona Lagoon would be maintained in

the same manner as described in the Marquesas Way/Via Marina alignment during the temporary construction period of up to 3 weeks for each construction segment.

Like the development of Project trip generation estimates, as described in the Marquesas Way/Via Marina alignment, the projected incremental change in V/C ratio during construction of the Pacific Avenue for the nine analyzed intersections and the 23 analyzed roadway segments are identified in Appendix E. During construction of the Pacific Avenue alignment in combination with either of the two Playa Del Rey alignments, construction-period adverse impacts would not result in an adverse impact at any of the four study intersections north of the Marina Del Rey Channel in Marina Del Rey, but could occur on 2 of the 15 analyzed roadways in the Marina Del Rey area:

- Pacific Avenue between Privateer Street and Quarterdeck Street; and
- Pacific Avenue between Westwind Street and Yawl Street.

(3) Venice Beach/North Dockweiler Beach Alignment - Construction of the proposed (3,300-foot-long) North Dockweiler Beach alignment would be similar to that described above for the other two project alignments in the Marina Del Rey area, involving both open-trench and tunnel-boring construction methods. The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

The open-trench method would be used to construct the North Dockweiler Beach alignment beginning from the VPP on Hurricane Street, proceeding west to the existing 20-foot-wide sewer easement on Venice and Dockweiler beaches, then turning south and ending at the beach shaft for the tunnel-boring construction at the waterfront of Marina Del Rey Channel. The equipment laydown area would be adjacent to this shaft on the beach area. Hurricane Street is 36 feet wide from curb to curb, with street parking and residential neighborhoods on both sides. A construction zone 1,000 feet long and 8 feet wide would include all of Hurricane Street west of the Grand Canal. During construction, two-way traffic could be maintained along Hurricane Street by displacing the parking along Hurricane Street. Approximately 17 unmarked spaces on the north side and 10 spaces on the south side of Hurricane Street are available east of Pacific Avenue, while 11 spaces on the north side and 5 spaces on the south side of Hurricane Street are available between Pacific Avenue and Oceanfront Walk. During the construction of the open cut-and-cover section across the intersection of Hurricane Street and Pacific Avenue or the intersection of Hurricane Street and Speedway Avenue, traffic would be diverted to either Galleon Street or Ironsides Street and return to Pacific Avenue or Speedway Avenue when either of the intersections is closed. Given the construction speed of 40 feet per day, however, the traffic diversion would be brief and would only occur during the off-peak daytime period.

Non-motorized transportation would be temporarily affected by construction on Hurricane Street. Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437. Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street. Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront. Local access to residences and businesses on Hurricane Street could

be maintained in the same manner as described in the Marquesas Way/Via Marina alignment during the construction period.

Similar to the development of Project trip generation estimates, as described in the other two alternative Marina Del Rey alignments, the projected incremental change in V/C ratio during construction of the beach alignment for the nine analyzed intersections and the 23 analyzed roadway segments are identified in Appendix E. Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

CHANNEL SEGMENT

The Marina Del Rey and Ballona Creek channels would be crossed using the tunnel-boring method. For any combination of north and south alignments, the launching shaft would be on the southern shore of the channel, while the receiving shaft would be located on the northern shore. Depending on which combination of north and south alignments is selected, the channel crossing would be about 1,300-1,900 feet long. As the tunnel-boring would occur at the same time as the open-trench construction, a discussion of the Project impacts for the channel segments is included in the discussion above and in the following discussion of the two Project alignment alternatives in the Playa Del Rey segment.

PLAYA DEL REY SEGMENT

(1) Pacific Avenue/Vista Del Mar Alignment – Construction of the proposed 4,400-foot Pacific Avenue/Vista Del Mar alignment would be similar to that of the Pacific Avenue alignment and would involve both open-trench construction and tunnel-boring. Temporary localized impacts on the transportation system would occur as a result of a reduction in roadway capacity due to construction traffic and the closure of roadway travel lanes.

The open-trench method would be used to construct the Pacific Avenue/Vista Del Mar alignment beginning from tunnel-boring shaft on the south shore of the Ballona Creek channel, continuing south along Pacific Avenue and Vista Del Mar to a junction structure at Vista Del Mar near Waterview Street. The potential equipment laydown area would be immediately adjacent to the shaft on 62nd Avenue and the public parking lot east of Pacific Avenue. A portion of the open-trench segment would occur across this laydown area. Therefore, during the tunnel-boring and open-trench construction, 62nd Avenue east of Pacific Avenue would be temporarily closed and would result in the temporary loss of approximately 15 parking spaces in the public parking lot. Non-motorized transportation would be temporarily affected by establishment of the laydown area of the tunnel-boring construction. Pedestrian pathways to Back Bay Place and the Del Rey Lagoon waterfront would need to be diverted around the construction laydown area.

Pacific Avenue north of 66th Avenue is approximately 40 feet wide from curb to curb with one lane in each direction and street parking available on both sides of the street. A construction zone 1,000 feet long and 8 feet wide would affect the Pacific Avenue segment north of 66th Avenue for a period of up to 3 weeks. Two-way traffic on Pacific Avenue could be maintained by temporarily displacing approximately 13 unmarked spaces on the east side of Pacific Avenue. An alternative arrangement could maintain one-

way traffic along the west side of Pacific Avenue (southbound movement), controlled by diverting northbound traffic to the alley that runs parallel to and west of Pacific Avenue north of 66th Avenue. Temporary closure of the northbound lane of Pacific Avenue would require diverting the northbound traffic on Pacific Avenue to use 63rd Avenue or another parallel east-west roadway to reach the alley. During the in-street construction on Pacific Avenue between 66th Avenue and at the public parking lot north of Convoy Street, temporary removal of street parking from one or both sides of the street would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue. Approximately two parking spaces on the west side and four parking spaces on the east side are available.

South of 66th Avenue, Pacific Avenue widens from approximately 40 feet to over 80 feet, which along Convoy Street, allows maneuvering in and out of 35 parking stalls. Pacific Avenue narrows back to 40 feet south of Convoy Street, and then flares out when intersecting with Culver Boulevard. During the in-street construction on Pacific Avenue between 66th Avenue and Culver Boulevard, temporary removal of street parking on one side of the would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue. Approximately 37 unmarked spaces on the west side and 35 spaces and 4 unmarked spaces on the east side are available for parking. Also, temporary removal of the northbound lane on the short route of Pacific Avenue between Culver Boulevard and Vista Del Mar (also known as Trolley Place) would be needed for construction for up to 3 weeks. Traffic on Vista Del Mar intending to use this short segment would be detoured to the adjacent segment of Culver Boulevard.

During the construction of the open cut-and-cover section across the intersection of Culver Boulevard and Pacific Avenue, traffic on Culver Boulevard would be diverted to use Esplanade and Convoy streets to reach the Pacific Avenue segment north of Culver Boulevard. Traffic on Pacific Avenue southbound would be detoured to use the intersection of Vista Del Mar and Pacific Avenue. Similarly, during the open cut-and-cover section across the intersection of Pacific Avenue and Vista Del Mar, traffic on Vista Del Mar could be detoured to use Pacific Avenue and Culver Boulevard to avoid the construction zone. To minimize the impact of cut-and-cover construction across a major intersection like Culver/Pacific or Vista Del Mar/Pacific, the underground jacking method could be used to construct the 100-foot alignment to avoid diverting traffic traveling through the intersections. All the traffic diversion, however, would be temporary in nature and would only occur for a period of up to 3 weeks.

Finally, during the open-trench construction on Vista Del Mar or during the connection with the existing junction structure on Vista Del Mar near Waterview Street, temporary closure of the outer northbound lane on Vista Del Mar would be required for 1,000 feet at any time during the 3-week cycle. No relocation of transit stops would be required during the construction of the Pacific Avenue/Vista Del Mar alignment.

Similar to the development of Project trip generation estimates described in the other Playa Del Rey alignment, the projected incremental change in V/C ratio during construction of the Pacific Avenue/Vista Del Mar alignment for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction of the entire Pacific Avenue alignment in combination with any of the three Marina Del Rey alignments would not result in an adverse impact at any of the study intersections south of the Ballona Creek Channel in Playa Del Rey, but could occur on two of the eight analyzed roadways in the Playa Del Rey area:

- Vista Del Mar from Pacific Avenue to Surf Street; and
- Pacific Avenue from 63rd Avenue to 64th Avenue.

(2) South Dockweiler Beach Alignment – Construction of the proposed 4,200-foot South Dockweiler Beach alignment would be similar to that described above for the North Dockweiler Beach alignment in the Marina Del Rey area, involving both open-trench and tunnel-boring construction methods. The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

The open-trench method would be performed to construct the South Dockweiler Beach alignment beginning from tunnel-boring shaft on the south shore of the Ballona Creek Channel, continuing within the existing 20-foot-wide sewer easement to a junction structure in Vista Del Mar near Waterview Street. The potential equipment laydown area would be adjacent to the shaft on 62nd Avenue and parking lot west of Pacific Avenue. Therefore, during the tunnel-boring construction, 62nd Avenue west of Pacific Avenue would be temporarily closed and would result in temporary loss of approximately 36 parking spaces for up to 2 months. Non-motorized transportation would be temporarily affected by the laydown area of the tunnel-boring construction. Diversion of pedestrians and cyclists on the Ballona Creek Bike Path would be required to avoid the construction laydown area and the cut-and-cover trenching section on the beach. During the open-trench construction when connecting the beach alignment with the existing junction structure on Vista Del Mar near Waterview Street, travel lanes in each direction on Vista Del Mar could be maintained by temporarily displacing on-street parking on Vista Del Mar between Waterview Street and Napoleon Street (nine metered spaces on the west side and one metered space on the east side). No relocation of transit stops would be required during the construction of the South Dockweiler Beach alignment.

Like the development of Project trip generation estimates, as described in the other Playa Del Rey alignment, the projected incremental change in V/C ratio during construction of the South Dockweiler Beach alignment for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction of the entire South Dockweiler Beach alignment in combination with any of the three Marina Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments south of the Ballona Creek Channel in Playa Del Rey.

CONTINUOUS (FULL-LENGTH) TUNNEL ALIGNMENTS

(1) Dockweiler Beach – Construction of the first full-length large-tunnel alternative via Dockweiler Beach would be excavated (mined) with a TBM to connect the VPP and the existing junction structure on Vista Del Mar near Waterview Street directly. Two short cut-and-cover open-trench connectors are proposed at the north end along Hurricane Street to connect the VPP with the TBM-extraction shaft site on Venice Beach and at the south end to connect the single (starter) beach shaft located outside of residential areas west of Vista Del Mar with the junction structure near Waterview Street.

Project impacts of the cut-and-cover section would result in same localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal, as described in the North Dockweiler Beach alignment above for the Marina Del Rey alignment alternatives. As indicated, street

parking on Hurricane Street would be displaced to provide two-way traffic along Hurricane Street. During the construction of the open cut-and-cover section across the intersection of Hurricane Street and Pacific Avenue or the intersection of Hurricane Street and Speedway Avenue, traffic would be diverted to either Galleon Street or Ironsides Street and return to Pacific Avenue or Speedway Avenue when either of the intersections is closed. Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary. Local access to residences and businesses on Hurricane Street would be restricted during construction hours. In addition, during the cut-and-cover construction when connecting the beach shaft with the existing junction structure on Vista Del Mar near Waterview Street, two travel lanes in each direction on Vista Del Mar could be maintained by temporarily displacing parking on Vista Del Mar between Waterview Street and Napoleon Street (nine metered spaces on the west side and one metered space on the east side).

Given the Project trip generation estimates and distribution, as described in the previous discussions of construction assumptions, the construction traffic volumes generated by this full-length Dockweiler Beach alignment and future traffic volumes with construction traffic for this beach alignment could be developed, as illustrated in Appendix E. The projected incremental change in V/C ratio during construction for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1 of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

(2) Dockweiler Beach to LAX Shaft – Construction of the second full-length, large-tunnel alternative via Dockweiler Beach would involve the use of a TBM to connect the VPP and starter shaft on LAX property east of Vista Del Mar and south of Waterview Street. Only one short cut-and-cover open-trench connector is proposed at the north end along Hurricane Street to connect the VPP with the TBM-extraction shaft site on Venice Beach.

Project impacts of the cut-and-cover section would result in same localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal, as described in the previous full-length, large-tunnel alternative beneath Dockweiler Beach. Localized impacts would occur on the non-motorized transportation system under this alternative in the vicinity of the of the Hurricane Street cut-and-cover segment. Like the development of Project construction traffic volumes and future Project traffic volumes described in the other tunnel alignments, the projected incremental change in V/C ratio during construction for the 9 analyzed intersections, and the 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on Hurricane Street would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

(3) Venice Pumping Plant to LAX Shaft via Dockweiler Beach – Construction of the third full-length, large-tunnel alternative via Dockweiler Beach would involve the use of a TBM to connect the VPP and the starter shaft on LAX property east of Vista Del Mar and south of Waterview Street directly. Since most of the tunnel construction would avoid in-street activities, no localized impacts would occur on the non-motorized transportation system during the large worker-entry tunneling beneath the beach. Like the development of project construction traffic volumes and future Project traffic volumes as described in the other tunnel alignments, the projected incremental change in V/C ratio during construction for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

(4) Venice Pumping Plant to LAX Shaft via Inland Route – Construction of the fourth full-length large-tunnel alternative via the inland area of Dockweiler Beach would involve TBM to connect the VPP and the starter shaft on LAX property east of Vista Del Mar and south of Waterview Street directly. Since most of the tunnel construction would avoid in-street activities, no localized impacts would occur on the non-motorized transportation system during the large man-entry tunneling beneath the beach. Like the development of Project construction traffic volumes and future Project traffic volumes as described in the other tunnel alignments, the projected incremental change in V/C ratio during construction for the 9 analyzed intersections and 23 analyzed roadway segments are identified in Appendix E. Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

CONSTRUCTION ALTERNATIVES

(1) Cut-and-Cover Construction – A discussion of the project impacts due to the cut-and-cover construction method is included above for each of the three project alignment alternatives in the Marina Del Rey area and for each of the two Project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the tunnel-boring method in several Project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(2) Tunnel-boring – A discussion of the Project impacts due to the tunnel-boring construction method is included above for each of the three Project alignment alternatives in the Marina Del Rey area and for each of the two Project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the cut-and-cover method in several Project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(3) Large-Diameter Tunneling – A discussion of the Project impacts due to the use of large-diameter tunneling is included in the alternatives above for each of the four proposed larger tunnel alignment alternatives. These alternatives would result in fewer circulation impacts than those employing cut-and-cover and tunnel-boring methods.

Table 5.4-3 summarizes the results of the analysis discussed in Section 5.4.3. Based on this analysis, the project alternatives are not expected to result in significant impacts to the transportation system upon completion of the proposed sewer facilities. The construction of the sewer facilities, however, could result in temporary adverse traffic and parking impacts, the introduction of temporary bicycle, pedestrian, or vehicular safety hazards and the temporary relocation of access points to public transit.

During the various construction phases of each project alignment, travel by construction workers and truck hauling of supplies and disposal would generate trips on the regional and local transportation system surrounding each construction shaft site or zone. These trips would represent temporary increases during defined phases of construction and, upon completion of construction, would cease. Adverse short-term impacts, as shown in Table 5.4-3 could result, but because they would be of limited-duration, they are not considered to be significant.

In addition, temporary lane closure due to open-trench construction activities for the six Project combinations of Marina Del Rey and Playa Del Rey alignment alternatives and the short open-and-cut section for the Dockweiler Beach full-length tunnel alternative and the Dockweiler Beach – LAX Shaft full-length alternative would result in adverse impacts on up to four affected streets. Surface construction, however, would result in only temporary transportation impacts, which while adverse, would not be considered significant.

Similarly, during the construction period at locations where construction activity would occur within public street ROW or in areas accessible to the public (i.e., locations other than within the site of the VPP), increased safety risks to vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to affected sites due to narrowed lanes, altered travel patterns, and temporarily obstructed sidewalks. Adverse short-term impacts could result but, because they would be of limited duration, they are not considered to be significant for any of the 10 project alignment alternatives.

Finally, as shown Table 5.4-3, construction of 8 of the 10 proposed alignment alternatives involving the open-trench method and tunnel-boring method would result in temporary loss of parking spaces either at the public parking lot adjacent to the channel or at on-street locations. This would be considered adverse, but not significant due to the temporary nature of the impacts.

5.4.4 Mitigation Measures

Proposed mitigation consists of the following measures to reduce the temporary adverse impacts associated with construction-period activity in the vicinity of each construction shaft site or construction zone. The implementation of the following mitigation measures would reduce the Project traffic/transportation impacts for all Project alignment alternatives to a less than significant level.

For all construction sites, TRA-1 would apply.

Table 5.4-3 Project Alignment Alternative Impact Summary

Project Alignment Alternatives	Traffic V/C increase	Transportation Safety	Parking
Open-trench and Tunnel-boring Alternatives			
Marquesas Way/ Via Marina - Pacific Avenue	Potentially adverse Impacts during construction at three analyzed locations: Via Marina (SB) South of Tahiti Way (p.m.) Pacific Av (SB) from 63rd Av to 64th Av (a.m./p.m.) Vista Del Mar (NB) from Pacific Av to Surf St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street east of Pacific Avenue, at the two tunnel-boring sites across the marina entrance channel and Ballona Creek Channel, and Pacific Avenue between 62nd Avenue and Vista Del Mar
Marquesas Way/Via Marina - South Dockweiler Beach	Potentially adverse impact during construction at one analyzed location: Via Marina (SB) South of Tahiti Way (p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street east of Pacific Avenue and at the two tunnel-boring sites across the marina entrance channel and Ballona Creek Channel
Pacific Avenue	Potentially adverse impact during construction at four analyzed locations: Pacific Av (NB) from Privateer St to Quarterdeck St (a.m./p.m.) Pacific Av (NB) from Westwind St to Yawl St (a.m./p.m.) Pacific Av (SB) from 63rd Av to 64th Av (a.m./p.m.) Vista Del Mar (NB) from Pacific Av to Surf St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street east of Pacific Avenue, at the tunnel-boring site adjacent to Ballona Creek Channel, and Pacific Avenue between 62nd Avenue and Vista Del Mar
Pacific Avenue - South Dockweiler Beach	Potentially adverse impact during construction at two analyzed locations: Pacific Av (NB) from Privateer St to Quarterdeck St (a.m./p.m.) Pacific Av (NB) from Westwind St to Yawl St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially averse impacts during construction on Hurricane Street east of Pacific Avenue and at the tunnel-boring site adjacent to Ballona Creek Channel
Dockweiler Beach - Pacific Avenue	Potentially adverse impact during construction at two analyzed locations: Pacific Av (SB) from 63rd Av to 64th Av (a.m./p.m.) Vista Del Mar (NB) from Pacific Av to Surf St (a.m./p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction Hurricane Street west of Grand Canal, at the tunnel-boring site adjacent to Ballona Creek Channel, and Pacific Avenue between 62nd Avenue and Vista Del Mar
Dockweiler Beach	None during construction	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street west of Grand Canal and at the tunnel-boring site adjacent to Ballona Creek Channel
Full Length (Mined) Large-tunnel Alternatives			
Dockweiler Beach	Potentially adverse impact during construction at three analyzed locations: Pacific Av& Washington Bl (p.m.) Nicholson St & Culver Bl (p.m.) Culver Bl east of Nicholson St (p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction during construction on Hurricane Street west of Grand Canal
Dockweiler Beach Shaft to LAX Shaft	Potentially adverse impact during construction at one analyzed location: Pacific Av & Washington Bl (p.m.)	Potentially adverse impacts during construction	Potentially adverse impacts during construction on Hurricane Street west of Grand Canal
VPP to LAX Shaft via Dockweiler Beach	Potentially adverse impact during construction at one analyzed location: Pacific Av & Washington Bl (p.m.)	None during construction	None during construction
VPP to LAX Shaft via Inland	Potentially adverse impact during construction at one analyzed location: Pacific Av & Washington Bl (p.m.)	None during construction	None during construction

Source: Kaku Associates, Inc.

TRA-1 For each construction site, a construction traffic management plan shall be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work. This plan shall include such elements as the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turning movement restrictions, temporary traffic control devices or flagmen, travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, and designated staging and parking areas for workers and equipment.

Where construction would occur within a public street ROW, including during the open-trench construction activities for all six combinations of Marina Del Rey and Playa Del Rey alignment alternatives and at the short cut-and-cover portion on both ends of the two full-length tunnel alternatives (Dockweiler Beach alignment and Dockweiler Beach to LAX Shaft alignment), the following mitigation measures would also apply:

TRA-2 A site-specific construction work site traffic control plan shall be prepared for each construction site and submitted to the LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas.

TRA-3 Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on restriped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when absolutely necessary.

TRA-4 Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.

TRA-5 Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.

TRA-6 Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.

TRA-7 Coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.

5.4.5 Unavoidable Adverse Impacts

In-street construction associated with each of the Project alternatives could result in adverse traffic and parking impacts in the immediate vicinity of each active construction site leading to localized congestion

and increased competition for available parking. Because these impacts would be of limited duration, however, they are considered to be less than significant. No feasible mitigation measures have been identified to reduce these temporary impacts to a less than significant level.

5.4.6 Cumulative and Secondary Impacts

CUMULATIVE IMPACTS

The traffic analysis above provides projections of future traffic growth by increasing background traffic by CMP-derived annual percentages and by adding development. The addition of background growth over time approximates traffic from development that is expected to occur under the General Plan and other jurisdictional plans and growth projections; consequently, the traffic analysis is therefore a cumulative evaluation. Operation of the proposed Project after the completion of the sewer line would result in periodic vehicle trips associated with inspection and maintenance activities that would generate negligible traffic volumes over the life of the Project. Since the construction traffic would be temporary in nature and would cease after the completion of the Project, none of the proposed 10 project alignment alternatives would result in substantial contribution to cumulative traffic impacts. In addition, in-street construction in the city and other jurisdictions requires permits for the regulating transportation agency. These agencies require the preparation of traffic control plans for in-street construction and require certain practices to be incorporated into the plans for implementation to maintain traffic flow and accommodate emergency response vehicles. The preparation of such traffic control plans would ensure that construction-related traffic impacts do not represent a substantial contribution to cumulative traffic impacts no matter which Project alternative alignment is chosen.

Construction could temporarily reduce parking in the vicinity of construction zones, but such reductions are not considered significant. None of the other related projects are expected to result in construction that could affect the same Project construction areas at the same time; consequently, significant cumulative parking impacts during construction are not anticipated.

SECONDARY IMPACTS

If the avoidance and minimization measures above were implemented successfully, no secondary parking, traffic or safety hazard would be associated with any of the proposed Project alternative alignments.

5.5 CULTURAL/PALEONTOLOGICAL RESOURCES

5.5.1 Cultural Resources

5.5.1.1 Environmental Setting

The general location of the Project areas are the residential section north of the Marina Del Rey Channel and the mixed use area south of the channel in Playa Del Rey.

MARINA DEL REY AND VENICE

Marquesas Way and Via Marina – contain high-density residential housing on the west side of the streets, a planted median, two traffic lanes running in each direction, and mixed use residential housing and commercial structures on the east side. Ground visibility is intermittent on the west side of the streets constrained by ivy, ornamentals and short sections of sidewalk and curvilinear paths. The median is densely planted with trees and various shrubs. The east side of Via Marina is primarily sidewalk with some grassy areas and open ground.

Pacific Avenue – is lined with residential units, including apartments, condominiums and single-family residences. The street is paved with asphalt with very few areas of open ground and hardscape planters.

Dockweiler Beach – is open beach with residential units, apartments, condominiums and single-family residences on the east side. Housing meets the sand in some areas with the beach extending some 900 feet west to the Pacific Ocean.

WESTCHESTER/PLAYA DEL REY

The combined alternatives south of Marina Del Rey Channel include residential units, park areas, parking areas, sand dunes, commercial structures and eroded bluffs near the southern terminus. The alignment follows Pacific Avenue, which turns northeast near Culver Boulevard and transitions to Vista Del Mar. The beach area alignment is sand, two cement curvilinear paths and sand dunes.

Archaeological records indicate that sedentary populations once occupied the Project area. Numerous artifacts and multiple burials were encountered in the general area. Excavation of a major burial ground (300 people) is ongoing in the area north Lincoln Boulevard, at the site of the Playa Vista housing development. These investigations serve to highlight the sensitivity of the Project areas for archaeological resources, which are described in the technical report provided in Appendix F to this EIR.

Historical records also identify the presence of oil well structures resulting from the Ohio Oil Companies wildcat drilling east of Venice's Grand Canal and throughout the Project area. Playa Del Rey was once the fourth largest oil field in California and home to over 50 oil wells. By the end of 1931, there were 325 active oil wells in the Ballona Lagoon area, highlighting the sensitivity of the Project areas expanding from Playa Del Rey and north of the Venice Project areas. Table 5.5-1 shows a summary of archaeological investigations in the VPP Project area.

Table 5.5-1 Archaeological Investigations Summary

Reference Number	Name of Project	Type of Investigation	Author/Date	Results
L-873	373-375 Fowling Street	Records search and survey	Singer, 1980c	No impact
L-1157	Job No. 1GOL0601	Records search and survey	Dillon, 1982	Negative
L-4868	Sempra Energy Gas	Record search	Shepard, Mason, Lander, 2000	CA-LAN-64, -65, -203, -204, -206
L-4910	LAX	Survey	Raschke, Stadum and Bissell, 1995	19-000202, 19-000214, 19-000691, 19-001118; NR#9200095, 74000522, 86001666
L-5556	Vista Del Mar, Culver Boulevard to Napoleon Street	Historic survey	Tillman, 1977	Nothing historic, mentions an archaeological site
L-5559	AT&T Wireless Services Facility Number R319	Records search and survey	Lapin, 2000a	19-001716, 19-000066
L-5561	Pacific Bell Wireless Facility	Records search and phase I survey	Lapin, 2000b	Negative
L-5563	Request for Determination of Effect, 07-LA-187, P.M. 2.0/3.5	Road construction	U.S. Department of the Interior, National Park Service	19-167308, 19-167310
L-5761	Facility No. Sm 018-01 (appears to be a duplicate)	Records search	Duke, 2001	Negative

Source:
Historical maps consulted:
U.S. Geological Survey Redondo Beach 15' Quadrangle, 1986, no structures.
U.S. Geological Survey Redondo Beach 15' Quadrangle, 1944, 3 structures north of Ballona Creek; many structures south of Ballona Creek.

5.5.1.2 Thresholds of Significance

A significant impact on archaeological resources would occur if an activity would permanently destroy, misplace or alter the integrity of the physical site and or the physical findings of the site and area of findings. A significant impact to a historical or prehistoric resource would occur if a project causes a substantial adverse change in the qualities that contribute to the significance of the resource.

5.5.1.3 Environmental Impacts

Direct impacts are those that may result from the immediate disturbance of resources, whether from removal of vegetation, demolition of structures, earth-moving activities or excavation. Since the Project will entail surface and subsurface disturbance of the ground, the proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources.

One archaeological site is recorded in the vicinity of the Vista Del Mar alignment area, as shown in the above table. The area has been repeatedly impacted by development. It is possible that if the location retains any integrity, remnants may be present under the pavement of the Vista Del Mar alignment area; however, it is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, no impact is expected.

5.5.1.4 Mitigation Measures

The following mitigation measures will reduce impact on cultural resources to a level below significance:

CR-1 Avoid areas where cultural resources are known to exist.

CR-2 When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented.

CR-3 If previously unknown cultural resources are encountered during site clearance and preparation, or during project construction, and they can not be avoided, then contingency measures must be in place to react promptly to protect the resources and ameliorate the impacts to a level of not significant.

CR-4 Monitor all construction in the vicinity of the CA-LAN-66 site located in Vista Del Mar by an Archaeologist qualified to recognize and assess both prehistoric and historical resources.

CR-5 A contingency plan should be developed by the City before project construction activities; the plan shall address unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings.

CR-6 If significant cultural resources are found during Project construction activities, they shall be recovered from the Project site, curated by an archaeologist recommended by the City and offered to an area museum whose collection is available for reviewing by the public.

5.5.1.5 Unavoidable Adverse Impacts

There are no unavoidable impacts to the cultural resources resulting from this Project with appropriate mitigation in place.

5.5.1.6 Cumulative and Secondary Impacts

There are no cumulative and/or secondary impacts to the cultural resources resulting from this Project with appropriate mitigation in place.

5.5.2 Paleontological Analysis

5.5.2.1 Environmental Setting

Paleontologic resources of the Project site include sedimentary or stratigraphic rock units that immediately underlie the surface and have a potential for yielding particular types of fossil remains because they have yielded similar fossil remains at previously recorded fossil sites near the Project site. Fossils, the remains or indications of once-living organisms, are a very important scientific resource because of their use in 1) Documenting the evolution of particular groups of organisms, 2) Reconstructing the environments in which they lived, and 3) Determining the ages of the strata in which they occur and of the geologic events that resulted in the deposition of the sediments constituting these strata.

The Project site lies on the western shelf of the Cenozoic Los Angeles Basin (Wright, 1991), which, in turn, is situated at the northwestern corner of the Peninsular Ranges Province, where major linear geographic features (i.e., mountains, valleys) and the underlying geologic structures (i.e., faults, folds) trend in a northwesterly direction (Jahns, 1954). The western shelf is composed of sedimentary or stratigraphic rock units consisting of late Cenozoic marine and stratigraphically overlying nonmarine strata reflecting the final filling of the basin and its accompanying emergence above sea level.

Regional surficial geologic mapping of the Project site and vicinity is provided by Jennings (1962) at a scale of 1:250,000. Larger-scale (1:31,680) geologic mapping of the area by Poland and others (1959) indicates that the project site is underlain by three Quaternary rock units. In ascending stratigraphic order, these rock units include the Pleistocene marine Palos Verdes Sand and Holocene dune sand, which form the lower portion of the bluff at the southeastern corner of the Project site; and by Holocene coastal deposits, which underlie the remaining flat-lying portion of the Project site.

5.5.2.2 Thresholds of Significance

The paleontologic importance (high, moderate, low, none, undetermined) of a rock unit present at the Project site is the measure most amenable to assessing the scientific importance of the paleontologic resources of the Project site because the areal distribution of a rock unit can be delineated on a topographic map. The paleontologic importance of a rock unit reflects 1) its potential paleontologic productivity and 2) the scientific importance of the fossils it has produced locally.

The potential paleontologic productivity (high, moderate, low, none, undetermined) of a rock unit present at the project site is based on the abundance/densities of fossil specimens and/or unrecorded/previously recorded fossil sites in exposures of the unit at and near the Project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities similar to those previously recorded from the unit at and near the Project site, or to contain fossil sites at similar densities. The criteria for establishing the potential paleontologic productivity of a rock unit present at the Project site are described below.

1. High potential: rock unit contains comparatively high density of unrecorded/previously recorded fossil sites and has produced numerous fossil remains at and/or near the Project site, and is very likely to yield additional similar remains at the Project site.
2. Moderate potential: rock unit contains relatively moderate density of unrecorded/previously recorded fossil sites and has produced some fossil remains at and/or near the Project site, and is somewhat likely to yield additional similar remains at the Project site.
3. Low potential: rock unit contains no or comparatively low density of previously recorded fossil sites and has yielded very few or no fossil remains near the Project site, and is not likely to yield any remains at Project site.
4. Undetermined potential: rock unit has limited or no exposure at and/or near the Project site, is poorly studied, contains no previously recorded fossil site, and has produced no fossil remains near the Project site. However, in the Project site region, same or correlative and/or lithologically similar rock unit contains sufficient recorded fossil sites to suggest rock unit at the Project site has at least a moderate potential for containing unrecorded fossil sites (note: elsewhere in California, exposures of rock units with few or no previously recorded fossil sites have recently proven abundantly fossiliferous during surveying, monitoring, or processing of fossiliferous rock samples as part of mitigation programs for other earth-moving projects).
5. No potential: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units with no potential for containing any unrecorded fossil site or yielding any fossil remains.

A fossil specimen is considered scientifically highly important if it is 1) Identifiable, 2) Complete, 3) Well preserved, 4) Age diagnostic, 5) Useful in environmental reconstruction, 6) A type or topotypic specimen,

7) A member of a rare species, 8) A species that is part of a diverse assemblage, and/or 9) A skeletal element different from, or a specimen more complete than those now available for its respective species. Identifiable fossil land mammal remains, for example, are considered scientifically highly important because of their potential use in providing very accurate age determinations and environmental reconstructions for the rock units in which they occur. The geologic age of some fossil mollusk and land mammal and plant remains can be determined by carbon-14 dating analysis. Moreover, land mammal and plant remains are comparatively rare in the fossil record.

Using the definitions presented above, the paleontologic or scientific importance of a rock unit present at the Project site would be assessed using the following criteria.

1. High importance: rock unit has comparatively high potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at the Project site similar to those previously recorded from rock unit at and/or near the Project site.
2. Moderate importance: rock unit has relatively moderate potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at the Project site similar to those previously recorded from rock unit near the Project site.
3. Low importance: rock unit has comparatively low potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at the Project site.
4. Undetermined importance: rock unit for which too few data are available from the Project site and vicinity to allow an accurate assessment of its potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at the Project site.
5. No importance: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units having no potential for containing any unrecorded fossil site or for yielding any fossil remains.

Note, however, that any fossil site containing identifiable fossil remains and the fossil-bearing strata are considered highly important paleontologically, regardless of the paleontologic or scientific importance of the rock unit in which the site and strata occur.

The following tasks were conducted in compliance with SVP (1995) guidelines for assessing the significance of construction-related adverse environmental impacts on paleontologic resources, or the paleontologic sensitivity of a particular rock unit to adverse impacts.

5.5.2.3 Environmental Impacts

An inventory of the paleontologic resources of the rock units present at the project site is listed below. The scientific importance of these resources is assessed in the Appendices. Although neither the literature review, the archival search nor the field survey conducted for this inventory documented any previously recorded fossil site as occurring at the project site, a number of previously recorded fossil sites were documented as occurring in areas mapped as being underlain by these rock units near the project site. The fossil remains from some of these fossil sites were uncovered as a result of earth-moving activities associated with other major construction projects.

The occurrence of several previously recorded fossil sites near the Project site suggests that there probably is a high potential for additional similar, scientifically highly important fossil remains at the Project site being encountered by earth-moving activities at unrecorded fossil sites in the Palos Verdes

Sand. Identifiable fossil remains recovered from this rock unit at the Project site would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. Moreover, the recovery of remains representing environmentally sensitive species would be critical in paleo-environmental and habitat reconstruction. The remains would contribute to a more comprehensive documentation of the diversity of animal life that existed at and near the Project site during the Pleistocene Epoch (Figure 5.5-1).

VISTA DEL REY

LAX Launch Shaft Location – Although no previously recorded fossil site is reported as occurring in the dune sand at the Project site, fossilized remains representing an extinct species of elephant might have been recovered from this rock unit at LACM fossil site 3264, which was encountered at a depth of 25 feet below previous grade approximately 2.4 miles east-southeast of the Project site at LAX. However, the fossil site also might have been in the stratigraphically underlying terrace cover, which is mapped with the Palos Verdes Sand and has yielded the fossilized bones and teeth of extinct species of land mammals, including mastodon, mammoth, horse, bison, and rabbit, near the airport at LACM fossil sites 1180, 3789, 4942, and 7332 (Jefferson, 1991b; Miller, 1971). These sites were encountered at depths 13.5 to 16 feet below previous grade. The occurrence of fossilized remains representing an extinct species of Pleistocene bison (*Bison*), which defines the beginning of the Rancholabrean North American Land Mammal Age (Savage, 1951), indicates that the terrace cover is Rancholabrean in age.

Playa Vista – Although no previously recorded fossil site is reported as occurring in the coastal deposits at the Project site, fossilized shells of marine mollusks were encountered below the water table at depths of 2 to 31 feet below previous grade in 28 borings from Playa Vista, immediately east of the Project site, and fossilized wood was encountered in one of the borings at a depth nearly 70 feet below previous grade (Converse Consultants, Inc., 1981; Lander, 1990, 2003; LeRoy Crandall and Associates, 1988).

Direct impacts would result mostly from earth-moving activities (primarily trenching and boring for pipeline) in previously undisturbed strata. Although earth-moving activities would be comparatively short term, the possible accompanying loss of some fossil remains, unrecorded fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata is a potentially significant long-term adverse environmental impact.

The Palos Verdes Sand has yielded abundant fossil remains at several previously recorded fossil sites near the Project area. For this reason, adverse environmental impacts on the paleontologic resources of the Palos Verdes Sand that would result from earth-moving activities at the Project site would be considered to be of high paleontologic significance because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

EXPLANATION

Qal	coastal deposits (Holocene at/near surface, Pleistocene at depth; marine)	low sensitivity at/near surface, high sensitivity at depth
Qs	dune sand (Holocene at/near surface, Pleistocene at depth; continental)	low sensitivity at/near surface, undetermined sensitivity at depth
Qpu	Palos Verdes Sand (Pleistocene, marine)	high sensitivity
Qsp	San Pedro Formation (Pleistocene, marine)	(not present at project site)
——	geologic contact	

PALEONTOLOGICAL RESOURCE SENSITIVITY MAP

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.5-1

DOCKWEILER BEACH

Dune Sand – The dune sand possibly has yielded fossil remains at only one previously recorded fossil site near the Project site. For this reason and because this fossil site was encountered at tunnel boring depth, adverse environmental impacts on the paleontologic resources of the dune sand that would result from earth-moving activities at the Project site would be considered to be of undetermined (but probably no more than moderate) paleontologic significance at depth because the potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities is undetermined.

On the other hand, any adverse environmental impact on the paleontologic resources of the dune sand that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the dune sand probably is too young at and near the surface to contain remains old enough to be considered fossilized.

Coastal Deposits – The coastal deposits have yielded fossil remains at numerous previously recorded fossil sites near the Project site. For this reason and because these fossil sites were encountered at ??" above depth, adverse environmental impacts on the paleontologic resources of the coastal deposits that would result from earth-moving activities at the Project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

Any adverse environmental impact on the paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

5.5.2.4 Operational Impacts

There would be no impact on paleontologic resources during the operational phase of the Project if there were no earth-moving activity.

5.5.2.5 Mitigation Measures

The following measures comprise a paleontologic resource impact mitigation program that would reduce, to an insignificant level, the direct, indirect, and cumulative adverse environmental impacts on paleontologic resources that might accompany earth-moving activities (primarily trenching and boring for pipeline) associated with Project construction in the selected alignment. The program would allow for the recovery of some scientifically highly important fossil remains, should any be encountered by these activities, as well as associated specimen data and corresponding geologic and geographic site data; their preservation in a recognized museum repository; and their availability for future study by qualified scientific investigators. These specimens and data otherwise might have been lost to the earth-moving activities and unauthorized fossil collecting. Specimen recovery would be allowed under CEQA Appendix G (5.c).

Monitoring would not be required in an area underlain by artificial fill or a rock unit of no paleontologic importance (unless a rock unit of higher importance would be encountered at depth), or one in which a

rock unit would be buried, but not otherwise disturbed. No rock sample would be processed if the rock were too coarse grained or resistant to breaking down in water.

The discovery and subsequent recovery of fossil remains as part of the mitigation program might result in a slight delay of some earth-moving activities. However, the mitigation measures presented below have been designed to eliminate or reduce any delay to the greatest extent possible by 1) Ensuring that a paleontologic construction monitor would be present when and where fossil remains were most likely to be uncovered by earth-moving activities; 2) Allowing for the rapid recovery of fossil remains, should any be encountered by these activities, and associated specimen and site data; and 3) If necessary, diverting the activities temporarily around a newly discovered fossil site until the remains had been removed by the monitor and the activities allowed to proceed through the site. Similar paleontologic resource impact mitigation programs usually have resulted in no delay of earth-moving activities.

All mitigation measures presented below should be directed by a vertebrate paleontologist approved by the City of Los Angeles and LACMVP. The paleontologist should have substantial experience designing and conducting paleontologic resource impact mitigation programs in areas underlain by fossil-bearing strata. The paleontologic monitor and other paleontologic staff working under the direction of the paleontologist should have experience monitoring earth-moving activities, recovering large vertebrate fossil specimens, and recovering and processing large samples of fossiliferous rock or sediment.

The mitigation measures described below would be in compliance with any City of Los Angeles environmental guideline and with SVP (1995, 1996) standard guidelines for mitigating adverse construction-related impacts on paleontologic resources. The paleontologist would ensure implementation of these measures and verify the effectiveness of the measures. The results of the program would be summarized in a final technical report of results and findings submitted to the City of Los Angeles.

PAL-1 Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program, including monitoring, during earth-moving activities at the project site.

PAL-2 The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.

PAL-3 The qualified monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.

PAL-4 Earth-moving activities will be monitored by the qualified monitor only in those areas of the Project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.

Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to proceed through the site immediately. The location and proper geologic context of any fossil occurrence will be documented, as appropriate. Any recovered rock sample will be processed to allow for the recovery of smaller fossil remains.

Rock samples will be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor. No more than 6,000 pounds (12,000 pounds total) of rock will be processed from either the Palos Verdes Sand or coastal deposits.

PAL-5 All fossil specimens recovered from the Project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.

PAL-6 The monitor will maintain daily monitoring logs that include the particular tasks accomplished, the earth-moving activity monitored, the location where monitoring was conducted, the rock unit encountered, fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings will be prepared by the paleontologist in accordance with any City of Los Angeles requirement.

5.5.2.6 Unavoidable Adverse Impacts

Development of the Project could lead to the permanent loss of fossil-bearing strata in rock units. The loss of any paleontologic resources could pose potentially significant long-term adverse environmental impacts, however, the Project would not impose adverse environmental impacts with proper mitigation monitoring in areas where excavation and or boring is to occur.

5.5.2.7 Cumulative Impacts

Development of the Project, in combination with other projects in the region where a project site is underlain by the Palos Verdes Sand might lead to the progressive loss of fossil-bearing strata in these rock units that could be prospected for fossil remains and unrecorded fossil sites. The loss of these additional paleontologic resources is another potentially significant long-term adverse environmental impact.

5.6 GEOLOGY, SOILS AND SEISMICITY

5.6.1 Environmental Setting

This analysis is based on a review of available information and data on the geotechnical and geological conditions of the various components of the proposed Project. The primary information reviewed for this analysis was site-specific geological and geotechnical investigations performed for the proposed Project and both published and unpublished geological and geotechnical reports and maps.

REGIONAL GEOLOGIC AND SITE SETTING

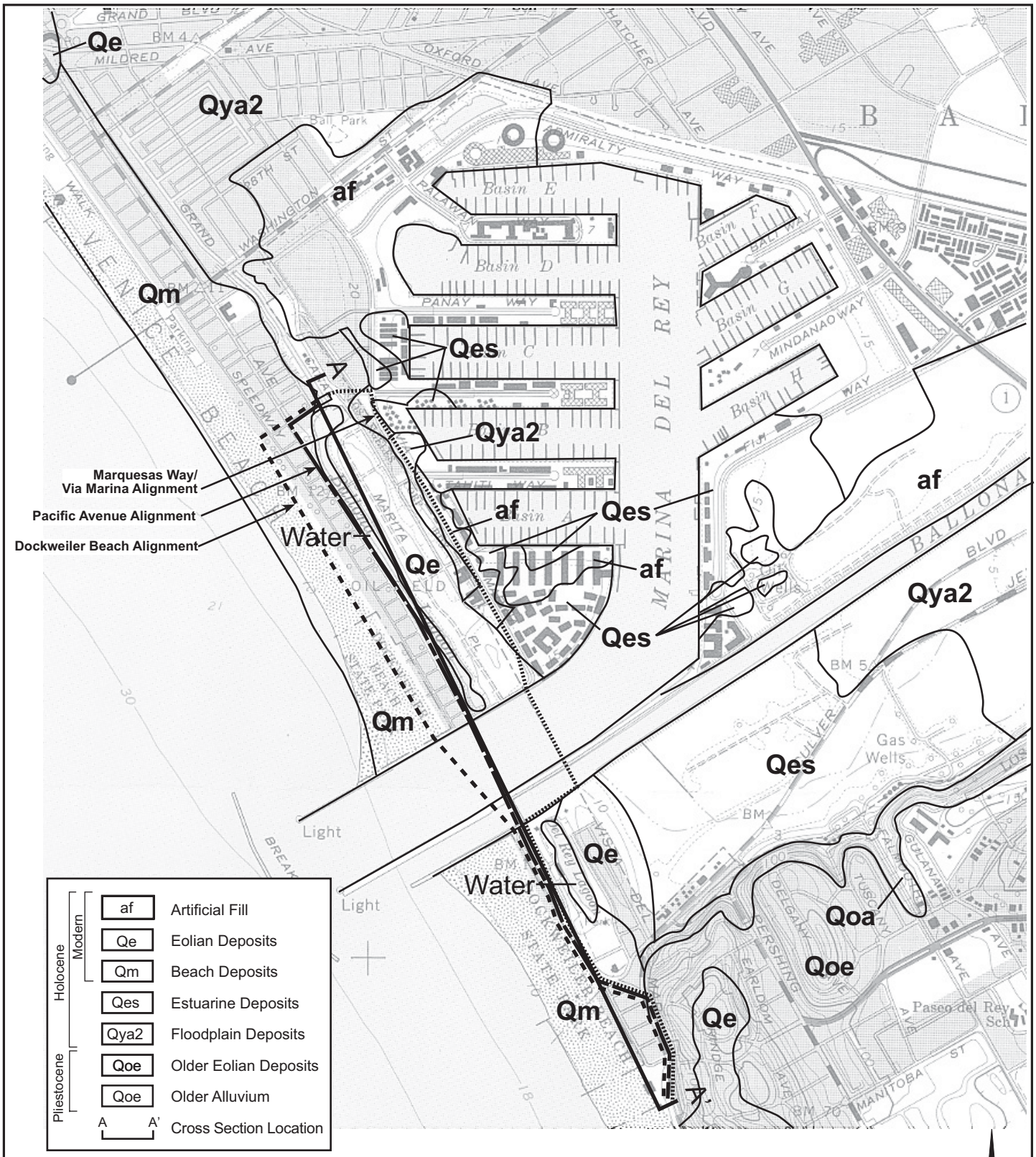
The Project area lies within a portion of the Los Angeles Basin known as the "Ballona Gap." The Ballona Gap is a broad alluvium filled valley developed as a result of stream incision occurring along the ancestral Los Angeles River (Poland, 1959). Before 1825, the Los Angeles River flowed westward through the Ballona Gap. Flooding in 1825 changed the course of the river to its present day course southward into San Pedro Bay (Poland, 1959). Presently, Ballona Creek drains westward across the project area in a concrete-lined drainage channel.

The Project area is generally bounded by Santa Monica Bay to the west, Marina Del Ray harbor to the east-northeast, marsh and wetlands of Playa Del Ray to the east, and stream-cut bluffs that delineate the southern margin of the Ballona Gap to the southeast. The entrance to the Marina Del Ray harbor crosses the project area and is parallel to, and lies just north of, Ballona Creek. The Venice Grand Canal and Ballona Lagoon lie within the Project area between the Santa Monica Bay and the Marina Del Ray harbor.

The topography in the Project area is relatively flat lying with an elevation of about 13 feet (above mean sea level datum) north of Ballona Creek. South of Ballona Creek, the topography is relatively flat lying at about elevation 14 feet until reaching Sunridge Street where the topography rises southward at an approximate grade of 3 to 4 percent up to about an elevation of 51 feet at the south end of the proposed Project. The slopes that lie to the southeast of the southern end of the project rise approximately 110 feet above the Project area at inclinations ranging from about 8:1 (horizontal: vertical) to 1:1.

GENERAL SITE GEOLOGY

The main surficial and subsurface materials within the Project area include artificial fill, eolian deposits, beach deposits, estuarine deposits, and alluvial sediments. The surficial sediments are underlain at an elevation of about -80 feet by sedimentary rock of the San Pedro formation. The areal distribution of the surficial materials within the Project area is shown on the Geologic Map, Figure 5.6-1. A geologic cross section showing the generalized distribution of the subsurface materials is provided on Figure 5.6-2. The following paragraphs provide brief, generalized descriptions of the subsurface materials along the proposed Project alignments.



Notes:
1. Geology from CDMG (1998) Open-File Report 98-27.
2. Base map topography from USGS Venice Quadrangle, photorevised 1981.

0 1/2
Scale in Miles

N

GEOLOGIC MAP

Project No.: 29870322	Date: AUGUST 2004	Project: VENICE DUAL FORCE MAIN EIR	Figure 5.6-1

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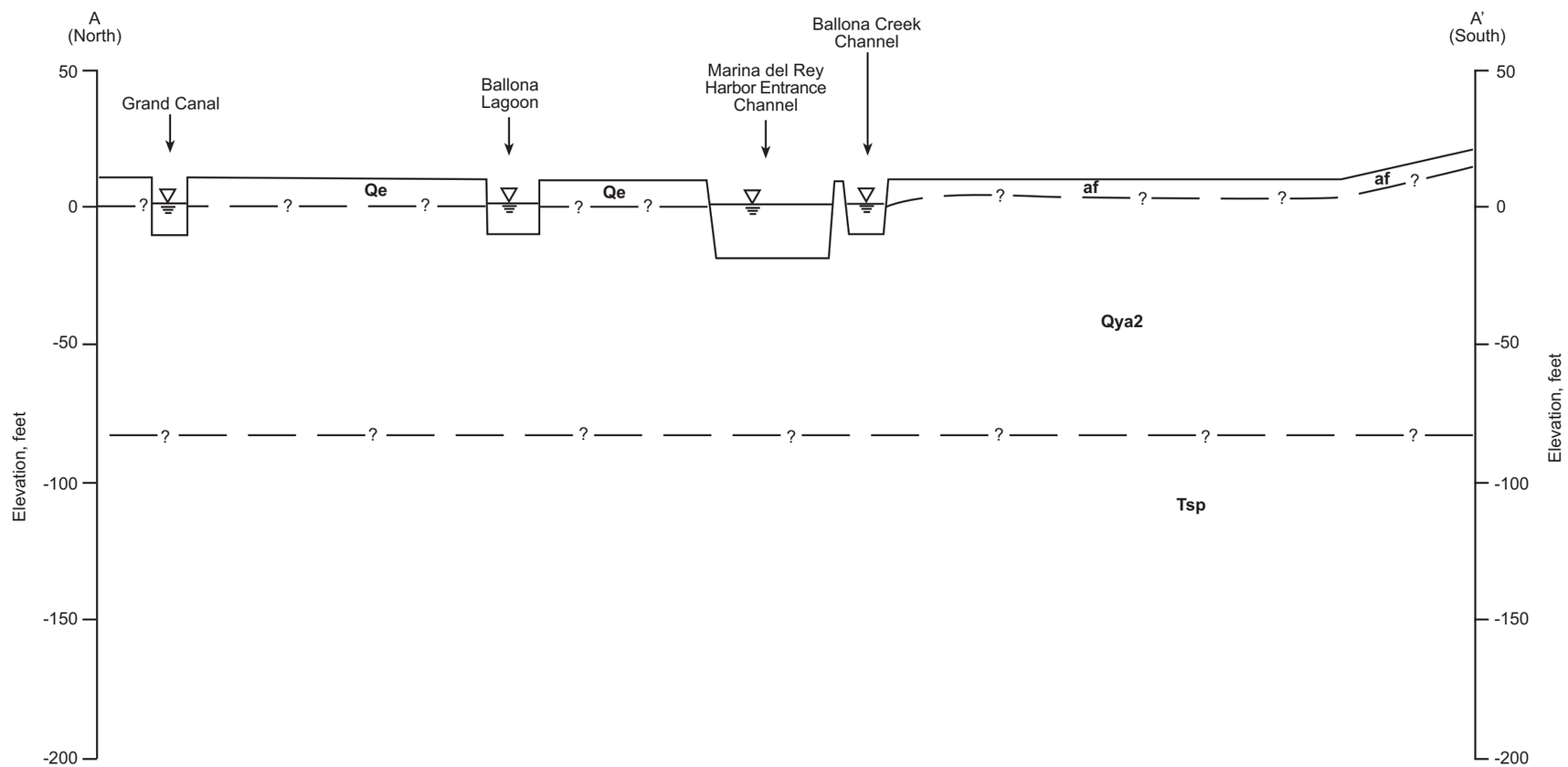

LEGEND

af = Artificial Fill (Note: Observed in borings by URS (2000a) south of Ballona Creek. Areal extent unknown and therefore, is not shown on geologic map

Qe = Eolian deposits

Qya2 = Alluvial deposits

Tsp = San Pedro Formation

Horizontal Scale: 1" = 1000 Feet
Vertical Scale: 1" = 50 Feet

Note: See Geologic Map, Figure _, for Cross Section Location

GENERALIZED GEOLOGIC CROSS SECTION ALONG PROPOSED FORCE MAIN

Project: VENICE DUAL FORCE MAIN EIR

Project No.: 29870322

Date: AUGUST 2004

Figure 5.6-2

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Young Surficial Sediments (Holocene) – Artificial fill materials exist throughout the Project area. Where encountered south of Ballona Creek, the artificial fill typically ranges in thickness from about 5 to 17 feet below the ground surface (URS, 2000a). The artificial fill generally consists of sand and silty sand with occasional gravel and debris. The artificial fill is typically very loose to loose, but has occasional dense to very dense layers. Note that the artificial fill is not shown on the Geologic Map, Figure 5.6-1, along the proposed alignments because the areal extent of this material is not currently known:

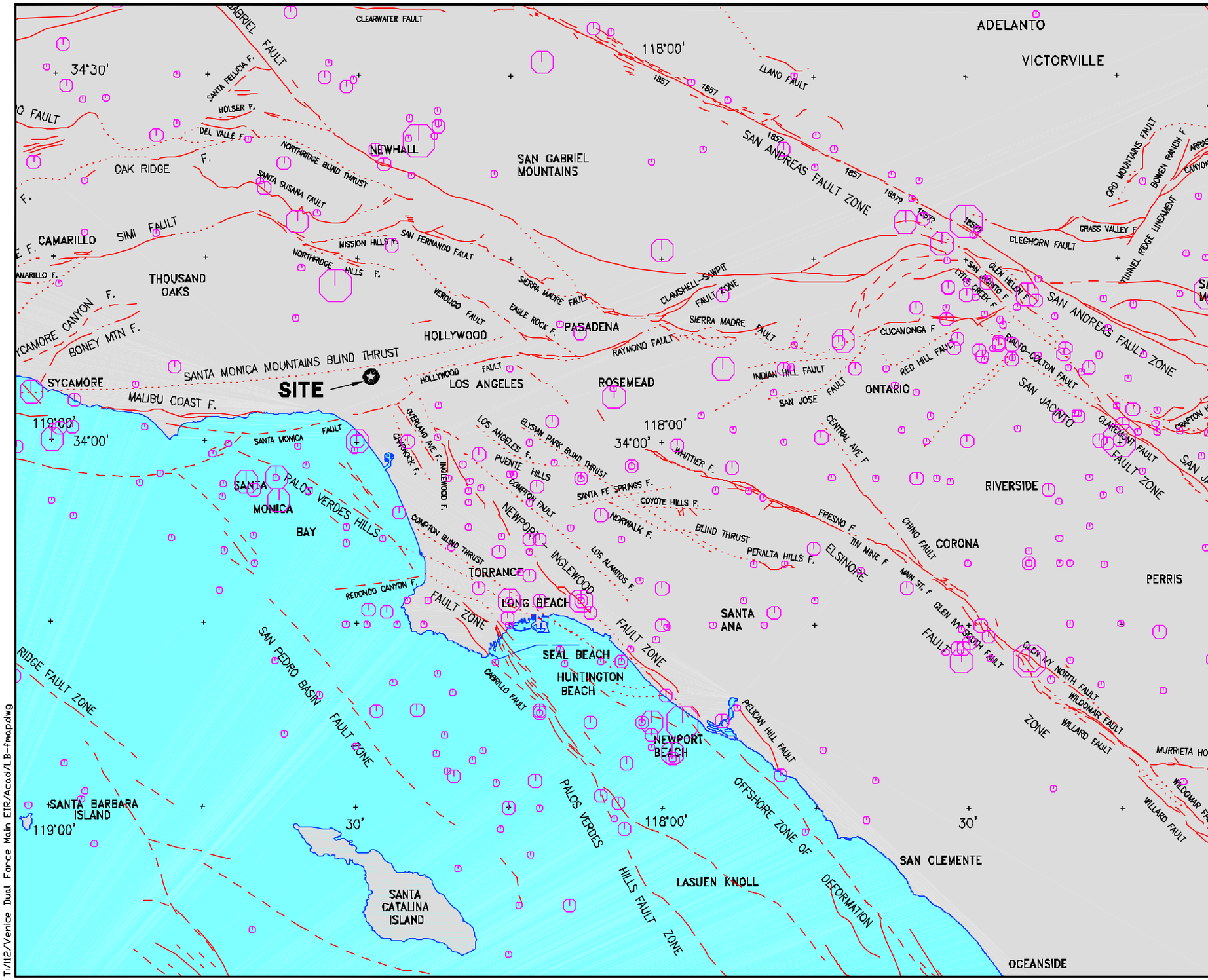
- Beach deposits (Qm) – Modern beach deposits consisting of loose to medium dense coarse sand and gravelly sand up to 23 feet thick [California Division of Mines and Geology (CDMG), 1998].
- Eolian deposits (Qe) – Windblown deposits that lie immediately inland from the modern beach. The eolian deposits consist of fine sand less than 10 feet in thickness (CDMG, 1998).
- Estuarine deposits (Qes) – Marsh deposits that typically include silt, sand, and clayey sand that are loose to medium dense (CDMG, 1998). The thicknesses of the estuarine deposits are likely less than 20 feet.
- Alluvial deposits (Qya2) – Young floodplain sediments derived primarily from the ancestral Los Angeles River. The alluvial deposits generally consist of intervals of sand, silty sand, silt, sandy to silty clay, and clay (URS, 2000a; 2000b). Occasional gravel and shells occur in the coarse-grained alluvium (sand). An approximately 15-foot-thick layer of gravelly sand to sandy gravel was encountered in borings in the area of the entrance channel and Ballona Creek at elevations ranging from –64 to –73 feet (URS, unpublished). This gravelly layer is likely the "50-foot gravel" of Poland (1959) and is the lower division of the younger alluvial deposits. The 50-foot gravel is a widespread relatively thin and irregular gravel and sand body laid down by the ancestral Los Angeles River. The consistency of the coarse-grained alluvium ranges from very loose to very dense, but is typically medium dense to dense (URS, 2000a; 2000b). The consistency of the fine-grained alluvium (silt and clay) ranges from soft to very stiff (URS, 2000a; 2000b).

SAN PEDRO FORMATION (EARLY PLEISTOCENE)

- Tsp – Weakly lithified deposits of non-marine to shallow marine origin that generally consist of stratified and cross-bedded sand with occasional beds of fine gravel, silty sand, and silt (Poland, 1959). The rock likely underlies the alluvial deposits at about elevation -79 to -88 feet.

FAULTS AND SEISMICITY

- Southern California is crossed by numerous northwest-trending active and potentially active surface faults and underlain by several "blind" thrust faults (i.e., a low-angle reverse fault with no surface exposure). The locations of the known active and potentially active faults and epicenters of earthquakes with magnitudes of 3.5 or greater with respect to the proposed Project are shown on the Regional Fault and Epicenter Map, Figure 5.6-3.
- No active surface fault traces are known to cross the proposed project area. In addition, the Project area is not underlain by a blind thrust fault that is recognized by the California Geological Survey (2003) as a potential seismic source. However, as shown on Figure 5.6-3, the Project area is located near several active or potentially active faults. Based on the known activity of faults in the region and on the recorded seismicity, the project site is likely to experience strong ground shaking from future earthquakes. Significant historical earthquakes that have occurred near the Project area include:
  - The 1933 Long Beach earthquake (Magnitude (M) 6.4) on the Newport-Inglewood Fault south of Huntington Beach;
  - The 1971 San Fernando earthquake (M6.6) on the San Fernando Fault;
  - The 1987 Whittier earthquake (M6.0); and
  - The 1994 Northridge earthquake (M6.7).



0 15 30

APPROXIMATE SCALE, kilometers

LEGEND

REPORTED EARTHQUAKE MAGNITUDES.

- 3.5 TO 3.9
- 4.0 TO 4.9
- 5.0 TO 5.9
- 6.0 TO 6.9
- 7.0 AND GREATER

SOUTH OF LATITUDE 35°N, EPICENTER AND MAGNITUDE DATA ARE FROM THE CALTECH EARTHQUAKE CATALOG FOR THE PERIOD FROM 1800 TO JUNE 1994. ONLY EARTHQUAKES OF MAGNITUDE 3.5 AND LARGER ARE SHOWN. AFTERSHOCKS ARE NOT INCLUDED.
NORTH OF LATITUDE 35°N, DATA ARE FROM THE CNSS EARTHQUAKE CATALOG (UC BERKELEY) FOR THE PERIOD FROM 1932 TO DECEMBER, 1998. ONLY EARTHQUAKES OF MAGNITUDE 4.0 AND LARGER ARE SHOWN. SIGNIFICANT AFTERSHOCKS OF THE 1952 KERN COUNTY EARTHQUAKE ARE INCLUDED.

? ? ?

APPROXIMATE LOCATION OF HOLOCENE AND PLEISTOCENE FAULTS, DOTTED WHERE CONCEALED, QUERIED WHERE CONJECTURAL. FAULT LOCATIONS BASED ON: ZIONY AND JONES, 1989; CDMG GEOLOGIC MAP SERIES OF CALIFORNIA, 1977–1986 (1:250,000 SCALE); CDMG GEOLOGIC MAP SERIES, CALIFORNIA CONTINENTAL MARGIN, 1987 (1:250,000 SCALE); HAUKSSON, 1990; SHAW AND SHEARER, 1999; WRIGHT, 1991; AND DOLAN ET AL., 1995; GRANT ET AL. 1999.

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REGIONAL FAULT AND EPICENTER MAP

Proj. No.: 29865195	Date: MARCH 2004
Project: LEO BAECK TEMPLE PARKING FACILITY	Figure: 6

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The geoseismic characteristics of some of the faults considered by the California Geological Survey (2003) as potential seismic sources within about 50 kilometers of the proposed project are listed in Table 5.6-1, including an estimate of the maximum earthquake magnitude that might be generated by each fault.

As noted in Table 5.6-1, the closest active or potentially active faults to the project area are the Palos Verdes, Santa Monica, and the Newport-Inglewood fault zone, as discussed briefly below.

Table 5.6-1 Summary of Potential Seismic Sources

Fault or Fault Segment	Fault Type(1)	Dip (deg.)	Dip Direction	Approx. Fault Length (km)(2)	Approx. Closest Distance to Site (km)(3)	Approx. Max Magnitude, Mw(4)
Palos Verdes	RL	90	--	96	5¾	7.3
Santa Monica	O/LL, R	N	75	28	9	6.6
Newport-Inglewood (onshore)	RL	90	--	66	10½	7.1
Malibu Coast	O/LL, R	75	N	37	10½	6.7
Hollywood	O/LL, R	70	N	17	13½	6.4
Raymond	O/LL, R	75	N	23	20	6.5
Anacapa-Dume	O/LL, R	45	N	75	25	7.5
Verdugo-Eagle Rock	R	45	NE	29	28	6.9
San Fernando	R	45	N	18	36	6.7
Santa Susana	R	55	N	27	38	6.7
Sierra Madre	R	45	N	57	38	7.2
Northridge	R	42	S	31	39½	7.0
Whittier	O/RL, R	75	NE	38	40	6.8
San Andreas (Mojave)	RL	90	--	103	72	7.4

The Palos Verdes Fault, located about 3½ miles (5¾ kilometers) to the southwest, is a northwest-trending right-lateral strike-slip fault zone. The fault extends from near the southern boundary of the Transverse Ranges beneath Santa Monica Bay southeastward across the northeastern base of the Palos Verdes Hills before trending offshore to where it bifurcates around Lausen sea knoll offshore of San Clemente (Nardin and Henyey, 1978). The fault continues south and possibly connects with the offshore Coronado Bank fault within the Continental Borderlands Province. Segments of the Palos Verdes Fault are considered by Jennings (1994) as a Holocene fault (indicating displacement within the past 10,000 years). The Palos Verdes Fault has not produced any moderate or large earthquakes in the historical record.

The Santa Monica Fault, located about 5½ miles (9 kilometers) to the north, is part of the Transverse Ranges Southern Boundary fault system, a west-trending system of reverse, oblique-slip, and strike-slip faults that extends for more than 124 miles (200 kilometers) along the southern edge of the Transverse Ranges (Dolan et al., 2000). This fault system consists of a series of predominantly left-lateral, strike-slip surficial faults (from west to east, Santa Rosa Island, Santa Cruz Island, Anacapa-Dume, Santa Monica, Hollywood, and Raymond faults). The Santa Monica Fault is considered a late Quaternary fault (indicating displacement within the past 700,000 years) (Jennings, 1994) and has not produced any moderate or large earthquakes in the historical record.

The Newport-Inglewood Fault zone, located about 6½ miles (10½ kilometers) to the east, is an active right lateral wrench fault system that extends southwest from Beverly Hills to offshore of Newport Beach

for a total length of about 41 miles (66 kilometers). The Newport-Inglewood Fault zone is considered to connect with features south of Newport Beach (the Offshore Zone of Deformation, and the Rose Canyon Fault) to form a major zone of deformation that extends from Baja California to the southern front of the Santa Monica Mountains. The Newport-Inglewood Fault zone is considered a Holocene fault in the project vicinity (Jennings, 1994). The most recent earthquake on the Newport-Inglewood Fault zone was a magnitude M6.4 that occurred on March 10, 1933, on a segment of the fault south of Huntington Beach.

Two other nearby faults, the Charnock and the Overland Avenue faults, lie within approximately 3 miles (5 kilometers) and 4½ miles (7¼ kilometers) to the east of the proposed Project, respectively. Both of these faults were located by well log and water level data and have no surface expression (Poland, 1959). The Charnock and Overland Avenue faults are considered late Quaternary faults (Jennings, 1994). However, the California Geological Survey (2003) does not consider the Charnock and the Overland Avenue faults as potential seismic sources with respect to seismic shaking.

5.6.2 Thresholds of Significance

A project would normally create a significant impact on geology or soils if it would:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death;
b. Be subject to the rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area, or based on other substantial evidence of a known fault, or be subject to the following;

    - Strong seismic ground shaking.
    - Seismic-related ground failure, including liquefaction.
    - Landslides.

c. Result in substantial soil or loss of topsoil;
d. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse; and
e. Be located on expansive soil, as defined in Table 18- 1-B of the Uniform Building Code (UBC) (1994), creating substantial risks to life or property.

5.6.3 Environmental Impacts

Seismic hazards associated with seismic activity are described as follows:

Ground Shaking – As indicated by the numbers and distribution of recorded earthquake epicenters shown on Figure 5.6-3, the proposed Project will continue to be subjected to periodic seismic shaking, perhaps of considerable intensity. The degree of shaking that is felt at a given site depends on the distance from the earthquake source and on the type of subsurface material on which the site is situated. Based on our review, we anticipate that the highest levels of ground shaking at the proposed Project are anticipated to result from an earthquake on the nearby Palos Verdes Fault. All of the alternative alignments of the proposed project will be equally impacted by strong ground shaking.

Liquefaction – Defined as significant and relatively sudden reduction in stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. Potential for seismically induced liquefaction exists whenever relatively loose, sandy soils exist with high groundwater level and/or potential for long duration, high seismic shaking. When liquefaction occurs, the site can experience damage induced by permanent ground movements resulting in differential settlement and flotation of structures, tanks and pipelines.

Recent geotechnical studies performed for the proposed project encountered saturated sandy soils at relatively shallow depths along most of the Pacific Avenue alignment (URS, 2000a; 2000b). Standard Penetration Test (SPT) blow counts indicate the consistency of some of these sandy soils is relatively loose and therefore prone to liquefaction.

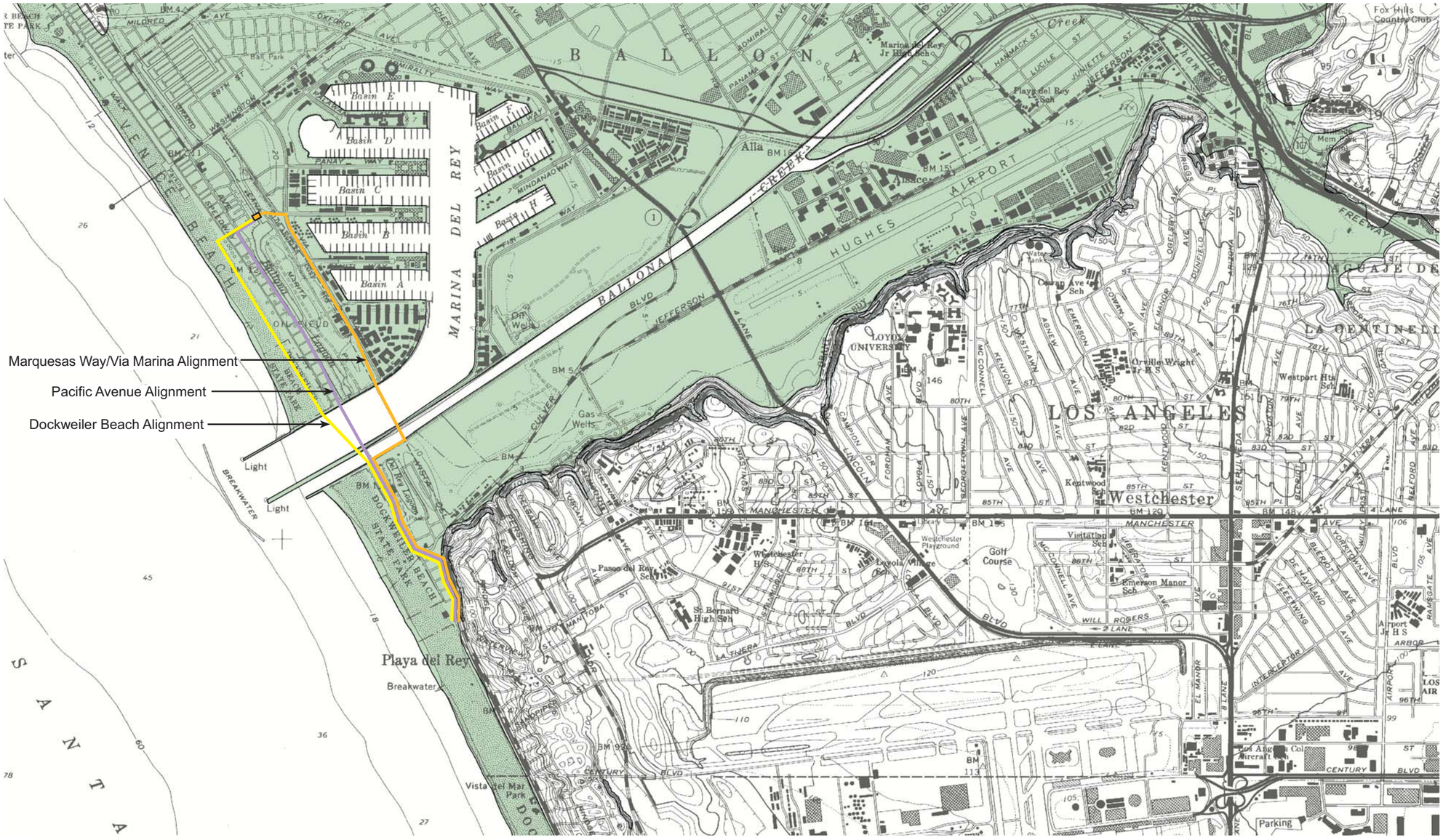
The California Geological Survey has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at greater risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow groundwater table. As shown on Figure 5.6-4, the California Geological Survey has identified the project area as being in a potential liquefaction hazard zone (CDMG, 1999).

Because of the combination of sands and shallow groundwater in the project area, liquefaction is considered a significant potential seismic hazard along all of the alternative alignments for the Project.

Differential Seismic Settlement – Differential seismic settlement occurs when seismic shaking causes one type of soil or rock to settle more than another type. It may also occur within a soil deposit with relatively homogeneous properties if the seismic shaking is uneven, which could occur due to variable geometry, for example, and variable depth of the soil deposit. Differential seismic settlement is most likely to occur in areas that transition between rock formations and more recently deposited alluvial soils or human-placed artificial fill. The components of the project are situated entirely upon saturated soils, which would be prone to differential settlement, primarily if liquefaction occurred. Differential settlement represents a potential seismic hazard along all of the alternative alignments for the Project.

Surface Fault Rupture – No known active or potentially active fault traces have been recognized as crossing any of the proposed Project areas, and the California Geological Survey does not delineate any part of the proposed Project area as being within an Alquist-Priolo Earthquake Fault Zone (CDMG, 1997). The potential for surface fault rupture is not considered a significant seismic hazard along any of the alternative alignments of the Project.

Tsunami – A tsunami is a great sea wave (commonly called a tidal wave) produced by a significant undersea disturbance, such as tectonic displacement of the sea floor associated with large, shallow earthquakes. Tsunamis are characterized by their high speed, long wavelength and long periods. They generally have low observable amplitude in the open sea, but in extreme cases may pile up to heights of 100 feet (30 meters) or more upon entering shallow water. Tsunamis can cause great damage in near-shore areas.



MAP EXPLANATION

Zones of Required Investigation:

Liquefaction

Areas where historic occurrence of liquefaction, or local geological, geotechnical and groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslides

Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

NOTE:
Base map taken from State of California, Seismic Hazards Zones, Venice Quadrangle, Official map, released March 25, 1999.

SCALE 1:24,000

1 .5 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

N

SEISMIC HAZARD ZONES MAP

Project: VENICE DUAL FORCE MAIN EIR

Project No.: 29870322

Date: JULY 2004

Figure 5.6-4

URS

L:/venice dual force/seismic haz zones.fh10 7/04

Compared with most coastal regions in the circum-Pacific region, tsunamis have represented a relatively minor threat to coastal areas of southern California in the historical period. The tsunami from the 1964 Alaskan earthquake, the only tsunami that has caused extensive damage to California since 1812, was measured at about 9 feet (3 meters) at Santa Monica and 5 feet (1.5 meters) at Los Angeles Harbor (McCulloch, 1985).

Numerically modeled heights of potential major tsunamis along the southern California coast with distant and local sources are reported by McCulloch (1985) for 100- and 500-year recurrence intervals. For the proposed Project, potential wave (and run-up) heights are reported at about 7½ feet (2¼ meters) and 14 feet (4¼ meters) for the 100- and 500-year events, respectively. The elevation of the Project site [approximately 10 feet mean sea level (MSL), or 6 meters] stands below the highest of these potential tsunami events.

It is well known that a tsunami can cause substantial erosion and scour on the shore. For example the 1960 Chilean tsunami scoured out the port entrance by more than 30 feet at Kesen-numa Port in Japan. Although the pipeline would be buried at depths no shallower than 10 feet below the surface, the possibility of damage to the proposed pipeline cannot be disregarded. A catastrophic tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment alternative.

Seiche – A seiche is an oscillation of a body of water in an enclosed or semi-enclosed basin, such as a reservoir, harbor, lake, or storage tank, resulting from earthquakes or other large environmental disturbances. The nearby semi-enclosed Marina Del Ray harbor could be subject to seiche during a seismic event. However, because the proposed Project components will be buried in the subsurface, it is unlikely that impacts from seiche, if any, would affect the project. Therefore, seiches are not considered a significant seismic hazard along any of the alternative alignments for the proposed Project.

Seismically Induced Landslides – The potential for landslides induced by seismic shaking is not anticipated to pose a significant seismic hazard to the proposed Project. The proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. In addition, the Potential Liquefaction Hazard Zone map for the Venice quadrangle, referenced as Figure 5.6-4, indicates that the Project elements do not lie within areas designated as having the potential for earthquake-induced land sliding (CDMG, 1999). These are areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement during a seismic event. Landslides from other mechanisms are discussed further in this section.

Subsidence – The extraction of water or petroleum from sedimentary source rocks can cause the permanent collapse of the pore space previously occupied by the removed fluid. The compaction of subsurface sediment caused by fluid withdrawal will cause subsidence of the ground surface overlying a pumped reservoir. If the volume of water or petroleum removed is sufficiently great, the amount of resulting subsidence may be sufficient to damage nearby engineered structures. Significant quantities of water or petroleum are not currently being extracted in the area occupied by the proposed Project. However, dewatering of the excavations made during construction of the proposed Project could result in potentially damaging subsidence adjacent to the construction area.

The Project area is in proximity of the Playa Del Rey oil field, which is used by the Southern California Gas Company as a natural gas storage facility. Although a detailed study has not been performed for this report, it is anticipated that the continued operations at the natural gas storage facility would not result in measurable subsidence in the Project area, barring such extraction in the future. Because of the potential for subsidence to occur as a result of construction dewatering, subsidence is considered a potential geologic hazard to the proposed Project.

Expansive Soils – Expansive soils are fine-grained soils (clay) that can undergo a significant increase in volume with an increase in water content and a significant decrease in volume with a decrease in water content. Changes in the water content of an expansive soil can result in severe distress to structures constructed upon the soil. The soils in the Project area consist primarily of coarse-grained sands that are not susceptible to expansion. Therefore, expansive soils are not anticipated to pose a significant hazard to any of the alternative alignments of the proposed Project.

Collapsible Soils – Collapsible soils are soils that undergo settlement upon wetting, even without the application of additional load. Most elements of the proposed Project would be founded in materials that are below the groundwater level and are unlikely to be affected by collapsible soils. Therefore, collapsible soils are not likely to affect any of the alternative alignments of the proposed Project.

Landslides – The same site conditions that are conducive to seismically induced landslides are also conducive to landslides associated with high rainfall or a rise in groundwater and involve slopes underlain by both surficial deposits (generally colluvium) and bedrock. As noted above, the proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. The potential for landslides induced by other mechanisms is not anticipated to pose a significant hazard to any of the alternative alignments of the proposed project. It is not anticipated that the project would cause any slope instability to the adjacent Del Ray Bluffs.

Methane – The proposed project lies within an area delineated by the City of Los Angeles (2004) as a "Methane Zone" indicating the potential for seepage of methane gas to occur in buildings within the Project area. Therefore, methane gas is considered a potential hazard to all of the alternative alignments of the proposed Project, primarily during construction, or at permanent structures, such as vaults, where gas could accumulate.

Mineral Resources – No mineral resources extraction projects in the vicinity of the Project site, therefore no effect on geological resources is expected from construction or operation of the proposed project. With proper mitigation, natural resources occurring within the region include sand as a potential aggregate resource and oil and gas. There are currently no significant sand and gravel mines in the Project area. The proposed Project site lies above the Playa Del Ray oil field (Munger Map Book, 2001). The proposed Project would be constructed in a previously developed area already incompatible with mining, and given the urban setting, there is little or no potential for new production in the area.

The proposed Project is located in an existing urbanized area and is designated by the California Geological Survey (CDMG, 1979) as being in an MRZ-1 and MRZ-3 area. A MRZ-1 area corresponds to "areas where adequate information indicates that no significant mineral deposits are present, or where it is

judged that little likelihood exists for their presence." A MRZ-3 area corresponds to "areas containing mineral deposits the significance of which cannot be evaluated from available data."

None of the alternative alignments of the proposed Project would have an adverse impact on aggregate resources or oil and gas resources in the state of California.

CONSTRUCTION

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. We have also evaluated the impact of the proposed Project on the existing geologic condition of the site.

The Project site is suitable for the proposed construction. It is noted that this is a preliminary site assessment; for any given aspect of the development, final geotechnical conclusions and recommendations should be provided in a separate report after plans become more finalized and the appropriate field investigations have been performed.

5.6.4 Mitigation Measures

The following measures are proposed to mitigate potentially significant geologic hazards to less than significant levels for the Project components. No unavoidable adverse impacts that cannot be mitigated have been identified for any of the Project components. These mitigation measures are more accurately described as project design features and are presented here for clarity.

GEO-1 Earthquake Ground Shaking – The proposed Project and associated facilities will likely be subjected to moderate or strong earthquake motions in their lifetime. The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum. Proper design and construction of the Project components will reduce impacts from ground shaking to less than significant.

GEO-2 Liquefaction and Differential Seismic Settlement – Mitigation measures with respect to liquefaction and differential seismic settlement hazards are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on these potential hazards will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline. The mitigation measures will reduce impacts from liquefaction and differential seismic settlement to less than significant.

GEO-3 Subsidence – Mitigation measures with respect to subsidence as a result of construction dewatering are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on this potential hazard will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or constructing the pipeline in a "wet" excavation. The mitigation measures will reduce impacts from subsidence to less than significant.

GEO-4 Methane – Mitigation measures with respect to methane gas hazards may be necessary for the proposed Project. Site-specific investigations that focus on the potential methane hazard will be

performed as part of the design studies. Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary. The mitigation measures will reduce impacts from methane to less than significant.

GEO-5 Tsunami – A tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment. Proper design and construction of the Project components, including erosion control measures or choosing an alternate alignment off of the beach, will reduce impacts from a tsunami to less than significant levels.

5.6.5 Unavoidable Adverse Impacts

With the implementation of proper engineering practices and mitigation measures prior to and during construction, no unavoidable or adverse impacts on the geologic footprint of this area from the Project are expected.

5.6.6 Cumulative and Secondary Impacts

Cumulative impacts on the geologic footprint of this area are not expected from the Project with the implementation of proper engineering practices and mitigation measure prior to and during construction.

5.7 HAZARDOUS WASTE AND MATERIALS

5.7.1 Environmental Setting

Hazardous wastes are hazardous materials that have been discharged, spilled, contaminated; are being discarded as no longer of practical use, have an expired shelf-life; or are being stored prior to proper disposal.

In compliance with CEQA and the State CEQA Guidelines, a more specific description of types of impacts is considered, including foreseeable accidents involving hazardous materials releases, handling of acutely hazardous materials within a quarter mile of a school (Public Resources Code Section 21151.4), and interference with emergency response plans and emergency evacuation plans. CEQA also requires a search of databases for sites that any agency has identified as having been contaminated by hazardous materials releases (Public Resources Code Section 21092.6). A detailed report is provided in Appendix G of this EIR.

The environmental setting of the Project area is determined by performing a site reconnaissance, researching historical use, storage, or disposal of hazardous materials or petroleum products, reviewing previous environmental reports, and reviewing databases generated by regulatory agencies. The site reconnaissance revealed that most of the properties alongside the proposed alignments are residential.

Abandoned oil wells are located along the proposed alignment routes. Therefore, this section also addresses risks that could result from exposure to toxic chemicals as a result of potential accidental releases of methane gases in quantities sufficient to result in fires or explosions that could cause injury, or the accidental release of hydrogen sulfide (H_2S) gas, an acutely hazardous substance (Figure 5.7-1).

Historical Sanborn Maps were obtained from the Los Angeles Public Library website. The maps dated from 1950 (updated from 1918) and showed most of the proposed alignment route along Pacific Avenue. The east-west trending area displayed extended from the edge of the beach just west of Ocean Front Walk to just east of Ballona Lagoon (Grand Canal). The north-south trending area of coverage extended from 34th (Catamaran) Avenue in the north to roughly the end of Del Rey Lagoon (Lake Del Rey), also showing a portion of Culver Boulevard and the area north of Esplanade to the Los Angeles County boundary. Copies of the maps reviewed are included in Appendix G of this EIR.

Most of the area is depicted as occupied by residential development or undeveloped lots. The area occupied by the VPP is not depicted. The lots shown to the north of Pacific Avenue from 39th (Hurricane) Avenue to 41st Avenue are undeveloped. Oil wells are shown at the terminus of 41st Avenue and at the southeast corner of 41st and Pacific Avenue, as well as across the lagoon between 41st and 42nd avenues. Oil wells and derricks are depicted along the west side of the lagoon, south of 42nd Avenue (with two storage tanks) and 44th Avenue. Almost every city block from Pacific Avenue to Ocean Front Walk is developed with at least one oil well derrick, platform, and/or tank between 38th (Galleon) Avenue to 60th Avenue. The only businesses depicted are an unnamed store at the northwest corner of 49th (Reef) and Pacific Avenues, a life guard station at 66th Avenue and Ocean Front Walk, and a restaurant at 6615 Speedway.

ABANDONED OIL WELL LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.7-1

Data regarding areas of known contamination were obtained from a variety of sources. Consistent with CEQA Section 21092.6, a search of several database lists was conducted to determine if other agencies have identified sites within, or close to, the proposed alignments as having been contaminated by hazardous materials releases.

The database report was provided by Environmental Data Resources, Inc. (EDR) and reviewed to evaluate whether activities on or near the proposed alignments have the potential to create adverse environmental impacts on the proposed project. EDR reviews databases compiled by federal, state, and local government agencies. It should be noted that this information is reported as received from EDR, which in turn, reports information as it is provided in various government databases. It is not practicable to verify the accuracy or completeness of information contained in these databases. However, the use of and reliance on this information is a generally accepted practice in the conduct of environmental due diligence.

Table 5.7-1 describes the regulatory agency databases searched, which have been reviewed for the applicable search distances as specified in American Society for Testing and Materials (ASTM) Standard E1527-00, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process", at a minimum. The complete database report is provided in the Appendix G of this EIR.

The topography in the vicinity of the site slopes generally to the southwest. Surface water flow would generally follow the topographic gradient and flow to the southwest. According to groundwater well data obtained from the Los Angeles County of Public Works, Water Resources Division, deep groundwater flows to the south-southwest. Therefore, sites located generally to the northeast of the proposed alignments are considered to be hydrologically upgradient.

Listed facilities identified close to, or upgradient of, each of the proposed alignments within the database search radii indicated above are identified in Table 5.7-2. The final column in the table assigns a potential for each database listing of a given facility to represent a risk in any proposed alignment. The potential is classified as "Low", "Medium", or "High" based upon the facility's distance relative to the proposed alignments and projected groundwater gradient; and its regulatory status on that particular database. Facility listings representing a moderate or high potential for environmental concern at the proposed alignments are further discussed after the table.

Table 5.7-1 Regulatory Database Descriptions and Corresponding ASTM Search Distances

Type of Database/Date	Description of Database	Radius Searched
Required Federal Database Listings		
NPL	The National Priorities List (NPL) identifies uncontrolled or abandoned hazardous waste sites. To appear on the NPL, sites must have met or surpassed a predetermined hazard ranking system score, been chosen as a state's top priority site, pose a significant health or environmental threat, or be a site where the EPA has determined that remedial action is more cost-effective than removal action.	1.0 mile
CORRACTS	Resource Conservation & Recovery Act (RCRA) facilities ordered to implement corrective actions.	1.0 mile
CERCLIS	The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database identifies hazardous waste sites that require investigation and possible remedial action to mitigate potential negative impacts on human health or the environment.	0.5 mile
RCRA TSDs	RCRA treatment, storage, or disposal (TSD) sites.	0.5 mile
CERCLIS- NFRAP	No Further Remedial Action is Planned (NFRAP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for these sites and they have been removed from CERCLIS list based on findings of site investigations.	Site and Adjoining
RCRA Generators	RCRA regulated hazardous waste generator notifiers list; both large quantity and small quantity generators are included in this list.	Site and Adjoining
ERNS	EPA's Emergency Response Notification System (ERNS) list contains reported spill records of oil and hazardous substances.	Site
Supplemental Federal Database Listings		
CONSENT	Superfund (CERCLA) Consent Decrees by the Department of Justice. Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.	1.0 mile
ROD	Record of Decision (ROD) documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.	1.0 mile
DELISTED NPL	NPL Deletions. The National Oil and Hazardous Substances Pollution Contingency Plan establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 Code of Federal Regulations (CFR) 300.425 (e), sites may be deleted from the NPL where no further response is appropriate.	1.0 mile
DOD	Department of Defense (DOD) Sites. This data set consists of federally owned or administered lands, administered by the DOD, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.	1.0 mile
INDIAN RESERVE	This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.	1.0 mile
FUDS	Formerly Used Defense Sites (FUDS). The listing includes locations of FUDS properties where the USACOE is actively working or will take necessary cleanup actions.	1.0 mile
US ENG CONTROLS	Engineering Controls Sites List. A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.	0.5 mile
ODI	Open Dump Inventory (ODI). An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.	0.5 mile
UMTRA	Uranium Mill Tailings Sites. Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.	0.5 mile
FINDS	The Facility Index System (FINDS) database identifies different databases that contain information regarding federally listed sites.	Site and Adjoining
MINES	Mines Master Index File. Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.	Site and Adjoining
TSCA	Toxic Substances Control Act (TSCA). TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.	Site and Adjoining

Type of Database/Date	Description of Database	Radius Searched
SSTS	Section 7 Tracking Systems. Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the EPA by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.	Site and Adjoining
TRIS	The Toxic Release Inventory System (TRIS) database identifies facilities that release toxic chemical to the air, water, or land in reportable quantities.	Site and Adjoining
FTTS	Tracks administrative cases and pesticide enforcement actions and compliance activities related to the Federal Insecticide, Fungicide, and Rodenticide Act, the TSCA, and the Emergency Planning and Community Right-to-Know Act.	Site and Adjoining
HMIRS	The Hazardous Material Information Reporting System records of spills or hazardous materials incidents reported to the Department of Transportation.	Site
MLTS	Material Licensing Tracking System (MLTS). The MLTS is maintained by the Nuclear Regulatory Commission (NRC) and contains a list of approximately 8,100 sites, which possess or use radioactive materials and which are subject to NRC licensing requirements.	Site
NPL LIENS	Federal Superfund Liens. Federal Superfund Liens. Under the authority granted the EPA by the CERCLA of 1980, the EPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. EPA compiles a listing of filed notices of Superfund Liens.	Site
PADS	Polychlorinated Biphenyl (PCB) Activity Database System. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify the EPA of such activities.	Site
RAATS	RCRA Administration Action Tracking System (RAATS). RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.	Site
Required State Database Listings		
AWP/ Former BEP	Annual Work Plan (formerly known as Bond Expenditure Plan [BEP]) sites – known hazardous waste sites targeted for cleanup. This is the state-equivalent to the NPL.	1.0 mile
CalSites	The CalSites database contains potential or confirmed release properties. This is the state equivalent to CERCLIS.	0.5 mile
VCP	Voluntary Cleanup Program sites – low-threat sites with either confirmed or unconfirmed releases and that have requested DTSC oversight and cleanup activities and have agreed to cover cleanup costs. (Similar to Brownfields sites below)	0.5 mile
TOXIC PITS	Toxic Pits Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.	0.5 mile
STATE LANDFILL	Solid Waste Information System. Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.	0.5 mile
WMUDS/SWAT	State inventory of solid waste disposal and landfill sites.	0.5 mile
LUST	List of information pertaining to all reported leaking underground storage tanks (LUSTs). This includes listings at the state and local level.	0.5 mile
Cortese	The Hazardous Waste & Substances Sites list identifies older LUST sites and sites listed by the Department of Health. It is no longer updated.	0.5 mile
INDIAN LUST	LUSTs on Indian land in Arizona, California, New Mexico and Nevada.	0.5 mile
CA UST	State listing of active underground storage tank (UST) sites.	Site and Adjoining
INDIAN UST	USTs on Indian land in Arizona, California, New Mexico and Nevada.	Site and Adjoining
CA FID UST	State listing of active and inactive UST sites. This list is no longer updated.	Site and Adjoining
HIST UST	State listing of historical UST sites. This list is no longer updated.	Site and Adjoining

Type of Database/Date	Description of Database	Radius Searched
NOTIFY 65	Proposition 65 Notification Records. The NOTIFY 65 list contains facility notifications about any release that could impact drinking water and thereby expose the public to a potential health risk.	Site and Adjoining
CHMIRS	The California Hazardous Material Incident Report System records of spills or hazardous materials incidents.	Site
Supplemental State and Local Database Listings		
SLIC	The Regional Water Quality Control Board issues this list of sites with non-tank spill, leaks, investigations, and cleanups.	0.5 mile
Brownfields	Database of low-threat properties with either confirmed or unconfirmed releases that have requested DTSC oversight and cleanup activities and have agreed to cover cleanup costs. (Similar to VCP sites above)	0.5 mile
DEED	Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.	0.5 mile
City of L.A. Landfills	The City Engineering and Construction Division maintain a list of landfills within city limits.	0.5 mile
L.A. County SWLF	The Los Angeles County Department of Public Works maintains a list of historic, current, and potential landfills within the county.	0.5 mile
WDS	The State Water Resources Control Board generates this list of industrial wastewater dischargers.	Site and Adjoining
HAZNET	Facility and manifest data is gathered for this database from hazardous wastes manifests that are submitted to DTSC.	Site and Adjoining
EMI	Database of facilities reporting toxic and criteria pollutant emissions data to the local air pollution agencies.	Site and Adjoining
NFA	No Further Action Determination. This category contains properties at which DTSC has made a clear determination that the property does not pose a problem to the environment or to public health.	Site and Adjoining
REF	Unconfirmed Properties Referred to Another Agency. This category contains properties where contamination has not been confirmed and which were determined as not requiring direct DTSC Site Mitigation Program action or oversight. Accordingly, these sites have been referred to another state or local regulatory agency.	Site and Adjoining
SCH	School Property Evaluation Program. This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.	Site and Adjoining
NFE	Properties Needing Further Evaluation. This category contains properties that are suspected of being contaminated. These are unconfirmed contaminated properties that need to be assessed using the PEA process. PEA in Progress indicates properties where DTSC is currently conducting a PEA. PEA Required indicates properties where DTSC has determined a PEA is required, but not currently underway.	Site and Adjoining
Dry Cleaners	EDR compiles a database of dry cleaning facilities based on their having a hazardous waste generator ID and certain SIC codes.	Site and Adjoining
L.A. County HMS	The Los Angeles County Department of Public Works maintains a listing of files they maintain for sites with USTs or facilities with industrial wastewater permits.	Site and Adjoining
Site Mitigation List	The L. A. County Department of Public Health maintains a listing of industrial sites that have had some sort of spill or complaint.	Site and Adjoining
AST	Registered Aboveground Storage Tanks.	Site

Table 5.7-2 Regulatory Database Findings for Proposed Venice Force Main Alignments

EDR Map ID	Facility Name Address	Proximity to Via Marina Alignment Alternative	Proximity to Pacific Ave Alignment Alternative	Proximity to Beach Alignment Alternative	Database Lists	Description	Current Agency Status	Recognized Environmental Condition Potential
5	LA Pumping Plant #46 140 Hurricane Street	On site	On site	On site	RCRS-SQG	Small quantity generator of hazardous waste	No violations reported	Low
					Notify 65	Site has notified the State Water Resources Control Board that a release of hazardous substances could potentially impact drinking water	Not applicable-notification only	Low
					FINDS	Included on RCRIS	Not provided	Low
18	7332 Vista Del Mar	On site	On site	On site	ERNS	Sewer collapsed on 4/17/1992; release to land only.	Not provided	Low
7	Timberlake Group Int'l 4100-5000 Pacific	Approx. 900 feet. southwest	On site	Approx. 500 feet northeast	CA SLIC	Total petroleum hydrocarbons (TPH) contamination	Case closed	Low
11	S. California Gas Co. 5400 Pacific Avenue	Approx. 900 feet. southwest	On site	Approx. 500 feet northeast	CA SLIC	TPH contamination	Case closed	Low
					HAZNET	Generator of contaminated soil from site cleanup	Not provided	Low
Unmapped	S. California Gas Co. 143 Union Jack	Approx. 700 feet southwest	Approx. 200 feet northeast	Approx. 700 feet northeast	CA SLIC	TPH contamination	Case closed	Low
12	OHN Kearney 6512 Pacific Avenue	Approx. 1000 feet southwest	On site	Approx. 400 feet northeast	HAZNET	One-time generator of asbestos-containing waste.	Not provided	Low
8	Unocal #0407 13800 Bora Bora Way	Approx. 0.25 mile east	<0.25 mile east	<0.25 mile east	Cortese	Leaking UST site	Not provided	Low
					LUST	Release of gasoline to groundwater in 1991 as a result of piping failure. Methyl tert-butyl ether (MTBE) detected.	Case closed in 1997	Low
9	Unocal Corp SS 0407 1 Bora Bora Way (File review indicates actually same location as above)	Same as above	Same as above	Same as above	CA FID UST	UST location	Active	Low
9	Service Station No. 1 Bora Bora Way (Same as above)	Same as above	Same as above	Same as above	HIST UST	Historic UST site with 10,000-gallon Product 10,000-gallon Premium 10,000-gallon Unleaded 10,000-gallon Diesel (1) 550-gallon Waste oil (1) Unidentified contents	Not provided	Low

EDR Map ID	Facility Name Address	Proximity to Via Marina Alignment Alternative	Proximity to Pacific Ave Alignment Alternative	Proximity to Beach Alignment Alternative	Database Lists	Description	Current Agency Status	Recognized Environmental Condition Potential
9	Pegasus Carriers, Inc. (Same as above)	Same as above	Same as above	Same as above	RCRIS-SQG	Small Quantity Generator of hazardous waste	No violations reported	Low
					FINDS	Identified on RCRIS	Not provided	Low
3	Via Dolce Acquisition Area 3 3700-3706 Canal North-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	CA SLIC	TPH contamination	Case closed	Low
3	Via Dolce Acquisition Area 2 3600-3615 Canal North-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	CA SLIC	TPH contamination	Case closed	Low
4	Via Dolce Acquisition Area 1 3602 Pacific Avenue Northwest	Approx. 1000 feet northwest	Approx. 1000 feet northwest	Approx. 1000 feet northwest	CA SLIC	TPH contamination	Case closed	Low
10	Southern California Gas Company 5101 Ocean Front Walk West	Approx. 200 feet southwest	Approx. 1200 feet southwest	Less than 100 feet northeast	CA SLIC	TPH contamination	Case closed	Low
14	Del Rey Cleaners 310 Culver Blvd. Northeast	Approx. 200 feet northeast	Approx. 200 feet northeast	Approx. 2000 feet southeast	CA SLIC	Perchloroethylene, VOC (volatile organic compounds) release from non-tank source	Site assessment	Moderate
					RCRIS-SQG	Small quantity generator of hazardous waste	No violations reported	Low
					FINDS	Identified on RCRIS	Not provided	Low
					HAZNET	Generator of hazardous waste: Halogenated solvents; Liquids with halogenated organic compounds >1,000 milligrams per liter.	Not provided	Low
					Cleaners	Dry cleaning establishment	Not provided	Low

According to records, there are a few hazardous materials-related sites on, or near, the proposed alignments. These have a low potential to have impacted the proposed alignments, unless contamination not yet discovered and abated is encountered during construction.

One site, Del Rey Cleaners, located approximately 200 feet north of the intersection of Culver Boulevard and Pacific Avenue, is reportedly currently undergoing site assessment activities. It is possible that contamination from that site may have migrated to the proposed alignments near Culver Boulevard. Precautions should be taken in this area to monitor for concentrations of dry cleaning fluids that may be present in the soils disturbed during construction.

The potential for facilities located more than 0.25 mile from the proposed Project alignments to have contaminated an alignment is considered low based on the relative distance of those facilities from the Project area and/or regulatory status.

5.7.2 Thresholds of Significance

A significant hazardous materials impact would occur if either direct, or indirect, changes in the environment caused by a particular Project alignment construction alternative would potentially result in one or more of the following conditions:

- Create a substantial hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a substantial hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites and as result create a substantial hazard to the public or the environment; and/or
- Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.

5.7.3 Environmental Impacts

The proposed Project could pose potentially significant hazard impacts. These include the potential for exposure to gas leaking from abandoned wells in areas excavated during the Project, and/or potential effects from accidental releases of hazardous substances during construction.

OIL WELL FIELD HAZARDS

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations).

As part of the existing environment, hazardous materials and wastes may be encountered at each of the abandoned oil wells within the surrounding residential community. H_2S and other odorous substances,

such as methyl mercaptan, benzene, as well as other aromatic hydrocarbons, are all byproducts of natural gas production. These toxins may be present at active or abandoned wells.

There are three types of gas that may exist within the geological and soil units underlying the Project area: biogenic (or swamp) gas, thermogenic (field) gas, and processed natural gas (or piped gas). Biogenic gases are not toxic at low (ppm) levels; however, they act as asphyxiants at high concentrations. Biogenic gases contain trace quantities of other chemicals which are toxic at low levels (in the ppm range), including benzene, toluene, ethylbenzene, and xylenes (BTEX).

Thermogenic gas and butane, as well as trace amounts of toxic gases, including H_2S, exhibit distinct chemical characteristics, which permit "fingerprinting" or differentiation between gas types. In addition to lacking heavier gas components (propane, butane, ethane, etc.), the presence of helium in detectible amounts is a primary fingerprint for natural gas imported from the central United States and previously stored in the deep storage zone.

Migration Pathways – Natural gas can migrate via a variety of manmade structures through the subsurface soil both vertically and laterally. The most common manmade structures that may serve as conduits include:

- Old abandoned oil and gas wells or dry holes;
- Previously undocumented wells and dry holes;
- Recently plugged and abandoned oil and gas wells (abandoned in accordance with current CDOGGR regulations);
- Existing water extraction or injection wells;
- Old abandoned water wells;
- Monitoring wells;
- Utility trenches;
- Stormdrain systems; and
- Sewer lines.

Gas can also reach the surface through natural geologic features, which may facilitate migration. The geologic features most likely to serve as potential pathways include:

- Surficial deposits;
- Porous and permeable formations;
- Aquifers;
- Fracture systems;
- Fault planes; and
- Other geologic features and structures, such as unconformities.

The potential for gas migration to reach the surface is considered to be the greatest through or along human-made structures as geologic pathways are relatively "tight" and provide less space to facilitate migration. Within the Project area, wells penetrate shallow and deep gas zones at various depths. While a poorly constructed or abandoned well can serve as a conduit for upward migration of natural gas, even when proper construction and abandonment methods have been applied, such conduits can develop as wells deteriorate over time.

RISK OF EXPLOSION

The generation, transmission, and distribution of natural gas may pose a risk of explosion. Natural gas has a flammable property that needs to be strictly regulated in order to reduce the risk of explosion to the public and the environment. Explosion can occur as a result of leakage from abandoned wells and pipelines, and/or from third party interaction with the wells, transmission lines, and distribution lines. In addition, releases of gas from the abandoned wells may occur if construction activities accidentally puncture an abandoned well, leading to a possible explosion.

POTENTIAL SPILLS OR RELEASES

Land uses along the proposed alignment alternatives include mostly single- and multiple-family residences and a restaurant. Types of hazardous materials associated with these activities would typically include mostly common household janitorial supplies.

Potential impacts associated with increases in hazardous materials use and hazardous waste generation can result from hazardous materials releases during handling or transport, interference with emergency response plans, and limited hazardous waste disposal capacity.

An increase in hazardous materials use and hazardous waste generation during construction would increase the chances of a spill or release of hazardous substances. If a spill were to occur, emergency response procedures would be implemented to contain and clean up the spill. There are regulations in place regarding such procedures, and provisions would be in place from the onset of Project activities in order to eliminate, or at least minimize, potential spills and releases that might create a hazard to the public or the environment, or result in contamination of soil or groundwater. Therefore, impacts would be less than significant.

EXPOSURE TO CONTAMINATION

During construction, there is the potential for the disturbance of contaminated soils and groundwater that could pose a risk of exposure to construction workers, the public, and the environment as contaminants may be encountered during excavation activities. These contaminants would be expected to be petroleum-related substances given the extensive oil well development in the area; or, as discussed above, there is the possibility of contamination from other sources, such as dry cleaning establishments.

In addition, emissions of diesel particulate matter from the construction equipment would result in increased exposure near the construction activities. However, these emissions would be temporary and would not contribute significantly to chronic long-term exposure. Ongoing compliance with regulatory requirements under any alternative would provide an environment in which workers, visitors, and tenants located in, and near, the Project site would be protected.

There are a few electrical transformers located along the portions of the proposed alignments located along city streets. Should project activities require disturbance or relocation of these units, the Los Angeles Department of Water and Power records should be consulted to ascertain the potential polychlorinated biphenyl (PCB) content of the units. PCBs were commonly used in fluids contained in electrical equipment, primarily transformers and capacitors, and are known to have toxic and carcinogenic health effects. Manufacture of PCBs was completely banned in the U.S. in January 1979, and their

distribution in commerce was prohibited effective July 1979. Regulations require workers to wear protective clothing or equipment to protect dermal contact or inhalation of PCBs or materials containing PCB materials. All disposal activity of PCB material must adhere to EPA regulations. Disposal of PCB liquid and waste are also regulated at the state level.

HAZARDOUS WASTE GENERATION

Hazardous wastes generated during construction activities for each of the alignments would include miscellaneous motor vehicle fluids, potentially contaminated soil, and spent materials used during construction; such as fuels, lubricants, paints, and solvents. Hazardous wastes generated during project activities should be removed by licensed waste haulers and transported for treatment, disposal, or recycling at authorized off-site facilities.

TRANSPORTATION AND DISPOSAL OF HAZARDOUS MATERIALS AND WASTES

Transportation of hazardous materials and hazardous wastes is strictly regulated by federal and state laws. These laws include the Hazardous Material Transportation Act of 1994, administered by the United States Department of Transportation (USDOT), which includes standards for classification of hazardous materials, labeling, and placarding of containers, and vehicles, vehicle equipment standards, training of transport personnel, and incident reporting.

5.7.4 Mitigation Measures

The following mitigation measures are included in the project to reduce its impacts on hazards and hazardous material to below a level of significance for each of the alignments:

HAZ-1 A surface sweep is a method for measuring combustible vapors which may be emitted from the ground surface. The technique utilizes a sensitive portable gas detector, called a flame ionization detector (FID) to detect methane. The FID is capable of measuring methane concentrations as low as several ppm. When conducting the surface sweep, more attention can be taken in areas where underground gas would tend to exit the surface, such as at cracks in the ground.

Surface sweep measurements are intended to identify any flow of gas from the surface of the ground. Finding such “advective” flow is a good indicator of potential pressurized flow of undiluted gas in the soil.

HAZ-2 The City of Los Angeles Building Code requires that methane mitigation be implemented when construction occurs at these sites to ensure public safety. These measures include the installation of membrane barriers and vent piping, as well as trench dams and electrical seal-offs for each of these properties. Since these measures would already be required by City regulation, no additional mitigation measures are required.

Continued compliance with the many federal, state, and local requirements pertaining to the handling of hazardous materials/wastes would maintain acceptable levels of health and safety. These regulatory requirements are specifically designed to avoid any unauthorized and uncontrolled releases of hazardous materials to the environments and protect workers who may be exposed to hazardous materials/wastes, as well as provide a level of safety for the general public.

Strict compliance with local, state, and federal regulatory requirements provides the primary method of mitigating against hazardous waste impacts.

Handling of contaminated materials encountered during construction of any of the alignments should be coordinated centrally in order to ensure compliance with all applicable regulations. Construction bid documents should incorporate provisions for identification, segregation, handling and disposal of contaminated materials. In addition, bid documents should require all construction contractors to prepare site-specific Health and Safety Plans.

5.7.5 Unavoidable Adverse Impacts

Provided that all federal, state, and local regulations pertaining to project activities are followed and project-specific Health and Safety and Emergency Response Plans are developed and implemented, significant or long-term adverse impacts will be avoided.

5.7.6 Cumulative and Secondary Impacts

The three main aspects of hazardous materials addressed in this analysis are (1) the use, storage, transport, and disposal of hazardous materials and waste; (2) hazardous materials contamination and remediation; and (3) hazardous building materials.

Development of any of the proposed alignments would result in increased use of hazardous substances such as fuels, cutting fluids, other lubricants, solvents, and waste oils. The increase in the presence of these substances could increase the chances of a spill or release of hazardous substances during handling or storage. The use of hazardous materials and the generation of hazardous wastes from the construction activities would also increase the transportation of hazardous materials and hazardous wastes on public roadways. The likelihood of an accident involving hazardous materials or wastes would therefore increase, resulting in a greater potential for people and the environment to be exposed to these substances.

These alternatives would also increase demand for hazardous waste disposal capacity. During the extensive construction activities associated with each of the alignment alternatives, it is possible that contaminated soils would be unearthed, potentially exposing construction workers or the public to hazardous materials. However, this material will be collected, put in containers and disposed of at a Class 1 Landfill.

Proper packaging and handling of hazardous materials and wastes, coupled with employee training and emergency response, would reduce potential cumulative impacts of increased ground transport of hazardous materials/wastes to a level that is less than significant. With respect to the cumulative demand for treatment, recycling, and disposal, because sufficient capacity is expected to be available, the impact of cumulative increases is hazardous.

5.8 HYDROLOGY, WATER QUALITY / STORMWATER RUNOFF

5.8.1 Environmental Setting

The VPP Project is located within the Ballona Creek Watershed (watershed). The watershed is located on the coastal plain in the western portion of the Los Angeles Basin with the Santa Monica Mountains on the north and the Baldwin Hills on the south. Ballona Creek flows downstream from the Santa Monica Mountains through the City of Culver City and flows into the ocean at Playa Del Rey. Except for its estuary, Ballona Creek is a concrete-lined channel extending through a complex underground storm drainage system that drains approximately 130 square miles of urban developed land area. Tributaries of Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel, and numerous other stormdrains all of which are either concrete channels or underground box culverts.

Cities within the watershed area consist of Culver City, Beverly Hills, West Hollywood, parts of Santa Monica, parts of Inglewood, parts of Los Angeles and portions of unincorporated areas of Los Angeles County. Adjacent to the downstream portion of the Ballona Creek Channel are the Marina Del Rey Harbor, Ballona Lagoon and Venice canals, Del Rey Lagoon and Ballona Wetlands. These waterbodies do not discharge into Ballona Creek, but are grouped as waterbodies in this subwatershed because of their proximity and various forms of hydrological connection to Ballona Creek (Los Angeles RWQCB, 2004).

Portions of the watershed are underlain by oil deposits. In 1892, extraction of oil began in the watershed, with the discovery of oil in Echo Park. In subsequent decades, oil wells were drilled throughout portions of the watershed. Initially, production was generally limited to downtown Los Angeles, but exploration continued to move west. With the discovery of the Inglewood oil field in 1924, production began in and around the Baldwin Hills. Oil was discovered in the Venice area in 1930, which initiated an oil boom along the coast. Today, the Project area is dotted with sixty-nine plugged and abandoned oil wells.

The watershed is within the Mediterranean climate zone of California, which is characterized by wet winters and long dry summers. The proximity and steep rise of the San Gabriel Mountains from the coast creates a barrier that traps moist ocean air against the mountain slopes and partially blocks summer heat coming from the desert and winter cold coming from the interior northeast. Average daytime summer and winter temperatures range from 71/63°F at the coast. The long-term annual rainfall average along the coast is 12.5 inches with most precipitation falling in a few major storm events between November and March. Most winter storms come from the northwest, moving across southern California into Arizona. Typical storms in the watershed bring ¾ inch or less of rainfall. Storms from the south or southwest are less common, but because they may stall off the coast, they may bring 3 to 6 inches of rain over portions of the watershed. Summer rains are rare, but when they occur, they are a result of tropical thunderstorms originating in the Gulf of Mexico or late summer hurricanes off the West Coast of Mexico.

Most of the storm drainage system, within the watershed, is managed through flood control structural features consisting of debris basins, storm drains, underground culverts, and open concrete channels. Many of these flood control features were designed and implemented by the USACOE. Ballona Creek is an underground box culvert throughout the eastern portion of the watershed, then converting to an open channel near the vicinity of Venice Boulevard and Pickford Street, and continuing downstream for approximately 9 miles to Santa Monica Bay. Only a few channels remain open for major portions of their length, including the Sepulveda Wash and Centinela Creek. Natural, undisturbed streams are located

primarily within the Santa Monica Mountains and Baldwin Hills area, where the water flow is seasonal and the channels are small. A few channels within major canyons area have been channelized and remain open channels, including Stone Canyon Creek.

Due to historical modification to Ballona Creek and its tributaries, natural hydrologic conditions have been significantly modified within the watershed. Today, approximately 40 percent of the watershed is covered with impervious surfaces and therefore, runoff enters the Ballona Creek and its tributaries at a more accelerated rate, and in greater volume than in prior years due to an increase in urban development. Since most channels are concrete-lined or within underground box culverts, the natural processes of erosion and sedimentation runoff have been altered. Under current conditions, eroded sediment material is transmitted downstream to the mouth of Ballona Creek where it collects and causes periodic closure of the public boating facility entrance at Marina Del Rey.

The construction of levees along portions of Ballona Creek and the construction of Marina Del Rey have significantly reduced the extent of tidal wetlands, and tidal flushing in the estuary and associated lagoons (i.e., Del Rey Lagoon and Ballona Lagoon). With an increase of imported water supply and an increase of landscape material to the area, surface runoff from irrigation systems has resulted in year-round flow conditions within most channels which are typically dry throughout most of the year.

Groundwater resource is located under most of the Ballona Creek Watershed area in groundwater formations known as the West Basin and a small portion of the Central Basin under the southeastern portion of the watershed. Groundwater in the Ballona Creek Watershed is replenished by percolation of rainfall and stream flow from the Santa Monica Mountains to the north and the Baldwin Hills to the south. With approximately 40 percent of the watershed covered by impervious surfaces and concrete lining most tributary channels, the land area open to direct infiltration of rainfall and percolation from stream channels has been substantially reduced (Los Angeles Department of Public Works, 2004).

The Water Quality Control Plan for the Los Angeles Region identifies the following beneficial uses for Ballona Creek, the Ballona Creek Estuary, the Ballona Lagoon, the Venice canals and the Del Rey Lagoon within the project area as shown in Table 5.8-1:

Table 5.8-1 Beneficial uses for Ballona Creek, Ballona Creek Estuary, Ballona Lagoon, Venice Canals and Del Rey Lagoon

• Navigation	• Migration of aquatic organisms
• Recreation	• Spawning/reproduction/early development
• Commercial and sport fishing	• Shellfish harvesting
• Estuarine habitat	• Warm freshwater habitat
• Marine habitat	• Municipal and domestic supply
• Rare, threatened or endangered species	

Source: Water Quality Control Plan for Los Angeles Region

Under Section 303(d) of the CWA, the proposed Project is required to identify the water bodies that do not meet water quality objectives necessary to support designated beneficial uses. Water bodies that have been identified as impaired are often referred to as the "303(d) List". Once a water body has been deemed impaired, a total maximum daily load (TMDL) must be developed for each water quality constituent that

compromises a beneficial use. A TMDL is an estimate of the total load of pollutants that a water body may receive without impairing applicable water quality standards.

The VPP is located within the area of Venice Beach, Venice canals, Marina Del Rey, Marina Del Rey Channel, Ballona Creek and its estuary, the Del Rey Lagoon and Dockweiler State Beach. Table 5.8-2 below summarizes the 2002 303(d) (approved by EPA in 2003) listings for these water bodies, as well as the associated TMDL completion dates.

Table 5.8-2 2002 CWA Section 303(D) Listed water bodies in the project area

Name	Pollutant/Stressor	Potential Sources	TMDL Priority	Est. Size Affected	Proposed TMDL Completion
Ballona Creek	Cadmium (sediment)	Nonpoint/Point Source	High	6.5 miles	2004
	ChemA (tissue)	Source Unknown	High	6.5 miles	2004
	Chlordane (tissue)	Nonpoint/Point Source	High	6.5 miles	2004
	Copper, Dissolved	Nonpoint Source	High	6.5 miles	2004
	Dichlorodiphenyltrichloroethane (DDT) (tissue)	Nonpoint/Point Source	High	6.5 miles	2004
	Dieldrin (tissue)	Nonpoint/Point Source	High	6.5 miles	2004
	Enteric Viruses	Nonpoint/Point Source	High	6.5 miles	2003
Ballona Creek Estuary	Chlordane (tissue & sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	DDT (sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	High Coliform Count	Nonpoint/Point Source	High	2.3 miles	2003
	Lead (sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	PAHs (sediment)	Nonpoint/Point Source	Low	2.3 miles	2004
	PCBs (tissue & sediment)	Nonpoint/Point Source	High	2.3 miles	2004
	Sediment Toxicity	Nonpoint/Point Source	High	2.3 miles	2004
Marina Del Rey Harbor Beach	Beach Closures	Nonpoint/Point Source	High	.29 miles	2003
	High Coliform Count	Nonpoint/Point Source	High	.29 miles	2003
Dockweiler Beach	Beach Closures	Nonpoint Source	High	4.6 miles	2002
	High Coliform Count	Nonpoint Source	High	4.6 miles	2002
Venice Beach	Beach Closures	Nonpoint Source	High	2.5 miles	2002
	High Coliform Count	Nonpoint Source	High	2.5 miles	2002

The Regional Board has adopted a trash TMDL (zero trash in the water) for the Ballona Creek and wetland, a metal TMDL for Ballona Creek, and at toxic pollutants TMDL for the Ballona Creek Estuary. The metals and toxic pollutant TMDLs are summarized Table 5.8-3 and 5.8-4 on the following page.

Dry-weather numeric targets are expressed in terms of dissolved and total recoverable fraction.

Table 5.8-3 Metals TMDL (Dry-Weather Numeric Targets)

Metal	Target* (µg/L) Dissolved	Conversion Factor	Target (µg/L) Total Recoverable
Copper	23	0.96	24
Lead	8.1	0.631***	13
Selenium**	---	---	5
Zinc	300	0.986	304

**Freshwater targets are based on a hardness of 300 µg/L*
***Selenium is expressed in the total recoverable form*
****Conversion factor is hardness dependent, based on a hardness of 300 µg/L*
Source: Los Angeles RWQCB, May 31, 2005
µg/L – micrograms per liter

Wet-weather numeric targets expressed in terms of dissolved and total recoverable fraction.

Table 5.8-4 Metals TMDL (Wet-Weather Numeric Targets)

Metal	Target* (µg/L) Dissolved	Conversion Factor	Target (µg/L) Total Recoverable
Copper	11	0.62	18
Lead	49	0.829***	59
Selenium**	---	---	5
Zinc	94	0.79	119

**Freshwater targets are based on a hardness of 77 µg/L.*
***Selenium is expressed in the total recoverable form*
****Conversion factor is hardness dependent, based on a hardness of 77 µg/L*
Source: Los Angeles RWQCB, May 31, 2005

Numeric targets for sediment quality in Ballona Creek and Estuary as shown in Table 5.8-5 below.

Table 5.8-5 Numeric Targets for Sediment Quality in Ballona Creek and Estuary

Organics	Numeric Target for Sediment
Chlordane	0.5 micrograms per kilogram (µg/kg)
Total DDT	1.58 µg/kg
Total PCBs	22.7 µg/kg
Total PAHs	4,022 µg/kg
Metals	Numeric Target for Sediment
Cadmium	1.2 milligrams per kilogram (mg/kg)
Copper	34 mg/kg
Lead	46.7 mg/kg
Silver	1.0 mg/kg
Zinc	150 mg/kg

Since only the cities of Beverly Hills and Santa Monica use groundwater for domestic water supplies, information regarding groundwater quality in most of the watershed is limited. “Hard” water (water with high levels of dissolved solids, which contribute to the formation of calcium and other deposits on shower walls and other surfaces), is common throughout southern California. Other contaminants from urban land uses may also be present in groundwater such as volatile organic compounds (VOCs), hexavalent

chromium (or Chromium 6), and N-nitrosodimethylamine (NDMA) from industrial activities and nitrates from the use of fertilizers and septic tanks. In 1996, the discovery of a gasoline additive, methyl tert-butyl ether (MTBE) in groundwater extracted from a well in the City of Santa Monica prompted the shutdown of City wells and lead to the removal of MTBE from gasoline. However, the extent of possible MTBE contamination in soil and/or groundwater in the watershed is currently unknown (Los Angeles Department of Public Works, 2004).

5.8.2 Thresholds of Significance

The proposed Project would cause a significant impact to the hydrologic (surface water) if conditions from the Project would:

- Result in flood damages from a 50-year or greater storm even and have the potential to cause significant impact to the general public and environmental resources;
- Result in a substantial reduction or increase in the amount of surface water associated in a water body; or
- Result in a permanent or adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow.

The proposed Project would cause a significant impact on surface water quality if discharges associated with the Project would:

- Result in creating an increase to pollution, contamination or nuisance as defined in Section 13050 of the California Water Code or that cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body.

The proposed Project would cause a significant impact to groundwater resources if it would:

- Result in a change in available potable water supply levels due to:
    - A significant reduction in the groundwater supply and the inability of a water supply agency to use the groundwater resources for public water supplies, conjunctive use purposes, storage of imported water, summer/winter peaking, or to respond to emergencies and drought;
    - Reduced yields of adjacent wells or well fields (public or private); or
    - Adversely change the rate or direction of flow of groundwater; or
    - Result in a demonstrable and sustained reduction of groundwater recharge capacity.

The proposed Project would cause a significant impact on groundwater quality if it would:

- Result in a change to the rate or direction of movement of existing contaminants;
- Result in the expansion of an area affected by contaminants;
- Result in an increased level of groundwater contamination (including that from direct percolation, injection or salt water intrusion); or
- Result in regulatory water quality standards at an existing production well to be violated, as defined in the CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act;
- Result in a changed condition to the surface water hydrology;
- Result in causing minor flooding during a projected 50-year developed storm event. However, it would not likely have the potential to harm people or damage property or sensitive biological resources;

- During construction and in the case of dewatering, result in a potential increase to the amount of surface water into local water bodies; and
- The proposed Project would not result in a permanent, adverse change to the movement of surface water sufficient to produce a substantial change in the current or direction of water flow. The proposed Project is located within an urban developed area.

SURFACE WATER QUALITY THRESHOLDS OF SIGNIFICANCE

It is technically infeasible that completion of the proposed Project, within any of the proposed three alternative locations, will cause any unwarranted discharge that would affect the current surface water quality condition. Unless there is a catastrophic event (e.g., high magnitude earthquake) the proposed Project is designed to provide additional mitigation of possible sewage spills from the existing pumping station/sewer main system.

During construction, the surface water quality condition may be affected by discharges associated with the Project including accidental spills, dewatering, construction maintenance and storage, equipment parking, spoil pile and debris stockpiles. Miscellaneous nuisance water flows may also be discharged during the construction of this project at the location of the jacking pits. These possible discharges would be managed as required by the project-specific construction SWPPP.

GROUNDWATER CONDITIONS

Implementation of the proposed Project would not extend into a groundwater aquifer nor would it involve the pumping of any water from an underlying aquifer. Therefore, the proposed Project is not expected to cause any adverse impact to groundwater resources.

Perched groundwater, however, may likely be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer.

EXISTING GROUNDWATER CONDITIONS

The proposed Project lies within the Santa Monica Sub-basin in the northwestern part of the Coastal Plain of the Los Angeles Groundwater Basin. The Santa Monica Sub-basin is bounded by the Santa Monica Mountains on the north, the Ballona Escarpment on the south, the Pacific Ocean on the west, and the Newport-Inglewood Fault to the east. The Santa Monica Sub-basin includes several distinct aquifers in the vicinity of the proposed Project, the semiperched aquifer, the Ballona aquifer, and the Silverado aquifer.

The shallowest aquifer within the vicinity of the Project area is the semiperched aquifer, which is found to consist of coarse sands and gravel material that are at or near the ground surface [California Department of Water Resources (CDWR), 1961]. The semiperched aquifer varies in regional depth from zero to approximately 60 feet and in some instances may contain significant amounts of unconfined water with more than 20 feet in depth. The semiperched aquifer is considered of little beneficial use because wells in the aquifer yield very small quantities of water (CDWR, 1961). The semiperched aquifer is confined

from the underlying aquifer by the Bellflower Aquiclude, which consists of sediments of lower permeability that restrict vertical movement of groundwater (CDWR, 1961). The Bellflower Aquiclude is estimated to be less than 20 feet in depth in the Project area.

The Ballona aquifer is estimated to be located beneath the Bellflower Aquiclude and the Project area at a depth of approximately 40 to 60 feet below the ground surface (elevations -30 to -50 feet) and is estimated to vary in depth from approximately 10 to 30 feet within the Project area boundary (CDWR, 1961). The Silverado aquifer is merged with the Ballona aquifer within the Project vicinity (CDWR, 1961). The base of the Silverado aquifer is estimated to lie at a depth of approximately 110 feet below the ground surface (elevation -100 feet). The Silverado aquifer is a main groundwater producing unit in the Santa Monica Sub-basin.

Historical regional data have recorded the highest groundwater level, within this area, to be as high as approximately 5 feet below the ground surface (CDMG, 1998). Recent geotechnical studies conducted for the proposed Project have documented the current groundwater levels to be estimated at a depth of approximately 10 to 15 feet below the ground surface (URS, 2000a; 2000b).

GROUNDWATER LEVEL THRESHOLDS OF SIGNIFICANCE

The proposed Project will be constructed within a developed, urban area and located within the coastal zone. It is not proposed that this Project will have any significant impact to surface water quality thresholds of significance are described in Section 5.8.2., of this document. The groundwater within the Project area boundary is not used as a potable water source.

GROUNDWATER QUALITY THRESHOLDS OF SIGNIFICANCE

The proposed Project is located within a historical, developed coastal zone with land uses consisting of residential, industrial and recreation areas. The Project will maintain the City of Los Angeles compliance with the NPDES Municipal Separate Storm Sewer System (MS4) Permit. The permit requires that the permittees (City of Los Angeles) maintain their current sanitary sewer systems in order to prevent accidental discharges. Without the proposed Project, the existing sanitary sewer system cannot be adequately maintained without causing a disruption in service to the users (the local public).

- The proposed Project will be located within saturated subgrade soils and it is unlikely to affect the rate or change the direction of movement of existing contaminants. The proposed Project is not designed to restrict, impede or delineate movement of existing groundwater contamination. The proposed Project is designed to minimize and/or prevent the risk of accidental sewage releases into the local waterways and/or groundwater.
- The proposed Project is not designed to further expand the area currently affected by known contaminants.
- The completed Project would not result in an increased level of groundwater contamination (including that from direct percolation, injection or saltwater intrusion). The location of this Project, in reference to the ocean and local waterways, provides for a very high watertable. During construction, there is a possibility that an accidental pollutant release could contaminate a localized groundwater area.
- The proposed Project will not impact any existing production wells, as defined in the CCR, Title 22, Division 4, Chapter 15 and in the Safe Drinking Water Act.

5.8.3 Environmental Impacts

All proposed alternatives will cause similar construction operations impact to the project boundary and adjacent area. The completed Project will be in compliance with the NPDES Municipal Separate Storm Sewer System (MS4) Permit and meet the necessary sanitary sewer service standards. Without the installment of the new sanitary sewer main, the current sanitary system will continue to deteriorate and run a high risk of overflowing the system, cause a potential break in the system, and cause a potential health risk to the local waterways.

From a hydrology and water quality position, all alternatives cause a similar temporary disturbance to the current site conditions. All three proposed alignments cross under the Marina Del Rey Channel and Ballona Creek via tunneling, and the Marquesas Way alignment crosses under the Grand Canal via tunneling. Tunneling would occur below the bottom of these waterways, and have no effect on the waterways.

5.8.4 Mitigation Measures

The following mitigation measure has been added to the project to minimize the proposed Project's impacts on water quality and hydrologic conditions.

H/WQ-1 Appropriate BMP measures (sandbags, plastic lining covering stormwater inlets, temporary detentions basins, etc.) will be implemented during the construction period to retain excavated soil material on site and minimize the potential risk of contaminated soil being removed off site. Also, monitoring activities will be conducted during the installation of the BMP measures and throughout the construction period.

5.8.5 Unavoidable Adverse Impacts

Provided that all federal, state, and local regulations pertaining to Project activities are followed accordingly and stormwater prevention plans are implemented and monitored, then the potential for significant or long-term adverse impacts should be avoidable.

5.8.6 Cumulative and Secondary Impacts

The Project area is not within a sensitive environmental setting. Change to the existing site conditions will be temporary and the site will be restored back to a similar pre-construction condition. Pre- and post-construction hydrologic conditions will be similar and any change in condition will be minimal. All proposed alternatives have similar construction applications and procedures and no one alternative is superior to another. Therefore, there are no foreseen hydrologic or water quality cumulative or secondary impacts.

5.9 LAND USE PLANS

5.9.1 Environmental Setting

The Project lies within the bounds of Los Angeles County and the City of Los Angeles. Within these two jurisdictions, each community has a local land use. The Community Plans in this Project area are designed to ensure that each area within the City meets the state requirements of the California Coastal Act.

EXISTING LAND USES

Existing land uses within the Venice area, extending north from Via Marina Way on the south, consist of six major land-use designations: single- and multi-family residential, commercial, industrial, open space, and public utilities. The proposed alignments north of the Marina Del Rey Channel and on the southeast side of the Ballona Lagoon are in areas zoned single and multi-family residential. Areas to the west are zoned open space along the Ballona Lagoon and low to medium residential. The area surrounding the VPP is primarily zoned multi-family residential to the north, and open space on the south along the Ballona Lagoon. Along the alternative alignments south of the channel, and under consideration by the City, the zoning is also primarily residential and light commercial.

The proposed new force main does not require a zone change, as the Project is a component of the municipal infrastructure and is a not a land use, nor does the proposed Project require a change in a land use.

Land uses within the Westchester/Playa Del Rey are and adjacent to the Project footprint include public facility open space. There are no land use impacts associated with this Project because the Project will not require changes to the land uses designated in Westchester/Playa Del Rey land use map.

5.9.1.1 Relationship to Regional and/or Local Plans

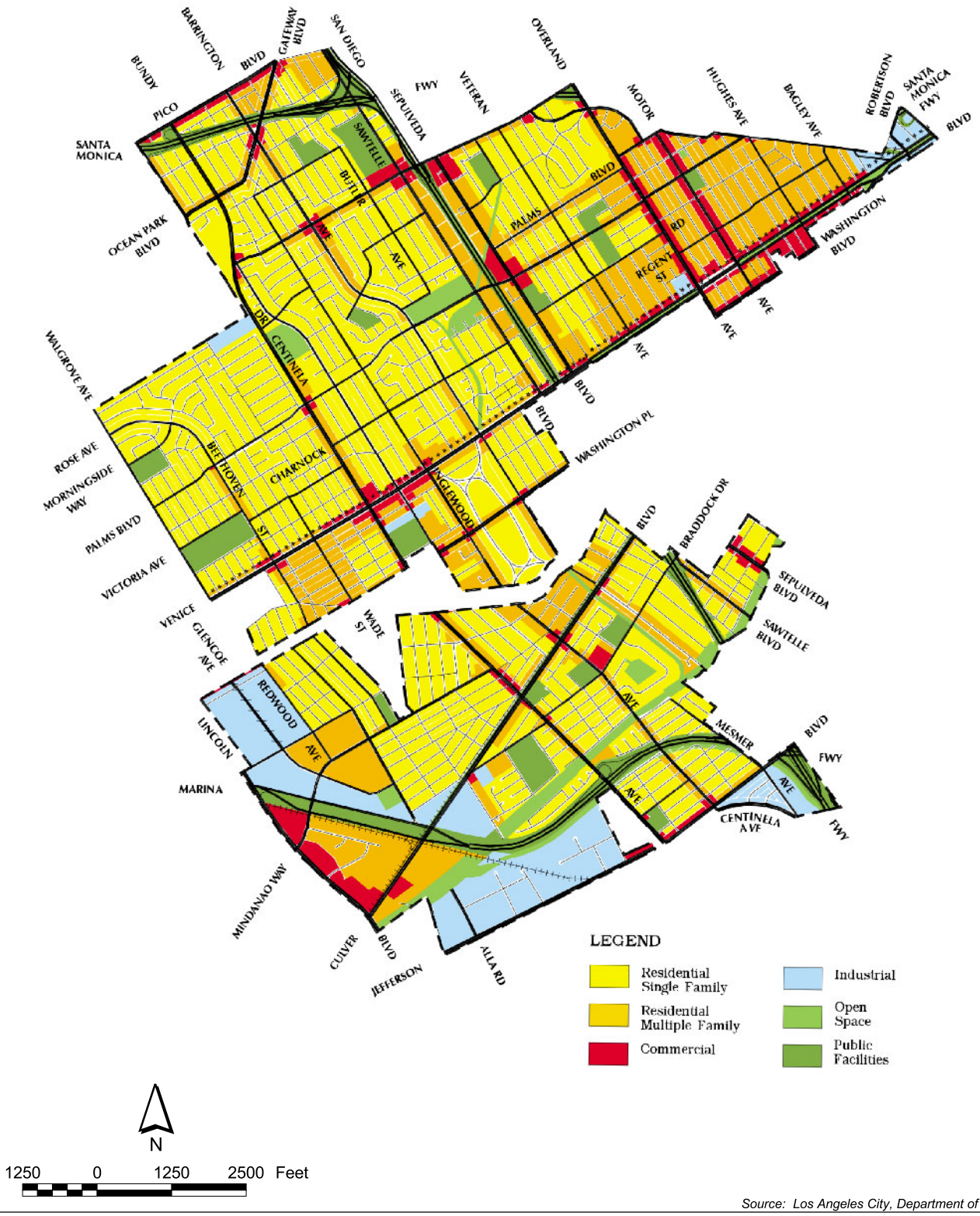
The project is subject to meeting the requirements of the following regional and local plans.

MARINA DEL REY

Los Angeles County General Plan

A portion of the project lies within the jurisdiction of Los Angeles County, as well as in the City of Los Angeles' community of Marina Del Rey. The General Plan is comprised of LUPs (see Figure 5.9-1), which describe designated land uses and policies. The policies set forth in the LUP for Marina Del Rey address future land use, new access, recreation and resource protection areas, and improvement of existing facilities. In accordance with the California Coastal Act, and in consideration for this project, the Marina Del Rey LUP provides for the following:

- Minimizing risks to life and property in areas of high geologic, flood, and fire hazard;
- Assuring stability and structural integrity, and neither creating, nor contributing to erosion, geologic instability, or destruction of the site or surrounding area or in any way requiring protective devices that would substantially alter natural land forms along the coastal land; and
- Being consistent with requirements imposed by an air pollution control district or the State Air Resources Control Board as to each particular development.



Source: Los Angeles City, Department of City Planning

MARINA DEL REY LAND USE PLAN

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-1

Figure 5.9-1 Marina Del Rey Land Use Plan

The County General Plan Ordinance No.30254 states that new or expanded Public Works facilities shall be designed and limited to accommodate the needs generated by development or uses permitted consistent with these provisions; provided, however, that it is the intent of the Legislature that State Highway Route 1 (Pacific Coast Highway) in rural areas of the coastal zone remain a scenic two-lane road. Where existing or planned public works facilities can accommodate only a limited amount of new development, services to coastal dependent land use, essential public services and basic industries vital to the economic health of the region, state, or nation, public recreation, commercial recreation, and visitor-serving land uses shall not be precluded by other development.

County policies and actions described in the Marina Del Rey LUP that are associated with infrastructure are listed below:

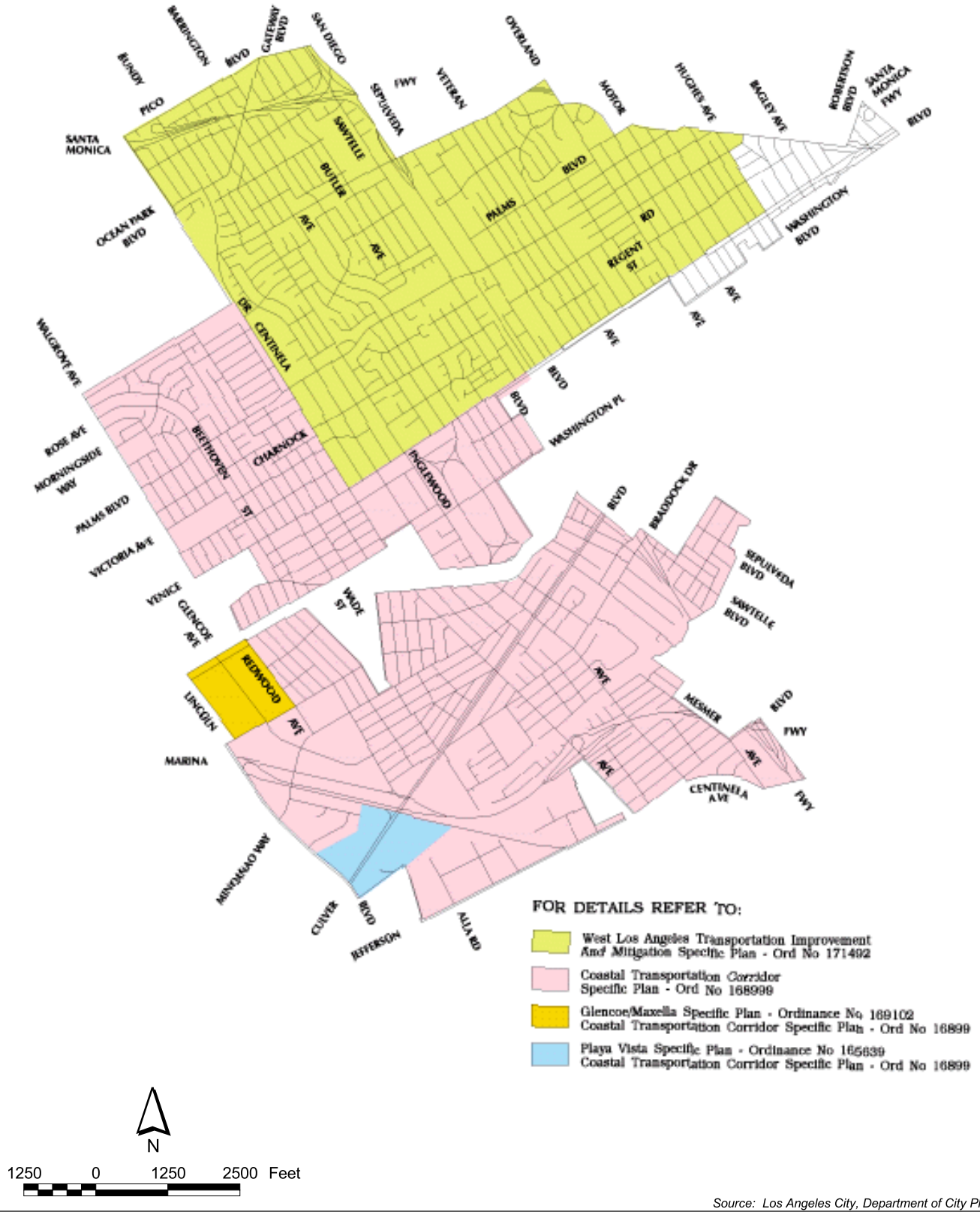
- Public works in the study area shall be designed to accommodate new development permitted in the area and provide for future public access needs;
- As indicated in Section 22.46.1090 of the County's Marina Del Rey Specific Plan, phasing of developing also requires necessary public improvements to be constructed in a timely and orderly manner, to minimize possible adverse impacts of new development on coastal resources (such as sensitive habitat resources or recreation areas) and to protect the ability of the public to travel to coastal attractions; and
- Installation of new sewer and water lines shall be accomplished via the least environmentally damaging method.

MARINA DEL REY LOCAL COASTAL PROGRAM IMPLEMENTATION PLAN

The certified Marina Del Rey LCP Implementation Plan has been integrated into the Los Angeles County Zoning Ordinance as the Marina Del Rey Specific Plan, beginning at Section 22.46.900.

MARINA DEL REY SPECIFIC PLAN

Major infrastructure systems serving the Marina Del Rey Specific Plan Area (see Figure 5.9-2) include sewer, water, storm drains and utilities. The County of Los Angeles maintains a contractual agreement with the City of Los Angeles to provide sewer services for the marina area. The purchase of flow rights includes the use of the sewers and pumping system, as well as treatment at the Hyperion Treatment Plant near Imperial Highway. Maintenance of the sanitary sewers within the marina is the responsibility of the Department of Public Works, Waterworks, and the Sewer Maintenance Division. The Marina Del Rey Specific Plan indicates that there is currently sufficient sewage capacity to handle only a portion of the development permitted by this Specific Plan.



Source: Los Angeles City, Department of City Planning

MARINA DEL REY SPECIFIC PLAN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-2

The Marina Del Rey Specific Plan constitutes the primary implementation mechanism for the Marina Del Rey LUP as certified by the CCC in December 1986 and subsequently amended. Applicable Marina Del Rey Specific Plan guidelines within the Project area include site-specific development guidelines under Section 22.46.1130 which state the following:

- Section 22.46.1090 states that phasing of development also requires necessary public improvements to be constructed in a timely and orderly manner, to minimize possible adverse impacts of new development on coastal resources (such as sensitive habitat resources or recreation areas) and to protect the ability of the public to travel to coastal attractions.
- Appropriate phasing of new development may be necessary because of capacity limitations at the Hyperion Treatment Plant. Proof of adequate sewer and waste treatment capacity for new development will be required per the provisions of subsection (A) (14) of Section 22.46.1180 of the Marina Del Rey Specific Plan.
- Installation of new sewer and water lines shall be accomplished via the least environmentally damaging method.

The Project supports the intent of Section 22.46.1130 for the Marina Del Rey Specific Plan by providing added capacity for potential new development within the area.

VENICE

City of Los Angeles General Plan

The City of Los Angeles General Plan is comprised of 11 citywide elements: transportation, infrastructure systems, housing, noise, air quality, conservation, open space, historic preservation and cultural resources, safety, and public facilities and services, and the land use element. The land use element is composed of 35 local area plans, known as community plans, with associated counterpart plans for the Port of Los Angeles and LAX. The parts of these plans, which are relevant to the project, are considered in each of the studies and analysis in Chapter 5.0 of this EIR.

The following are brief descriptions of the plans for the Project areas are as follows:

Venice Land Use Plan (LUP)

The LUP 1998-0119 LCP consists of the City of Los Angeles land use plans, zoning ordinances, and other actions, which implement the provisions and policies of the California Coastal Act at the local level. The CCC has the authority to approve the City's alignment of the proposed Project. Specifically, the CCC is responsible for key issues of concern in the Venice LUP, which may be impacted by this Project, which are as follows:

- Enforcement and regulation of encroachments into public ROW;
- Protection of existing natural and recreational resources, including the Venice Canals Ballona Lagoon, Grand Canal south of Washington Boulevard, and Venice Beach;
- Protection of coastal views and vistas;
- Preservation of significant archaeological sites;
- Conflict between residential and beach visitor parking;
- Inadequate off-street parking near or on the beach frontage for visitors and residents;
- Intrusion of non-resident vehicles on residential streets to locate available parking spaces;

- Preventing polluted stormwater runoff from parking lots from entering the Venice canals and Ballona Lagoon;
- Lack of adequate alternate public transportation systems, including shuttle systems, park and ride facilities (bikeways) and public bus services;
- Inadequate traffic management to facilitate coastal access to and within the Venice Coastal Zone;
- Inadequate access to walkways due to lack of adequate parking facilities;
- Impacts to recreation and visitor-serving facilities;
- Impacts to water and marine resources;
- Impacts to ESHA;
- Enhancement and maintenance of habitat value, including foraging habitat for the least tern, an endangered species; and
- Prevention of hazards, such as liquefaction and flooding.

VENICE COMMUNITY PLAN

The Venice Community Plan (see Figure 5.9-3, Venice Community Plan Land Use Designations) is comprised of specific plan areas (see Figure 5.9-4, Venice Specific Plan Areas). Each are described as follows:

Venice Coastal Zone Specific Plan

The Venice Coastal Zone Specific Plan (Ordinance No. 175, 963 effective January 19, 2004) is divided into eight sub-areas. The following describes only those areas within the Venice Coastal Zone Specific Plan, which may be impacted by the Project (see Figure 5.9-5).

Ballona Lagoon West Bank Sub-area: This area is bounded by Driftwood Street on the north, Via Marina on the south, Ballona Lagoon on the east, and Strongs Drive, Canal Court and Pacific Avenue on the west. The Pacific Avenue alignment alternative is located in this area.

Ballona Lagoon (Grand Canal) East Bank Sub-area: This area is bounded by Washington Boulevard on the north, the northern terminus of the Ballona Lagoon on the south, Via Dolce on the east, and Grand Canal on the west. The VPP is located at the southwest corner of this area where the Grand Canal and the Ballona Lagoon intersect at Hurricane Street.

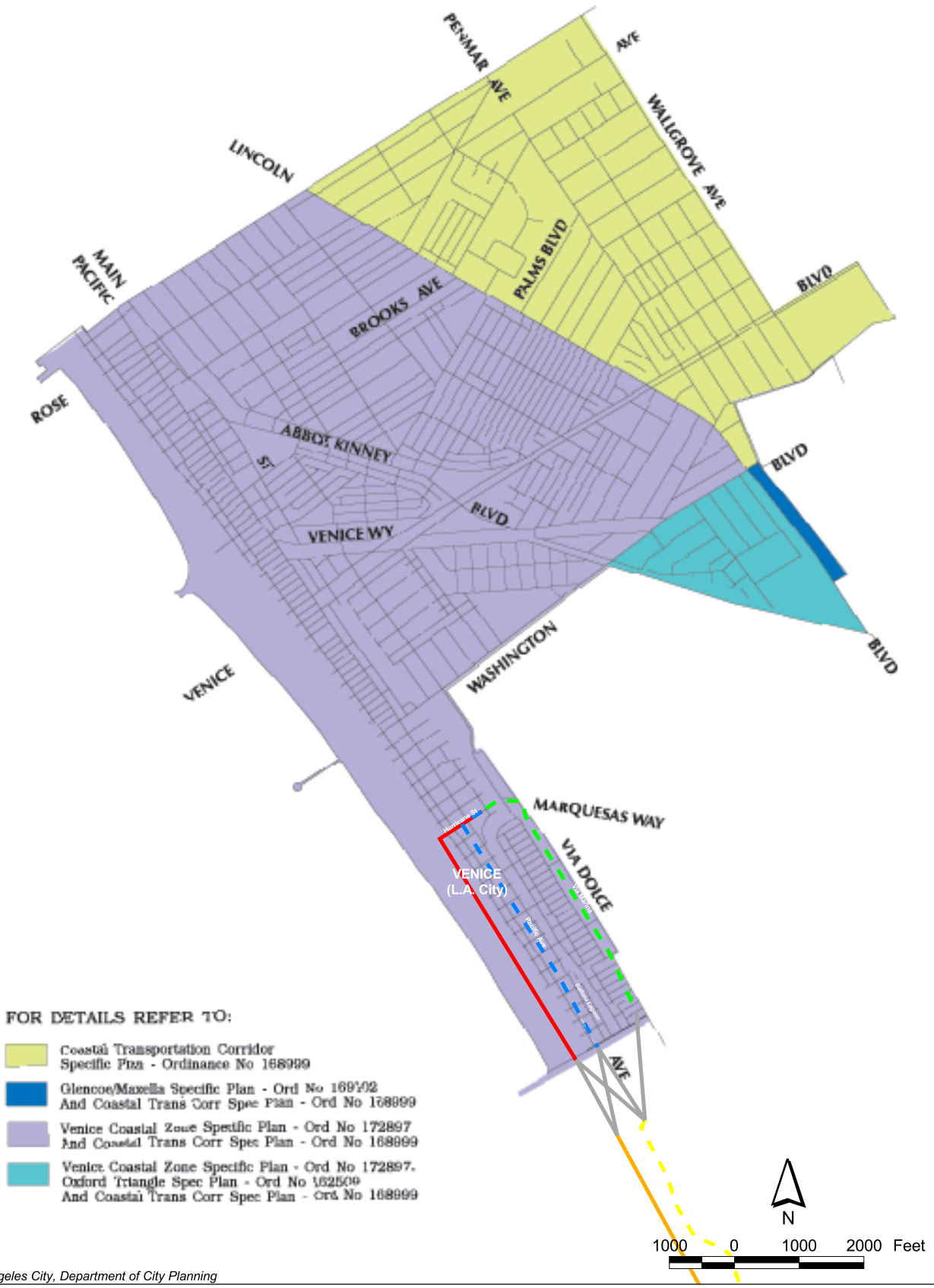
Silver Strand Sub-area: This area is bounded by the eastern extension of Driftwood Street on the north, Via Marina on the south, the Los Angeles County boundary on the east, and Ballona Lagoon on the west. Both the VPP and the proposed Via Marina/Marquesas Way alternative alignment are located in this area.

Marina Peninsula Sub-area: This area is bounded by Thirtieth Place and the Washington Boulevard Pier on the north, Via Marina on the south, Strongs Drive, Canal Court and Pacific Avenue on the east, and the Pacific Ocean on the west. Both the VPP and the proposed Pacific Avenue and Dockweiler Beach alternative alignments are located in this area.

Source: Los Angeles City, Department of City Planning

VENICE COMMUNITY PLAN LAND USE DESIGNATIONS

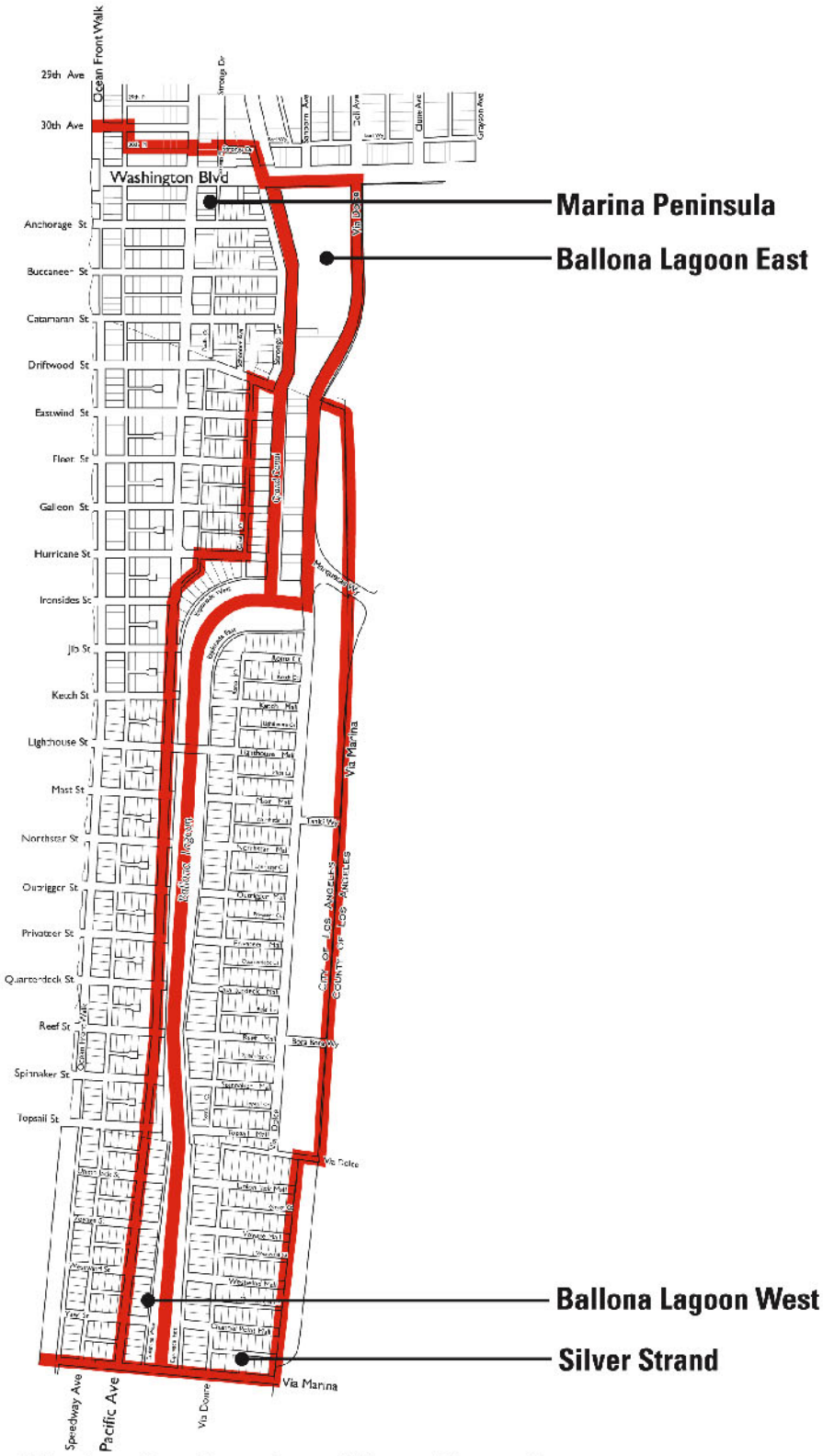
URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-3



Source: Los Angeles City, Department of City Planning

VENICE SPECIFIC PLAN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-4


Marina Peninsula
Ballona Lagoon East
Ballona Lagoon West
Silver Strand
Washington Blvd
Ocean Front Walk
25th Ave
30th Ave
Anchorage St
Buccaneer St
Catamaran St
Driftwood St
Eastwind St
Flair St
Galleon St
Hurricane St
Ironsides St
Jib St
Keuch St
Lighthouse St
Mast St
Northstar St
Outrigger St
Privateer St
Quarterdeck St
Reef St
Spinnaker St
Topsail St
Via Marina
Pacific Ave
Speedway Ave
Via Dolce
Via Donna
Grand Canal
Ballona Lagoon
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One Hundred Nineteen

The purposes of the Venice Specific Plan are as follows:

- To implement the goals and policies of the California Coastal Act;
- To implement the LCP for that portion of the Venice community within the coastal zone as designated by the state legislature;
- To protect, maintain, enhance and, where feasible, restore the overall quality of the coastal zone environment and its natural and human-made resources;
- To assure that public access to the coast and public recreation areas is provided as required by the California Coastal Act and the LCP;
- To prepare specific provisions tailored to the particular conditions and circumstances of Venice coastal zone, consistent with the general policies of the adopted Los Angeles General Plan; and
- To regulate all development, including use, height, density, setback, buffer zone and other factors in order that it is compatible in character with the existing community and to provide for the consideration of aesthetics and scenic preservation and enhancement, and to protect environmentally sensitive areas.

The regulations of the Venice Specific Plan are in addition to those set forth in the planning and zoning provisions of Chapter 1 of the Los Angeles Municipal Code, as amended, and any other relevant ordinances. They do not convey any rights not otherwise granted under those provisions except as specifically provided in the Venice Specific Plan. Wherever provisions of Venice Specific Plan differ from the provisions contained in Chapter 1 of the Municipal Code (with regard to use, density, lot area, floor area ratio, height of buildings or structures, setbacks, yards, buffers, parking, drainage, fences, landscaping, design standards, light, trash and signage, etc.), the Venice Specific Plan supersedes those other regulations. Whenever the Venice Specific Plan is silent, the regulations of the Municipal Code apply.

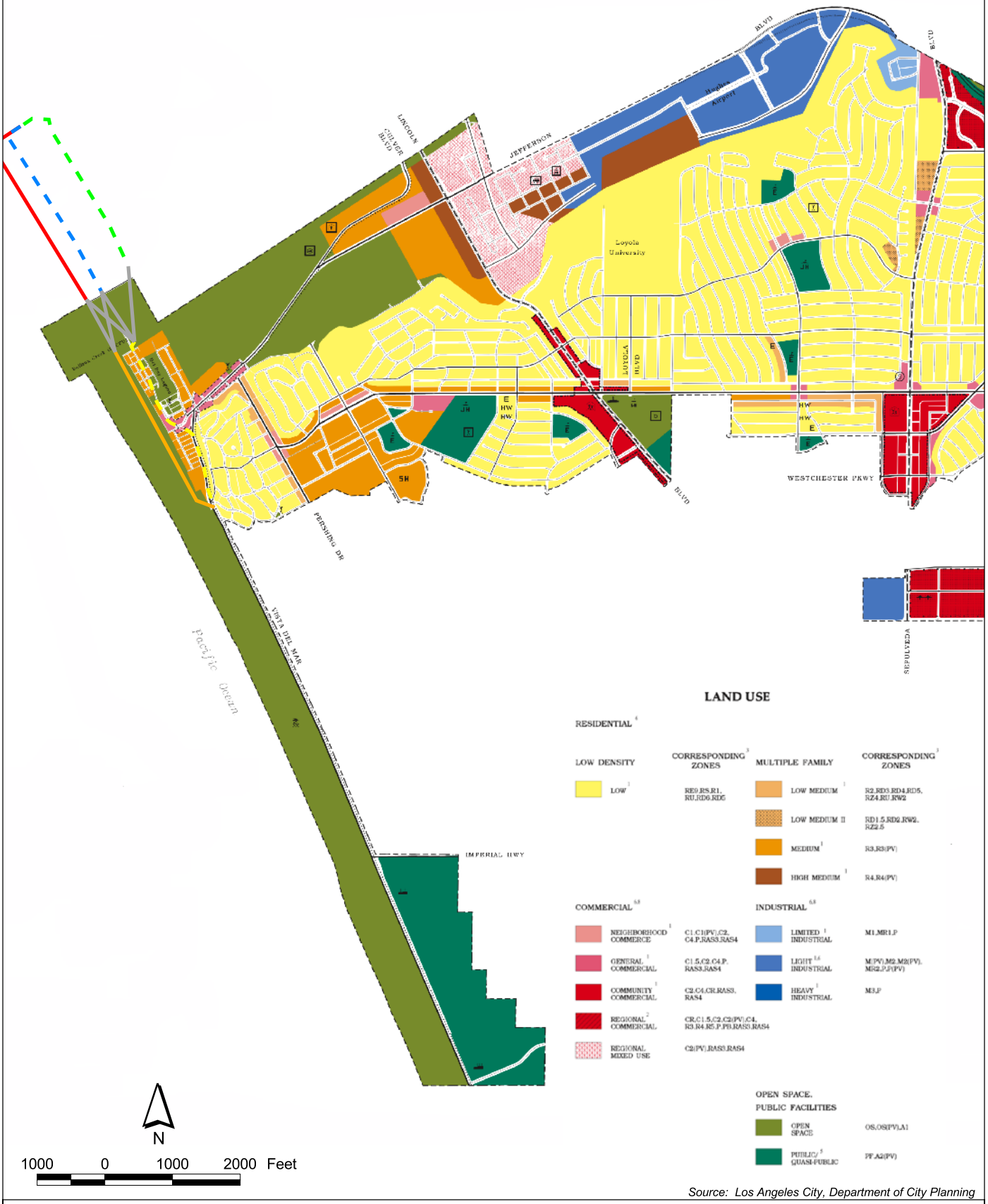
WESTCHESTER/PLAYA DEL REY

Westchester/Playa Del Rey Community Plan

The Westchester Playa Del Rey Community Plan area (Ordinance No. 160.521 - Effective December 27, 1985) is located in the western portion of the Los Angeles Basin, adjacent to LAX (see Figure 5.9-6). This area is located south of Palms- Mar Vista-Del Rey and Venice; adjacent to the Cities of Culver City, Inglewood, El Segundo; and the Los Angeles County unincorporated areas of Del Aire, Ladera Heights, Lennox, and Marina Del Rey.

Westchester/Playa Del Rey Specific Plans

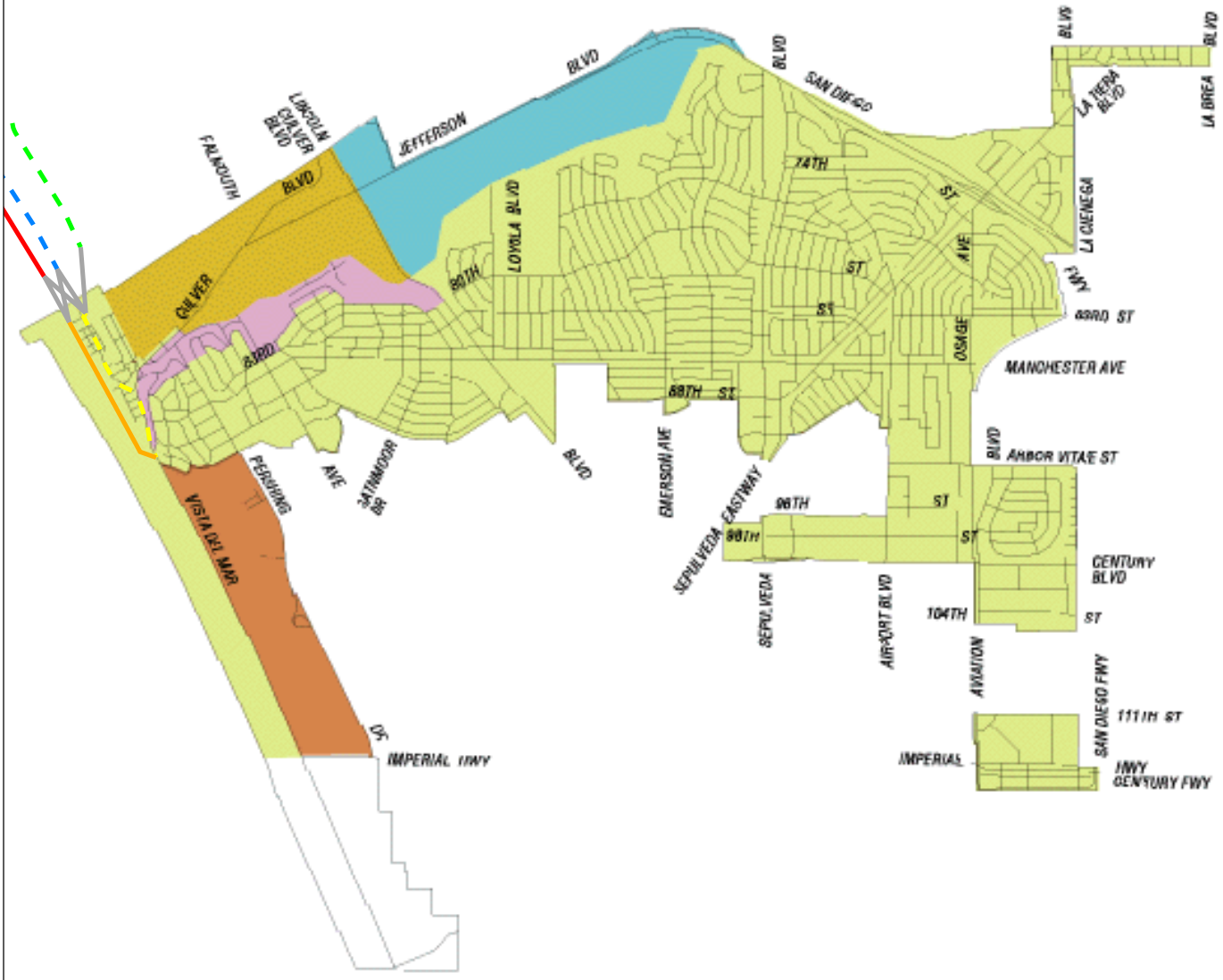
The Westchester/Playa Del Rey Specific Plan area (see Figure 5.9-7) is located within the County of Los Angeles. Land uses adjacent to the project footprint include the Los Angeles Airport/El Segundo Dunes Specific Plan and the Coastal Transportation Corridor Specific Plan (SP-3).



Source: Los Angeles City, Department of City Planning

WESTCHESTER/PLAYA DEL REY COMMUNITY PLAN LAND USE DESIGNATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-6



FOR DETAILS REFER TO:

- Coastal Transportation Corridor Specific Plan - Ordinance No 168999
- Los Angeles Airport/El Segundo Dunes Spec Plan Ordinance No 167940 (not a part of Westchester Plan)
- Coastal Trans Corr Spec Plan - Ord No 168999 And Playa Vista Specific Plan - Ord No 160523
- Coastal Trans Corr Spec Plan - Ord No 168999 And Playa Vista Specific Plan - Ord No 165638
- Coastal Bluffs Specific Plan - Ordinance No 170046 And Coastal Trans Corr Specific Plan - Ord No 168999

N

2000 0 2000 4000 Feet

Source: Los Angeles City, Department of City Planning

WESTCHESTER/PLAYA DEL REY SPECIFIC PLAN AREAS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.9-7

5.9.2 Thresholds of Significance

Land use thresholds are determined by a project's location, its relationship to the immediate plan area, and its ability to meet specified zoning requirements and land use ordinances. A project that cannot meet land use requirements can mitigate the effect of the project and its inability to meet land use requirements, by petitioning for a variance or an exemption approved by the City/County Planning Commission, the City Council, and the County Board of Supervisor, the ruling authorities of the local General and/or Local Plans.

5.9.3 Environmental Impacts

Protection of the environment against impacts resulting from a project are generally achieved through the land use process by providing means of regulatory requirements specified within a given land designation, as adopted by the regulating agency from City and County authorities.

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Rules set forth in specific plan areas pose certain limitations to various activities within those areas that may be impacted as a result of potential Project requirements.

The Project could impose temporary construction impacts in the Coastal Transportation Corridor Specific Plan area due to construction-related transport to and from construction areas north of the Marina Del Rey/Ballona Lagoon channels.

5.9.4 Mitigation Measures

Potential impacts to the Coastal Transportation Corridor Specific Plan should be addressed with the county prior to starting Project activities.

5.9.5 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts to local LUP or policies resulting from this Project.

5.9.6 Cumulative and Secondary Impacts

There are no cumulative or secondary impacts to local LUPs or policies resulting from this Project.

5.10 NOISE AND VIBRATION

5.10.1 Environmental Setting

This section describes the existing levels of environmental noise at sensitive receptors along the alignments of the Project alternatives, identifies the applicable regulatory background, and presents the predicted noise and vibration impacts associated with the Project alternatives. Mitigation measures are recommended for consideration where appropriate.

The terms and metrics associated with noise that are used can be complex and are discussed in detail in Appendix A of the Noise and Vibration Technical Study, which is included in Appendix H of this EIR.

As shown in Figure 5.10-1, the proposed Project is located on the immediate coastline and inland adjacent to the coastline in the southern portion of the community of Venice, and in the community of Playa Del Rey. The primary land uses in these areas are medium- to high-density residential with some recreational and light commercial designations, particularly in the Playa Del Rey and Marina Del Rey areas.

Two ESHAs are located close to most of the potential alignments: the Grand Canal/Ballona Lagoon in the Venice and Marina Del Rey area and the Del Rey Lagoon situated in Playa Del Rey. These ESHAs, as well as Dockweiler State Beach, are designated as conservation and open space. The Project area is near LAX, with the southern end approximately 0.5 mile away from the westbound departure flight path of the northernmost runway (Runway 24/6) and the northern end approximately 2.5 miles away. Overflights by departing commercial aircraft are frequent, and are particularly noticeable in the Project area south of the Marina Del Rey Channel.

In order to characterize the existing noise in the Project area and as a point of comparison for the Project alternatives, ambient noise and meteorological conditions were measured along the proposed alignments during a 3-day period from Wednesday, June 8 through Friday, June 10, 2005. The Noise and Vibration Technical Report (Appendix H) contains a more detailed description of the measurements and analysis used to arrive at the results presented herein.

NOISE

Two types of ambient noise measurements were conducted: short-term and long-term. The short-term measurements consisted of separate measurements at 16 representative noise-sensitive locations, and were each 15 minutes in duration. These sampling measurements are considered representative of the hourly noise levels at the measurement sites. “Precision” grade (Type 1) sound level meters (SLMs) were used to conduct the short-term noise measurements. All of the short-term measurements were attended (i.e., performed by persons with training and experience in measuring environmental sound). In addition to operating the SLMs, the noise specialists actively observed and noted the acoustical, weather, and community activity conditions. The long-term noise measurements were unattended. Automated “Engineering” grade (Type 2) community noise analyzers were deployed at four representative locations along the proposed alignments to collect continuous hour-by-hour sound level data for 24 hours at each location. Noise levels are reported here using the equivalent noise level (Leq) and community noise equivalent level (CNEL), which are described further in the Noise and Vibration Technical Report.

PROJECT AREA OVERVIEW, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.10-1

The measurement locations are shown on Figures 5.10-2 and 5.10-3, and the short-term and long-term noise measurement data are summarized in Tables 5.10-1 and 5.10-2. Noise associated with typical coastal residential activity (e.g., traffic, pedestrian, and wind/waves) dominates in the Project area north of the Marina Del Rey Channel. The measured noise levels were typical for the Project area's land uses. Near the southern end of the project area, the predominant noise sources are traffic on Vista Del Mar and overflights of commercial aircraft taking off from LAX.

The 15-minute Leqs measured at the eight short-term locations south of the Marina Del Rey Channel ranged from 56 decibels, A-weighted (dBA) at the beachfront patios of houses just south of 62nd Avenue (Short-Term 8) to 66 dBA in the parking lot abutting Vista Del Mar between Sunridge Street and Surf Street (Short-Term 1). Street traffic was the predominant noise source at Short-Term 1 and Short-Term 3, while aircraft overflights were the predominant noise source at Short-Term 2 and Short-Term 4 through Short-Term 8. At the eight short-term locations north of the Marina Del Rey Channel, 15-minute Leqs ranged from 55 dBA at the beachfront sites (Short-Term 9, Short-Term 15, and Short-Term 16) to 62 dBA at some inland sites (Short-Term-12, Short-Term-13, and Short-Term 14). CNELs at the four long-term locations ranged from 52 dBA at the east end of 62nd Avenue (Long-Term 1) to 70 dBA near the intersection of Vista Del Mar and Waterview Street.

VIBRATION

An ambient vibration survey was performed along the Pacific Avenue Alignment in October 2002 (Behrens, 2002). The survey measured existing ground vibration levels at four locations along Pacific Avenue north of the Marina Del Rey Channel. The major sources of vibration were trucks and buses traveling on Pacific Avenue. The maximum ground vibration level for vibration "events" (i.e., bus or truck passbys) at any of the measurement sites was 0.02 inches per second peak-to-peak velocity. This level is within the range of human perception, but well below the threshold levels for architectural or structural damage.

VENICE PROJECT AREA, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.10-2

PLAYA DEL REY PROJECT AREA, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 5.10-3

Table 5.10-1 Short-Term Noise Measurement Data Summary

Site ID	Measurement Location	Measurement Period				Measurement Results, dBA					
		Date	Start Time	Duration (mins)	Predominant Noise Source	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
ST-1	Parking lot abutting W side of Vista Del Mar, S of Culver Blvd	6/8/2005	15:30	15:00	Vista Del Mar traffic, LAX aircraft takeoff overflights, rustling leaves, birds, distant landscaping	65.5	80.7	45.8	55.6	63.2	68.7
ST-2	Oceanfront patios of condos S of Surf St	6/8/2005	15:45	15:00	Wind, ocean surf, LAX aircraft takeoff overflights, Vista Del Mar traffic, distant landscaping & vacuum cleaner	62.8	80.2	42.6	46.0	50.0	64.5
ST-3	Montreal St @ Vista Del Mar	6/8/2005	15:45	15:00	Pacific Ave traffic, LAX aircraft takeoffs, rustling leaves, distant barking dogs	64.1	81.7	45.5	50.4	60.1	67.5
ST-4	Oceanfront patio of house between 6987/9 and 6995/7 Trolleyway	6/8/2005	16:15	15:42	LAX aircraft takeoffs, distant house construction (hammer & saw) & workers talking, birds, ocean surf, helicopter flyby along shore	61.8	77.4	42.6	46.0	50.0	63.5
ST-5	Park S of Del Rey lagoon	6/8/2005	16:10	15:00	Coach talking @ nearby baseball practice, rustling leaves, distant children playing	57.2	69.8	45.5	47.9	50.9	59.9
ST-6	Oceanfront patio of 3rd building S of 66th Ave	6/8/2005	17:05	15:02	LAX aircraft takeoffs, distant volleyball practice, ocean surf, motorboat, helicopter passby along shore	61.7	77.7	43.6	49.5	55.0	65.5
ST-7	Park @ Pacific Ave N of 64th Ave	6/8/2005	17:00	15:00	LAX aircraft takeoffs, rustling leaves, birds, wind chimes	59.5	74.6	44.2	46.9	51.7	69.2
ST-8	Oceanfront patio of 3rd building S of 62nd Ave	6/8/2005	17:30	15:07	LAX aircraft takeoffs, people on beach & bike path, distant portable radio	55.9	69.8	41.4	43.5	49.0	60.0
ST-9	W end of Yawl St, even w/ building facades @ beach	6/9/2005	10:55	15:00	LAX aircraft, nearby pedestrians talking, rustling leaves	55.4	65.5	46.3	48.4	52.2	59.5
ST-10	Park @ S curve of Via Marina, N of Marina Del Rey Channel	6/9/2005	10:55	15:00	Via Marina traffic, LAX aircraft, rustling leaves, distant landscaping, bids, distant back-up alarm	57.9	70.4	47.3	51.0	55.5	61.0
ST-11	Westwind St & Pacific Ave, S of 5315 Pacific Ave	6/9/2005	11:25	15:00	Distant home construction, distant LAX aircraft, rustling leaves, birds	56.5	69.9	46.4	49.8	53.5	60.2
ST-12	NW corner of Via Marina & Tahiti Way	6/9/2005	11:45	15:12	Via Marina traffic, distant circular saw, birds	61.9	75.5	44.4	49.5	57.5	66.0
ST-13	Pacific Ave @ Outrigger St	6/9/2005	11:55	15:00	Pacific Ave traffic, distant LAX aircraft, rustling leaves, barking dogs, birds	61.8	79.6	43.2	45.5	51.5	66.7
ST-14	SW corner of Via Marina @ Marquesas Way	6/9/2005	15:00	15:00	Via Marina & Marquesas Way traffic, distant LAX aircraft, rustling leaves	62.3	82.7	47.9	51.4	58.0	65.1
ST-15	W end of Outrigger St, even w/ building facades @ beach	6/9/2005	16:10	15:00	Distant LAX aircraft, distant traffic	54.8	67.9	45.5	47.7	51.4	57.4
ST-16	Oceanfront patio of 3901 Speedway, S of Hurricane St	6/9/2005	16:15	15:00	Ocean surf, distant LAX aircraft, distant dogs playing	54.9	70.3	46.0	48.0	50.5	57.0

Table 5.10-2 Long-Term Noise Measurement Data Summary

Site ID	Location	Measurement Period			Measurement Results, dBA				
		Start Date	Start Time	Duration (hours)	L_{eq}	L_{90}	L_{50}	L_{dn}	CNEL
LT-1	Back P/L of vacant lot N of 6206 Pacific Ave @ 62nd St	6/8/2005	13:00	24:00	52.3	46	49	57.2	57.5
LT-2	W side of Vista Del Mar @ Waterview St	6/8/2005	14:00	24:00	69.5	55	67	72.7	73.3
LT-3	N side of Hurricane St @ Grand Canal	6/9/2005	16:00	24:00	52.5	47	50	56.0	56.6
LT-4	Via Marina @ S end of Ballona Lagoon	6/9/2005	16:00	0:00	61.1	49	55	64.0	64.4

5.10.2 Thresholds of Significance

Operations and construction noise and vibration are treated separately in the following four subsections.

OPERATIONS NOISE

Screening criteria are given in the Los Angeles CEQA Guidelines: If the proposed project triggers a "yes" response to the following questions, further study would be required:

- Would the project introduce a stationary noise source likely to be audible beyond the property line of the project site?
- Would the project include 75 or more dwelling units, 100,000 square feet or greater of nonresidential development, or have the potential to generate 10,000 or more average daily vehicle trips?

In the operational noise evaluation outlined in the Los Angeles Draft CEQA Guidelines, the thresholds for impact are based on the net change in the environmental noise level due to the Project alternative. Similarly noise-sensitive land uses are grouped, and ambient noise levels are classified according to their compatibility with the various land use types. For each land use group, the ambient level is either normally acceptable, conditionally acceptable, normally unacceptable, or clearly unacceptable. The land use compatibility categories and their associated noise levels are given in Table 5.10-3.

Table 5.10-3 Land Use Compatibility Categories and Noise Levels

Land Use	Ambient Community Noise Exposure Level (dBA CNEL)		
	Normally/Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Single-family, duplex, mobile homes, multi-family homes	50 – 70	70 – 75	above 70
Schools, libraries, churches, hospitals, nursing homes, motels, hotels	50 – 70	70 – 80	above 80
Auditoriums, concert halls, amphitheatres	50 – 70	***	above 65
Sports arenas, outdoor spectator sports	50 – 75	***	above 70
Playgrounds, neighborhood parks	50 – 70	67 – 75	above 72
Golf courses, riding stables, water recreation, cemeteries	50 – 75	70 – 80	above 80
Office buildings, business and professional commercial	50 – 77	Above 75	***
Industrial, manufacturing, utilities, and agriculture	50 – 80	Above 75	***

**** values not given in Thresholds Guide*
Source: Draft L.A. CEQA Thresholds Guide, Section I.2.A.

A project would have a significant impact on community noise if the operations caused the ambient noise level at the property line of the affected uses to either:

- Increase by 5 dBA CNEL or more; or
- Increase by 3 dBA CNEL and rise into either the normally unacceptable or clearly unacceptable category.

These criteria apply to various noise sources, respond to heightened community annoyance caused by late-night or early-morning noise, and respond to varying sensitivity of communities under different ambient conditions to noise from projects.

The County of Los Angeles addresses noise in Chapter 12.08 (Noise Control) of the County Code. Section 12.08.390 lists exterior noise standards for various land use zones. These noise standards are listed in Table 5.10-4. The noise standards shown in Table 5.10-4 would apply at residential and commercial structures that are within the unincorporated County and adjacent to the portion of the Via Marina Alignment Alternative taking place in the unincorporated County.

Table 5.10-4 Los Angeles County Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dBA)
I	Noise-Sensitive Area	Anytime	45
II	Residential Property	10:00 p.m. to 7:00 a.m. 7:00 a.m. to 10:00 p.m.	45 50
III	Commercial Property	10:00 p.m. to 7:00 a.m. 7:00 a.m. to 10:00 p.m.	55 60
IV	Industrial Property	Anytime	70

Source: Los Angeles County Code, Section 12.08.390

If any Project alignment alternative exceeded the relevant noise criteria for impact, then noise abatement actions would be considered. Noise from any Project alignment alternative, that is predicted to exceed the criteria for impact under CEQA, would result in a significant adverse effect. In such a case, feasible/effective noise mitigation measures would need to be considered. If feasible/effective mitigation actions were not available, then unavoidable adverse impacts would occur if the particular alternative were to be selected.

CONSTRUCTION NOISE

Depending upon the method of construction chosen, short-term increases in noise from construction would result from the operation of heavy equipment needed to construct the tunnels or cut, dig and re-fill the trenches and insert the pipeline for the Project. The City of Los Angeles regulates noise from construction, and the contractor will be required to adhere to these regulations.

The City of Los Angeles Noise Ordinance (L.A.M.C. Section 112.03) regulates construction noise by referencing Section 41.40 of the Los Angeles Municipal Code. Section 41.40(a) prohibits use of any noise-producing device or powered equipment for construction or repair work on any building or structure between the hours of 9:00 p.m. and 7:00 a.m. on weekdays. Section 41.40(c) prohibits non-emergency grading or construction, other than by an individual homeowner on his/her own single-family residence, on or within 500 feet of residential land before 8:00 a.m. and after 6:00 p.m. on Saturdays and national

holidays, and at any time on Sundays. These sections also prohibit operation, repair, or servicing of construction equipment and job-site delivering of construction materials during those hours.

The County of Los Angeles addresses noise from construction activities in Section 12.08.440 (Construction Noise) of the Los Angeles County Code. The operation of any tools used for construction or related activities such that a noise disturbance is created at a residential or commercial land use is prohibited on weekdays between 7:00 p.m. and 7:00 a.m. or at any time on Sundays or holidays. The noise standards listed in Table 5.10-5 are applicable to construction activities conducted within the unincorporated County.

Table 5.10-5 Los Angeles County Noise Standards for Mobile Construction Equipment

	Single-Family Residential	Multi-Family Residential	Semi-Residential/ Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sundays and legal holidays	60 dBA	64 dBA	70 dBA

Source: Los Angeles County Code, Section 12.08.440

OPERATIONS AND CONSTRUCTION VIBRATION

The City of Los Angeles does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this Project.

The County of Los Angeles addresses vibration in Section 12.08.560 of the County Code. Vibration from any device is prohibited that creates vibration above the threshold of perception at a distance of 150 feet from the source if the source is on a public space or public ROW. The threshold of perception is defined as 0.01 inch per second over the range of 1 to 100 Hertz.

5.10.3 Environmental Impacts

Potential noise and vibration effects from operation and construction of the Project were analyzed as described in Section 5.10-2, and are discussed below.

5.10.3.1 Operational Noise

The following discussion applies to all "Build" Alignment Alternatives: Marquesas Way/Via Marina Alignment; Pacific Avenue Alignment; Dockweiler Beach/Pacific Avenue Alignment; Dockweiler Beach Alignment.

No additional powered, noise-producing machinery, such as pumps, compressors, motors, etc., will be installed as part of this Project. The physical elements of the Project would consist of underground sewer pipe, which under normal operation would not produce audible or measurable noise at nearby noise-sensitive land uses. No significant noise effect is anticipated from operation of this project for any of the alignment alternatives.

5.10.3.2 Construction Noise

Construction activities have the potential to temporarily increase noise levels at noise-sensitive land uses located near the Project alignment or along construction vehicle routes.

Potential noise impacts from the construction phase of the various Project alignment alternatives were assessed for each of the applicable construction methods, such as open trench, tunneling, and large-diameter tunneling, and are discussed in greater detail in the Noise and Vibration Technical Study. The impacts are summarized below:

MARQUESAS WAY/VIA MARINA ALIGNMENT

Open-Trench Method – The open-trench method (also known as cut-and-cover) for underground pipeline installation would include driving of sheet-piles, trenching (approximately 8 feet wide by up to 12 feet deep), pipe installation and backfill, compaction and repaving. Construction of the proposed 3,200-foot-long Marquesas Way/Via Marina Alignment is expected to result in temporary increases in noise levels in the vicinity of construction sites for a period of up to 2 weeks around each active open trench zone, up to 2 months around the tunneling, jacking, and extraction shafts between the estimated star (year 2008) and end (year 2010) of construction.

Construction noise would be taking place at different locations along the route at any given time, and noise impacts at any one point are short term, typically lasting less than 2 weeks. Construction is planned to take place during normal weekday working hours. Table 5.10-6 lists the predicted noise levels from pipeline construction activities for the Project at a reference distance of 50 feet. As Table 5.10-6 shows, the predicted noise levels from pipeline construction range from approximately 87 to 90 dBA at a distance of 50 feet.

Table 5.10-6 Noise Levels from Typical Open-Trench Construction Activities

Construction Activity[1]	Average Noise Level @ 50 feet dBA
Pile Driving (Vibratory)	Varies; up to 90
Trench Excavation	87
Pipe Laying	87
Pipe Bedding and Backfill	88

1- Note that each of these activities are inclusive of the typical number and type of equipment necessary for that activity, and would take place separately from the standpoint of any one noise-sensitive receiver.
Source: Acentech, 1999 (all levels except pile driving. For pile driving noise level, Technical European Sheet Piling Association, 2001

The pipeline alignment along the Marquesas Way/Via Marina Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences. Because construction noise increases and decreases at a rate of approximately 6 decibels per doubling (or halving) of distance, residences that are directly adjacent to an active open-trench zone would experience noise levels of approximately 93 to 96 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 dBA to 84 dBA. Noise levels of this magnitude would violate the County of Los Angels noise standards for construction activities taking place within the unincorporated County (i.e., at Marquesas Way and Via Marina), and would constitute a short-term but significant impact unless mitigation measures are implemented. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 a.m. to 9:00 p.m. on weekdays, 8:00 a.m. to 6:00 p.m. on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area,

the noise levels at residences along the entire Marquesas Way/Via Marina Alignment would be of a magnitude that would constitute a short-term, but significant, impact unless mitigation measures are implemented. Mitigation measures for open-trench construction activities are listed in Section 5.10.4.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

The incremental increase in traffic volumes associated with the Project alternative using open-trench construction was examined for the potential to increase off-site traffic noise levels. Because of the widespread nature of the workforce and the relatively low number of workers for the project, the small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 15 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the truck would use.

Micro-Tunneling Method – Micro-tunneling is a trenchless construction method, which utilizes hydraulic jacks to push pipes through the ground behind a remotely operated TBM. Excavation for micro-tunneling is limited to the endpoints for each drive at designated launching (jacking) and receiving pits. The launching pit contains the hydraulic jacks used to push the pipes. The receiving pit is used to recover the TBM at the end of each drive. The excavated material is carried via augers and conveyors, or by recycled slurry through closed-system pipelines to the surface for processing and disposal. The remote control cabin for operating the TBM, as well as cranes and other construction equipment, is at the surface near the jacking pit. Because of the nature of the work, micro-tunneling operation may extend beyond normally permitted hours for construction activities.

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7.

Table 5.10-7 Noise Levels from Typical Micro-Tunneling Equipment Operations

Equipment Type	Average Noise Level@ 50 feet dBA
Power Unit for TBM	84
Crane	81
Supply or Muck Truck	81
Generator/Air Compressors (2)	80
Combined Noise Level	**88**

Source: Boyle Engineering, 2003.

The proposed locations of the launch and receiving pit work areas for the Marquesas Way/Via Marina Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 100 feet (at the receiving pit located near the VPP at Hurricane Street) of adjacent residences. Residences located 50 feet from an active micro-

tunneling work area would experience noise levels of approximately 88 dBA. Residences located 100 feet from the micro-tunneling activity would experience noise levels of approximately 82 dBA. Noise levels of this magnitude would violate the County of Los Angeles noise standards for construction activities taking place within the unincorporated County (i.e., at Marquesas Way and Via Marina), and would constitute a short-term but significant impact unless mitigation measures are implemented. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction taking place within the City of Los Angeles would not violate the noise ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. Because of the widespread nature of the workforce and the relatively low number of workers for this Project, the small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated eight round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

PACIFIC AVENUE ALIGNMENT – NORTH AND SOUTH

Similarly to the Marquesas Way/Via Marina Alignment, the Pacific Avenue Alignment project alternative was assessed for both the open-trench and the micro-tunneling construction method.

Open-Trench Method – The pipeline alignment along the Pacific Avenue Alignment would result in open trench construction activities taking place within approximately 25 feet of adjacent residences along most of the Project alignment. Residences that are directly adjacent to an active open-trench zone would experience noise levels of approximately 93 to 96 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 to 84 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 dBA to 102 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction would not violate the noise ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area, the noise levels at residences along the entire Pacific Avenue Alignment would be of a magnitude that would constitute a short-term, but significant, impact unless mitigation measures are implemented. Mitigation measures for open-trench construction activities are listed in Section 5.10.4.

Based upon the construction noise data, noise levels on the construction site could exceed federal OSHA and Cal-OSHA regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

The incremental increase in traffic volumes associated with the Project alternative using open-trench construction was examined for the potential to increase offsite traffic noise levels. Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Pacific Avenue Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience noise levels of approximately 88 dBA. Residences located 100 feet from the micro-tunneling activity would experience noise levels of approximately 82 dBA. Residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, the construction would not violate the noise ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. As for the Pacific Avenue Alignment alternative, Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

DOCKWEILER BEACH ALIGNMENT – NORTH AND SOUTH

Similarly to the Marquesas Way/Via Marina and Pacific Avenue Alignments, the Dockweiler Beach Alignment Project alternative was assessed for both the open-trench and the micro-tunneling construction method.

Open-Trench Method – The pipeline alignment along the Dockweiler Beach Alignment would not result in open-trench construction activities, however, micro-tunneling activities at shaft site areas may take place within approximately 25 feet of adjacent residences along Hurricane Street and within approximately 100 feet of residences along The Strand. Residences that are directly adjacent to an active open trench zone or micro-tunnel would experience noise levels of approximately 93 to 96 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 to 84 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction would not violate the noise ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area, the noise levels at residences near the Dockweiler Beach Shafts would be of a magnitude that would constitute a short-term, but significant, impact unless mitigation measures are implemented. Mitigation measures for open-trench construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using open-trench construction was examined for the potential to increase off-site traffic noise levels. As with the Marquesas Way/Via Marina and Pacific Avenue Alignment alternatives, Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Dockweiler Beach Alignment would result in construction activities taking place within approximately 100 feet (at the receiving pit near the VPP, at the west end of Hurricane Street and at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Because noise decreases at a rate of approximately 6 decibels per doubling of distance, residences located 100 feet from the construction activity would experience noise levels of approximately 82 dBA. Residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction taking place within the City of Los Angeles would not violate the noise ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. As with the Marquesas Way/Via Marina, and Pacific Avenue alternatives, project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

MARINA DEL REY CHANNEL ALIGNMENTS

The Marina Del Rey and Ballona Creek Channels would be crossed using micro-tunneling construction methods. For any combination of north and south alignments, the launching shaft would be located on the southern shore of the channel and the receiving shaft would be on the northern shore of the channel. The proposed locations of the launch and receiving pit work areas for the Marina Del Rey Channel Alignments would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 150 feet (at the two launch pits just south of the Ballona Creek Channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience noise levels of approximately 88 dBA. Residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the prescribed hours set forth in the City of Los Angeles Noise Ordinance, construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using micro-tunneling was examined for the potential to increase off-site traffic noise levels. As with the Marquesas Way/Via Marina, Pacific Avenue, and Dockweiler Beach Alignment alternatives, project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

LARGE-DIAMETER TUNNELING ALIGNMENT ALTERNATIVES

The four full-length, large-diameter tunneling alignments with short open-trench segments were evaluated as part of this Project. The following tunnel alignment alternatives are being evaluated:

1. Beach alignment with open-trench connections to VPP in the north and Coast Interceptor Sewer (CIS) along Vista Del Mar in the south;
2. Beach alignment with open-trench connection to VPP and direct tunnel connection to North Outfall Sewer (NOS) or CIS – via a shaft on LAX property;
3. Beach alignment with direct tunnel connections to VPP and NOS or CIS – via a shaft on LAX property; and.
4. Direct (inland) tunnel connection between VPP and NOS or CIS – via a shaft on LAX property.

Activities from large-diameter tunnel construction would be similar in type but larger in scale, compared with micro-tunneling. Crew size and equipment type and number would be greater, although much of the equipment and crew would remain underground while in operation and thus would not materially contribute to aboveground noise levels. The typical noise level from large-diameter tunneling activity would be 91 dBA at a distance of 50 feet, as shown in Table 5.10-8. Large-diameter tunnel operations would likely continue around the clock, although nighttime activities would be arranged so as to avoid noisy and otherwise disturbing events at nearby sensitive receptors whenever practicable.

Table 5.10-8 Noise Levels from Typical Large-Diameter Tunneling Equipment Operations

Equipment Type	Average Noise Level @ 50 feet dBA
Power Unit for TBM	87
Crane	81
Supply Trucks (2)	84
Fans (2)	77
Generator/Air Compressors (4)	83
Combined Noise Level	**91**

Source: Boyle Engineering, 2003; URS Corporation 2005

The proposed locations of the tunnel construction shafts would result in activities taking place within approximately 100 feet (near the VPP at Hurricane Street) to 200 feet (at the proposed shaft on LAX property) of adjacent residences. Residences located 100 feet from the large-diameter tunneling activity would experience noise levels of approximately 82 dBA. Residences located 200 feet from an active large-diameter tunneling work area would experience noise levels of approximately 76 dBA. Because large-diameter tunneling activities are expected to take place outside the prescribed hours of operation set forth in the City of Los Angeles Noise Ordinance, and because of the proximity to noise-sensitive land uses to the work areas, construction noise would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.10.4.

The incremental increase in traffic volumes associated with the Project alternative using large-diameter tunneling was examined for the potential to increase off-site traffic noise levels. As for the other alternatives, Project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

5.10.3.3 Operation Vibration

No additional powered machinery such as pumps, motors etc. will be installed as part of this Project. Thus, the operation of the pipeline is not anticipated to cause measurable or perceptible levels of vibration at adjacent land uses.

5.10.3.4 Construction Vibration

Groundborne vibration from heavy equipment operations during Project construction was evaluated and compared with relevant vibration impact criteria as discussed in the Noise and Vibration Technical Study. The following summarizes the results of the analysis conducted for each of the alternative construction methods, by alignment alternatives.

MARQUESAS WAY/VIA MARINA ALIGNMENT

The Marquesas Way/Via Marina Alignment Project alternative was assessed for both the open-trench and micro-tunneling construction methods.

Open-Trench Method – The pipeline alignments along the Marquesas Way/Via Marina Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences. Assuming that vibratory pile-driving methods are utilized to install the sheet-piles during open-trench construction, the Los Angeles County vibration standard of 0.01 inches per second would be exceeded at a distance of 150 feet as specified in the County Code. Thus, a significant impact would result from pile-driving activities during open-trench work, unless mitigation measures are implemented. Other activities associated with open-trench construction such as loaded truck movements, backhoe loader/compactor, etc. would result in less-than-significant levels of vibration. Mitigation measures for pile-driving during open-trench construction are listed in Section 5.10.4.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Marquesas Way/Via Marina Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Mariana) to 100 feet (at the receiving pit located near the VPP at Hurricane Street) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience vibration levels of less-than-significant magnitude. No significant vibration impacts from micro-tunneling activities are predicted for the Marquesas Way/Via Marina Alignment.

PACIFIC AVENUE ALIGNMENT – NORTH AND SOUTH

Open-Trench Method – The pipeline alignment along the Pacific Avenue Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences along most of the Project alignment. A significant impact from vibration would result from pile-driving activities during open-trench work, unless mitigation measures are implemented. Vibration levels from

other activities associated with open-trench construction would be of a less-than-significant magnitude. Mitigation measures for pile-driving during open-trench construction are listed in Section 5.10.4.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Pacific Avenue Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Residences located 50 feet and 150 feet from an active micro-tunneling work area would experience vibration levels of a less-than-significant magnitude.

DOCKWEILER BEACH ALIGNMENT – NORTH AND SOUTH

Open-Trench Method – The pipeline alignment along the Dockweiler Beach Alignment would result in open-trench construction activities taking place within approximately 25 feet of adjacent residences along Hurricane Street, and within approximately 100 feet of residences along The Strand. A significant impact from vibration would result from pile-driving activities during open-trench work unless mitigation measures are implemented. Vibration levels from other activities associated with open-trench construction would be of a less-than-significant magnitude. Mitigation measures for pile-driving during open trench construction are listed in Section 5.10.4.

Micro-Tunneling Method – The proposed locations of the launch and receiving pit work areas for the Dockweiler Beach Alignment would result in construction activities taking place within approximately 100 feet (at the receiving pits located near the VPP, at the west end of Hurricane Street and at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek Channel) of adjacent residences. Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from micro-tunneling activities are predicted for the Dockweiler Beach Alignment.

MARINA DEL REY CHANNEL ALIGNMENTS

The proposed locations of the launch and receiving pit work areas for the Marina Del Rey Channel Alignments would result in construction activities taking place within approximately 50 feet (at the receiving pits located at the southern end of Via Marina) to 150 feet (at the two launch pits located just south of the Ballona Creek Channel) of adjacent residences. Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from micro-tunneling activities are predicted for the Marina Del Rey Channel alignments.

LARGE-DIAMETER TUNNELING ALIGNMENT ALTERNATIVES

The proposed locations of the tunnel construction shafts would result in construction activities taking place within approximately 100 feet (near the VPP at Hurricane Street) to 200 feet (at the proposed shaft on LAX property) of adjacent residences. Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from large-diameter tunneling activities are predicted for this alternative.

5.10.4 Mitigation Measures

OPERATIONAL NOISE MITIGATION

Operational noise levels from the proposed alignments are predicted to be less than significant. Therefore, no abatement measures are recommended for the operational phase of the Project.

CONSTRUCTION NOISE MITIGATION

Potential construction noise mitigation measures may include limiting the hours of noisy construction activities to daytime hours near residences and other sensitive receptors. Other measures could include limiting the number of construction equipment operating at any one time. Following are additional construction noise mitigation measures that should be followed, to the extent feasible:

NOI-1 Trucks shall be limited to designated truck routes and shall avoid residential streets to the extent practicable.

NOI-2 Temporary soundwall barriers shall be erected for launch and receiving pits and large-diameter tunnel shaft work areas. Such soundwall barriers shall be of a sufficient height, length and configuration so as to provide substantial noise reduction and effectively block the line-of-sight between nearby noise-sensitive receivers and the work zone.

NOI-3 Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.

NOI-4 Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

NOI-5 Construction site and haul-road speed limits shall be established and enforced during the construction period.

NOI-6 The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.

NOI-7 No project-related public address or music system shall be audible at any adjacent receptor.

NOI-8 The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Bureau of Engineering shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

NOI-9 The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.

OPERATIONAL VIBRATION MITIGATION

Because no vibration impacts are predicted for operation of the pipeline, no mitigation measures are required or recommended for the operational phase of the project.

CONSTRUCTION VIBRATION MITIGATION

The only vibration impact identified for the construction phase of the Project was from pile-driving during open-trench-type construction. Vibration levels from pile-driving using vibratory methods would exceed the Los Angeles County threshold of perceptibility standard. Use of the following mitigation measure would reduce construction vibration to a level below significance.

Pile-driving: "Press-in" pile drivers shall be utilized rather than vibratory pile-drivers, if feasible. Use of this alternative pile driving technology would reduce vibrations from pile-driving to a level below significance.

5.10.5 Unavoidable Adverse Impacts

There would be no unavoidable adverse impacts as a result of this Project.

5.10.6 Cumulative and Secondary Impacts

There would be no cumulative and secondary impacts as a result of this Project.

5.11 PUBLIC FACILITIES AND SERVICES

RECREATIONAL FACILITIES AND PUBLIC RESOURCES

This section of the EIR includes a description of the existing recreational facilities and public resources in the proposed Project area. Thresholds to determine if the proposed Project could result in significant adverse impacts to recreational facilities and public resources are provided. An analysis of anticipated recreation impacts (project and cumulative), mitigation measures and level of significance after mitigation is provided.

The potential for significant impacts to recreation due to the proposed Project was evaluated in accordance with the methodologies and information provided by the CEQA Guidelines[2].

5.11.1 Environmental Setting

REGULATORY SETTING

The CCC maintains jurisdiction for development in the coastal zone. California coastal act policies promote and protect recreational and visitor serving uses in the coastal zone.

The CDFG maintains stewardship for the state over those open space portions of the Ballona Wetlands lying generally southwest of the Marina Expressway to the developed areas of Marina Del Rey and Playa Del Rey. These areas are designated as Areas A, B and C, with the exception of two portions of Area B – the Freshwater Marsh located southwest of the Lincoln and Jefferson Boulevard intersection, and the Expanded Wetlands parcel – under the jurisdiction of the State Lands Commission (SLC). Additionally, the Area B Freshwater Marsh is held by the non-profit Ballona Wetlands Conservancy (BWC) in a conservation easement. The CDFG conducts its stewardship mission, in part, through a network of access agreements with authorized users/co-stewards.

A wide range of access agreements are in place with the following organizations for a variety of highly specific recreational activities:

1. Security Patrols & Trash Removal: Ballona Wetlands Land Trust and Trust for Public Land;
2. Water and Sediment Sampling: Loyola Marymount University (LMU);
3. Workdays, Maintenance and Land Management: Ballona Wetlands Land Trust, Friends of Ballona Wetlands, and Center for National Lands Management (CNLM);
4. Environmental Monitoring: BWC, CNLM and City of Los Angeles Environmental Monitoring Division;
5. Invasive Species Removal: Ballona Wetlands Land Trust and Friends of Ballona Wetlands;
6. Dune Restoration: Friends of Ballona Wetlands;
7. Scientific Symposia: Ballona Wetlands Foundation and Friends of Ballona Wetlands;
8. Environmental Education, Tours and School Field Trips (K-12): Audubon Society, Ballona Wetlands Land Trust and Friends of Ballona Wetlands;
9. Special Projects and Events: Audubon Society, Ballona Wetlands Land Trust and Friends of Ballona Wetlands; and

[2] California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000 – 15387. *Available at: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/*

10. Recreation:
    a. Birding & Bird Counts: Audubon Society and Wetlands Action Network.
    b. Natural History & Site Tours: Ballona Wetlands Land Trust, Fiends of Ballona Wetlands and Wetlands Action Network.
    c. Organized Sports Recreation: Playa Vista Little League Program.
    d. Free-form Recreation - Walking, Biking, Boating and Fishing: General Public.

Interim stewardship and access management is shared and coordinated by the following three State agencies in and around the vicinity of the project: State Coastal Conservancy (SCC), CDFG and SLC. These agencies have drafted the Ballona Wetlands Interim Stewardship and Access Management Plan (Draft) dated March 28, 2005. A Ballona Wetlands Restoration Plan is being developed by them and will guide all future restoration efforts.

EXISTING CONDITIONS

The natural and developed recreation resources in the Project area make it highly desirable for residents, visitors, and tourists who all share and enjoy the local beachfront, parks and recreational facilities in the vicinity of the proposed project. Recreational facilities and resources in the vicinity of the proposed project are described below.

Venice, Including Ballona Lagoon Marine Reserve – This area provides year-round recreational activities including walking, biking, birding, sightseeing, and volley ball.

Venice Municipal and Dockweiler State Beach from Hurricane Street to Waterview and Napoleon Streets, Playa Del Rey – Year-round recreational activities include ocean-based swimming, surfing, boating and fishing (resident species); and beach-based walking, cycling, roller-blading, frisbee-tossing, and sightseeing. Seasonal recreational activities include ocean-based whale watching excursions, fishing (transient species); and beach-based volleyball and special-interest birding (Venice California least tern colony located north of Ballona Creek).

Marina Del Rey and Marina Del Rey Channel, Including Aubrey E. Austin Park and North Jetty Promenade – Marina Del Rey is the world's largest developed yacht/small-craft marina. Famous beaches make it a favored destination for local residents and domestic and international tourists. Year-round recreational activities in Marina Del Rey include yachting, boating, sailing, biking, walking, sightseeing, dining and shopping. Special events such as whale watching excursions, swimming, wading, and sunbathing at Mother's Beach. Year-round recreational activities in the Marina Del Rey Channel include yachting, boating, sailing, fishing, biking, walking and sightseeing.

Ballona Wetlands and Ballona Creek – The Ballona Wetlands is the largest remaining coastal estuary/wetlands habitat within the Los Angeles Basin (State Coastal Conservancy, 2005). The Ballona Wetlands serves migrating avian populations using the Pacific Flyway that extends from Alaska to Central America (Santa Monica Bay Restoration Commission, 2005). Shore birds use Ballona Wetlands for nesting, feeding, wintering grounds and resting stopovers. As a result, the Ballona Wetlands is the premier bird watching destination in the Los Angeles Basin. Year-round recreational activities include creek-based kayaking, small pleasure-craft boating and fishing. Wetlands-based recreational activities include birding, walking, cycling, sightseeing, environmental stewardship and education activities.

Playa Del Rey, including Del Rey Lagoon and Park (inland areas only) – Year-round recreational activities include walking, biking, birding and sightseeing.

Del Rey Lagoon Park – Recreational activities include baseball, basketball, children's play area, picnicking and outdoor grilling, community center classes and programs The El Segundo blue butterfly habitat exists west of LAX. Also nearby is a rare dune beach in Playa Del Rey. The Ballona Escarpment extends along the southern edge of the wetlands.

5.11.2 Thresholds of Significance

Under the CEQA Guidelines, a significant impact related to recreational facilities and public resources would occur if the proposed Project would increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

5.11.3 Public and Recreational Facilities Impacts

OPERATIONAL IMPACTS

Operation of the proposed Project would not increase the use of existing neighborhood and regional parks or other recreational facilities in the Project area. Upon completion of the Project construction, all areas that experienced surface disturbance during construction would be returned to their present condition. The improved reliability of the sewer lines and the reduction in the potential for overflow into the adjacent waterways and the ocean would ensure the availability of existing recreational resources for residents and domestic and international tourists. A beneficial long-term impact on existing recreational resources is anticipated. There would be no long-term adverse impacts that require mitigation measures to the study areas affected.

SHORT-TERM CONSTRUCTION IMPACTS

Although the proposed Project would not involve permanent adverse impacts to recreational facilities and public resources, site-specific adverse impacts may occur during the construction period. These short-term impacts are listed below by the affected community:

Venice

- Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
- All or most of the parking along Via Marina at the entrance channel would be removed;
- Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
- The Class II Bike Trail along Pacific Avenue would be closed during construction;
- Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
- Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
- Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments.

Marina Del Rey - Aubrey E. Austin Park

- Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
- The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.

Playa Del Rey

- The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
- The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
- Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
- The Napoleon Street residential foot path could be interrupted by construction activities.

While the overall length of Project construction is multi-year, construction impacts at specific recreational resource locations would be much shorter. Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

Although there would be impacts of existing recreational activities and use of public recreational resources during Project construction, the construction activities and related adverse impacts are considered short term and not significant. No permanent substantial physical deterioration of recreational facilities or public recreational resources would occur or be accelerated. Therefore, no significant impacts to recreation are anticipated.

5.11.4 Mitigation Measures

Although no significant impacts to recreation are anticipated, the following mitigation measures would minimize adverse short-term construction related impacts in the Project area.

REC-1

In order to minimize competition between construction-related equipment and activities and Dockweiler State Beach users for parking space at Vista Del Mar and the resulting temporary impacts to recreation, special parking arrangements should be made for construction workers (see Section 5.4 Circulation, Traffic and Transportation).

REC-2

In order to minimize recreational access and use issues during the course of construction, additional consultation and coordination with key stakeholders, local residents, members of the general public and City/County planners should occur to balance the needs of the recreational users and construction related activities (see Section 5.4 Circulation, Traffic and Transportation).

REC-3

The City should coordinate with the sponsors of local and major regional, national and international beach events to schedule the events and/or construction activities to minimize conflicts.

REC-4

The City should coordinate all construction scheduling and activities with the Los Angeles County Department of Public Works for the purpose of eliminating or reducing construction-related impacts.

5.11.5 Unavoidable Adverse Impacts

No significant long-term impacts to recreational facilities are anticipated. Project construction activities would adversely affect the enjoyment of local recreational facilities, including use of the beach, natural lagoons, parking lots, bikeways, sidewalks and public trails. Although temporary, these adverse short-term construction impacts for the duration of Project construction cannot be avoided.

5.11.6 Cumulative and Secondary Impacts

The impacts of the proposed Project, when considered in combination with the environmental effects of other related projects shown in Table 1.7-1, Related Projects, would not involve long-term or significant cumulative impacts; however, construction-related impacts could be cumulative should two projects be constructed in the same area at the same time. Specifically, should construction of the Los Angeles County Marina Del Rey Tide-Gates Rehabilitation Project, located at the intersection of Pacific Avenue and Via Marina Way near the Grand Canal, occur at the same time as construction of the VPP Dual Force Main Project, impacts may occur along the recreational walkway on Via Marina Way. However, these impacts would not occur with adequate coordination between the City of Los Angeles and its departments, and between the City and County Departments of Public Works to ensure that construction-related activities do not create additional impacts to the aforementioned areas.

5.12 VISUAL AND AESTHETIC RESOURCES

5.12.1 Environmental Setting

In accordance CEQA Guidelines and the City of Los Angeles Draft CEQA Threshold Guide (1998) for determining impact significance, this section addresses the potential impacts to Visual and Aesthetic Resources (Visual Resources) in the project vicinity which may result from the construction of the force main and the significance of such impacts. The visual resources assessment includes the following information:

- Identifies those views potentially affected by the Project over which the public is most likely to express concern (critically sensitive public views);
- Describes the existing character and quality of those potentially affected critically sensitive views;
- Estimates the intensity of possible adverse visual impacts on those views;
- Evaluates the significance of the possible impacts; and
- As applicable, considers possible mitigation measures that could lessen the impacts to negligible levels of intensity.

Visual Sensitivity – Sensitivity is the social setting for visual resources. As applied to visual impact analyses, sensitivity refers to public attitudes about specific views, or interrelated views, and is the key to assessing how important a visual impact may be and whether or not it represents a significant impact.

To assess visual sensitivity, indicators of public concern were identified and sensitivity rated accordingly. The indicators are listed in Table 1 of Attachment A in Appendix I and reflect the concepts and methods of several federal agencies that treat sensitivity as a function of viewer activity, awareness, values, and goals.

The four levels of sensitivity are high, moderate, low and no sensitivity.

- **High Sensitivity.** High sensitivity suggests that at least some part of the public is likely to react strongly to a threat to visual quality. A highly concerned public is assumed to be more aware of any given level of adverse change and less tolerant than a public that has little concern. A small modification of the existing landscape may be visually distracting to a highly sensitive public and represent a substantial reduction in visual quality.
- **Moderate Sensitivity.** Moderate sensitivity suggests that the public would probably voice some concern over substantial visual impacts. Often the affected views are secondary in importance or are similar to others commonly available to the public. Noticeably adverse changes would probably be tolerated if the essential character of the views remains dominant.
- **Low Sensitivity.** Low sensitivity is considered to prevail where the public is expected to have little or no concern about changes in the landscape. This may be because the affected views are not "public" (not accessible to the public) or because there are no indications that the public values the affected views.
- **No Sensitivity.** There is no sensitivity where the potentially affected views are not "public" (not accessible to the general public) or because there are no indications that the affected views are valued by the public.

Sensitivity of Project Locale – By definition, views from areas serving residential, recreational and tourism land uses, as well as from the transportation routes serving those land uses, are considered to be

highly sensitive. The public is expected to value such views and to potentially react strongly to adverse changes to the visual character and quality of their surroundings.

The CCC's primary concern over visual resources within the coastal zone is:

> *"…the protection of ocean and coastal views from public areas such as highways, roads, beaches, parks, coastal trails and accessways, vista points, coastal streams and waters used for recreational purposes, and other public preserves rather than coastal views from private residences where no public vistas are involved."*

This assessment considers the collective views throughout the Project area, which are important to the consideration of the significance of visual impacts. The following narrative describes the existing visual conditions within the Project areas and identifies the various levels of impacts to the visual character posed by the Project at each alternative location.

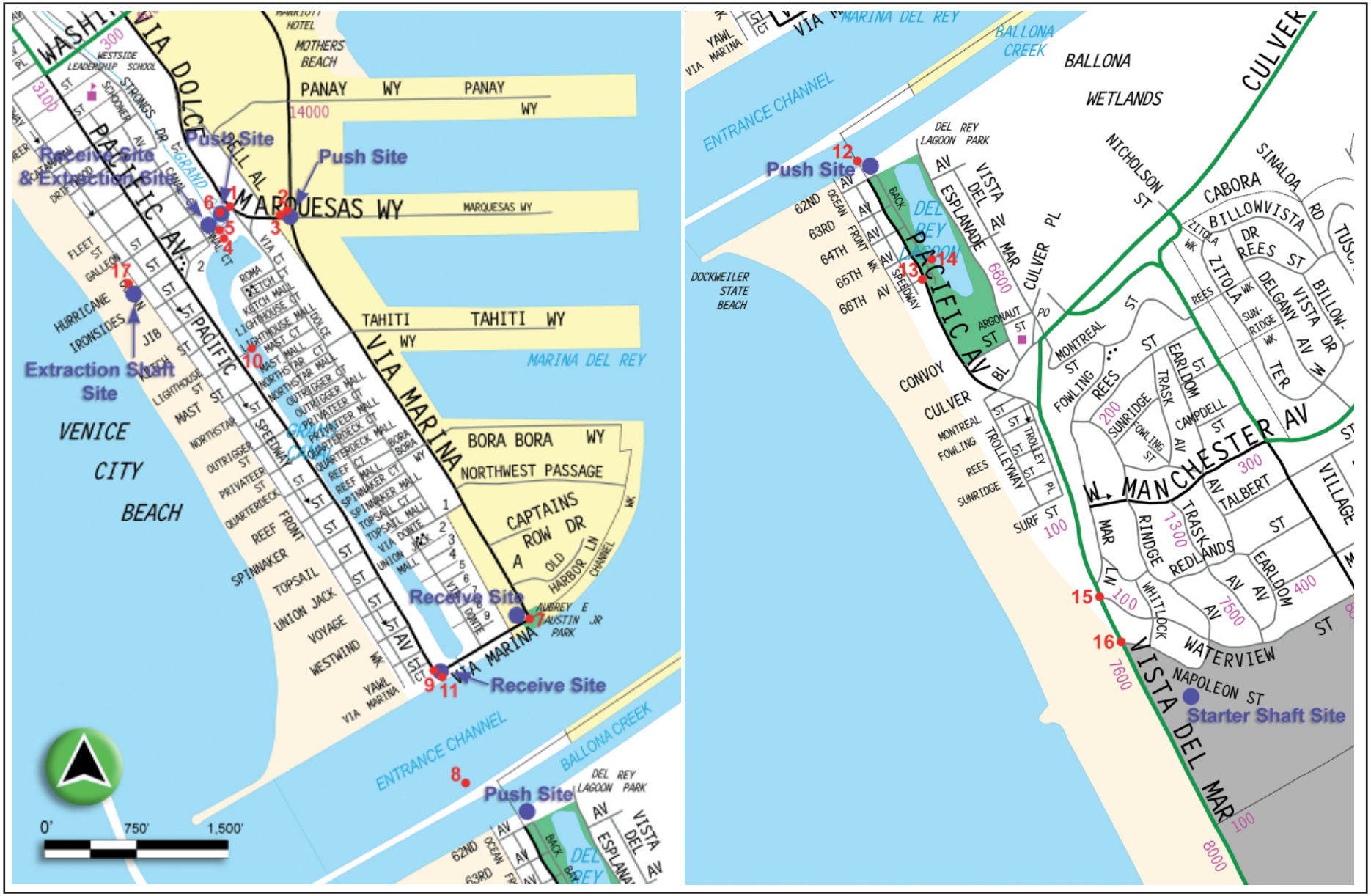
MARINA DEL REY

Marquesas Way/Via Marina Alignment

Sensitivity – Figure 5.12-1 shows the viewing positions used in this assessment. There are numerous highly sensitive viewing positions within and around Marina Del Rey, given its scenic, recreation and tourist-oriented attractions. Foremost among these are views from Via Marina, Admiralty Way and Fiji Way, which form a route designated as a scenic highway and also to be designated as a scenic drive (Scenic Highway Element, Los Angeles County General Plan; Coastal Plan Policies). Of specific importance to the proposed Project is Via Marina, from its intersection with Marquesas Way to where it turns sharply to the southwest to parallel the entrance channel for the marina. Along this stretch of road there would be cut-and-cover pipeline installation, as well as the construction of receive and push sites for micro-tunneling.

A number of recreation and tourist attractions are to be found in the marina: Burton Chace Park, Fisherman's Village, Admiralty Park, Mother's Beach, and the picturesque marina itself. Views from these locations, however, are not important to the analysis, as they do not include Project construction activities and sites. On the other hand, at the southeast end of Via Marina, where it turns to the southwest, there is a small park called Aubrey E. Austin Park. There, too, is the northeast end of the North Jetty Promenade, a popular walk along the scenic Marina Del Rey entrance channel. Views from Aubrey Park and the Promenade are also, by definition, highly sensitive, and the receive site for the micro-tunneling connection to the Marina Del Rey Alignment would be within full view of these recreation resources across Via Marina.

A moderately high-density multi-family residential area lines both sides of Marquesas Way and the west side of Via Marina. Both of these roads serve as the primary access to the residential areas flanking Ballona Lagoon and the Grand Canal to the west. The collective views from the residences on Via Marina and Marquesas Way are highly sensitive. Because these roads are part of the primary access to these residential areas, road-based views would be considered to be highly sensitive. As noted, Via Marina is also highly sensitive due to its scenic highway/scenic drive status.



City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Viewing Positions Corresponding to
Figures 5.12-2 - 15

Figure 5.12-1

Also, some aspects of the Project alternatives would be seen from boats passing along the entrance channel, and such views, being recreation oriented, are highly sensitive.

Critical Views – Critical views are partly defined as those that are the most sensitive, as described in the previous section. Where the public is considered to be potentially moderate to highly sensitive to changes in visual quality, there is likely to be a substantial concern over noticeably adverse visual impacts. An extensive, detailed account is provided in Appendix I.

Figures 5.12-2 and 5.12-3, show representative views of Marquesas Way and Via Marina, in the vicinity of the two optional push sites for micro-tunneling under Ballona Lagoon to the receive site opposite the VPP. Also shown in these figures are optional construction/laydown areas that would support the construction and operation of the two alternative push sites. Figure 5.12-4 shows the receive site at the VPP, which is in the vacant lot opposite the VPP, as well as push site Option 2, in the vacant lot on the east side of the canal. These sites would be within full view from the residences lining the east side of Ballona Lagoon/Grand Canal across from the plant, as well as those walking along the lagoon/canal or boating on it.

Figure 5.12-5 is a panoramic view from a residence along the east bank of the Grand Canal across from the VPP. This view shows the point where the canal becomes "Ballona Lagoon," which is at the left corner of the VPP, in the upper image. Recreationists walking along the canal and the lagoon, or boating on these waters, would be expected to be highly sensitive to visual impacts. As noted above, the receive site for the Marquesas Way/Via Marina alignment alternative would be in the vacant lot shown in Figure 5.12-5.

Figure 5.12-6 shows the view from Aubrey E. Austin Park, looking to the northwest along Via Marina. This view shows the location of one option for the receive site for the under-channel micro-tunneling construction alternative. The site is within the parking lot shown in the upper image, and the construction/laydown area would also be within this parking lot. The view shown also represents that from the North Jetty Promenade and Via Marina.

Figure 5.12-7 is a panoramic view from the entrance channel that includes the Via Marina receive site, as well as Aubrey E. Austin Park. Views from the channel would not be the most critical, as they would be comparatively distant, relative to views from Via Marina, Aubrey E. Austin Park, and the North Jetty Promenade. While boats may pass along the northwest side of the channel and be within about 240 feet of the nearest Project feature, the North Jetty would block such views. From points nearer the center of the channel but within the ocean-bound lane, points from which the Project could be seen; the viewing positions would be not closer than about 350 feet or more. By contrast, from Aubrey E. Austin Park and Via Marina, one is only about 80 - 90 feet from where the receive site may be within the parking lot northwest of the park. Consequently, views from the entrance channel would not be considered further, as the focus of the assessment is on the most critical views.

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Panorama Showing Site for Push Option 2 for
Marquesas Way/Via Marina Cut-and-Cover Alternative,
Seen from Marquesas Way/Via Dolce Intersection (VP 1).

Figure 5.12-2

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Views of Via Marina/Marquesas Way Intersection, the Site for Site Push Option 1 for Marquesas Way/Via Marina Cut-and-Cover Alternative, Seen from, and near, Marquesas Way/Via Dolce Intersection (VPs 2 and 3).

Figure 5.12-3

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

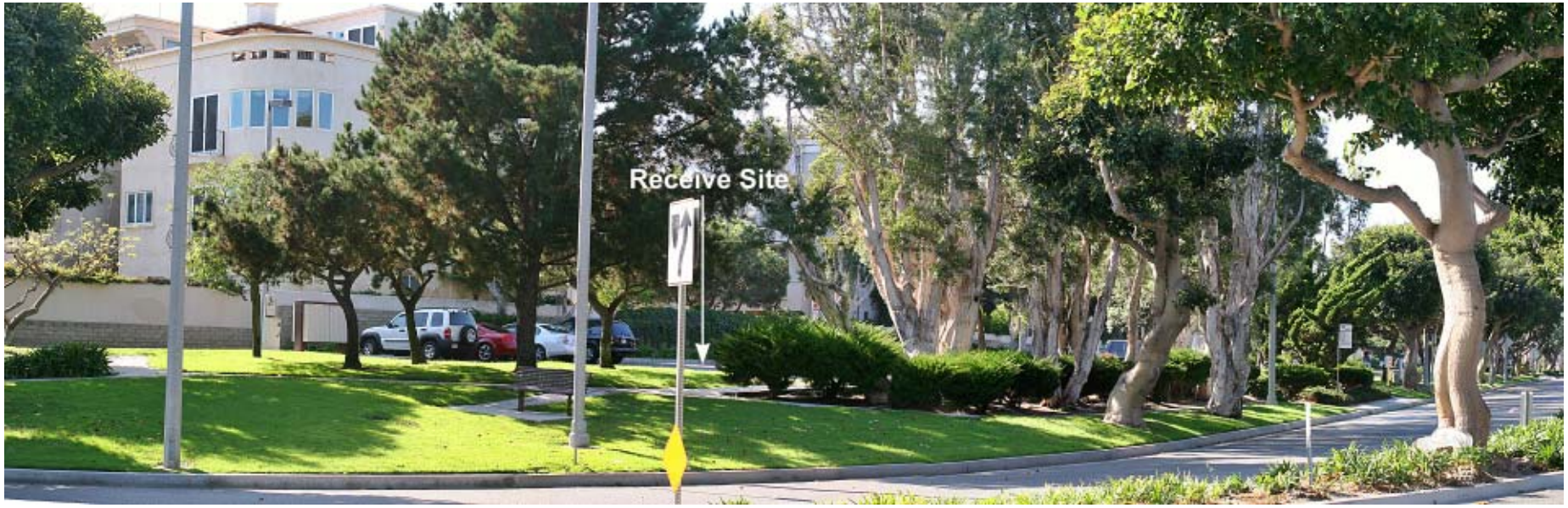
(Top): View along the Grand Canal Showing Residences from Which Receive and Push Sites, Cut-and-Cover, or Extraction Shaft Construction Activities Would Be Seen (VP 4). **(Bottom):** Hurricane St. at the Venice Pumping Plant, Showing Receive and Alternative Extraction Shaft Sites (VP 5).

Figure 5.12-4

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

View from Residence on East Side of Ballona Lagoon/Grand Canal Showing the Venice Pumping Plant, a Receive Site for Micro-Tunneling, and Optional Mined Tunneling Extraction Site (VP 6).

Figure 5.12-5



City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Panoramic View from Aubrey E. Austin Park, Looking Northwest along Via Marina. **(Top):** The Receive Site and Cut-and-Cover Construction for the Via Marina/Marqesas Way Alignment Alternative would be in the Parking Lot (VP 7)

Figure 5.12-6

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

A Panoramic View from the Marina del Rey Entrance Channel, Showing the Locations of the Receive Sites at Pacific Ave. and Via Marina, the Entrance to the Grand Canal, and Aubrey E. Austin Park (VP 8).

Figure 5.12-7

VENICE

Pacific Avenue Alignment

Sensitivity – In general, the Pacific Avenue Alignment Alternative would be within highly sensitive public views that include the collective residential views along the alignment, along Hurricane Street and Pacific Avenue, from Ballona Lagoon/Grand Canal, and those from a pedestrian trail lining the east side of the lagoon.

The collective residential views along Pacific Avenue and Hurricane Street are treated in this analysis as highly sensitive. Cut-and-cover activities would be visible from residences lining the east side of the Grand Canal across from the VPP and those along Hurricane Street Residents along Pacific Avenue south of Hurricane Street to Via Marina would view cut-and-cover construction activities while approaching their homes and from their residences as construction progresses along the street.

Recreational opportunities within the community of Venice occur to the north of the Project site, including the famous Venice Beach, bike path and Ocean Front Walk. In general, public recreation use of area of the Project is less intensive than that of the North Venice Beach portion. Uses are primarily sunbathing, swimming, picnicking, active recreational uses on the sand, and fishing from the Marina Channel jetty. The walkways and waterways along the Venice Canals and Ballona Lagoon provide opportunities for more passive recreational and educational uses, such as bird watching, nature study, strolling, and sightseeing. A Class II Bikeway runs along Pacific Avenue, and non-motorized boating is permitted in the Venice Canals. Potentially, the Project activities would be seen by boaters along the lagoon, those walking along the beach access trail in the vicinity, and bicyclists using Pacific Avenue. Also, where Pacific Avenue intersects with Via Marina, there is the North Jetty Promenade, a frequently used walkway featuring observation decks from which the entrance channel may be appreciated. Fishing is a popular activity below the Promenade.

The south terminus of the subject alignment may be seen from the numerous pleasure craft that use the entrance channel.

Critical Views – The critical views would be any of those from along the alignment from Ballona Lagoon/Grand Canal, pedestrian beach access, Hurricane Street and Pacific Avenue and their adjoining residences, the bikeway along Pacific Avenue, the North Jetty Promenade, and from the entrance channel.

Figure 5.12-4 shows the route for the Pacific Avenue Alignment along Hurricane Street, within view of residences lining this street. Figure 5.12-5 shows the proximity of Ballona Lagoon/Grand Canal to the VPP and the north end of the Pacific Avenue Alignment Alternative. Figure 5.12-8 shows the length of Pacific Avenue from the pedestrian bridge at Lighthouse Street southeast to Via Marina, as well as Ballona Lagoon flanking it on the northeast side. The latter figure also shows that residences line both sides of Pacific Avenue at its southeast end where it meets Via Marina.

Figure 5.12-7 discloses the view of the receive site area as seen from the entrance channel, while Figure 5.12-9 shows the southeast terminus of this alignment alternative and the receive site for micro-tunneling under the Marina Del Rey entrance channel and Ballona Creek. The receive site would be close to the observation platform overhanging the revetment (upper image).

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(Top): Looking Northwest along Pacific Ave. from the Intersection with Via Marina (VP 9). **(Bottom):** Looking Southeast along Ballona Lagoon and Pacific Ave. from the Pedestrian Bridge at Lighthouse St.(VP 10).

Figure 5.12-8

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(Top): View of Receive Site and Construction/Laydown Area from the Corner of Pacific Ave. and Via Marina, Looking Northeast (VP 9). **(Bottom):** View along the North Jetty Promenade from Observation Platform at End of Pacific Ave. and Via Marina (VP 11).

Figure 5.12-9

DOCKWEILER BEACH ALIGNMENT

The cut-and-cover method of construction for this alternative was considered in the EIR but was deemed not viable due to numerous construction-related impacts; therefore, it is not detailed in this assessment. However, the tunneling method of construction is analyzed in this section

WESTCHESTER/PLAYA DEL REY

Pacific Avenue/Vista Del Mar Alignment

Sensitivity – At the northerly end of this alignment, the alignment extends to a push site for micro-tunneling under the entrance channel to either the Pacific Avenue or the Via Marina Alternative Alignments on the north side of the entrance channel. Here there is a boat launch ramp that may be affected due to construction of the push site, a bicycle path, a fishing bridge, and a residential area. The construction/laydown area that would support the micro-tunneling activities would be in the parking lot along the southwest side of the bridge. Views from areas of recreation and residential land uses, including the associated access routes, are highly sensitive.

The parking lot for Del Rey Lagoon Park provides access not only to the park, but also to Dockweiler Beach via a path that leads from the parking lot. Views from Pacific Avenue, the residences along it, Del Rey Lagoon Park, the parking lot at the park, and the beach access path, are all highly sensitive.

Critical Views – All of the views noted would be considered critical, as they are of the highest sensitivity and would include the proposed Project construction activities within the foreground. Most critical of these along Pacific Avenue would be the ones from the bicycle path, the fishing bridge, the residential area along Pacific Avenue, Del Rey Lagoon Park, and the beach access path. Figure 5.12-10 shows views from the bridge over Ballona Creek, looking southeast. The upper image shows the push site area to the north of the bridge (left). The lower image is a better view of the residential area along Pacific Avenue. The bridge links the bicycle path, which is along the jetty separating the entrance channel and Ballona Creek and the stretch of Dockweiler Beach south of the channel and creek.

Figure 5.12-11 shows the scene from the intersection of 66th Avenue and Pacific Avenue, looking northwest and north, which includes the residential area along Pacific Avenue, with a glimpse of Del Rey Lagoon Park. Figure 5.12-12 presents two panoramas of this park, which abuts Pacific Avenue and from which details of Project construction activities would be visible. Along Vista Del Mar, there are multi-story residences, as seen in Figure 5.12-13, which presents photographs from the intersection at Waterview Street and a representative view from the Vista Del Mar. These street-based views are considered to generally represent those from the residences.

CHANNEL CROSSING

The launch shafts and the two alternative receptor sites, associated with micro-tunneling under the Marina Del Rey entrance channel and Ballona Creek, would be within public view. These sites are addressed relative to the cut-and-cover alternative alignments.

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Views from Pacific Ave. Bridge; **(Top):** Push Site in Parking Lot for Under-Channel Alignment; **(Bottom):** View to Southeast along Pacific Ave., Showing Bicycle Path in Foreground (VP 12).

Figure 5.12-10

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(Top) Pacific Ave. and 66th Ave. Looking Northwest, and **(Bottom)** Looking North (VP 13); Del Rey Lagoon Park is Seen to the Right.

Figure 5.12-11

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Panoramic Views of Del Rey Lagoon Park **(Top):** Looking to the Northwest, and **(Bottom):** Looking to the Southeast (VP 14).

Figure 5.12-12

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(Top) Vista del Mar and Waterview St. Looking Northwest to North; and **(Bottom)** Looking East to Southeast (VP 15).

Figure 5.12-13

LARGE-DIAMETER (MINED) TUNNELING ALIGNMENT ALTERNATIVES

There are four Mined-Tunnel Alignment alternatives, which would present noticeable disturbance above ground at the sites for the starter and extraction shaft sites. These sites are within highly sensitive views from beach recreation sites, residential areas, and a designated scenic highway (Vista Del Mar). Alternatives 1 and 2 call for cut-and-cover construction as well, which would also be within recreational oriented and/or residential views.

Alternative 2: LAX - Dockweiler Beach

Sensitivity – This alternative calls for a mined-tunnel connection from the LAX property launch shaft to the extraction shaft on Dockweiler Beach and cut-and-cover connections between the VPP and the extraction shaft. The views affected by starter shaft and associated laydown area would be from Vista Del Mar (scenic highway) and residences lining the northeast side of Napoleon Street. As noted earlier, residential views and those from designated scenic highways are highly sensitive. The sensitive views potentially affected by the extraction shaft and the cut-and-cover part of the alignment were described relative to Alternative 1.

Critical Views – Figure 5.12-14, upper image, shows the general area for the starter shaft and laydown area for this alternative. Foreground views from the designated scenic highway (Vista Del Mar) and residences shown are of the greatest sensitivity and are highly critical. Critical views including the extraction shaft site for this alternative and the cut-and-cover part of the alignment are the same as for Alternative 1.

Alternative 3: Direct Mined-Tunnel Connection from LAX Property to Venice Pumping Plant Via Dockweiler Beach

Sensitivity and Critical Views – This alternative alignment would be a mined-tunnel construction alternative from the starter shaft on the LAX property directly to the extraction shaft in the vacant lot northwest of Hurricane Street and opposite the VPP, via Dockweiler Beach. Views of the starter shaft have been discussed relative to Alternative 2. As for Alternative 2, there would be as much as 300 feet of cut-and-cover construction from the starter shaft to the junction with the existing CIS under Vista Del Mar to the southwest.

The extraction shaft would be in the vacant lot across Hurricane Street from the VPP, as shown in Figure 5.12-5. The sensitivity and critical nature of the affected views potentially affected by the extraction shaft have been discussed relative to the Via Marina/Marquesas Way cut-and-cover alignment alternative.

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Views from the Vista del Mar-Napoleon St. Intersection; **(Top):** LAX Site, Looking East to Southeast; and **(Bottom):** Dockweiler Beach and Vista del Mar, Looking Northwest (VP 16).

Figure 5.12-14

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(Top): Extraction Shaft Alternate Sites at Dockweiler Beach near Hurricane St. (VP 17); and **(Bottom)**: at Venice Pumping Plant (VP 6).

Figure 5.12-15

Alternative 4: Direct Mined-Tunnel Connection from LAX Property to Venice Pumping Plant Under Ballona Lagoon

Sensitivity and Critical Views – This alternative alignment would be a continuous mined-tunnel construction alternative from the starter shaft on LAX property to the extraction shaft in the vacant lot on the northwest side of Hurricane Street, across from the VPP. The tunnel would be inland from the beach and generally under Vista Del Mar, Pacific Avenue and Ballona Lagoon. The starter shaft site and associated laydown site areas are shown in Figure 5.12-14, and sensitive and critical views relative to it have been described regarding Alternatives 2 and 3. Figure 5.12-15 shows the area within which the extraction shaft would be constructed. The laydown area is also expected to be within this vacant lot. The sensitivity and criticality of views from residences and the Grand Canal have been discussed relative to the Marquesas Way/Via Marina Alignment and the Pacific Avenue Alternative alignments.

VISUAL CHARACTER

In conformance with CEQA, detailed descriptions of the existing visual character and quality of the Project vicinity are limited to those views deemed to be "critical," as defined in Section 2.1 of the Technical Study (provided in Appendix I). Accordingly, attention is directed primarily to those moderately to highly sensitive views that would be most affected by a Proposed Action. Where the greatest of impact intensity may occur, low sensitivity views will also be considered. The assessment of visual character serves as the baseline for the quality of Visual/Aesthetic Resources. The estimated visual impacts of the Project will be compared with the baseline conditions to assess the degree of adverse change (intensity) and significance of the potential impacts to the following:

- Inherent landscape features;
- Patterns; and
- Existing visual conditions.

Landscape character and existing visual conditions within critical public views are provided in Appendix I.

5.12.2 Thresholds of Significance

CEQA defines significant impacts as those having a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including … objects of … aesthetic significance" (Article 20, Section 15382).

Appendix G of CEQA (Environmental Checklist) more specifically identifies four areas of concern regarding a project's potential impact on aesthetics:

- Substantial, adverse effects on a scenic vista;
- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within [view from] a state scenic highway;
- Substantial degradation of existing visual character or quality of a site and its surroundings; and
- Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

A significant impact is, in accordance with the CEQA definition, a substantial, or potentially substantial, adverse change in the visual resources of the affected environment. An adverse "change," relative to

visual impact assessment occurs when features are changed, introduced, made less visible, or are removed, such that the resultant effect on public views is perceptibly incongruous with their inherent character. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting. The intensity of a visual impact depends upon how noticeable the adverse change may be. Noticeability is a function of project features and their context and viewing conditions (angle of view, distance, primary viewing directions, lighting, etc.). Four levels of visual impact intensity (noticeability) may occur. These are termed "Visual Modification Classes" (VM Classes) and are defined in Table 2, Attachment A of Appendix I. Significant (substantial) changes (significant visual impacts) are further defined as those that would:

- Result in an inconsistency with laws, ordinances, regulations, and standards (LORS) applicable to the protection of visual resources; or
- Cause a perceptible reduction of visual quality. The perception that visual quality has been reduced is partly a function of public sensitivity to adverse visual impacts. Table 2, Attachment A of Appendix I summarizes the relationship of impact intensity, sensitivity, and the perceived reduction in visual quality.

A third criterion is generally applied which stipulates that an impact must endure for greater than 1 year before it may be considered to be significant. However, in this assessment, no particular duration is stipulated because much of the sensitivity for the potentially affected views is due to recreation activities and sites in the vicinity of the Project.

The value to the public of a single peak-use season is assumed to be extremely important, and any substantial, adverse visual impacts on the aesthetics of the area during this period are considered to be significant, even if temporary or short term. Since no information is available regarding when Project construction would commence, it is assumed that construction would occur during the late spring and summer months.

According to CEQA, Threshold of Significance is that point where an adverse visual impact is deemed to be substantial (i.e., a perceptible reduction in visual quality). CEQA offers no specific criteria for what is deemed "substantial." Therefore, criteria from other sources have been used to provide a systematic approach to this issue, which is summarized in Table 3, Attachment A of Appendix I. The matrix in the table illustrates the relationship of public sensitivity, impact intensity, and what is considered to be a substantial visual impact. The criteria are based upon the principles common to the three primary federal systems for visual resource management and analysis (United States Department of Agriculture, Soil Conservation Service, 1995; United States Department of Interior, Bureau of Land Management, 1978; USDOT, Federal Highway Administration, 1981). This approach has been applied to numerous CEQA-compliant documents over a 15-year period.

CITY OF LOS ANGELES CEQA THRESHOLDS

The City of Los Angeles Draft CEQA Thresholds Guide offers a list of 12 areas of concern to consider in assessing the significance of an impact in accordance with the CEQA Checklist. However, no specific significance criteria accompany this guideline to use in making that determination. Moreover, the Marquesas Way/Via Marina Alignment Alternative is not within the City of Los Angeles, so the City Guidelines do not apply to this alignment alternative.

In the absence of specific significance criteria in the City of Los Angeles Draft CEQA Thresholds Guide or for projects within the County of Los Angeles, the methodology in Attachment A, specifically the matrix in Table 3 in Attachment A of Appendix I has been applied to the determination of significance. Note that all of the City of Los Angeles "Thresholds Guide" issues of concern are considered, as appropriate, in this assessment but are grouped relative to the four CEQA Checklist issues. An exception occurs for the City's concern over Project-caused shading. The current CEQA Checklist does not require consideration of shading. That notwithstanding, this City issue of concern is listed along with the CEQA-related issues.

AES-1: Would the proposed Project or its alternatives cause a substantial degradation of existing visual character or quality of a site and its surroundings?

The City of Los Angeles Draft Thresholds Guide directs that; "The determination shall be made on a case-by-case basis, considering the following factors:"

- The amount or relative proportion of existing features or elements that substantially contribute to the valued visual character or image of a neighborhood, community, or localized area, which would be removed, altered, or demolished;
- The amount of natural open space to be graded or developed;
- The degree to which proposed structures in natural open space areas would be effectively integrated into the aesthetics of the site, through appropriate design, etc;
- The degree of contrast between proposed features and existing features that represent the valued aesthetic image of an area;
- The degree to which a proposed zone change would result in buildings that would detract from the existing style or image of the area due to density, height, bulk, setbacks, signage, or other physical elements; and
- The degree to which the project would contribute to the aesthetic value of an area.

AES-2: Would the proposed Project or its alternatives cause substantial, adverse effects on a scenic vista?

This CEQA issue of concern is interpreted in this assessment as addressing the degree to which Project-related features interfere with a scenic vista, either by obstructing it or interfering with access to it. The City of Los Angeles Draft CEQA Thresholds Guide is relevant to this CEQA issue as follows:

- The extent of obstruction (e.g., total blockage, partial interruption, or minor diminishment) of recognized or valued views (such as natural topography, settings, manmade or natural features of visual interest, and resources such as mountains or the ocean); and
- The extent to which the Project affects recognized views available from a length of a public roadway, bike path, or trail, as opposed to a single, fixed vantage point.

AES-3: Would the proposed Project or its alternatives cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway ?

One issue expressed by the City of Los Angeles Draft CEQA Thresholds Guide is relevant to this CEQA issue:

- Whether the project affects views from a designated scenic highway, corridor, or parkway.

AES-4: Would the proposed Project or alternatives result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area?

Relative to the City of Los Angeles Draft CEQA Thresholds Guide, the factors that are to be considered in determining whether the Project would have a significant impact through nighttime illumination are:

- The change in ambient illumination levels as a result of Project sources; and
- The extent to which project lighting would spill off the Project site and affect adjacent light-sensitive areas.

AES-5: Would the proposed Project or alternatives result in substantial negative shadow effects on nearby shadow-sensitive uses?

The City of Los Angeles Draft CEQA Thresholds Guide requires the consideration of the potential impact of shading by project-related structures. The current CEQA Checklist does not require consideration of shading; however, it did so at the time the Draft Thresholds Guide was prepared and is, therefore, listed here as an issue to be addressed. However, the analysis does not address this issue because the Project has no potential to create any shading impacts as defined by the City guidelines.

AES-6: Would the proposed Project or alternatives result in visual impacts that would not be consistent with applicable rules and regulations?

This impact is not expressed in the CEQA Checklist, but is listed in the City of Los Angeles Draft CEQA Thresholds Guide. As stated above, it is interpreted as asking whether the Project and its alternatives would result in any inconsistencies with applicable plans, policies, objectives, standards, ordinances, regulations or statutes.

5.12.3 Environmental Resources Impacts

The visible changes that would be brought about by the proposed Project and its alternatives, and their potential to create aesthetic impacts, are evaluated in detail in this section relative to each alignment alternative, as well as relative to the several construction alternatives to the propose Project (Mined-Tunneling Alignment alternatives). The significance of these visual impacts has been determined by applying criteria summarized is Section 5.12-2 (and detailed in Attachment A of Appendix I), and the guidelines developed by the City of Los Angeles.

Marina Del Rey Alternative: Marquesas Way/Via Marina

Critical sensitive public views and existing visual conditions are described in Sections 2.1 and 2.2 of this Technical Appendix. The methodology for the following impact assessment is presented in detail in Attachment A of Appendix I.

The critical sensitive viewing positions along this alignment alternative include those from:

- Via Marina, a scenic highway and scenic drive;
- Aubrey E. Austin Park;
- North Jetty Promenade, east end;
- Marina Del Rey entrance channel;
- Marquesas Way, Via Dolce, and adjoining residences;
- Residences along the Grand Canal near the VPP;
- Grand Canal; and
- Residences at the northeast end of Hurricane Street.

OVERVIEW: EXISTING VISUAL CONDITIONS RELATIVE TO PROPOSED PROJECT FEATURES

Via Marina, Aubrey E. Austin Park, North Jetty Promenade, and Entrance Channel

The existing visual conditions for these critical views are all VMC 1: from positions along or within these sensitive public roads and areas, features within view have not been noticeably modified unfavorably by past activities (see Section 2.2 of the Technical Study provided in Appendix I). That is, no noticeably incongruous features are in sight. These existing views are shown in Figures 5.12-2 – 5.12-7. The Project activities and equipment associated with cut-and-cover pipeline installation and the construction and operation of the push and receive sites along this alignment alternative would be industrial in visual character. As such, these Project features would be incongruous with the established settings for the several potentially affected views.

From Via Marina, at its intersection with Marquesas Way, for about 0.5 mile to the southeast, cut-and-cover construction would occur in one of the two lanes serving travel to the southeast. At end of the in-street construction, the alignment would angle to the south into a parking lot serving nearby residences and proceed for approximately 1,000 feet to the tie-in with the under-channel pipeline at the receive site. For the length of the in-street construction, motorists would be restricted to one lane of travel and pass close to the cut-and-cover construction activities in the second lane. Where the alignment crosses over into the parking lot, one or more mature trees would be removed due to trenching activities and the movement of equipment. In the parking lot mentioned, cut-and-cover construction would be within the immediate foreground of residences along the southwest side of the lot, as well as in the foreground of views from the scenic highway/drive. To a limited extent, such activity would also be noticed from Aubrey E. Austin Park and the east end of the North Jetty Promenade. However, it would not be visible from the entrance channel due to intervening structures and vegetation.

The construction activity associated with the receive site would be in the foreground of views from the park and promenade, the residences noted, Via Marina, and, to a lesser extent, from the northwest lane of the entrance channel.

Marquesas Way, Via Dolce, and Adjoining Residences

The existing visual conditions for views from Marquesas Way and the adjoining residences is VMC 1 (Section 2.2). No incongruous features are within view.

Under push site Option 1, there would be no construction along Marquesas Way or within the “island” at the intersection with Via Dolce. Here, micro-tunneling would occur from the push site northeast of the Via Marina/Marquesas Way intersection to the receive site in the vacant lot across from the VPP. A small part of the cut-and-cover construction at Via Marina would be briefly in view but would be at a distance and not within primary views from most of the residences or along much of the street. An exception would occur for motorists driving on Marquesas Way when approaching the stop light at Via Marina. Here in-street construction would be seen for a relatively short part of the alignment where it would tie in with the micro-tunneling from the nearby parking lot northeast of the intersection.

Under push site Option 2, however, construction/laydown site for this option would be in the foreground of views from Marquesas Way, Via Dolce, and their adjoining residences. It would be located in the island defined by the intersection of Marquesas Way and Via Dolce (Figure 5.12-2, lower image).

Moreover, a public beach access path starts near the construction/laydown site and runs along the east side of Ballona Lagoon to the south. From the beginning of this path, the construction/laydown site would be within the foreground. The push site shaft would be in the vacant lot shown in the upper image of Figure 5.12-4. The construction activities here would be in the foreground of residences along the northeast side of Via Dolce at its intersection with Marquesas Way.

The activities and equipment associated with cut-and-cover pipeline installation along Marquesas Way, the construction/laydown area, and the construction and operation of push site Option 2. The shaft site would be screened by an acoustic curtain from 20 – 30 feet tall on four sides. Cranes would be substantially in view above these curtains, and truck traffic to and from the sites would occur intermittently throughout the construction shifts. As such, these Project features would be incongruous with the established settings for these potentially affected views.

Grand Canal Residences, Grand Canal, and Hurricane Street Residences

From residences along the east side of the Grand Canal and the Grand Canal itself, the VPP dominates views and the existing visual condition is VMC 4. This would also be true for residences along the northeast end of Hurricane, for views to the east. Given the visual dominance of the plant, the existing visual conditions are rated VMC 4. This means that for the views from the residences noted and the canal the existing visual quality is at its lowest.

Push site Option 2 and the receive site, both shown in Figure 5.12-4, would be in the foreground of the residences lining the east side of the canal, the canal itself, and residences at the northeast end of Hurricane Street. The receive site, like the push site, would be screened by an acoustic curtain 20 to 30 feet tall. Cranes would be well in view above these curtains, and truck traffic to and from the sites would occur at different points of the day. The curtained construction area and visible equipment would appear industrial and be incongruous with the generally residential setting.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 5.12.2.

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary as well as long term.

Concerning the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the visual impacts are summarized as follows:

- One or more mature street trees, which contribute substantially to the value of the scenic highway/drive status of Via Marina, would be removed;
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; or
- There would be no positive contribution to the aesthetic value of the area.

Certain critical public views would affected by the Project to the point that the impact would be significant. However, the duration would be temporary. Elsewhere, the VPP has adversely affected the quality of critical public views to the point that the additional impact of the Project would not significantly affect these views. The impact would worsen the existing visual quality, but the current visual condition, due to the VPP, is already at the lowest rating. A more detailed analysis follows.

Via Marina and Adjoining Residences – As noted, the Existing Visual Conditions for views from this designated scenic highway/drive are VMC 1. From this road the following Project features would be within foreground views, proceeding from its intersection with Marquesas Way to where it turns to the southwest:

- The 10- 12,000 square feet construction/laydown area for push site option 1;
- The push site option 1 shaft construction area within the Via Marina/Marquesas Way intersection;
- Cut-and-cover construction along 0.5 mile of roadway and approximately 1,000 feet of parking lot;
- The receive site near the entrance channel.

These activities and their associated equipment and workforce would dominate views from this road and its flanking residences and would be industrial in character and incongruous with the setting. Note that the push site would occupy much of the Via Marina/Marquesas Way intersection and would be surrounded by an acoustic curtain 20 – 30 feet high. The equipment and activity within the curtains would be screened from view, but a crane would be substantially taller than the curtains. The site would have an apparent mass of a two- to three-story building due to the curtains.

The construction/laydown area, if square in configuration, would occupy an area 110 feet on a side. This storage of industrial equipment in a parking lot currently serving recreation and commercial uses within Marina Del Rey would appear discordant and dominate views.

Cut-and-cover construction along a 0.5-mile length of Via Marina would be immediately proximate to residences and motorists using this scenic highway. The associated activity and equipment would displace the current positive aesthetic features along the drive and dominate the views. A separate concern is the transition of the in-street construction to the parking lot, which would require the removal of one or more trees on the southwest side of Via Marina. This would be a noticeable loss of a valued visual resource.

From northwest end of Via Marina to the southeast where it passes by Aubrey E. Austin Park, the visual conditions would change from VMC 1 to VMC 4 (dominant), representing an Impact Intensity Level 3 (Table 3, Attachment A of Appendix I). Within a highly sensitive view, such an impact would be significant.

The loss of the street tree(s) would be long term, requiring many years to be mitigated by the maturation of new plantings. The duration of the other impacts is uncertain, as it is not known to what degree certain activities would occur concurrently. The cut-and-cover construction would last for about 3 months, and it is likely that most of the push and receive site construction would be completed concurrently. If not, the cumulative construction could last for about 5 months. In either case, the time frame would be considered to be temporary. *Conclusion: the impact would be significant and primarily temporary, except for the loss of mature street trees, which would be a long-term impact*.

Aubrey E. Austin Park, North Jetty Promenade, East End, and Marina Del Rey Entrance Channel – The Existing Visual Condition for views from this these critical public viewing areas is VMC 1. The most critical of these views is that from the park, followed by those from the promenade and the entrance channel. The only Project feature that would affect views from the park and promenade would be the 5,000 square feet construction/laydown area for receive site for the under-channel tunnel boring and the shaft site itself. The cut-and-cover construction would be largely obscured by the intervening street trees and hedges (see Figure 5.12-6).

The receive site would be surrounded by a 20- to 30-foot-tall acoustic curtain and would be peripheral to the primary views from the park. Given the parks proximity to the entrance channel, it is assumed that views most usually would be directed away from the receive site and toward the boating activity in the entrance channel and the ocean to the southwest. This would also be true for views from the North Jetty Promenade, which is proximate to the entrance channel. Also, views from the promenade toward the receive site are screened by mature trees within the park. Regarding views from the entrance channel, they would tend to be focused along the entrance channel either to the northeast or southwest, in the directions of travel.

The most critical of these views are those from the park. Although most viewing might be away from the receive site, the park is oriented for viewing to the northwest as well (toward the receive site). A conservative approach would be to assume that substantial attention is directed toward Via Marina and the receive site. Accordingly, the site would attract considerable attention to the point of competing with other features in view, if not dominating attention. The two- to three-story curtained area would appear out of place and discordant, not appearing to be an inherent feature of the largely residential area. The resulting visual condition would be VMC 3 (co-dominant). The change in visual conditions would be Intensity Level 2. *Within a highly sensitive view, such impact intensity would be considered to be significant, although the cumulative duration of construction activities at the receive site would be 7 weeks and, therefore, temporary.*

Due to the primary direction of views from the promenade and the entrance channel, coupled with screening by vegetation and attenuation by distance (for the Channel views), the affect of constructing the receive site at Via Marina is not expected to be substantial (not significant).

Marquesas Way, Via Dolce, and Adjoining Residences – The existing visual conditions for potentially affected views from these roads and residences is currently VMC 1. From these roads and residences, the following Project features would be within foreground views:

- The 10- to 12,000 square feet construction/laydown area for push site option 2;
- The push site option 2 shaft construction area;
- Cut-and-cover construction along Marquesas Way/Via Dolce that would connect with the push site Option 2 shaft site.

These activities and associated equipment and workforce would dominate views from the roads and residences noted. They would be industrial in character and incongruous with the setting. The construction/laydown area, if it were square in configuration, would occupy an area up to 110 feet long on each side, or an equilateral triangle up to 155 feet on a side (the available space is triangular). It would

appear that there is insufficient area in the designated "island" location at the intersection of these two streets, as there is less than 6,000 square feet of space there. Use of this space for a construction/laydown area is further complicated by the alignment of the cut-and-cover construction needed to bring the pipeline to push site Option 2. The alignment seemingly would need to traverse the laydown area in order to directly reach the push site, thereby diminishing the area available for laydown. Additional laydown space may be available in the vacant lot next to the push site construction area, but that space is limited as well. Consequently, some additional part of Via Dolce or Marquesas Way may have to serve as a construction/laydown area.

Using the island for a construction/laydown area would likely cause the damage and removal of the large, mature tree, as well as all of the landscape materials in the island. This island (see Figure 5.12-2) is an entry statement for residential area and the visual focus of traffic along both streets. The loss of the tree and other plantings would cause an irretrievable loss of visual quality.

The Option 2 push site, the 20 to 30-foot-tall acoustic curtained site would largely fill the vacant lot. This two- to three-story curtain wall would be on all four sides of the site, and would look like a featureless block structure incongruous with the setting. The crane inside the site would protrude well above the curtain walls, and the necessary truck traffic would be visible intermittently throughout the day.

The effect of cut-and-cover construction would be the same as described for the Via Marina views. Views from the roads would be dominated by the proximate construction. Additionally, since open-trench construction would need to proceed more or less straight to the push site in the vacant lot, the planted island area described above would be traversed by the alignment. The trench construction would unavoidably destroy plantings and cut the roots of the mature tree in the island. Using the area as a laydown site most likely would damage the tree, and trench construction would cause further damage. Together, the activities could cause the tree to be removed.

The visual impacts associated with the construction of the Option 2 push site, its operation, the use of the intersection island for a laydown site, and cut-and-cover construction would severally and together dominate views with features incongruous with the setting. The existing visual conditions would change from VMC 1 to VMC 4, representing and impact intensity of Level 3. Given the sensitivity of the views affected, the impact would be significant.

The duration of the construction activities note is as follows. The Option 2 push site shaft would be constructed within about 2 months, and the approximately 500 feet of cut-and-cover construction along Marquesas Way that would be required for this push site would take about 3 to 4 weeks. It is assumed that shaft construction and cut-and-cover activities would be concurrent, but at worst, if they were not, the duration would extend to 3 months instead of 2. *The impacts, while significant, would be temporary in duration.*

Grand Canal Residences, Grand Canal, and Hurricane Street Residences – The existing visual conditions for potentially affected views from these roads and residences is currently VMC 4 due to the presence of the VPP. From the residences and the canal, the following Project features would be within foreground views:

- The Option 2 push site; and
- The receive site in the vacant lot opposite the VPP.

These activities and equipment, activity, and workforce associated with the push site and receive site would be co-dominant with the VPP. The appearance of the acoustic curtain-enclosed sites, the protruding crane, and truck traffic have has been described relative to AES-1. These features would be industrial in character and incongruous with the generally residential setting. However, because the Existing Visual Conditions are VMC 4, the conditions could not substantially worsen and the impact, while adverse, would not be significant. This adverse impact would endure for six weeks of construction for the receive site, but this would be concurrent with the construction of the push site, which would last for about 2 months. The adverse impact would, therefore, be temporary.

AES-2 The proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant, primarily temporary but to a limited extent long term.
The impacts of the Project, relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, are summarized as follow:

- There would be a significant impact due to partial obstruction of recognized and valued views due roadside cut-and-cover construction, construction/laydown areas, and optional push sites.
- The impact would significantly affect the recognized views currently available from lengths of public roadways (Via Marina, Marquesas Way, and Via Dolce).

Via Marina is a designated scenic highway/drive, and the views from this road represent a continuous series of scenic vistas culminating in view of the entrance channel. Also, there are scenic vistas from Aubrey E. Austin Park and the North Jetty Promenade, which extend out across the entrance channel, but in the case of the park, also extend along Via Marina. Furthermore, the views from the residences lining the east bank of the Grand Canal near the VPP are highly scenic vistas, which include the canal and the Ballona Lagoon to the southeast. The adverse impact on the views noted has been assessed in detail relative to AES-1. That on views from Via Marina and Aubrey E. Austin Park would be significant and primarily temporary, excepting the loss of street trees, which would be a long-term impact. The impact on views from the Grand Canal residences, the Grand Canal, and Hurricane Street residences would be adverse but not significant due to the existing effect of the VPP.

AES-3 The proposed Project or its alternatives would cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway. The impact would be significant and long term.
The Los Angeles City Threshold factor for significance that is under AES-3 is as follows:

- The Project would significantly impact views from a designated scenic highway. This has been discussed.

The Project would result in the loss of mature street trees along Via Marina, a designated scenic highway (designated by the County of Los Angeles) and one mature tree at the intersection of Via Dolce and Marquesas Way. The impact of the loss of these trees has been described relative to AES-1, and would be significant and long term.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

The applicable regulatory setting is the Los Angeles County LCP for Marina Del Rey, embodied in the Marina Del Rey LUP and discussed in Section 3.2. Policy "e-3" of the Plan established Via Marina as a scenic drive, and the Scenic Highway Element of the County General Plan identifies Via Marina as a scenic highway. It is assumed that unfettered and access to Via Marina and its continuous enjoyment by the public is implicitly a policy of the Plan, as would be the protection from adverse impacts the views from this road. The adverse impacts from Via Marina have been described and are deemed in this assessment not to be consistent with the Plan. The impact would be temporary, however.

Venice Alignment Alternatives: Pacific Avenue Alignment

The critical sensitive viewing positions along this alignment alternative include those from:

- Hurricane Street and adjoining residences;
- Pacific Avenue and adjoining residences;
- Bikeway along Pacific Avenue;
- Ballona Lagoon/Grand Canal;
- Public beach access path along easterly side of Ballona Lagoon; and
- The North Jetty Promenade.

OVERVIEW: EXISTING VISUAL CONDITIONS RELATIVE TO PROPOSED PROJECT FEATURES

Hurricane Street, Grand Canal at Hurricane Street, and Adjoining Residences

The existing visual condition for views from the northeast end of Hurricane Street, the Grand Canal in that immediate vicinity, and the residences nearby is VMC 4, as described in Section 2.2 of the Technical Study (Appendix I). As noted there, the views are dominated by the VPP. It and the chain-link fenced lot on the opposite side of the street are industrial in character. The VPP and lot are incongruous with the residential context, with the VPP being the subject of the view.

Cut-and-cover construction would occur in one of the two lanes of Hurricane Street and would be in the immediate foreground of motorists and residents along the street. Construction activities would also be noticeable from the residences lining the east side of the Grand Canal just northeast of the end of the street, as demonstrated in Figures 5.12-4 and 5.12-5.

Pacific Avenue and Residences, Southwest End of Via Marina, Bikeway, Ballona Lagoon, Beach Access Path and North Jetty Promenade

From these sensitive viewing positions, the existing visual conditions include no anomalous features incongruous with the character of the area and are rated VMC 1. Cut-and-cover construction would be within the foreground of views from the streets and residences listed, the bikeway, and the lagoon, but would be viewed at a distance of over 270 feet from the beach access path running along the easterly side of the lagoon. In addition, this alternative would require that a receive site be constructed along the North Jetty Promenade at the intersection of Via Marina and Pacific Avenue. To construct the receive site and the open-trench pipeline, one lane of Via Marina along the entrance channel and the adjoining public parking would be used for a construction/laydown area.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 5.12.2.

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished;
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; and
- There would be no positive contribution to the aesthetic value of the area.

Most of the critical public views would be affected by the Project such that the impact would be significant. However, the duration would be temporary. For views from Hurricane Street and residences at its northeast end, as well as the Grand Canal and residences close to this end of the street, the VPP has adversely affected the quality of critical public views to the point that the additional impact of the Project would not significantly affect these views. The impact would worsen the existing visual quality, but the current visual condition due to the VPP is already at the lowest rating. A more detailed analysis is available in Appendix I.

AES-2 The proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant, primarily temporary but to a limited extent long term.

Relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, the impacts may be summarized as follows:

- There would be a significant impact due to partial obstruction of recognized and valued views due to roadside cut-and-cover construction, construction/laydown areas, and a receive site; and
- The impact would significantly affect the recognized views currently available from lengths of public roadways (Via Marina and Pacific Avenue) and the bike path along Pacific Avenue.

Via Marina is a designated scenic highway/drive and the views from this road represent a continuous series of scenic vistas culminating in views of the entrance channel. Also, there are scenic vistas from the North Jetty Promenade, which extend out across the entrance channel. As well, scenic vistas of the Ballona Lagoon from the Class II bikeway along Pacific Avenue would be significantly impacted by cut-and-cover construction within the roadway. The potential adverse impact on the views noted has been assessed in detail relative to AES-1 and has been considered to be significant but temporary.

AES-3 The proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

The Los Angeles City Threshold factor for Significance relevant to this CEQA issue and is summarized as follows:

- The Project would significantly impact views from a designated scenic highway (see AES-1), but would not impact any specific scenic resources.

The Project would not directly damage features contributing to the visual aesthetics of the potentially affected views. Rather, the Project would introduce features into these views which are incongruous with the established setting and would block specific views (for instance, the receive site would interfere with views of the entrance channel from various viewing positions). These impacts have been addressed under AES-1 and AES-2.

Views from a designated scenic highway (Via Marina) would be adversely affected, but aesthetic features in view would not, as noted, be adversely impacted. A separate impact not specifically addressed by the City of Los Angeles Thresholds is that access to a designated scenic highway would be eliminated, temporarily (traffic would be restricted to local residence and controlled along one lane), as would access to the Promenade and the entrance channel views by the temporary elimination of public parking in the area. In essence, eliminating access to views represents an irretrievable loss of the resource (the scenic highway and public parking at least partly serving as access to scenic views) for the period of construction. This impact is addressed under AES-6 and would be temporary.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

The applicable regulatory documents are the Venice Community Plan and the Venice LCP LUP, as this alignment alternative lies entirely within the boundaries of Venice. Section 5.9 details the applicable plans

and policies. Coastal Resources Goal 18 of the Venice Community Plan calls for the preservation of the scenic and visual qualities of coastal areas. The policy is to assure that projects are visually compatible with the character of surrounding areas. Moreover, design principles set forth in the Venice LUP requires that views of distinctive visual resources not be significantly disturbed. As discussed relative to AES-1, the Project would introduce features into view that are visually incompatible with the character of the affected area. Also, views of the entrance channel would be directly impacted, and the entrance channel arguably presents a distinctive visual resource. Because the Project would not be consistent with the regulatory setting, the visual impacts described would be considered significant. They would, however, be short term, lasting for about 7 months.

Westchester/Playa Del Rey Alignment Alternatives: Pacific Avenue/Vista Del Mar Alignment

The critical sensitive viewing positions along this alignment alternative include those from:

- Pacific Avenue Fishing Bridge;
- Bikeway along Pacific Avenue Bridge;
- Pacific Avenue and 62nd Street, including adjacent residences;
- Del Rey Lagoon and adjacent parking area;
- Dockweiler Beach Access from Pacific Avenue; and
- Vista Del Mar (scenic highway) and adjacent residences.

OVERVIEW: EXISTING VISUAL CONDITIONS RELATIVE TO PROJECT FEATURES

Pacific Avenue Fishing Bridge, Bikeway, Boat Launch, Pacific Avenue and 62nd Street, Residences Along 62nd Street

The existing visual condition for these critical views is VMC 1, as described in Section 2.2 of the Technical Study (Appendix I). Within views from positions along the bridge and bikeway, in the vicinity of the boat launch, at the northwest end of Pacific Avenue, and along 62nd Street, there are no noticeably incongruous features in sight. The existing views are shown in Figure 5.12-10. In this vicinity, the activities and equipment associated with cut-and-cover construction, as well as the construction and operation of the push site, would be within the immediate foreground. Such equipment and activities would have a decidedly industrial appearance that would be incongruous with the recreation and residential land uses and character there.

Pacific Avenue and Adjoining Residential Area, Del Rey Lagoon Park, Beach Access Path

From these sensitive viewing positions, the potentially affected views include no anomalous features incongruous with the character of the area and are rated VMC 1. On Figures 5.12-11 and 5.12-12, the residential area along Pacific Avenue, the adjacent Del Rey Lagoon Park, and one of its parking lots are shown. Cut-and-Cover construction would be within the foreground of views from the street and residences listed, Del Rey Lagoon Park and its parking lot, and the beach access path. Cut-and-cover construction would occur in one of the two lanes of Pacific Avenue and would be in the immediate foreground for park users, local residents, and those using the beach access path leading from the parking area along Pacific Avenue that also serves the park.

Vista Del Mar and Adjacent Residences

As is the case for the other views from this alignment alternative, the existing visual conditions are VMC 1, there being no noticeably incongruous features within view. On Figures 5.12-13 and 5.12-14, the

terminus of the alignment where the new pipeline would tie in with the existing CIS, as well as the character of the residential area and the quality of the ocean views available from this road, are shown. Cut-and-cover construction would be within one lane of Vista Del Mar and, therefore, be in the immediate foreground of views from the street and residences noted.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 5.12.2.

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished;
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; and
- There would be no positive contribution to the aesthetic value of the area.

The critical public views noted would be affected by the Project such that the impact would be significant. The affected views are highly sensitive and Project construction activities would be within the immediate foreground of these views. Of particular importance is that Vista Del Mar is a scenic highway; and therefore, views from this road are especially important. However, the duration of the impacts noted would be temporary.

A detailed impact assessment follows:

Pacific Avenue Fishing Bridge, Bikeway, Boat Launch, Pacific Avenue and 62nd Street, Residences along 62nd Street

From these critical viewing positions, the following Project features would be within the foreground:

- The 10- to 12,000 square feet construction/laydown area for the push site;
- The push site; and
- Cut-and-cover construction at the northwest end of Pacific Avenue south of the entrance channel.

The activities, equipment, and workforce associated with these Project features would dominate these views and be incongruous with the setting, as noted. The push site would be located in the parking lot abutting the bridge on its northeast side. It would also have to accommodate some space for construction/laydown, as the primary location for this, the parking lot abutting the southwest side of the bridge, would be too small. Therefore, it is assumed that the push site would occupy the entire area between the boat launch and the bridge, including the northeast end of 62nd Street. The associated

construction/laydown site would occupy the entire parking lot flanking the southwest side of the bridge, as well.

As has been noted before, the push site (like the receive sites) would be surrounded by an acoustic screen that would be 20 to 30 feet high. A crane would be substantially higher than the curtain, so not all of the equipment would be shielded from view. Also, truck traffic required for the delivery of materials and supplies and muck hauling would be periodically within the subject views.

A limited stretch of cut-and-cover construction would affect the views noted, as this aspect of the Project terminates at the push site. Here the trenched pipeline would be tied in with the under-channel pipeline. Cut-and-cover construction would require a moveable construction/laydown area alongside of the open-trench construction, as well as a portion of the parking lots noted.

The existing visual conditions would change from VMC 1 to VMC 4 (dominant, incongruous features), representing an impact intensity of Level 3 (Table 3, Attachment A of Appendix I). Within a highly sensitive view, such an impact would be significant.

The duration of the impact on the subject views, the push site must be completed prior to tunnel boring and would require 2 months to construct. Tunnel boring would require from 1 to 2 months (Section 4.4, Project Description). Cumulatively, push site construction and boring would therefore be completed over a 4-month period. It is assumed that the short stretch of cut-and-cover construction within the subject views would occur within this time frame. Consequently, the visual impact of construction would be temporary.

Pacific Avenue and Adjoining Residential Area, Del Rey Lagoon Park, Beach Access Path

Relative to these critical viewing positions, it primarily would be cut-and-cover construction that would adversely impact the visual quality of the area. However, truck traffic required for the construction and operation of the push site, and for delivery of materials for open-trench construction, would also be within view and pose an adverse impact.

The activities, equipment, and workforce associated with pipeline installation, and the truck traffic noted, would occur within a few feet of the edge of Del Rey Lagoon Park, the nearby residences, parking for the residences and lagoon, and the beach access path. The scale, proximity, contrast, and movement of the equipment and workforce would unavoidably draw focused attention and dominate the scene. The existing visual conditions would change from VMC 1 to VMC 4 (dominant, incongruous features), representing an impact intensity of Level 3. Within the highly sensitive views noted, such an impact would be significant.

There would be about 2,000 feet of cut-and-cover construction along Pacific Avenue up to where it intersects with Vista Del Mar. At the rates of advance described in the summary Project Description in Section 4.4, construction along this road would be complete within about 3.5 months. Consequently, the visual impact of construction, while significant, would be temporary.

Vista Del Mar and Adjacent Residences

As would be the case for the Pacific Avenue stretch of the alignment, along Vista Del Mar, the primary aspect of the Project that would be within view would be cut-and-cover construction within one lane of the roadway. The impact of this construction would be as described earlier relative to other foreground views. There would be an impact of Level 3 intensity, and it would therefore be significant. The length of Vista Del Mar that would be affected would be about 1,600 feet long. At the rate of advance projected, it would take about 3 months to complete this part of the alignment. Therefore, the impact, while significant, would be temporary.

AES-2 The proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant, primarily temporary but to a limited extent long term.

Relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, the impacts may be summarized as follows:

- There would be a significant impact due to partial obstruction of recognized and valued views due to the construction and operation of a push site; and
- The impact would substantially affect recognized views currently available from a length of a public roadway and a portion of a bikeway.

Vista Del Mar is a designated scenic highway, and the views from this road represent a continuous series of scenic vistas of the Pacific Ocean and Dockweiler Beach. Also, there are scenic vistas from the bikeway along the South Jetty, the Pacific Avenue Fishing Bridge, and 62nd Street, which extend out across the entrance channel. The potential adverse impact on the views noted has been assessed in detail relative to AES-1 and has been considered to be significant but temporary.

AES-3 The proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

One Los Angeles City Threshold factor for Significance is relevant to this CEQA issue and the impact is summarized as follows:

- The Project would significantly impact views from a designated scenic highway (see AES-1 and -2), but would not impact any specific scenic resources within view of a scenic highway.

The Project would not directly damage features contributing to the visual aesthetics of the potentially affected views, particularly views from a scenic highway. Rather, the Project would introduce features into these views which are incongruous with the established setting. These impacts have been addressed under AES-1 and AES-2.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4, therefore, do not apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

Section 5.9 details the applicable plans and policies. The applicable regulatory document is the Coastal Resources chapter of the Westchester-Playa Del Rey Community Plan. Objective 18-5 is relevant: "Preserve coastal visual resources by protecting and enhancing scenic views of the ocean and wetlands from designated Scenic Highways, and public view sites." Vista Del Mar is a designated scenic highway.

Policy 18-5.1 for this objective calls for the following relevant stipulations for siting and designing development in order to:

- Protect public views to and along the ocean and scenic coastal areas;
- Be visually compatible with the character of the surrounding area; and
- Retain existing views from designated public view areas and scenic highways.

Under this policy, "all new development in the Coastal Zone, including public works and recreational facilities, should be subordinate to its setting, and minimized in height and bulk to the extent feasible to accomplish view protection (emphasis added)." Siting the pipeline construction within a designated scenic highway is inconsistent with this policy. Doing so does not protect views to and long the ocean; the activities, equipment and workforce needed will be visually incompatible with the character of the surrounding area; and closing off one lane of this highway will substantially limit public enjoyment of this scenic highway.

Consequently, the impact of the Project is significant due to its inconsistency with Policy 18-5.1. The duration of the impact would be about 2 months, so, while significant, the impact would be temporary.

MINED-TUNNEL CONSTRUCTION ALTERNATIVES

The Mined-Tunnel Construction Alternatives comprise three viable alternative alignments. All require a starter shaft on LAX land southeast of the Napoleon Street/Vista Del Mar intersection. Alternative 2 requires an extraction shaft on Dockweiler Beach at the end of Hurricane Street and cut-and-cover construction to tie the pipeline to the VPP. Alternatives 3 and 4 entail direct, continuous tunneling from the LAX starter shaft to an extraction shaft in a vacant lot at the northeast end of Hurricane Street across from the VPP. Alternatives 3 and 4, relative to aboveground features, would be identical. Rather than by alternative, the impacts will be assessed relative to:

- The starter shaft;
- The extraction shaft at Dockweiler Beach;
- The extraction shaft at the VPP. and

To summarize, Alternatives 3 and 4 would have the potential for significant, but short-term visual impacts due to the starter shaft, but would affect primarily private, residential views. Alternative 2 would have same "starter shaft" impacts--significant, but short term—but would also have the potential for

significant—albeit temporary—"extraction shaft" impacts that would affect private residential views, but also public views from Dockweiler Beach. Additionally, Alternative 2 would have the potential for significant, temporary visual impacts due to cut-and-cover construction of the Hurricane Street part of the alignment.

There will be no detailed discussion of the Hurricane Street cut-and-cover construction, as the impact on residential views along this street has been discussed relative to the Pacific Avenue Alternative Alignment within Venice. For Alternative 2, cut-and-cover construction would extend from the southwest end of Hurricane Street about 785 feet to the VPP, whereas for the Pacific Avenue alignment, it would extend about 450 feet from Pacific Avenue to the Plant. The nature and intensity of the impact would be the same. The Existing Visual Conditions are VMC 1 until reaching the plant, where they are VMC 4. The construction activities, equipment and workforce would dominate views (VMC 4), representing a substantial reduction in visual quality for views from most of Hurricane Street (impact intensity Level 3). The impact would, therefore, be significant. The 785-foot alignment would be completed in less than 6 weeks, so it will be temporary in duration.

IMPACT INTENSITY, SIGNIFICANCE AND DURATION

AES-1 The proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but short term.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished;
- Natural open space would be graded or developed;
- A Structures is proposed for a natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area;
- No zone change is proposed; and
- There would be no positive contribution to the aesthetic value of the area.

The critical public views noted would be affected by the Project such that the impact would be significant. The affected views are highly sensitive and Project construction activities would be within the foreground of these views. Of particular importance are views from nearby residences and Vista Del Mar, a scenic highway. However, the duration of the impacts noted would be short term, lasting for about 2 years.

A detailed impact assessment follows:

STARTER SHAFT

The critical sensitive viewing positions potentially affected by the construction and operation of the starter shaft are from:

- The residences lining the northeast side of Napoleon Street and facing the Site;
- The beach access path along Napoleon Street; and
- Vista Del Mar, a scenic highway.

The existing visual conditions are VMC 1 for these potentially affected views. The starter shaft site would require about 12,000 square feet of space, including space for a construction/laydown site, and would be enclosed by a 20- to 30-foot-tall acoustic curtain just as would the push and receive sites relative to the bored tunneling construction alternatives. There will be two cranes on site that will be taller than the curtains, so these would be visible. The remainder of the facilities within this site would be screened from view. However, the 15 daily truck round trips would be noticeable, and there would be as much as 300 feet of cut-and-cover construction to tie the pipeline to the existing CIS within Vista Del Mar.

Residences and Beach Access Path

The beach access path runs along the fence skirting the northerly side of the LAX property along Napoleon Street. Views from there are closely similar to those from the residence on the other side of Napoleon, except that the residences are multi-story and views from the upper stories would be more elevated. Figure 5.12-14 shows the vacant LAX land in which the starter shaft would be sited, seen from viewpoint (VP) 16 (see Figure 5.12-1). This land appears substantially natural; there are no structures, but there are several unobtrusive roads within this area. The location of the site is approximate in this photograph. If it were to be sited as shown in Figure 5.12-1, it would be over 700 feet away from the viewing position from which the photograph was taken. By way of contrast, the nearest residence on Napoleon Street would be about 224 feet from the center point of this site, as shown in Figure 1. If the configuration of the starter shaft site were to be square, the site would be about 110 feet on a side (12,000 square feet). This means that the edge closest to the residences would be at least 55 feet closer than the center of the site, or just 164 feet. Seen at that distance, which is about half the length of a football field, a 20- to 30-foot-tall "box" 110 feet on a side would attract considerable attention, particularly since the open land around the site is featureless and some of the residences are oriented directly toward the site. Stated differently, the shaft site would be as tall as the residences from which it would be viewed, but it would occupy substantially more square footage.

Given that the land around the starter shaft site is vacant and that the starter shaft site would command attention to the point of at least competing with the ocean views to the southwest. The acoustic curtained "box" would not be a feature that would be mistaken for a building. The presence of the cranes extending above the curtains and the truck traffic would, together with the screening, lend an industrial character to the site. Moreover, it is not clear that all equipment would be within the enclosure. For instance, with a construction crew of 20 to 25 persons, 20 to 25 vehicles may need to be parked on site in order to allow the pubic to park along Vista Del Mar. Were the site to compete for attention, the visual conditions would be rated VMC 3, a reduction by two ratings from the current VMC 1. The impact intensity would be Level 2. Given the sensitivity of residential views, the impact would be significant.

The length of time needed to construct the starter shaft is not known at this time. However, it would be in operation for up to about 28 months during the mined tunneling. It is assumed that from the start of construction to completion, the shaft would be within view for at least 2.5 years but not longer than 3 years. The significant impact noted, then, would be short term.

Vista Del Mar – Views from Vista Del Mar (scenic highway) would tend to be directed toward the scenic Pacific Ocean and the beach below the road. The site would be oblique to the directions of travel and

peripheral to the main views to the southwest. For most of the public, the starter shaft might have to be pointed out to be noticed, given the primary direction of viewing, either along the road (to safely operate the vehicle) or toward the ocean, away from the site. In views from this road, visual quality would likely not be substantially lessened.

EXTRACTION SHAFT—DOCKWEILER BEACH

The critical sensitive viewing positions potentially affected by the construction and operation of the starter shaft are those from:

- The residences lining the Dockweiler Beach; and
- Dockweiler Beach

The existing visual conditions are VMC 1 for these potentially affected views. The extraction shaft site would require about 5,000 square feet of space, including the construction/laydown area and would be enclosed by a 20- to 30-foot-tall acoustic curtain just as would the starter shaft, and the push and receive sites (bored tunneling). There would be a crane on site that would be taller than the curtains, so it would be visible. The remainder of the facilities within this site would be screened from view. However, the daily truck round trips would be noticeable.

Apart from the multi-story residences, there is "Ocean Front Walk," a pedestrian beach access running along the beach side of the residences. A few feet away from the extraction shaft site is a beach volleyball court, and passive beach uses may occur anywhere in the vicinity of the site. The extraction shaft site would be much smaller than the starter shaft site, being only 5,000 square feet in size. This would be a square 70 feet on a side. However, the site may be within 50 feet or less of the residences and pedestrian beach access path. It would inevitably dominate views from the residences with its industrial appearance, as it could be as tall as the residences (VMC 4). Moreover, the associated truck traffic would also be a distraction. The impact would be intensity Level 3, as the existing conditions are VMC 1. Relative to the highly sensitive views affected, the impact would be significant.

The period of its initial construction would be 10 weeks. After it is constructed, all equipment would be removed from the site and a steel plate would be placed over the shaft. It can be expected not to be especially noticeable at that point, as sand would naturally tend to cover the plate over time. The shaft would become operational at the point that the TBM needs to be extracted from the mined tunnel, which would be about 28 months later. The TBM would be extracted, and the pipeline tied into the pipeline installed with cut-and-cover construction, over a 1-week period. The cumulative 7-week period in which the shaft would be constructed and operated would be temporary.

EXTRACTION SHAFT—VENICE PUMPING PLANT

The critical sensitive viewing positions potentially affected by the construction and operation of the starter shaft are those from:

- The residences lining the east side of the Grand Canal near the VPP;
- The Grand Canal; and
- Residences along Hurricane Street at its northeast end.

The existing visual conditions are VMC 4 for these potentially affected views. The extraction shaft site has been described relative to the Dockweiler Beach extraction shaft site. It would appear industrial and be as large as the nearby multi-story residences. The visible part of the crane and truck traffic, coupled with the acoustic screened site, would attract considerable attention and compete for it with the existing VPP. However, the existing conditions are VMC 4, and while there would be and adverse visual impact, no substantial reduction in visual quality would occur. Moreover, the duration of the impact would be temporary, lasting cumulatively just 7 weeks.

AES-2 The proposed Project or its alternatives would not cause substantial, adverse effects on scenic vistas

The Los Angeles City Thresholds for Significance that are grouped under AES-2, the impacts may be summarized as follows:

- There would be no significant impact due to partial obstruction of recognized and valued views; and
- The impact would not substantially affect recognized views currently available from a length of a public roadway and a portion of a bikeway.

Alternatives 2, 3 and 4 would not have the potential to obstruct any recognized or valued views, nor would they substantially affect recognized views from a public roadway or bikeway.

AES-3 The proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

The Los Angeles City Threshold factor for Significance is relevant to this CEQA issue and the impact is summarized as follows:

- The Project would neither significantly impact views from a designated scenic highway (see AES-1 and -2) nor significantly impact any specific scenic resources within view of a scenic highway.

Alternatives 2, 3 and 4 would not significantly impact views from Vista Del Mar, the only scenic highway in the vicinity of these alternatives. Moreover, the construction of the starter and extraction shafts would not adversely affect any landscape features contributing to scenic quality.

AES-4 The proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4, therefore, do not apply.

AES-5 The proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the proposed Project or its alternatives.

AES-6 The Proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impacts would, therefore, be significant, but they would be temporary and short term.

Section 5.9 details the applicable plans and policies. The applicable regulatory document is the Coastal Resources chapter of the Westchester-Playa Del Rey Community Plan, relative to the starter shaft site. Concerning the two alternate extraction shaft sites, both are in Venice; the relevant regulatory documents are the Venice Community Plan and the Venice LCP LUP.

The Westchester-Playa Del Rey Community Plan, Objective 18-5 is relevant: "Preserve coastal visual resources by protecting and enhancing scenic views of the ocean and wetlands from designated Scenic Highways, and public view sites." Vista Del Mar is a designated scenic highway. However, views from this scenic highway would not be significantly impacted.

Policy 18-5.1 for this objective calls for the following relevant stipulations for siting and designing development in order to:

- Protect public views to and along the ocean and scenic coastal areas;
- Be visually compatible with the character of the surrounding area; and
- Retain existing views from designated public view areas and scenic highways.

Under this policy, "all new development in the Coastal Zone, including public works and recreational facilities, should be subordinate to its setting, and minimized in height and bulk to the extent feasible to accomplish view protection (emphasis added)."

The starter shaft would not interfere with public views to and along the ocean. There are no public view areas in the vicinity, and the shaft site would not interfere with scenic highway-based views. However, the shaft site would not be visually compatible with the natural open space character of the LAX property. Consequently, the impact of the Project would not be entirely consistent with Policy 18-5.1 of the subject Plan. The impact, though, would be short term.

Coastal Resources Goal 18 of the Venice Community Plan calls for the preservation of the scenic and visual qualities of coastal areas. The policy is to assure that projects are visually compatible with the character of surrounding areas. Moreover, design principles set forth in the Venice LUP requires that views of distinctive visual resources not be significantly disturbed. As discussed relative to AES-1, the starter and extraction shafts would be visually incompatible with the character of the affected area. Because the Project would not be consistent with certain policies and goals of the Venice regulatory setting, the visual impacts described would be considered to be significant. They would, however, temporary and short term in duration, lasting for 7 weeks in the case of the extraction shaft sites, and less than 3 years in the case of the extraction shaft.

5.12.4 Mitigation Measures

As noted in Section 5.12.3, the cut-and-cover, micro-tunneling, and mined-tunneling alternative construction activities, and their associated equipment and workforce, would all have the potential to cause significant visual impacts, to varying degrees, that would primarily be temporary in duration. With one exception, the Project or its alternatives would cause no damage to scenic resources (features contributing to the positive visual quality of potentially affected views), no new source of light and glare, and no negative shadow effects. Instead, depending on the alternative, the impacts would variably be due to:

- The introduction to views of features not congruent with the existing visual character of the area;
- Partial obstruction of views, or the limiting of access to the views;
- Adverse effects on views from scenic highways or the temporary elimination of access to these highways; and
- Inconsistency with one or more regulatory goals, objectives or policies.

Mitigation measures either entail redesigning a project so as to site it in an area not within sensitive public views, screening the Project features from view with landscaping, or re-designing the Project features to mimic those that are characteristic of the area. In the case of the Project, the visual impacts are due to construction activities, equipment and the presence and movement of the workforce, and not because of its appearance once it is complete. Because the visual impacts of construction are all temporary or short term, they end with the completion of the Project. No feasible measures can mitigate the impacts of construction to a level that is less than significant, for it is assumed that, by definition, such measures must occur within the context of undertaking the Project. That is, construction activities must occur. Regarding re-siting the alignment of the Project, the alignments are constrained by the starting and ending points. The area in between is characterized by dense, residential development, the presence of scenic highways, and the attraction of recreation opportunities. It would not be possible to avoid sensitive views.

Where specific positive landscape features are damaged, obscured, or removed, direct mitigation may take the form of adjusting the siting of an aspect of the project to avoid the impact, or replacing the feature if it is damaged or removed. In the case of the Marquesas Way/Via Marina Alignment Alternative, several mature street trees will be removed by cut-and-cover construction and/or the use of an area as a construction/laydown site. Based on available information, a choice to re-align the pipeline to avoid crossing from Via Marina into the parking lot serving the receive site, and re-locating the Option 2 push site construction/laydown area at the Via Dolce/Marquesas Way intersection, are not viable. The only feasible mitigation measure is:

AES-1 Replace street trees destroyed by construction activities with very large-diameter, mature trees. Depending on the species, this may or may not be possible.

Where impacts may not be directly mitigated, they may be offset by actions taken elsewhere to compensate for the loss of visual quality. It would be speculative to definitively list specific offsetting actions at this time. However, such actions generally would include:

- Landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly;
- Screening from public view existing features that are incongruous with the character of their surroundings (such as the VPP); and/or
- Creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking.

During public scoping meetings, some suggested that the existing VPP could be made to be more aesthetically pleasing. Currently, this industrial facility has reduced visual conditions in its vicinity to VMC 4. One most obvious measure would be to paint the facility a color matching nearby residences and removing the art deco-like treatment of the wall facing the Grand Canal. Plantings which soften the VPP's profile or cover its walls with vines might be investigated, if there is the physical space available to

landscape the perimeter. A walkway abutting the blue wall fronting the Grand Canal (Figure 5.12-5, upper image) might be converted into a planter, or several large, decorative planters with tall shrubs or small trees might be installed along that part of the walk (since the walk ends here, the loss of this stretch of sidewalk would not be important to pedestrians). A small strip of fill at the northeast end of Hurricane Street could provide room for large trees that would block some views of the VPP. In the upper image of Figure 5.12-4, large trees are growing along the edge of the sidewalk. In the lower image in Figure 5.12-5, it is apparent that such plantings could be installed between the chain-link fence along the vacant lot and the sidewalk next to it. These trees, in time, would screen the lot and provide a more aesthetic edge to the Grand Canal. The residual impact of offsetting mitigations would be inversely proportional to the degree of public acceptance of the measures.

Regarding the improvement of the visual quality in public spaces, Figure 5.12-10 discloses, in the upper image, the opportunity to improve the appearance of the parking lot along the bridge in the vicinity of where the push site for under-channel tunneling would occur. The bank in the foreground might be planted to shield from view the parking lot and conceal or replace the jumbled chunks of concrete riprap. Similar plantings on the other side of the bridge along the parking area there (the site for the construction/laydown area) would aesthetically frame the bikeway's entrance into Playa Del Rey.

5.12.5 Unavoidable Adverse Impacts

All of the significant, temporary and short-term impacts described in Section 5.12.3 are unavoidable. These impacts will end, however, with the completion of construction. These impacts may be offset by actions taken elsewhere within the affected communities to improve the aesthetics of existing views. The acceptability of any measures contemplated are best addressed through public involvement.

The long-term impact of the destruction of mature street plantings along Via Marina and Marquesas Way might be improved to the point that the duration would be short term (less than 5 years in duration), if trees of a large size are planted. Several years of growth would be required for the trees to approach in height those that would be removed.

5.12.6 Cumulative and Secondary Impacts

Of the projects listed as related to the proposed Project in the Introduction, Section 1.0, Table 1.7-1, only two would be relevant. In neither case would there be significant cumulative impacts.

Marina Del Rey Tide Gates Project – This Project entails the removal, rehabilitation and improvement of portions of the existing outlet structure for the Grand Canal located at the southeast end of the Grand Canal where it passes under Via Marina, along with where portions of the proposed Project would also occur. The one aspect of construction that would be relevant to cumulative impacts is that the "Gates" project may require the closure of one lane of Via Marina Street during construction, with traffic controlled by a flagman. The proposed Project also calls for such closure and traffic control. At the time of this assessment, no specific time frames for construction of either project had been identified. It can only be said that if the projects do not occur simultaneously, sequential construction would result in a prolonged period during which views from a designated scenic highway/drive (Via Marina) are unavailable to the public; e.g., it would seem likely that traffic along Via Marina would be restricted to local residential access because there would be no public parking along the road and, therefore, no place

to stop and enjoy the view. The impact of closing one lane due to the proposed Project would, by itself, represent a significant, albeit, temporary visual impact. Lane closure due to the Gates project would also be a temporary but significant visual impact. If the two projects were to occur sequentially, the combined effect would solely be to lengthen the duration of the impact to the point of being short term (1 to 5 years' duration).

To mitigate the impact to visual resources, both projects should be completed within the same time frame if it is feasible to do so, thereby limiting the time during which the one lane of Via Marina would have to be closed.

Venice Pumping Plant Sluice Gate Replacement Project – This project involves the temporary diversion of sewer flows in order to bypass the VPP while the sluice gate within the VPP is rehabilitated. The bypass would be via a pipeline placed above ground along the Grand Canal from Driftwood Street to Hurricane Street along the Esplanade. The pumping mechanisms and pipeline would be in place for about 1 month. This project is relevant to the proposed Project in consideration of cumulative impacts because activities associated with the Project would occur in the same area as the southeast end of the "Sluice Gate" project (near the VPP).

The Initial Study for the Sluice Gate project found that there would be no significant visual impacts, based partly on their short duration. CEQA does not recognize specific time limits as thresholds of significance, nor does the City of Los Angeles Thresholds Guide. However, as noted, the existing visual condition for views potentially affected by the Sluice Gate project is VMC 4 due to the presence of the VPP. This industrial facility dominates the views from points in its vicinity. For that reason, not due to the duration of the impact, the Sluice Gate project would not be a significant impact, as the condition of the affected views cannot worsen. Likewise, together with the proposed Project, the Sluice Gate project would not cumulatively cause a significant impact, due to the existing condition of the area.

6.0 PROJECT ALTERNATIVES ANALYSIS

6.1 INTRODUCTION TO PROJECT ALTERNATIVES ANALYSIS

The Initial Study for this Project determined that the Project would not impose any long-term or lasting negative impacts or lasting effects to the environment, living species or human beings. All temporary impacts resulting from the Project are directly related to construction activities.

Because the estimated time duration to construct the Project is anticipated to last over an extended period of time (18 to 24 months) resulting in long-term interruption to the proposed alternatives locations, the impacts identified in this report represent IMPACTS WHICH MAY OCCUR AS A RESULT OF THE PROJECT DURING THE CONSTRUCTION PERIOD ONLY and are not to be confused with standard CEQA Guidelines covering the lifetime of the Project and its locations.

6.2 NO PROJECT ALTERNATIVE

The No Project alternative could result in potentially significant adverse effects to the environment due to the existing sewer force main's current lack of conveyance capacity and the current inability to perform regularly scheduled maintenance on the existing force main. An overflow of untreated wastewater into the Ballona Lagoon and areas surrounding the Project areas could result, causing harm to the environment.

Under this alternative, no new pipelines would be installed and the sewer system would continue to operate in the current manner.

6.3 SECOND NEW CONVEYANCE LINE (SECOND NEW FORCE MAIN)

A new force main would provide redundancy to the existing sewer, allowing for adequate conveyance in from the VPP to the Hyperion Treatment Plant in Playa Del Rey, and by providing the ability to conduct maintenance to the existing force main. The cut-and-cover/micro-tunneling method of construction is proposed for the following alignments, with the exception of the beachfront alignments. This method of construction was considered for those beachfront alignments, but deemed to be not viable. Each cut-and-cover alignment has either one or two shafts at either end for the purpose of entering and/or exiting the channel as required to install the sewer pipe under the channel.

MARQUESAS WAY/VIA MARINA WAY ALIGNMENT

This alignment and the micro-tunnel launching and receptor shafts associated with it are subject to impacts associated with construction staging of equipment, parking and related traffic throughout the 18- to 24-month duration of construction along Hurricane Street, Marquesas Way and Via Marina Way respectively. This alternative is within a designated segment of scenic highway requiring the preservation of scenic views which will be diminished and immitigable from construction activities during the tourist season. Unmitigatable impacts to parking and pedestrian traffic would result from tunnel activities on each side of the Grand Canal at the junction with Hurricane Street, and in the empty lot between residential housing west of Marquesas Way and leading to the sidewalk next to the Grand Canal.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. Although this proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

PACIFIC AVENUE ALIGNMENT ALONG HURRICANE STREET AND PACIFIC AVENUE

Impacts from this alternative would result from construction-related activities associated with cut-and-cover construction along Hurricane Street and Pacific Avenue and at a micro-tunnel receptor shaft at Pacific Avenue near Via Marina Way, and at a launching shaft located on the south side of the channel on the east side of the Pacific Avenue pedestrian bridge. The Project will impose significant unavoidable impacts to visual aesthetics of the vicinity and parking and traffic to residents and tourists, who live and visit the area. Access to parks and parking facilities for Dockweiler Beach, the pedestrian bridge and public parking facilities at Pacific Avenue on the south side of the channel will be reduced as a result of construction-related staging, vehicles and mobile equipment for a period of 18 to 24 months. Noise impacts associated with the proximity of construction-related equipment to residents and visual impacts due to equipment staging are anticipated.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

DOCKWEILER BEACH TO PACIFIC AVENUE ALIGNMENT

The cut-and-cover method of construction for this alignment has been considered, but deemed not viable; however, deep mined-tunneling construction alternatives are also proposed for the beachfront and are described in Section 4.0. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersect of Dockweiler Beach and Hurricane Street would impose noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Construction activities may result in temporary effects on least terns (see Appendix D, Biological Technical Report). Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

PACIFIC AVENUE/VISTA DEL MAR ALIGNMENT

This southern extension of the Pacific Avenue alternative, located on the south side of the Via Marina channel, is listed as a scenic highway and is subject to site monitoring during the course of construction near the area where Pacific Avenue transitions to Vista Del Mar to mitigate the potential for impacts to historic/cultural/Paleo resources finds as described in the Cultural Resource section (Section 5.5) of this EIR. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. Although this proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

DOCKWEILER BEACH ALIGNMENT

This southern extension of Dockweiler Beach alternative is located on the south side of the Via Marina Channel. The cut-and-cover method of construction for this alignment has also been considered, but deemed not viable; however, deep-mined tunneling construction alternatives are also proposed for the beachfront and are described in Section 4.0. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersect of Dockweiler Beach and Hurricane Street would impose noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Visual impacts associated with potential construction equipment and activities methane venting.

DEEP MINED-TUNNEL ALTERNATIVES

Each starter shaft and receptor shaft for the deep mined-tunnel construction alternatives have their own numeric identifier, shown in Section 4.0 on Figure 6.3-1.

ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Based upon the outcome of the impact analysis for this project, it has been determined that the environmentally superior alternative is the mined tunnel Alternative #4 (Inland Alignment, LAX to VPP). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion and noise and vibration. The proposed alignment as shown on figure 4.3-10, would begin at launch shaft #2 located in Vista Del Mar and run due north toward the pumping plant on Hurricane Street and tie in at the #10 receptor shaft. Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the city would work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way.

ALTERNATIVES IMPACT ANALYSIS TABLE

The following Table reflects the results of the studies and analysis devoted to each alternative (As indicated, Construction method +Alignment/or shaft = Alternative). Each alternative location/area that may be impacted is identified with a unique number representing its location and type (see Figures 4.2-2). The alternatives are located in the column on the left hand side of the table. All resources, which may be impacted, are listed in the column along the top of the table. The overall impact to each resource, at each location, is rated with a symbol located at the intersection of each location/resource. The ratings are as follows:

✔ Insignificant or no impact

⚠ Impact that can be mitigated to a level of insignificance

⚠ Impact that cannot be mitigated to a level of insignificance

Impact Area's in the Project Analysis

Micro Tunnel Alternatives

Alternative	Impact Area/Associated Shaft Locations
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9, 10

Cut and Cover Alignment Alternatives

Alternative	Impact Area/ Associated Shaft Locations
Marquesas Way/Via Marina Way	8, 10, 11, 12, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	7, 10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment
Dockweiler Beach Alignment	1, 3, 5, 6, 9

Large Diameter (Mined) Tunnel Alternatives

Alternative	Impact Area/ Associated Shaft Locations
1. Mined-Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined-Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined-Tunnel - Beach Alignment (LAX to Hurricane)	2, 9, 10, Mined-Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined-Tunnel - Beach Alignment (LAX to VPP)	2, 10, Mined-Tunnel - Beach Alignment (LAX to VPP)
4. Mined-Tunnel - Inland Alignment (LAX to VPP)	2, 10, Mined-Tunnel - Inland Alignment (LAX to VPP)

Table 6.3-1 Impact Analysis Table

Impact Analysis

Legend:

✓ Insignificant or no impact
⚠ Impact that can be mitigated to a level of insignificance
⚠ Impact that cannot be mitigated to a level of insignificance

Alternatives/ Impact Areas	Air Quality	Biology	Circulation and Traffic	Cultural Resources	Geology	Hazardous Waste	Hydrology	Land Use	Noise	Paleontology	Public Facilities and Services	Visual and Aesthetics	Water Quality
Marquesas Way/Via Marina Way													
8	✓	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
10	✓	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
11	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
12	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	✓	⚠
Marquesas Way/Via Marina Way	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Pacific Avenue Alignment													
7	✓	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
10	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Pacific Avenue	⚠	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
Pacific Avenue/Vista Del Mar													
1	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	✓	✓	✓	⚠	⚠
3	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
4	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
5	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
Westchester/Playa Del Rey Alignment	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
9	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Mined Tunnel - Beach Alignment (Waterview to Hurricane)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
9	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠

Alternatives/ Impact Areas	Air Quality	Biology	Circulation and Traffic	Cultural Resources	Geology	Hazardous Waste	Hydrology	Land Use	Noise	Paleontology	Public Facilities and Services	Visual and Aesthetics	Water Quality
10	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Mined Tunnel - Beach Alignment (LAX to Hurricane)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
3. Mined Tunnel - Beach Alignment (LAX to VPP)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
10	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Mined Tunnel - Beach Alignment (LAX to VPP)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
4. Mined Tunnel - Inland Alignment (LAX to VPP)													
2	✓	✓	⚠	⚠	⚠	⚠	⚠	✓	✓	⚠	⚠	✓	⚠
10	⚠	✓	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Mined Tunnel - Inland Alignment (LAX to VPP)	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
Dockweiler Beach to Pacific Avenue Alignment													
4	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
6	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
9	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠
10	⚠	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	✓	✓	⚠
Dockweiler Beach Alignment													
1	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
3	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
5	✓	⚠	⚠	⚠	⚠	⚠	⚠	✓	⚠	⚠	⚠	⚠	⚠
6	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	✓	✓	⚠	⚠	⚠
9	✓	⚠	⚠	✓	⚠	⚠	⚠	✓	⚠	✓	⚠	⚠	⚠

Legend:

✓ Insignificant or no impact

⚠ Impact that can be mitigated to a level of insignificance

⚠ Impact that cannot be mitigated to a level of insignificance

MICRO-TUNNEL/DEEP-TUNNEL ALTERNATIVES NUMERIC IDENTIFIERS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 6.3-1

6.3.1 Impact Analysis

6.3.2 Marina Del Rey

Air Quality

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	10, 11, 12, 8
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The use of construction equipment on site would potentially result in localized air quality impact. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way

Due to the close proximity of housing to the shaft area, extended periods of running construction related equipment could pose impacts to localized air quality.

Biology

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2
Marquesas Way/Via Marina Way	10, 8, Marquesas Way/Via Marina Way

Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from

the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	1
Marquesas Way/Via Marina Way	11, 12
Pacific Avenue Alignment	10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal during construction, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area.

2. Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

3. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Circulation

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	1, 3
Dockweiler Beach to Pacific Avenue Alignment	6
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	1, 3, Westchester/Playa Del Rey Alignment

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

- Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Marquesas Way/Via Marina Way	10, 11, 12

1. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way.

2. Temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina.

pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks

Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle

The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437.

temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.

Cultural Resources

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7

It is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, no impact is expected.

Geology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. The impact of the proposed Project on the existing geologic condition of the site. The Project alternatives are suitable for the proposed construction with proper mitigation.

Hazardous Waste

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations). In addition, other hazardous substances, such as methane and other hazardous materials may be present in the project area.

Mitigation measures prior to and during construction will insure less than significant impacts during construction for the project.

Hydrology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)

(LAX to VPP)	
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Perched groundwater, may be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer. Impacts will be less than significant during construction with proper mitigation.

Land Use

✔ **Insignificant or no impact**

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Noise

✔ **Insignificant or no impact**

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 6
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	12
Pacific Avenue/Vista Del Mar	1, 3

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	5
Dockweiler Beach to Pacific Avenue Alignment	9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach Alignment	9
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 8

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7. Noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact during construction.

Paleontology

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7
Pacific Avenue/Vista Del Mar	1, 3

There have been no Paleontological findings within this portion of the project area and no impacts are anticipated as a result of construction related activities to the project in this area.

Public Facilities and Services

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11
Pacific Avenue/Vista Del Mar	1

Impacts to these areas may be mitigated to levels of less then significant with appropriate mitigation as defined in Section 8 of this document.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9
Dockweiler Beach Alignment	5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	12, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	4, 5

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

There would be adverse impacts of existing recreational activities and use of public recreational resources during Project construction, however there will be no long term adverse affects.
• Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
• The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.
• Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
• All or most of the parking along Via Marina at the entrance channel would be removed;
• Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
• The Class II Bike Trail along Pacific Avenue would be closed during construction;
• Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
• Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
• Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments. The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
• The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
• Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
• The Napoleon Street residential foot path could be interrupted by construction activities.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Marquesas Way/Via Marina Way	8
Pacific Avenue Alignment	7, Pacific Avenue

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

Visual/Aesthetics

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment	2

(LAX to Hurricane)	
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 12

Visual impacts are less than significant at this location.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section 5.12 for detailed impact information.

Water Quality

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Impact to Water Quality in this area can be reduced to less than significant by implementing mitigation measures as defined in Section 8 of this document.

6.3.3 Playa Del Rey

Air Quality

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	10, 11, 12, 8
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The use of construction equipment on site would potentially result in localized air quality impact. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Biology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	1
Marquesas Way/Via Marina Way	11, 12
Pacific Avenue Alignment	10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal during construction, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area.

2. Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

3. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Circulation

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2

Dockweiler Beach Alignment	1, 3
Dockweiler Beach to Pacific Avenue Alignment	6
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	1, 3, Westchester/Playa Del Rey Alignment

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

• Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Pacific Avenue Alignment	7
Pacific Avenue/Vista Del Mar	4, 5

1. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way,

2. Temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina.

pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks

Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle

The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437.

temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.
Pacific Avenue Alignment

localized construction impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways,

leading to reductions in roadway capacity.

Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue
The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas.

Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period.

Dockweiler Beach to Pacific Avenue Alignment

The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.
Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437 would be necessary

Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street.

Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront.

Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Pacific Avenue/Vista Del Mar Alignment

Localized construction related impacts on the transportation system would occur as a result of a reduction in roadway capacity due to construction traffic and the closure of roadway travel lanes.

During the tunnel-boring and open-trench construction, 62nd Avenue east of Pacific Avenue would be temporarily closed and would result in the temporary loss of approximately 15 parking spaces in the public parking lot.

Non-motorized transportation would be temporarily affected by establishment of the laydown area of the tunnel-boring construction. Pedestrian pathways to Back Bay Place and the Del Rey

During the in-street construction on Pacific Avenue between 66th Avenue and Culver Boulevard, temporary removal of street parking on one side of the would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue.
The Lagoon waterfront would need to be diverted around the construction laydown area.

Dockweiler Beach Alignment

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary.

Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1 of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

Mined Tunnel Construction

Project impacts at the shaft would result in unavoidable localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal during construction.

Cultural Resources

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources. There is only one site alternative that may be impacted by the Project located at the Viista Del Mar alignment. Mitigation monitoring to insure no disturbance to potential cultural resources in the area will reduce potential impacts.

Geology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. The impact of the proposed Project on the existing geologic condition of the site. The Project alternatives are suitable for the proposed construction with proper mitigation.

Hazardous Waste

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations). In addition, other hazardous substances, such as methane and other hazardous materials may be present in the project area.

Mitigation measures prior to and during construction will insure less than significant impacts during construction for the project.

Hydrology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Perched groundwater, may be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project

alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer. Impacts will be less than significant during construction with proper mitigation.

Land Use

✔ **Insignificant or no impact**

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Noise

✔ **Insignificant or no impact**

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 6
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	12
Pacific Avenue/Vista Del Mar	1, 3

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	5
Dockweiler Beach to Pacific Avenue Alignment	9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Paleontology

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7
Pacific Avenue/Vista Del Mar	1, 3

There have been no Paleontological findings within this portion of the project area and no impacts are anticipated as a result of construction related activities to the project in this area.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

Paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

The paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

There have been no recorded paleontologic recordings in the project area except for the LAX Dunes. Monitoring by a qualified paleontologist in this area should be conducted to insure proper evaluation and handling of any potential findings.

Public Facilities and Services

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11
Pacific Avenue/Vista Del Mar	1

Impacts to these areas may be mitigated to levels of less then significant with appropriate mitigation as defined in Section 8 of this document.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)

3. Mined Tunnel - Beach Alignment (LAX to VPP)	2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	3, Westchester/Playa Del Rey Alignment

Impacts to this area will be less than significant with proper mitigation as defined in Section 8 of this document.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9
Dockweiler Beach Alignment	5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	12, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	4, 5

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

There would be adverse impacts of existing recreational activities and use of public recreational resources during Project construction, however there will be no long term adverse affects.

• Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
• The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.
• Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
• All or most of the parking along Via Marina at the entrance channel would be removed;
• Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
• The Class II Bike Trail along Pacific Avenue would be closed during construction;
• Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
• Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
• Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments. The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
• The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
• Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
• The Napoleon Street residential foot path could be interrupted by construction activities.

Visual/Aesthetics

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section 5.12 for detailed impact information.

Water Quality

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Impact to Water Quality in this area can be reduced to less than significant by implementing mitigation measures as defined in Section 8 of this document.

6.3.4 Venice

Air Quality

Insignificant or no impact

Alternative	Impact Area
Pacific Avenue Alignment	7

No Air Quality impacts due to mined tunneling activities are anticipated at this location.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2

Air Quality impacts are not anticipated at this location.

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	10, 11, 12, 8
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The use of construction equipment on site would potentially result in localized air quality impact. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD's Since the TBM is electrically driven, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way

Due to the close proximity of housing to the shaft area, extended periods of running construction related equipment could pose impacts to localized air quality.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Pacific Avenue Alignment	Pacific Avenue

No Air Quality impacts due to mined tunneling activities are anticipated at this location.

1. Construction activities produce combustion emissions from various sources such as site grading, generators, worker's vehicles, on-site heavy-duty construction vehicles, and trucks hauling materials to and from the site. Exhaust and fugitive dust emissions from construction activities on site would vary daily as construction activity levels change. The use of construction equipment on site would potentially result in localized air quality impacts. The combination of open trench and micro-tunneling construction is expected to have a significant impact on air quality, unless mitigation measures for NO_x are implemented.

2. Fugitive dust emissions are generally associated with demolition, land clearing, exposure, and cut and fill operations. Dust generated during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions.

3. Depending on construction schedules of all the projects in the area, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts.

4. Construction activities produce combustion emissions from various sources such as site drilling, generators, worker's vehicles, on-site heavy-duty construction vehicles, and trucks hauling materials to and from the site.

5. Exhaust and fugitive dust emissions from construction activities on site would vary daily as construction activity levels change. The use of construction equipment on site would potentially result in localized air quality impacts. The combination of open trench and micro-tunneling construction is expected to have a significant impact on air quality, unless mitigation measures for NO_x are implemented.

6. Dust generated during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions.

7. Depending on construction schedules of all the projects in the area, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts.

Biology

Insignificant or no impact

Alternative	Impact Area
Pacific Avenue Alignment	7

The Via Marina at Pacific Avenue is located 600 linear feet from the least tern nesting area. Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from

the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2
Marquesas Way/Via Marina Way	10, 8, Marquesas Way/Via Marina Way

Noise and other activities associated with Project construction would affect least tern nesting if construction during the nesting season is located less than 1,000 linear feet from the least tern nesting area. However, even though this site is located less than 1,000 linear feet from the least tern nesting area, it is separated by a housing development. Therefore, the alignment would not be expected to result in temporary (and no permanent) effects on the nesting site. No other temporary impacts on least tern foraging habitat are expected to occur.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach to Pacific Avenue Alignment	9

Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
Dockweiler Beach to Pacific Avenue Alignment	10

Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will

be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	3, 5, 6, 9

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. 2. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance within 500 feet of the nesting site. Although the shaft is over 500 feet from the Least Tern area, proper mitigation should be implemented for worker related activity on the beach near the construction site.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach to Pacific Avenue Alignment	4, 6

1. The proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area during construction with proper mitigation as defined in section 5.3. 1. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance within 500 feet of the nesting site. Although the shaft is over 500 feet from the Least Tern area, proper mitigation should be implemented for worker related activity on the beach near the construction site.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	1
Marquesas Way/Via Marina Way	11, 12
Pacific Avenue Alignment	10, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

1. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the Grand Canal during construction, although the proposed Project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area.

2. Temporary impacts to water quality and marine resources at launching and receiving sites associated with the submarine canal erosion could occur through the unintentional release of excavated sediments and water into the local environment.

3. Any construction activities conducted during the least tern nesting season when terns are present, may impose significant temporary impacts in the form of noise, surface vibration, and increased human disturbance. Furthermore, those least terns using the nesting site will be affected if open-cut excavation, jacking pit, or micro-tunneling is used, within 500 feet of the nesting site. Additionally, the increased human disturbance may attract tern predators (i.e., American crow).

Circulation

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

• Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	1, 3
Dockweiler Beach to Pacific Avenue Alignment	6
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	1, 3, Westchester/Playa Del Rey Alignment

Construction traffic (both worker and truck trips) generated from both the tunnel construction would not adversely impact any of the study roadway segments but would result in an adverse impact at one of the nine analyzed study intersections:

• Pacific Avenue at Washington Boulevard (p.m. peak hour)

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10, 9
Pacific Avenue Alignment	7
Pacific Avenue/Vista Del Mar	4, 5

1. The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way,

2. Temporary closure of the eastbound right-turn only lane on Marquesas Way and the outer southbound lane on Via Marina south of the Marquesas Way would be necessary. Vehicles on Marquesas Way intending to make eastbound right-turn maneuvers would have to make wide turning movements to go around the shaft site to travel southbound on Via Marina.

pedestrian access would be impacted at Via Marina/Marquesas Way because of the temporary closure of the west and south legs of the pedestrian crosswalks

Temporary closure of the outer southbound lane on Via Marina would be necessary to provide space for the open-trench construction zone during the 3-week cycle

The open-trench construction of this Via Marina segment could temporarily affect the transit system by requiring the relocation of transit bus stops in the vicinity of the construction areas on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437.

temporarily displace approximately 24 parking spaces, leading to increased competition for available beach parking and affecting pedestrian movement to the waterfront at the marina entrance for up to 2 months.
Pacific Avenue Alignment

localized construction impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue
The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas.

Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period.

Dockweiler Beach to Pacific Avenue Alignment

The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.
Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437 would be necessary

Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street.

Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront.

Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Pacific Avenue/Vista Del Mar Alignment

Localized construction related impacts on the transportation system would occur as a result of a reduction in roadway capacity due to construction traffic and the closure of roadway travel lanes.

During the tunnel-boring and open-trench construction, 62nd Avenue east of Pacific Avenue would be temporarily closed and would result in the temporary loss of approximately 15 parking spaces in the public parking lot.

Non-motorized transportation would be temporarily affected by establishment of the laydown area of the tunnel-boring construction. Pedestrian pathways to Back Bay Place and the Del Rey

During the in-street construction on Pacific Avenue between 66th Avenue and Culver Boulevard, temporary removal of street parking on one side of the would be required to allow two-way traffic to safely travel through this segment of Pacific Avenue.
The Lagoon waterfront would need to be diverted around the construction laydown area.

Dockweiler Beach Alignment

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary.

Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1 of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

Mined Tunnel Construction

Project impacts at the shaft would result in unavoidable localized impacts on the vehicular and non-motorized transportation on Hurricane Street west of Grand Canal during construction.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Pacific Avenue Alignment	10, Pacific Avenue

Localized construction impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue
The open-trench construction of the Pacific Avenue segment could temporarily affect the transit system by requiring the relocation of transit bus stops on Pacific Avenue northbound in the immediate vicinity of the construction areas.

Pacific Avenue is designated a Class II Bikeway by the City of Los Angeles. Increased safety risks for vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to streets. Pedestrian access to the bridge across Ballona Lagoon at Lighthouse Street would also be affected during the daytime construction period.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach to Pacific Avenue Alignment	4

The temporary localized impacts on the transportation system would occur due the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity.

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be required for MTA Lines 108 and 358 and LADOT Commuter Express Line 437 would be necessary

Pedestrian and bike movement in the vicinity would also be affected by construction on Hurricane Street.

Construction of the beach alignment would have possible conflicts with the walking path adjacent to the jacking pit at the oceanfront.

Construction of the entire North Dockweiler Beach alignment in combination with either of the two Playa Del Rey alignments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Dockweiler Beach Alignment	5, 6, 9

Temporary relocation of bus stops at the northwest and northeast corner of the Pacific Avenue/Hurricane Street intersection would be necessary.

Construction traffic (both worker and truck trips) generated from both the tunnel construction and the cut-and-cover activities on both ends of the alignment would result in adverse construction-period impacts at two of the nine analyzed study intersections and 1

of the 23 study segments:

- Pacific Avenue at Washington Boulevard
- Nicholson Street at Culver Boulevard
- Culver Boulevard east of Nicholson Street (p.m. peak hour)

Cultural Resources

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7

It is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, no impact is expected.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources. There is only one site alternative that may be impacted by the Project located at the Viista Del Mar alignment. Mitigation monitoring to insure no disturbance to potential cultural resources in the area will reduce potential impacts.

Geology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The geology and subsurface conditions of the site have been evaluated in terms of their impact on the proposed Project. The impact of the proposed Project on the existing geologic condition of the site. The Project alternatives are suitable for the proposed construction with proper mitigation.

Hazardous Waste

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Based on reports and files reviewed at the California Division of Oil, Gas, and Geothermal Resources (CDOGGR), the proposed Project alignments lie within an area of oil well field development known as the Playa Del Rey Field. Several abandoned oil wells lie either within, or within proximity of, the proposed alignments (refer to Figure G-1 in Appendix G and also see Figure 5.7-1 for locations). In addition, other hazardous substances, such as methane and other hazardous materials may be present in the project area.

Mitigation measures prior to and during construction will insure less than significant impacts during construction for the project.

Hydrology

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)

(LAX to VPP)	
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Perched groundwater, may be encountered during the excavation operation of construction. Dewatering during construction could also lower local groundwater levels and potentially result in subsidence of the immediate area adjacent to the proposed Project alignment (reference design material). However, construction dewatering would not result in a loss of groundwater from a producing aquifer. Impacts will be less than significant during construction with proper mitigation.

Land Use

✔ **Insignificant or no impact**

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project will adhere to all local and regional regulatory requirements necessary for the construction of the sewer. Additionally, this Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas.

Noise

✔ **Insignificant or no impact**

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3, 6
Dockweiler Beach to Pacific Avenue Alignment	4, 6
Marquesas Way/Via Marina Way	12
Pacific Avenue/Vista Del Mar	1, 3

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2

Residences would experience less-than-significant vibration levels from these construction activities. No significant vibration impacts from large-diameter tunneling activities are predicted for this alternative.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	5
Dockweiler Beach to Pacific Avenue Alignment	9
Marquesas Way/Via Marina Way	Marquesas Way/Via Marina Way
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

A construction related noise would constitute a short-term but significant impact unless mitigation measures are implemented throughout this alignment.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of California Occupational Safety and Health Administration (Cal-OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, Section 5095, et seq.) for worker noise exposure. Compliance with Cal-OSHA regulation will ensure that construction personnel are adequately protected from potential noise hazards.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach Alignment	9
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 8

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7. Noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact during construction.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Pacific Avenue Alignment	10, 7

Construction noise emissions from micro-tunneling would be dominated by stationary equipment. Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 5.10-7. Noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant.

Paleontology

Insignificant or no impact

Alternative	Impact Area
Dockweiler Beach Alignment	1, 3

paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)

3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7
Pacific Avenue/Vista Del Mar	1, 3

There have been no Paleontological findings within this portion of the project area and no impacts are anticipated as a result of construction related activities to the project in this area.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9

The paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

There have been no recorded paleontologic recordings in the project area except for the LAX Dunes. Monitoring by a qualified paleontologist in this area should be conducted to insure proper evaluation and handling of any potential findings.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach Alignment	5
Pacific Avenue Alignment	Pacific Avenue
Pacific Avenue/Vista Del Mar	4, 5, Westchester/Playa Del Rey Alignment

Paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

The paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at

depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

There have been no recorded paleontologic recordings in the project area except for the LAX Dunes. Monitoring by a qualified paleontologist in this area should be conducted to insure proper evaluation and handling of any potential findings.

Public Facilities and Services

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11
Pacific Avenue/Vista Del Mar	1

Impacts to these areas may be mitigated to levels of less then significant with appropriate mitigation as defined in Section 8 of this document.

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3
Pacific Avenue Alignment	10
Pacific Avenue/Vista Del Mar	3, Westchester/Playa Del Rey Alignment

Impacts to this area will be less than significant with proper mitigation as defined in Section 8 of this document.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9
Dockweiler Beach Alignment	5, 6, 9
Dockweiler Beach to Pacific Avenue	4, 6, 9

Alignment	
Marquesas Way/Via Marina Way	12, Marquesas Way/Via Marina Way
Pacific Avenue/Vista Del Mar	4, 5

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

There would be adverse impacts of existing recreational activities and use of public recreational resources during Project construction, however there will be no long term adverse affects.

• Sightseeing from the Via Marina (a scenic highway/drive) would be affected; and
• The existing parking for the marina at the intersection of Marquesas Way and Via Marina will be eliminated and used for a pipe laydown area. Access to the marina would be affected.
• Pipe laydown activities associated with Push Site 2 would interrupt access to the public trail along the east side of Grand Canal that starts at Via Dolce;
• All or most of the parking along Via Marina at the entrance channel would be removed;
• Access to a designated scenic highway/drive would be eliminated for a period of about 7 months. Via Marina along the entrance channel would be closed to public traffic (one lane would be closed and, along with the parking area, one would be used for a construction/laydown site);
• The Class II Bike Trail along Pacific Avenue would be closed during construction;
• Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball;
• Fishing from the North Jetty would be restricted due to laydown area and receive site. No parking would be available in this area; and
• Construction activities on the beach and reduced parking could interfere with scheduled recreational events on the beach such as volleyball tournaments. The parking lot at Del Rey Lagoon Park would be used by the Project. The construction activity would affect the recreation experience for this park;
• The bike path at Pacific Avenue bridge and along the la-down area at 62nd Street would be adversely affected;
• Access to the beach would be adversely affected, as parking would be removed along 62nd Street and along Pacifica Avenue at the park; and
• The Napoleon Street residential foot path could be interrupted by construction activities.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
Marquesas Way/Via Marina Way	8
Pacific Avenue Alignment	7, Pacific Avenue

Some laydown and staging areas would adversely affect local recreation resources throughout the construction period. Cut-and-cover activities along the pipeline corridor would affect specific areas for periods of approximately 3 weeks in any 1,000-foot segment.

Visual/Aesthetics

Insignificant or no impact

Alternative	Impact Area
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10
4. Mined Tunnel - Inland Alignment	10

(LAX to VPP)

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section5.12 for detailed impact information.

Insignificant or no impact

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	2
3. Mined Tunnel - Beach Alignment (LAX to VPP)	2
4. Mined Tunnel - Inland Alignment (LAX to VPP)	2
Dockweiler Beach to Pacific Avenue Alignment	10
Marquesas Way/Via Marina Way	10, 11, 12

Visual impacts are less than significant at this location.

Impact that cannot be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)
2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	4, 6, 9
Marquesas Way/Via Marina Way	8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

The visual sensitivity of these areas indicate that any construction related equipment and activity during construction will adversely affect these areas. Please see section 5.12 for detailed impact information.

Water Quality

Impact that can be mitigated to a level of insignificance

Alternative	Impact Area
1. Mined Tunnel - Beach Alignment (Waterview to Hurricane)	2, 9, Mined Tunnel - Beach Alignment (Waterview to Hurricane)

2. Mined Tunnel - Beach Alignment (LAX to Hurricane)	10, 2, 9, Mined Tunnel - Beach Alignment (LAX to Hurricane)
3. Mined Tunnel - Beach Alignment (LAX to VPP)	10, 2, Mined Tunnel - Beach Alignment (LAX to VPP)
4. Mined Tunnel - Inland Alignment (LAX to VPP)	10, 2, Mined Tunnel - Inland Alignment (LAX to VPP)
Dockweiler Beach Alignment	1, 3, 5, 6, 9
Dockweiler Beach to Pacific Avenue Alignment	10, 4, 6, 9
Marquesas Way/Via Marina Way	10, 11, 12, 8, Marquesas Way/Via Marina Way
Pacific Avenue Alignment	10, 7, Pacific Avenue
Pacific Avenue/Vista Del Mar	1, 3, 4, 5, Westchester/Playa Del Rey Alignment

Impact to Water Quality in this area can be reduced to less than significant by implementing mitigation measures as defined in Section 8 of this document.

7.0 GROWTH-INDUCING AND CUMULATIVE IMPACTS

7.1 GROWTH-INDUCING IMPACTS

Section 15126.2(d) of the CEQA Guidelines requires a discussion of the growth-inducing impacts of proposed projects. Growth-inducing impacts are secondary, or indirect, impacts that could occur as a result of the project that are manifested as changes in land use patterns, population density and growth rates; and related effects on traffic, public services, air, water, biological and other environmental resources.

Over the past several decades, the Bureau of Engineering has designed and constructed numerous wastewater conveyance system projects. The issue of potential growth inducement resulting from an increase in sewer conveyance capacity has been raised in the past by various individuals and organizations. The primary issue is whether the provision of sewer capacity induces growth, which would otherwise not occur. This section addresses the role that wastewater conveyance capacity plays in the growth of the City.

The primary types of growth that occur in the City are land use development and population. Because these types of growth are distinct, and interrelated, this section examines the relationship of sewer conveyance capacity with each type of growth.

LAND USE DEVELOPMENT AND WASTEWATER CONVEYANCE

The development of land in the City is governed by the land use and zoning designations of particular parcels. Unless conditional use permits, density transfers or variances are obtained from the Planning Department, development must conform to the type and density designated for that parcel. Zoning reflects the land use policies contained in the General Plan.

The decision of a land owner to develop a single parcel or numerous parcels of land may be based on personal or economic reasons. Whether personal, economic or both, the availability of wastewater conveyance capacity is not likely to be a consideration in the decision to develop. Once the decision to develop a parcel has been made, permission to connect to the wastewater collection system must be obtained as part of the building permit process. A sewer connection permit can only be obtained if adequate capacity to serve the proposed development is available. Sewer connection and other building permit fees are charged in proportion to the density of development proposed. The high sewer connection fees and other building permit fees associated with the most intensive levels of development increase the costs of developing land in the City and can be considered economic disincentives to development.

In a mature urbanized area such as Los Angeles, the provision of wastewater conveyance capacity would not induce land development that would not otherwise occur.

POPULATION GROWTH AND WASTEWATER CAPACITY

Population within southern California and the City of Los Angeles is anticipated to grow significantly over the next 20 years and further into the future. The projected increase in population will come from two sources, natural increases and in-migration. SCAG predicts that approximately 60 percent of

projected future population growth would occur from natural causes (births minus deaths) and 40 percent would come from the in-migration of people from other areas.

Wastewater conveyance capacity is required to accommodate the increases in wastewater flows associated with the population increases. The provision of wastewater conveyance capacity will not induce either natural population growth or in-migration. SCAG has established the policy that conveyance systems, including interceptors, are not subject to its air quality conformity procedures, because of the absence of effects on population growth.

GROWTH MANAGEMENT IN LOS ANGELES

SCAG, which includes the City of Los Angeles among its member jurisdiction, has prepared the Regional Comprehensive Plan and Guide and the Growth Management Plan. These plans address regional growth and related issues. In addition, the City of Los Angeles' General Plan governs land use development within its jurisdiction.

The Regional Comprehensive Plan and Guide (March 1996) serves as a comprehensive overview of the issues and opportunities facing the region. This plan consists of three sections, core chapters, ancillary chapters, and bridge chapters. Core chapters include plans such as the Growth Management Plan, the Regional Mobility Plan, Air Quality Plan, and other documents that SCAG is required to produce (by federal and/or state mandates). Ancillary chapters address such issues as the economy, housing, and reflect other plans but serve only an advisory purpose for member governments. Bridge chapters link the core and ancillary chapters for other areas of concern.

The Growth Management Plan presents forecasts and policies for anticipated growth to the year 2020. The Growth Management Plan is based upon the amount of growth that is likely to occur and recognizes that there are no viable ways in which to control total growth. The Plan, however, seeks to control the distribution of growth in order to improve the balance between jobs and housing by encouraging housing growth in job rich areas and vice-versa.

The City's General Plan (comprised of the 35 Community Plans) governs the location and density of land use in the City through the zoning process. The Los Angeles City Planning Department revised the General Plan and the new plan, termed the "General Plan Framework," is intended to balance land use development, transportation, projected future population and projected future employment within the City of Los Angeles. The General Plan Framework's options include areas of targeted growth with higher land use designations and densities around commuter rail stations and along transportation corridors.

The planned growth of population along corridors would result in higher demands on infrastructure. There would be a need to accommodate greater quantities of wastewater that would be generated. Consequently, new wastewater conveyance facilities must be constructed, or existing facilities must be improved or upgraded.

CONCLUSIONS REGARDING GROWTH INDUCEMENT

Wastewater conveyance capacity is an infrastructure component of the urban environment that is necessary to safely accommodate the needs of existing and future populations. The provision of wastewater conveyance capacity, in and of itself, will not induce population growth or land use

development. Rather, wastewater conveyance capacity would allow population growth to occur within the General Plan Framework while minimizing sewage spills and the associated environmental, health and safety problems. Future land uses would generally not occur in densities higher than those allowed by the land use planning process. Any development projects beyond the scope of the City's General Plan would undergo individual environmental analysis (including impacts to the wastewater system) and would have to be approved by the City Council.

In wastewater planning, the sizing of collection and treatment facilities, as well as the overall system configuration, is dependent on the future system-wide flow and the distribution of that flow within the system. Since the timing of necessary improvements is partly a function of growth, a realistic estimate of the future population to be served is fundamental to effective wastewater system planning.

The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. No significant growth-inducing impacts are therefore associated with the project.

7.2 CUMULATIVE IMPACTS

Cumulative impacts assessment is required under Section 15130 of the CEQA Guidelines when such impacts are potentially significant. Cumulative impacts, defined in Section 15355 of the CEQA Guidelines, refer to two or more individual effects, that when considered together, are considerable or that increase other environmental impacts. Cumulative impact assessment must consider not only the impacts of the proposed Project, but also the impacts from other City and private projects, which would occur during the period of performance and geographic area of the proposed Project.

There would likely be construction activities occurring in the vicinity of the VPP Dual Force Main Project as a result of other projects being built in the same general time frame. These related projects are described in Section 1.0. Some of these projects have the potential for ongoing construction at the same time and within the same general vicinity as the VPP Dual Force Main construction. Should this be the case, the VPP Dual Force Main Project, along with other construction projects, could contribute to temporary cumulative noise and vibration effects that would not otherwise occur.

However, the VPP Dual Force Main Project would have long-term beneficial cumulative effects with regards to improvements to the City of Los Angeles' wastewater collection system. The proposed Project would result in cumulative public health benefits by minimizing or eliminating the potential for the public to be exposed to wastewater that could overflow onto streets during rainy weather and flow into area channels and the Pacific Ocean. Public safety, in the short and long-term, would be improved by minimizing the potential for sewer and street collapses associated with deteriorated sewers.

The VPP Dual Force Main Project is an integral part of the City of Los Angeles' overall wastewater improvement program. The program includes major improvements to the City's wastewater treatment and water reclamation plants, as well as improvements to the vast array of smaller conveyance and collection systems. As these various improvements are completed, substantial improvements to the City's water quality will be realized. When taken together, these collective improvements will result in full secondary treatment of all wastewater collected by the City of Los Angeles, the minimization of dry and wet weather

overflows that currently occur and the provision of adequate handling capacity to serve the wastewater needs of the City's service areas for the future.

As a major element of the City's overall wastewater program, the VPP Dual Force Main Project would provide much needed corrections for deficiencies that exist. Currently, during wet weather, peak flows to the VPP have exceeded the capacity of the existing force main, which carries wastewater away from the plant to the Hyperion Treatment Plant. All of the wastewater from the VPP is carried in one sewer. As a result, that sewer cannot be shut down for maintenance.

The benefits of construction and operating the VPP Dual Force Main to work in conjunction with the existing force main would include the following:

For the reasons above, the VPP Dual Force Main Project is judged to have long-term beneficial cumulative effects with regard to the City of Los Angeles' long-term wastewater treatment and handling objectives, in terms of long-term water quality objectives of the City of Los Angeles and the Southern California region, and in terms of the public's health and safety.

Construction activities may result in cumulative effects of the following nature:

Noise and Vibration – Local residents in the near vicinity of construction activities would be exposed to noise and possible vibration. The cumulative effects, both in terms of added noise and vibration at multiple VPP Dual Force Main construction sites, and in the context of other related projects, are not considered significant due to the temporary nature of noise increases.

Air Quality – The VPP Dual Force Main Project will produce additional emissions of criteria pollutants and slightly elevated levels of carbon monoxide during construction. Emission of criteria pollutants resulting from the Project's construction would exceed the thresholds established by the SCAQMD, and therefore the Project, in conjunction with all other construction activity, would cumulatively contribute to the region's non-attainment status during the construction period. The SCAQMD prepared the AQMP (2003) to bring the region into compliance with the National Ambient Air Quality Standards as set by the EPA under the Clean Air Act Amendments (1990). The AQMD is essentially designed to address the cumulative air pollutants released into the SCAB. Because these construction-related emissions are temporary (18-24 months, depending on the construction method) and because the AQMD addresses cumulative air pollution in the SCAB, the Project would not result in long-term significant cumulative air quality impacts. In the short term, cumulative impacts could be significant if the combined emissions from the projects exceed the threshold criteria for the individual pollutants.

Transportation and Circulation – The VPP Dual Force Main Project would involve construction activities occurring simultaneously at a number of surface sites along the Project alignment. Construction of the VPP Dual Force Main Project may be occurring in the same general time and space as other related projects. In these instances, surface construction activities from both sets of Project could produce cumulative traffic effects which may be significant, depending upon a range of factors including the specific location involved and the precise nature of the conditions created by the dual construction activity (see Traffic-Related Project Construction Schedule in Table 4.2-1). Special coordination efforts

may be necessary to reduce the combined effects to an acceptable level. Overall, significant cumulative impacts are not anticipated.

Public Services – The cumulative effects on public services in the VPP Dual Force Main study area would be limited to traffic inconveniences discussed above. These effects are not considered significant.

Aesthetics – Construction activities associated with other related projects may be ongoing in the vicinity of one or more VPP Dual Force Main construction sites. To the extent that combined construction activities do occur, there would be temporary adverse visual effects of less-than-significant proportions.

8.0 MITIGATION MEASURES

Table 8.0-1 Mitigation Monitoring Program

	Environmental Issue/Action	Mitigation Measure
		Air Quality
AIR 1	To minimize NO_x emissions in construction areas.	Extend timeline for construction, thereby utilizing less equipment on a daily basis
		Utilize newer construction equipment that meet tier emissions standards
		Use of alternative fuel such as biodiesel, liquid natural gas, and propane
		Adjust engine timing to reduce NO_x emissions
		Biological Resources
BIO 1	If the Venice Beach/Dockweiler Beach alignment is selected and construction is to be aboveground, or if tunneling is used and the jacking and/or receiving pit is within 500 feet of the nesting site, and any construction activities are to occur during the least tern nesting season (April 1 through August 31)	A biological monitor with experience observing and documenting disturbance to least terns shall be present during all construction activities within 500 feet of the nesting site to ensure that construction activities do not adversely affect least terns using the nesting site. In addition, the monitors will ensure that work crews properly dispose of all garbage in covered containers.
BIO 2	If any tunneling activities are to occur during the least tern nesting season (April 1 through August 31)	A water quality specialist or biological monitor shall conduct surveys at tunneling locations a minimum of once daily to ensure that tunneling does not increase water turbidity.
	If any turbidity from the tunneling activities is discovered in least tern foraging areas	The tunneling activities shall cease until the leak from the tunnel that is resulting in turbidity is repaired or managed.
BIO 3	Existing and potential values in environmentally sensitive habitat areas shall be protected, enhanced, and where feasible, restored. If any habitat is disturbed	Based on the City of Venice LUP and LCP, restore to ESHAs to previous undisturbed condition.
	Marine resources shall be maintained, enhanced, and where feasible, restored. If any marine resources are disturbed	Based on the City of Venice LUP and LCP, restore to previous undisturbed condition.
		Circulation, Traffic and Parking
TRA 1	To coordinate with the city to ensure adequate traffic signals and controls are in place prior to and during times of construction	For each construction site, a construction traffic management plan shall be prepared and submitted to the City for review and approval prior to the start of any construction work.
TRA 2	To adequately control traffic to ensure compliance with all local and state safety standards and specifications	A site-specific construction worksite traffic control plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas. Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.
TRA 3	To reduce traffic congestion	Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on re-striped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when absolutely necessary.
TRA 4	To protect pedestrian and recreational traffic	Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.
TRA 5	To ensure ingress/egress to all properties adjacent to the project and surrounding areas	Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.
TRA 6	To avoid impacts to public transportation	Coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.

	Environmental Issue/Action	Mitigation Measure
		Cultural Resources
CR 1	To avoid impacts to areas where cultural resources are known to exist	A qualified cultural monitor shall be on site in areas of known cultural finds where grading is to occur.
CR 2		When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented;
CR 3	In the event of the discovery and subsequent recovery of fossil remains	A qualified monitor should halt construction temporarily while remains are analyzed prior to resuming construction.
CR 4	At CA-LAN –66 location	Monitor all construction in the vicinity of the CA-LAN-66 site located in Vista Del Mar by an Archaeologist qualified to recognize and assess both prehistoric and historical resources
CR 5	If new discovery is encountered	Develop a contingency plan for addressing unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings
CR 6	If significant cultural resources are found during construction	Those significant cultural resources found shall be recovered from the project site, curated by an archaeologist recommended by the city and offered to an area museum whose collection is available for the viewing by the public
PAL 1	The discovery of paleontologic resources may be present in specific project areas where grading and other excavation activities are to occur	Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program during earth-moving activities at the project site.
PAL 2		The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.
PAL 3		The paleontologist or monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.
PAL 4		Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.
PAL 5		All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.
PAL 6		Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to commence.
		Geology/Soils/Seismicity
GEO 1	Project improvements would be subject to earthquake ground shaking	The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum.
GEO 2	Liquefaction and differential seismic settlement may occur on the project	Design and construction of the proposed project will include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline.
GEO 3	Subsidence may occur to the project area	Design and construction of the proposed project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or construction the pipeline in a “wet” excavation.

	Environmental Issue/Action	Mitigation Measure
GEO 4	Methane gas may be detected along the project alignments	Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary.
GEO 5	Tsunami could strike the project area	To mitigate erosion of surficial soils covering the proposed pipeline in the event of a tsunami, proper design and construction of the project components could include erosion control measures or choosing an alternate alignment off of the beach.
		Hazardous Waste and Materials
HAZ 1	Well abandonment may occur in the marina channel areas and in various alignment areas	For any wells that may need to be re-abandoned, well abandonment should be done in accordance with applicable regulations; other subsurface structures may be encountered during development work. The soils may contain methane or other gases from previous oil well field development. Site chemicals must be handled and disposed in accordance with applicable regulations. Hazardous materials would be used and waste generated during the construction and operation of the project.
HAZ 2	Employees may be exposed to hazardous materials during construction	Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.
HAZ 3	Storage of hazardous materials will occur on the project sites	As required in SWPPP and project specifications.
HAZ 4	Methane gas may be located in alignment areas where tunneling activity is to occur along the project alignment	A surface sweep is a method for measuring combustible vapors which may be emitted from the ground surface. When conducting the surface sweep, more attention can be taken in areas where underground gas would tend to exit the surface, such as at cracks in the ground.
HAZ 5	To ensure public safety where methane may be present along the project alignments	The City of Los Angeles Building Code requires that methane mitigation be implemented when construction occurs at these sites to ensure public safety. These measures include the installation of membrane barriers and vent piping as well as trench dams and electrical seal-offs for each of these properties.
		Hydrology
HYDRO/ WQ 1	Runoff may occur from the project site during construction activities	A SWPPP shall be submitted for review and approval. The SWPPP shall recommend interim and permanent improvements to existing drainage features to prevent uncontrolled runoff during construction and to accommodate any temporary increase in runoff associated with construction activities.
		Compliance with the SWPPP shall be demonstrated by obtaining a NPDES construction permit for all construction activities including clearing, grading, or excavation that result in the disturbance of at least 1-acre of total land area or activity which is part of a larger common plan of development of 1 acre or greater. Copies of said NPDES permit(s) and related SWPPP shall be available for inspection at the City and at the construction site prior to land disturbing activity. Total disturbance area includes the staging and material storage areas. Although this project may not total over one acre of actual disturbance area, because of the highly sensitive habitat areas within the project, a SWPPP should be a required mitigation element.
HYDRO/ WQ 2	Dewatering discharge is expected to occur during the initial phase of pit construction,	Hydraulic isolation of the pits can be accomplished by the contractor by various methods of his choice, including interlocking sheet pile walls, soil cement walls constructed with Deep Mixing Methods, or slurry diaphragm walls. Water removed from the pits will be discharged to the storm drain system after proper treatment in accordance with local regulations Solid particles will be removed by using sedimentation tanks and filtration. If petroleum contamination is encountered, free product, if any, will be skimmed off the surface and oil/water separators will be used to remove the remaining contamination. Granular activated carbon could be used to remove any dissolved organic or other contaminants. Alternatively, discharged water will be shipped to authorized vendors for treatment and disposal.
		Noise and Vibration
NOI 1	Construction noise levels that exceed city and county standards may be created during project construction activities.	All construction activities shall be limited to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. No construction or construction-related activities shall take place on any Sunday or national holiday.
NOI 2		Heavy trucks engaged in the removal of muck from tunneling operations off site via heavy trucks shall be limited to major arterial streets and away from residential roadways, to the extent practicable.
NOI 3		All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for such type of equipment.
NOI 4		All mobile or fixed noise-producing equipment used on the project, and that is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.
NOI 5		The erection of temporary soundwall barriers shall be considered where project activity is unavoidably close to noise-sensitive receptors.
NOI 6		Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.
NOI 7		Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

	Environmental Issue/Action	Mitigation Measure
NOI 8		Construction site and haul-road speed limits shall be established and enforced during the construction period.
NOI 9		The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.
NOI 10		No project-related public address or music system shall be audible at any adjacent receptor.
NOI 11		The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.
NOI 12		The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.
VIB 1	Vibration may occur in the project area during construction activities	Installation of instruments throughout a sensitive building, to be used in monitoring and recording building behavior (movements, vibrations) due to adjacent tunneling activities.
VIB 2		Any physical, chemical or biological method, or any combination of such methods, used to increase the bearing capacity or decrease the permeability of soils under the foundation of existing buildings.
VIB 3		A specialized form of grouting used to compensate for movements and settlements caused by tunneling adjacent to or beneath existing buildings.
Recreational Resources and Facilities		
REC 1	Construction-related activities may impact areas and facilities used by the public for sporting events and recreational activities	Provide advanced notice to the public, businesses, sports/ recreation groups and property owners indicating time and duration of non-use or partial use of facilities/areas to be impacted by construction.
Visual/Aesthetics		
AES 1	Where impacts may not be directly mitigated, they may be offset by actions taken elsewhere to compensate for the loss of visual quality. It would be speculative to definitively list specific offsetting actions at this time.	The city shall consider landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly. The city shall consider screening from public view existing features, which are incongruous with the character of their surroundings (such as the VPP). The city shall consider creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking.

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APPENDICIES

APPENDICES **PART ONE**
VENICE PUMPING PLANT
DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

City of Los Angeles
Bureau of Engineering
Department of Public Works
1149 South Broadway, Suite 600
Los Angeles, California 90015

Contact: Mr. Jim Doty; (213) 485-5759

December 2007

URS

2020 East First Street, Suite 400
Santa Ana, California 92705

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APPENDIX A
NOTICE OF PREPARATION
VENICE PUMPING PLANT
DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

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STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse and Planning Unit

Arnold Schwarzenegger
Governor

Sean Walsh
Director

Notice of Preparation

May 2, 2005

To: Reviewing Agencies

Re: Venice Pumping Plant Dual Force Main
SCH# 2003031001

Attached for your review and comment is the Notice of Preparation (NOP) for the Venice Pumping Plant Dual Force Main draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

James E. Doty
Los Angeles Bureau of Engineering
650 S. Spring Street, Room 574
Los Angeles, CA 90014

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
TEL (916) 445-0613 FAX (916) 323-3018 www.opr.ca.gov

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Document Details Report
State Clearinghouse Data Base

SCH# 2003031001
Project Title Venice Pumping Plant Dual Force Main
Lead Agency Los Angeles, City of

Type NOP Notice of Preparation

Description The proposed project includes the construction and installation of a new 54-inch diameter force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice to a junction structure on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey.

Lead Agency Contact

Name James E. Doty
Agency Los Angeles Bureau of Engineering
Phone (213) 847-8694 **Fax**
email
Address 650 S. Spring Street, Room 574
City Los Angeles **State** CA **Zip** 90014

Project Location

County Los Angeles
City
Region
Cross Streets Pacific Avenue / Hurricane Avenue
Parcel No.
Township **Range** **Section** **Base**

Proximity to:

Highways
Airports LAX
Railways
Waterways Marina Del Rey Channel
Schools
Land Use Public Right-of-Way

Project Issues Aesthetic/Visual; Air Quality; Archaeologic-Historic; Biological Resources; Geologic/Seismic; Noise; Public Services; Sewer Capacity

Reviewing Agencies Resources Agency; Regional Water Quality Control Board, Region 4; Department of Parks and Recreation; Native American Heritage Commission; Department of Health Services; Department of Fish and Game, Region 5; California Energy Commission; Department of Water Resources; Caltrans, District 7; Caltrans, Division of Aeronautics; State Water Resources Control Board, Division of Loans and Grants; California Coastal Commission; Department of Fish and Game, Marine Region; State Lands Commission

Date Received 05/02/2005 **Start of Review** 05/02/2005 **End of Review** 06/10/2005

Note: Blanks in data fields result from insufficient information provided by lead agency.

sources Agency

Resources Agency
Nadell Gayou

Dept. of Boating & Waterways
David Johnson

California Coastal Commission
Elizabeth A. Fuchs

Colorado River Board
Gerald R. Zimmerman

Dept. of Conservation
Roseanne Taylor

California Energy Commission
Environmental Office

Dept. of Forestry & Fire Protection
Allen Robertson

Office of Historic Preservation
Wayne Donaldson

Dept of Parks & Recreation
B. Noah Tilghman
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Reclamation Board
DeeDee Jones

Santa Monica Mountains Conservancy
Paul Edelman

S.F. Bay Conservation & Dev't. Comm.
Steve McAdam

Dept. of Water Resources
Resources Agency
Nadell Gayou

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Scott Flint
Environmental Services Division

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Donald Koch

Fish & Game Region 2
Banky Curtis

Fish & Game Region 3
Robert Floerke

Fish & Game Region 4
William Laudermilk

Fish & Game Region 5
Don Chadwick
Habitat Conservation Program

Fish & Game Region 6
Gabrina Gatchel
Habitat Conservation Program

Fish & Game Region 6 I/M
Tammy Allen
Inyo/Mono, Habitat Conservation Program

Dept. of Fish & Game M
George Isaac
Marine Region

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Food & Agriculture
Steve Shaffer
Dept. of Food and Agriculture

Depart. of General Services
Public School Construction

Dept. of General Services
Robert Sleppy
Environmental Services Section

Dept. of Health Services
Veronica Rameriz
Dept. of Health/Drinking Water

Independent Commissions,Boards

Coachella Valley Mountains Conservancy

Delta Protection Commission
Debby Eddy

Office of Emergency Services
Dennis Castrillo

Governor's Office of Planning & Research
State Clearinghouse

Native American Heritage Comm.
Debbie Treadway

Public Utilities Commission
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San Gabriel & Lower LA Rivers

San Joaquin River Conservancy

State Lands Commission
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Tahoe Regional Planning Agency (TRPA)
Cherry Jacques

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Caltrans - Division of Aeronautics
Sandy Hesnard

Caltrans - Planning
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California Highway Patrol
John Olejnik
Office of Special Projects

Housing & Community Development
Lisa Nichols
Housing Policy Division

Dept. of Transportation

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Cal EPA

Air Resources Board

Airport Projects
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Transportation Projects
Kurt Karperos

Industrial Projects
Mike Tollstrup

California Integrated Waste Management Board
Sue O'Leary

State Water Resources Control Board
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Division of Financial Assistance

State Water Resources Control Board
Student Intern, 401 Water Quality Certification Unit
Division of Water Quality

State Water Resouces Control Board
Steven Herrera
Division of Water Rights

Dept. of Toxic Substances Control
CEQA Tracking Center

Department of Pesticide Regulation

Regional Water Quality Control Board (RWQCB)

RWQCB 1
Cathleen Hudson
North Coast Region (1)

RWQCB 2
Environmental Document Coordinator
San Francisco Bay Region (2)

RWQCB 3
Central Coast Region (3)

RWQCB 4
Jonathan Bishop
Los Angeles Region (4)

RWQCB 5S
Central Valley Region (5)

RWQCB 5F
Central Valley Region (5)
Fresno Branch Office

RWQCB 5R
Central Valley Region (5)
Redding Branch Office

RWQCB 6
Lahontan Region (6)

RWQCB 6V
Lahontan Region (6)
Victorville Branch Office

RWQCB 7
Colorado River Basin Region (7)

RWQCB 8
Santa Ana Region (8)

RWQCB 9
San Diego Region (9)

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Last Updated on 3/11/05

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NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

Date: May 2, 2005

To: Interested Persons

The City of Los Angeles (City) will be the Lead Agency and will prepare an Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act for the Venice Pumping Plant Dual Force Main Project (proposed project). The proposed project is located in the Venice and Westchester/Playa Del Rey community planning areas of the City of Los Angeles within Council District 11 (refer to project location map).

The proposed project includes the construction and installation of a new 54-inch diameter force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice to a junction structure on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey. The existing 48-inch diameter Venice Pumping Plant force main was built in 1958 and is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Los Angeles.

The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two key objectives:

(1) To expand the capacity of the Coastal Interceptor Sewer's force main segment from the Venice Pumping Plant to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all project wet weather flows can be safely conveyed without future threats of spilling onto City streets and adjacent surface waters; and,

(2) To provide force main redundancy to allow for much needed maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

Proposed Alternatives:

Marquesas Way/Via Marina. From the Pumping Plant on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel. It would then cross under the Marina Del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long. This is the staff's preferred alignment.

Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alignment is the shortest route – about 10,000 feet.

Dockweiler Beach to Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long.

Dockweiler Beach Alignment. From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point the line runs east to the junction structure in Vista Del Mar near Waterview Street. This alignment is about 11,000 feet long.

Construction Methods: The alignments under consideration cross the Marina entrance channel and Ballona Creek channel, requiring about 1,800 feet of micro-tunneling under the two channels. Elsewhere along each alignment, two alternative construction methods are under consideration: open trench and micro-tunneling. While open trench construction costs less, micro-tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels and can facilitate mitigation of other impacts such as noise.

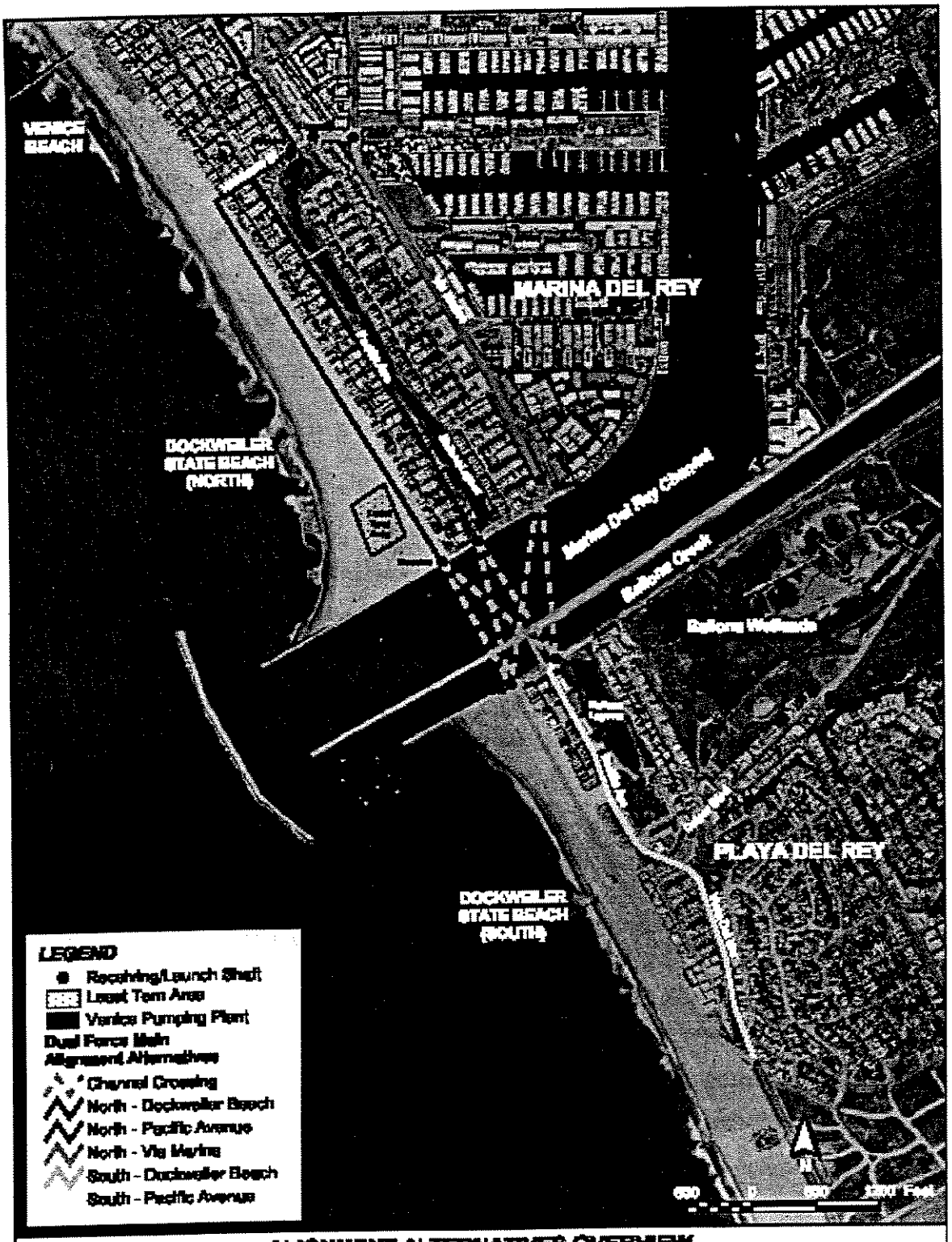
We need to know the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. We also need to know the views and concerns of interested organizations and persons in order to properly analyze the environmental impacts of the proposed project. Potential environmental impacts that may occur as a result of the proposed project include aesthetics, air quality, biological resources, cultural resources, geology/soils, hazards/hazardous materials, hydrology, land use/planning, noise, public services, and transportation/circulation impacts. An analysis of these potential environmental impacts and other potential impacts that could be

mitigated to a less-than-significant-level is provided in an Initial Study Checklist, which is attached or can be reviewed at the following: Venice-Abbot Kinney Memorial Library, 501 South Venice Boulevard, Venice, CA 90291; Westchester-Loyola Village Library, 7114 West Manchester Avenue, Los Angeles, CA 90045; or online at http://eng.lacity.org/techdocs/emg/Environmental_Review_Documents.htm

Due to the time limits mandated by state law, your response must be sent at the earliest possible date, but not later than 30 days after receipt of this notice.

Please send your response to:

James E. Doty
City of Los Angeles
Public Works, Bureau of Engineering
Environmental Management Group
650 South Spring Street, Room 574
Mail Stop No. 939
Los Angeles, CA 90014



ALIGNMENT ALTERNATIVES OVERVIEW

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN	FIGURE 1

ADDENDUM TO THE
NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

Date: May 18, 2005

To: Interested Persons

Although shown in Figure 1, a description of the "Dockweiler Beach Alignment" (described below) was inadvertently omitted from the text. Please add the following:

Dockweiler Beach Alignment – From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point the line runs east to the junction structure in Vista Del Mar near Waterview Street. This alignment is about 11,000 feet long.

CITY OF LOS ANGELES

INITIAL STUDY

(Article 1 – City CEQA Guidelines)

Date: **May 2, 2005**

Project Title: Venice Pumping Plant Dual Force Main

Lead Agency: City of Los Angeles
Department of Public Works
Bureau of Engineering

Contact Person: James E. Doty, Environmental Supervisor II
Environmental Management Group
650 Spring Street, Room 574
Los Angeles, CA 90014
(213) 847-8694

Project Location: The proposed Venice Pumping Plant Dual Force Main is located in the Venice and Westchester/Playa del Rey community planning areas of the City of Los Angeles (Figure 1: Project Location Map).

Project Sponsor: City of Los Angeles
Department of Public Works
Bureau of Engineering

General Zoning: General land use designations in the proposed project area are residential with corresponding residential and commercial zoning. Ballona Lagoon, Del Rey Lagoon, and Dockweiler Beach are lands designated as conservation and open space.

Council District: 11

Project Description:

The City of Los Angeles is proposing to construct and install a new force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice to a

Construction Methods: The alignments under consideration cross the Marina entrance channel and Ballona Creek channel, requiring about 1,800 feet of micro-tunneling under the two channels. Elsewhere along each alignment, two alternative construction methods are under consideration: open trench and micro-tunneling. While open trench construction costs less, micro-tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels and can facilitate mitigation of other impacts such as noise.

Unless otherwise stated, it is assumed that the project will be designed, constructed and operated following all applicable laws, regulations, ordinances and other formally adopted City standards (e.g., *Los Angels Municipal Code* and Bureau of Engineering *Standard Plans*). Also, this analysis assumes that construction will follow the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., *Standard Specifications for Public Works Construction* and the *Work Area Traffic Control Handbook*) as specifically adapted by the City of Los Angeles (e.g., The City of Los Angeles Department of Public Works *Additions and Amendments to the Standard Specifications For Public Works Construction* ("The Brown Book," formerly Standard Plan S-1610).

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services, and activities.

Environmental Setting

The proposed project is located on the immediate coastline and inland adjacent to the coastline in the southern portion of the community of Venice and in the community of Playa Del Rey (Figure 1: Project Location Map). The primary land uses in these areas are medium to high density residential with some light commercial designations, particularly in the Playa Del Rey and Marina Del Rey areas. Two Environmentally Sensitive Habitat Areas (ESHA's) are located in close proximity to most of the potential alignments; the Grand Canal/Ballona Lagoon in the Venice and Marina Del Rey area, and the Del Rey Lagoon situated in Playa Del Rey. A large protected breeding ground of the Least Tern exists on Venice Beach just north of the Marina Del Rey entrance channel and adjacent to one of the proposed alignments – this species is both a state and federally listed endangered species. The birds use the area between the months of March and September to raise their young. The colony is one of the most successful and important California Least Tern colonies on the west coast.

Previous CEQA Documentation:

In January 2001, the City completed a Consistency Assessment, which analyzed a proposed sewer main installation along Pacific Avenue and found it to be consistent with the City's Programmatic Environmental Impact Report certified in 1994 for the Wastewater Collection System Improvement Program. On February 10, 2001, City staff made a presentation to citizens and the Marina Peninsula Neighborhood Association. During the public review of the Consistency Assessment, citizens expressed concern about the potential impacts of the Pacific Avenue Alignment. Concerns over potential

ENVIRONMENTAL CHECKLIST

Introduction

The following is the environmental checklist form presented in Appendix G of the CEQA Guidelines, as updated to reflect the Resource Agency's September 7, 2004 amendment of the State CEQA Guidelines, including Section 15065, Mandatory Findings of Significance. The checklist form is used to describe the impacts of the proposed project. A discussion follows each environmental issue identified in the checklist that describes the potential impacts related to the Proposed Project. For potentially significant impacts, project-specific mitigation measures are recommended that will reduce the adversity of these impacts.

For this checklist, the following designations are used:

- **Potentially Significant Impact:** An impact that could be significant and for which no adequate mitigation measure has been identified. Significant impacts that cannot be mitigated will require the preparation of an EIR.
- **Potentially Significant Unless Mitigation Incorporated:** An impact that requires mitigation to reduce the impact to a less-than-significant level.
- **Less-Than-Significant Impact:** Any impact that would not be considered significant under CEQA relative to existing standards.
- **No Impact:** The project would not have any adverse impact.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
1. AESTHETICS *Would the project:*				
a. Have a substantial adverse effect on a scenic vista? Reference: 16, 20	X			
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway? Reference: 16, 20, and Caltrans web site:	X			

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
2. AGRICULTURE RESOURCES: *In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:*				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use? Reference: 5,16, 21				X
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract? Reference: 5,16, 21				X
c. Involve other changes in the existing environment, which, due to their location or nature, could result in loss of Farmland, to non-agricultural use? Reference: 5,16,21				X

Discussion

a-c. All proposed improvements are located on City of Los Angeles and/or County of Los Angeles-owned land, and no existing agricultural operations would be displaced through this project. The Farmland Mapping and Monitoring Program does not

Discussion

a. The South Coast Air Quality Management District (AQMD) is the air pollution control district with jurisdiction over the South Coast Air Basin, which includes the proposed project site. The South Coast AQMD is responsible for the Air Quality Management Plan (AQMP) for the Basin, which is a comprehensive air pollution control program for attaining the state and federal ambient air quality standards. The proposed project is therefore subject to the AQMP. The City has an adopted Air Quality Element that is part of the General Plan. The Air Quality Element contains policies and goals for attaining state and federal air quality standards, while simultaneously facilitating local economic growth, and it includes implementation strategies for local programs contained in the AQMP. A significant impact would occur if the proposed project was inconsistent with the AQMP or the Air Quality Element of the City's General Plan.

   The Venice Community Plan, one of the City's 35 community plan areas of the General Plan, recognizes the need for enhancing public services and infrastructure. Since the proposed project would serve the existing and intended future demand of the regional population, the project would be consistent with the community plan's objectives. Furthermore, the proposed project would not induce regional employment or population growth which might serve to exacerbate local concentrations of air pollutants. The project would not require an amendment to the Community or General Plan and would therefore be consistent with the Air Quality Element. The project will result in a ***Less-Than-Significant Impact***.

b. The City of Los Angeles is in the jurisdiction of the South Coast Air Quality Management District (AQMD). The South Coast AQMD is a non- attainment area for ozone, carbon monoxide, and fine particulate matter. In determining attainment and maintenance of air quality standards, the South Coast AQMD has established thresholds of significance for these and other criteria pollutants. A significant impact would occur if the project resulted in substantial emissions during construction or operation which would exceed the established thresholds.

   Potential adverse air quality impacts could occur during the course of construction. Construction related air quality impacts may include emissions from heavy duty equipment and off-road mobile sources (construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, materials transport, etc). Operation related impacts due to equipment may potentially exceed South Coast AQMD thresholds for emissions due to the estimated construction schedule. Other air quality impacts could result from airborne dust. Under these circumstances, there could be ***Potentially Significant Impacts.***

c. A significant impact would occur if the project's incremental air quality effects are viewed in connection with the effects of past, present, and future projects. As indicated in 3(b) above, the proposed project is located within the South Coast Air Basin which is a non-attainment area for ozone, fine particulate matter, and carbon monoxide. The potential for the project to exceed South Coast Air Quality Management District (AQMD) thresholds during some stages of construction may occur and is specific to conditions during construction as well as location. High levels of emissions may be released from construction related equipment over an

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means? Reference: 22				
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established resident or migratory wildlife corridors, or impede the use of wildlife nursery sites? Reference: 14, 20	X			
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? Reference: 16, 20		X		
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Conservation Community Plan, or other approved local, regional, or state habitat conservation plan? Reference: 16, 20		X		

Discussion

a - d. The project resides in an area of significant biodiversity due to the physical characteristics of the land. The Venice Pumping Plant is located adjacent to Grand Canal and Ballona Lagoon. A portion of one of the alternative pipeline alignments runs easterly under Grand Canal. Impacts associated with construction noise and possible channel intrusion would be significant during the course of construction. Both the east and west banks of the Ballona Lagoon, as well as portions of lands along Pacific Avenue are within the bounds of the sixteen acre Ballona Lagoon Marine Preserve. The west bank has been regularly disturbed by human activity and contains vacant lots purchased by the City for habitat protection, and open space. Site vegetation includes a mixture of predominantly exotic vascular plant species, including a number of invasive weedy species. Ruderal plant species are prominent in this area. The east bank has been restored and re-vegetated with native California plant species.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
remains, including those interred outside of formal cemeteries. Reference: 1, 14				

Discussion

a. Impacts to potential historic sites within the alternatives project areas could result from extensive exposure to vibration during construction and would be specific to location and the existing condition of an exposed building and its proximity to the construction activity. Since structural impacts are possible under certain conditions, impacts could be ***Potentially Significant Unless Mitigation Is Incorporated.***

b-d. Although no archaeological or paleontological resources are anticipated within the project areas, it is possible that they may be unearthed during excavation of the project. Therefore, the construction of the proposed project could have a ***Potentially Significant Impact Unless Mitigation Is Incorporated***.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
Reference: 6, 14, 17				
d. Be located on expansive soils, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? Reference: 3, 14, 17				X
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater? Reference: 17				X

Discussion

a. & c. The proposed project sewer alignments are located approximately 3.5 miles from the Palos Verdes Fault Zone. A movement magnitude of 7.1 (M) and peak ground acceleration of 0.4g were used as seismic parameters in a year 2000 liquefaction analysis conducted for the City Bureau of Engineering by Dames and Moore to identify seismic conditions. Studies indicated that the Pacific Avenue area contains a liquefaction zone, which could result in settlement and lateral spread. Groundwater is likely to be encountered at invert depths associated with placement of the sewer main depending on which alignment is chosen for the project. The significance of impacts associated with construction activities to the geologic integrity of the soils is specific to the alignment chosen for placement of the sewer main. Although the overall results of the geotechnical investigation concluded that it is feasible to construct within the area provided recommendations presented in the report are incorporated into the sewer design and are implemented during construction, the project may be ***Potentially Significant in certain areas and means should be taken to insure geotechnical stability prior to the installation of the chosen alignment.***

b. Impacts associated with soil erosion would be specific to the chosen alignment for the sewer main, however with proper construction Best Management Practices (BMPs), impacts would be ***Potentially Significant Unless Mitigation Is Incorporated.***

d. During construction, construction workers could potentially be exposed to seismic hazards in open trenches and access shafts and tunnels. Standard shoring and support practices as well as compliance with Cal-OSHA requirements would reduce

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area? Reference: 16		X		
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area? Reference: 16				X
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? Reference: 20		X		
h. Expose people or structures to the risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands? Reference: 14				X

Discussion

a, b, c, & d. The project's channel alignment is located mostly within the administrative bounds of the Playa del Rey oil field. There are numerous plugged and abandoned wells within the project's boundaries, particularly in the Northern portions of the project. Potential adverse impacts to public safety or the environment could occur from the exposure or damaging of plugged and abandoned oil wells during project excavation and/or micro-tunneling, therefore impacts would be ***Potentially Significant Unless Mitigation Is Incorporated.***

e. The proposed project is within two miles of the Los Angeles International Airport. The EIR will further address this issue in detail.

f. The project is not within the vicinity of a private airstrip.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site? Reference; 1, 20				
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems to control? Reference: 20			X	
f. Otherwise substantially degrade water quality? Reference: 1, 20			X	
g. Place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? Reference: 15, 20				X
h. Place within a 100-year floodplain structures which would impede or redirect flood flows? Reference: 15, 20				X
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam? Reference: 15, 20				X
j. Inundation by seiche, tsunami, or mudflow? Reference: 14, 20				X

Discussion

a. Water quality standards are set based on the beneficial uses of the receiving water in which the City's treated effluent is discharged and the water quality objectives or criteria that are associated with protecting the particular beneficial uses designated

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
9. LAND USE AND PLANNING *Would the project:*				
a. Physically divide an established community? Reference: 16				X
b. Conflict with any applicable land use plans, policies, or regulations of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect? Reference: 16, 20		X		
c. Conflict with any applicable habitat conservation plan or natural communities conservation plan? Reference: 16, 20		X		

Discussion

a. Construction activities could temporarily alter the physical layout of streets in the project area, but the project will not cause a permanent division or disruption within the community.

b. See comment in 4 (f), above.

c. See comment in 4 (f), above.

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
11. NOISE *Would the project result in:*				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies? Reference: 1, 10, 16	X			
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels? Reference: 16	X			
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? Reference: 20				X
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? Reference: 20	X			
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Is Incorporated	Less-Than-Significant Impact	No Impact
12. POPULATION AND HOUSING *Would the project:*				
a. Induce substantial growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? Reference: 16, 20				X
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere? Reference: 16, 20				X
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere? Reference: 16, 20				X

Discussion

a.-c. The Venice Community Plan, one of the City's 35 community plan areas of the General Plan, recognizes the need for enhancing public services and infrastructure. Since the proposed project would serve the existing and intended future demand of the regional population, the project would be consistent with the community plan's objectives. Furthermore, the proposed project would not induce regional employment or population growth which might serve to exacerbate local concentrations of air pollutants. The project would not require an amendment to the Community or General Plan and would therefore be consistent with the Air Quality Element. ***No impact***

traffic could occur on upland alignment areas, therefore could cause ***Potentially Significant Impacts.***

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
14. RECREATION				
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? Reference: 20				X
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? Reference: 20				X

Discussion

a. Since the project will not include residential uses, there will be no increase in the use of existing neighborhood and regional parks or the requirement for the construction or expansion of recreational facilities Therefore, the proposed project would have ***No Impact.***

b. Since the project will not include residential facilities, there will be no requirement for the construction or expansion of recreational facilities, therefore the proposed project would have ***No Impact.***

Discussion

a,b,f. The proposed project would result in a slight increase in traffic levels due to construction. Although impacts will be temporary in nature, the duration of construction is estimated to take eighteen to twenty-four months. The project may impose a change on traffic circulation specific to the chosen alignment. Adequate parking would be significantly impacted at and near proposed construction equipment lay-down areas both north and south of the channel. Parking available to Dockweiler beach south of the Ballona Creek would be adversely effected during construction. Traffic in the upland areas may cause congestion in and around the construction area and is specific to the chosen alignment therefore, the project would result in ***Potentially Significant Impacts.***

c. Change in air traffic patterns, including either an increase in traffic levels or a change in location that could result in substantial safety risks do not apply to this project. ***No Impact***

d. The project will not substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses. ***No Impact***

e. Impact resulting in inadequate emergency access would occur without proper coordination prior to construction and are specific to the chosen alignment therefore, impacts are ***Potentially Significant Unless Mitigation Is Incorporated.***

g. The project would not conflict with adopted policies supporting alternative transportation such as bus turnouts, bicycle racks, etc. ***No Impact.***

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? Reference: 20				
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? Reference: 20				X
g. Comply with federal, state, and local statutes and regulations related to solid waste? Reference: 20				X

Discussion

a. The proposed project is an upgrade to an existing major interceptor sewer that outlets at Hyperion Treatment Plant. It is not expected to alter or exceed the wastewater treatment requirements currently in place.

b. No water or wastewater facilities would be required in addition to the proposed project. ***No Impact.***

c. The proposed project will not alter storm water infiltration or runoff. Any impact would be limited to dewatering. If dewatering is necessary, discharges would be regulated by a National Pollution Discharge Elimination System permit. Therefore, impacts would be ***Less Than Significant.***

d. The operation of the expanded sewer main would require no increase in water usage. Therefore, ***No Impact*** is anticipated.

e. The project itself involves the expansion of the existing capacity of the sewer system to handle the peak overflows and is in accordance with the City's General Plan. Therefore, ***No Impact*** has been identified.

f. Construction of the proposed project may require the net export of soil from open trench and/or tunneling. Excavated soil is typically taken to landfills which use the soil as waste-cell covering, or is sold to brokers to be used as fill. ***No Impacts*** *have been identified.*

Issues	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less-Than-Significant Impact	No Impact
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? Reference: 20		X		

Discussion

a. The proposed project has the potential to significantly degrade the environment or result in impacts to aesthetics, air quality, biological resources, cultural resources, geology/soils, hazards/hazardous materials, hydrology, land use/planning, noise, public services, and transportation/circulation.

b. The project has the potential to result in cumulative air quality, biological resources, cultural resources, noise, and traffic impacts during construction when taken together with future planned projects in the area. The EIR will evaluate temporary and short-term impacts related to construction in the surrounding area. The EIR will also identify feasible mitigation measures to reduce impacts to a level of insignificance.

c. Surrounding land uses in the immediate vicinity would be affected by short-term air quality, noise, and traffic impacts during construction. The EIR would evaluate these impacts and will identify feasible mitigation measures to reduce impacts to a level of insignificance.

DETERMINATION OF SIGNIFICANCE:

On the basis of this initial evaluation, I find that the Proposed Project MAY have a significant effect on the environment, and an Environmental Impact Report is required.

Reviewed By: _____ _____
James E. Doty Date
Environmental Supervisor II

Approved By: _____ _____
Ara J. Kasparian, Ph. D., Manager Date
Environmental Management Group

Maps. Community Panel number 060137 00__ C. MAPLA internet version at http://www.cityofla.org/

16. General Plan. City of Los Angeles, Dept. of City Planning. General Plan. Including community plans and technical elements.

17. Geologic Map. California Dept. of Conservation, Div. of Mines and Geology. Geologic Map of California: Los Angeles Sheet.

18. Groundwater Map. Upper Los Angeles River Area Watermaster, Spring 1990. Upper Los Angeles River Area Groundwater Contour Map.

19. SCAQMD. South Coast Air Quality Management District, 1993. CEQA Air Quality Handbook.

20. Thresholds. City of Los Angeles, Dept. of Environmental Affairs. L.A. CEQA Thresholds Guide: Your Resource for Preparing CEQA Analyses in Los Angeles. 1998 Draft.

21. U.S.G.S. Topo. U.S. Dept. Interior Geological Survey. 7.5-minute Map Series (Topographic).

22. Wetlands Inventory. U.S. Dept. Interior Fish & Wildlife Service. National Wetlands Inventory. Overlays for U.S. Dept. Interior Geological Survey. 7.5-minute Map Series (Topographic).

VENICE PUMPING PLANT DUAL FORCE MAIN DRAFT EIR NOTICE OF PREPARATION – PUBLIC AGENCY LIST

MAILING LIST

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The Honorable Deborah Bowen
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California State Senate, District 28
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Mayor
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President
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Mr. Steve Knight
Interim President
Del Rey Neighborhood Council
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DTC - Los Angeles Hazardous Materials Laboratory
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Los Angeles, CA 90026

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President
Grassroots Venice Neighborhood Council
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The Honorable Cindy Miscikowski
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Los Angeles, CA 90012

Los Angeles City Fire Department
Bureau of Fire Prevention and Public Safety
Hydrants and Access Unit
200 N Main St
Los Angeles, CA 90012

Mr. Ron Andrade
Director
Los Angeles City/County Native American Indian Committee
3175 W. 6th Street, Room 403
Los Angeles, CA 90020

Ms. Linda Dishman
Executive Director
Los Angeles Conservancy
523 W. Sixth St., Suite 826
Los Angeles, CA 90014

The Honorable Don Knabe
Supervisor, Fourth District
Los Angeles County Board of Supervisors
822 Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

The Honorable Zev Yaroslavsky
Supervisor, Third District
Los Angeles County Board of Supervisors
821 Kenneth Hahn Hall of Administration
500 W. Temple St.
Los Angeles, CA 90012

Mr. Stan Wisniewski
Director
Los Angeles County Department of Beaches and Harbors
13837 Fiji Way
Marina del Rey, CA 90292

Division Head
Los Angeles County Department of Public Works
Flood Maintenance Division
P.O. Box 1460
Alhambra, CA 91802

Transportation Planning Manager
Los Angeles County Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012

Mr. Harold Helsley
Regional Planning Commissioner
Los Angeles County Regional Planning Commission
Supervisorial District 3
Hall of Records (13th Floor),
320 W Temple St
Los Angeles, CA 90012

Mr. Wayne Rew
Chair
Los Angeles County Regional Planning Commission
Supervisorial District 4
Hall of Records (13th Floor),
320 W Temple St
Los Angeles, CA 90012

Planning Director
Los Angeles Department of City Planning
200 N Spring St
Los Angeles, CA 90021

Area Commanding Officer
Los Angeles Police Department
Pacific Community Police Station
12312 Culver Blvd
Los Angeles, CA 90066

Los Angeles Regional Water Quality Control Board (Region 4)
320 West 4th Street, Suite 200
Los Angeles, CA 90013

Superintendent
Los Angeles Unified School District 3
3000 S Robertson Blvd
Los Angeles, CA 90034

Ms. Cassandra Parker
Marina City Club Homeowners Association
4333 Admiralty Way
Marina Del Rey, CA 90292

Mr. Tim Riley
Executive Director
Marina del Rey Lessee's Association
8537 Wakefield Ave.
Panorama City, CA 91402

Mr. Bill Farhood
Director
Marina Peninsula Neighborhood Association
520 Washington Blvd. #102
Marina del Rey, CA 90292

Mr. Rodney Mc Innis
Regional Administrator
National Marine Fisheries Service (NMFS)
Southwest Regional Office
501 W Ocean Blvd, Suite 4200
Long Beach, CA 90802

Ms. Sandy Kievman
Senior Field Deputy
Office of Councilwoman Cindy Miscikowski
District 11, West LA District Office
1645 Corinth Avenue, Room 201
West Los Angeles, CA 90025

Mr. Michael Bai
West LA Director
Office of Mayor James K. Hahn
7166 West Manchester Avenue
Westchester, CA 90045

President
Playa Pacifica Townhomes Owners Association
7600 W Manchester Ave
Playa del Rey, CA 90293

Head, Coastal & Environmental Affairs
Playa Vista Properties
5510 Lincoln Boulevard, Suite 100
Playa Vista, CA 90094

Mr. Harris Levey
President
President's Row Neighborhood Association
611 Victoria
Venice, CA 90291

Mr. Jim Clouet
Regional Contact
South Coast Air Quality Management District
21865 Copley Dr
Diamond Bar, CA 91765

Southern California Gas Company
1701 Stewart St
Santa Monica, CA 90401

Mr. Tom Francis
Executive Director
The Ballona Wetlands Land Trust
P.O. Box 5623
Playa del Rey, CA 90296

US Army Corps of Engineers
P.O. Box 532711
Los Angeles, CA 90053

Ms. Lucille Cappas
Senior Librarian
Venice – Abbot Kinney Memorial Branch Library
501 S. Venice Boulevard
Venice, CA 90291

Ms. Nadine Parkos
President
Venice Canals Association
PO Box 893
Venice, CA 90294

President
Villa Del Rey Homeowners Association
8130 W Manchester Ave
Playa del Rey, CA 90293

Mr. Darryl Dufay
Voice of the Canals
P.O. Box 1692
Venice, CA 90294

Ms. Gwen Vuchsas
Chair
Westchester/Playa del Rey Neighborhood Council
8726 S. Sepulveda Blvd. PMB A191
Los Angeles, CA 90045

Ms. Marcia Hanscom
Executive Director
Wetlands Action Network
PO Box 1145
Malibu, CA 90265

Venice Pumping Plant Dual Force Main EIR
NOP Comment Letters Log
June 10, 2005

1. State Clearinghouse
   1400 Tenth Street
   P.O. Box 3044
   Sacramento, CA 95812-3044
   Attn: Scott Morgan, Project Analyst
   (916)445-0613 Phone
   (916)323-3018 Fax
   May 2, 2005

2. South Coast Air Quality Management District
   21865 Copley Drive
   Diamond Bar, CA 91765-4182
   Attn: Steve Smith, Ph.D., Program Supervisor, CEQA Section
   (909) 396-2000
   May 10, 2005

3. Metropolitan Transportation Authority
   One Gateway Plaza
   Los Angeles, CA 90012-2952
   Attn: Susan Chapman, Program Manager, Long Range Planning
   (213) 922-2000
   May 16, 2005

4. Metro South Bay
   680 Knox Street, Suite 150
   Torrance, CA 90502
   Attn: Scott Greene, Planning Manager
   (310) 225-6022
   GreeneS@metro.net
   May 20, 2005

5. Mark Van Gessel
   VanGesselM@metro.net
   May 25, 2005

6. Richard Nickey
   110 Rees Street
   Playa del Rey, CA 90293
   richard_nickey@hotmail.com
   May 27, 2005

Venice Pumping Plant Dual Force Main EIR
NOP Comment Letters Log
June 10, 2005

7. City of Los Angeles
Department of City Planning
200 North Spring Street, Room 621, Mail Stop No. 395
Los Angeles, CA 90012
Attn: Helene Bibas, City Planner, Coastal Planning Unit
June 1, 2005

8. Hannes Vilhjalmsson
6535 Vista Del Mar #A
Playa Del Rey, CA 90293
June 1, 2005

9. State of California
Department of Fish and Game
4949 Viewridge Avenue
San Diego, CA 92123
Attn: Morgan Wehtje
(626) 797-3170
June 1, 2005

10. Carol Becker Kapp, Member of the Board of Directors West Beach Playa del Rey Property Owners Association
127 Rees Street, Playa Del Rey, CA 90293
3516 Merrimac Avenue, San Diego, CA 92117
June 1, 2005

11. County of Los Angeles
Department of Public Works
900 South Fremont Avenue
Alhambra, California 91803-1331
(626) 458-5100
Attn: Manuel Del Real, Asst. Dep. Dir., Waterworks & Sewer Maintenance Div.
June 10, 2005

12. County of Los Angeles
Beaches and Harbors
13837 Fiji Way
Marina del Rey, CA 90292
Attn: Joseph Chesler, AICP, Chief of Planning
(310) 305-9503
June 9, 2005

COMMUNITY RESPONSES

127 Rees Street
Playa del Rey, Ca 90293
June 1, 2005

3516 Merrimac Ave.
San Diego, Ca. 92117

Dear James Doty, Public Works

Re: Venice Pumping Plant Dual Force Main Project

As the EIR is prepared for the above named project, I respectfully make the following observations and suggestions. It is difficult to make suggestions for items to be included in an EIR for a project that has 5 possible routes. Each route has its own set of environmental issues that need to be addressed in the EIR.

I recommend that the EIR be constructed after The City and The Community get together and consult with each other using information that was not available on May 24, 2005. We need to know how much each plan would cost and then we can make a case for one route. Is there an "Initial Study" available for the public to study?

Since we were told that we must submit responses by June 10, 2005, I want to go on record as supporting The Dockweiler Alignment. There is an existing pipe already in place on the beach. It would be most efficient to open trench or tunnel. I suggest that the City archives be checked to see what the issues were when the original pipe was laid.

This would , when finished, leave the "old" pipe to use in an emergency if there is a problem in the future with the"2007" pipe. I am suggesting that old one should be connected with new upgraded connectors. The old pipe should be lined with plastic or ceramic liners so that it could be used either in emergency or to accommodate larger demand in the next 30 years!!!! Think ahead and dig once, save money!! This would double the volume without another project.

The Dockweiler Alignment is efficient . It has far more benefits as far as the human beings are concerned who live in the area affected. There are no Gas Mains to be severed on the beach. Traffic disruption would be of a minimum given that there are no cars on the beach!! The Dockweiler Alignment would eliminate traffic and parking impacts.

Items to be considered in the EIR and in the Building Plan

Playa del Rey and Venice should be considered High Density residential. Parking is at a premium as a result of this High Density.

The total beach route would eliminate disruption of traffic, parking, gas mains, and ingress and egress to living units as well as businesses.

Night work is not an option. This project should be treated as if it were to pass by the Mayor's home.We deserve the same respect as elected officials.

Air Quality
By going only along the beach alignment; dust and dirt could be contained by putting easy ups with skirts to control dust and somewhat the noise factor. This method will impact the least amount of people .

Geological
The beach route would be further away from the bluffs along Vista del Mar. Vibrations from equipment could trigger land slides. The hill properties as well as those in The Jungle appear on City Earthquake maps as being areas of liquification. The project could potentially result in on or off site land slides, lateral spreading, liquification of collapse. Good planning and engineering can not predict a landslide. Early 2005 saw the ruination of the bluff area of La Conchita in Ventura. Today, June 1, 2005 The Blue Bird Canyon area of LaGuna Beach lost nine houses and twenty-one were seriously damaged. There is no report available of how much other damage was done. This is an example of what can happen on the bluffs given the amount of rain that we had this past winter. Planning is the key. Does the City have enough Liability insurance to cover similar happenings that could be triggered by vibrations of equipment as described in the routes that would proceed open trench in the streets?
The project could be a year (or more) of seismic that would ultimately yield significant impact toward unknown locations on either side of

Vista del Mar. The use of open trench or tunneling on the beach would eliminate disasters.

Hazards and Materials
The beach route would reduce the amount of exposure to Hazardous waste issues. The City can use a large machine, such as the one shown at the scopiing meeting, to clean the sand and materials and return them to the original place.

Water--No matter which location is chosen, the project needs a"Weather Eye". What plans and protections are in place in case of a storm? There should be diligent attention to Moon, Tide, and Winds and Rain. Significant storms in 1983 and 1998 and 2005 would have wreaked havoc if this project were under way without plans. It is not enough to say that the crew does not work on rainy days!!! There must be a plan with emergency pumps and other contingencies. Public Works must have a written plan that will be shared at a Community meeting in which LAPD, LAFD, LA Beaches and Harbors and The Coast Guard will be present to present a Coordinated Response Plan for water and other emergencies that may arise.
There is limited access to both The Lagoon and The Jungle. Access for safety vehicles must be part of the Safety Plan. The community should have a copy of the plan.

Noise
The least exposure to noise will be via the Beach Alignment!!! Let us go back in history---The Thompson Pumping Plant was so loud and long ranged that The City actually paid for people to live and work elsewhere.

Parking
Parking is always an ongoing need in Venice and Playa del Rey.In the Jungle, the Parking strip that runs adjacent Vista del Mar to the west and southerly from Montreal to Surf Alley---is PARKING for beach goers in the day and for locals at night. This parking provides Public Access to the Beach. The parking should not be disrupted. It must be preserved no matter what is being improved.

Esthetics
140 Hurricane---City Pump Plant needs to be esthetically improved!!! The Thompson Pumping Plant was totally improved on the facade and the landscaping. This project should be treated in the same manner. Presently, the Plant is a blight and an embarrassment to the Neighbors.

The Bike Path Must be respected. No equipment should be operated on or stored on the cement. LA City owns LAX--store supplies there. Rent space on the unused Dockweiler Parking lots from LA County. The Jungle strip is not to be used!!!

I support The North and South Dockweiler Alignment as the most benign . No matter which route is taken, Alternate Plans must be developed prior to the Problem. It is unacceptable to have a repeat of THE THOMPSON PUMPING PLANT FIASCO. The City owes this community a well planned project with no glitches.

Carol Kapp

Property Owner, Resident, Member of The Board of Directors
West Beach Playa del Rey Property Owners Association

Carol Becker Kapp
127 Rees St.
Playa del Rey, CA
90293-7661

From: Helene Bibas
To: Irene Paul
Date: 6/1/2005 5:58:12 PM
Subject: venice pumping plant eir

Hi Irene,
I was informed about the yesterday's meeting only today. It was held up at the exec. office since May 5!
In the future, please forward correspondance or copies or any other notification concerning Venice to me if possible
H. Bibas, City Planner
Room 621, City Hall
MS 395
The other concern I have is compliance with the Venice Coastal Commission Certified Land Use Plan (2001)- That also should be addressed in the EIR.
Thanks Helene

From: Environment User
To: richard nickey
Date: 5/27/2005 12:20:48 PM
Subject: Re: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

Thank you for your comments. We will address your concerns in the Draft EIR.

>>> "richard nickey" <richard_nickey@hotmail.com> 5/27/2005 12:16:32 PM >>>
Thank you for the informative and congenial presentation related to the subject project as it might impact my Playa del Rey neighborhood.
I am a thirty five year resident of "The Jungle" neighborhood adjacent to Vista del Mar.
I feel that the beach alternative is the best solution for the project.
It would not disrupt to any major degree traffic in the area.
I understand that open trenches will be covered sequentially as the new pipes are installed.
Considerations must be given to the bike path, volley ball activities, public access and uTse of the beach, protected bird locations, etc.
The Vista del Mar alternative has some potentially serious draw backs.Morning and evening traffic congestion and grid lock. A relatively small project providing drive way access to/from Vista del Mar and the condominiums located at the southern edge of our neighborhood resulted in traffic grid lock for miles on Vista del Mar and Culver Boulevard during the construction period.
The neighborhood parking area adjacent to Vista del Mar would likely be impacted.This would have a negative effect on day time beach goers access to the beach and evening resident parking-----parking now is a limited resource.
Thank you for your time and interest!Richard Nickey, 110 Rees Street, Playa del Rey 90293

From: "Van Gessel, Mark" <VanGesselM@metro.net>
To: '"environment@eng.lacity.org"' <environment@eng.lacity.org>
Date: 5/25/2005 2:40:22 PM
Subject: Last evenings meeting on Sewer Project

Andrea:

That was a very productive meeting last evening and I was happy to see a project team that appears to really want to evaluate the project proposed alignments.

The presentation that was made was also very interesting.

Is it possible to get a copy of the PowerPoint presentation?

Thanks

Mark Van Gessel

AGENCY RESPONSES

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Code	Salutation	First Name	Last Name	Title	Organization	Address	City	State	Zip	Phone	Fax	E-mail	Website	Comments
ENV	Mr.	Bruce	Robertson		Ballona Valley Preservation League	12228 Venice Blvd. Box 500	Los Angeles	CA	90066	(310) 398-5511		Bruce@BallonaWetlands.org	nawetlands.org/	
ENV	Ms.	Jina	Jani		Ballona West Bluffs Conservancy	8117 W. Manchester Ave. # 345	Playa del Rey	CA	90293	(310) 301-6663		jina@westbluffs.com		
ENV	Ms.	Rosemary	Sostarich		Ballona Wetlands Foundation	LMU, North Hall, 1 LMU Dr, MS 8160	Los Angeles	CA	90045	(310) 342-0100	(310) 342-0053	bwf@ballona-wetlands.org	na-wetlands.org/	
GOV	Ms.	Teresa	Henry	District Manager	California Coastal Commission - South Coast District Office	200 Oceangate, 10th Floor	Long Beach	CA	90802	(562) 590-5071	(562) 590-5084			
GOV					California Department of Conservation	801 K Street, MS 24-01	Sacramento	CA	95814	(916) 322-1080	(916) 445-0732			
GOV					California Department of Fish and Game	1416 Ninth Street	Sacramento	CA	95814					
GOV		Tom	Tanner	Superintendent	California Department of Parks and Recreation - Angeles District	1416 9th Street	Sacramento	CA	95814	(213) 620-6182				
GOV	The Honorable	Mike	Gordon	Assemblyman	California State Assembly-53rd District	1700 E Walnut Ave, Suite 601	El Segundo	CA	90245	(310) 615-3515		mbly.ca.gov	assembly.ca.go	
GOV	The Honorable	Sheila	Kuehl	State Senator	California State Senate, District 23	10951 W Pico Blvd. #202	Los Angeles	CA	90064	(310) 441-9084	(310) 441-0724	Sheila.Kuehl@sen.ca.gov	sen.ca.gov/sen	
GOV	The Honorable	Deborah	Bowen	State Senator	California State Senate, District 28	2512 Artesia Blvd., #200	Redondo Beach	CA	90278	(310) 318-6994	(310) 318-6733	senator.bowen@sen.ca.gov	sen.ca.gov/sen	
GOV				IGR/CEQA Branch	Caltrans District 7	100 S Main St	Los Angeles	CA	90012	(213) 897-3656				
GOV	The Honorable	Richard	Bloom	Mayor	City of Santa Monica	1685 Main Street, #200	Santa Monica	CA	90401	(310) 458-8201	(310) 458-1621	richard@bloomlaw.net	a-	
HOA				President	Cross Creek Village Homeowners Association	8650 Gulana Ave	Playa del Rey	CA	90293	(310) 821-7979				
NC	Mr.	Steve	Knight	Interim President	Del Rey Neighborhood Council	12820 Short Ave	Los Angeles	CA	90066	(310) 822-6115	(310) 822-8276	ET	borhoodlink.com	Thursday of
GOV					DTC - Los Angeles Hazardous Materials Laboratory	1449 W Temple St	Los Angeles	CA	90026	(213) 580-5796				
ENV	Ms.	Ruth	Lansford		Friends of Ballona Wetlands	7740 West Manchester Avenue, Suite 205	Playa del Rey	CA	90293	(310) 306-5994	(310) 574-9434	fbw@ballona.org	nafriends.org/	
NC	Ms.	Suzanne	Thompson	President	Grassroots Venice Neighborhood Council	P.O. Box 2224	Venice	CA	90294	(310) 821-6030		president@grvnc.org	http://grvnc.org/	
GOV	Mr.	Tom	Martin	Field Deputy	LA County 4th District Supervisor, Don Knabe	825 Maple Ave., Room 150	Torrance	CA	90503	(310) 222-3015	(310) 320-4058		/index.html	
LIB	Ms.	Claudia	Fishler	Community Library Manager	Lloyd Taber-Marina del Rey Library	4533 Admiralty Way	Marina del Rey	CA	90292	(310) 821-3415			ublib.org/libs/ma	
GOV				Division Manager	Los Angeles Bureau of Sanitation - Environmental Monitoring Division	12000 Vista Del Mar	Playa del Rey	CA	90293	(310) 648-5610				
GOV	The Honorable	Cindy	Miscikowski	Councilwoman	Los Angeles City Council, District 11	200 N. Main St., Room 407	Los Angeles	CA	90012	(213) 485-3811		miscikow@c11.ci.la.ca.us	.org/council/cd1	
GOV					Los Angeles City Fire Department-Bureau of Fire Prevention and Public Safety Hydrants and Access Unit	200 N Main St	Los Angeles	CA	90012	(213) 485-5971				
NAM	Mr.	Ron	Andrade	Director	Los Angeles City/County Native American Indian Committee	3175 W. 6th Street, Room 403	Los Angeles	CA	90020	(213) 351-5308	(213) 386-3995			
HIS	Ms.	Linda	Dishman	Executive Director	Los Angeles Conservancy	523 W. Sixth St., Suite 826	Los Angeles	CA	90014	(213) 623-2489	(213) 623-3909	ldishman@laconservancy.org	servancy.org	
GOV	The Honorable	Don	Knabe	Supervisor, Fourth District	Los Angeles County Board of Supervisors, Fourth District	822 Kenneth Hahn Hall of Administration, 500 W. Temple St.	Los Angeles	CA	90012	(213) 974-4444	(213) 626-6941	don@bos.co.la.ca.us	/index.html	
GOV	The Honorable	Zev	Yaroslavsky	Supervisor, Third District	Los Angeles County Board of Supervisors, Third District	821 Kenneth Hahn Hall of Administration-500 W. Temple St.	Los Angeles	CA	90012	(213) 974-3333	(213) 625-7360	zev@bos.co.la.ca.us		
GOV	Mr.	Stan	Wisniewski	Director	Los Angeles County Department of Beaches and Harbors	13837 Fiji Way	Marina del Rey	CA	90292	(310) 305-9522	(310) 821-6345	beaches@dbh.co.la.ca.us	o.la.ca.us/	
GOV				Division Head	Los Angeles County Department of Public Works, Flood Maintenance Division	P.O. Box 1460	Alhambra	CA	91802					
GOV				Transportation Planning Manager	Los Angeles County Metropolitan Transportation Authority	One Gateway Plaza	Los Angeles	CA	90012	(213) 922-1200				
GOV	Mr.	Harold	Helsley	Regional Planning Commissioner	Los Angeles County Regional Planning Commission-Supervisorial District 3	Hall of Records (13th Floor), 320 W Temple St	Los Angeles	CA	90012					
GOV	Mr.	Wayne	Rew	Chair	Los Angeles County Regional Planning Commission-Supervisorial District 4	Hall of Records (13th Floor), 320 W Temple St	Los Angeles	CA	90012	(213) 974-6411	(213) 626-0434			
GOV				Planning Director	Los Angeles Department of City Planning	200 N Spring St	Los Angeles	CA	90021					
GOV	Mr.	David	Attaway		Los Angeles Department of Parks and Recreation	1200 W 7th St, Suite 700	Los Angeles	CA	90017	(888) LA PARKS				
GOV				Area Commanding Officer	Los Angeles Police Department - Pacific Community Police Station	12312 Culver Blvd	Los Angeles	CA	90066	(310) 202-4501				
GOV					Los Angeles Regional Water Quality Control Board (Region 4)	320 West 4th Street, Suite 200	Los Angeles	CA	90013					
EDU				Superintendent	Los Angeles Unified School District 3	3000 S Robertson Blvd	Los Angeles	CA	90034					
HOA	Ms.	Cassandra	Parker		Marina City Club Homeowners Association	4333 Admiralty Way	Marina Del Rey	CA	90292	(310) 822-0611				
HOA	Mr.	Tim	Riley	Executive Director	Marina del Rey Lessee's Association	8537 Wakefield Ave.	Panorama City	CA	91402	(818) 891-0495		timriley7@adelphia.net		
HOA	Mr.	Bill	Farhood	Director	Marina Peninsula Neighborhood Association	520 Washington Blvd. #102	Marina del Rey	CA	90292			info@marinapeninsula.org	apeninsula.org/	
GOV	Mr.	Rodney	Mc Innis	Regional Administrator	National Marine Fisheries Service (NMFS) - Southwest Regional Office	501 W Ocean Blvd, Suite 4200	Long Beach	CA	90802	(562) 980-4005				
GOV	Ms.	Sandy	Kievman	Senior Field Deputy	Office of Councilwoman Cindy Miscikowski, District 11, West LA District Office	1645 Corinth Avenue, Room 201	West Los Angeles	CA	90025	(310) 575-8461	(310) 575-8305	skievman@council.lacity.org	.org/council/cd1	
GOV	Mr.	Michael	Bai	West LA Director	Office of Mayor James K. Hahn	7166 West Manchester Avenue	Westchester	CA	90045	(310) 410-1749	(213) 473-2079	mbai@mayor.lacity.org		
HOA				President	Playa Pacifica Townhomes Owners Association	7600 W Manchester Ave	Playa del Rey	CA	90293	(310) 649-1054				
HOA				Head, Coastal & Environmental Affairs	Playa Vista Properties	6510 Lincoln Boulevard, Suite 100	Playa Vista	CA	90094	(310) 448-4676				
HOA	Mr.	Harris	Levey	President	President's Row Neighborhood Association	911 Victoria	Venice	CA	90291	(310) 822-9067		pma@venicebeach.com		
GOV	Mr.	Jim	Clouet	Regional Contact	South Coast Air Quality Management District	21865 Copley Dr	Diamond Bar	CA	91765	(909) 396-3208		jclouet@aqmd.gov		
GOV					Southern California Gas Company	1701 Stewart St	Santa Monica	CA	90401	(310) 605-4181				
ENV	Mr.	Tom	Francis	Executive Director	The Ballona Wetlands Land Trust	P.O. Box 5623	Playa del Rey	CA	90296	(310) 264-9468	(310) 264-9412	landtrust@ballona.org	na.org/	
GOV					US Army Corps of Engineers	P.O. Box 532711	Los Angeles	CA	90053	(213) 452-3908				
LIB	Ms.	Lucille	Cappas	Senior Librarian	Venice – Abbot Kinney Memorial Branch Library	501 S. Venice Boulevard	Venice	CA	90291	(310) 821-1769	(310) 306-9124			
HOA	Ms.	Nadine	Parkos	President	Venice Canals Association	PO Box 893	Venice	CA	90294	(310) 827-6939				
HIS	Ms.	Mary Jane	Weil	President	Venice Historical Society	P.O. Box 12844	Venice	CA	90295	(310) 967-5170			eofamerica.org/	
HOA				President	Villa Del Rey Homeowners Association	8130 W Manchester Ave	Playa del Rey	CA	90293	(310) 823-2231				
HOA	Mr.	Darryl	Dufay		Voice of the Canals	P.O. Box 1692	Venice	CA	90294	(310) 822-9194		darryldu@aol.com		
NC	Ms.	Gwen	Vuchsas	Chair	Westchester/Playa del Rey Neighborhood Council	8726 S. Sepulveda Blvd. PMB A191	Los Angeles	CA	90045	(213) 473-7023		gvuchsas@ncwpdr.org	dr.org/	1st Tuesday of
ENV	Ms.	Marcia	Hanscom	Executive Director	Wetlands Action Network	PO Box 1145	Malibu	CA	90265	(310) 456-5612	(310) 456-5604	wetlandact@earthlink.net		
GOV	Mr.	James M.	Okazaki	Asst. Gen'l Mgr, Programs & Developmer	Los Angeles City Dept Transportation	221 S. Figueroa Street, Suite 600	Los Angeles	CA	90012					Mail Stop 725
GOV				Envir Health & Safety	L A Unified School District	355 S Grand Ave 6th Fl	Los Angeles	CA	90071	(213) 633-8430	(213) 633-7100			
GOV	Mr.	Peter M.	Douglas	Executive Director	California Coastal Commission	45 Fremont St, Suite 2000	San Francisco	CA	94105-	(415) 904-5200	(415) 904-5400			
GOV	Ms.	Deborah	Ruddock		California Coastal Conservancy	1330 Broadway, 11th floor	Oakland	CA	94612	(510) 286-4168	(510) 286-0470	druddock@scc.ca.gov		
GOV	Mr.	Dwight E.	Sanders	Division Chief Environmental Planning	California State Lands Commission	100 Howe Ave Suite 100 South	Sacramento	CA	95825-	(916) 574-1890		sanderd@slc.ca.gov		

State of California - The Resources Agency ARNOLD SCHWARZENEGGER, *Governor*

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
4949 Viewridge Avenue
San Diego, CA 92123
(858) 467-4201

June 1, 2005

Mr. James E. Doty
City of Los Angeles Bureau of Engineering
650 South Spring Street
Los Angles, CA 90014

Notice of Preparation for an Environmental Impact Report for
Venice Pumping Plant Dual Force Main
SCH # 2003031001, Los Angeles County

Dear Mr. Doty:

The Department of Fish and Game (Department) appreciates this opportunity to comment on the above-referenced project, relative to impacts to biological resources. The proposed project involves the construction and installation of a 52 inch diameter force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice to a junction structure on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey, City of Los Angeles. Alignment alternatives to be considered in the DEIR propose to micro-tunnel beneath the Marina Del Rey Channel and Ballona Creek. One alternative passes within 100 feet east of the California least t nb em Venice Beach Colony. Installation on land will consists of open trenching and/or micro tunneling.

To enable Department staff to adequately review and comment on the proposed project we recommend the following information, where applicable, be included in the Draft Environmental Impact Report:

1. A complete, recent assessment of flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, and locally unique species and sensitive habitats.

    a. A thorough recent assessment of rare plants and rare natural communities, following the Department's Guidelines for Assessing Impacts to Rare Plants and Rare Natural Communities (Attachment 1).

    b. A complete, recent assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project area should also be addressed. Recent, focused, species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and U.S. Fish and Wildlife Service.

a. Rare, threatened, and endangered species to be addressed should include all those which meet the California Environmental Quality Act (CEQA) definition (see CEQA Guidelines, Section 15380).

Specific alternative locations should also be evaluated in areas with lower resource sensitivity where appropriate.

a. Mitigation measures for project impacts to sensitive plants, animals, and habitats should emphasize evaluation and selection of alternatives which avoid or otherwise minimize project impacts. Compensation for unavoidable impacts through acquisition and protection of high quality habitat elsewhere should be addressed.

b. The Department considers Rare Natural Communities as threatened habitats having both regional and local significance. Thus, these communities should be fully avoided and otherwise protected from project-related impacts (Attachment 2).

c. The Department generally does not support the use of relocation, salvage, and/or transplantation as mitigation for impacts to rare, threatened, or endangered species. Department studies have shown that these efforts are experimental in nature and largely unsuccessful.

4. A California Endangered Species Act (CESA) Permit must be obtained, if the project has the potential to result in "take" of species of plants or animals listed under CESA (such as California least tern), either during construction or over the life of the project. CESA Permits are issued to conserve, protect, enhance, and restore State-listed threatened or endangered species and their habitats. Early consultation is encouraged, as significant modification to the proposed project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, require that the Department issue a separate CEQA document for the issuance of a CESA permit unless the project CEQA document addresses all project impacts to listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of a CESA permit. For these reasons, the following information is requested:

a. Biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA Permit.

b. A Department-approved Mitigation Agreement and Mitigation Plan are required for plants listed as rare under the Native Plant Protection Act.

5. The Department opposes the elimination of watercourses and/or their channelization or conversion to subsurface drains. All wetlands and watercourses, whether intermittent, ephemeral, or perennial, must be retained and provided with substantial setbacks which preserve the riparian and aquatic habitat values and maintain their value to on-site and off-site wildlife populations.

a. The Department requires a Streambed Alteration Agreement (SAA), pursuant to Section 1600 et seq. of the Fish and Game Code, with the applicant prior to any direct or indirect impact to a lake or stream bed, bank or channel or associated riparian resources. The Department's issuance of a SAA may be a project that is subject to CEQA. To facilitate our issuance of the Agreement when CEQA applies, the Department as a responsible agency under CEQA may consider the local jurisdiction's (lead agency) document for the project. To minimize additional requirements by the Department under CEQA the document should fully identify the potential impacts to the lake, stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the Agreement. Early consultation is recommended, since modification of the proposed project may be required to avoid or reduce impacts to fish and wildlife resources.

ATTACHMENT 1

State of California
THE RESOURCES AGENCY
Department of Fish and Game
May 4, 1984

GUIDELINES FOR ASSESSING THE EFFECTS OF PROPOSED DEVELOPMENTS ON RARE AND ENDANGERED PLANTS AND PLANT COMMUNITIES

The following recommendations are intended to help those who prepare and review environmental documents determine when a botanical survey is needed, who should be considered qualified to conduct such surveys, how field surveys should be conducted and what information should be contained in the survey report.

1. Botanical surveys that are conducted to determine the environmental effects of a proposed development should be directed to all rare and endangered plants and plant communities. Rare and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare and/or endangered under the following definitions.

A species, subspecies or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy form one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition or disease. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain rare or endangered species. The most current version of the California Natural Diversity Data Base's Outline of Terrestrial Communities in California may be used as a guide to the names of communities.

It is appropriate to conduct a botanical field survey to determine if, or the extent that, rare plants will be affected by a proposed project when:

a. Based on an initial biological assessment, it appears that the project may damage potential rare plant habitat;

b. Rare plants have historically been identified on the project site, but adequate information of impact assessment is lacking; or

c. No initial biological assessment has been conducted and it is unknown whether or not rare plants or their habitat exist on the site.

Botanical consultants should be selected on the basis of possession of the following qualifications (in order of importance):

a. Experience as a botanical field investigator with experience in field sampling design and field methods;

b. Taxonomic experience and a knowledge of plant ecology;

c. Familiarity with the plants of the area, including rare species; and

d. Familiarity with the appropriate state and federal statutes related to rare plants and plant collecting.

Field surveys should be conducted in a manner that will locate any rare or endangered species that may be present. Specifically, rare or endangered plant surveys should be:

a. Conducted at the proper time of year when rare or endangered species are both "evident" and identifiable. Field surveys should be scheduled (1) to coincide with known flowering periods, and/or (2) during periods of

ATTACHMENT 2

Sensitivity of Top Priority Rare Natural Communities in Southern California*

'Sensitivity rankings are determined by the Department of Fish and Game, :ornia Natural Diversity Data Base and based on either number of known :rences (locations) and/or amount of habitat remaining (acreage). The : rankings used for these top priority rare natural communities are as ›ws:

Less than 6 known locations and/or on less than 2,000 acres of habitat remaining

Occurs in 6-20 known locations and/or 2,000-10,000 acres of habitat remaining

Occurs in 21-100 known locations and/or 10,000-50,000 acres of habitat remaining

The number to the right of the decimal point after the ranking refers to legree of threat posed to that natural community regardless of the ranking. :xample:

S1.1 = very threatened
S2.2 = threatened
S3.3 = no current threats known

Sensitivity Rankings (February 1992)

Community Name

Mojave Riparian Forest
Sonoran Cottonwood Willow Riparian
Mesquite Bosque
Elephant Tree Woodland
Crucifixion Thorn Woodland
Allthorn Woodland
Arizonan Woodland
Southern California Walnut Forest
Mainland Cherry Forest
Southern Bishop Pine Forest
Torrey Pine Forest
Desert Mountain White Fir Forest
Southern Dune Scrub
Southern Coastal Bluff Scrub
Maritime Succulent Scrub
Riversidean Alluvial Fan Sage Scrub
Southern Maritime Chaparral
Valley Needlegrass Grassland
Great Basin Grassland
Mojave Desert Grassland
Pebble Plains
Southern Sedge Bog
Cismontane Alkali Marsh

Los Angeles County
Caring for Your Coast
Beaches & Harbors

To enrich lives through effective and caring service

Stan Wisniewski
Director

Kerry Gottlieb
Chief Deputy

June 9, 2005

Mr. James E. Doty
City of Los Angeles
Department of Public Works
Bureau of Engineering
Environmental Management Group
650 South Spring Street, Room 574
Mail Stop No. 939
Los Angeles, CA 90014

NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT -- VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

Dear ~~Mr. Doty~~ Jim:

The Department of Beaches & Harbors has reviewed the Notice of Preparation (NOP) of the Draft EIR for the Venice Pumping Dual Force Main Project. The document identifies three possible alignments for the proposed project – two of the three lie within the County's operational jurisdiction and would result in considerable disruption to beach resources or to Marina del Rey (MDR) operations. Therefore, we propose that the City select the **Pacific Avenue Alignment** option.

The **Marquesas Way/Via Marina Alignment** would be problematic given the timeframe of the project and the expected MDR leasehold development along Via Marina. In addition, problems that would occur with the operation of a sewer main along Via Marina would significantly impact traffic and residential properties in this area. The NOP indicates that the Marina Peninsula Neighborhood Association (MPNA) has expressed concern about the potential impact of the Pacific Avenue Alignment within the City of Los Angeles. Be assured that the Marina del Rey Lessees Association and various MDR tenant groups would also have an opinion about the selection of the Marquesas Way/Via Marina Alignment, as it would have similar issues as those raised by the MPNA. As examples of potential disruption to Marina projects, construction is underway or approvals have been received for several MDR leasehold improvements, including Esprit Marina on Parcel 12 (Marquesas Way) and Parcel 15 (Via Marina & Panay Way), several Goldrich & Kest projects on Panay Way, Marina Harbor on Parcels 111/112 (Bora Bora Way), Del Rey Shores on Parcels 100/101 (entitlement process) and Parcels 9/10/FF (entitlement process).

The **Dockweiler Beach to Pacific Avenue Alignment** would also be undesirable. While this alignment would appear to be less disruptive to human activity, the construction activity would be disruptive to the established California Least Tern colony, to long-established beach volleyball activities and to our beach cleaning operations. It is true that the City and State own the beach where the alignment would run, but we believe that the temporary street disruption caused by selecting the parallel Pacific Avenue Alignment would avoid significant environmental impacts to

13837 Fiji Way • Marina del Rey • CA 90292 • 310.305.9503 • fax 310.821.6345 • internet: http://beaches.co.la.ca.us

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4182
(909) 396-2000 • www.aqmd.gov

May 10, 2005

Mr. James E. Doty
City of Los Angeles
Public Works, Bureau of Engineering
Environmental Management Group
650 South Spring Street, Room 574
Mail Stop No. 939
Los Angeles, CA 90014

Dear Mr. Doty:

Notice of Preparation of a Draft Environmental Impact Report for
Venice Pumping Plant Dual Force Main Project

The South Coast Air Quality Management District (SCAQMD) appreciates the opportunity to comment on the above-mentioned document. The SCAQMD's comments are recommendations regarding the analysis of potential air quality impacts from the proposed project that should be included in the Draft Environmental Impact Report (EIR). Please send the SCAQMD a copy of the Draft EIR upon its completion.

Air Quality Analysis

The SCAQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. The SCAQMD recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analysis. Copies of the Handbook are available from the SCAQMD's Subscription Services Department by calling (909) 396-3720. Alternatively, lead agency may wish to consider using the California Air Resources Board (CARB) approved URBEMIS 2002 Model. This model is available on the CARB Website at: www.arb.ca.gov.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the project and all air pollutant sources related to the project. Air quality impacts from both construction and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not

Metropolitan Transportation Authority
One Gateway Plaza
Los Angeles, CA 90012-2952
213.922.2000 Tel
metro.net

Metro

May 16, 2005

Mr. James E. Doty
City of Los Angeles
Public Works, Bureau of Engineering
Environmental Management Group
650 South Spring Street, Room 574
Mail Stop No. 939
Los Angeles, CA 90014

Dear Mr. Doty:

Thank you for the opportunity to comment on the Notice of Preparation (NOP) for the Venice Pumping Plant Dual Force Main Project. This letter conveys recommendations from the Los Angeles County Metropolitan Transportation Authority (LACMTA) concerning issues that are germane to our agency's statutory responsibilities in relation to the proposed project.

A Traffic Impact Analysis (TIA), with both highway and freeway, and transit components, is required under the State of California Congestion Management Program (CMP) statute. The CMP TIA Guidelines are published in the "2002 Congestion Management Program for Los Angeles County", Appendix D. The geographic area examined in the TIA must include the following, at a minimum:

1. All CMP arterial monitoring intersections, including monitored freeway on/off-ramp intersections, where the proposed project will add 50 or more trips during either the a.m. or p.m. weekday peak hour (of adjacent street traffic); and
2. Mainline freeway-monitoring locations where the project will add 150 or more trips, in either direction, during either the a.m. or p.m. weekday peak hour.

Among the required steps for the analysis of development-related impacts to transit are:

1. Evidence that, in addition to Metro, all affected municipal transit operators received the NOP for the Draft EIR;
2. A summary of the existing transit services in the area;
3. Estimated project trip generation and mode assignment for both morning and evening peak periods;
4. Documentation on the assumptions/analyses used to determine the number of percentage of trips assigned to transit;

5. Information on facilities and/or programs that will be incorporated in to the development plan that will encourage public transit usage and transportation demand management (TDM) policies and programs; and
6. An analysis of the expected project impacts on current and future transit services along with proposed project mitigation.

The MTA looks forward to reviewing the Draft EIR. If you have any questions regarding this response, please call me at 213-922-6908 or email at chapmans@metro.net. Please send the Draft EIR to the following address:

Metro CEQA Review Coordination
One Gateway Plaza MS 99-23-2
Los Angeles, CA 90012-2952
Attn: Susan Chapman

Sincerely,

Susan Chapman
Program Manager, Long Range Planning

From: "Greene, Scott" <GreeneS@metro.net>
To: "'environment@eng.lacity.org'" <environment@eng.lacity.org>
Date: 5/20/2005 3:53:04 PM
Subject: Venice Pumping Plant Dual Force Main Project

Regarding this project, we would like the EIR to address the impacts on public transportation in the Marina del Rey and Playa del Rey communities. Metro South Bay provides public transportation 7 days a week to these two communities. Turnaround loops in these communities are vital to our operations and if some of the streets are closed or partially closed during construction, we will need to find alternate turnaround loops and layover zones. We will also need advance notice of street closures so we can prepare notifications to our affected passengers.

Westbound Metro Line 108 operates on Pacific Av. and Via Marina in the peninsula area west of the Marina. If these streets are closed to our buses we will need an alternate route or detour that can accommodate a 40' bus without adding significant running time (more than two minutes) to the schedule. After the loop the westbound route ends at the layover zone on eastbound Washington Street nearside of Palawan Way. Eastbound Line 108 buses depart from this location.

Westbound Metro Line 115 operates on Pacific Av. in Playa del Rey between Convoy St. and Culver Bl. This is an essential segment of the turnaround loop so the bus can arrive at the layover zone on eastbound Culver opposite Esplanade. Due to narrow streets and tight turns, it may be difficult to find an alternate turnaround in Playa del Rey if Pacific Av. is closed.

Please contact us if you have questions. Thanks for considering our comments.

Scott Greene
Planning Manager
Metro South Bay
680 Knox St., Suite 150
Torrance, CA 90502
(310) 225-6022
greenes@metro.net

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APPENDIX B
PUBLIC INVOLVEMENT PROCESS
VENICE PUMPING PLANT
DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

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Venice Pumping Plant Public Scoping Meeting

The Department of Public Works for the City of Los Angeles is beginning the environmental review process for the Venice Pumping Plant dual force main project.

Tuesday, May 24, 2005

6 p.m. to 8 p.m.
Westchester Municipal Building
Community Room
7166 W. Manchester Ave.
Westchester, CA 90045

6-6:30 p.m. - **Viewing of displays**

6:30 p.m. - **Presentation**

What is the purpose of a scoping meeting?

- *A scoping meeting is an opportunity to suggest environmental issues that should be addressed in the Environmental Impact Report (EIR).*
- *At this meeting, you can learn about the project alignment alternatives and other components of the proposed project.*

The City of Los Angeles is beginning the environmental review process for the extension of the Venice Pumping Plant force main, a pipe that transports sewage from the Venice Pumping Plant at 140 Hurricane Avenue in Venice.

The City proposes to build an additional force main to support and reinforce the local sewage system, which is in serious need of repair.

Why do we need an additional force main?

- *The existing force main is at maximum capacity and at risk of spilling sewage onto your city streets and nearby surface waters.*
- *A new force main will help prevent human and environmental health risks.*

To view a copy of the Notice of Preparation (NOP), please visit our project website at http://eng.lacity.org/projects/vpp. Copies are also available at the Venice Branch Library, 501 S. Venice Blvd., Venice, CA 90291. For questions regarding the project, please call the project hotline at (213) 629-0992.

• VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT •

The City of Los Angeles Department of Public Works has initiated an environmental review process for the proposed Venice Pumping Plant Dual Force Main project. The project includes a proposal to construct and install a new force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice, to the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey.

A New Force Main is Needed Because:

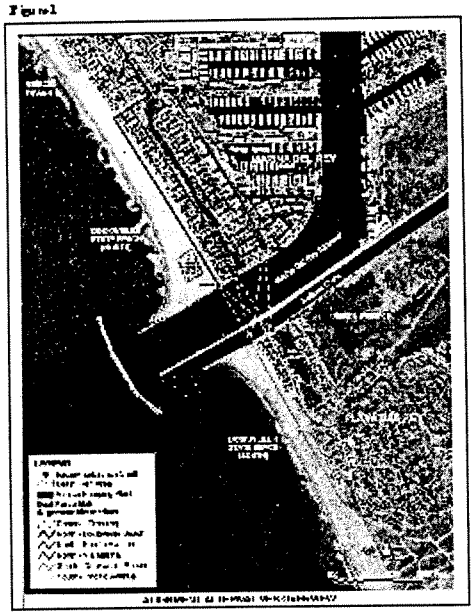
- During severe wet weather, peak flows to the Venice Pumping Plant have exceeded the capacity of the existing force main, which carries wastewater away from the plant.
- Currently, all of the wastewater from the Venice Pumping Plant is carried in one sewer. As a result, that sewer cannot be shut down for maintenance.

A New Force Main, In Conjunction With the Existing Main, Will:

- Expand capacity to ensure the continuous, safe flow during projected wet weather
- Help prevent sewer spillage onto city streets and adjacent surface waters
- Allow for much needed maintenance, rehabilitation and cleaning of the existing force main during dry weather

Site Map

Figure 1



Project Alignment Alternatives

As a result of numerous technical studies, four proposed alignment alternatives are under consideration and will be evaluated in an Environmental Impact Report (EIR).

Marquesas Way/Via Marina Alignment – From the pumping plant on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel. It would then cross under the Marina del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview Street.

Pacific Avenue Alignment – From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview Street.

Dockweiler Beach to Pacific Avenue Alignment – From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina del Rey and Ballona Creek channels, and continue south of the channels within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview Street.

Dockweiler Beach Alignment – From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point the line runs east to the junction structure in Vista Del Mar near Waterview Street. This alignment is about 11,000 feet long.

Construction Options

The four alignments under consideration cross the Marina entrance channel and Ballona Creek channel, requiring about 1,800 feet of tunneling under the two channels. Elsewhere along each alignment, two alternative construction methods are under consideration: ***open trench*** and ***tunneling***.

While the open trench method is less expensive, tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels, and can facilitate mitigation of other impacts such as noise.

Opportunities for Public Involvement

The City of Los Angeles Department of Public Works is sensitive to the needs of the community and wants to utilize an alignment and a construction method that minimizes impacts to surrounding neighborhoods.

We welcome your feedback. Mail your comments to:

James E. Doty
City of Los Angeles
Public Works, Bureau of Engineering
Environmental Management Group
650 South Spring Street, Room 574
Mail Stop No. 939
Los Angeles, CA 90014

ADA STATEMENT

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

• Project Hotline: (213) 629-0992 • E-mail: environment@eng.lacity.org • Web: http://eng.lacity.org/projects/vpp •

VENICE PUMPING PLANT DUAL FORCE MAIN SCOPING REPORT

This report includes comments received in response to the Notice of Preparation available for review from May 2, 2005 to June 10, 2005, 5:00pm PST, and comments received at a public meeting held at the Westchester Municipal Building in the City of Manchester on May 24, 2005.

The State Clearing House circulated Notices of the Proposed Action to the following Agencies:

California Coastal Commission
California Energy Commission
Department of Parks and Recreation
Department of Water Resources
Region 5 Fish and Game Department
State Water Resource Control Board
Department of Health Services
Native American Heritage
State Lands Commission
Caltrans Aeronautics Division
Caltrans District 7
RWQCB 4

Table 1 below, represents agency and citizen responses by category:

Table 1

Affected Resource	Metro South Bay	Metropolitan Transportation Authority	SCAQMD	Los Angeles County	City of Los Angeles	SDFG	Citizens
Aesthetics							X
Transportation	X	X	X				X
Parks and Recreation							X
Land Use					X		
Water Quality							X
Air Quality			X				
Resource Areas							X
Health and Human Safety							X
Fish and Wildlife						X	X
Geology/ Hydrology							X
Existing Facilities				X			X
Economic Justice							X
Noise							X

The key purpose for public participation is to solicit and receive comments regarding issues of concern that may be impacted as the result of the proposed project and that should be addressed in the Environmental Impact Report (EIR).

Table 2 on the following page identifies specific areas of concern made by agencies and citizens during the public scoping process and describes issues which should be addressed in the EIR:

Table 2

Affected Resource	Agency/Citizen	Comment	Location
Transportation	Metro South Bay	1.) Address coordination of construction related street closures with daily operational routes to the extent that services are not interrupted or delayed. 2.) Require alternative bus routes for all construction related street closures. 3.) Require alternative turn-around loops suitable to meet bus size.	Westbound Metro line 108 on Pacific Ave. and Via Marina in Peninsula west of the marina. Eastbound Washington St. nearside of Palawan Way and Eastbound 108. Westbound Metro line 115 on Pacific Ave. in Playa Del Rey between Convoy St. and Culver Blvd Is essential turnaround loop for layover zone.
	Los Angeles Metropolitan Transportation Authority	Require Traffic Impact Analysis (TIA) to include Highway, Freeway and transit components in accordance with California Congestion Management Program (CMP) in accordance with Appendix D of 2002 CMP TIA for LA County.	Entire project area.
	SCAQMD	It is recommended that Lead agencies for projects generating or attracting construction related air quality impacts from vehicular trips, especially heavy-duty diesel fueled vehicles should perform a mobile source health risk assessment.	Entire project area.

Transportation	Citizen	1.) Construction related obstruction of driveway access to and from condominiums in morning hours and evenings need to be addressed. 2.) Alternatives to construction related impacts to the neighborhood parking area adjacent to Vista Del Mar needs to be addressed. 3.) An alternative traffic plan for emergency services should be developed and distributed to local residents prior to construction of the project.	Vista Del Mar area Entire project.
	Citizen	This is key parking for beachgoers in the daytime and locals at night. Alternatives to parking in this area needs to be addressed if it is going to be impacted by the project.	Jungle area adjacent to Vista Del Mar to the west and southerly from Montreal to Surf Alley
Parks and Recreation	Citizen	Use or obstruction of the bike path must be avoided. No staging and/or operation of equipment should be allowed on cemented area. Address construction related impacts to the "Jungle Area".	Vista Del Mar
	Citizen	Access to the bridge across Ballona Creek should be considered.	
	Citizen	Avoiding obstructions to the bike path and volleyball areas on Dockweiler beach should be addressed.	Vista Del Mar
	Citizen	1. Recreational activities such as local tournaments held on the area by Loyola Marymount University and surrounding high schools need to be addressed in the EIR. 2. Activities at Towe's Beach and Trolly Way also need to be addressed in the EIR.	

Aesthetics	Citizen	The City Pumping Plant needs to be aesthetically improved as a part of this project.	140 Hurricane
Land Use	City of Los Angeles	The EIR should address the 2001 Venice Coastal Commission Certified Land Use Plan in accordance with CEQA. The Project should adhere to the LUP.	Entire project.
	Citizen	Playa Del Rey and Venice should be considered as high density residential.	Playa Del Rey
Water Quality	Citizen	Construction related impacts to water quality in the channel area should be addressed in the EIR.	Ballona Lagoon
	SDFG	The Department requires a Streambed Alteration Agreement (SAA) pursuant to Section 1600 et. Seq. of the Fish and Game Code, with applicant prior to any direct or indirect impact to a lake, streambed or channel or associated riparian resources.	Channel and Lagoon areas.

Air Quality	SCAQMD	1.) The project Air Quality analysis should be prepared in accordance with the 1993 CEQA Air Quality Hand Book. Alternatively, the lead agency may wish to consider using the CAB approved URBEMIS 2002 Model for analysis. 2.) It is recommended that Lead agencies for projects generating or attracting construction related air quality impacts from vehicular trips, especially heavy-duty diesel fueled vehicles should perform a mobile source health risk assessment. 3.) In the event that the project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during construction and operation to minimize or eliminate significant adverse impacts. 4.) Rule 403 applies to this project. SCAQMD's Fugitive Dust, and the Implementation Handbook contain numerous measures for construction related emissions that should be considered under CEQA. 5.) Pursuant to CEQA Guidelines § 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed.	Entire project.
Resource Areas	SDFG	The Department's California Natural Diversity Data Base in Sacramento should be contacted to obtain current information on any previously reported sensitive species or habitats and Natural Areas identified under Chapter 12 of the Fish and Game Code.	
	Citizen / Vista Del Mar Neighborhood Assn.	The Least Terns should be addressed in the EIR. Construction should not be allowed to occur during breeding season.	Dockweiler Beach.
	Citizen	Two of the alignments are close to the 700 foot dune space on Dockweiler Beach in the Towe's Beach area. This should be addressed In the EIR.	Dockweiler Beach / Towe's Beach area.

	Citizen	There is a wildlife preserve in Ballona Creek that needs to be addressed in the EIR	
Health and Human Safety	Citizen	Impacts to human health and safety as the result of eating fish from the channel which may be impacted by construction activities should be addressed.	Ballona Creek

Fish and Wildlife	SDFG	1.) The EIR should include a complete recent assessment of fauna and flora within adjacent project area. 2.)The project shall meet all requirements pursuant to CEQA Guidelines Section 15380 by addressing all rare, threatened and endangered species. 3.) The EIR should include a complete recent assessment of sensitive fish, wildlife, reptile, and amphibian species. Seasonal variations in use of the project should also be addressed. 4.) The EIR should include a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources with specific measures to offset such impacts. This discussion should focus on maximizing avoidance and minimizing impacts. 5.) The Department's California Natural Diversity Data Base in Sacramento should be contacted to obtain current information on any previously reported sensitive species or habitats and Natural Areas identified under Chapter 12 of the Fish and Game Code. 6.) The project shall comply with CEQA Guidelines, Section 15125(a) by indicating full knowledge of the regional setting with special emphasis on resources that are rare or unique t the region. 7.) A cumulative effects analysis should be developed in accordance with CEQA Guidelines Section 15130. 8.) Impacts to all Habitats from City or County required Fuel Modification Zones (FMZ) Areas slated as mitigation for loss of habitat shall not occur within the FMZ. 9.) The EIR should address the effects of proposed project activities and the breeding bird season, (February 1 – September 15) to avoid take (including disturbances which would cause abandonment of active nests containing eggs or young.	

Fish and Wildlife		10.) Impacts to migratory wildlife should be evaluated and addressed in the EIR. (see June 1. 2005 comment letter for further details)	Entire project.
Geology/ Hydrology	SDFG	The department opposes the elimination of water courses and/or their channelization or conversion to subsurface drains.	Entire project.
	Citizen	1.) Impacts to homes and property resulting from vibration from equipment should be addressed in the EIR. A year or more of cumulative vibration from the project could potentially trigger landslides. 2.) Earthquake maps identify project areas as liquification zones. Potential liquification resulting from construction should be addressed in the EIR.	Hillside properties and "Jungle Area". All alternative areas
	Citizen	Land in this area is unstable. A geologic study of this area should be addressed in the EIR	Marquesas Way / Via Marina
	Citizen	There is a high hill on the east side of Vista Del Mar south of Culver where landslides could occur as the result of project construction.	East side of Vista Del Mar south of Culver.
Existing Facilities	Los Angeles County Department of Public Works	This project will have no significant impact on the local sewer lines maintained by the Marina Sewer Maintenance District of this Department.	**Entire Project**
	Citizen	Existing condition of the pumping plant should be addressed in the EIR.	Venice

Economic Justice	Citizen	The city should address where flows to and from the sewer come from and what the economic structure is for paying for the proposed expansion.	Entire project
Noise	Citizen	Construction related noise impacts in the pumping plant area are a concern. The pumping plant makes noise at 1:30 am.	Hurricane St.
	Citizen	Noise in the Jungle area is intensified. This area should be considered in the analysis for the project.	
Alignment Alternatives	Citizen	The EIR should address construction duration and scheduling to help citizens with alternatives decision making.	Entire project
	Citizen	The city should rate the alignments based on what their primary consideration would be following the studies and responses from the agencies, especially the Coastal Commission.	Entire project
	Citizen	The Dockweiler alignment has far more benefits for people living in the project area. There are no gas mains, traffic disruption or parking impacts.	Dockweiler North and South.
Construction Alternatives	Citizen	The EIR should address alternative construction methods to be used in the event of an unanticipated construction emergency.	Entire Project
	Citizen	The city should provide a cost analysis to the public for each alignment to help with the decision making process.	Entire project
	Citizen	Night work is not an option.	Entire project

Scoping Meeting and Comments Received

Welcome...

The purpose of tonight's scoping meeting is to gather public comments on what environmental issues should be addressed in the Environmental Impact Report (EIR).

Please keep in mind that we are still in the early stages of the process. This is the first of several official opportunities to review the proposed project and provide feedback to the project team.

Many of the final decisions and details will not be decided until after the Environmental Impact Report (EIR) is completed. At this stage of the process, we are simply looking to hear what you have to say. Your comments tonight will help shape the scope of the Draft EIR.

Tonight's Agenda

- **6:00 p.m. - Sign-In and Viewing of Displays**
- **6:30 p.m. - Project Presentation**
- **7:00 p.m. - Comment Period**

If you would like to make a comment or ask a question at the conclusion of the presentation, we ask that you fill out a speaker card and hand it to a staff member.

You must submit written comments for your feedback to be included in the official document. Comment sheets are available at the Comments station. You may hand completed forms to any staff member, deposit them in the comment box, or mail them to the address below by **June 10, 2005**, to have them included in the official record.

To Submit Official Comments, Mail To:

James E. Doty
City of Los Angeles Public Works,
Bureau of Engineering
Environmental Management Group
650 South Spring Street, Room 574
Mail Stop No. 939
Los Angeles, CA 90014

For More Information, Contact:

Andrea Campbell
Hotline (213) 629-0992
E-mail: environment@eng.lacity.org

Thank you for coming.

ADA STATEMENT: As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

SCOPING MEETING FOR PUBLIC AGENCIES
on the
PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

Date: Tuesday, May 31st, 2005
Time: 10:00 a.m. until 12:00 p.m.
Location: 650 S. Spring St., 6th Floor Conference Room
Los Angeles, CA 90014
Contact: Irene Paul, Environmental Supervisor I, (213) 485-0998

The City of Los Angeles will be the CEQA Lead Agency on the proposed project and will prepare an Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act. The proposed project is located in the Venice and Westchester/Playa Del Rey community planning areas of the City of Los Angeles within Council District 11. The meeting is an opportunity for public agencies to provide initial feedback on the proposed project.

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Scoping Meeting
May 24, 2005

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GENERAL PUBLIC

SIGN – IN

NAME	ORGANIZATION	ADDRESS	ZIP CODE	PHONE	FAX	E-MAIL
Richard Hickey	WBPdRPOA	110 Rees, PdR	90293	310 821-876	310 821-2301	—
MARK VanGessel	—	100 Driftwood st #7 Venice, CA 90292	90292	310-822-5515	—	VanGessel@Comcast.NET
Raphael TISDALE	—	3815 VIA DOLCE MDR 90292	90292	-	310 576-2396	RTISdale@COMCAST.NET
John Hedgpeth		7017-Trolley Way	90293	310-820-8134	—	—
HANNES Vilhjelmsson	Renter	6535 Vista del Mar #A	90293	310-827-3688		
Elaine Gross		3933 Esplanade #2 MDR 90292	90292	(310) 823-6409	(310) 823-2787	

Scoping Meeting
May 24, 2005

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SIGN – IN

NAME	ORGANIZATION	ADDRESS	ZIP CODE	PHONE	FAX	E-MAIL
Carol Kapp	Self WK San Diego	127 Rees 3516 Merrimac SD 92117	90293	310 710-7104 858 274 4265	O	O
John McKnight	Self	121 Rees	90293	310 710-7104	O	O
RJ Chew	Self	8112 Tolo Terrace	90293	310 823 4158		
D. Downing	SELF	110 REES ST	90293	310 821-8761	—	—
Julie Inouye	Vista del Mar Neighbors Assoc.	6508 VDM	90293	310 306 1487		JulieInouye@WeCARE.org

Scoping Meeting
May 24, 2005

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GENERAL PUBLIC

SIGN – IN

NAME	ORGANIZATION	ADDRESS	ZIP CODE	PHONE	FAX	E-MAIL
Jeanna Moldy	Homeowner	7023 Trolley Way PDR	90293	310 823-0315	Same	—
John Crosse	"	6353 Esplanade	90293	310-301-6339	Same	jocrosse@comcast.net
Dan Sharkey	ALIENS of URANUS	102 MONTREAL	90292	310 822 7352		
David Sivedeker	" "	7051 Trolley Way	90293	3102664150	310 4481219	djsivedeker@hotmail.com
Aaron Gross	Councilman-elect Bill Rosendahl's office	515 24th Place Hermosa Beach, CA	90254	(310) 374-4890		aaron_gross@yahoo.com
Leena Iyengar	Renter	6585 Vista del Mar #A Playa del Rey, CA	90293	310-827-3188		

Scoping Meeting
May 24, 2005

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SIGN – IN

NAME	ORGANIZATION	ADDRESS	ZIP CODE	PHONE	FAX	E-MAIL
Debbie & Barry Krutchik	Lighthouse Home-Properties & owners	117 Roma Ct	90292	310-823-1823	310-823-0102	DebbieSutz@Hotmail.com
Janice Whiffen		136 Convoy St. PDR	90293	310-306-2481		jwhiffen@Comcast.net

Scoping Meeting
May 24, 2005

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SIGN – IN

NAME	ORGANIZATION	ADDRESS	ZIP CODE	PHONE	FAX	E-MAIL
Cindy Hardin	Audubon/FBN	21 Ironsides MDR	90292	310 301 0050	Ø	Ø
Drex Heikes		118 Convoy St.	90293	310 577 8789		

Scoping Meeting
May 24, 2005

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SIGN – IN

NAME	ORGANIZATION	ADDRESS	ZIP CODE	PHONE	FAX	E-MAIL
J. BOLLER		2814 CLUNE AV	90291	310 821 8232		

Speaker Card

Scoping Mtg. 5/24/05

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Speakers may not exceed three minutes. Time is tied to the speaker and may not be given to another speaker. Please print clearly.

First Name DEEPA Last Name IYENGAR

Organization/Company

Address 6535 VISTA DEL MAR #A

City PLAYA DEL REY State CA Zip Code 90293

Phone 310-827-8188 E-mail

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Each speaker may not exceed three minutes. Time may not be allocated to another speaker. Please print clearly.

First Name ELIANE Last Name GANS

Organization/Company property owner

Address 3933 Esplanade W #2

City MDR State CA Zip Code 90292

Phone (310) 823-6409 E-mail

Speaker Card

Scoping Mtg. 5/24/05

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Speakers may not exceed three minutes. Time is tied to the speaker and may not be given to another speaker. Please print clearly.

First Name MARK Van Gessel Last Name

Organization/Company —

Address 100 Driftwood St #7

City Venice State CA Zip Code 90291

Phone E-mail VanGessel@Comcast.net

Scoping Mtg. 5/24/05

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Each speaker may not exceed three minutes. Time may not be allocated to another speaker. Please print clearly.

First Name Julie Last Name Inouye

Organization/Company Vista del Mar Neighbors Assoc. & PDR Network

Address 6508 Vista del Mar

City Playa del Rey State _____ Zip Code 90293

Phone 310.306.1487 E-mail JulieInouye@WeCAHRE.org

Scoping Mtg. 5/24/05

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Speakers may not exceed three minutes. Time is tied to the speaker and may not be given to another speaker. Please print clearly.

First Name Debbie Last Name Sutz

Organization/Company Lighthouse Properties / Homeowner

Address 117 Roma ct

City Marina del Rey State CA Zip Code 90292

Phone 310-823-1823 x101 E-mail Debbie.sutz@hotmail.

Scoping Mtg. 5/24/05

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Speakers may not exceed three minutes. Time is tied to the speaker and may not be given to another speaker. Please print clearly.

First Name RAPHAEL ~~FISDALE~~ Last Name TISDALE

Organization/Company _____

Address 3815 VIA DOLCE

MDP State CA Zip Code 90292

Scoping Mtg. 5/24/05

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Speakers may not exceed three minutes. Time is tied to the speaker and may not be given to another speaker. Please print clearly.

First Name David Last Name Swedeker

Organization/Company

Address 7051 Mallenway

City PDR State CA Zip Code

Phone E-mail

Scoping Mtg. 5/24/05

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Each speaker may not exceed three minutes. Time may not be allocated to another speaker. Please print clearly.

First Name Don Last Name Sharkey

Organization/Company

Address

City State Zip Code

Phone E-mail

Scoping Mtg. 5/24/05

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Each speaker may not exceed three minutes. Time may not be allocated to another speaker. Please print clearly.

First Name R Last Name Chew

Organization/Company 2 Tals Terrace Homeowners

Address 8112 2 Tals Terrace

City PDR State CA Zip Code 90293

Phone 310 823 4158 E-mail

Speaker Card

Venice Pumping Plant Dual Force Main Project

If you would like to make a comment at tonight's meeting, please complete this speaker card and hand it to a staff member. Each speaker may not exceed three minutes. Time may not be allocated to another speaker. Please print clearly.

First Name Carol Last Name Kapp

Organization/Company own/live - 127 Rees

Work Address 3516 Merrimac

City San Diego State Ca Zip Code 92117

Phone 310-710-9104 E-mail

— 858-274 4265

ENGINEERING

City of Los Angeles,
Department of Public Works

Venice Pumping Plant Dual Force Main Project

COMMENTS

Please use this page to submit your comments regarding the scope of the Venice Pumping Plant Dual Force Main project Draft Environmental Impact Report (EIR). You may answer the question below or discuss any aspect of the project in which you are interested. Your comments are an important part of creating a comprehensive Draft EIR. Your input will become part of the public record and will be included in the Draft EIR, if submitted by **June 10, 2005** (the end of the public comment period).

1. What environmental issue(s) do you feel should be considered in the Draft EIR for the proposed Venice Pumping Plant Dual Force Main project?

When making your comments, please be as specific as possible:

FAMILIES, POSSIBLY LOW INCOME, USE THE BRIDGE ACROSS THE BALLONA CREEK (ON THE BIKE PATH) FOR FISHING. WHILE I AM SURE THE FISH THERE TODAY IS NOT THE FITTEST FOR HUMAN CONSUMPTION BECAUSE OF CURRENT POLLUTION LEVELS, THESE FAMILIES SEEM UNHARMED.
WILL THE CONSTRUCTION BRING POLLUTION TO A LEVEL WHERE THESE FAMILIES WILL INDEED RISK THEIR HEALTH BY FISHING THERE?
WILL ADEQUATE WARNINGS BE PLACED ON THAT BRIDGE?

(If necessary, please use the reverse side of the paper.)

Please complete the information below and print clearly to ensure that your comments are addressed in the Draft EIR.

Name: HANNES VILHJALMSSON Phone: 310 827 3188

Organization (if any):

Address: 6535 VISTA DEL MAR #A

City: PLAYA DEL REY State: CA Zip: 90293

You may drop your comments in the comment box at the Comments station or mail them to the following address, no later than June 10, 2005.

James E. Doty
City of Los Angeles,
Department of Public Works, Bureau of Engineering
Environmental Management Group
650 South Spring Street, Room 574
Mail Stop No. 939
Los Angeles, CA 90014

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Venice Pumping Plant Dual Force Main Project
Meeting Notes

Meeting With:	**General Public**	**Meeting Date:**	**May 24, 2005**
Team Members in Attendance:		**Location:**	**Westchester Municipal Building, Community Room**
	Jim Doty, BOE **Irene Paul, BOE** **Jon Delkhaste, BOE** **Keith Hanks, BOE** **Cora Jackson-Fossett, DPW** **Frank Wein, URS** **Kay Pratt, URS** **Julia Brown, CPG** **Sylvia Novoa, CPG** **Andrea Campbell, CPG**	**Notes By:**	**Julia Brown**

Introduction:
A public scoping meeting regarding the Venice Pumping Plant Dual Force Main Project was held on Tuesday, May 24, 2005 from 6:00 p.m. to 8:00 p.m. at the Westchester Municipal Building, Community Room (7166 W. Manchester Ave.) in Westchester, CA. Approximately 21 members of the public were in attendance. Sandy Kievman (Office of Councilwoman Cindy Miscikowski) and Aaron Gross (Office of Councilman-Elect Bill Rosendahl) were also in attendance. The purpose of the scoping meeting was to gather public comments on the environmental issues to be addressed in the Draft Environmental Impact Report (EIR).

Format:
An open house took place from 6:00 p.m. to 6:30 p.m. and provided the public with the opportunity to view project displays, meet project team members, and ask questions on a one-on-one basis. At the start of the formal meeting, Cora Jackson-Fossett (DPW) welcomed those in attendance and discussed the purpose of the scoping meeting.

Frank Wein (URS) then gave an overview of the California Environmental Quality Act (CEQA) process, followed by Keith Hanks (BOE), who presented the project objectives and purpose and need. Frank Wein (URS) discussed the purpose of the Initial Study and then turned the meeting over to Sylvia Novoa (CPG) to facilitate the public comment period.

Questions/Answers/Comments:
Q: What is at the site now? What is wrong with the existing force main pipe? Have there been problems in the past?
A: There were some problems in the past, but the pipe is operating now.

Q: Did the pipe almost overflow with the heavy winter rains of 2004/2005?

C: There is a wildlife preserve in Ballona Creek that needs to be addressed in the Draft EIR. (Eliane Gans)

C: Recreational activities, such as local tournaments held in the area by Loyola Marymount University and surrounding high schools, need to be addressed in the Draft EIR. Short-term impacts also need to be identified for local bike paths, Towe's Beach, and Trolley Way. You also need to identify the streets where pipes will enter and exit. (Dan Sharkey)

Q: Is this project absolutely necessary? If so, you need to consider recreation in your environmental analysis. What is the definition of short-term and what areas will be impacted and when? Are the alignments presented here today the best options available? (David Snedeker)

Q: I live on the Venice side of this project. You said you have upgraded the Venice Pumping Plant from four to five pumps. What is the physical capacity of the plant and the 48-inch pipe? You need to

address housing and population in the Draft EIR. What is the construction schedule for the project? Construction will impact homes near the blue alignment (as seen on one of the project alignments map) at the end of the peninsula. (Mark Van Gessel)

C: I live in the Jungles (Playa del Rey/Vista del Mar area). Residential high density should be addressed in the EIR because of the parking situation in the area. The City came to us in 2003 with this project. Some of our properties are within 25 to 50 feet of this project. There is also a high hillside on the east side of Vista del Mar, south of Culver, where landslides might occur due to the construction of this project. Many who live in Playa del Rey were exposed to the previous pumping plant fiasco that went over schedule. You need to have alternative plans and methods for construction. (Carol Kapp)

Q: I represent Vista del Mar and Playa del Rey (Vista del Mar Neighbors Association). Can you give us a timeline for how long it would take to construct each alignment? This will help us decide on an alignment option. We want to make a good decision here. There is a least tern nest in Playa del Rey that needs to be studied in the EIR. They inhabit the area from May through August, so construction should not be allowed to take place during this time. You should also provide the estimated cost of each alignment. (Julie Inouye)

Q: Would this project have to be disclosed to anyone purchasing a home in the area? We look at the Plant right now and it is atrocious. Venice Pumping Plant should not look like that. You need to improve the aesthetics at the plant. We have already spoken to the Council office about the use of matching funds for beautification projects. I heard that the Plant is planning to expand. Will they be expanding on to the next block? (Debbie Sutz)

Q: Is there an art component to this project? (Julie Inouye)

C: I live across the grand canal. There was an $18 million upgrade to the Plant a few years ago, but they did not paint or beautify it. Aesthetics are important. Noise is also an important issue. Venice Pumping Plant starts making noise around 1:30 a.m. The Marquesas/Via Marina route would be adjacent to my home. I have heard that this land is unstable. You need to conduct a geological survey. You should also compare the costs of tunneling versus open trench for all of the alignments. (Raphael Tisdale)

Q: The Thompson Pumping Plant had money to re-do the façade, but decided to use hideous colors. Is there a law regarding public art? (Carol Kapp)

C: Parking is an ongoing problem in the area. This parking strip runs from Montreal to Serpa Alley and serves beachgoers during the day, and residents in the evening. This land should not be used as a staging area or to run a pipe underneath. (Carol Kapp)

Q: Why do we need this project now? Is it due to a population increase or are the pipes corroding? (Deepa Iyengar)
A: This project will provide more pressure in the pipe as flows increase. A larger pipe would cause problems when there are lower flows. Putting in a parallel pipe will better serve our needs. This will mean less pressure loss. Both pipes will operate during higher flows. It costs less to rehabilitate the existing pipe than to construct a new one. (Keith Hanks)

Q: Why is there a dramatic increase in the flow in the first place?

Q: Is the County going to use our LA sewer system? Is Marina del Rey going to use it? Is this increased flow from the City or the County and the City? (J. Boller)
A: Just because an alignment is running through Marina del Rey does not mean its residents will be using it. (Jon Delkhaste)

Q: Is the County going to help the City pay for this? I want an answer to this question. (J. Boller)
A: The Hyperion Treatment Plant also serves some non-area agencies. I do not know if Marina del

Rey will be served by this area. (Jim Doty)

Q: I have heard the County (Marina del Rey) is planning on expanding. Will the sewer system be able to handle this increase?

C: We need the City to rank these alignments, so the community does not spend time focusing on those the City will not consider anyway. If the Draft EIR comes out and the community feels it is incorrect, there will be problems. We have heard that the only reason the beach alignment would not be chosen is because the Coastal Commission will not allow it to move forward. You need to weigh all of the alignments equally. (Mark Van Gessel)

Q: Look at the potential impacts of each of these alignments equally. Will this project have to be approved by the Coastal Commission? (Eliane Gans)

C: At least two alignments come close to the 700-foot dune space on Dockweiler Beach, in the Towe's Beach area. This should be studied in the Draft EIR.

C: Consider the impacts to fishing on the creek and any potential health concerns. You should also address water quality and impacts to marine life in the area.

Q: Where does the pipe end at today?
A: It goes to the Hyperion Treatment Plant and then to the ocean, about five miles out to sea.

C: Noise impacts need to be addressed in the EIR. The noise at Thompson Pumping Plant was horrible. I am a landlord and the noise caused tenants to begin moving out of the area. (Carol Kapp)

C: You will need to provide notice to residents regarding any noise impacts. Some construction at the existing plant has taken place at night. You need to address noise during and after construction of the project. (Raphael Tisdale)

C: There is only one main street to use near the Bluffs. Noise amplifies in the Jungle. This is a very confined and sensitive area. (Dan Sharkey)

C: Noise will impact people who work out of their homes.

Q: How realistic is the beach alignment? Is this a viable option for the Coastal Commission? If the Coastal Commission opposes an alignment, will it be thrown out?
A: There will always be an alignment that someone will not like. Any project that costs over $120,000 is subject to review by the Coastal Commission and they will have jurisdiction over the project. They are very concerned about development on the sandy beach. Our intention is to thoroughly study all of the alignments and select the best one. (Jim Doty)

Q: In theory, can the opinion of the Coastal Commission overrule all others?
A: We will not reject an alignment just because they are opposed to it. (Jim Doty)

Q: Do you have a letter from the Coastal Commission from the previous environmental review process for this project?

Q: Where is the existing pipe located now? Was this built using the open trench or the tunneling method?

C: Open trench was previously considered to be the best method, but maybe that is not the case today.

Q: If the Coastal Commission will not authorize this alignment, then what is the point of spending this money?
A: We do not yet know what the Coastal Commission will do. (Jim Doty)

APPENDIX C

AIR QUALITY ANALYSIS

VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

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DRAFT REPORT

PROPOSED VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT PLAN – CITY OF LOS ANGELES

AIR QUALITY ANALYSIS

Prepared for

City of Los Angeles
650 South Spring Street, Suite 200
Los Angeles, California 90014-1911

October 20, 2005

URS

2020 East First Street, Suite 400
Santa Ana, California 92705

URS Project # 29401770.20000

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LIST OF ACRONYMS

AQA	Air Quality Analysis
AQMP	Air Quality Management Plan
BACMs	Best Available Control Measures
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CCAA	California Clean Air Act
CEQA	California Environmental Quality Act
CO	carbon monoxide
EPA	U.S. Environmental Protection Agency
°F	degrees Fahrenheit
FY	fiscal year
LACDPW	Los Angeles County Department of Public Works
LOS	level of service
$\mu g/m^3$	micrograms per cubic meter
mph	miles per hour
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NCDC	National Climatic Data Center
NDIR	Non-Dispersive Infrared Photometry
NOA	naturally occurring asbestos
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	ozone
Pb	lead
PM_{10}	particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 microns in diameter
ppm	parts per million
ROC	Reactive Organic Compounds
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SIP	State Implementation Plan
SO_2	sulfur dioxide
TBM	Tunnel Boring Machine
TCM	Transportation Control Measures
VPP	Venice Pumping Plant

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EXECUTIVE SUMMARY

URS Corporation (URS) was retained by the City of Los Angeles (City) to conduct an Air Quality Analysis (AQA) for the Venice Pumping Plant Dual Force Main Project (proposed project). The proposed project is located in the Venice and Westchester/Playa Del Rey community planning areas of the City of Los Angeles within Council District 11.

The proposed project includes the construction, installation and operation of a new 54-inch diameter force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice to a junction structure located on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey. The existing 48-inch diameter Venice Pumping Plant force main was built in 1958 and is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Los Angeles.

The proposed project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two key objectives:

- To expand the capacity of the Coastal Interceptor Sewer's force main segment from the Venice Pumping Plant to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all project wet weather flows can be safely conveyed without future threats of spilling onto City streets and adjacent surface waters; and
- To provide force main redundancy to allow for much needed maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

The proposed project is located in the South Coast Air Basin (SCAB) with South Coast Air Quality Management District (SCAQMD) monitoring and regulating air quality within the SCAB.

The AQA provides a general discussion of the project, the physical setting of the project area, and the regulatory framework for air quality. In addition, the AQA evaluates potential air quality impacts associated with the implementation of the proposed project. Air quality impacts from short-term construction and long-term operation associated with the implementation of the proposed project were evaluated based on preliminary project data. The analysis shows that NO_x (oxides of nitrogen) emissions from construction of the proposed project exceeds the SCAQMD construction emissions threshold, therefore, is considered to have a significant impact on air quality. Should NO_x emissions become a priority concern, mitigation measures recommended in Section 5.1, Construction Impacts, should be evaluated for feasibility and implemented. However, if the mitigation measures are deemed not feasible, then a more detailed analysis of the large mined tunneling method should be conducted to evaluate its feasibility as an alternative construction method. Moreover, compliance with the SCAQMD's rules and regulations as well as implementation of feasible control measures during construction would reduce cumulative air quality impacts.

Because the equipment used in the operation of the proposed project is expected to remain the same, there would be no change in daily emissions and at worst-case considered negligible. Therefore, the operation of the proposed project is not considered to have significant impact on air quality.

This AQA was prepared in conformance with appropriate standards, using procedures and methodologies prescribed in the SCAQMD' *California Environmental Quality Act (CEQA) Air Quality Handbook*, April 1993.

1.0 PROJECT DESCRIPTION

URS Corporation (URS) was retained by the City of Los Angeles (City) to conduct an Air Quality Analysis (AQA) for the Venice Pumping Plant Dual Force Main Project (proposed project). The proposed project is located in the Venice and Westchester/Playa Del Rey community planning areas of the City of Los Angeles within Council District 11.

The proposed project includes the construction and installation of a new 54-inch diameter force main sewer extending from the Venice Pumping Plant (VPP) at 140 Hurricane Avenue in Venice to a junction structure on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey. The existing 48-inch diameter Venice Pumping Plant force main was built in 1958 and is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Los Angeles.

The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two key objectives:

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- To provide force main redundancy to allow for much needed maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

The City first identified the need for additional sewer capacity during the heavy storms of 1995 when sewage and infiltrated storm-water in the sewage system exceeded the capacity of the existing 48-inch line creating a potentially serious human and environmental health risk. Although VPP had all five pumps running during peak rainfall, the existing downstream sewer force main that runs along the beach could only handle approximately sixty percent of the flows that would otherwise run through the pumps - serving as an unfortunate bottleneck. The amount of sewage and infiltrated storm-water in the sewage system exceeded its capacity forcing the concrete wet well in VPP to begin to rise up out of the ground. In an effort to prevent potential sewage spillage as a result of an overload situation, the City proposes to install an additional 54-inch pipeline conveyance.

The existing 48-inch pipeline has been in continuous operation for over 30 years. As such, installation of the proposed 54-inch force main will provide bypassing capability allowing for repair and maintenance of the existing pipeline, which is currently not possible. In addition, the 54-inch force main would be used in tandem with the existing force main. The two force mains would provide the necessary capacity to meet current and future peak wet weather flow demands.

Several alignment alternatives for the proposed project are described in the following subsections.

1.1 MARQUESAS WAY/VIA MARINA

From the Pumping Plant on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel. It would then cross under the Marina Del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long. The new 54-inch line would be constructed through the open trench method except for the approximately 1,800 feet to cross the Marina channel and Ballona Creek.

1.2 PACIFIC AVENUE ALIGNMENT

From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alternative assumes a cut-and-cover construction method except for the approximately 1,800 feet of tunneling to cross the Ballona Creek and Marina channel. This alignment is the shortest route – about 10,000 feet.

1.3 LAGOON ALIGNMENT

This alternative alignment assumes the construction of the proposed 54-inch force main entirely by tunneling from the VPP to Vista Del Mar. The alignment would follow the Grand Canal southerly to the Marina channel and Ballona Creek and continue via tunneling to the Pacific Avenue alignment southerly to the Vista Del Mar terminus

1.4 DOCKWEILER BEACH TO PACIFIC AVENUE ALIGNMENT

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long.

1.5 DOCKWEILER BEACH ALIGNMENT

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point the line runs easterly to the junction structure under Vista Del Mar near Waterview Street.

1.6 OPTIONS FOR CONSTRUCTING ALTERNATIVE ALIGNMENTS

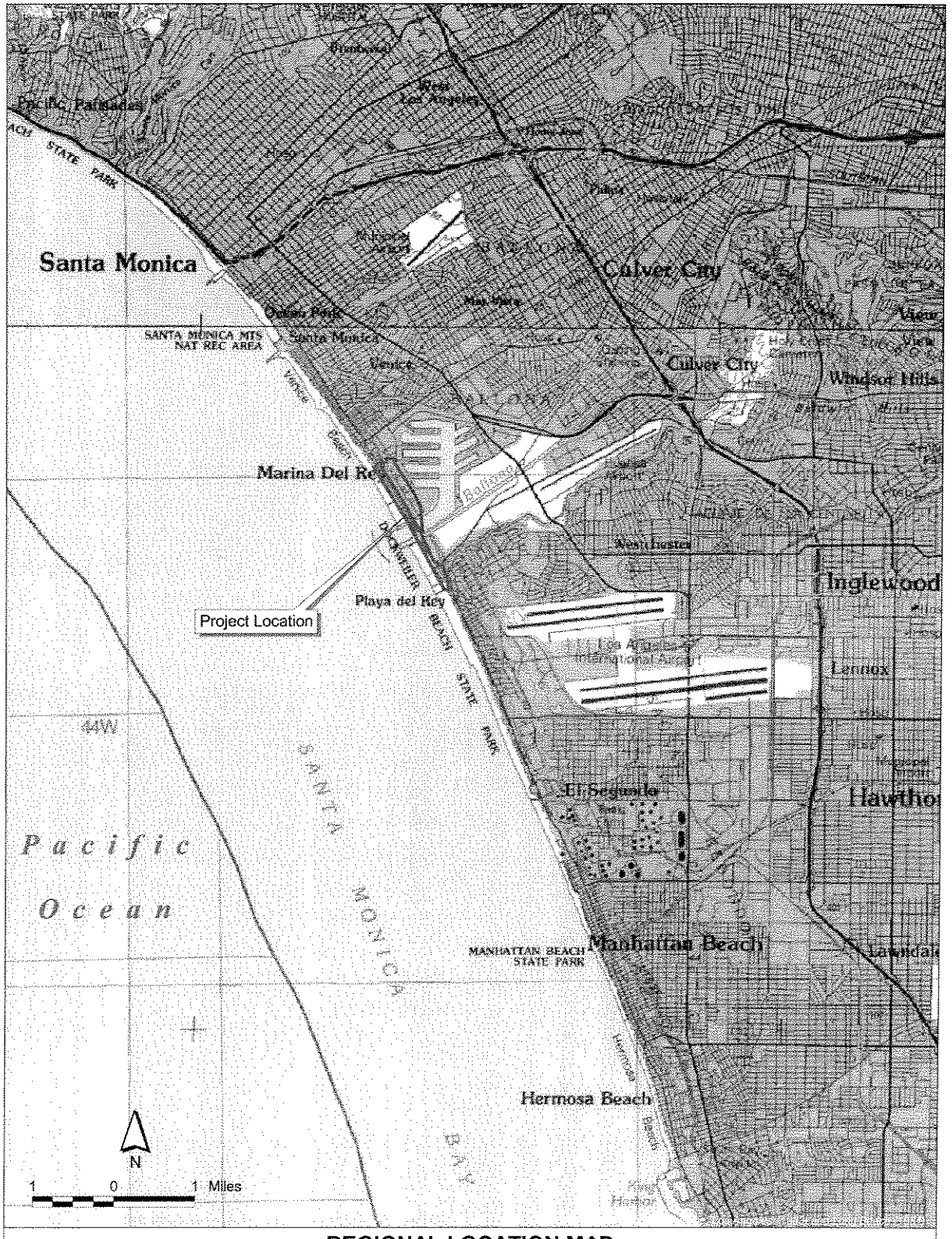
There are two main options for constructing the alternative alignments:

- The first option involves a combination of mainly open-trench and micro-tunneling construction (for the portion crossing the Marina channel and Ballona Creek).
- The second construction option assumes tunneling for the entire route (from the VPP to the terminus in Vista Del Mar).

The alignments under consideration cross the Marina entrance channel and Ballona Creek channel, requiring about 1,800 feet of micro-tunneling under the two channels. Elsewhere along each alignment, both open trench and micro-tunneling alternative construction methods are under consideration. While open trench construction costs less, micro-tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels and can facilitate mitigation of other impacts such as noise.

The proposed project is located in the South Coast Air Basin (SCAB) with South Coast Air Quality Management District (SCAQMD) monitoring and regulating air quality within the SCAB. Figure 1 shows the regional location of the proposed project.

Figure 1-1. General Project Location Map



REGIONAL LOCATION MAP

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	FIGURE 1

2.0 AIR QUALITY SETTINGS

2.1 REGIONAL AIR QUALITY

The air quality in the SCAB is influenced by its climate, which is in turn determined by its terrain and geographical location. The SCAB is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern border, and high mountains surround the rest of the SCAB.

The SCAB is ensconced in the semi-permanent, high-pressure zone of the eastern Pacific, thus its climate is mild, tempered by cool ocean breezes. The SCAB's salubrious climatological pattern is interrupted by rare periods of extremely hot weather or winter storms. Annual average temperature fluctuates minimally throughout the SCAB, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). Due to more pronounced oceanic influence, coastal areas have less variability in annual minimum and maximum temperatures than inland areas. Precipitation in the SCAB occurs mainly between November and March. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the SCAB along the coastal side of the mountains (see subsequent section for local precipitation data).

Because of the terrains surrounding the SCAB and temperature inversions, pollutants are trapped within the region creating less than desirable ambient air concentrations. A temperature inversion (increasing temperature with increasing altitude) persists over much of the SCAB as a result of the strength and position of the sub-tropical high-pressure cell over the Pacific Ocean. This inversion limits the vertical dispersion of air contaminants, thereby trapping the pollutants and increasing their ground level concentrations. With solar heating of the ground and the lower air layer, the temperature of the air at lower elevations approaches the temperature of the base of the inversion (upper) layer until the inversion layer is eroded, enabling vertical mixing within the planetary boundary layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning. During the fall and winter months, Santa Ana winds – strong, dry north or northeasterly winds – disperse air contaminants for several consecutive days at a time (see subsequent section for local wind data).

Coupling stagnant wind conditions and low inversions yield the greatest air pollutant concentrations. Ambient air pollutant concentrations are generally lowest on days of no inversion or high wind speeds. The greatest pollution problems in winter are carbon monoxide (CO) and oxides of nitrogen (NO_x) because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the more intense sunshine and longer daylight hours cause hydrocarbons and NO_x to react and form photochemical smog.

The California Legislature created the SCAQMD in 1977 by merging the air pollution control districts of the four counties sharing the SCAB. The SCAB covers an area of 6,745 square miles with a population of approximately 14.6 million, and SCAQMD jurisdiction encompasses an area of 10,743 square miles and a population of approximately 15 million. The SCAB includes portions of Los Angeles, Riverside and San Bernardino counties and all of Orange County {1}.

The area regulated by SCAQMD is classified by the United States Environmental Protection Agency (EPA) as a non-attainment area for ozone (O_3), carbon monoxide (CO), and fine suspended particulate matter less than 10 microns (PM_{10}) and 2.5 microns in diameter ($PM_{2.5}$)[1] and in attainment for the other criteria pollutants, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and lead (Pb). To maintain the attainment status and reduce emissions for the non-attainment pollutants, the SCAQMD has established daily emission thresholds for all criteria pollutants to determine the significance of air quality impact from proposed projects. A significant impact would occur if the project resulted in substantial emissions during construction or operation that would exceed the established thresholds.

2.2 Local Air Quality

Annual rainfall in the vicinity of the project site can be characterized by historical average total precipitation data from Santa Monica Pier – National Climatic Data Center (NCDC) Cooperative station number 047953. NCDC data indicates that the bulk of annual precipitation occurs between November (1.46 inches) and March (1.94 inches), peaking in February (3.04 inches). Summer rainfall is minimal and the average total precipitation undergoes a seasonal reduction from 0.79 inches (April) to 0.02 inches (July).

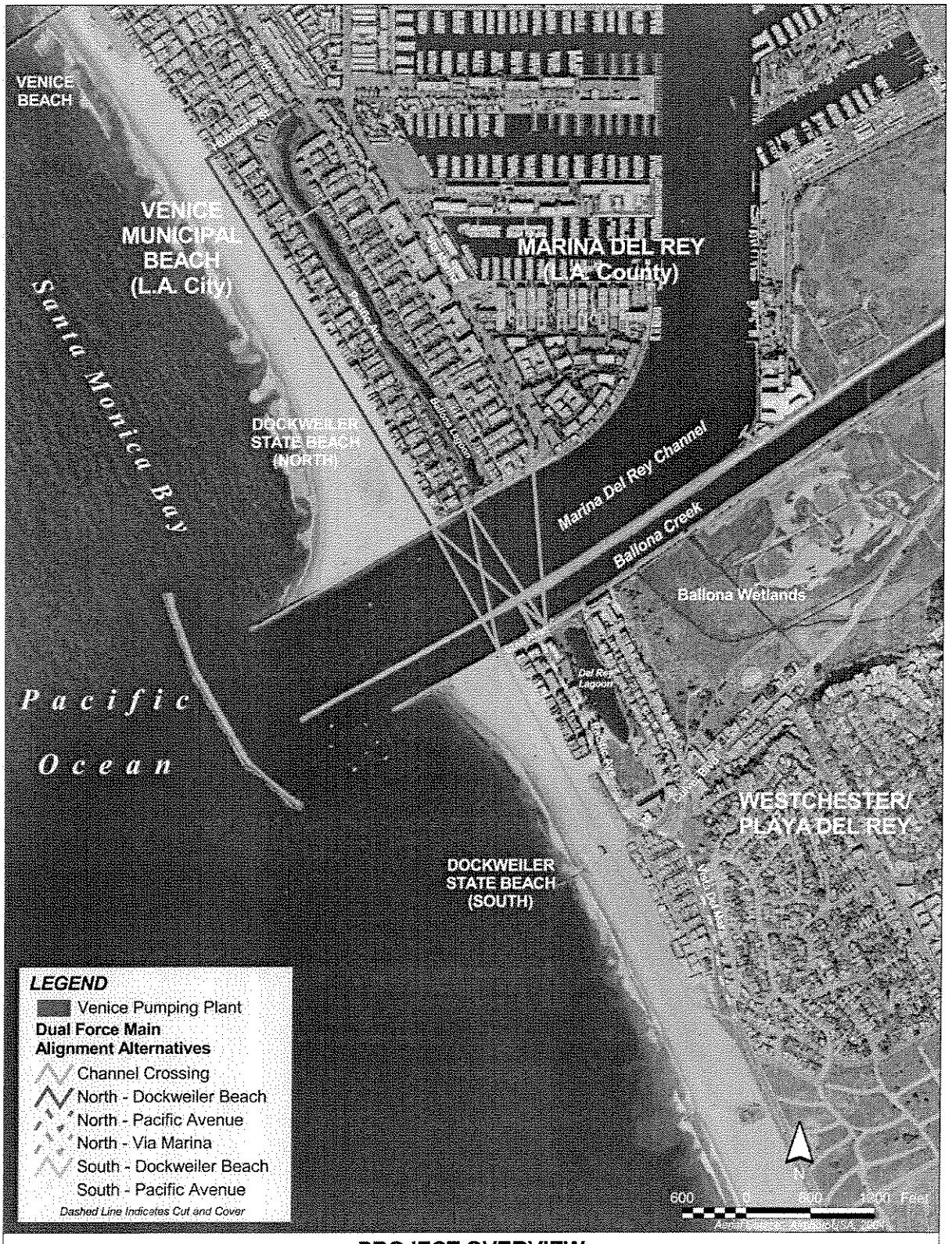
Southwesterly winds dominate in the vicinity of the project site as evidenced by historical meteorological data records from Santa Monica Airport. Annual average wind speed was 7.4 mph with the highest winds occurring from April (8.5 mph) to May (8.4 mph) and the slowest winds in January (6.2 mph).

The project overview is shown on Figure 2-1. The SCAQMD maintains ambient air quality monitoring stations throughout the Basin and the air quality monitoring stations nearest to the project site are the Lynwood (11220 Long Beach Boulevard, Lynwood) and Hawthorne (5234 West 120th Street, Hawthorne) monitoring stations located approximately 19 and 13 miles respectively from VPP. While the Hawthorne station is closer to the project site, use of air quality data from the less proximate Lynwood site is necessary because the Hawthorne station lacked $PM_{2.5}$ monitoring data. Table 1 shows the criteria pollutants monitored at the Hawthorne and Lynwood stations, which include CO, O_3, NO_2, PM_{10}, and $PM_{2.5}$. SO_2 and Pb are not listed because there have been no exceedances of the federal or state standards in the past 10 years.

The ambient air quality data in Table 2-1 show that CO and NO_2 levels are below the relevant state and federal standards at the Hawthorne site for the past five years. Hawthorne one-hour and eight-hour O_3 and PM_{10} levels are below the federal standards but have exceeded the state standards within the past five years. The $PM_{2.5}$ concentration monitored at the Lynwood station has not exceeded the federal standard in recent years, but was exceeded in 2001.

[1] U.S. Environmental Protection Agency web page - http://www.epa.gov/air/data/monvals.html

Figure 2-1. Vicinity of Project Site



PROJECT OVERVIEW

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	FIGURE 2

Table 2-1. Ambient Air Quality at Air Monitoring Stations Close to the Project Site

	Carbon Monoxide (CO)				Ozone (O_3)				Respirable Particulate Matter (PM_{10})		Fine Particulate Matter[1]($PM_{2.5}$)		Nitrogen Dioxide(NO_2)	
	Max 1-hour Conc. (ppm)	Number of Days Exceeded	Max 8-hour Conc. (ppm)	Number of Days Exceeded	Max 1-hour Conc. (ppm)	Number of Days Exceeded	Max 8-hour Conc. (ppm)	Number of Days Exceeded	Max 24-hour Conc. ($\mu g/m^3$)	Number of Days Exceeded	Max 24-hour Conc. ($\mu g/m^3$)	Number of Days Exceeded	Max 1-hour Conc. (ppm)	Number of Days Exceeded
State Standards	> 20 ppm/ 1 hour		> = 9 ppm/ 8 hour		> 0.09 ppm/ 1 hour		> 0.070 ppm/ 8 hour[2]		> 50 $\mu g/m^3$/ 24 hour		> 65 $\mu g/m^3$/ 24 hour		> 0.25 ppm/ 1 hour	
2004	5.8	0	4.43	0	0.069	0	ND[3]	ND[2]	52.0	2	55.8	0	0.084	0
2003	6.5	0	5.04	0	0.110	2	0.077	NA[3]	58.0	3	54.8	0	0.120	0
2002	6.8	0	6.00	0	0.087	0	0.072	NA[3]	121.0	12	64.0	0	0.099	0
2001	7.3	0	5.21	0	0.098	1	0.079	NA[3]	75.0	8	73.1	3	0.110	0
2000	8.7	0	7.14	0	0.095	1	0.075	NA[3]	74.0	9	82.1	2	0.128	0
Maximum	8.7	0	7.14	0	0.110	2	0.079	NA[3]	121.0	12	82.1	3	0.128	0
Federal Standards	> 35 ppm/ 1 hour		> = 9 ppm/ 8 hour		> 0.12 ppm/ 1 hour		> 0.08 ppm/8 hour		> 150 $\mu g/m^3$/ 24 hour		> 65 $\mu g/m^3$/ 24 hour		Annual Average > 0.053 ppm/ annual avg	
2004	7.2	0	4.43	0	0.069	0	ND[2]	ND[2]	52.0	0	55.8	0	0.030	0
2003	10.4	0	5.04	0	0.110	0	0.077	0	58.0	0	54.8	0	0.024	0
2002	12.2	0	6.00	0	0.087	0	0.072	0	121.0	0	64.0	0	0.023	0
2001	15.8	0	5.21	0	0.098	0	0.079	0	75.0	0	73.1	3	0.024	0
2000	11.7	0	7.14	0	0.095	0	0.075	0	74.0	0	82.1	2	0.027	0
Maximum	15.8	0	7.14	0	0.110	0	0.079	0	121.0	0	82.1	3	0.030	0

Note:
[1] Fine particulate matter data is obtained from the Lynwood air monitoring station, all other tabulated data is from the Hawthorne air monitoring station.
[2] NA – This standard was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.
[3] ND – Insufficient data from the California Air Resources Board on Hawthorne air monitoring station to determine this value.
ppm – parts per million
$\mu g/m^3$ – micrograms per cubic meter
CO and annual average NO_2 data obtained from US EPA website http://www.epa.gov/air/data All other ambient air quality data is from the California Air Resources Board website http://www.arb.ca.gov/

3.0 REGULATORY BACKGROUND

3.1 FEDERAL REGULATIONS/STANDARDS

The federal Clean Air Act (CAA), which was last amended in 1990, requires the U.S. Environmental Protection Agency (EPA) to establish National Ambient Air Quality Standards (NAAQS) for six principal pollutants, termed "criteria" pollutants. Criteria pollutants are defined as those pollutants for which the federal and state governments have established ambient air quality standards for outdoor concentrations in order to protect public health. The NAAQS are two tiered: primary, to protect public health; and secondary, to prevent degradation of the environment (e.g., impairment of visibility, damage to vegetation and property, etc.).

The primary standards for the six criteria pollutants – O_3, CO, PM_{10}, NO_2, SO_2, and Pb – are shown in Table 3-1. The health effects from exposure to the criteria pollutants are described at the end of this section. The EPA adopted a new NAAQS for $PM_{2.5}$ and 8-hour ozone in July 1997, and shown in Table 3-1. Ambient air data collected at permanent monitoring stations are used by the EPA to classify regions as "attainment" or "non-attainment" depending on whether the regions met the requirements stated in the primary NAAQS. Non-attainment areas are imposed with additional restrictions as required by the EPA.

Title I of the CAA Amendments (CAAA, 1990) has identified the SCAB as being in "extreme" non-attainment for O_3, requiring attainment with the federal O_3 standard by year 2010; "serious" for CO, requiring attainment of federal CO standards by year 2000; and "serious" for PM_{10} requiring attainment with federal standards by year 2006. SCAB is in non-attainment for $PM_{2.5}$. The Basin is technically in attainment for CO because there was only one occurrence of exceeding the CO standard in year 2002. In March 2005, the Governing Board at the SCAQMD announced that the Basin has met the federal CO standards requirement and will be requesting EPA to redesignate the Basin as an attainment area.

The CAAA requires states to develop a State Implementation Plan (SIP) which, when implemented, is designed to ensure the achievement and maintenance of the NAAQS. The SIP has to be approved by the EPA and serves as the state's commitment to actions that will reduce or eliminate air quality problems. An important aspect of the SIP is to designate a metropolitan planning organization (MPO) that will analyze growth, transportation needs, and implement planning strategies to reduce regional emissions and achieve the NAAQS. The EPA has designated the Southern California Association of Governments (SCAG) as the MPO responsible for ensuring compliance with the requirements of the CAA.

3.2 STATE REGULATIONS/STANDARDS

The Federal CAA requires the U.S. EPA to set outdoor air quality standards for the nation. It also permits states to adopt additional or more protective ambient air quality standards if needed. The California standards (CAAQS) are generally more stringent than the NAAQS. In addition to the six criteria pollutants covered by the NAAQS, there are CAAQS for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. These standards are listed in Table 3-1. Table 3-2 presents the summary of the State and federal attainment/non-attainment designations of criteria pollutants for the SCAB.

Table 3-1. Federal and State Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		Federal Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)	1 Hour	0.09 ppm (180 $\mu g/m^3$)	Ultraviolet Photometry	0.12 ppm (235 $\mu g/m^3$)[8]	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 $\mu g/m^3$)*		0.08 ppm 157 $\mu g/m^3$)[8]		
Respirable Particulate Matter (PM_{10})	24 Hour	50 $\mu g/m^3$	Gravimetric or Beta Attenuation*	150 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Geometric Mean	20 $\mu g/m^3$		50 $\mu g/m^3$		
Fine Particulate Matter ($PM_{2.5}$)	24 Hour	No Separate State Standard		65 $\mu g/m^3$	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 $\mu g/m^3$	Gravimetric or Beta Attenuation	15 $\mu g/m^3$		
Carbon Monoxide (CO)	8 Hour	9 ppm (10 mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		--	--	--
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	--	Gas Phase Chemiluminescence	0.053 ppm (100 $\mu g/m^3$)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 $\mu g/m^3$)		--		
Lead[9]	30 days average	1.5 $\mu g/m^3$	Atomic Absorption	--	--	--
	Calendar Quarter	--		1.5 $\mu g/m^3$	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	--	Ultraviolet Fluorescence	0.30 ppm (80 $\mu g/m^3$)	--	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 $\mu g/m^3$)		0.14 ppm (365 $\mu g/m^3$)	--	
	3 Hour	--		--	0.5 ppm (1300 $\mu g/m^3$)	
	1 Hour	0.25 ppm (655 $\mu g/m^3$)		--	--	
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer – visibility of 10 miles of more (0.07-30 miles or more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		NO FEDERAL STANDARDS		
Sulfates	24 Hour	25 $\mu g/m^3$	Ion Chromatography			
Vinyl Chloride[9]	24 Hour	0.01 ppm (26 $\mu g/m^3$)	Gas Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 $\mu g/m^3$)	Ultraviolet Fluorescence			

* - This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.

Table 3-1 Notes:

1 California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the California Air Resources Board (CARB) to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18,1997. Contact U.S. EPA for further clarification and current federal policies.
9. The CARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Source: California Air Resources Board (7/9/03)

Table 3-2. State and Federal Attainment/Non-attainment Designations for South Coast Air Basin

Criteria Pollutant	County	State	Federal	
CO	Los Angeles County (P)	A	N	Serious
	Orange County	A	N	Serious
	Riverside County (P)	A	N	Serious
	San Bernardino County (P)	A	N	Serious
NO_x		A	M/A	M/A
SO_x		A	A	A
PM_{10}		N	N	Serious
$PM_{2.5}$		N	N	
Ozone (1-hour)		N	N	Extreme
Ozone (8-hour)		N	N	Severe 17
Lead		A		

Notes:

A Attainment
M Maintenance
N Non-attainment
NT Non-attainment-Transitional
U Unclassified
P Portion of this county is in the Nonattainment area.

Source: www. arb.ca.gov

The California Clean Air Act (CCAA) of 1988 required non-attainment areas in the state to prepare air quality attainment plans. The attainment plans are required to achieve a minimum 5 percent annual reduction in the emissions of non-attainment pollutants unless all feasible measures have been implemented. The attainment plans are discussed in Section 3.3.1, Air Quality Management Plans.

The following paragraphs briefly describe the adverse health effects of the six criteria pollutants monitored in the Basin.

Ozone

O_3 is formed by photochemical reactions between NO_x and reactive organic gases, rather than being directly emitted. O_3 is a pungent, colorless gas typical of southern California photochemical smog. Elevated O_3 concentrations result in reduced lung function, particularly during vigorous physical activity. This health problem is particularly acute in sensitive receptors such as the sick, elderly, and young children. O_3 levels peak during the summer and early fall months.

Carbon Monoxide

CO is formed by the incomplete combustion of fossil fuels, almost entirely from automobiles. It is a colorless, odorless gas that can cause dizziness, fatigue, and impairments to central nervous system functions. CO passes through the lungs into the bloodstream, where it interferes with the transfer of oxygen to body tissues.

Oxides of Nitrogen

NO_x contributes to other pollution problems, including a high concentration of fine particulate matter, poor visibility, and acid deposition. NO_2, a reddish-brown gas, and nitric oxide, a colorless, odorless gas, are formed from fuel combustion under high temperature or pressure. These compounds are referred to as NO_x. NO_x is a primary component of the photochemical smog reaction. NO_2 decreases lung function and may reduce resistance to infection.

Sulfur Dioxide

SO_2 is a colorless, irritating gas formed primarily from incomplete combustion of fuels containing sulfur. Industrial facilities also contribute to gaseous SO_2 levels in the Basin. SO_2 irritates the respiratory tract, can injure lung tissue when combined with fine particulate matter, and reduces visibility and the level of sunlight.

Reactive Organic Compounds

Reactive Organic Compounds (ROC) are formed from combustion of fuels and evaporation of organic solvents. ROC is a prime component of the photochemical smog reaction. Consequently, ROC accumulates in the atmosphere more quickly during the winter when sunlight is limited and photochemical reactions are slower.

Particulate Matter

Particulate matter is the term used for a mixture of solid particles and liquid droplets found in the air. Coarse particles (larger than 2.5 micron, or PM_{10}) come from a variety of sources, including windblown dust and grinding operations. Fine particles (less than 2.5 microns, or $PM_{2.5}$) often come from fuel combustion, power plants, and diesel buses and trucks. Fine particles can also be formed in the atmosphere through chemical reactions.

Coarse particles (PM_{10}) can accumulate in the respiratory system and aggravate health problems such as asthma. The EPA's scientific review concluded that fine particles ($PM_{2.5}$) at concentrations that extend well below those allowed by the current PM_{10} standards, which penetrate deeply into the lungs, are more likely than coarse particles to contribute to the health effects listed in a number of recently published community epidemiological studies. These health effects include premature death, increased hospital admissions, and emergency room visits (primarily the elderly and individuals with cardiopulmonary disease); increased respiratory symptoms and disease (children and individuals with cardiopulmonary disease such as asthma); decreased lung functions (particularly in children and individuals with asthma); and alterations in lung tissue and structure and in respiratory tract defense mechanisms.

3.3 REGIONAL AIR QUALITY PLANNING FRAMEWORK

The 1976 Lewis Air Quality Management Act created air pollution control districts (APCDs) and air quality management districts (AQMDs) (e.g., SCAQMD) throughout the state. The federal CAAA of 1977 required that each state adopt a SIP outlining pollution control measures to attain the federal standards in non-attainment areas of the state.

The California Air Resources Board (CARB) coordinates and oversees both state and federal air pollution control programs in California. The CARB divided the state into 15 air basins with 35 APCDs and AQMDs responsible for air quality in these basins. The CARB also maintains air quality monitoring stations throughout the state in conjunction with local air districts. Data collected at these stations are used by the CARB to classify the different regions as "attainment" or "non-attainment" with respect to each pollutant and to monitor progress in attaining air quality standards. The APCDs and AQMDs have the authority to regulate stationary source emissions and indirect sources. Indirect sources of pollution are generated when minor sources collectively emit a substantial amount of pollution (e.g., the motor vehicles at an intersection, a mall, and highways). APCDs and AQMDs are responsible for developing local air quality attainment plans (AQMPs) for the non-attainment areas under their jurisdiction. The CARB is responsible for incorporating all the AQMPs into a SIP for approval by the EPA. The CARB regulates motor vehicles and fuels.

3.3.1 Air Quality Management Plan

The SCAQMD and SCAG are responsible for formulating and implementing the AQMP for the Basin. Every three years, the AQMP is updated to reflect the overall plan for improving air quality in the region.

The 2003 AQMP was prepared pursuant to federal and state clean air legislation, and addresses 1990 CAA requirements with respect to particulate matter standards. Under the CAA, the AQMP must demonstrate attainment of PM_{10} standards by 2006 for both 24-hour and annual average ambient air quality standards. The 1997 AQMP responds to this requirement, relying mostly on the control measures outlined in the 1994 AQMP.

To ensure continued progress toward clean air and comply with state and federal requirements, the SCAQMD, in conjunction with the CARB, the SCAG, and the EPA, prepared and adopted the 2003 AQMP on August 1, 2003. The 2003 AQMP updates the demonstration of attainment with the federal standards for O_3 and PM_{10}, replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal NO_2 standard that the Basin has met since 1992. The 2003 AQMP also incorporates a revised emissions inventory, the latest modeling techniques, and updated control measures remaining from the 1997/1999 SIP as well as new control measures. As of March 4, 2005, SCAQMD determined that the region has satisfied the federal CO standards requirements and will request the EPA to redesignate the region as attainment for CO standards. The EPA will have 18 months to process the request.
More specially, the 2003 AQMP is designed to satisfy the CCAA tri-annual update requirements and fulfills the SCAQMD's commitment to update transportation emission budgets based on the latest approved motor vehicle emissions model and planning assumptions. The SCAQMD forwarded the Final 2003 AQMP to the CARB on October 15, 2003 and in turn the CARB submitted the 2003 AQMP to the U.S. EPA for approval on January 9, 2004.

4.0 METHODOLOGY

Typically, assessment of air quality impact from a proposed project requires evaluating emissions from construction and operational activities and comparing these emissions with pollutant thresholds, established by the local APCD or AQMD, to determine whether air quality impact is significant. Since this project is located within SCAQMD jurisdiction, SCAQMD pollutant thresholds are used to determine the significance of air quality impact.

Air quality impacts are determined by the level of significance. The AQA for the proposed project involves estimating emissions based on planning data for construction and operational activities. Construction emissions are considered short-term because of the time duration. Construction emissions were quantified using emission factors provided in the SCAQMD *CEQA Air Quality Handbook* (1993) {2}, hours of operations from City Ordinance, and construction equipment data from Kaku Draft Traffic Report, September 1, 2005. Operational emissions were not quantified because preliminary data shows that there is no change in equipment, therefore, operational emissions are expected to remain the same or at worst-case have negligible increase. Thus, air quality impacts from operation of the proposed project are considered to be less than significant and will not be discussed any further in this AQA.

4.1 THRESHOLD OF SIGNIFICANCE

4.1.1 Threshold for Construction Emissions

The following significance thresholds for construction emissions have been established by the SCAQMD:

- 75 pounds per day of ROC;
- 100 pounds per day of NO_X;
- 550 pounds per day of CO;
- 150 pounds per day of PM_{10}; and
- 150 pounds per day of SO_X.

Projects in the Basin with construction-related emissions that exceed any of the emission thresholds listed above are considered significant by the SCAQMD.

Project PM_{10} emissions are considered to be significant if the project increases PM_{10} 24-hour average by 10.4 $\mu g/m^3$ for construction and 2.5 $\mu g/m^3$ for operation, or annual (geometric) average concentrations by 1 $\mu g/m^3$.

5.0 IMPACTS

Air pollutant emissions associated with the project would occur over the short- and the long-term. Short-term emissions are from construction activities such as fugitive dust from site preparation, soil excavation, and emissions from construction equipment exhaust. Long-term emissions are from equipment used for the proposed project such as maintenance vehicle traveling to and from the VPP to service the equipment or take readings.

5.1 CONSTRUCTION IMPACTS

5.1.1 Equipment Exhausts and Related Activities

Construction activities produce combustion emissions from various sources such as site grading equipment, generators, worker's vehicles, on-site heavy-duty construction vehicles, and trucks hauling materials to and from the site. Exhaust and fugitive dust emissions from construction activities on site would vary daily as construction activity levels change. Emissions from construction equipment generated from site grading activities were calculated using emission factors provided in the SCAQMD' *CEQA Air Quality Handbook* {2}. Since the tunnel boring machine (TBM) is electrically driven {3}, micro-tunneling is anticipated to produce minimal emissions if the TBM can be powered directly from the City's electrical grid.

Preliminary plans assume that two construction teams will be involved and using two different construction techniques. One team would be responsible for tunneling the 1,800-foot section that crosses underneath the Marina and Ballona Creek Channel and the other team will perform the open trench techniques elsewhere along each alignment (approximately 8,200 to 8,600 feet in length). The following assumptions were made to estimate emissions from construction activities:

- The construction activities will operate 6.5 hours per day (as per the Mayoral Directive restricting on-street construction work hours) {4};
- The construction zones have a total area of approximately 0.5 acre each; and
- The TBM and some of its associated paraphernalia (slurry settling tank, slurry pump and control trailer) emit negligible quantities of criteria pollutants because they are electrically driven.

Tables 3 and 4, provided in Appendix A, list the construction equipment and associated exhaust emissions from open trench and micro-tunneling methods, respectively.

Total daily construction emissions from open trenching and micro-tunneling are summarized in Table 4 and compared with the SCAQMD daily construction significance thresholds. As shown in Table 4, the estimated construction emissions are under the SCAQMD significance thresholds for all criteria pollutants with the exception of NO_x emission. Thus, the construction of the proposed project is expected to have a significant impact on air quality, unless mitigation measures for NO_x are implemented. To mitigate NO_x emissions, there are several alternatives such as:

- Strategize and plan ahead to minimize the transporting of construction equipment and excessive material to and from work area;
- Optimizing construction crew size and proper selection of equipment to reduce any unnecessary emissions such as to eliminate redundancy or similarity in equipment capable of doing similar work in the same construction zone, e.g., excavator vs. backhoe,
- Adjusting the electronic timing on the construction equipment to reduce NO_x emissions;
- Use newer construction equipment such as equipment meeting Tier 2 emission standards;
- Minimize idling emissions from construction equipment and haul trucks by turning it off when not in use or long delays (i.e., over 5 minutes);
- Optimize the muck removal schedule to reduce emissions from haul trucks; and
- Use of alternative fuel such as biodiesel, liquid natural gas, and propane.

Another option for further investigation should NO_x emissions become a primary concern is the large (mined) tunneling method for the entire length of the proposed project.

5.1.2 Fugitive Dust

Fugitive dust emissions are generally associated with demolition, land clearing, exposure, and cut and fill operations. Dust generated during construction would vary substantially, depending on the level of activity, the specific operations, and weather conditions. Nearby sensitive receptors and on-site workers may be exposed to blowing dust, depending upon prevailing wind conditions. Table 5-1 presents the best available control measures (BACMs) for high wind conditions. Fugitive dust would also be generated during open trenching operation, but can be minimized by applying water or surfactants to the excavated soil. The fugitive PM_{10} emissions rate used in the AQA, 0.42 tons per acre-month (30 days), is for road construction, which is most applicable to this project since the sewer line is placed under the existing road. Approximately 28.0 pounds per day is generated per day during construction of the proposed project. To minimize fugitive dust, control measures are provided in Table 5-2.

The combination of the PM_{10} fugitive dust and PM_{10} exhaust emissions from construction equipment are added together and compared to the SCAQMD daily threshold for PM_{10} to determine whether the project has a significant impact on air quality. Total PM_{10} emissions, 22.6 lb/day, from both construction operations is significantly lower than the SCAQMD daily threshold for PM_{10}.

5.2 Operational Impacts

The proposed project is anticipated to emit minimal odors with no discharges of any substances to the streets or storm drain systems since the pumps are electrically driven. Once operational, the proposed project will operate with minimal need for on-site maintenance under normal conditions. The total amounts of emissions from worker vehicle exhaust are considered negligible and should not exceed SCAQMD daily operational emissions thresholds or have a significant impact on air quality.

Based on the above operational characteristics, the proposed project is not likely to impede the progress of the SCAB in complying with federal or State AAQS, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors.

5.3 CUMULATIVE IMPACTS

5.3.1 Construction Emissions

The implementation of the proposed project and other development projects in the general vicinity of the project area may be simultaneously under construction. Depending on construction schedules of all the projects in the area, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts. Traffic analysis conducted by Kaku Associates in July 2005 {4} has indicated that of the nine study intersections in the vicinity of the proposed project, six of study intersections currently operate at "acceptable" levels of service (LOS D or better) during the morning and afternoon peak traffic periods. LOS D may be defined as imposing delays that may be substantial during portions of the rush hours, but having enough lower volume periods to permit clearing of developing lines, thereby preventing excessive backups. Of these six intersections, four are operating at LOS B or better, i.e., reasonably unimpeded operations with slightly restricted maneuverability and stopped delays that are considered acceptable LOS.

5.3.2 Project Emissions

Currently, the Basin is in non-attainment for O_3, CO (technically), PM_{10}, and $PM_{2.5}$. Preliminary data indicates that the maintenance schedule and equipment would remain the same, therefore, the operation of the proposed project should have essentially negligible impact on the existing air quality status.

5.3.3 Unavoidable Adverse Project Impacts

Although the short-term construction emissions will contribute to the existing non-attainment status, the operation and construction of the proposed project is not expected to exacerbate long-term air quality. Best Available Control Measures (BACMs) and other feasible control measures are suggested to reduce fugitive dust and other emissions from the construction zones.

5.4 FUGITIVE DUST CONTROL MEASURES

The project will be required to comply with regional rules, which would assist in reducing short-term air pollutant emissions. SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures (BACMs) so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 402 prohibits dust from creating a nuisance off site. These dust suppression techniques are summarized below. Implementation of these dust suppression techniques, as required by the SCAQMD, can reduce the fugitive dust generation (and thus the PM_{10} component) by 50 to 75 percent. Compliance with the following BACMs would reduce impacts on nearby sensitive receptors.

Table 5-1. Best Available Control Measures For High Wind Conditions

FUGITIVE DUST SOURCE CATEGORY	CONTROL MEASURES
Earth-moving	(1A) Cease all active operations; OR (2A) Apply water to soil not more than 15 minutes prior to moving such soil.
Disturbed surface areas	(0B) On the last day of active operations prior to a weekend, holiday, or any other period when active operations will not occur for not more than four consecutive days: apply water with a mixture of chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of six months; OR (1B) Apply chemical stabilizers prior to wind event; OR (2B) Apply water to all unstabilized disturbed areas 3 times per day. If there is any evidence of wind driven fugitive dust, watering frequency is increased to a minimum of four times per day; OR (3B) Take the actions specified in Table 5-2, Item (3c); OR (4B) Utilize any combination of control actions (1B), (2B), and (3B) such that, in total, these actions apply to all disturbed surface areas.
Unpaved roads	(1C) Apply chemical stabilizers prior to wind event; OR (2C) Apply water twice per hour during active operation; OR (3C) Stop all vehicular traffic.
Open storage piles	(1D) Apply water twice per hour; OR (2D) Install temporary coverings.
Paved road track-out	(1E) Cover all haul vehicles; OR (2E) Comply with the vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads.
All Categories	(1F) Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 5-1 may be used.

Table 5-2. Dust Control Actions

FUGITIVE DUST SOURCE CATEGORY		CONTROL ACTIONS
Earth-moving (except construction cutting and filling areas, and mining operations)	(1a)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations each subsequent four-hour period of active operations; OR
	(1a-1)	For any earth-moving which is more than 100 feet from all property lines, conduct watering as necessary to prevent visible dust emissions from exceeding 100 feet in length in any direction.
Earth-moving: Construction fill areas:	(1b)	Maintain soil moisture content at a minimum of 12 percent, as determined by ASTM method D-2216, or other equivalent method approved by the Executive Officer, the California Air Resources Board, and the U.S. EPA. For areas which have an optimum moisture content for compaction of less than 12 percent, as determined by ASTM Method 1557 or other equivalent method approved by the Executive Officer and the California Air Resources Board and the U.S. EPA, complete the compaction process as expeditiously as possible after achieving at least 70 percent of the optimum soil moisture content. Two soil moisture evaluations must be conducted during the first three hours of active operations during a calendar day, and two such evaluations during each subsequent four-hour period of active operations.

Table 5-2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Earth-moving: Construction cut areas and mining operations:	(1c)	Conduct watering as necessary to prevent visible emissions from extending more than 100 feet beyond the active cut or mining area unless the area is inaccessible to watering vehicles due to slope conditions or other safety factors.
Disturbed surface areas (except completed grading areas)	(2a/b)	Apply dust suppression in sufficient quantity and frequency to maintain a stabilized surface. Any areas which cannot be stabilized, as evidenced by wind driven fugitive dust must have an application of water at least twice per day to at least 80 percent of the unstabilized area.
Disturbed surface areas: Completed grading areas	(2c)	Apply chemical stabilizers within five working days of grading completion; OR
	(2d)	Take actions (3a) or (3c) specified for inactive disturbed surface areas.
Inactive disturbed surface areas	(3a)	Apply water to at least 80 percent of all inactive disturbed surface areas on a daily basis when there is evidence of wind driven fugitive dust, excluding any areas which are inaccessible to watering vehicles due to excessive slope or other safety conditions; OR
	(3b)	Apply dust suppressants in sufficient quantity and frequency to maintain a stabilized surface; OR
	(3c)	Establish a vegetative ground cover within 21 days after active operations have ceased. Ground cover must be of sufficient density to expose less than 30 percent of unstabilized ground within 90 days of planting, and at all times thereafter; OR
	(3d)	Utilize any combination of control actions (3a), (3b), and (3c) such that, in total, these actions apply to all inactive disturbed surface areas.

Table 5-2 (Continued)

FUGITIVE DUST SOURCE CATEGORY	CONTROL ACTIONS	
Unpaved Roads	(4a)	Water all roads used for any vehicular traffic at least once per every two hours of active operations ; OR
	(4b)	Water all roads used for any vehicular traffic once daily and restrict vehicle speeds to 15 miles per hour; OR
	(4c)	Apply a chemical stabilizer to all unpaved road surfaces in sufficient quantity and frequency to maintain a stabilized surface.
Open storage piles	(5a)	Apply chemical stabilizers; OR
	(5b)	Apply water to at least 80 percent of the surface area of all open storage piles on a daily basis when there is evidence of wind driven fugitive dust; OR
	(5c)	Install temporary coverings; OR
	(5d)	Install a three-sided enclosure with walls with no more than 50 percent porosity which extend, at a minimum, to the top of the pile.
All Categories	(6a)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 5-2 may be used.

Table 5-3. Track-out Control Options

(1)	Pave or apply chemical stabilization at sufficient concentration and frequency to maintain a stabilized surface starting from the point of intersection with the public paved surface, and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.
(2)	Pave from the point of intersection with the public paved road surface, and extending for a centerline distance of at least 25 feet and a width of at least 20 feet, and install a track-out control device immediately adjacent to the paved surface such that exiting vehicles do not travel on any unpaved road surface after passing through the track-out control device.
(3)	Any other control measures approved by the Executive Officer and the U.S. EPA as equivalent to the methods specified in Table 5-3 may be used.

5.5 MITIGATION MEASURES

Mitigation measures are not required for the operation of the proposed project because there will not be a significant long-term impact upon air quality. NO_x emissions arising from short-term construction activities may be addressed by implementing various innovative emission control technologies, e.g., use of fuel additives, electronic timing and metering and use of alternative fuel {6}.

6.0 REFERENCES

1. South Coast Air Quality Management District web page, http://www.aqmd.gov.

2. South Coast Air Quality Management District (SCAQMD), *California Environmental Quality Act (CEQA) Air Quality Handbook of the SCAQMD*, April 1993.

3. Email correspondence with Walter Trisi, LOVAT, July 26, 2005.

4. Venice Pumping Plant Dual Main Force Project Draft Environmental Impact Report, Section 4.2.5, Circulation, Traffic and Transportation, Kaku Associates, September 2005.

5. US EPA Air Pollution Training Institute (APTI), *Preparation of Fine Particulate Emissions Inventories*, APTI course 419B, September 2004.

6. Joint Agency Report, *Reducing California's Petroleum Dependence*, California Energy Commission and California Air Resources Board, August 2003.

Appendix A

Table 3: Emissions from Open Trench Construction

Source [1]	Parameter 1 [1]	Parameter 2 [2]	Parameter 3 [1]	Parameter 4 [1]	CO [3] Emission Factor	CO [3] (lbs/day)	ROC [3] Emission Factor	ROC [3] (lbs/day)	NOx [3] Emission Factor	NOx [3] (lbs/day)	SOx [3] Emission Factor	SOx [3] (lbs/day)	PM10 [3] Emission Factor	PM10 [3] (lbs/day)
CONSTRUCTION EQUIPMENT:														
Concrete Saw	56 hp	0.73 load factor	6.5 hours/day	1 unit	0.020 lb/hp-hr	5.3	0.024 lb/hp-hr	6.4	0.002 lb/hp-hr	0.5	0.003 lb/hp-hr	0.8	0.001 lb/hp-hr	0.3
Pavement Breaker	100 hp	0.62 load factor	6.5 hours/day	1 unit	0.020 lb/hp-hr	8.1	0.003 lb/hp-hr	1.2	0.024 lb/hp-hr	9.7	0.002 lb/hp-hr	0.8	0.002 lb/hp-hr	0.6
Pile Driver	100 hp	0.62 load factor	6.5 hours/day	1 unit	0.020 lb/hp-hr	8.1	0.003 lb/hp-hr	1.2	0.024 lb/hp-hr	9.7	0.002 lb/hp-hr	0.8	0.002 lb/hp-hr	0.6
Crane	300 hp	0.43 load factor	6.5 hours/day	1 unit	0.009 lb/hp-hr	7.5	0.003 lb/hp-hr	2.5	0.023 lb/hp-hr	19.3	0.002 lb/hp-hr	1.7	0.002 lb/hp-hr	1.3
Backhoe Loader/ Compactor	100 hp	0.465 load factor	6.5 hours/day	1 unit	0.009 lb/hp-hr	2.7	0.003 lb/hp-hr	0.9	0.023 lb/hp-hr	7.0	0.002 lb/hp-hr	0.6	0.002 lb/hp-hr	0.5
Rubber Tire Loader	110 hp	0.54 load factor	6.5 hours/day	1 unit	0.011 lb/hp-hr	4.2	0.002 lb/hp-hr	0.8	0.023 lb/hp-hr	8.9	0.002 lb/hp-hr	0.8	0.002 lb/hp-hr	0.6
Excavator	360 hp	0.58 load factor	6.5 hours/day	1 unit	0.011 lb/hp-hr	14.9	0.001 lb/hp-hr	1.4	0.024 lb/hp-hr	32.6	0.002 lb/hp-hr	2.7	0.002 lb/hp-hr	2
Generator/ Compressor	45 hp	0.74 load factor	6.5 hours/day	1 unit	0.011 lb/hp-hr	2.4	0.002 lb/hp-hr	0.4	0.018 lb/hp-hr	3.9	0.002 lb/hp-hr	0.4	0.001 lb/hp-hr	0.2
Soil Compactor (Plate Compactor)	100 hp	0.43 load factor	6.5 hours/day	1 unit	0.007 lb/hp-hr	2.0	0.002 lb/hp-hr	0.6	0.020 lb/hp-hr	5.6	0.002 lb/hp-hr	0.6	0.001 lb/hp-hr	0.3
Asphalt Paver	102 hp	0.59 load factor	6.5 hours/day	1 unit	0.007 lb/hp-hr	2.7	0.001 lb/hp-hr	0.4	0.023 lb/hp-hr	9.0	0.002 lb/hp-hr	0.8	0.001 lb/hp-hr	0.4
Sweeper	97 hp	0.68 load factor	6.5 hours/day	1 unit	0.013 lb/hp-hr	5.6	0.003 lb/hp-hr	1.3	0.031 lb/hp-hr	13.3	0.002 lb/hp-hr	0.9	0.002 lb/hp-hr	0.6
Haul Trucks [4] (muck removal)	1 miles/roundtrip		10 trips/day	8 unit	0.019 lbs/mile	1.5	0.003 lbs/mile	0.2	0.027 lbs/mile	2.1	0.0002 lbs/mile	0.0	0.0005 lbs/mile	0.0386
Supply Truck [4]	1 miles/roundtrip		5 trips/day	1 unit	0.019 lbs/mile	0.1	0.003 lbs/mile	0.0	0.027 lbs/mile	0.1	0.0002 lbs/mile	0.0	0.0005 lbs/mile	0.0024
Water Truck			6.5 hours/day	1 unit	0.675 lb/hr	4.4	0.150 lb/hr	1.0	1.700 lb/hr	11.1	0.143 lb/hr	0.9	0.140 lb/hr	0.9
Worker's vehicles [4]			60 miles/day	45 employees	0.014 lbs/mile	37.6	0.001 lbs/mile	4.0	0.001 lbs/mile	4.0	0.00001 lbs/mile	0.024	0.0001 lbs/mile	0.21509
Fugitive Dust [5]			0.5 acres	30 days/month									0.11 tons/acre-month	3.667
Daily Total (lbs/day)						107.1		22.4		136.9		11.8		12.223
SCAQMD Daily Contruction Thresholds (pounds/day)						***550.00***		***75.0***		***100.0***		***150.00***		150
Exceed SCAQMD Significance Threshold (Y/N)?						**NO**		**NO**		**YES**		**NO**		NO

Notes:
[1] Power specifications for the construction equipment were based on the draft Venice Force Main EIR, section 4.2.5. The 1 mile round trip is based on an estimate of the average distance from the construction zone to the staging/ receiving area at Dockweiler State Beach.
[2] Load factors are from Table A9-8-D of the SCAQMD CEQA Air Quality Handbook (SCAQMD, 1993), .
[3] Emission factors for construction equipment are derived from SCAQMD, CEQA Air Quality Handbook, 1993, Table A-9-8-A and Table A-9-8-B.
[4] Passenger vehicle and delivery truck emission factors are derived from EMFAC2002 settings for scenario year 2006 - http://www.aqmd.gov/ceqa/handbook/onroad/onroadEF03_25.xls
[5] Fugitive dust emissions factor from was derived from the road construction estimates found in the EPA's Fine Particulate Manual - http://www.epa.gov/air/oaqps/eog/course419b/studentmanual/sm_chapter_7.pdf

Table 4: Emissions from Micro-Tunneling Construction

Source [1]	Parameter 1 [1]	Parameter 2 [2]	Parameter 3 [1]	Parameter 4 [1]	CO [3] Emission Factor	CO [3] (lbs/day)	ROC [3] Emission Factor	ROC [3] (lbs/day)	NOx [3] Emission Factor	NOx [3] (lbs/day)	SOx [3] Emission Factor	SOx [3] (lbs/day)	PM10 [3] Emission Factor	PM10 [3] (lbs/day)
CONSTRUCTION EQUIPMENT:														
Hydraulic Jack	90 hp	0.62 load factor	6.5 hours/day	1 unit	0.020 lb/hp-hr	7.3	0.003 lb/hp-hr	1.1	0.024 lb/hp-hr	8.7	0.002 lb/hp-hr	0.7	0.0015 lb/hp-hr	0.5
Crane	300 hp	0.43 load factor	6.5 hours/day	1 unit	0.009 lb/hp-hr	7.5	0.003 lb/hp-hr	2.5	0.023 lb/hp-hr	19.3	0.002 lb/hp-hr	1.7	0.0015 lb/hp-hr	1.3
Generator/ Compressor	45 hp	0.74 load factor	6.5 hours/day	5 unit	0.011 lb/hp-hr	11.9	0.002 lb/hp-hr	2.2	0.018 lb/hp-hr	19.5	0.002 lb/hp-hr	2.2	0.001 lb/hp-hr	1.1
Haul Trucks [4] (muck removal)	1 miles/roundtrip		6 trips/day	1 unit	0.019 lbs/mile	0.1	0.003 lbs/mile	0.0	0.027 lbs/mile	0.2	0.0002 lbs/mile	0.0	0.0005 lbs/mile	0.0029
Supply Truck [4]	1 miles/roundtrip		2 trips/day	1 unit	0.019 lbs/mile	0.0	0.003 lbs/mile	0.0	0.027 lbs/mile	0.1	0.0002 lbs/mile	0.0	0.0005 lbs/mile	0.00097
Worker's vehicles [4]			60 miles/day	17 employees	0.014 lbs/mile	14.2	0.001 lbs/mile	1.5	0.001 lbs/mile	1.5	0.00001 lbs/mile	0.009	0.0001 lbs/mile	0.08125
Fugitive Dust [5]			0.5 acres	30 days/month									0.11 tons/acre-month	3.667
Daily Total (lbs/day)						41.1		7.3		49.2		4.6		6.65
SCAQMD Daily Contruction Thresholds (pounds/day)						***550.00***		***75.0***		***100.0***		***150.00***		150
Exceed SCAQMD Significance Threshold (Y/N)?						NO		NO		NO		NO		NO

Table 4: Emissions from Micro-Tunneling Construction

Source [1]	Parameter 1 [1]	Parameter 2 [2]	Parameter 3 [1]	Parameter 4 [1]	CO [3] Emission Factor	CO [3] Emission (lbs/day)	ROC [3] Emission Factor	ROC [3] Emission (lbs/day)	NOx [3] Emission Factor	NOx [3] Emission (lbs/day)	SOx [3] Emission Factor	SOx [3] Emission (lbs/day)	PM10 [3] Emission Factor	PM10 [3] Emission (lbs/day)
CONSTRUCTION EQUIPMENT:														
Hydraulic Jack	90 hp	0.62 load factor	6.5 hours/day	1 unit	0.020 lb/hp-hr	7.3	0.003 lb/hp-hr	1.1	0.024 lb/hp-hr	8.7	0.002 lb/hp-hr	0.7	0.0015 lb/hp-hr	0.5
Crane	300 hp	0.43 load factor	6.5 hours/day	1 unit	0.009 lb/hp-hr	7.5	0.003 lb/hp-hr	2.5	0.023 lb/hp-hr	19.3	0.002 lb/hp-hr	1.7	0.0015 lb/hp-hr	1.3
Generator/ Compressor	45 hp	0.74 load factor	6.5 hours/day	5 unit	0.011 lb/hp-hr	11.9	0.002 lb/hp-hr	2.2	0.018 lb/hp-hr	19.5	0.002 lb/hp-hr	2.2	0.001 lb/hp-hr	1.1
Haul Trucks [4] (muck removal)	1 miles/roundtrip		6 trips/day	1 unit	0.019 lbs/mile	0.1	0.003 lbs/mile	0.0	0.027 lbs/mile	0.2	0.0002 lbs/mile	0.0	0.001 lbs/mile	0.0053
Supply Truck [4]	1 miles/roundtrip		2 trips/day	1 unit	0.019 lbs/mile	0.0	0.003 lbs/mile	0.0	0.027 lbs/mile	0.1	0.0002 lbs/mile	0.0	0.001 lbs/mile	0.0018
Worker's vehicles [4]			60 miles/day	17 employees	0.014 lbs/mile	14.2	0.001 lbs/mile	1.5	0.001 lbs/mile	1.5	0.00001 lbs/mile	0.009	0.00011 lbs/mile	0.1163
Fugitive Dust [5]			0.5 acres	30 days/month									0.11 tons/acre-month	3.667
Daily Total (lbs/day)						41.1		7.3		49.2		4.6		6.69
SCAQMD Daily Contruction Thresholds (pounds/day)						***550.00***		***75.0***		***100.0***		***150.00***		150
Exceed SCAQMD Significance Threshold (Y/N)?						**NO**		**NO**		**NO**		**NO**		NO

	CO	ROC	NOx	SOx	PM10
Daily Total (lbs/day)	107.124	22.37812	136.8946	11.84538	12.34986
Daily Total (lbs/day)	41.05658	7.349172	49.23283	4.611164	6.690043
	148.1806	29.72729	186.1274	16.45654	19.0399
SCAQMD Daily Contru	550	75	100	150	150
	0.269419	0.396364	1.861274	0.10971	0.126933

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APPENDIX **D**

BIOLOGICAL RESOURCES

VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

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REPORT

VENICE PUMPING PLANT DUAL FORCE MAIN POTENTIAL PROJECT IMPACTS ON THE CALIFORNIA LEAST TERN TECHNICAL REPORT

Prepared for

City of Los Angeles
Department of Public Works
Bureau of Engineering

July 15, 2005

Keane Biological Consulting

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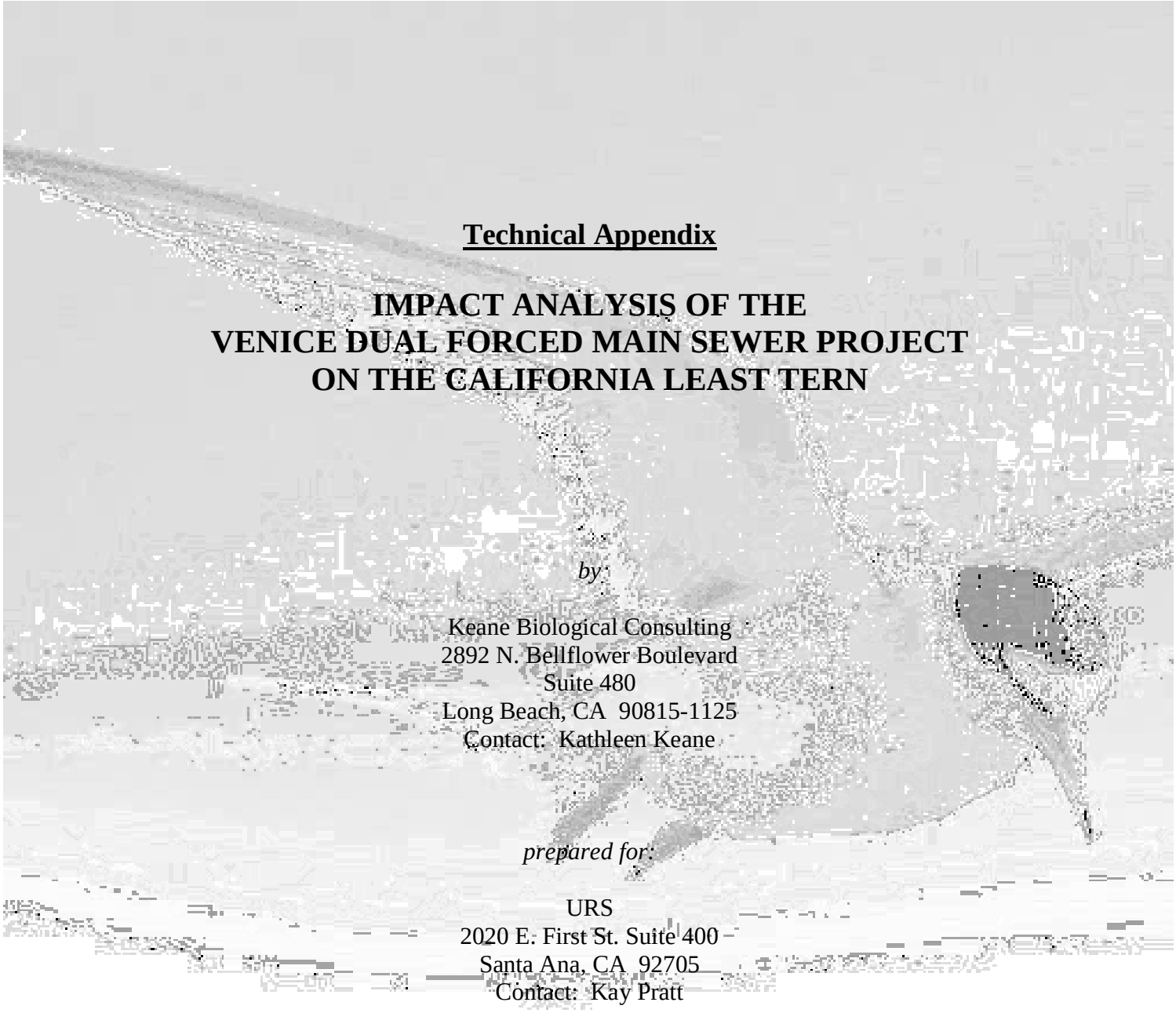

Technical Appendix

IMPACT ANALYSIS OF THE VENICE DUAL FORCED MAIN SEWER PROJECT ON THE CALIFORNIA LEAST TERN

by

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INTRODUCTION

This report serves as a technical appendix to environmental documentation prepared for the Venice Pumping Plant Dual Force Main Sewer project, proposed by the City of Los Angeles Department of Public Works, Bureau of Engineering. The purpose of this report is to present existing information regarding the California least tern (*Sterna antillarum browni*) and to discuss the potential project impacts that may occur on the this bird species, which is listed by both the federal and California Endangered Species Acts. A protected nesting area for the California least tern (hereafter "least tern") is located at Dockweiler State Beach within approximately 200 feet of one of the project alternatives. In addition, the least tern is known to forage in the Marina del Rey channel and Ballona Creek, which will be bisected by the proposed project (via underground tunneling) as well as at Ballona Lagoon and the Grand Canal, also in the project area.

This report was prepared by Kathy Keane of Keane Biological Consulting (KBC), who possesses over 20 years of experience conducting least tern research studies, nesting site monitoring, foraging studies, and impact analyses; and construction monitoring near least tern nesting sites.

Project Description

The City of Los Angeles is proposing to construct and install a new force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice to a junction structure on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey. The existing 48-inch diameter Venice Pumping Plant force main was built in 1958 and is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Los Angeles. The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two key objectives:

(1) To expand the capacity of the Coastal Interceptor Sewer's force main segment from the Venice Pumping Plant to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all projected wet weather flows can be safely conveyed without future threats of spilling onto city streets and adjacent surface waters; and

(2) To provide force main redundancy to allow for much needed maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

Three alternative routes for the project are proposed:

Marquesas Way/Via Marina. From the Pumping Plant on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel. It would then cross under the Marina Del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long.

Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alignment is the shortest route—approximately 10,000 feet.

Dockweiler Beach Alignment. From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-feet wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long.

The Dockweiler Beach alignment would be located within 200 feet of a protected and fenced nesting site for the least tern, called the Venice Beach nesting site and further described under Species Background.

Construction Methods

The alignments under consideration cross the Marina del Rey entrance channel and Ballona Creek channel, requiring about 1,800 feet of micro-tunneling[1] under the two channels; microtunneling will also occur under the Grand Canal for the Marquesas Way alignment. Elsewhere along each alignment, two alternative construction methods are under consideration: open trench and micro-tunneling. While open trench construction costs less, micro-tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels and can facilitate mitigation of other impacts such as noise.

The proposed project will be designed, constructed and operated in accordance with all applicable laws, regulations, and formally adopted City of Los Angeles standards and specifications (e.g., Los Angeles Municipal Code and Bureau of Engineering Standard Plans). Construction will adhere to uniform practices established within current engineering and construction standards specifically adopted by the City of Los Angeles.

Species Background

Listing Status and Range

The California least tern is one of three least tern subspecies breeding in North America. The subspecies was listed as endangered under the federal Endangered Species Act in 1970 and by the California Endangered Species Act in 1971. The interior race of least tern (*Sterna antillarum athalassos*), also federally listed as endangered, primarily occupies the Mississippi River valley and its tributaries. The eastern coast race (*Sterna antillarum antillarum*) nests from Massachusetts to Florida (Massey 1974). The current breeding range of the west coast race, the California least tern, extends in California from San Francisco Bay along the coast to the Tijuana River estuary, just north of the U.S.-Mexico border (Small 1994), and in Mexico along both the east and west coasts of Baja California. Least terns presumably winter in Central America or northern South America, although their wintering range remains unknown.

[1] Microtunneling uses a mud slurry to carry excavated material to the surface with generally no impact to the surface above the tunnel. However, the slurry separation plant will generate noise and vibration proportional to the size of the microtunneling pipe. The microtunneling area includes a small shaft at either end called the jacking pit (where the slurry separator and pipes are located) and the receiving pit (where the microtunneling machine will be removed). The jacking pit results in more noise because of loading trucks with the tunnel material. However, microtunneling generally results in less noise and other surface impacts than open cut excavation, and it is possible to minimize noise and vibration of the slurry separator, crane and generators at the jacking pit with sound walls (Justin Brown, pers. comm.).

Historical Nesting

Least terns historically nested in several small, scattered aggregations on sandy beaches and salt flats, although the progressive loss of undisturbed sandy beaches resulted in a severe reduction in both nesting sites and numbers of nesting pairs (Chambers 1908). According to A. McCormick, quoted in Bent (1921), the beaches of Los Angeles County in 1899 "from Santa Monica southward afford excellent breeding grounds for numberless birds of this species." By 1943, "breeding stations [are] few, owing to almost complete human use of suitable beaches" (Grinnell and Miller 1944). In recent years, Los Angeles County has supported only two protected least tern nesting sites, compared with six sites in Ventura County, four sites in Orange County, and over 20 sites in San Diego County. The two Los Angeles County sites are the Venice Beach nesting site at Dockweiler State Beach, and the Pier 400 nesting site in the Los Angeles Harbor.

Population

Following listing under the federal and state endangered species acts, the number of least tern nesting sites in California gradually increased from 23 in 1976, when statewide censuses were initiated, to approximately 37 in 2004. The estimated number of nesting pairs also escalated from approximately 664 in 1976 to 6,400 in 2004, despite a decline in 2002 to approximately 3,500 pairs due to apparent region-wide prey deficiencies. The number of nesting pairs in Los Angeles County increased from an estimated 238 in 1990 to 455 in 1997, and to 968 in 2004[2], but much of the increase has been at the Los Angeles Harbor nesting site[3] (KBC 2004a).

Conservation

Protection of nesting sites with fencing and signage has effectively limited human disturbance at most nesting sites. However, both native and non-native predators have been implicated in major losses of eggs, chicks, fledglings and occasionally adults at several sites and over several years. Although many native animals are currently, and have likely historically been, least tern predators (e.g., American kestrel [*Falco sparverius*], common raven [*Corvus corax*], coyote [*Canis latrans*]), the proximity of nesting sites to human-modified habitats has resulted in increased threats of predation. For example, feral cats and dogs, free-roaming house cats, introduced red foxes (*Vulpes vulpes*), and animals whose populations benefit from human presence (e.g., American crow [*Corvus brachyrhynchos*]) have exerted strong predation pressures at many nesting sites. In addition, many predators appear to benefit from the localized and abundant prey source provided by the few remaining nesting areas, while others such as the American kestrel have artificially increased populations near least tern nesting sites because of the abundance of non-native palm trees along California beaches and residential areas (kestrels nest in the cavities created by dead palm leaves). In addition, occasional summer storm systems (as in 1995), and recurrent human disturbance at some sites such as the Tijuana River, affect reproductive success. Finally, El Niño systems, or other weather patterns that influence water temperature or salinity, affect availability of least tern prey, which can result in chick mortality due to starvation. Thus, although the least tern population has increased substantially from its pre-listing status, continued monitoring and predator management at nesting sites is required to ensure reproductive success and long-term survival (Keane 1999).

[2] Data from unpublished annual least tern reports by the California Department of Fish and Game.

[3] In 2004, the Los Angeles Harbor Pier 400 nesting site supported the second-largest least tern colony in the state.

Least Tern Foraging

Least terns forage by flying over the water and diving/plunging for fish (Thompson et al. 1997). The least tern favors a diet of small fishes such as northern anchovy (*Engraulis mordax*), topsmelt (*Atherinops affinis*), jacksmelt (*A. californiensis*), killifish (*Fundulus parvipinnis*), shiner perch (*Cymatogaster aggregata*), and deep-body (*Anchoa compressa*) or slough (*A. delicatissima*) anchovies (Atwood and Kelly 1984).

Atwood and Minsky (1983) conducted foraging studies near three least tern nesting sites including the Venice Beach nesting site. Their study concluded that 75% of least tern foraging occurred within 0.75 mile of their nesting site, but foraging also occurred up to 1.86 miles from the nesting site. Historical information asserts that least terns prefer shallow-water habitats (less than 20 feet in depth) such as bays, lagoons, estuaries, tidal marshes, and lakes (Thompson et al. 1997). Least tern foraging surveys initiated in the Los Angeles Harbor in 1982 and continued for three years indicated that foraging activity was concentrated in shallow water, particularly adjacent to the least tern nesting site, with little activity in deeper, more distant water (Massey and Atwood 1984). However, some recent surveys (KBC 2001, 2003, and 2004b) show that a substantial amount of foraging occurs in offshore in deeper ocean waters. For example, during 2001, as part of a three-year study in the Los Angeles Harbor, over 25% of transit flights recorded at 28 survey stations were recorded over the breakwaters, indicating that least terns were foraging extensively in open ocean beyond the Los Angeles Harbor (data from KBC 2002). A history of least tern foraging studies through 1988 is presented in Keane (1988); foraging studies thereafter are discussed in KBC (2001, 2003 and 2004b).

STUDY METHODS

Literature Review

KBC reviewed the history of least tern nesting at the Venice Beach nesting site, located adjacent to the project area, provided in annual reports on statewide least tern productivity compiled by the California Department of Fish and Game (CDFG). We also reviewed the project description and project maps to assess the extent of potential project impacts on the least tern nesting site.

Nest Site Monitoring

Least tern monitoring studies at Venice Beach and other nesting sites have been conducted annually since 1973 to estimate numbers of nesting pairs and reproductive success. Biologists that monitor nesting sites are authorized to do so through 10(a)(1)(A) permits issued by the United States Fish and Wildlife Service (USFWS) and a Memorandum of Understanding issued by CDFG. Results of annual monitoring studies are summarized in annual reports compiled by the CDFG, as well as in reports for Venice Beach prepared by KBC (2003b, 2003c, 2004c).

Monitoring at most nesting sites, including the Venice Beach nesting site, is conducted by entry into the site by monitors to find, mark with a numbered stick and check the status of least tern nests. Although monitoring temporarily disturbs nesting terns, it allows for the collection of detailed data including the number of existing nests, the number of eggs and chicks in each nest, and calculation of incubation periods and hatching success. In addition, evidence of predation (e.g., mammal tracks, remains of chicks or eggs) can also be noted and subsequently addressed if warranted. Monitors must also estimate the fledgling numbers for their site.

EXISTING CONDITIONS

Venice Beach Nesting Site History

Least terns were known to have nested near Venice before 1919 (Edwards 1919). According to Bender (1974), a nesting colony of least terns existed in the Playa del Rey area during or before the late 1960's. In 1973, nesting least terns were discovered on an alkali flat in a degraded salt marsh just south of the Ballona Creek flood control channel. They were relatively productive most years from 1973 to 1979, with 10 to 30 breeding pairs each year. On May 8, 1977, an unseasonable rain storm flooded the salt flat, rendering it unsuitable for nesting. Two weeks later, three pairs of least terns were discovered nesting on the sand at Venice Beach just north of the Ballona Creek mouth. Emergency fencing was erected, and activities to protect nesting terns from disturbance were initiated. This was apparently the first known nesting at Venice Beach (Comrack 2001), and the site supported approximately 35 pairs during its first year (Table 1).

Nesting pairs increased to 158 in 1980, to 206 in 1990 and to 303 in 1998 (Table 1). The site also contributed over 10% of the fledglings for all nesting sites in the state from 1978 through 1994 (Table 1). However, American crows became major predators at the site in 1996, reducing productivity most years thereafter to below 0.5 fledglings per pair, and to zero in 1999, 2001, 2004 and 2005 (Table 1).

Venice Beach Nesting Site Characteristics

The Venice Beach nesting site is located on Dockweiler State Beach just north of the Marina del Rey channel mouth, between Yawl and Topsail streets. It is protected with permanent fencing and chick fence, which must be frequently maintained during the season to ensure that chick losses do not occur. It is currently 4.18 acres in size, surrounded by deteriorating and formerly eight-foot high chain-link fencing, with plastic mesh fencing approximately two feet high to confine least tern chicks within the nesting site. Lines of barbed wire cantilevered toward the outside to deter entry by cats is present at the top of the chain link fence but is also deteriorating.

Because the site is protected from regular beach sweeping, it supports a coastal dune vegetation community comprised of native and nonnative dune dominated by beach evening primrose *(Camissonia cheiranthifolia suffruticosa*), beach bur (*Ambrosia chamissonis bipinnatisecta*) and ice plant (*Carpobrotus* spp.) (Comrack 2001).

Protection of the nesting site at Venice Beach with fencing and monitoring has been provided annually since 1977. Temporary fencing was erected and removed seasonally by the County of Los Angeles from 1977 until 1980. A permanent chain-link fence was constructed prior to the start of the 1981 breeding season, and when it deteriorated, a replacement fence was erected prior to the 1988 season. Extensive fence repair and interpretive signs were funded by Environment Now, based in Santa Monica, in 1998. Thereafter, repairs of existing chick fencing, placement of new chick fencing as needed, minor repairs in chain link fencing and removal of sand buildup is conducted annually by CDFG and volunteers before least tern arrival.

TABLE 1.
Summary of Least Tern Nesting and Productivity at the Venice Beach nesting site, 1977 to 2005[a]

Year	Number of Pairs[b]	Percent of Statewide Pairs[c]	Number of Nests	Number of Fledglings	Fledglings Per Pair	Percent of Statewide Fledglings[c]
1976	Nesting site not yet available					
1977	35	4.1%	?	30	0.86	5.7%
1978	68	8.2%	?	75	1.1	17.9%
1979	88	8.8%	?	140	1.68	20.1%
1980	158	13.5%	?	240	1.52	31.2%
1981	150	15.4%	?	195	1.3	23.4%
1982	170	16.6%	?	60	0.35	11.7%
1983	145	12.1%	?	140	0.97	15.7%
1984	83	8.6%	?	94	1.13	18.1%
1985	96	9.4%	?	113	1.18	17.3%
1986	104	10.8%	?	113	1.09	12.8%
1987	109	11.7%	?	82	0.75	13.0%
1988	165	13.2%	?	192	1.16	17.0%
1989	137	11.0%	?	134	0.98	17.5%
1990	206	12.1%	?	279	1.35	17.3%
1991	198	10.8%	?	200	1.01	11.2%
1992	229	10.9%	275	245	1.07	17.4%
1993	246	10.6%	219	288	0.85	14.2%
1994	345	12.4%	345	224	0.65	12.4%
1995	310	11.9%	354	44	0.14	4.1%
1996	271	8.0%	361	92	0.33	4.6%
1997	375	9.4%	400	263	0.7	8.2%
1998	383	9.2%	387	200	0.52	7.3%
1999	43	1.2%	50	0	0	0.0%
2000	274	5.9%	308	150	0.55	3.9%
2001	331	6.9%	348	388	0.91	8.5%
2002	2	0.1%	2	0	0	0.0%
2003	348	5.1%	371	181	0.52	6.9%
2004	0	0.0%	24	0	0	0.0%
2005	120	Unknown[d]	90	0	0	Unknown[d]

[a] Data for this table were obtained from unpublished annual reports funded and compiled by the California Department of Fish and Game.

[b] Values are number of least tern nests minus estimated number of renesting pairs.

[c] Percent of statewide total of nesting pairs and fledglings, derived from means of ranges presented in annual reports prepared for the California Department of Fish and Game. The Venice Beach site is one of approximately 38 sites statewide.

[d] 2005 data for other nesting sites in the state was not available when this report was completed

Because of the current condition of site fencing, and because of a need for additional nesting space in Los Angeles County (and a lack of potential suitable locations for new sites), CDFG prepared plans to replace the fence as well as expand the site in 2002. However, the project has been delayed until the fall of 2005. The nesting site will be expanded from 4.18 to nine acres, and new gates to allow human and maintenance vehicle access will be installed. The project has been approved by the California Coastal Commission, permit number 5-87-847-A. One public beach volleyball court will be moved to accommodate the enlarged site and the protective fence enclosure will be replaced, along with new interpretive signs (Comrack 2001).

Venice Beach Recent Least Tern Nesting

In 2002, least tern activity was observed early May but nests were not initiated until the week of May 26, and eggs were soon depredated by American crow. No additional nests were discovered during the remainder of the season, and by the end of June, no least tern activity was recorded at the site. No chicks or fledglings were produced for the 2002 season. Disturbance and depredation by crows was likely the cause of early abandonment of the site. A minimum of four crows was observed at the site on each visit, and the crows would follow monitors around the perimeter of the nesting site. Crow deterrents, including placement of crow carcasses in the site, have worked in the past but were ineffective in 2002. However, least terns had a very poor reproductive year throughout the state in 2002, with an estimated statewide reproductive success of 0.16 fledglings per pair (KBC 2003b).

The 2003 nesting season at Venice Beach was successful compared to the 2002 nesting season. The terns faced some predation by crows early in the season and again late in the season when most of the terns had already left the site. Crow carcasses were placed once again in the nesting site to deter crows from entering the site. As the number of terns increased at the site, the number of crows decreased. The mobbing behavior of the terns seemed to be effective. The estimated 348 nests is similar to numbers recorded at the site in the late 1990's (Table 1); fledgling numbers, always difficult to estimate, were between 181 to 396 for 2003 (KBC 2003c).

The 2004 nesting season failed to produce any young terns due primarily to heavy egg predation by American crows, although crow carcasses and other methods that were successful in 2003 to deter crows failed in 2004. Problems were apparent from the beginning with the first egg date 11 days later than 2003 and few adults attending the nesting site during most of May. Total nests were estimated at 24, with no eggs surviving to hatching. The nesting site supported fewer than 10 nesting pairs during all monitoring visits in June, resulting ineffective predator defense. Thus, the few eggs laid were quickly depredated by American crows. Evidence of probable further predation by black-crowned night herons (*Nycticorax nycticorax*) in late June resulted in abandonment of the site by least terns and no productivity (KBC 2004c).

The 2005 nesting season began well, with up to 210 least terns present in mid-May. However, reported fish die-offs due to domoic acid in Santa Monica Bay may have reduced prey availability for least terns and delayed nesting. Approximately 90 nests were initiated between May 24 and June 7, 2005, but all eggs were depredated by American crows and the nesting site was abandoned on June 8, 2005 (T. Ryan, pers. comm., 2005.).

With the proposed expansion of the site during the fall of 2005, and more effective predator management proposed for 2006, it is possible that the number of pairs nesting at Venice Beach will increase in 2006 and future years. In addition, the assistance of local residents who provide reports of potential predator activities and fence condition, and their involvement in educating the public through personal communications or interpretive signs, will help ensure a future successful nesting.

IMPACT ANALYSIS

Thresholds of Significance

Potential impacts of the Venice Pumping Plant Forced Main Sewer project on the California least tern were evaluated pursuant to guidelines of the California Environmental Quality Act (CEQA). A primary objective of CEQA is to disclose to decision-makers and the public the "significant" environmental effects of proposed activities. In accordance with the *CEQA Guidelines* and checklist and for the purposes of this EIR, the proposed project would have a significant impact on biological resources and require mitigation if it would:

> Have a substantial[4] adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

The checklist includes other bullet items regarding impacts on biological resources; however, for this report, which focuses on the least tern, a special-status species known to occur in the project vicinity, only the above item is discussed.

Permanent Impacts

Marquesas Way/Via Marina alignment: This alignment is located a minimum of 1,000 feet from the Venice Beach least tern nesting site and thus would not result in any permanent effects on the nesting site. No permanent impacts on least tern foraging habitat (Marina del Rey Channel, Ballona Creek, Grand Canal) in the project area are expected (however, see Temporary Impacts).

Pacific Avenue Alignment: This alignment is located a minimum of 600 feet from the least tern nesting site and thus would not have any permanent effects on the nesting site. No permanent impacts on least tern foraging habitat (Marina del Rey Channel, Ballona Creek, Grand Canal) in the project area are expected (however, see Temporary Impacts).

Dockweiler Beach Alignment: Portions of this alignment (between Yawl and Topsail streets) are located within 200 feet of the least tern nesting site. However, construction activities associated with this alignment would remain away from the nesting site and thus would not be expected to result in any permanent effects on least terns or the nesting site. However, construction may result in temporary effects on least terns (see Temporary Impacts). No permanent impacts on least tern foraging habitat (Marina del Rey Channel, Ballona Creek, Grand Canal) in the project area are expected (however, see Temporary Impacts).

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[4] Because CEQA does not define the term "substantial," a substantial biological effect is defined in this section of the document as one that would adversely affect a biological resource that is considered rare or of limited distribution in coastal Los Angeles County.

Temporary Impacts

Marina del Rey Channel, Ballona Creek, and the Grand Canal: All three alignments cross under the Marina del Rey channel and Ballona Creek via microtunneling, and the Marquesas Way alignment crosses under the Grand Canal via microtunneling. Temporary turbidity in these areas could occur with other tunneling methods, and turbidity may affect least tern foraging either by reducing local prey availability and/or by compromising visibility of prey. However, in general, microtunneling would occur below the bottom of these waterways, and microtunneling generally has no effect on the surface (Justin Brown, pers. comm.). Thus, no turbidity is expected in any of the waterways of the project area where microtunneling will occur. No other temporary impacts on least tern foraging habitat are expected to occur in the project area.

Marquesas Way/Via Marina alignment: This alignment is located a minimum of 1,000 feet from the nesting site and thus would not result in any temporary effects on the nesting site. Considering the fact that least terns nest successfully adjacent to a container terminal in the Los Angeles Harbor and have nested successfully amid substantial human disturbance on a crowded beach in the summer, noise and other activities associated with project construction a minimum of 1,000 feet away would not be expected to affect least terns should construction occur during the least tern nesting season.

Pacific Avenue Alignment: This alignment is located a minimum of 600 feet from the least tern nesting site and thus would not result in any temporary effects on the nesting site. As discussed above, least terns have shown adaptability to noise and human disturbance beyond the fenced nesting site; thus, noise and other activities associated with project construction a minimum of 600 feet away would not be expected to affect least terns should construction occur during the least tern nesting season.

Dockweiler Beach Alignment: Portions of this alignment (between Yawl and Topsail streets) are located within 200 feet of the least tern nesting. If any construction activities were to occur during the least tern nesting season (approximately mid-April through mid-August) when least terns are present (e.g., they have not abandoned the site as they did early in 2004 and 2005), significant temporary impacts on least terns at the nesting site may result if open-cut excavation (trenching) is used, or if microtunneling is used and the jacking pit and/or receiving pit are within 500 feet of the nesting site. These impacts may include noise, surface vibration and increased human disturbance at the nesting site. In addition, the presence of a work crew in the vicinity of the nesting site may attract American crows, which may then enter the nesting site and prey on least tern eggs. If microtunneling is used rather than open-cut excavation, and the jacking pit and receiving pit are more than 500 feet from the nesting site, no significant temporary impacts on least terns at the nesting site would be expected, assuming the microtunneling operation is managed properly and does not result in surface impacts.

AVOIDANCE AND MINIMIZATION MEASURES

1) If the Dockweiler Beach alignment is selected and construction is to be above-ground, or if microtunneling is used and the jacking and/or receving pit is within 500 feet of the nesting site, and any construction activities are to occur during the least tern nesting season (April 1 through August 31), a biological monitor with experience observing and documenting disturbance to least terns shall be present during all construction activities within 500 feet of the nesting site to ensure that construction activities do not adversely

affect least terns using the nesting site. In addition, the monitors will ensure that work crews properly dispose of all garbage in covered containers so that work crews do not attract crows into the area and thus contribute indirectly to depredation of least tern eggs and chicks by crows.

2) Construction of any of the three alignments includes microtunneling under the Marina del Rey Channel and Ballona Creek, and the Marquesas Way alignment includes microtunneling under the Grand Canal. All these waterways have been documented as foraging habitat for the least tern. If any microtunneling activities are to occur during the least tern nesting season (April 1 through August 31), a water quality specialist or biological monitor shall conduct surveys at microtunneling locations a minimum of once daily to ensure that microtunneling does not increase water turbidity. If any turbidity is discovered in these areas, the microtunneling activities shall cease until the leak from the tunnel that is resulting in turbidity is repaired.

Unavoidable Adverse Impacts

If the avoidance and minimization measures above are implemented successfully, no unavoidable adverse impacts are expected.

Cumulative and Secondary Impacts

Assuming the avoidance and minimization measures above are implemented successfully, the project would not contribute to cumulative adverse effects on least terns in southern California or result in secondary impacts on least terns, least tern nesting sites or least tern foraging habitat.

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REPORT

VENICE PUMPING PLANT DUAL FORCE MAIN MARINE RESOURCE ANALYSIS TECHNICAL REPORT

Prepared for

City of Los Angeles
Department of Public Works
Bureau of Engineering

MBC Applied Environmental Sciences

300 Redhill Avenue
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MARINE RESOURCE ANALYSIS FOR THE PROPOSED VENICE PUMPING PLANT DUAL FORCE MAIN

PROJECT DESCRIPTION

The City of Los Angeles is proposing to construct and install a new force main sewer extending from the Venice Pumping Plant at 140 Hurricane Avenue in Venice to a junction structure on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey. The existing 48-inch diameter Venice Pumping Plant force main was built in 1958 and is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Los Angeles. The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two key objectives:

(1) To expand the capacity of the Coastal Interceptor Sewer's force main segment from the Venice Pumping Plant to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all projected wet weather flows can be safely conveyed without future threats of spilling onto city streets and adjacent surface waters; and

(2) To provide force main redundancy to allow for much needed maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

The City of Los Angeles Collection Systems Engineering Division investigated and identified several alternative alignments and construction methods for the placement of a new force main. An examination of open-trench method of construction and/or micro-tunneling is proposed for the roadway portion of the project, and micro-tunneling is the proposed method to pass beneath the Marina del Rey and Ballona Creek channels.

REGIONAL SETTING

The project is located in the Marina del Rey and Venice area. This area was once a large wetland marsh fed by the meandering Ballona Creek, which drained into Santa Monica Bay near the current entrance of Ballona Creek. Throughout the 20th century this area was highly modified by the channelization of Ballona Creek, establishment of the Venice Canal system, construction of Marina del Rey and general degradation of the remaining wetlands.

Wetlands in the Santa Monica Bay are threatened by the proximity of highly urbanized areas and the impacts of urbanization on the physical, biological and chemical characteristics of the wetlands (MBC 1993). Specific impacts include: stream alteration and channelization, draining, dredging and filling, diking, urban runoff, boating and shipping, housing and commercial development, introduced species and increased use of wetland areas for recreation. Wetland habitat loss was not unique to Santa Monica Bay; between the late 1800s and the mid-1960s much of the wetland resources of Los Angeles and Orange counties were "reclaimed" with resulting loss of biological diversity and productivity (MBC 1988). Two-thirds of the 28 large estuaries once found in southern California were dredged or filled. Since 1900, 75% of the coastal wetlands and estuaries in southern California have been destroyed or severely altered.

Historically, the Ballona wetland complex covered 2,100 acres as recently as 1868 (MBC 1993). By 1894, that area was reduced to approximately 1,535 acres, from the present-day community of Venice to the north, southwest through La Ballona, inland to Machado and south to present-day Culver Boulevard. This area consisted of a broad marsh behind a long sand spit with a narrow, intermittent opening to Santa Monica Bay. This opening was probably closed in spring and summer, leaving a brackish lagoon behind the spit until winter storms and runoff breached the sand spit, opening the marsh to tidal exchange.

By 1930, the major lagoons of the Ballona wetland complex were drained for agricultural use, oil and gas development, and mosquito and black gnat abatement (MBC 1993). Roads and levees were built across the wetlands to provide access to oil platforms from the 1930s through the 1950s. In the early 1960s the dredging of Marina del Rey further reduced wetland habitat, and the dredge spoils were placed on the northern section of the wetlands that were previously used for agriculture.

By 1938, Ballona Creek, the main freshwater source for the Ballona wetland complex, was completely channelized for flood control (MBC 1993). Channelization reduced freshwater and nutrient flow into the wetland marsh, and allowed the natural inlet to become blocked by sediments. Channelization also altered the salinity and depth regimes of the wetlands, deepening channels and increasing marine influence in the remaining wetland marsh.

Today, the remaining Ballona wetland complex is comprised primarily of Ballona Wetlands, Ballona Lagoon, and Del Rey Lagoon. Additionally, Marina del Rey and Ballona Creek, both highly modified from their natural states as part of the wetlands, are adjacent to and continue to influence the remaining wetlands.

Marina del Rey is one of the largest manmade marinas in the world with more than 6,000 berths (Pondella and Allen, unpublished data). Construction on the marina began in 1960 with the filling or draining of much of the wetlands to allow for urban development. Most of the marina is silt-bottomed with little hard substrate other than retaining walls, floats and pilings. One basin (Basin D) on the west side of the marina terminates in a sandy swimming beach, and eelgrass beds (*Zostera marina*) are present in the subtidal areas of the basin. The marina connects to Santa Monica Bay through an entrance channel bounded by breakwaters running perpendicular to shore with a terminal breakwall running parallel to shore protecting the entrance.

Ballona Creek flood control channel runs parallel to the Marina del Rey entrance channel at the mouth of the creek, emptying into Santa Monica Bay south of the Marina del Rey channel. Within the project area, Ballona Creek is riprap-lined and primarily marine, providing tidal exchange for both Del Rey Lagoon and the nearby Ballona Wetlands. Further upstream the Ballona Creek drains most of Culver City and the surrounding areas (WRA 1990).

To the west of the project area, the Marina del Rey and Ballona Creek entrances bisect Dockweiler Sate Beach. The north beach is adjacent to the Ballona Lagoon and Marina del Rey to the east. A protected California least tern (*Sterna antillarum browni*) nesting area is located near the southern end of the beach. The breeding area is fenced to exclude humans and predators, and the beach within the enclosure is vegetated. The southern extent of Dockweiler State Beach is adjacent to Del Rey Lagoon, Playa del Rey and the Los Angeles International Airport to the south. In the Dey Rey Lagoon area several fenced, vegetated dunes back the beach, and steeper slopes backing the beach in the vicinity of the airport are also vegetated. Two western snowy plover critical habitat units have been proposed for Dockweiler State Beach, the northern most west of the airport, slightly south of the southern extent of the project. Dockweiler State Beach, particularly the upper, dry back-beach area where proposed project activities may occur are, for most part, groomed with maintained paths and volleyball courts.

Initial analysis identified two Environmentally Sensitive Habitat Areas (ESHA's) located in close proximity to most of the potential alignments. To the north, three proposed project alignments are found in proximity to the Grand Canal/Ballona Lagoon in the Venice and Marina del Rey area. To the south, two proposed alignments are near Del Rey Lagoon situated in Playa Del Rey.

EXISTING CONDITIONS

Ballona Lagoon

Ballona Lagoon is a 16-acre, artificially restricted tidal channel consisting of 14.5 acres of open water habitat and 1.5 acres of intertidal habitat (Deets et al 2001). The lagoon varies in width from 150 to 250 ft and is approximately 4,000 ft in length. Ballona Lagoon is at the southern end of the drainage that includes both the Venice Canals and Ballona Lagoon, connected to the Venice Canal to the north via the Grand Canal and to the Pacific Ocean to the south through tide gates that lead to the entrance channel of Marina del Rey (Deets et al 2001, BLMP 2003). Together the Venice Canal–Ballona wetland system drain an estimated 216 acres of the surrounding urban land (Deets et al 2001). Tidal range in the lagoon is restricted by tidal gates operation with an actual tidal range measured during 2000 from about +0.5 to +5.1 ft. The tide gate is designed to close when tides exceed +4.75 ft Mean Sea Level (MSL) (BLMP 2003). On the occasions that the gate closes, the gate reopens when the tide falls below about +4 ft MSL. The County of Los Angeles Department of Beaches and Harbors monitors the depth of water in the channel and limits the height of the water to prevent flooding of adjacent homes. Water level in Ballona Lagoon is further reduced when rain is expected.

Ballona Lagoon, originally a section of the Ballona Creek drainage, became part of an artificial channel system serving the Venice community since the early 1900s (WRA 1990, BLMP 2003). The canal system, with both freshwater and marine influences gradually developed into a wetland system. By the 1970s, Ballona Lagoon was choked with sediments and polluted by urban runoff. In addition, ease of access, erosion and disrepair of the lagoon banks, and extensive use of non-native landscape plants reduced the natural diversity of the lagoon. As a result of continued degradation of the wetland, the Ballona Lagoon Marine Preserve (BLMP) was formed in 1988 to study, protect and restore the wetland habitat of Ballona Lagoon.

In 1989, the BLMP prepared an initial draft resource enhancement plan for Ballona Lagoon, with final plan approval in 1997 (BLMP 2003). The finalized plan included: creation of a deepwater pool at the southern end of the lagoon; improvements in the tidal gates to increase the tidal prism; minor intertidal grading and channelization; removal of concrete structures; removal of exotic plants, revegetation with native wetland and dune species; improvement in public access, including path improvements, a viewing platform and fencing to protect sensitive habitats; and implementation of a ten-year monitoring plan. Implementation of the Ballona Lagoon Enhancement Plan occurred in 1997. Monitoring to assess the success of the enhancement project began in 1999. An additional phase of the Enhancement Plan to make improvements to the west bank of the lagoon is under consideration.

Water Quality. Combinations of tidal flushing, freshwater sources, and nutrient inputs from urban and agricultural runoff affect water quality within Ballona Lagoon. Despite restricted circulation prior to implementation of the enhancement plan, water quality in the lagoon was considered to be relative good (WRA 1990). Water temperature in Ballona Lagoon was found to range from 19 to 26°C, although generally similar to levels found in offshore waters (Deets et al 2001, WRA 1990, CERES 2003). Salinity was found to be seasonally variable in the lagoon with low salinities found during times of stormwater runoff and hypersaline conditions (>40 parts per thousand [ppt]) occasionally found in some areas of the lagoon, likely a result of poor circulation and solar evaporation during the summer. Dissolved oxygen (DO) in the lagoon was found to range from <4.0 mg/l to 9.5 mg/l, while hydrogen ion concentration (pH) showed large variations, ranging from 6.2 to 8.4 between 1994 and 1995.

Beginning in May 2000, monthly sampling of water quality parameters was initiated at four stations in Ballona Lagoon. During the first eight months of monitoring, temperatures in the lagoon were ranged from about 15 to 30° C, with highest temperatures recorded in the lagoon in June (Deets et al. 2001). Temperatures were lowest in November and December, averaging 15° C throughout the area. In general, temperatures in Ballona Lagoon were found to be lowest at the

southern end of the lagoon near the tide gates and gradually increased with distance from the tide gate and where the water is shallower.

Salinity in Ballona Lagoon during the 2000 sampling was found to range from about 22 to 36 ppt (Deets et al. 2001). Salinity within the lagoon was consistently lower than at a station on the Marina del Rey side of the tide gates. Salinity generally decreased with distance along the channel, although the single lowest value occurred in December at about half the length of lagoon. Evaporation-induced hypersaline conditions were not noted during the survey.

Dissolved oxygen concentrations in Ballona Lagoon in 2000 ranged from about 8.5 to 14 mg/l (Deets et al. 2001). Average DO was highest at stations in the northern sections of the lagoon, with highest average DO found near the middle of the lagoon where heavy mats of green algae was observed and high DO values were consistently recorded between August and December 2000. Low DO conditions were not noted during the sampling.

Average pH in the lagoon was found to range narrowly from about 8.1 to 8.4 (Deets et al. 2001). Lowest average values were found near the tide gate, while highest pH occurred midway along the length of the channel. Nitrate and phosphate values were found to be relatively consistent, with occasional spikes, throughout the sampling. Lowest average values for both phosphate and nitrate occurred near the middle of the lagoon, while highest values in the lagoon were found at the station farthest north.

Contaminants. Pollutants come from a variety of sources of both industrial and domestic origin. Oil and gasoline combustion release many substances, including cadmium, copper chromium, lead, mercury, and zinc. These and other metals are used in paints, pigments, batteries, manufacturing, and protective coatings. Aerial fallout is a diffuse and potentially large source of contaminants derived from other sources, and may include metals, chlorinated hydrocarbons, and PAHs (SCCWRP 1973, 1986).

Some metals, such as copper, iron, and zinc are required by aquatic organisms in small amounts to maintain biochemical functions, but are toxic to these same organisms in higher concentrations. Other metals, such as cadmium, mercury, and lead may have toxic effects on marine organisms even in low concentrations.

As these contaminants accumulate on the ground, they are washed into rivers and storm drains by rainfall, and are eventually deposited into the ocean. Contaminants commonly washed into the bay during storms include fertilizer and plant control chemicals associated with landscaping activities and oil residues that have accumulated on roads and parking lots (SDUPD 1980).

Vegetation. Prior to the Ballona Lagoon Enhancement Project vegetation in the lagoon area was generally restricted to the steep banks of the lagoon (WRA 1990). Upland vegetation dominated the plant community, with an assemblage dominated by exotic species such as iceplant. Native intertidal wetland vegetation existed in a narrow band at the base of the banks, and consisted primarily of pickleweed (*Salicornia virginica*), salt grass (*Distichus spicata*) and alkali heath (*Frankenia grandifolia*).

As part of the ongoing monitoring program a field survey of vascular plants was conducted along both banks of Ballona Lagoon in December 2003 and January 2004 (Jones 2003a). A total of 86 plant species were found in the lagoon area, 43 (50%) of which were native California species (Table 1). Common native species found in the area included: beach bur (*Ambrosia chamissonis*); beach evening primrose (*Camissonia cheiranthifolia* var. *cheiranthifolia*); salt grass (*Distichlis spicata*); sea-cliff buckwheat (*Eriogonum parvifolium*); California sagebrush (*Artemisia californica*); jaumea (*Jaumea carnosa*); southwestern spiny rush (*Juncus acutus leopoldii)*; two species of sand-verbena (*Abronia*); two species of pickleweed (*Salicornia*); two species of saltbush (*Atriplex*); and three species of sea-blight (*Suaeda)*. Arroyo willow (*Salix*

lasiolepiswas) was the only native tree species recorded. Of the non-native species, 16 are considered to be invasive, potentially invasive or an annual grass pest plant species by the California Exotic Pest Plant Council (CalEPPC) (Table 1).

Table 1. Plant species recorded on the banks of Ballona Lagoon. December 2002-January 2003. Native species in bold. Sources: CalEPPC 1999; Jones 2003a, 2003b

Common Name	Species	Status and Comments
Agean wallflower	*Erysimum cheiri*	
alkali heath	***Frankenia salina***	
arroyo willow	***Salix lasiolepis***	
Australian saltbush	*Atriplex semibaccata*	CalEPPC invasive pest plant List A-2
beach evening primrose	***Camissonia cheiranthifolia var. cheiranthifolia***	
beach-bur	***Ambrosia chamissonis***	
Bermuda buttercup	*Oxalis pes-caprae*	CalEPPC potential invasive pest plant
big saltbush	***Atriplex lentiformis***	
black mustard	*Brassica nigra*	CalEPPC invasive pest plant List B
bladderpod	***Isomeris arborea***	
branching phacelia	***Phacelia ramosissima***	
Brazilian pepper	*Schinus terebinthifolius*	CalEPPC invasive pest plant List B
bush sunflower	***Encelia californica***	
Califonia heath-goldenrod	***Ericameria ericoides***	
California broom, deerweed	**Lotus scoparius**	
California burclover	*Medicago polymorpha*	CalEPPC potential invasive pest plant
California poppy	***Eschscholzia californica***	
California sagebrush	***Artemisia californica***	
California sea-blite	***Suaeda californica***	**Federally-listed endangered; California-ranked S1.1; CNPS-listed 1B**
Canary Island palm	*Phoenix canariensis*	
castor bean	Ricinus communis	CalEPPC invasive pest plant List B
caterpillar phacelia	***Phacelia cicutaria var. hispida***	
century plant	*Agave americanum*	
cheeseweed	*Malva neglecta*	
Chinese caps	***Euphorbia crenulata***	
coastal prickly pear	***Opuntia littoralis***	
common plantain	*Plantago major*	
coyote brush	***Baccharis pilularis***	
creeping wood-sorrel	*Oxalis corniculata*	
croton	***Croton californicus***	
crown daisy	*Chrysanthemum coronarium*	
cutweed, everlasting	***Gnaphalium bicolor***	
dudleya	***Dudleya lanceolata***	
fescue	*Vulpia myuros* var. *hirsuta*	
garden nasturtium	*Tropaeolum majus*	
giant reed	Arundo donax	CalEPPC invasive pest plant List A-1
goldenbush	***Isocoma menziesii var. menziesii***	
horned sea-blite	***Suaeda calceoliformis***	
horseweed	*Conyza canadensis*	
Hottentot fig	*Carpobotus edulis*	CalEPPC invasive pest plant List A-1
Indian-fig	*Opuntia ficus-indica*	
jade plant	*Crassula argenta*	
jaumea	***Jaumea carnosa***	

Table 1, continued. Plant species recorded on the banks of Ballona Lagoon. December 2002-January 2003. Native species in bold.

Common Name	Species	Status and Comments
jubata grass	*Cortaderia jubata*	CalEPPC invasive pest plant List A-1
knotweed	*Polygonum* sp	
lamb's quarters	*Chenopodium album*	
lemonadeberry	***Rhus integrifolia***	
London rocket	*Sisymbrium irio*	
marsh baccharis	***Baccharis douglasii***	
marsh sowthistle	*Sonchus arvensis var. uliginosus*	
Mexican fan palm	*Washingtonia gracilis*	
morning-glory	***Calystegia macrostegia***	
Myoporum	*Myoporum laetum*	CalEPPC invasive pest plant List A-2
nightshade	***Solanum douglasii***	
petty spurge	*Euphorbia peplus*	
pickleweed	***Salicornica subterminalis***	**preferred nesting habitat for Belding's savannah sparrow**
pickleweed	***Salicornica virginica***	**preferred nesting habitat for Belding's savannah sparrow**
pigweed	*Chenopodium macrosperma var. halophilum*	
pink sand-verbena	***Abronia umbellata***	**California-ranked S2.1; CNPS-listed 1B**
pride of Madiera	*Echium candicans*	CalEPPC potential invasive pest plant
rancher's fireweed	***Amsinckia menziesii***	
red sand-verbena	***Abronia maritima***	**California-ranked S3?; CNPS-listed 4**
rip-gut brome	*Bromus diandrus*	CalEPPC annual grass
Russian thistle	*Salsola tragus*	CalEPPC potential invasive pest plant
salt grass	***Distichlis spicata***	**host plant of wandering (=saltmarsh) skipper**
sand-spurry	***Spergularia marina***	
scarlet pimpernel	*Anagalis arvensis*	
sea lavender	*Limonium arborescens*	
sea rocket	Cakile maritima	
sea-cliff buckwheat	***Eriogonum parvifolium***	**host plant of El Segundo Blue Butterfly**
shoregrass	***Monanthochloe littoralis***	
slender wild oat	*Avena barbata*	CalEPPC annual grass
south coast saltbush	***Atriplex pacifica***	**California-ranked S2.2; CNPS-listed 1B**
southwestern spiny rush	***Juncus acutus leopoldii***	**California-ranked S3.2; CNPS-listed 4**
stone crop family	*Aeonium arboreum arboreum*	
storksbill	*Erodium cicutarium*	
sweet allysum	*Allysum alyssoides*	
tarragon	***Artemisia dracunculus***	
telegraph weed	***Heterotheca grandiflora***	
telegraph weed, golden aster	***Heterotheca sessiliflora var. bolanderi***	
weeping Chinese banyan	*Ficus benjamina*	
western marsh-rosemary	***Limonium californicum***	
wild oat	*Avena fatua*	CalEPPC annual grass
wild radish	*Raphanus sativus*	
woolly sea-blite	***Suaeda taxifolia***	**California-ranked S2, S3; CNPS-listed 4**
yellow sweetclover	*Melilotus officinalis*	CalEPPC potential invasive pest plant

Within the Ballona Lagoon project area several species of native plants listed as sensitive on the State Department of Fish and Game Special Vascular Plant List were recorded (Jones 2003b). Three of those species, red sand-verbena (*Abronia maritima,* California-ranked S3?; California Native Plant Society [CNPS]-listed 4), southwestern spiny rush (California-ranked

S3.2; CNPS-listed 4) and woolly sea-blight (*Suaeda taxifolia,* California-ranked S2, S3; CNPS-listed 4) are sensitive species found in small populations of limited distribution. Three other plants, pink sand-verbena (*Abronia umbellate,* California-ranked S2.1; CNPS-listed 1B), south coast saltbush (*Atriplex pacifica,* California-ranked S2.2; CNPS-listed 1B) and California sea-blight (*Suaeda californica,* Federally-listed endangered; California-ranked S1.1; CNPS-listed 1B) are considered to be rare, threatened or endangered in California and elsewhere. Several plant species that occurred in the lagoon act as hosts for state or federally listed or sensitive species: sea-cliff buckwheat is the host plant for the El Segundo Blue Butterfly (*Euphilotes bittoides allynii*, Federally-listed endangered species); pickleweed provides food and is the preferred nesting habitat for Belding's savannah sparrow, (*Passerculus sandwichensis beldingi,* California-listed endangered species); and salt grass is the host plant for the wandering (=saltmarsh) skipper (*Panoquina errans*, California-ranked S1).

Along the east bank of the lagoon, the plant community has been restored and revegetated with native species that require regular irrigation and maintenance (Jones 2003b). On the unrestored west bank the plant community was dominated by weedy species, adapted to frequent disturbance.

Several coastal vegetation community types were identified in the Ballona Lagoon area during the vegetation survey (Jones 2003b). Coastal Salt Marsh is characterized by vegetation that occupies intertidal areas and is periodically inundated by rising tides. Coastal Strand is characterized by vegetation typical of upland, beach and dune habitats. Coastal Sage Scrub habitat includes those species typically found higher, above the Coastal Strand community.

Water-Associated Birds. The Ballona wetland complex, including Del Rey Lagoon, is part of the Pacific Flyway, the corridor for birds flying between breeding grounds to the north and wintering sites to the south. The majority of birds found in the wetlands are migrants and use the wetlands as a resting or feeding area, while others are winter visitors or migrants. Overall, bird abundance is generally higher in winter, when large numbers of northern visitors are present.

Bird surveys conducted in Ballona Lagoon on two days in spring of 1989 reported daily bird counts of 10 and 15 species (WRA 1990). Earlier work conducted in 1981 recorded 54 bird species over a one-year period, with 34 species observed over a four-month period during winter (WRA 1990). More recently, surveys of the bird fauna of Ballona Lagoon have been conducted on a monthly basis since April 1996 (BLMP 2003, Almdale 2005). Bird counts are preformed within two hours of low tide when the mudflats are most exposed and shorebirds feeding on the mudflats are most numerous. Counts begin at the northern end of the lagoon and proceed south. Summer counts, when winter migrants are absent, take about one-half the time of winter counts.

During 109 monthly counts conducted between April 1996 and June 2005, 18,889 individuals of 94 bird species have been observed at Ballona Lagoon (Appendix A). As a group, shorebirds dominate the bird counts in Ballona Lagoon, accounting for 43% of the total number of individuals observed, followed by upland bird species (24%) and ducks (16%) (Almsdale 2005). Seven bird species each contributed 5% or more to the total abundance. Western sandpiper (*Calidris mauri)* contributed 16% to the total abundance with 3,065 individuals observed, followed by mallard (*Anas platyrhynchos*) with 10% (1,898 individuals), long-billed dowitcher (*Limnodromus scolopaceus*) with 9% (1,672), European starling (*Sturnus vulgaris*) with 9% (1,642), house sparrow (*Passer domesticus*) with 7% (1,354) and marbled godwit (*Limosa fedoa*) and least sandpiper (*Calidris minutilla*) each contributing about 5% to the total abundance with 994 and 970 individuals, respectively. Of these, the shorebirds, including the western and least sandpipers, the long-billed dowitcher and the marbled godwit, over winter and migrate through the area, but do not reside in southern California year-round (Hamilton and Willick 1996).

Seven species were observed in 80 or more of the surveys: mallard, observed in 101, or 93%, of the monthly surveys; European starling with 98 occurrences (90%); snowy egret (*Egretta thula*) with 93 occurrences (85%); willet (*Catoptrophorus semipalmatus*) with 91 occurrences

(83%); American Crow (*Corvus brachyrhynchos*) and killdeer (*Charadrius vociferous*) both with 86 occurrences (79%); and House Sparrow, observed during 80, or 73%, of the monthly surveys (Appendix A; Almsdale 2005). Altogether, 18 bird species were observed during at least one-half of the monthly surveys (Almsdale 2005). Of those, 44% were upland species, while shore birds and herons as groups each accounted for 22% of those birds that occurred most commonly. Four of the six heron species were among those birds most frequently observed at Ballona Lagoon.

The bird counts have remained fairly consistent over the sampling period (BLMP 2003). Bird count results were lowest, with only 26 individuals of 12 species observed in May 1997, following removal of vegetation in preparation for replanting. Highest species counts occurred in December 1997 and January 1998. Diversity of water and shore birds, specifically those species that feed on fish or invertebrates, has not increased following lagoon enhancement. Diversity of upland bird species, however, increased following revegetation, contributing to a slight overall increase in bird diversity at the lagoon.

Fifteen bird species considered sensitive, most as a result of loss of critical habitat, were observed during the monthly surveys at Ballona Lagoon (Appendix A). Two of those species, California brown pelican (*Pelecanus occidentalis californicus*) and California least tern (*Sterna antillarum browni*) are Federal and State-Listed Endangered species. Although commonly observed during the surveys, California brown pelican is unlikely to utilize the lagoon for foraging, preferring to feed in more open-water areas.

Shallow-water habitat, such as that found at Ballona Lagoon, is the preferred feeding habitat for California least tern. California least terns nest nearby in a protected breeding colony on Dockweiler Beach to the west. California least terns are plunge divers that dive head first into water to catch small fish, including California killifish (*Fundulus parvipinnis*) and topsmelt (*Atherinops affinis*). Studies conducted in the Venice Canals to the north of the lagoon correlated increased distance from the colony to decreased foraging activity (BLMP 2003). While the Venice Canals were found to contribute insignificantly to least tern foraging, the Ballona Lagoon, with a wider channel, less development, available prey species and proximity to the breeding colony is likely an important resource in maintaining the local nesting population.

Fishes. Wetlands, bays and estuaries in southern California serve as nursery areas for several fish species, including California halibut *(Paralichthys calfornicus*) (Cross and Allen 1993). Juveniles of non-commercial species and small fish species such as gobies (Gobiidae) dominate bay and estuarine assemblages, serving as forage for economically important fish and bird species.

Historically, fish assemblages in Ballona Lagoon were comprised of between seven and thirteen species (Deets et al. 2003, CERES 2003). Species collected prior to lagoon enhancement included the gobies longjaw mudsucker (*Gillichthys mirabilis*), shadow goby (*Quietula y-cauda*), arrow goby (*Clevelandia ios*), cheekspot goby (*Ilypnus gilberti*) and the introduced yellowfin goby (*Acanthogobius flavimanus*); flatfishes including diamond turbot (*Pleuronichthys guttulatus*), California halibut and an unidentified turbot (*Pleuronichthys* sp); California killifish; topsmelt; Pacific staghorn sculpin (*Leptocottus armatus*); striped mullet (*Mugil cephalus*); and shiner perch (*Cymatogaster aggregata*) (Deets et al. 2001). In the early surveys topsmelt dominated the fish abundance, accounting for over 80% of all individuals taken.

In 2000, monitoring of fish assemblages in Ballona Lagoon was conducted by seine sampling in two areas of the lagoon, near the tide gate and deep pool at the south end, and in an area about midway along the length of the lagoon. A total of 1,635 individuals of eight species were collected (Deets et al. 2001). As in the historical studies topsmelt dominated the fish catch, accounting for 67% of the total abundance with 1,108 individuals. Other species taken included: shadow goby (249 individuals); California killifish (235 individuals); bay pipefish (*Syngnathus leptorhynchus*, 23 individuals); longjaw mudsucker (12 individuals); bay blenny (*Hypsoblennius gentilis*, 3 individuals); Pacific staghorn sculpin (3 individuals); and diamond turbot (2 individuals).

Other fish species observed but not collected included: striped mullet; round stingray (*Urobatus halleri*); California halibut; juvenile kelp bass (*Paralabrax clathratus*); and opaleye (*Girella nigricans*). All fish species collect in 2000 are among those typically found in bays and estuaries throughout southern California (Allen 1985).

Intertidal and Subtidal Epibiota. The marine invertebrate community of the mudflats and shallow subtidal channels of Ballona Lagoon are not well described. In these environments combinations of physical and chemical stresses limit the biological diversity, and community structure is dominated by species adapted to these stressful conditions (MBC 1988). Intertidal and shallow invertebrate species often act as a food source for fish and bird species in wetlands communities, with abundant and diverse invertebrate assemblages likely to support a more diverse collection of those species that feed on them.

Observations of large invertebrate species prior to lagoon enhancement project generated a relatively short list of common invertebrate species typical of high intertidal mudflats in southern California embayments (Deets et al. 2001). Species observed included: California jackknife clam (*Tagelus californianus*); Pacific littleneck clam (*Protothaca staminea*); California horn snail (*Cerithidea californica*); yellow shore crab (*Hemigrapsus oregonensis*); wavy chione (*Chione undulata*); blue bay mussel (*Mytilus galloprovencialis*); and a polychaete (*Capitella capitata*). Seven species were found during sampling conducted in 1996, including unidentified hydroids, bivalves, and marine snails, and two-spotted octopus (*Octopus bimaculatus*) (CERES 2003).

Seining conducted at two stations in Ballona Lagoon in 2000 captured a total of 13 individuals of seven invertebrate species (Deets et al. 2005). Species collected included: yellow shore crab; California Venus clam (*Chione californiensis*); California bubble snail (*Bulla gouldiana*); blue bay mussel; Pacific gaper clam (*Tresus nuttalli*); and unidentified shrimp and anemone. Additional invertebrate species observed but not collected during the sampling included: fiddler crab (*Uca crenulata*); striped shore crab (*Pachygrapsus crassipes*); the opisthobranch *Navanax inermis*; the barnacle *Chthamalus* sp; an unidentified rock crab (*Cancer* sp); California horn snail; California sea hare (*Aplysia californica*); and many two-spotted octopus. High abundances of California horn snail were also observed on exposed mudflats during a site visit conducted in 2004.

Most of the invertebrates noted are relatively common on the mudflats and shallow subtidal channels in southern California embayments. Fiddler crabs, however, while not considered a sensitive species, are rare in southern California, primarily from habitat loss (Jensen 1995). Fiddler crabs occur on sand and mudflats in the high and middle intertidal of bays and estuaries (Morris et al. 1980). These crabs dig permanent burrows marked by the presence of mud or sand pellets near the entrance. Only the males have the single enlarged claw that they utilize to attract females and in contests with other males. The crabs feed by transferring sediments to their mouths with their small claws where the organic material is removed and the remaining sediment is rejected as a pellet.

Benthic Infauna. Benthic infauna are the macroscopic animals that live in the top layers of sediment of the ocean floor. Their distribution depends on interacting sediment and environmental variability. Of primary importance are sediment characteristics, which influence the abundance and composition of benthic communities (Gray 1974, Rhoades 1974). Grain size of the sediment, for example, determines a variety of infaunal habitat characteristics, including abrasion, amount of interstitial water, ease of burrowing, and materials for tube or burrow construction.

In the mid 1970s, despite reduced tidal exchange, the infauna community found in Ballona Lagoon was considered reasonably natural and healthy, comparable to assemblages found in larger and less impacted areas (MBC 1988). In late 2000, five replicate sediment grab samples each were collected at two stations in Ballona Lagoon, one in the newly constructed

deep pool near the tide gate and the other about halfway along the length of the lagoon (Deets et al. 2001). Although total numbers of individuals collected in the replicates at both stations were, number of species was found to be higher near the tide gate with an average of 17 species per replicate compared to an average of 10 species per replicate midway along the lagoon channel. Altogether 1,075 individuals of 59 invertebrate taxa were collected in the lagoon in 2000. The benthic infauna of the lagoon was dominated by polychaete annelids, bivalve and gastropod mollusks, and crustaceans, with the annelids *Cirriformia* sp BL1 and *Pseudopolydora paucibranchiata*, the amphipod *Grandidierella japonica*, and Pacific littleneck clam among the most abundant and most widely occurring species in the lagoon. Of the 51 species listed in the sampling report, 30 species were annelids, 11 were mollusks, seven were arthropods, and one member each of phoronid, cnidarian, and nemertean were taken. The infaunal assemblage was found to be more diverse than previously reported. Differences in samples appeared to be primarily related to sediment characteristics, with a slightly higher diversity near the deep pool at the south end of the lagoon were sediments were more heterogeneous (Deets et al. 2001, BLMP 2003).

Del Rey Lagoon

Del Rey Lagoon is a remnant of the mouth of Ballona Creek (WRA 1990). Early photographs show Ballona Creek flowing from the north (from the area of the present-day Ballona Lagoon) through the area of Del Rey Lagoon to an ocean outfall at the south side of the lagoon. Later photos showed increasing sedimentation and sand bar formation along the south end of the lagoon. By the 1950s, Ballona Creek channelization was complete and the Del Rey Lagoon was allowed to fill with sediment. The lagoon is now a small coastal pond separated from the Ballona Creek channel by a 40-ft wide levee. Periodic water exchange in the Dey Rey Lagoon is accomplished through a manually controlled tide gate at the north end of the lagoon connected to the tidally influenced portion of Ballona Creek. Additional exchange occurs on some high tides, when tidal elevation exceeds the invert level of the tide gate (Josselyn et al. No date)

Dey Rey Lagoon is surrounded by an urban park with highly manicured landscaping, lawns, a sandy beach, a picnic area, a small dock, and playing fields along the southern end of the lagoon on level parkland about 10 ft above the elevation of the lagoon (WRA 1990). Residential areas border the park on the west, south and east, and the site is managed by the Los Angeles Department of Parks. The northern end of the lagoon is fenced, limiting public access to the area. Landscaping is not maintained in the fenced section and vegetation in this area is generally weedy.

Water Quality. Water quality in the Del Rey Lagoon was characterized as poor to unhealthy in 1990 when the area was posted to avoid human contact (WRA 1990). The primary sources of water to Dey Rey Lagoon are urban runoff from the neighboring residential areas or tidal flow from Ballona Creek, which drains most of Culver City and surrounding communities. Storm water and urban runoff enters the lagoon through street drains that empty directly into the lagoon. Inflows into the lagoon from Ballona Creek occur only when the tide gate is periodically opened (in 1990, the tide gate was operated on a monthly basis), or on high tides when sea level exceeds the invert level of the tide gate. Surface water elevation in the lagoon is maintained to prevent inundation of the surrounding residential area during storm events. Salinity of the lagoon was found to be about 10 to 15 ppt lower than that found in offshore waters. Recent changes in tide gate management appear to have improved water quality in the lagoon. No postings were noted in a 2004 site visit.

Contaminants. Del Rey Lagoon receives street runoff from the surrounding community through from several storm drains. Contaminant sources in the area are similar to those of concern at Ballona Lagoon, including fertilizers plant control chemicals and oil residues that have accumulated on roads. Additional contaminants of concern in Del Rey Lagoon include pet waste and litter washed into the lagoon from park and street runoff.

Vegetation. The banks along the southern end of Del Rey Lagoon are landscaped and maintained as an urban park. Landscaping includes invasive and ornamental plantings such as lawns, palm and various shade trees, large bushes and pampas grass, and iceplant ground cover. On the northern end of the lagoon, the area is dominated by iceplant and weedy species along the banks. In 1990, no emergent wetland vegetation occurred at Del Rey Lagoon. However, several small clumps of vegetation that appeared to be pickleweed (*Salicornia* sp) were noted along the high water line at the northern end of the lagoon during a 2004 site visit.

In 2004, a band of green algae (*Enteromorpha* spp) was noted throughout the lagoon just above the water line, and several algal rafts, also likely *Enteromorpha*, were seen on the water surface. No other aquatic plant species were observed. In 1990, presence of aquatic vegetation and algae on the bottom of the lagoon was noted, but species were not identified (WRA 1990).

Water-Associated Birds. The Ballona wetland complex, including Del Rey Lagoon, is part of the Pacific Flyway, the corridor for birds flying between breeding grounds to the north and wintering sites to the south. The majority of birds found in the wetlands are migrants, and use the wetlands as a resting or feeding area, whereas others are winter visitors or migrants. Overall, bird abundance and biomass are generally higher in winter, when large numbers of northern migrants are present.

Del Rey Lagoon appears to be particularly attractive to waterfowl, which comprise the most commonly observed group of water-associated birds in the lagoon. Mallard, lesser scaup (*Aythya affinis*), American widgeon (*Anas penelope*), bufflehead (*Bucephala albeola,* California-ranked S?), brant (*Branta bernicla*) and domesticated ducks and geese have been observed consistently in the area, although some are found only in winter (SMBAS 1999, 2001; Audubon California 2005). Less commonly observed waterfowl include Canada goose (*Branta canadensis*), Ross's goose (*Chen rossii*) and white-fronted goose (*Anser albifrons*). Wading birds, including herons and egrets, are regularly observed foraging in the area in the early mornings (WRA 1990), and a least bittern (*Ixobrychus excilis,* California-ranked S1) was observed in the area in June 2005 (L.A. Times 2005). Other water-associated bird species, including American coot (*Fulica americana*), gulls and terns are also likely to be observed utilizing the area. A California least tern (Federal and California-listed endangered) nesting site is located nearby and the lagoon may occasionally be utilized for foraging.

Fishes. Wetlands, bays and estuaries in southern California serve as nursery areas for several fish species, including California (Cross and Allen 1993). Juveniles of non-commercial species and small fish species such as gobies dominate bay and estuarine assemblages, serving as forage for economically important fish and bird species.

The fish assemblage of Dey Rey Lagoon is expected to be similar to that found at Ballona Lagoon. The fish community is likely to be dominated by topsmelt, gobies and other small fish species, with lesser numbers of demersal predator fish species such as turbots and California halibut.

Intertidal and Subtidal Epibiota. The intertidal area of Del Rey Lagoon, unlike that of Ballona Lagoon, is not a distinct feature of the area. The banks of Del Rey Lagoon are for the most part fairly steep, and throughout most of the lagoon vegetation grows almost to the water line. On the south side of the lagoon, a more gradual beach is found, with sediments comprised of relatively hard-packed dry sand. These features are likely a result of limited water level variation in the lagoon. Soft, muddy sediments that support a community of specialized intertidal organisms, such as those found at Ballona Lagoon are unlikely to be found in Del Rey Lagoon without cyclic variability in water level in the lagoon.

Improvements in water exchange in the lagoon without variability in water level, however, are likely to lead to an increase in diversity of larger invertebrate species that are typical of

shallow, soft bottom embayments in southern California. Species likely to be found include mollusks such as snails, clams, and opisthobranchs, crabs and other crustaceans, and anemones and hydroids, with a species composition similar to that found in Ballona Lagoon.

Benthic Infauna. Benthic infauna are the macroscopic animals that live in the top layers of sediment of the ocean floor. Their distribution depends on interacting sediment and environmental variability. Of primary importance are sediment characteristics, which influence the abundance and composition of benthic communities (Gray 1974, Rhoades 1974). Grain size of the sediment, for example, determines a variety of infaunal habitat characteristics, including abrasion, amount of interstitial water, ease of burrowing, and materials for tube or burrow construction.

The marine invertebrate community of Dey Rey Lagoon is not well described, although the assemblage is expected to be similar to that found at Ballona Lagoon. The benthic infauna of the lagoon is likely to be dominated by polychaete annelids, bivalve and gastropod mollusks, and crustaceans, with differences in assemblages in the lagoon primarily related to sediment characteristics.

Dunes. Adjacent to Del Rey Lagoon to the south, between Pacific Ave. and Dockweiler State Beach, are several fenced, vegetated dunes. The dunes support a degraded Southern dune scrub habitat (California-ranked S1.1) dominated by invasive iceplant and to a lesser extent the native beach evening primrose. Other plants that occur in low abundance on the dunes include native beach-bur and introduced sea rocket (*Cakile maritime*). Sea-cliff buckwheat host plant of the El Segundo Blue Butterfly (a Federally-listed endangered species) was not noted in photographs taken of the dunes during a site visit conducted in 2004.

Vegetated southern California beach and dune areas are potential habitats for two sensitive beach-nesting bird species, California least tern (Federal- and California-listed endangered) and western snowy plover (*Charadrius alexandrinus nivosus,* Federal-listed threatened). California least terns nest nearby to the north in a protected breeding colony on Dockweiler Beach, but nesting is not known to occur in the dunes near Del Rey Lagoon (Keane, pers. comm. 2005a). In late 2004, the U.S. Fish and Wildlife Service proposed the establishment of western snowy plover critical nesting habitat on the beaches west of the Los Angeles International Airport approximately one-half mile to the south, but nesting in the area of the dunes has not been reported (USFWS 2004, Keane, pers. comm. 2005a, Clark pers. comm. 2005).

Sensitive, Threatened, And Endangered Species

Several species of plants or wildlife that occur (or could potentially occur) within Ballona and Del Rey Lagoons are listed by the federal and/or state governments as threatened or endangered. Additionally, some species are listed by government agencies and other entities as being of concern for various reasons. All marine mammals are protected by the Marine Mammal Protection Act, native birds by the Migratory Bird Treaty Act, and endangered plants and animals by the California Endangered Species Act.

Plants. Several species of sensitive native plants were noted in the Ballona Lagoon area: red sand-verbena, southwestern spiny rush, and woolly sea-blight are sensitive species found in small populations of limited distribution. Three other plants, south coast saltbush, pink sand-verbena, and California sea-blight are considered to be rare, threatened or endangered in California and elsewhere. Another native plant species, salt marsh bird's beak (*Cordylanthus maritimus* ssp. *maritimus*, Federal and California-listed endangered), no longer occurs at any of the wetlands in Santa Monica Bay (MBC 1993).

California sea-blight (Federally-listed Endangered Species; California-ranked S1.1; CNPS-listed 1B). California sea-blight is a federally-listed endangered coastal salt marsh species considered to be rare, threatened, or endangered as a result of habitat loss throughout its range

(CNDDB 2005). This is a multibranched species up to three feet tall with a woody base and small flowers that bloom in July through October (Munz 1964). California sea-blight was noted in the project area at Ballona Lagoon.

Pink sand-verbena (California-ranked S2.1; CNPS-listed 1B). Pink sand-verbena, as a result of habitat loss, is considered to rare, threatened or endangered in California and throughout its range (CNDDB 2005). Pink-sand verbena occurs on the higher areas of beach strands such as back beaches and dunes (Munz 1964), and was reported to occur in Ballona Lagoon (Jones 2003a). Pink sand-verbena is less succulent than red sand-verbena, with small deep to light pink flowers that appear from spring through autumn.

South coast saltbush (California-ranked S2.2; CNPS-listed 1B). This small herb is typically found in mildly disturbed habitats and was noted in the project at Ballona Lagoon (Jones 2003a). Typical habitat for south coast saltbush is coastal scrub, coastal bluff scrub and playas (CNDDB 2005). This species is subject to disturbance and is severely declining throughout its coastal range (Reiser 1994).

Red sand-verbena (California-ranked S3?; CNPS-listed 4). Red sand-verbena is one of three sand-verbenas native to coastal communities on the western United States (Munz 1964). Red sand-verbena is a fleshy, multibranched species with small dark red to purple flowers that bloom from February to October. This species is found on the lower coastal strand, with a range from Lower California to San Luis Obispo County, California. In the project area, red sand-verbena was observed to occur at Ballona Lagoon (Jones 2003a). Once widespread, this species now has only a limited distribution as a result of habitat loss (CNNDB 2005).

Southwestern spiny rush (California-ranked S3.2; CNPS-listed 4). Southwestern spiny rush is a coastal salt marsh species with a limited distribution as a result of habitat loss (CNDDB 2005). This species forms large tufts of stiff stems 2- to 4-ft tall, with small clusters of flowers (Munz 1964). This species is native to coastal salt marshes from Lower California to San Luis Obispo County, California, and occurs in the project area at Ballona Lagoon (Munz 1964, Jones 2003a).

Woolly sea-blight (California-ranked S2, S3; CNPS-listed 4). Woolly sea-blight is native to coastal bluff scrub, marshes and swamps in California (CNDDB 2005). Loss of habitat has limited the distribution of this species in California. In the project area woolly sea-blight was noted in Ballona Lagoon (Jones 2003a).

Insects. Sensitive insect species known to occur in the Marina del Rey area, and that may potentially be found in the project area, include two species of butterflys, the Federally-listed endangered El Segundo Blue Butterfly and the wandering or saltmarsh skipper. Both butterflys are associated with host plant species that are known to occur in Ballona Lagoon plant community. Historically three sensitive insect species, Dorothy's El Segundo Dune weevil (*Trigonoscuta dorothea dorothea,* California-ranked S1*),* Belkin's dune tabanid fly (*Brennania belkini,* California-ranked S1S2) and globose dune beetle (*Coelus globosus,* California-ranked S1), were reported to occur on the dunes of South Dockweiler State Beach (CNDDB 2005). Recent occurrence of these species in the area has not been corroborated.

El Segundo Blue Butterfly (Federally-listed Endangered Species, California-ranked S1). The El Segundo blue is a small butterfly with only one generation per year (Hogue 1993). Adults fly from mid-July to September, with the adult emergence coinciding with the peak flowering of sea-cliff buckwheat, a major nectar source for the adults. The small caterpillars feed on the buckwheat blossoms, whose color and pattern they resemble. The caterpillars are present from August through September, with pupation occurring in the sand at the base of the plant.

The El Segundo blue was recognized as a distinct species in 1975 and designated as a federally endangered species in 1976 (Hogue 1993). Habitat for the El Segundo blue is extremely

limited with the population existing in two remnants of the formally extensive El Segundo Dunes near the beach to the west of the Los Angeles International Airport. Proximity of this habitat to the project area, along with the occurrence of the host plant species at Ballona Lagoon, suggests that the El Segundo blue butterfly could potentially occur in the project area.

Wandering (=saltmarsh) skipper (California-ranked S1). This species exists only in coastal salt marshes dependent on its host salt grass (*Distichlis spicata*) for survival (Hogue 1993). Adults are medium sized and a medium brown in color. Caterpillars are deep green with dark and light striping. The caterpillars feed on salt grass, metabolically able to tolerate high salt levels in the host. Pupa attach to the host by a girdle and a silk button.

Small populations of wandering skippers are known to occur at Ballona Creek, at the Venice Canals and in other areas of the Ballona Wetland Complex where salt grass occurs (Hogue 1993, CNDDB 2005). Presence of the host species at Ballona Lagoon suggests that wandering skipper is likely to occur in the project area.

Birds. California least tern is one of the most common of the sensitive species found in the project area, nesting in a protected breeding site on North Dockweiler State Beach and feeding in shallow waters throughout the area. Western snowy plover, another beach nesting species, is known to occur in the project area in winter, feeding on lower beaches and tidal flats. Summer nesting in the project area is not reported, but critical nesting habitat designation is proposed for Dockweiler State Beach south of the proposed project area. California brown pelican is commonly observed in the area, but is not likely to use local lagoons for foraging, preferring more open-water areas such as Marina del Rey and nearshore coastal areas for feeding. Belding's savannah sparrow requires pickleweed habitat and is known to occur in the Marina del Rey area. Although not noted during monthly sampling in the area, Belding's savannah sparrow could potentially be found foraging in or nesting near Ballona Lagoon. Fourteen additional species of bird observed in the project area are considered to be sensitive by the California Department of Fish and Game. Although several of these birds are considered to secure in California, most are included as a result of loss of critical species habitat.

California Least Tern (Federal and California-listed Endangered Species). California least terns nest colonially on sandy beaches and prefer to forage in quiet bays and lagoons, though they also forage on the open coast. They migrate to Southern California from Central and South America to breed between April and September. This species is listed as endangered primarily because of human disturbance of its nesting habitat. California least terns feed primarily on small fish such as northern anchovy (*Engraulis mordax*), topsmelt, jacksmelt (*Atherinopsis californiensis*), and California grunion (*Leuresthes tenuis*) (Atwood and Kelly 1984).

This species has nested in the project area since at least 1919, with nesting on the beach north of Ballona Creek by three pairs of birds first occurring in 1977 (Keane 2005b). This area on Dockweiler State Beach is now enclosed by protective fencing and has become one of two permanent California least tern nesting sites in Los Angeles County. Nesting pairs at the site increased to 158 by 1980, to 206 in 1990 and to 303 in 1998. From 1978 through 1994 the site contributed over 10% of the fledglings for all nesting sites in the state. Breeding success in the area has declined since 1996 when American crows became major predators in the area, with less than 0.5 fledgling per nest produced since then. Nesting in the site produced no chicks in 1999, 2001, 2004, and 2005.

California Brown Pelican (Federal and California-listed Endangered Species). California brown pelicans nest on some of the Channel Islands and in Mexico. They occur along the California coast year-round, but numbers increase greatly with the influx of post-breeding birds in summer. This species was listed as endangered primarily because of it low reproductive success attributed to egg-shell thinning as a consequence of pesticide contamination. Following prohibition of the use of DDT in 1970, the population largely recovered. Brown pelicans are

plunge-divers, feeding on fish primarily in open waters. Northern anchovy comprises a significant portion of the brown pelican's diet.

California brown pelicans were frequently observed during bird surveys conducted at Ballona Lagoon (Appendix A). While common in the area, California brown pelicans are not likely to use local lagoons for foraging, preferring more open-water areas such as Marina del Rey and nearshore coastal areas for feeding.

Belding's savannah sparrow (California-listed Endangered Species, California-ranked S3). This species is listed as endangered due to draining and filling of coastal salt marshes. This species is nonmigratory, living year-round among pickleweed in coastal salt marshes along the coast of Southern California. Preferred food items include insects and the succulent growing tips of plants (Thelander and Crabtree 1994). The breeding range in California includes 27 sites from Santa Barbara County to the Baja California border, with the largest populations occurring in Mugu Lagoon (Ventura County), Upper Newport Bay (Orange County), and Tijuana Marsh (San Diego County).

A small population of Belding's savannah sparrow is known to occur and nest in the Ballona Wetland adjacent to Ballona Creek east of the project area (CNDDB 2005). Although not observed in Ballona Lagoon during monthly surveys in the area, proximity of this habitat to the project area along with the occurrence of pickleweed at Ballona Lagoon suggest that Belding's savannah sparrow could potentially occur in the project area. As the Ballona Lagoon enhancement project progresses the species may become established in the area.

Western snowy plover (**Federally-listed Threatened Species, California-ranked S2).** The Pacific Coast breeding population of the western snowy plover is threatened throughout its range by loss and disturbance of nesting sites. Poor reproductive success, resulting from human disturbance, predation, and inclement weather, combined with permanent or long-term loss of nesting habitat and encroachment of introduced European beachgrass and urban development, has led to a decline in active nesting colonies, as well as an overall decline in breeding and wintering population of the western snowy plover

The Pacific Coast population of western snowy plovers includes both resident and migratory birds. They breed primarily on coastal beaches from southern Washington to southern Baja California, Mexico (USFWS 2004). Sand spits, dune-backed beaches, beaches at creek and river mouths, and saltpans at lagoons and estuaries are the preferred habitats for nesting. Twenty of the 28 known breeding sites in the United States occur in California, with larger concentrations of breeding birds occurring to the south. Snowy plovers nest in loose colonies and nest sites typically occur in flat, open areas with sandy or saline substrates and sparse vegetation. The breeding season extends from March through September, while the wintering season is generally from October to February, with some overlap occurring between the seasons. Western snowy plover chicks are precocial and need access to the lower beach to forage almost immediately after hatching.

Western snowy plover use of the beaches in the project area by winter migrants has been observed, but recent nesting in area has not been recorded (Keane, pers. comm. 2005a, Clark pers. comm. 2005). In late 2004, the U.S. Fish and Wildlife Service proposed the establishment of western snowy plover critical nesting habitat (Dockweiler, North, CA-21B) to the south of the project area on the beach west of the Los Angeles International Airport (USFWS 2004).

Least bittern (California-ranked S1). Least bitterns, among the smallest of the herons, forage along the edges of freshwater and brackish marshes while clinging to cattails and reeds with its long toes (Kaufman 1996). Because of its size and habits, this heron is easy to overlook. More common in the eastern United States, the species has declined in many areas as a result of loss of marsh habitats.

Rufous Hummingbird (*Selasphorus rufus* California-ranked S1,S2). This small hummingbird nests from northern California north through Alaska and overwinters in Mexico (Kaufman 1996). In southern California, this species is observed primarily during its spring migration from February to May, and in late summer on its way south (Hamillton and Willick 1996). There has been a slight decline in the species in recent decades, and state ranking is likely related to concerns of change in the bird's nesting habitat (Kaufman 1996, CNDDB 2005).

Black Skimmer (*Rynchops niger*, California-ranked S1,S3). Black skimmers feed by feel rather than by sight as is common in terns (Kaufman 1996). Black skimmers commonly feed on fish by skimming the water while flying, furrowing the water with the lower mandible. When contact with a fish is made, the upper mandible immediately snaps shut. Most common in southern California in summer, black skimmers nest colonially on beaches, gravel bars and unvegetated areas along the southern California coast and at the Salton Sea (CNDDB 2005, Kaufman 1996). The species has recovered from commercial hunting and egg collecting in the late 1800s, but the nesting colonies are still very sensitive to disturbance.

California Gull (*Larus californicus,* California-ranked S2). A common winter visitor, juvenile California gulls are still found in southern California during the summer when most of the adult population has migrated to breed (Hamilton and Willick 1996, Kaufman 1996). Nesting occurs on the ground, occasionally in large mixed-gull colonies (Kaufman 1996). Nesting occurs near large freshwater or strongly alkaline lakes throughout west-central North America (CNDDB 2005. Disturbance and loss of nesting habitat had led to a decline in the species, but the population has increased in recent decades.

Double-crested Cormorant (*Phalacrocorax auritus*, California-ranked S3). Although generally more abundant in winter, non-breeding double-crested cormorants are fairly common in summer, and some breeding does occur in southern California (Hamilton and Willick 1996). Double-crested cormorants feed on fish and other aquatic species by diving from the surface and swimming underwater to pursue their prey. The population of double-crested cormorants was reduced by disturbance of the nesting colonies through the 1920s, with a gradual increase through the 1960s when pesticides impacted the population (Kaufman 1996). Following the ban of DDT the population has continued to increase.

Black-crowned Night Heron (*Nycticorax nycticorax*, California-ranked S3). Black-crowned night herons are most commonly observed roosting in trees near water during the day. This species feeds actively at night in a wide variety of aquatic habitats, foraging along the water edges often from rocks or along piers and pilings. In southern California, black-crowned night herons nest in occasionally mixed colonies in trees near foraging areas. The population probably declined in the 20th century as a result of habitat loss and the effects of DDT and other pesticides, but currently the population is probably stable or increasing (Kaufman 1996).

Great Blue Heron (*Ardea herodias*, California-ranked S4). Great blue herons are large and common birds, frequently observed stalking fish and other prey in southern California wetlands (Kaufman 1996). The local population primarily consists of permanent residents, although they are slightly more abundant in winter with the addition of migrating individuals. Although variable in southern California great blue herons generally nest colonially in treetops near water. The species is considered secure in California, but nesting colonies are subject to disruption by human disturbance.

Great Egret (*Ardea alba,* California-ranked S4). This species was nearly exterminated in the 1800s when its feathers were fashionable for women's hats, but recovered well following conservation efforts in the early 20th century (Kaufman 1996). Similar to great blue herons, great egrets are commonly seen foraging in shallow water along the edges of wetlands. A resident population occurs in southern California, and like most herons in southern California is slightly more abundant in winter. The species is considered secure in California, but the species may be declining in other areas of the United States.

Snowy Egret (*Egretta thula*, California-ranked S4). Snowy egret is a relatively small egret commonly observed foraging in marshes and open fields. The resident population nests in colonies that are subject to human disturbance. Throughout its range, snowy egrets generally disperse north following breeding, and are generally less common in southern California in summer (Nat. Geo 2002, Hamilton and Willick 1996, Kaufman 1996). The species is still expanding its range and increasing its population following near decimation in the late 1800s.

Caspian Tern (*Sterna caspia*, California-ranked S4). The largest of the terns, this species is most common in summer, nesting locally in mixed colonies in protected areas with other ground-nesting tern species. Caspian terns are plunge divers, flying low or hovering over water, then plunging head-first into the water to catch small fish below the surface. In winter, the local breeding population migrates south, to be replaced by fewer numbers of inland breeders (Nat. Geo 2002, Hamilton and Willick 1996, Kaufman 1996). While the population is stable, the ground-nesting habit of the species is easily susceptible to disturbance.

Forster's Tern (*Sterna forsteri*, California-ranked S4). Forster's terns are year-round residents in southern California, nesting in summer in loose colonies in protected areas with other ground-nesting tern species (Nat. Geo 2002, Hamilton and Willick 1996, Kaufman 1996). More marsh oriented than most terns, this species plunge dives for fish and other small prey species and may dip the water surface or take insects in flight. Forster's terns have declined in some areas as a result of loss or degradation of marsh habitat.

Loggerhead Shrike (*Lanius ludovicianus*, California-ranked S4) This predatory songbird is fairly common throughout the year in southern California, with numbers generally slightly higher in winter (Hamilton and Willick 1996). The loggerhead shrike prefers open terrain in lower coastal areas, often nesting in dense vegetation along habitat edges. The loggerhead shrike population has been in decline for several decades and the species is now extirpated from some areas of its former range (Kaufman 1996). The reason for the continuing decline is not poorly understood, possibly related to pesticide use and habitat loss.

Western Grebe (*Aechmophorus occidentalis*, California-ranked S?). Western grebe is a gregarious species abundant in the nearshore waters of southern California in winter (Nat. Geo 2002, Hamilton and Willick 1996). This species breeds in colonies in shallow-water marshes throughout central North America where it makes nests of floating plant material. Western grebe is loosing breeding habitat in some locations (Kaufman 1996).

Bufflehead (**California-ranked S?).** This is a small duck that winters in southern California, but nests in woodlands near small ponds and lakes throughout much of Canada and Alaska (Nat. Geo 2002). Although still relatively common, because of hunting and loss of nesting habitat the species is much less numerous than historically (Kaufman 1996).

Significant Ecological Areas

The entire Ballona Lagoon has been designated as an Environmentally Sensitive Habitat Area by the city of Los Angeles (Jones 2003b). Several coastal vegetation community types were identified in the Ballona Lagoon area during the vegetation survey (Jones 2003b). Coastal Salt Marsh is characterized by vegetation that occupies intertidal areas and is periodically inundated by rising tides. Coastal Strand is characterized by vegetation typical of upland, beach and dune

habitats. Coastal Sage Scrub habitat includes those species typically found higher, above the Coastal Strand community. In addition, the California Natural Diversity Database (CNDDB) identifies two important habitats, similar to those mentioned above, in the project area.

Southern Coastal Salt Marsh (California-ranked S2.1). Southern Coastal Salt Marsh is characterized by vegetation that occupies intertidal areas and is periodically inundated by rising tides. In southern California, coastal salt marshes are typified by a pickleweed community. Other common community species may include Pacific cordgrass (*Spartina foliosa*), alkali heath salt grass, or saltwort (*Batis maritime*). Southern Coastal Salt Marsh has been identified at the mouth of Ballona Creek (CNDDB 2005) and at Ballona Lagoon. The state ranking identifies that this community has been reduced to between 2,000 and 10,000 acres and that the habitat is very threatened.

Southern Dune Scrub (California-ranked S1.1). Southern Dune Scrub is included in part in the Coastal Strand habitat identified in Ballona Lagoon (Jones 2003b). Southern Dune Scrub is typified by upland shrub species. In the project area this community is dominated by California heath-goldenrod (*Ericameria ericoides*), bladderpod (*Isomeris arborea*), lemonadeberry (*Rhus integrifolia*) and sea-cliff buckwheat (CNDDB 2005). This habitat is found locally at Ballona Lagoon and the El Segundo Dunes to the south of the project area.

REGULATORY SETTING

There are several State and Federal laws that apply specific quantitative and qualitative objectives to water quality parameters. The 1972 amendments to the Federal Water Pollution Control Act (the Clean Water Act) prohibit the discharge of pollutants to waters of the U.S. without a permit. Section 401 of the Clean Water Act created the National Pollutant Discharge Elimination System (NPDES) to enforce effluent limitations. The NPDES program prohibits the point-source discharge of pollutants unless an NPDES discharge permit has been obtained. The ultimate goal of the NPDES program is the complete elimination of all discharges.

The NPDES program was expanded in 1987 to regulate stormwater discharges (runoff) originating from municipal and industrial sources. Currently, the State Water Resources Control Board (SWRCB) applies the General Construction Activities Storm Water Permit (GCASP) to all stormwater discharges associated with construction activities. The GCASP pertains to construction projects of one acre or more, and usually requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPP) and Best Management Practices (BMPs) to reduce and/or eliminate pollutant discharges.

Specifically, the GCASP requires all dischargers where construction activity disturbs one acre or more to:

- Develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies Best Management Practices (BMPs) that will prevent all construction pollutants from contacting stormwater, with the intent to keep all products of erosion from moving offsite into receiving waters;

- Eliminate or reduce non-stormwater discharges to storm sewer systems and other waters of the United States; and

- Perform inspections of all BMPs.

On 19 August 1999, the SWRCB reissued the GCASP (Order No. 99-08-DWQ). Several parties filed a petition for writ of mandate challenging the permit in the Superior Court, County of Sacramento. The Court issued a judgement and writ of mandate on 15 September 2000, which directed the SWRCB to modify the provisions of the GCASP to require permittees to implement

specific sampling and analytical procedures to determine whether BMPs implemented on a construction site are:

- Preventing further impairment by sediment in stormwater discharged directly into water listed as impaired for sediment or silt.

- Preventing other pollutants on construction sites that are known or should be known by permittees, and that are not visually detectable in stormwater discharges, from causing or contributing to exceedances of water quality objectives.

Monitoring provisions in the GCASP were modified pursuant to this order.

The General Industrial Activities Storm Water Permit (GIASP) applies to those stormwater discharges not covered by the GCASP or NPDES permits. It was originally issued by the SWRCB on 19 November 1991 (Order No. 02-01-DWQ), but has been modified since that time. Similar to the GCASP, the GIASP requires dischargers to:

- Develop and implement a SWPPP to reduce or prevent industrial pollutants in stormwater discharges.

- Eliminate unauthorized non-stormwater discharges.

- Conduct visual and analytical stormwater discharge monitoring to indicate the effectiveness of the SWPPP in reducing or preventing pollutants in stormwater discharges.

On 26 January 2000, the LARWQCB adopted and approved Board Resolution R-00-02, requiring the development and significant redevelopment projects in Los Angeles County to control the discharge of stormwater pollutants in post-construction stormwater. The Executive Officer issued the approved Standard Urban Stormwater Mitigation Plans (SUSMPs) on 8 March 2000.

The City of Los Angeles is covered under the Permit for Municipal Stormwater and Urban Runoff Discharges within Los Angeles County (LARWQCB Order No. 01-182) and is obligated to incorporate provisions of this document in City permitting actions. The municipal permit incorporates SUSMP requirements and these include implementation of treatment control BMPs for projects falling within certain development/redevelopment categories. These requirements apply to the project and include the retention, infiltration, and/or treatment of runoff from the first 0.75 inch of rainfall (or equivalent numerical design criteria) prior to its discharge to a stormwater conveyance system.

Biological resources are regulated by several federal, state, and local agencies. Principal authority for these resources rests with the local jurisdictions (the City of Los Angeles, for example). However, other agencies share jurisdiction over a number of habitats and resources. Trustee agencies have jurisdiction over certain resources held in trust for the people of California, but do not have legal authority over approving or carrying out a specific project (CEQA Guidelines, Section 15386). Under the California Environmental Quality Act (CEQA), the CDFG is a trustee agency with regard to fish and wildlife, rare or endangered native plants, game refuges, ecological reserves, and other areas administered by the department. The CDFG also has authority over species and habitats listed under the California Endangered Species Act of 1970, while the U.S. Fish and Wildlife Service has regulatory authority over federally endangered species pursuant to the Endangered Species Act of 1973. The U.S. Army Corps of Engineers has regulatory authority pursuant to Section 404 of the Federal Clean Water Act of 1977, which not only pertains to dredging and filling projects in U.S. waters, but expands the Corps jurisdiction to include isolated wetlands and habitats used by migratory birds and endangered species.

Special-status species are those plants and animals afforded protection by the California Endangered Species Act and/or the Endangered Species Act, but may also include those species that fall in one or more of the following categories:

- Species proposed for listing as threatened or endangered under the state or federal Endangered Species Acts,
- Plants protected under California Fish and Game Code, Section 1900 et seq.,
- Animals fully protected under California Fish and Game Code
- Plant and animal species designated by the California Department of Fish and Game as being “of special concern”.

In addition, certain habitats may be protected if they meet certain criteria, including their support of sensitive species or their relatively limited occurrence.

Applicable Regulations

Clean Water Act. The Clean Water Act (CWA) of 1972 was designed to restore and maintain the physical, chemical, and biological integrity of the nation’s waters. Sections of the CWA control the discharge of wastes and pollutants into aquatic environments. Section 404 of the CWA established a program to regulate dredging and/or filling in U.S. waters. Under Section 404, the U.S. Army Corps of Engineers (COE) can issue two types of permits: a general permit or an individual permit. The general permit is a type of permit issued to the public at large on a regional or national basis, and is only issued when the activities would cause only minimal direct or cumulative impacts. An individual permit is required for an applicant that wishes to conduct activities not already allowed under a general permit.

Rivers and Harbors Appropriations Act of 1899. The Rivers and Harbors Appropriations Act of 1899 authorizes the COE to exercise control over all construction projects in U.S. navigable waters. The Rivers and Harbors Act was originally designed with the intent to protect navigation and navigable capacity. These objectives were later expanded to include environmental protection. The key provision to this Act is Section 13, which makes it a crime to discharge refuse into any navigable water without the permission of the COE.

Federal Endangered Species Act. The Federal Endangered Species Act (ESA) of 1973 prohibits direct harm to species that have been designated by the Environmental Protection Agency (EPA) as threatened or endangered. The ESA provides protection to protected species as well as their habitats. Section 7 of the ESA requires that consultation regarding protection of such species be conducted with the U.S. Fish and Wildlife Service (USFWS) and/or the National Marine Fisheries Service (NMFS) prior to project implementation.

Magnuson-Stevens Fishery Conservation and Management Act. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) was authorized in 1996 and requires the NMFS to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a federal fisheries management plan. Essential Fish Habitat is defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Specifically, the MSA requires: (1) Federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that could adversely affect EFH; (2) NMFS to provide conservation recommendations for any federal or state action that could adversely affect EFH; and (3) Federal agencies to provide a detailed response in writing to NMFS within 30 days of receiving EFH conservation recommendations.

The proposed project is located within an area designated as EFH for both the Coastal Pelagics and Pacific Groundfish Management Plans.

Migratory Bird Treaty Act. The Migratory Bird Treaty Act states "it is unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, kill, attempt to take, capture, or kill…any migratory bird, any part, nest, or eggs of any such bird…included in the terms of the conventions between the United States and Great Britain for the protection of migratory birds concluded August 16, 1916 (39 Stat. 1702), the United States and the United Mexican States for the protection of migratory birds and game mammals concluded February 7, 1936, and the United States and the Government of Japan for the protection of migratory birds and birds in danger of extinction, and their environment concluded March 4, 1972."

California Fish and Game Code, Section 1700. Section 1700 of the Fish and Game Code encourages the conservation, utilization, and maintenance of oceanic biological resources for the benefit of the public. The state will promote the development of local and distant-water fisheries in California under international law. Objectives include the maintenance of populations of all species of aquatic organisms to ensure their continued existence and support reasonable use.

California Endangered Species Act. Similar to the Federal ESA, the California ESA provides protection to species considered threatened or endangered by the State of California. The California ESA recognizes the importance of threatened and endangered fish, wildlife, and plant species and their habitats, and prohibits the taking of any endangered, threatened, or rare plant and/or animal species unless specifically permitted for education or management purposes.

PROPOSED ALTERNATIVES

Marquesas Way/Via Marina. From the Pumping Plant on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeast on Via Marina to the Marina del Rey entrance channel. It would then cross under the Marina del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview Street. This alignment is about 10,400 feet long. This is the preferred alignment.

Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview Street. This alignment is the shortest route – about 10,000 feet.

Dockweiler Beach to Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina del Rey and Ballona Creek channels, and continue south within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview Street. This alignment is about 10,400 feet long.

Dockweiler Beach Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina del Rey and Ballona Creek channels, and continue south within the beachfront easement to a point that aligns with Vista Del Mar near Waterview Street, then southeast to the junction structure in Vista Del Mar near Waterview Street. This alignment is approximately 10,000 feet long.

Lagoon Alignment. This alternative alignment assumes the construction of the proposed 54-inch force main entirely by tunneling from the VPP to Vista Del Mar. The alignment would follow the Grand Canal southerly to the Marina channel and Ballona Creek and continue via tunneling to the Pacific Avenue alignment southerly to the Vista Del Mar terminus.

Construction Methods. The alignments under consideration cross the Marina del Rey entrance channel and Ballona Creek channel, requiring a minimum of about 1,800 feet of tunneling under the two channels. Three alternative construction methods are under consideration: open trench, micro-tunneling, and deep tunneling. While open trench construction costs less, micro-tunneling would eliminate the majority of the surface impacts to water quality or marine resources and can facilitate mitigation of other impacts such as noise. Like micro-tunneling, deep tunneling would eliminate many surface impacts and facilitate mitigation of impacts during construction.

PROJECT IMPACTS

Thresholds Of Significance

Water Quality. The significance criterion applied to water quality is based on guidelines established by the City of Los Angeles (1998). In the present evaluation, a significant effect on water quality in the vicinity of the proposed project would normally occur if the project resulted in one or both of the following:

> The project would cause discharges that create pollution, contamination or nuisance as defined in Section 13050 of the California Water Code;
>
> The project would cause regulatory standards to be violated, as defined in the applicable NPDES stormwater permit or Water Quality Control Plan for the receiving water body;
>
> The project would cause creation of site conditions that may result in soil erosion and sediment runoff during construction or following project completion.

"Pollution" is defined as an alteration of the quality of the waters of the state to a degree which unreasonably affects either (1) the waters for beneficial uses, or (2) facilities which serve these beneficial uses. "Contamination" is an impairment of the quality of the waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through spread of disease. Contamination also includes any equivalent effect resulting from the disposal of waste, whether or not the waters of the state are affected. Lastly, "nuisance" refers to anything which: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; and (3) occurs during, or as a result of, the treatment or disposal of wastes.

Biota. Thresholds of significance for effects on biota and habitats have been established by the City of Los Angeles (1998). In this evaluation, a significant effect on biota and/or habitats in the vicinity of the proposed project would normally occur if the project resulted in one or more of the following:

> The loss of individuals, or the reduction of existing habitat, a state or federal listed endangered, threatened, rare, protected, candidate, or sensitive species, or a species of special concern;
>
> The loss of individuals or the reduction of existing habitat of a locally designated species or a reduction in a locally designated natural habitat or plant community.

Permanent Impacts

Marquesas Way/Via Marina. This alignment would pass under Ballona Creek/ Grand Canal from the pumping station at Hurricane St., along Marquesas Way, then southeast on Via

Marina to the Marina del Rey entrance channel. It would then cross under the Marina del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview St. Tunneling associated with this alignment would pass under Ballona Creek/ Grand Canal, Marina del Rey and Ballona Creek, while additional construction and tunneling launch and receiving sites would be located within close proximity (100 ft to 1,000 ft) of Ballona Creek/ Grand Canal, Marina del Rey, Ballona Creek, Dey Rey Lagoon and the dunes adjacent to Del Rey Lagoon. While temporary impacts associated with construction are possible, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview St. Tunneling associated with this alignment would pass under Marina del Rey and Ballona Creek, with most of the construction activities, including tunneling launch and receiving sites, located within about 200 ft of Ballona Creek/ Grand Canal, Marina del Rey, Ballona Creek, Dey Rey Lagoon or the dunes adjacent to Del Rey Lagoon. While temporary impacts associated with construction are possible, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

Dockweiler Beach to Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina del Rey and Ballona Creek channels, and continue south within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview St. Tunneling associated with this alignment would pass under Marina del Rey and Ballona Creek, while additional construction and tunneling launch and receiving sites would be located within of 500 ft of Ballona Creek/ Grand Canal, and less than 200 ft of Marina del Rey, Ballona Creek, Dey Rey Lagoon and the dunes adjacent to Del Rey Lagoon. In addition, this alignment passes within 200 ft of a protected California least tern nesting site on Dockweiler Beach. While temporary impacts associated with construction are possible, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

Dockweiler Beach Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina del Rey and Ballona Creek channels, and continue south along Dockweiler State Beach, turning southeast to a junction structure in Vista Del Mar near Waterview St. This alignment would run under Dockweiler State Baech for most of the length. Tunneling associated with this alignment would pass under Marina del Rey and Ballona Creek. Construction and tunneling launch and receiving sites would be located within of 500 ft of Ballona Creek/ Grand Canal, and about 200 ft from Marina del Rey, Ballona Creek, Dey Rey Lagoon and the dunes adjacent to Del Rey Lagoon. In addition, this alignment passes within 200 ft of a protected California least tern nesting site on Dockweiler State Beach Beach. While temporary impacts associated with construction are possible, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

Lagoon Alignment. This alternative alignment assumes the construction of the proposed 54-inch force main entirely by tunneling from the VPP to Vista Del Mar. The alignment would follow the Grand Canal southerly to the Marina channel and Ballona Creek and continue via tunneling to the Pacific Avenue alignment southerly to the Vista Del Mar terminus. Deep tunneling

associated with this alignment would pass under Marina del Rey and Ballona Creek, with most of the construction activities occurring in the immediate vicinity of the tunneling sites located within about 200 ft of Ballona Creek/ Grand Canal and near the Vista Del Mar terminus. While temporary impacts associated with construction are possible, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the project area are anticipated from this alignment.

Construction Alternatives. The alignments under consideration cross the Marina del Rey entrance channel and Ballona Creek channel, requiring a minimum of about 1,800 feet of tunneling under the two channels. Additionally the Marquesas Way/Via Marina alignment would require tunneling under Ballona Creek/ Grand Canal. Three alternative construction methods are under consideration: open trench, micro-tunneling and deep tunneling. All three methods share the potential to impact the local resources through a combination of physical disturbance, noise and releases of excavated sediments and water into the local environment. Tunneling construction methods have the advantage of reducing these impacts by limiting construction activities to the launch and receive sites, while trenching could lead to impacts along the entire project length. While temporary impacts associated with all three construction methods are possible, the proposed project is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat in the area. No permanent impacts to the water quality or marine resources in the project area are anticipated from either construction method.

Temporary Impacts

Marquesas Way/Via Marina. This alignment would pass under Ballona Creek/ Grand Canal from the pumping station at Hurricane St., along Marquesas Way, then southeast on Via Marina to the Marina del Rey entrance channel. It would then cross under the Marina del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview St. Tunneling associated with this alignment would pass under Ballona Creek/ Grand Canal, Marina del Rey and Ballona Creek, while additional construction and tunneling launch and receiving sites would be located within close proximity (100 ft to 1,000 ft) of Ballona Creek/ Grand Canal, Marina del Rey, Ballona Creek, Dey Rey Lagoon and the dunes adjacent to Del Rey Lagoon. Temporary impacts associated with construction include physical disturbance, noise and releases of excavated sediments and water into the local environment. No physical disturbance of local resources is anticipated. Noise is most likely to impact bird use in the construction areas. Bird use in the project area is greatest at Ballona Lagoon where construction will be several hundred feet from the lagoon and separated by a residential area. Noise impacts area are expected to be minimal. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the local environment. Implementation of BMPs will be required for all construction phases to minimize impacts.

Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview St. Tunneling associated with this alignment would pass under Marina del Rey and Ballona Creek, with most of the construction activities, including tunneling launch and receiving sites, located within about 200 ft of Ballona Creek/ Grand Canal, Marina del Rey, Ballona Creek, Dey Rey Lagoon or the dunes adjacent to Del Rey Lagoon. Temporary impacts associated with construction include physical disturbance, noise and releases of excavated sediments and water into the local environment. No physical disturbance of local resources is anticipated. Noise is most likely to impact bird use in the construction areas. Bird use in the project area is greatest at Ballona Lagoon where construction will be about 200 ft from the lagoon and separated by a residential area. Noise impacts area are expected to be minimal. Temporary impacts to water quality and marine resources could occur

through the unintentional release of excavated sediments and water into the local environment. Implementation of BMPs will be required for all construction phases to minimize impacts.

Dockweiler Beach to Pacific Avenue Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina del Rey and Ballona Creek channels, and continue south within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview St. Tunneling associated with this alignment would pass under Marina del Rey and Ballona Creek, while additional construction and tunneling launch and receiving sites would be located within of 500 ft of Ballona Creek/ Grand Canal, and less than 200 ft of Marina del Rey, Ballona Creek, Dey Rey Lagoon and the dunes adjacent to Del Rey Lagoon. In addition, this alignment passes within 200 ft of a protected California least tern nesting site on Dockweiler Beach. Temporary impacts to the least California tern nesting site are addressed by Keane (2005b). Physical disturbance of the upper strand of Dockweiler State Beach is anticipated in this alignment. This area of the beach is groomed and has substantial human disturbance, suggesting that construction disturbance is likely to result in little additional impact. Noise is most likely to impact bird use in the construction areas. Other than at the California least tern nesting area, bird use in the project area is greatest at Ballona Lagoon where construction will be about 500 ft from the lagoon and separated by a residential area. Noise impacts are expected to be minimal. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the local environment. Implementation of BMPs will be required for all construction phases to minimize impacts.

Dockweiler Beach Alignment. From the pumping plant on Hurricane Street, the alignment would proceed west to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina del Rey and Ballona Creek channels, and continue south along Dockweiler State Beach, turning southeast to a junction structure in Vista Del Mar near Waterview St. This alignment would run under Dockweiler State Baech for most of the length. Tunneling associated with this alignment would pass under Marina del Rey and Ballona Creek. Construction and tunneling launch and receiving sites would be located within of 500 ft of Ballona Creek/ Grand Canal, and about 200 ft from Marina del Rey, Ballona Creek, Dey Rey Lagoon and the dunes adjacent to Del Rey Lagoon. In addition, this alignment passes within 200 ft of a protected California least tern nesting site on Dockweiler State Beach Beach. Temporary impacts to the least California tern nesting site are addressed by Keane (2005b). Physical disturbance of the upper strand of Dockweiler State Beach is anticipated in this alignment. This area of the beach is groomed and has substantial human disturbance, suggesting that construction disturbance is likely to result in little additional impact. Noise is most likely to impact bird use in the construction areas. Other than at the California least tern nesting area, bird use in the project area is greatest at Ballona Lagoon where construction will be about 500 ft from the lagoon and separated by a residential area. Noise impacts are expected to be minimal. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the local environment. Implementation of BMPs will be required for all construction phases to minimize impacts.

Lagoon Alignment. This alternative alignment assumes the construction of the proposed 54-inch force main entirely by tunneling from the VPP to Vista Del Mar. The alignment would follow the Grand Canal southerly to the Marina channel and Ballona Creek and continue via tunneling to the Pacific Avenue alignment southerly to the Vista Del Mar terminus. Deep tunneling associated with this alignment would pass under Marina del Rey and Ballona Creek, with most of the construction activities occurring in the immediate vicinity of the tunneling sites located within about 200 ft of Ballona Creek/ Grand Canal and near the Vista Del Mar terminus. Deep tunneling would eliminate the majority of the surface impacts to water quality or marine resources and can facilitate mitigation of other impacts such as noise. Temporary impacts associated with construction include physical disturbance, noise and releases of excavated sediments and water into the local environment. No physical disturbance of local resources is anticipated. Noise is most likely to impact bird use in the construction areas. Bird use in the project area is greatest at

Ballona Lagoon. Noise impacts area are expected to be minimal. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the local environment. Implementation of BMPs will be required for all construction phases to minimize impacts.

Construction Alternatives. The alignments under consideration cross the Marina del Rey entrance channel and Ballona Creek channel, requiring a minimum of about 1,800 feet of tunneling under the two channels. Additionally the Marquesas Way/Via Marina alignment would require tunneling under Ballona Creek/ Grand Canal. Three alternative construction methods are under consideration: open trench, micro-tunneling and deep tunneling. All methods share the potential to impact the local resources through a combination of physical disturbance, noise and releases of excavated sediments and water into the local environment. Tunneling construction methods have the advantage of reducing these impacts by limiting construction activities to the launch and receive sites, which could be located away from sensitive areas. All three construction techniques could lead to temporary impacts to water quality and marine resources which could occur through the unintentional release of excavated sediments and water into the local environment. While tunneling generally has no effect on the surface above the excavation, tunneling may occasionally lead to small fractures that allow drilling sediments to escape to the surface. In the area where tunneling will pass under water bodies, these areas should be examined at least once a day during construction. These fractures will result in increased turbidity in the water near the fracture. If turbidity is observed, tunneling activities should cease until the leak in the tunnel producing the turbidity is repaired. In addition, implementation of BMPs will be required for all construction phases to minimize impacts.

Unavoidable Adverse Impacts

If management practices to control the unintentional release of excavated sediments and water into the local environment are successful. No unavoidable adverse impacts are expected.

Cumulative Impacts

No significant cumulative impacts have been identified to biota or habitats in the project area. There are no other known projects in the vicinity of the proposed project that, when considered together, would result in significant adverse impacts to the wildlife and habitats in the Marina del Rey area.

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APPENDIX 1

Bird species recorded during monthly surveys of Ballona Lagoon.

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Appendix A. Bird species recorded during monthly surveys of Ballona Lagoon. April 1996 -June 2005. Sources: Almdale 2005, CNDDB 2005, Nat. Geo 2002.

Family Common Name Species	Status	Total Individuals	Total Occurances
Grebes		**73**	**53**
Western Grebe *Aechmophorus occidentalis*	S?	12	12
Red-necked Grebe *Podiceps grisegena*		2	1
Horned Grebe *Podiceps auritus*		3	2
Eared Grebe *Podiceps nigricollis*		21	15
Pied-billed Grebe *Poddilymbus podiceps*		35	23
Cormorants & Pelicans		**177**	**75**
Double-crested Cormorant *Phalacrocorax auritus*	S3	98	45
Pelagic Cormorant *Phalacrocorax pelagicus*		1	1
California Brown Pelican *Pelecanus occidentalis californicus*	FE,SE	78	29
Herons		**1,061**	**319**
Great Blue Heron *Ardea herodias*	S4	106	71
Great Egret *Ardea alba*	S4	183	70
Snowy Egret *Egretta thula*	S4	587	93
Little Blue Heron *Egretta caerulea*		1	1
Green Heron *Butorides virescens*		121	58
Black-crowned Night Heron *Nycticorax nycticorax*	S3	63	26
Ducks		**2,943**	**226**
Domestic (Greylag) Goose *Anser anser*		2	1
Brant *Brant bernicla*		3	3
Ruddy Duck *Oxyura jamaicensis*		4	2
American Wigeon *Anas americana*		169	12
Mallard *Anas platyrhynchos*		1,898	101
Blue-winged Teal *Anas discors*		2	1
Green-winged Teal *Anas crecca*		2	1

Appendix A, continued. Bird species recorded during monthly surveys of Ballona Lagoon. April 1996 -June 2005. Sources: Almdale 2005, CNDDB 2005, Nat. Geo 2002.

Family Common Name Species	Status	Total Individuals	Total Occurances
Ducks, continued			
Greater Scaup *Aythya marila*		20	2
Lesser Scaup *Aythya affinis*		258	21
Bufflehead *Bucephala albeola*	S?	142	26
Common Goldeneye *Bucephala clangula*		2	2
Red-breasted Merganser *Mergus serrator*		409	49
Surf Scoter *Melanitta perspicillata*		32	5
Raptors		**14**	**14**
Red-tailed Hawk *Buteo jamaicensis*		1	1
American Kestral *Falco sparverius*		13	13
Coots		**8**	**8**
American Coot *Fulica americana*		8	8
Shorebirds		**8,108**	**508**
Black-bellied Plover *Pluvialis squatarola*		169	54
Killdeer *Charadrius vociferus*		457	86
Semipalmated Plover *Charadrius semipalmatus*		18	9
Greater Yellowlegs *Tringa melanoleuca*		5	5
Willet *Catoptrophorus semipalmatus*		460	91
Spotted Sandpiper *Actitis macularia*		2	2
Whimbrel *Numenius phaeopus*		213	73
Marbled Godwit *Limosa fedoa*		994	67
Dunlin *Calidris alpina*		47	12
Sanderling *Calidris alba*		1	1
Western Sandpiper *Calidris mauri*		3,065	31
Least Sandpiper *Calidris minutilla*		970	26

Appendix A, continued. Bird species recorded during monthly surveys of Ballona Lagoon. April 1996 -June 2005. Sources: Almdale 2005, CNDDB 2005, Nat. Geo 2002.

Family Common Name Species	Status	Total Individuals	Total Occurances
Shorebirds, continued			
Short-billed Dowitcher *Limnodromus griseus*		33	7
Long-billed Dowitcher *Limnodromus scolopaceus*		1,672	42
Wilson's Snipe *Gallinago gallinago*		1	1
Red-necked Phalarope *Phalaropus lobatus*		1	1
Gulls & Terns		**1,255**	**198**
Ring-billed Gull *Larus delawarensis*		506	67
California Gull *Larus californicus*	S2	367	31
Herring Gull *Larus argentatus*		5	5
Thayer's Gull *Larus thayeri*		1	1
Western Gull *Larus occidentalis*		131	53
Glaucous-winged Gull *Larus glaucescens*		2	2
Heermann's Gull *Larus heermanni*		1	1
Caspian Tern *Sterna caspia*	S4	3	2
Forster's Tern *Sterna forsteri*	S4	20	11
California Least Tern *Sterna antillarum browni*	FE,SE	217	24
Black Skimmer *Rynchops niger*	S1,S3	2	1
Doves		**614**	**179**
Rock Dove *Columba livia*		277	74
Mourning Dove *Zenaida macroura*		278	64
Spotted Dove *Streptopelia chinensis*		59	41
Parrots		**4**	**1**
Yellow-chevroned Parakeet *Brotogeris chiriri*		4	1

Appendix A, continued. Bird species recorded during monthly surveys of Ballona Lagoon. April 1996 -June 2005. Sources: Almdale 2005, CNDDB 2005, Nat. Geo 2002.

Family Common Name Species	Status	Total Individuals	Total Occurances
Hummingbirds		**80**	**53**
Black-chinned Hummingbird *Archiochus alexandri*		1	1
Anna's Hummingbird (or sp?) *Calypte anna* / sp		31	23
Rufous Hummingbird *Selasphorus rufus*	S1,S2	1	1
Allen's Hummingbird *Selasphorus sasin*		47	28
Kingfishers		**65**	**51**
Belted Kingfisher *Ceryle alcyon*		65	51
Passerines		**4,487**	**613**
Cassin's Kingbird *Tyrannus vociferans*		1	1
Western Kingbird *Tyrannus verticalis*		1	1
Black Phoebe *Sayornis nigricans*		147	76
Say's Phoebe *Sayornis saya*		19	15
Pacific-slope Flycatcher *Empidonax difficilis*		1	1
Northern Rough-winged Swallow *Stelgidopteryx serripennis*		12	7
Cliff Swallow *Petrochelidon pyrrhonota*		30	8
Barn Swallow *Hirundo rustica*		51	21
Western Scrub-Jay *Aphelocoma californica*		2	2
American Crow *Corvus brachyrhynchos*		281	86
Bushtit *Psaltriparus minimus*		49	7
Northern Mockingbird *Mimus polyglottus*		113	57
Loggerhead Shrike *Lanius ludovicianus*	S4	1	1
Bewick's Wren *Thryomanes bewickii*		2	2
House Wren *Troglodytes aedon*		5	5
Ruby-crowned Kinglet *Regulus calendula*		1	1

Appendix A, continued. Bird species recorded during monthly surveys of Ballona Lagoon. April 1996 -June 2005. Sources: Almdale 2005, CNDDB 2005, Nat. Geo 2002.

Family Common Name Species	Status	Total Individuals	Total Occurances
Passerines, continued			
European Starling *Sturnus vulgaris*		1,642	98
Orange-crowned Warbler *Vermivora celata*		3	3
Yellow-rumped Warbler *Dendroica coronata*		25	15
Common Yellowthroat *Geothlypis trichas*		22	14
Song Sparrow *Melospiza melodia*		2	2
Lincoln's Sparrow *Melospiza lincolnii*		3	2
White-crowned Sparrow *Zonotrichia leucophrys*		97	24
Golden-crowned Sparrow *Zonotrichia atricapilla*		1	1
Hooded Oriole *Icterus cucullatus*		4	3
House Finch *Carpodacus mexicanus*		593	78
Lesser Goldfinch *Carduelis psaltria*		25	2
House Sparrow *Passer domesticus*		1,354	80
Total Birds Sighted			**18,889**
Total Bird Occurances			**2,298**
Total Species Sighted			**94**

FE =Federally-listed Endangered Species
SE = State-listed Endangered Species
State Ranking:
S1 = <6 occurances or < 1,000 individual or <2,000 acres habitat
S2 = 6-20 occurances or 1,000-3,000 individuals or 2,000-10,000 acres
S3 = 21-100 occurances or 3,000-10,000 individuals or 10,000-50,000 acres
S4 = secure in California
S? = status uncertain

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REPORT

VENICE PUMPING PLANT DUAL FORCE MAIN BIOLOGICAL RESOURCES TECHNICAL REPORT

Prepared for

City of Los Angeles
Department of Public Works
Bureau of Engineering

URS

2020 East First Street, Suite 400
Santa Ana, California 92705

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REGULATORY SETTING FOR BIOLOGICAL ISSUES

U.S. Fish and Wildlife Service and National Marine Fisheries Service

Jurisdiction Subject to Section 7 of the Endangered Species Act:

The Federal Endangered Species Act (ESA) of 1973 (16 USC 1531 et seq.) is administered by the USFWS, and by the National Marine Fisheries Service (NMFS) in areas where marine habitats exist. Under the Federal Endangered Species Act (FESA), the Secretary of the Interior and the Secretary of Commerce, jointly have the authority to list a species as threatened or endangered (16 United States Code [USC] 1533[c]). Pursuant to the requirements of the California Environmental Quality Act (CEQA), an agency reviewing a proposed project within its jurisdiction must determine whether any federal-listed threatened or endangered species or species proposed for listing as threatened or endangered may be present in the vicinity of the proposed project area, and determine whether the proposed project would have a potentially significant impact on such species. Informal consultation with the appropriate federal agencies, including notifying them of the proposed route and intentions of the Project, has been initiated.

The U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) typically reviews project plans and species information to determine the effects of federal actions on a proposed or candidate species. The USFWS recommends that candidate species and species proposed for listing also be considered in informal consultation during a project's environmental review. This is recommended because, in the event that a species were to be listed during the design or construction phases of a project, new studies and restrictions might be imposed. USFWS encourages consideration of species of concern in project planning, as they may become candidate species in the future. The determination of significance for species of concern must be made on a case-by-case basis, and must take into consideration current scientific knowledge about the individual species, known threats, and specific proposals.

Section 7 of the ESA requires federal agencies to use their authorities to conserve threatened and endangered species. It also directs federal agencies to consult with USFWS (or NMFS) if any action they authorize, fund, or carry out "may affect" in either a beneficial or adverse manner, any species that is listed or proposed for listing, or any designated or proposed critical habitat. For example, if the issuance of a CWA section 404 permit by the Corps for a private development project may affect any listed species, the Corps must consult with USFWS on the effects of the issuance of that permit. Species that are candidates for listing by the USFWS may also be addressed during federal interagency coordination. Section 7 also provides a mechanism for 'incidental take,' for actions that may affect a listed species, but which do not jeopardize its continued existence or destroy or adversely modify critical habitat.

Section 9 of the ESA prohibits 'take' (i.e., harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collecting, or the attempt to engage in any such conduct) of threatened and endangered species. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering.

Recently, the USFWS diverted its resources from listing species to proposing and designating critical habitat. Currently, the USFWS had proposed or designated critical habitat for 16 wildlife and plant species. Critical habitat is defined as:

> *The specific areas within the geographical area occupied by the species, at the time it is listed …, upon a determination … that such areas are essential for the conservation of the species.*

The USFWS requires consultation for any modification to the critical habitat of a listed species.

Magnuson-Stevens Fishery Conservation and Management Act:

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) was authorized in 1996 and requires the NMFS to identify, conserve, and enhance Essential Fish Habitat (EFH) for those species regulated under a federal fisheries management plan. Essential Fish Habitat is defined as the waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity. Specifically, the MSA requires: (1) Federal agencies to consult with NMFS on all actions or proposed actions authorized, funded, or undertaken by the agency that could adversely affect EFH; and (2) NMFS to provide conservation recommendations for any federal or state action that could adversely affect EFH.

U.S. Army Corps of Engineers

Jurisdiction Subject to Section 404 of the Clean Water Act:

Pursuant to Section 404 of the Clean Water Act, the ACOE regulates the discharge of dredged and/or fill material into waters of the United States. Waters of the United States include navigable waterways and wetlands adjacent to navigable waterways, non-navigable waterways and wetlands adjacent to non-navigable waters that are contiguous with navigable waterways. The term "waters of the United States" is defined at 33 CFR Part 328 and currently includes (1) all navigable waters (including all waters subject to the ebb and flow of the tide), (2) all interstate waters and wetlands, (3) all impoundments of waters mentioned above, (4) all tributaries to waters mentioned above, (5) the territorial seas, and (6) all wetlands adjacent to waters mentioned above.

On January 9, 2001 the U.S. Supreme Court ruled (in Solid Waste Agency of Northern Cook County V. U.S. Army Corps of Engineers) that the ACOE jurisdiction does not extend to previously regulated isolated waters, including but not limited to isolated ponds, reservoirs, and wetlands. Examples of isolated waters that are affected by this ruling include: vernal pools; stock ponds, lakes (without outlets); playa lakes; and desert washes that are not tributary to navigable or interstate waters or to other jurisdictional waters.

In the absence of wetlands, the limits of ACOE jurisdiction in non-tidal waters, including intermittent streams, extend to the OHWM which is defined at 33 CFR 328.3(e) as:

...that line on the shore established by the fluctuation of water and indicated by physical characteristics such as clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.

Wetlands are defined at 33 CFR 328.3(b) as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support...a prevalence of vegetation typically adapted for life in saturated soil conditions." In 1987 the ACOE published a manual to guide its field personnel in determining jurisdictional wetland boundaries. In 1989 the Federal Interagency Committee for Wetland Delineation developed an updated methodology which was adopted by the ACOE, U.S. Fish and Wildlife Service (USFWS), U.S. Environmental Protection Agency (EPA), and U.S.D.A. Natural Resources Conservation Service and which replaced the 1987 Wetland Manual.[1] The use of this 1989 manual was perceived by many to excessively increase the jurisdictional limits of wetlands. After several congressional hearings, EPA, ACOE, U.S. Department of Agriculture Soil Conservation Service, and USFWS published proposed 1991 revisions to the 1989 manual.[2] A few days afterwards, the President signed the Energy and Water Development Appropriations Act of 1992 which, in effect, prohibits the use of the 1989 manual. Because the 1991 proposed revisions to the 1989 manual have not yet been adopted, the only remaining valid methodology is the 1987 Wetland Manual.

The discharge of dredged or fill material (temporarily or permanently) into waters of the United States requires prior authorization from the ACOE pursuant to Section 404 of the Clean Water Act. Activities that usually involve a regulated discharge of dredged or fill materials include (but are not limited to) grading, placing of riprap for erosion control, pouring concrete, laying sod, preparing soil for planting (e.g., turning soil over, adding soil amendments[3]), stockpiling excavated material, mechanized removal of vegetation, and driving of piles for certain types of structures.

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[1] Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service, Washington, D.C. Cooperative technical publication.

[2] Government Printing Office. 1991. Federal Register, "1989 Federal Manual for Identifying Jurisdictional Wetlands; Proposed Revisions." August 14, 1991, Vol. 56, No. 157, pp 40446-40480.

[3] Similar planting activities associated with on-going farming operations may be exempt from regulation by Section 404 of the Clean Water Act.

Jurisdiction Subject to the Rivers and Harbors Appropriations Act of 1899:

The Rivers and Harbors Appropriations Act of 1899 authorizes the COE to exercise control over all construction projects in U.S. navigable waters. The Rivers and Harbors Act was originally designed with the intent to protect navigation and navigable capacity. These objectives were later expanded to include environmental protection. The key provision to this Act is Section 13, which makes it a crime to discharge refuse into any navigable water without the permission of the COE.

California Department of Fish and Game

Jurisdiction Subject to Section 1600 et seq. of the California Fish and Game Code:

Pursuant to Division 2, Chapter 6, Sections 1600-1602 of the California Fish and Game Code, the CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake, which supports fish or wildlife.

CDFG defines a "stream" (including creeks and rivers) as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having surface or subsurface flow that supports or has supported riparian vegetation." CDFG's definition of "lake" includes "natural lakes or man-made reservoirs."

CDFG jurisdiction within altered or artificial waterways is based upon the value of those waterways to fish and wildlife. CDFG Legal Advisor has prepared the following opinion:

- Natural waterways that have been subsequently modified and which have the potential to contain fish, aquatic insects and riparian vegetation will be treated like natural waterways...

- Artificial waterways that have acquired the physical attributes of natural stream courses and which have been viewed by the community as natural stream courses, should be treated by [CDFG] as natural waterways...

- Artificial waterways without the attributes of natural waterways should generally not be subject to Fish and Game Code provisions...

Thus, CDFG jurisdictional limits closely mirror those of the ACOE. Exceptions are CDFG's addition of artificial stock ponds and irrigation ditches constructed on uplands, and the addition of riparian habitat supported by a river, stream, or lake regardless of the riparian area's federal wetland status.

California Endangered Species Act (CESA):

The CESA (Fish & Game Code sections 2050, et seq.) is administered by the California Department of Fish and Game (CDFG), and generally parallels the federal ESA. CESA prohibits the "taking" of listed species, except as otherwise provided in State law. Unlike its federal counterpart, CESA applies

the take prohibitions to species petitioned for listing (state candidates) during the one-year listing review period. 'Take' is defined as to 'hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill' a protected species. Under Section 2081 of the Fish & Game Code, the CDFG may authorize the take of a State endangered, threatened, or candidate species if the take is incidental to an otherwise lawful activity and any impacts to the species are minimized and fully mitigated.

A State lead agency (the agency that has principal responsibility for carrying out or approving a project) is required to consult with CDFG to ensure that any action it undertakes is not likely to jeopardize the continued existence of any State endangered, threatened, or candidate species or result in adverse modification of essential habitat. A lead agency may also determine that species listed or proposed as threatened or endangered under the federal ESA warrant special review and consideration in CEQA documents. CEQA Guidelines Section 15380(d) allows a lead agency to consider a species as a "de-facto" threatened or endangered species if information can be presented showing the species would qualify for listing. This can apply to proposed, candidate, or any other species not actually listed by the CDFG or USFWS as rare, threatened, or endangered.

The Natural Community Conservation Planning Act was added to CESA in 1991 (Fish & Game Code sections 2800-2840), and provides for voluntary cooperation among CDFG, landowners, and other interested parties to develop natural community conservation plans which provide for early coordination of efforts to protect listed species or species that are not yet listed. The primary purpose of the Act is to preserve species and their habitats, while allowing reasonable and appropriate development to occur on affected lands.

Migratory Bird Treaty Act:

This Act placed all migratory birds under federal jurisdiction and protection. It prohibits the capture, killing, or possession of any bird species identified by various international conventions. Conventions to protect migratory birds have been signed with Great Britain, Mexico, Japan, and Russia. In this Act, the federal government is provided with the authority to establish threshold regulations that govern the hunting and management of listed species. This Act does not provide for acquisition of habitat.

Native Plant Protection Act:

The Native Plant Protection Act (California Fish and Game Code Sec. 1900-1913) prohibits the taking, possessing, or sale within the state of any rare, threatened or endangered plants as defined by CDFG, except as authorized by law and regulation. This applies to any plants with a state designation of rare, threatened or endangered.

California Coastal Commission

The California Coastal Act of 1976 (California Resources code section (30000 et seq) was enacted by the State legislature in 1976 to provide for the long-term protection of California's 1,100 mile coastline. The California Coastal Commission policies include: the protection, enhancement, and restoration of environmentally sensitive habitats, including inter tidal and near shore waters, wetlands, bays, and estuaries, riparian habitat, and habitat for rare and endangered

plants or animals. Local Coastal Plans (LCP's) identify the location, type, densities, and other ground rules for future development in the coastal zone portions for 73 cites and counties along the coast. LCP's are prepared by local government, these programs govern decisions that determine the short-term and long-term conservation and use of coastal resources. These coastal resources include: (1) sensitive species; (2) environmental sensitive habitat areas; and (3) CCC-defined wetlands.

Sensitive Species

Least Terns and other species as identified in the Keane Biological Report and several species of plants or wildlife as identified in the Marine Resources Analysis, both located in this section.

Environmental Sensitive Habitat Areas

Environmental Sensitive Habitat Areas (ESHA's) are any areas in which plant or animal life or their habitat are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and development. ESHA's have been identified by the Local Coastal Plan (see below). The California coastal Act states that ESHA's shall be protected against significant disruption of habitat value. Development in areas adjacent to ESHA's shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat areas. The Least Tern Nesting site located on the north side of the Marina Del Rey/Ballona Lagoon Channels on Dockweiler Beach to the West of Marina Del Rey beachfront access trail is an ESA.

Wetland Jurisdiction Subject to California Coastal Commission Act:

Any person or public agency proposing development within the coastal zone must obtain a Coastal Development Permit. In general, the coastal zone extends from the State's three-mile seaward limit to an average of approximately 1,000 yards inland from the mean high tide of the sea. The California Coastal Commission (CCC), made up of representatives from various coastal areas and state agencies, reviews the coastal development permits for conformity with the coastal policies of the California Coastal Act.

In 1975 a four-person team (Cowardin, Carter, Frank Golet, and Ted LaRoe) developed the U.S. Fish and Wildlife Serves (FWS) wetland classification system (Cowrdin et al., 1976) that included the following wetland definition for review.

> *Wetland is land where an excess of water is the dominant factor determining the nature of soil development and the types of plant and animal communities living at the soil surface. It spans a continuum of environments where terrestrial and aquatic systems intergrade. For purposes of this classification system, wetland is defined more specifically as land where water table is at, near, or above the land surface long enough each year to promote the formation of hydric soils and to support the growth of hydrophytes, as long as other environmental conditions are*

favorable… In certain wetland types, vegetation is absent ad soils are poorly developed or absent as a result of frequent and drastic fluctuations of surface-water levels, wave action, water flow, turbidity, or extremely high concentrations of salts or other substances in the water or substrate. Wetlands lacking vegetation and hydric soils can be recognized by the presence of surfacewater at some time during the year and their location within, or adjacent to, vegetated wetlands or aquatic habitats.

An April 1977 version contained a similar definition with only minor revisions (Cowardin et al., 1977a). This version was made available for public review and comment. In October 1977, the FWS produced an operational draft version of its classification system for initiating wetland mapping (Cowardin et al., 1977b). The definition is essentially the same as the 1976 version except that the first two sentences were eliminated from the definition and moved to the concepts discussion preceding the definition.

Wetlands is defined as land where the water table is at, or near or above, the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes. Inc certain types of wetlands, vegetation is lacking and soils are poorly developed or absent as the result of frequent and drastic fluctuations of the surface-water levels, wave action, water flow, turbidity, or high concentrations of salts or other substances in the water of substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats.

After using the operational draft for a couple of years and receiving public input, the USFWS amended its classification and revised its wetland definition (Cowardin et al., 1979). The following definition has served as the FWS's official wetland definition for nearly 2 decades and continues to be used for wetland mapping.

Wetlands are lands transitional between terrestrial and aquatic systems ***where the water table is usually at or near the surface or the land*** *[emphasis added] is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydropytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season each year.*

To summarize, a one parameter Cowadin wetland is defined by one or more of three parameters (hydrophytic vegetation, hydric soils, and/or saturated or shallow water some time during the growing season) <u>in areas where the water table is usually at or near the surface</u>. These CCC-defined wetlands include the Ballona Lagoon, Ballona Creek, Marina del Rey Channel, and Dockweiler State Beach (both north and south).

California Department of Parks and Recreation

The California Department of Parks and Recreation (DPR) has a major role in the protection, restoration, and interpretation of the State's wetlands. A primary goal for DPR is the preservation of the State's biological diversity and the protection of its valued natural resources including wetlands. DPR manages over 265 park units, including over 280 miles of coastline and 250 miles of rivers. Many of the coastal units contain river mouths with coastal lagoons and estuaries. In addition to being included in DPR's primary mission, wetlands preservation is also a mandated responsibility under the Keene-Nejedly California Wetlands Preservation Act of 1976 (Pub. Res. Code Div. 5, Ch. 7). The Act directs DPR, along with the Department of Fish and Game, to recognize opportunities for protecting wetlands which lie within or adjacent to State Park System units, and to consider acquisition of wetlands in proximity of State Parks. In addition to lands directly owned by DPR, the Department also has certain jurisdiction over granted or un-granted tidelands or submerged lands abutting State Park System lands (Pub. Res. Code 5003.5).

Wetlands restoration is a high priority in the Department's Resource Management Program and is pursued in all California bioregions. For example, DPR's coastal area projects focus on the restoration of natural hydrologic conditions and the re-establishment of native plant communities while its riparian restoration projects focus on the restoration of altered channel morphology through the application of bioengineering.

California State Lands Commission

The Legislature has granted general authority to the California State Lands Commission (Commission) to manage trust lands. Unless otherwise expressly stated in the State Constitution or statutes, the public trust doctrine mandates the criteria for Commission management of trust lands. Lands under the ocean and under navigable streams are owned by the public and held in trust for the people by government. These are referred to as public trust lands, and include filled lands formerly under water. Public trust lands cannot be bought and sold like other state-owned lands. The regulatory authority of the Commission extends to: preventing damage to life, health, property, natural resources, the environment, damage to underground oil and gas deposits from infiltrating water and other causes, loss of oil, gas, or reservoir energy and damage to underground and surface waters suitable for irrigation or domestic purposes by the infiltration of, or the addition of, detrimental substances, by reason of the drilling, operation, maintenance, or abandonment of wells, and the operation, maintenance, and removal or abandonment of oilfield facilities.

State Water Quality Control Board – Los Angeles Region

<u>Jurisdiction Subject to Section 401 of the Clean Water Act:</u>

A 401 water quality certification is required for those applicants who seek a federal permit to discharge fill material into a water of the United States (e.g., Section 404 permit, as described above). The ACOE will not grant authorization until the water quality certification has been

obtained or has been waived. A water quality certification is issued by the RWQCB that states that the applicant will comply with all pertinent water quality standards (both federal and state water quality standards). The jurisdictional limits of the RWQCB pursuant to Section 401 of the Clean Water Act are identical as that defined above for the ACOE under Section 404 of the Clean Water Act.

If the applicant is not notified by the Regional Board within 60 days of the postmarked date of the application, the applicant may assume that the project meets the conditions of the certification.

Jurisdiction Subject to Section 402 of the Clean Water Act:

In 1972, the Clean Water Act was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with a NPDES permit. In 1987 amendments tot eh CWA added Section 402 (p) which establishes a framework for regulating municipal and industrial storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. In California, the State Water Resources Board has issued a general permit for storm water discharges associated with construction activities statewide. Regulated construction activity includes clearing, grading, or excavation that results in soil disturbance of at least five acres of total land area.

City of Venice Beach

Land Use Plan and Local Coastal Program:

This plan has been developed in order to comply with the California Coastal Act of 1976. The coastal act directs each local government located wholly or partly within the Coastal Zone (see Figure ** for Coastal Zone Map) to prepare a Local Coastal Program (LCP). Consequently, the City of Venice Beach has prepared a LCP that also serves as a Land Use Plan (LUP).

The LCP/LUP states the following:

- Policy III. C. 2. states that "No development permits shall be granted for development which would have a potential significant impact on the least tern nesting ground in the vicinity of the jetty at the Marina Channel".

- The environmentally sensitive habitat areas in the Venice Coastal Zone include the Ballona Lagoon and Grand Canal south of Washington Boulevard, Venice Canals north of Washington Boulevard, habitat buffer areas on the east and west banks of Ballona Lagoon, and the California least tern nesting areas, as identified on Figure **. The LUP states that the existing and potential values in these environmentally sensitive habitat areas shall be protected, enhanced, and where feasible, restored.

- Section 30230. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or

economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

- Section 30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

- Section 30236. Channelizations, dams, or other substantial alterations of rivers and streams shall incorporate the best mitigation measures feasible, and be limited to (1) necessary water supply projects, (2) flood control projects where no other method for protection is necessary for public safety or to protect existing development, or (3) developments where the primary function is the improvement of fish and wildlife habitat.

  a. Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.

  b. Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

- Policy IV. A. 1. Canals Rehabilitation Project. The canal area north of Washington Boulevard shall continue to be maintained as a unique coastal, environmental and social resource, as provided by the Venice Canals Rehabilitation Plan approved by Coastal Commission Coastal Development Permit 5-91-584. The goals and objectives of the rehabilitation plan shall continue to be implemented in order to improve water quality, bank stability, public access, and biological productivity. The canal tidal gates located beneath the Washington Boulevard bridge shall be operated in a manner that sustains and enhances biological productivity in the canals by ensuring maximum water circulation.

- Policy IV. A. 2. Permitted Uses. Uses permitted in or adjacent to the canals shall be implemented in a manner to protect the biological productivity of marine resources and maintain healthy populations of marine organisms. Such uses as open space, habitat management, controlled nature study and interpretation, and passive public recreation use of walkways for bird watching, photography, and strolling shall be encouraged and promoted.

- Policy IV. A. 3. Venice Canals Landscape Buffer. To protect the marine habitat, a one and one-half to two-foot-wide safety landscape buffer strip shall continue to be provided and maintained between the canal banks and sidewalks. Landscaping in the buffer strip shall consist of native Ballona Lagoon and Grand Canal South of Washington Boulevard coastal strand marshland or wetland vegetation as specified in the Venice Canals Rehabilitation Plan approved by Coastal Commission Coastal Development Permit 5-91-584.

- Policy IV. A. 4. Venice Canals Setback and Yard Area. In order to provide a setback for access. to protect visual quality and the biological productivity of the canals. and to limit. water runoff. a setback with an average depth of 15 feet (and a minimum depth at any point of 10 feet) shall be provided and maintained in the front yard areas of private residences (adjacent to the canal property line). This setback shall provide a permeable yard with an area at least 15 feet times the width of the lot line at the canal side. (See also Policy 1.A.4a for details).

- Ballona Lagoon Enhancement Plan. The Ballona Lagoon shall be restored, protected and maintained for shallow tidal and intertidal marine habitat. fisheries and public access as provided in the Ballona Lagoon Enhancement Plan (See Coastal Commission Coastal Development Permit 5-95-152 and amendments). The plan is intended to improve water quality and tidal flushing; reduce the amount of garbage, sediment and other pollutants in the lagoon; maintain and expand habitat values for the endangered least tem, shorebirds and fisheries; restore native vegetation; protect banks from erosion; maintain and if possible increase the existing 50-year flood protection; and enhance public trails and interpretative overlooks without invading the privacy of adjoining residents. The goals and policies of the Enhancement Plan shall be carried out in a manner consistent with the policies of this LUP. The Ballona Lagoon tidal gates located beneath Via Marina shall be operated in a manner that sustains and enhances biological productivity in the lagoon by ensuring maximum water circulation.

  Only uses compatible with preservation of this habitat shall be permitted in and adjacent to the lagoon. Uses permitted in or adjacent to the lagoon shall be carried out in a manner to protect the biological productivity of marine resources and maintain healthy populations of marine organisms. Such uses as open space, habitat management, controlled nature study and interpretation, and passive public recreation such as bird watching, photography, and strolling shall be encouraged and promoted. No fill shall occur in Ballona Lagoon unless it is consistent with Coastal Act Section 30233 and is the least environmentally damaging alternative. No untreated runoff shall be directed into the lagoon.

  The California Coastal Commission reviewed the Enhancement Plan and on January 10, 1996, granted Coastal Development Permit No.5-95-152, for restoration of Ballona Lagoon and lagoon bluffs along the east bank, subject to conditions.

- Policy IV. B. 2. Ballona Lagoon Buffer Strip. The City shall implement methods of permanent protection of the lagoon, including acceptance of all outstanding and future

offers to dedicate open space and public access buffer strips along the east and west banks.

a. East Bank. The habitat protection buffer strip, a 4o-foot wide dedicated open space and public easement shall continue to be provided and maintained adjacent to the east bank of Ballona Lagoon, in the Silver Strand Subarea, as required by Coastal Development Permit (CDP) Nos. A-266-77, 5-87-112, and 5-86-641. For additional details, see Policy I.A.4b.

b. West Bank. A habitat protection buffer strip shall be provided and maintained between the lagoon and all development permitted on the properties situated on the west bank of Ballona Lagoon. Because of the steep embankment and the need to provide some buffering from the automobile traffic on Pacific Avenue, the strategy along the western shore is to limit physical access. Most of the lots located on the west side of the lagoon, particularly between lronsides and Topsail Streets, are quite narrow. Given the location and size of these parcels, first priority for use of these parcels is permanent open space. However, in case of any development, all structures located south of lronsides Street to Via Marina shall be set back at least twenty-five feet from the property line nearest the lagoon. North of Ironsides Street, an average setback of 15 feet, but not less than 10 feet, shall be maintained. (See LUP Policies 1.A.4.c, LA.4.d and LA.7.b for specific lagoon buffer and setback requirements).

c. West Bank Properties South of Ironsides Street to Topsail Street. These properties, commonly known as the Alphabet Lots, consist of the vacant lots located on the west bank of Ballona Lagoon between lronsides Street and Topsail Street. The use of these parcels shall be permanent Open Space with restoration of the native vegetation. Nonintrusive public access may be permitted in a manner that protects the environmentally sensitive habitat areas (See also Policy I.A.4.d).

Permitted uses within the buffer strip shall be limited to open space, habitat management, nature study and interpretation for educational purposes and pedestrian walkways for passive recreation such as bird watching, photography and strolling. Landscaping in the buffer strip shall consist of native plants and shrubs. Non-native species shall be phased out and the area restored as feasible. (For more detailed, refer to the Ballona Lagoon Enhancement Plan.)

- Policy IV. C. 1. Stormwater Runoff. All new public and private development, substantial rehabilitation, redevelopment or related activity, which discharges stormwater runoff into the Ocean, Ballona Lagoon, Grand Canal south of Washington Boulevard or the Venice Canals shall be designed and conducted in compliance with the County-wide Municipal National Pollution Discharge Elimination System (NPDES) Stormwater Permit, issued by the California Regional Water" Quality Control Board (RWQCB), the RWQCB approved Standard Urban Stormwater Mitigation Plan, and the NPDES General Permit for Stormwater Discharges Associated with Construction Activity, issued by the State Water Resources Control Board (SWRCB), where applicable. Methods to improve water

quality, such as the mitigation of the first-flush stormwater runoff entering coastal waterways, shall be imposed as conditions of development by the City of Los Angeles in accordance with SWRCB and RWQCB recommendations and regulations, and the Santa Monica Bay Restoration Project Action Plan in order to protect, restore, and where feasible, enhance the water quality and habitat of these waterways.

- Policy IV. C. 2. Water Quality. The methods to improve water quality, recommended in California's Plan for the Control of Non-Point Source Pollution (January 2000), such as watershed planning and management programs, and habitat restoration projects, shall be considered and implemented by the City of Los Angeles where feasible opportunities exist. Selected Best Management Practices (BMPs) or suites of BMPs shall be designed to treat, infiltrate or filter the stormwater runoff from each runoff event up to and including the 8S11 percentile, 24-hour runoff event for volume based BMPs and/or the 8S11 percentile, 1 hour event, with an appropriate safety factor, for flow-based BMPs.

- Policy IV. D. 1. Venice Canals Habitat. The Venice Canals have been identified by the Least Tern Recovery Team as a foraging habitat for the Least Tern. Development within or adjacent to the canals that might affect this foraging habitat shall not be permitted.

- Policy IV. D. 2. Ballona Lagoon Habitat. The Ballona Lagoon has been identified by the Least Tern Recovery Team as a critical habitat for the Least Tem for feeding. Development within or adjacent to the lagoon that might adversely impact the quality of this foraging habitat shall not be permitted.

- Policy IV. D. 3. Venice Beach. The Least Tern nesting habitat on Venice Beach shall be preserved and shall not be disturbed by encroachments of public improvements and activities.

- Policy IV. F. 1. Diking, dredging and fill shall be permitted only in conjunction with an approved restoration plan and maintenance activity consistent with Coastal Act Section 30233. No construction shall be permitted on sandy beaches, except for construction in conjunction with approved recreational, ecological, and erosion control facilities. No fill shall be permitted in coastal waterways or below the seven foot contour for structures adjacent to the lagoon unless it is consistent with Coastal Act Section 30233 and is the least environmentally damaging alternative.

- Regulations regarding the use of native flora, setbacks, and higher floor and driveway elevations to mitigate potential for erosion and flooding, and to provide for habitat protection, shall be consistent with the Venice Canals Rehabilitation Plan approved by Coastal Commission Coastal Development Permit 5-91-584, and the Ballona Lagoon Enhancement Plan approved by Coastal Commission Coastal Development Permit 5-95-152 and amendments.

Venice Community Plan (A part of the City of Los Angeles General Plan):

The Venice Community Plan contains an area of approximately 2 acres of land within the City of Los Angeles and includes the Venice Beach. A stated goal of the Venice Community Plan is to protect environmental resources. Consequently, it is a stated policy to protect and maintain open space areas, including the Venice Canals, Grand Canal, Ballona Lagoon, and beaches.

Venice Coastal Zone Specific Plan:

The Venice Coastal Zone Plan regulates all development, including use, height, density, setback, buffer zone, and other factors in order that it be compatible in character with the existing community and to provide for the consideration of aesthetics and scenic preservation and enhancement, and to protect environmentally sensitive areas. This involves the protection, maintenance, and enhancement, and where feasible, restores the overall quality of the coastal zone environment and its natural and man-made resources. The goal is to implement the Local Coastal Program for that portion of Venice community within the coastal Zone as designated by the State Legislature. Consistent with these goals, the Venice Coastal Zone Plan has established a habitat protection buffer strip around the Ballona Lagoon.

County of Los Angeles

Department of Beaches and Harbor:

Beaches within the boundaries of the City of Los Angeles include Venice Beach. City beaches are leased to Los Angeles County. The County maintains them and their related facilities. The County of Los Angeles Beach Commission is a 20-member body appointed by the Board of Supervisors. It reviews Department of Beaches and Harbors policies, capital projects and contracts as related to the County-operated beaches.

Ten members are appointed by the Fourth Supervisory District, seven from the Third Supervisory District (both districts feature all the County-operated beaches) and one each from the First, Second and Fifth Districts.

Manage Marina del Rey and County owned or operated beaches to enhance public access and enjoyment while maximizing County revenue through professional and proactive asset management. This includes Marina lease administration and leasehold redevelopment; beach concession, parking and use permit administration; beach and Marina maintenance (refuse removal, restroom cleaning, grounds maintenance, and facility repairs); Marina leasehold and beach facilities maintenance inspections; planning and implementation of Marina del Rey and beach capital and infrastructure improvement programs; marketing and management of promotional campaigns; and children's programs including the Day in the Marina and the Water Awareness, Training, Education, and Recreation (W.A.T.E.R.) programs.

Significant Ecological Areas (SEA's) and Coastal Wetlands:

SEA's are significant habitats identified by Los Angeles County as important of the preservation and maintenance of biodiversity. These SEA's were identified and documented by the Regional Planning Commission (1976). Each SEA was selected on the basis of existing known habitats of sensitive or endangered species as well as sites containing a diversity of native plant and animal resources. The Ballona Wetland and the Venice Canal system are considered to be both a coastal wetlands and SEA's by the County of Los Angeles. Policy 1 – is to identify significant habitat areas, corridors and buffers and to take measure to protect, enhance, and/or restore them. Policy 2 is to protect, restore, and / or enhance habitat areas, linkages, and corridor segments, to the greatest extent practicable within city owned or managed sites.

City of Los Angeles

California Environmental Quality Act (CEQA):

CEQA requires state and local agencies, in this case the City of Venice Beach, to evaluate the environmental impacts of proposed projects and avoid or mitigate impacts on the environment. CEQA also provides that agencies can approve or undertake projects that will significantly impact the environment if the agency makes specific findings of overriding considerations.

The purpose of an Environmental Impact Report (EIR), as defined in section 15121 (a) of the State Guidelines for the implementation of the California Environmental Quality Act (CEQA) California Code of Regulations (CCR), Title 14, Division 6, Chapter 3 "Guidelines" is as follows:

> *An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effect and describe reasonable alternatives to the project.*

This document assesses the significant environmental impacts, including unavoidable adverse impacts and cumulative impacts, related to the adoption of the City's proposed construction and operation of a 54-inch force main from the existing Venice Pumping Plant.

The City of Los Angeles is the lead agency, as defined by Section 21067 of CEQA, for this Draft EIR and has supervised its preparation. The City of Los Angeles' City Council has primary responsibility for the adoption and implementation of the proposed project and the certification of the project's Final EIR.

General Plan: Conservation Element:

The State in 1970 and 1971 required that conservation and open space elements be included in the City of Los Angeles General Plan. The conservation element addresses the natural resources

of the City of Los Angeles, including endangered species, beach erosion, significant ecological areas, and coastal wetlands.

Endangered Species. Then city's objectives to protect and promote the restoration, to the greatest extent practical, of sensitive plant and animal species and their habitats. Policy 1 – is to require evaluation, avoidance, and minimization of potential significant impacts, as well as mitigation of unavoidable significant impacts on sensitive animal and plant species and their habitat. Policy 2 – administer city-owned and managed properties so as to protect and/or enhance the survival of sensitive plant and animal species to the greatest practical extent.

Beach Erosion. Beaches within the boundaries of the City of Los angels include Venice Beach. City beaches are leased to Los Angeles County (see above for - Department of Beaches and Parks). The County maintains them and their related facilities. Therefore, the City of Los Angeles does not have primary jurisdiction over beach management.

Ballona Lagoon Bird Census Summary

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BALLONA LAGOON BIRD CENSUS SUMMARY

For period April 1996 through June 2005

	Species / Date	14-Apr-96	9-May-96	20-Jun-96	27-Jul-96	18-Aug-96	22-Sep-96	20-Oct-96	24-Nov-96	8-Dec-96	18-Jan-97	17-Feb-97	8-Mar-97	27-Apr-97	25-May-97	22-Jun-97	Jul 97
	Person-minutes per visit	**45**	**105**	**30**	**20**	**52**	**30**	**25**	**61**	**50**	**50**	**45**	**45**	**30**	**35**	**40**	
	Water level (in meters)																
1	Western Grebe									3							
2	Red-necked Grebe																
3	Horned Grebe																
4	Eared Grebe								1								
5	Pied-billed Grebe								2		2		1				
6	Double-crested Cormorant		1								1			1			
7	Pelagic Cormorant																
8	Brown Pelican									1	2	2					
9	Great Blue Heron	1				2			2		1	1			1	1	
10	Great Egret		1						2	1	1		3				
11	Snowy Egret	1	2			1	2	1	17	2	7	18	14				
12	Little Blue Heron																
13	Green Heron	3	7	3	1	2	2	2	2		1	1		3	1	5	
14	Black-crowned Night Heron		1			1											
15	Domestic (Greylag) Goose																
16	Brant																
17	Ruddy Duck																
18	American Wigeon																
19	Mallard	15	8	6		6			27	27	16	14	6	13	4	2	
20	Blue-winged Teal																
21	Green-winged Teal																
22	Greater Scaup																
23	Lesser Scaup	1															
24	Bufflehead												2				
25	Common Goldeneye																
26	Red-breasted Merganser								6	8	11	12	19				
27	Surf Scoter																
28	Red-tailed Hawk																
29	American Kestral	1					1	1									
30	American Coot					1											
31	Black-bellied Plover	1	1			4	12	1	6	5	1	7					
32	Killdeer		3		4	5	6	12	1	2		1	4	3	2	1	
33	Semipalmated Plover					1	1									5	
34	Greater Yellowlegs						1		1							1	
35	Willet	4	7			15	13	7	5	8	6	6	6	4	1	1	
36	Spotted Sandpiper																
37	Whimbrel	2	1			3	1	1	6	4	4	6	3	1	2		
38	Marbled Godwit	37	2			4	1		28	32	43	47	35	12			
39	Dunlin								2		2	3					
40	Sanderling																
41	Western Sandpiper	3							4	82	309	305	3			2	
42	Least Sandpiper	5							4	31	9	150					
43	Short-billed Dowitcher	1												5			
44	Long-billed Dowitcher								66	12	38	76	72				
45	Wilson's Snipe																
46	Red-necked Phalarope					1											
47	Ring-billed Gull		3			2		3	17	11	35	24	16				
48	California Gull	4			3					9	3	7	14				
49	Herring Gull																
50	Thayer's Gull																
51	Western Gull			1		1	1	1			2		1			3	
52	Glaucous-winged Gull																
53	Heerman's Gull																
54	Caspian Tern																
55	Forster's Tern	3														2	
56	Least Tern		18	8											2	9	
57	Black Skimmer																
58	Rock Dove	10	5	15	5	12	1	3	3		6	7	2	5	4	5	
59	Mourning Dove	1	4	2		1										2	
60	Spotted Dove	1	1	1					1					1		1	
61	Yellow-chevroned Parakeet																
62	Black-chinned Hummingbird																
63	Anna's Hummingbird (or Sp?)														1		
64	Rufous Hummingbird																
65	Allen's Hummingbird									2							
66	Belted Kingfisher						1				1		1				
67	Cassin's Kingbird																
68	Western Kingbird	1															
69	Black Phoebe	1	4			2		1		2		1				1	
70	Say's Phoebe																
71	Pacific-slope Flycatcher																
72	Northern Rough-winged Swallow																
73	Cliff Swallow	12	8														
74	Barn Swallow	4	3	3	1											4	
75	Western Scrub-Jay																
76	American Crow	2	5	3	3				1		2	3				3	
77	Bushtit																
78	No. Mockingbird		1	11	2	1										1	
79	Loggerhead Shrike										1						
80	Bewick's Wren						1				1						
81	House Wren																
82	Ruby-crowned Kinglet																
83	European Starling	18	32	32	5	31			7	1	2	20	18	11	2	16	
84	Orange-crowned Warbler																
85	Yellow-rumped Warbler																
86	Common Yellowthroat																
87	Song Sparrow																
88	Lincoln's Sparrow																
89	White-crowned Sparrow																
90	Golden-crowned Sparrow																
91	Hooded Oriole																
92	House Finch	7	21	3			2								2	2	
93	Lesser Goldfinch																
94	House Sparrow	6	8	14	34	1						2	13	1	4	7	
Total Birds Sighted		**145**	**147**	**102**	**58**	**97**	**46**	**33**	**211**	**243**	**507**	**713**	**233**	**60**	**26**	**74**	
% of Tot Sightings		**0.8%**	**0.8%**	**0.5%**	**0.3%**	**0.5%**	**0.2%**	**0.2%**	**1.1%**	**1.3%**	**2.7%**	**3.8%**	**1.2%**	**0.3%**	**0.1%**	**0.4%**	
Total Species Sighted		**27**	**24**	**13**	**9**	**21**	**15**	**11**	**23**	**19**	**26**	**22**	**19**	**12**	**12**	**21**	
% of Tot Species		**28.7%**	**25.5%**	**13.8%**	**9.6%**	**22.3%**	**16.0%**	**11.7%**	**24.5%**	**20.2%**	**27.7%**	**23.4%**	**20.2%**	**12.8%**	**12.8%**	**22.3%**	
Average Total Birds Sighted			**146**	**131**	**113**	**110**	**99**	**90**	**105**	**120**	**159**	**209**	**211**	**200**	**187**	**180**	
Average % of Tot Sightings			**101%**	**78%**	**51%**	**88%**	**46%**	**37%**	**201%**	**202%**	**319%**	**341%**	**110%**	**30%**	**14%**	**41%**	
Average Total Species Sighted			**25.5**	**21.3**	**18.3**	**18.8**	**18.2**	**17.1**	**17.9**	**18.0**	**18.8**	**19.1**	**19.1**	**18.5**	**18.1**	**18.3**	
Average % of Tot Species			**94%**	**61%**	**49%**	**112%**	**83%**	**64%**	**129%**	**106%**	**138%**	**115%**	**100%**	**65%**	**66%**	**115%**	

For period April 1996 through June 2005

	Species / Date	16-Aug-97	18-Sep-97	17-Oct-97	14-Nov-97	27-Dec-97	Jan 1998	8-Feb-98	27-Mar-98	29-Apr-98	29-May-98	30-Jun-98	25-Jul-98	23-Aug-98	9-Sep-98	18-Oct-98	5-Nov-98
	Person-minutes per visit	**30**	**90**	**80**	**70**	**150**		**130**	**55**	**15**	**30**	**40**	**30**	**78**	**90**	**80**	**80**
	Water level (in meters)																
1	Western Grebe				1			1		1							
2	Red-necked Grebe								2								
3	Horned Grebe					1		2									
4	Eared Grebe				1	3		4	1								
5	Pied-billed Grebe			1	3	2		4									
6	Double-crested Cormorant				1	1		3		3						4	3
7	Pelagic Cormorant																
8	Brown Pelican				1	1		8	3								3
9	Great Blue Heron		2	3	1			1				2	2	1	1	1	2
10	Great Egret			3	1	4		2	2	1					1	2	3
11	Snowy Egret	1	8	6	5	7		9	11	9	1	1				6	2
12	Little Blue Heron																
13	Green Heron	3	1	3	1	1				6	4	5	3	2	3	3	
14	Black-crowned Night Heron			5						5	2		1	9			
15	Domestic (Greylag) Goose																2
16	Brant																
17	Ruddy Duck								2								
18	American Wigeon																
19	Mallard	7	29	49	13	25		12	11	7	8	2	12	4	31	20	42
20	Blue-winged Teal																
21	Green-winged Teal																
22	Greater Scaup																
23	Lesser Scaup							22									
24	Bufflehead					15											
25	Common Goldeneye																
26	Red-breasted Merganser				3	5		23	19	1							1
27	Surf Scoter							5	19	2	4	2					
28	Red-tailed Hawk																
29	American Kestral				1	1		1								1	
30	American Coot																
31	Black-bellied Plover		3	2	1	3		2						3	4	6	5
32	Killdeer	4	7	8	6	5		3	2				3	3	4	13	12
33	Semipalmated Plover																
34	Greater Yellowlegs																
35	Willet	5	6	5	3	9		5	10			2	5	7	9	10	5
36	Spotted Sandpiper																
37	Whimbrel	3	5	2	1	3		3	3	4				3	2	3	2
38	Marbled Godwit	2	14	18	4	24		23	15	7	3	2	4	16	6	25	6
39	Dunlin				1	8		1									
40	Sanderling																
41	Western Sandpiper			62		288		87	10								
42	Least Sandpiper	9	2		2	20		1									
43	Short-billed Dowitcher								7								
44	Long-billed Dowitcher				44	41		123								2	19
45	Wilson's Snipe																
46	Red-necked Phalarope																
47	Ring-billed Gull		2	1	1	45		15		7				1			5
48	California Gull			2	4	29		13	5	7							
49	Herring Gull							1									
50	Thayer's Gull																
51	Western Gull									13	2		1		4	1	
52	Glaucous-winged Gull																
53	Heerman's Gull			1													
54	Caspian Tern																
55	Forster's Tern								1	2							
56	Least Tern									8	6	11	3				
57	Black Skimmer												2				
58	Rock Dove		4		1	7		4		1	7	2	4			2	1
59	Mourning Dove			1						1	1	3	21	5			
60	Spotted Dove	1						4	1				2	1	2		
61	Yellow-chevroned Parakeet																
62	Black-chinned Hummingbird																
63	Anna's Hummingbird (or Sp?)			1		2								1			
64	Rufous Hummingbird																
65	Allen's Hummingbird										1						
66	Belted Kingfisher	1	1		1	1		1						2		1	1
67	Cassin's Kingbird																
68	Western Kingbird																
69	Black Phoebe	1	4	3	1	2		1	2	1	2			1			2
70	Say's Phoebe					1											
71	Pacific-slope Flycatcher																
72	Northern Rough-winged Swallow																
73	Cliff Swallow										1	3					
74	Barn Swallow										1			4		3	
75	Western Scrub-Jay																
76	American Crow	2	1	2	3	5		4	3	2	3	3		4	3	1	2
77	Bushtit															10	
78	No. Mockingbird											1	1	2			
79	Loggerhead Shrike																
80	Bewick's Wren																
81	House Wren																
82	Ruby-crowned Kinglet																
83	European Starling		42		3	32		13	5	7	15	1	9	18		2	16
84	Orange-crowned Warbler																
85	Yellow-rumped Warbler				1	2		1									
86	Common Yellowthroat																
87	Song Sparrow																
88	Lincoln's Sparrow																
89	White-crowned Sparrow																
90	Golden-crowned Sparrow																
91	Hooded Oriole																
92	House Finch		2			4			3			2	10	28		3	1
93	Lesser Goldfinch																
94	House Sparrow									3	20	23	6	7			
Total Birds Sighted		**39**	**133**	**178**	**109**	**597**		**402**	**137**	**98**	**81**	**65**	**89**	**122**	**70**	**119**	**135**
% of Tot Sightings		**0.2%**	**0.7%**	**0.9%**	**0.6%**	**3.2%**		**2.1%**	**0.7%**	**0.5%**	**0.4%**	**0.3%**	**0.5%**	**0.6%**	**0.4%**	**0.6%**	**0.7%**
Total Species Sighted		**12**	**17**	**20**	**28**	**32**		**33**	**22**	**22**	**17**	**16**	**17**	**21**	**12**	**21**	**21**
% of Tot Species		**12.8%**	**18.1%**	**21.3%**	**29.8%**	**34.0%**		**35.1%**	**23.4%**	**23.4%**	**18.1%**	**17.0%**	**18.1%**	**22.3%**	**12.8%**	**22.3%**	**22.3%**
Average Total Birds Sighted		**171**	**169**	**169**	**166**	**188**		**198**	**195**	**191**	**186**	**181**	**178**	**176**	**172**	**170**	**169**
Average % of Tot Sightings		**23%**	**79%**	**105%**	**66%**	**318%**		**203%**	**70%**	**51%**	**43%**	**36%**	**50%**	**69%**	**41%**	**70%**	**80%**
Average Total Species Sighted		**17.9**	**17.8**	**17.9**	**18.5**	**19.2**		**19.8**	**19.9**	**20.0**	**19.9**	**19.7**	**19.6**	**19.7**	**19.4**	**19.4**	**19.5**
Average % of Tot Species		**67%**	**95%**	**111%**	**152%**	**167%**		**167%**	**111%**	**110%**	**86%**	**81%**	**87%**	**107%**	**62%**	**108%**	**108%**

For period April 1996 through June 2005

	Species / Date	6-Dec-98	18-Jan-99	15-Feb-99	28-Mar-99	21-Apr-99	19-May-99	16-Jun-99	16-Jul-99	28-Aug-99	26-Sep-99	25-Oct-99	21-Nov-99	23-Dec-99	20-Jan-00	18-Feb-00	17-Mar-00
	Person-minutes per visit	**70**	**100**	**40**	**110**	**60**	**60**	**60**	**44**	**70**	**100**	**96**	**90**	**76**	**30**	**60**	**100**
	Water level (in meters)																
1	Western Grebe	1															
2	Red-necked Grebe																
3	Horned Grebe																
4	Eared Grebe			1													1
5	Pied-billed Grebe												1		1	1	
6	Double-crested Cormorant	2									1	1	3		1	1	1
7	Pelagic Cormorant																
8	Brown Pelican	1									1		1		1	4	3
9	Great Blue Heron	1	1	2	1				1	4	1	2	1	1	1	2	1
10	Great Egret	1	1	1	1	1					3	1	5	6		1	2
11	Snowy Egret	12	1	3	15	5	1	1		3	7	1	13	6		12	6
12	Little Blue Heron																
13	Green Heron				2	5		1	3	2	1	2				1	1
14	Black-crowned Night Heron										3			6			
15	Domestic (Greylag) Goose																
16	Brant																
17	Ruddy Duck																
18	American Wigeon																
19	Mallard	44	18	51	10	7	6	6	5	24	81	27	25	24	25	8	4
20	Blue-winged Teal																
21	Green-winged Teal																
22	Greater Scaup																
23	Lesser Scaup		3												2	2	1
24	Bufflehead		2												9	8	
25	Common Goldeneye																
26	Red-breasted Merganser	13	7	7											13	14	18
27	Surf Scoter																
28	Red-tailed Hawk																
29	American Kestral				1										1		
30	American Coot	1	1	1													
31	Black-bellied Plover	4	7	4	1	2				4	5	6	4	6	2		1
32	Killdeer	3	16	14	4		3	2	3	2	12	18	4	7		4	9
33	Semipalmated Plover							3									
34	Greater Yellowlegs																
35	Willet	3	7	5	6	3			1	10	10	4	5	5	1	8	6
36	Spotted Sandpiper																
37	Whimbrel	1	1	1	3	3				4	5	4	5	5	3	5	3
38	Marbled Godwit	5	4	2	22	11				1			11	3		33	50
39	Dunlin															23	
40	Sanderling																
41	Western Sandpiper		2		57	74										12	1000
42	Least Sandpiper					13											19
43	Short-billed Dowitcher					1											
44	Long-billed Dowitcher	48	99	28	3							4		39	19	54	40
45	Wilson's Snipe																
46	Red-necked Phalarope																
47	Ring-billed Gull	3	6	12	2	2				1	1	3	21	24	15	9	4
48	California Gull	48	92	32	4	1				4	2		31		1		
49	Herring Gull													1			
50	Thayer's Gull																
51	Western Gull				1							1	2	1			1
52	Glaucous-winged Gull																
53	Heerman's Gull																
54	Caspian Tern																
55	Forster's Tern																
56	Least Tern						8	2									
57	Black Skimmer																
58	Rock Dove				4	6	5	3	8		4	4	2	2	1	10	4
59	Mourning Dove					2	4		2							6	8
60	Spotted Dove		2	3	1		1	2	1			1	1	1			2
61	Yellow-chevroned Parakeet																
62	Black-chinned Hummingbird																
63	Anna's Hummingbird (or Sp?)									1		2			1		1
64	Rufous Hummingbird																
65	Allen's Hummingbird							3									
66	Belted Kingfisher		1	1	3						2	2		1			1
67	Cassin's Kingbird																
68	Western Kingbird																
69	Black Phoebe		2	3			2	1	2	1	1	2	2	1	2		1
70	Say's Phoebe	2		2							1						
71	Pacific-slope Flycatcher																
72	Northern Rough-winged Swallow																
73	Cliff Swallow							1									
74	Barn Swallow					3	6	2									
75	Western Scrub-Jay																
76	American Crow			2	2	4	1	1	1	3	2	4				4	4
77	Bushtit																
78	No. Mockingbird				1		2		1		2	2					2
79	Loggerhead Shrike																
80	Bewick's Wren																
81	House Wren																
82	Ruby-crowned Kinglet																
83	European Starling	1	33	29	23	7	10	5	13	27	32	9	6	10	1	3	14
84	Orange-crowned Warbler																
85	Yellow-rumped Warbler	1		2								1					
86	Common Yellowthroat										2						
87	Song Sparrow										1	1					
88	Lincoln's Sparrow																
89	White-crowned Sparrow											4	2	9			2
90	Golden-crowned Sparrow				1												
91	Hooded Oriole																
92	House Finch	4	4	12	2	3	6	5	2	25	1	6	6	12			11
93	Lesser Goldfinch																
94	House Sparrow				17	5	15	6	9	12	3			2			45
Total Birds Sighted		**199**	**310**	**218**	**187**	**158**	**70**	**44**	**52**	**128**	**184**	**112**	**151**	**172**	**100**	**225**	**1,266**
% of Tot Sightings		**1.1%**	**1.6%**	**1.2%**	**1.0%**	**0.8%**	**0.4%**	**0.2%**	**0.3%**	**0.7%**	**1.0%**	**0.6%**	**0.8%**	**0.9%**	**0.5%**	**1.2%**	**6.7%**
Total Species Sighted		**21**	**22**	**23**	**25**	**20**	**14**	**16**	**14**	**17**	**25**	**25**	**21**	**22**	**19**	**23**	**32**
% of Tot Species		**22.3%**	**23.4%**	**24.5%**	**26.6%**	**21.3%**	**14.9%**	**17.0%**	**14.9%**	**18.1%**	**26.6%**	**26.6%**	**22.3%**	**23.4%**	**20.2%**	**24.5%**	**34.0%**
Average Total Birds Sighted		**170**	**174**	**176**	**176**	**175**	**173**	**169**	**166**	**165**	**165**	**164**	**164**	**164**	**163**	**164**	**188**
Average % of Tot Sightings		**117%**	**178%**	**124%**	**106%**	**90%**	**41%**	**26%**	**31%**	**78%**	**111%**	**68%**	**92%**	**105%**	**62%**	**137%**	**674%**
Average Total Species Sighted		**19.5**	**19.6**	**19.7**	**19.9**	**19.9**	**19.7**	**19.6**	**19.5**	**19.4**	**19.6**	**19.7**	**19.7**	**19.8**	**19.8**	**19.8**	**20.1**
Average % of Tot Species		**107%**	**112%**	**117%**	**126%**	**101%**	**71%**	**82%**	**72%**	**88%**	**128%**	**127%**	**107%**	**111%**	**96%**	**116%**	**159%**

For period April 1996 through June 2005

	Species / Date	15-Apr-00	6-May-00	4-Jun-00	31-Jul-00	30-Aug-00	29-Sep-00	26-Oct-00	13-Nov-00	13-Dec-00	9-Jan-01	8-Feb-01	7-Mar-01	6-Apr-01	26-May-01	25-Jun-01	23-Jul-01
	Person-minutes per visit	**144**	**54**	**50**	**62**	**56**	**60**	**80**	**70**	**70**	**35**	**50**	**55**	**120**	**45**	**28**	**25**
	Water level (in meters)							**-1.00**	**-0.75**	**-0.45**	**-0.42**	**-0.50**				**-0.15**	**0.10**
1	Western Grebe							1					1				
2	Red-necked Grebe																
3	Horned Grebe																
4	Eared Grebe							2									
5	Pied-billed Grebe							1		1		2					
6	Double-crested Cormorant	2	1		1	1		2	1	3	1	2	1				
7	Pelagic Cormorant																
8	Brown Pelican	2						3	2	1	7		3				
9	Great Blue Heron		1				1	1	1	2	1	2	1		2		1
10	Great Egret					3	4	5	2	4	1	1	2	2			2
11	Snowy Egret	9	1		1	1	8	5	3	1	2	1	7	4			
12	Little Blue Heron	1															
13	Green Heron	4	2	1	2	1	1	1				1					3
14	Black-crowned Night Heron						1	2	2	4	1	2					
15	Domestic (Greylag) Goose																
16	Brant																
17	Ruddy Duck																
18	American Wigeon											2	4				
19	Mallard	3	5	3	17	39	21	13	28	60	16	14	8	11		3	3
20	Blue-winged Teal																
21	Green-winged Teal																
22	Greater Scaup																
23	Lesser Scaup	1										8	18				
24	Bufflehead										3	5	4	2			
25	Common Goldeneye																
26	Red-breasted Merganser	3							6	11	11	13	7	2			
27	Surf Scoter																
28	Red-tailed Hawk																
29	American Kestral				1												
30	American Coot																
31	Black-bellied Plover	1				2	6	2	4								
32	Killdeer	4	1	1	5	1	17	3	2	4	5	6	3	1		1	1
33	Semipalmated Plover				1												
34	Greater Yellowlegs																
35	Willet	14	2	1	1	1	6	3	1			1	4	5		1	10
36	Spotted Sandpiper																
37	Whimbrel	6			3		9	3	2	2	1	3	4	4			
38	Marbled Godwit	16					4			1	1	7	5	22			
39	Dunlin								1								
40	Sanderling																
41	Western Sandpiper	166					4							75			
42	Least Sandpiper	6							1			21					
43	Short-billed Dowitcher	16															
44	Long-billed Dowitcher							15									1
45	Wilson's Snipe																
46	Red-necked Phalarope																
47	Ring-billed Gull	1						4	7	19	12	14	7	5			
48	California Gull	3						2		10	16	13					
49	Herring Gull	1							1								
50	Thayer's Gull																
51	Western Gull		1	2	1		3	1			1	1	1	2	2		
52	Glaucous-winged Gull																
53	Heerman's Gull																
54	Caspian Tern															2	
55	Forster's Tern	1												1			
56	Least Tern		18	4	5										11	18	4
57	Black Skimmer																
58	Rock Dove	5	1	8	8			1		1		2			4	2	1
59	Mourning Dove	2	2	2	6								4		8	6	7
60	Spotted Dove	2	2		1	1		2					1	2		2	
61	Yellow-chevroned Parakeet																
62	Black-chinned Hummingbird																
63	Anna's Hummingbird (or Sp?)			1				3	1	2					1		
64	Rufous Hummingbird																
65	Allen's Hummingbird				2	1		1					1	1			
66	Belted Kingfisher					2	1	1	1		1	1	1				
67	Cassin's Kingbird																
68	Western Kingbird																
69	Black Phoebe	1					1	1	1	2	2	2	1	3	1	2	
70	Say's Phoebe							1		1		1					
71	Pacific-slope Flycatcher																
72	Northern Rough-winged Swallow															2	
73	Cliff Swallow	2	1														
74	Barn Swallow			2											1		
75	Western Scrub-Jay																
76	American Crow	9	5	2	2	3	6	9	3		6	3	3	4	3	2	3
77	Bushtit									14							
78	No. Mockingbird	4	1	1	2			1		1	1		3		4	2	3
79	Loggerhead Shrike																
80	Bewick's Wren																
81	House Wren																
82	Ruby-crowned Kinglet																
83	European Starling	13	19	13	8	30		12	5	4	31	16	7	10	12	11	14
84	Orange-crowned Warbler																
85	Yellow-rumped Warbler																
86	Common Yellowthroat								1				1				
87	Song Sparrow																
88	Lincoln's Sparrow																
89	White-crowned Sparrow								6	5	4	10	6				
90	Golden-crowned Sparrow																
91	Hooded Oriole																
92	House Finch	10	4		2	13			1	22	6		3	8	4	8	1
93	Lesser Goldfinch																
94	House Sparrow	18	7	4	38			3		2	3	31	42	21	7	3	9
Total Birds Sighted		**326**	**74**	**45**	**107**	**99**	**93**	**104**	**83**	**177**	**133**	**185**	**153**	**185**	**60**	**65**	**63**
% of Tot Sightings		**1.7%**	**0.4%**	**0.2%**	**0.6%**	**0.5%**	**0.5%**	**0.6%**	**0.4%**	**0.9%**	**0.7%**	**1.0%**	**0.8%**	**1.0%**	**0.3%**	**0.3%**	**0.3%**
Total Species Sighted		**30**	**18**	**14**	**20**	**14**	**16**	**30**	**24**	**24**	**23**	**28**	**29**	**20**	**13**	**15**	**15**
% of Tot Species		**31.9%**	**19.1%**	**14.9%**	**21.3%**	**14.9%**	**17.0%**	**31.9%**	**25.5%**	**25.5%**	**24.5%**	**29.8%**	**30.9%**	**21.3%**	**13.8%**	**16.0%**	**16.0%**
Average Total Birds Sighted		**191**	**188**	**186**	**184**	**182**	**181**	**179**	**177**	**177**	**177**	**177**	**176**	**176**	**174**	**173**	**171**
Average % of Tot Sightings		**171%**	**39%**	**24%**	**58%**	**54%**	**52%**	**58%**	**47%**	**100%**	**75%**	**105%**	**87%**	**105%**	**34%**	**38%**	**37%**
Average Total Species Sighted		**20.3**	**20.3**	**20.1**	**20.1**	**20.0**	**19.9**	**20.1**	**20.2**	**20.3**	**20.3**	**20.4**	**20.6**	**20.6**	**20.5**	**20.4**	**20.3**
Average % of Tot Species		**148%**	**89%**	**70%**	**99%**	**70%**	**80%**	**149%**	**119%**	**118%**	**113%**	**137%**	**141%**	**97%**	**64%**	**74%**	**74%**

For period April 1996 through June 2005

	Species / Date	23-Aug-01	18-Sep-01	19-Oct-01	14-Nov-01	13-Dec-01	12-Jan-02	28-Feb-02	24-Mar-02	7-Apr-02	29-May-02	13-Jun-02	13-Jul-02	11-Aug-02	9-Sep-02	9-Oct-02	4-Nov-02
	Person-minutes per visit	**34**	**30**	**30**	**65**	**35**	**118**	**59**	**122**	**110**	**60**	**66**	**64**	**35**	**64**	**70**	**70**
	Water level (in meters)	**-0.30**	**-0.50**		**-1.00**		**-0.30**			**-0.70**	**0.00**	**-0.32**	**-0.10**		**-0.30**	**-0.30**	**-1.00**
1	Western Grebe																
2	Red-necked Grebe																
3	Horned Grebe																
4	Eared Grebe			1		1											
5	Pied-billed Grebe					1											
6	Double-crested Cormorant			3	3	1		1				1	2			1	
7	Pelagic Cormorant																
8	Brown Pelican		7		1						1						2
9	Great Blue Heron		1	3	2		1	1	1		1	1	1	2	1	2	1
10	Great Egret	2	2	2	2		1	6	2	2	2	2	5	3	2	2	2
11	Snowy Egret	4	2	1	13		1	26	7	41	4	2	7	6	4	2	2
12	Little Blue Heron																
13	Green Heron	1	2							1		1	1				
14	Black-crowned Night Heron			1				1				1	1				
15	Domestic (Greylag) Goose																
16	Brant																
17	Ruddy Duck																
18	American Wigeon																
19	Mallard	31	5	83	11	35	55	26	8	4	9	3		10	41	39	80
20	Blue-winged Teal																
21	Green-winged Teal																
22	Greater Scaup							15	5								
23	Lesser Scaup								13								
24	Bufflehead					4	1	6	3								
25	Common Goldeneye																
26	Red-breasted Merganser					7	16	9	3	1							
27	Surf Scoter																
28	Red-tailed Hawk																
29	American Kestral							1									
30	American Coot																
31	Black-bellied Plover			2		3	5	2	2	1				1	2	3	5
32	Killdeer		4	2	9	5	15	1	2	1	2	2	1	4	6	4	2
33	Semipalmated Plover													2			
34	Greater Yellowlegs			1					1								
35	Willet	5	4	6	7	2	6	6	7	14		1	6	10	5	7	6
36	Spotted Sandpiper														1		
37	Whimbrel	5	4	3	7	2	2	2	2	3			1	2		2	1
38	Marbled Godwit		3	2	8	1	35	26	53	43				2	1		
39	Dunlin																
40	Sanderling						1										
41	Western Sandpiper					1		1	102	58			2				
42	Least Sandpiper					32	128	8	103	196							
43	Short-billed Dowitcher									2							
44	Long-billed Dowitcher					9	13	50	9								1
45	Wilson's Snipe																
46	Red-necked Phalarope																
47	Ring-billed Gull		3	1	2	16	11	14	2					1	1	1	5
48	California Gull					2			3								
49	Herring Gull																
50	Thayer's Gull															1	
51	Western Gull			8	11	3		2	2			2					2
52	Glaucous-winged Gull						1										
53	Heerman's Gull																
54	Caspian Tern																
55	Forster's Tern								1	1							
56	Least Tern											9					
57	Black Skimmer																
58	Rock Dove	6		1		1		2		2	2	6	4	8		3	6
59	Mourning Dove	1	8		11	1	1	1	2	4	8	6	2	10	26	1	
60	Spotted Dove	1						2		1	2	2					
61	Yellow-chevroned Parakeet																
62	Black-chinned Hummingbird																
63	Anna's Hummingbird (or Sp?)				1	1	1										1
64	Rufous Hummingbird																
65	Allen's Hummingbird			1	1						2		1				3
66	Belted Kingfisher	1	2	1	2		1							1			2
67	Cassin's Kingbird																
68	Western Kingbird																
69	Black Phoebe			1	2	2	3			1	1		1		3	1	
70	Say's Phoebe						1										1
71	Pacific-slope Flycatcher									1							
72	Northern Rough-winged Swallow									1	1	3					
73	Cliff Swallow																
74	Barn Swallow									2	3	1	1	1			
75	Western Scrub-Jay																
76	American Crow	2	2		2			5	5	4	7	5		3	4	1	1
77	Bushtit																
78	No. Mockingbird		1	2	1	1		1			2	3	5		1	1	
79	Loggerhead Shrike																
80	Bewick's Wren																
81	House Wren			1													
82	Ruby-crowned Kinglet																
83	European Starling	6	1	11	5	16	9	18	8	20	13	31	50	42	71	20	17
84	Orange-crowned Warbler																
85	Yellow-rumped Warbler			1		4		2									
86	Common Yellowthroat															1	
87	Song Sparrow																
88	Lincoln's Sparrow						1										
89	White-crowned Sparrow				6			2		1						2	
90	Golden-crowned Sparrow																
91	Hooded Oriole																
92	House Finch			7		6	2	9	4	5	4	2	8	4		5	5
93	Lesser Goldfinch																1
94	House Sparrow	8	16		10		9	16	14	22	10	19	14	16	23	6	15
Total Birds Sighted		**73**	**67**	**145**	**117**	**157**	**320**	**262**	**364**	**432**	**74**	**103**	**113**	**128**	**192**	**105**	**161**
% of Tot Sightings		**0.4%**	**0.4%**	**0.8%**	**0.6%**	**0.8%**	**1.7%**	**1.4%**	**1.9%**	**2.3%**	**0.4%**	**0.5%**	**0.6%**	**0.7%**	**1.0%**	**0.6%**	**0.9%**
Total Species Sighted		**13**	**17**	**24**	**22**	**25**	**25**	**30**	**26**	**26**	**19**	**21**	**19**	**19**	**16**	**21**	**22**
% of Tot Species		**13.8%**	**18.1%**	**25.5%**	**23.4%**	**26.6%**	**26.6%**	**31.9%**	**27.7%**	**27.7%**	**20.2%**	**22.3%**	**20.2%**	**20.2%**	**17.0%**	**22.3%**	**23.4%**
Average Total Birds Sighted		**169**	**168**	**167**	**167**	**167**	**169**	**170**	**173**	**177**	**175**	**174**	**173**	**173**	**173**	**172**	**172**
Average % of Tot Sightings		**43%**	**40%**	**87%**	**70%**	**94%**	**190%**	**154%**	**211%**	**245%**	**42%**	**59%**	**65%**	**74%**	**111%**	**61%**	**94%**
Average Total Species Sighted		**20.2**	**20.1**	**20.2**	**20.2**	**20.3**	**20.3**	**20.5**	**20.6**	**20.6**	**20.6**	**20.6**	**20.6**	**20.6**	**20.5**	**20.5**	**20.5**
Average % of Tot Species		**64%**	**85%**	**119%**	**109%**	**123%**	**123%**	**146%**	**126%**	**126%**	**92%**	**102%**	**92%**	**92%**	**78%**	**102%**	**107%**

For period April 1996 through June 2005

	Species / Date	4-Dec-02	29-Jan-03	27-Feb-03	28-Mar-03	21-Apr-03	21-May-03	16-Jun-03	15-Jul-03	30-Aug-03	9-Sep-03	25-Oct-03	28-Nov-03	26-Dec-03	21-Jan-04	14-Feb-04
	Person-minutes per visit	**90**	**130**	**114**	**110**	**66**	**30**	**80**	**43**	**80**	**35**	**78**	**25**	**62**	**96**	**126**
	Water level (in meters)	**-1.00**	**0.10**	**-1.80**	**-0.80**	**-0.45**		**-0.40**	**0.00**	**-0.35**		**0.00**		**-0.70**	**-0.50**	**-0.35**
1	Western Grebe													1	1	
2	Red-necked Grebe															
3	Horned Grebe															
4	Eared Grebe															
5	Pied-billed Grebe	1	1													1
6	Double-crested Cormorant	8	1								1			1	1	1
7	Pelagic Cormorant															
8	Brown Pelican	11	1	1				1						3		
9	Great Blue Heron	1		5		1		2	1	1	4	1		1		
10	Great Egret	7	1	6	1	1		1		3	10	4		2	3	1
11	Snowy Egret	7	1	25	12	2	5	5	2	6	19	1	1	5	5	7
12	Little Blue Heron															
13	Green Heron				2	1	1	1	1	1	2					
14	Black-crowned Night Heron					1		5	1		2					
15	Domestic (Greylag) Goose															
16	Brant															
17	Ruddy Duck											2				
18	American Wigeon		11	15										7		12
19	Mallard	16	7		7	9	1	3	1	14	4	54	10	32	17	13
20	Blue-winged Teal											2				
21	Green-winged Teal											2				
22	Greater Scaup															
23	Lesser Scaup		33	24											24	12
24	Bufflehead		11	6	3								3	3	11	5
25	Common Goldeneye														1	1
26	Red-breasted Merganser	13	12	11	5									12	10	11
27	Surf Scoter															
28	Red-tailed Hawk														1	
29	American Kestral															1
30	American Coot													1		
31	Black-bellied Plover	3			1	1				3		2			1	2
32	Killdeer	18	3	1	6			3		5	3	13		2	8	29
33	Semipalmated Plover				2											
34	Greater Yellowlegs															
35	Willet	5	4	6	8	2	1		1	5	4	1		5		2
36	Spotted Sandpiper															
37	Whimbrel	1		2	3	3				4	3		2	1		4
38	Marbled Godwit	3	3	33	62								4	34		36
39	Dunlin	2			1											
40	Sanderling															
41	Western Sandpiper			17	44											171
42	Least Sandpiper			7	102					13	18					48
43	Short-billed Dowitcher															
44	Long-billed Dowitcher	40		39	39								4	17	77	104
45	Wilson's Snipe										1					
46	Red-necked Phalarope															
47	Ring-billed Gull	25	3	11	2	1						3		2	7	4
48	California Gull											1		1		
49	Herring Gull														1	
50	Thayer's Gull															
51	Western Gull	2		3	10			3	1	3	1				1	1
52	Glaucous-winged Gull															
53	Heerman's Gull															
54	Caspian Tern										1					
55	Forster's Tern			5	2											
56	Least Tern					12	6	6	4							
57	Black Skimmer															
58	Rock Dove		2		3	2	2		2	1	1					
59	Mourning Dove	1	8	5	5	4	1	2	3	4	1	7			1	8
60	Spotted Dove					1		1		1					1	
61	Yellow-chevroned Parakeet							4								
62	Black-chinned Hummingbird															
63	Anna's Hummingbird (or Sp?)	1								3				1		1
64	Rufous Hummingbird															
65	Allen's Hummingbird	1						1				1				1
66	Belted Kingfisher		1	1						1	1	2	1	2	1	2
67	Cassin's Kingbird															
68	Western Kingbird															
69	Black Phoebe	3	1	1	3	3		7	1	3	2	3		2	2	1
70	Say's Phoebe														2	2
71	Pacific-slope Flycatcher															
72	Northern Rough-winged Swallow							1								
73	Cliff Swallow								2							
74	Barn Swallow															
75	Western Scrub-Jay															
76	American Crow	7		6	4	2	2	3	1	1	2	2			13	5
77	Bushtit											6				
78	No. Mockingbird	1			2	3	1	1	2	1		2			2	3
79	Loggerhead Shrike															
80	Bewick's Wren															
81	House Wren	1											1			
82	Ruby-crowned Kinglet															
83	European Starling	13		7	12	22	11	20	11	62	31	72			15	1
84	Orange-crowned Warbler											1				1
85	Yellow-rumped Warbler													2	2	
86	Common Yellowthroat	1		2						1	2	3			2	
87	Song Sparrow															
88	Lincoln's Sparrow	2														
89	White-crowned Sparrow	3		3	2									1	5	1
90	Golden-crowned Sparrow															
91	Hooded Oriole								1							
92	House Finch	12	6	26	9	10	4	5	1	12	8			2	29	6
93	Lesser Goldfinch															
94	House Sparrow	13	39	24	14	26	16	21	18	28	12	33			29	22
Total Birds Sighted		**222**	**149**	**292**	**366**	**107**	**51**	**96**	**54**	**176**	**133**	**218**	**26**	**140**	**273**	**520**
% of Tot Sightings		**1.2%**	**0.8%**	**1.5%**	**1.9%**	**0.6%**	**0.3%**	**0.5%**	**0.3%**	**0.9%**	**0.7%**	**1.2%**	**0.1%**	**0.7%**	**1.4%**	**2.8%**
Total Species Sighted		**30**	**20**	**27**	**28**	**20**	**12**	**21**	**18**	**23**	**23**	**23**	**8**	**24**	**29**	**34**
% of Tot Species		**31.9%**	**21.3%**	**28.7%**	**29.8%**	**21.3%**	**12.8%**	**22.3%**	**19.1%**	**24.5%**	**24.5%**	**24.5%**	**8.5%**	**25.5%**	**30.9%**	**36.2%**
Average Total Birds Sighted		**173**	**172**	**174**	**176**	**175**	**174**	**173**	**171**	**172**	**171**	**172**	**170**	**170**	**171**	**175**
Average % of Tot Sightings		**129%**	**86%**	**168%**	**208%**	**61%**	**29%**	**56%**	**31%**	**103%**	**78%**	**127%**	**15%**	**83%**	**160%**	**298%**
Average Total Species Sighted		**20.7**	**20.7**	**20.7**	**20.8**	**20.8**	**20.7**	**20.7**	**20.7**	**20.7**	**20.7**	**20.8**	**20.6**	**20.6**	**20.7**	**20.9**
Average % of Tot Species		**145%**	**97%**	**130%**	**135%**	**96%**	**58%**	**101%**	**87%**	**111%**	**111%**	**111%**	**39%**	**116%**	**140%**	**163%**

For period April 1996 through June 2005

	Species / Date	19-Mar-04	8-Apr-04	7-May-04	26-Jun-04	30-Jul-04	6-Aug-04	29-Sep-04	15-Oct-04	12-Nov-04	12-Dec-04	22-Jan-05	9-Feb-05	7-Mar-05	6-Apr-05	27-May-05
	Person-minutes per visit	**84**	**50**	**50**	**88**	**50**	**52**	**92**	**60**	**74**	**80**	**100**	**132**	**72**	**122**	**82**
	Water level (in meters)	**-0.42**	**-0.20**		**-0.40**	**-0.10**	**0.08**	**0.10**	**-0.28**	**0.20**	**0.22**	**0.22**	**0.04**	**0.10**	**-0.70**	**-0.25**
1	Western Grebe													1		
2	Red-necked Grebe															
3	Horned Grebe															
4	Eared Grebe							1	1	1			1		1	
5	Pied-billed Grebe								1	1	1	2	2	2		
6	Double-crested Cormorant		1									5	7	13	3	1
7	Pelagic Cormorant									1						
8	Brown Pelican															
9	Great Blue Heron	1	1	2				2	1		1		2	2		2
10	Great Egret	2	12	2	8		1	2							2	1
11	Snowy Egret	6	3	1	9	5		2	6	1	2	4	10	10	12	30
12	Little Blue Heron															
13	Green Heron				1	1									2	
14	Black-crowned Night Heron				1										1	3
15	Domestic (Greylag) Goose															
16	Brant												1	1	1	
17	Ruddy Duck															
18	American Wigeon	6								8	6	32	39	27		
19	Mallard	4	1	3			1	16	22	31	14	37	47	7	9	20
20	Blue-winged Teal															
21	Green-winged Teal															
22	Greater Scaup															
23	Lesser Scaup	8								1	5	19	36	24	1	
24	Bufflehead	3								4	4	13	11	1		
25	Common Goldeneye															
26	Red-breasted Merganser	12			1	1	1	1	1	1	4	18	11	8	6	1
27	Surf Scoter															
28	Red-tailed Hawk															
29	American Kestral										1					
30	American Coot											1	1	1		
31	Black-bellied Plover							1	1							
32	Killdeer	4		1	1			4	15				5	6		
33	Semipalmated Plover					1							2			
34	Greater Yellowlegs															
35	Willet	1	1	1	3		3	6	6	3				1	7	
36	Spotted Sandpiper								1							
37	Whimbrel		1				1		2						2	
38	Marbled Godwit		3	2				1	1			1	2	1	26	
39	Dunlin												2			
40	Sanderling															
41	Western Sandpiper											5	111	1	7	
42	Least Sandpiper												22			
43	Short-billed Dowitcher						1									
44	Long-billed Dowitcher		20	3				6		77	91	24	115	21	70	
45	Wilson's Snipe															
46	Red-necked Phalarope															
47	Ring-billed Gull	3	2				1		1	2	6	6	4	5	1	
48	California Gull									1						
49	Herring Gull															
50	Thayer's Gull															
51	Western Gull	1			5			2	4	1		1	1	1	7	1
52	Glaucous-winged Gull														1	
53	Heerman's Gull															
54	Caspian Tern															
55	Forster's Tern			1												
56	Least Tern			9	9											27
57	Black Skimmer															
58	Rock Dove			1	2		2			1	1		2	2	1	1
59	Mourning Dove	1		4	3	7	2		2	1		2	1	13	5	2
60	Spotted Dove			1	1											
61	Yellow-chevroned Parakeet															
62	Black-chinned Hummingbird														1	
63	Anna's Hummingbird (or Sp?)							2			1					
64	Rufous Hummingbird												1			
65	Allen's Hummingbird	1	1	4	2	2		2	1		2	1		2	5	
66	Belted Kingfisher	1	1					1	1	1	2	2	1	1	1	
67	Cassin's Kingbird	1														
68	Western Kingbird															
69	Black Phoebe	2		5	2		1	4	1		1	2	2	2	2	3
70	Say's Phoebe								1	1		1	1			
71	Pacific-slope Flycatcher															
72	Northern Rough-winged Swallow			2												
73	Cliff Swallow															
74	Barn Swallow			2	3											1
75	Western Scrub-Jay				1				1							
76	American Crow	3	1	2	2	2	2		3		6	2	3	4	3	4
77	Bushtit	2										8	4	5		
78	No. Mockingbird	3	2	2	3					1	1	1	2	3	4	1
79	Loggerhead Shrike															
80	Bewick's Wren															
81	House Wren							1				1				
82	Ruby-crowned Kinglet												1			
83	European Starling	19	6	8	1		3	24		1	2	41	46	29	29	18
84	Orange-crowned Warbler												1			
85	Yellow-rumped Warbler										1	3	1	1		
86	Common Yellowthroat		2					2			1			1		
87	Song Sparrow															
88	Lincoln's Sparrow															
89	White-crowned Sparrow	2								4	12	4	1			
90	Golden-crowned Sparrow															
91	Hooded Oriole		2													
92	House Finch	15	2	7	20	3		11		8	4	9	9		34	2
93	Lesser Goldfinch													24		
94	House Sparrow	71	12	24	25	40	3	58	1	12	4	7	7	45	45	30
Total Birds Sighted		**172**	**74**	**87**	**103**	**62**	**22**	**149**	**74**	**163**	**173**	**252**	**515**	**265**	**289**	**148**
% of Tot Sightings		**0.9%**	**0.4%**	**0.5%**	**0.5%**	**0.3%**	**0.1%**	**0.8%**	**0.4%**	**0.9%**	**0.9%**	**1.3%**	**2.7%**	**1.4%**	**1.5%**	**0.8%**
Total Species Sighted		**24**	**19**	**22**	**21**	**9**	**13**	**21**	**22**	**23**	**24**	**28**	**37**	**32**	**29**	**18**
% of Tot Species		**25.5%**	**20.2%**	**23.4%**	**22.3%**	**9.6%**	**13.8%**	**22.3%**	**23.4%**	**24.5%**	**25.5%**	**29.8%**	**39.4%**	**34.0%**	**30.9%**	**19.1%**
Average Total Birds Sighted		**175**	**173**	**173**	**172**	**171**	**169**	**169**	**168**	**168**	**168**	**169**	**172**	**173**	**174**	**174**
Average % of Tot Sightings		**99%**	**43%**	**50%**	**60%**	**36%**	**13%**	**88%**	**44%**	**97%**	**103%**	**149%**	**299%**	**153%**	**166%**	**85%**
Average Total Species Sighted		**20.9**	**20.9**	**20.9**	**20.9**	**20.8**	**20.7**	**20.7**	**20.7**	**20.7**	**20.8**	**20.8**	**21.0**	**21.1**	**21.2**	**21.1**
Average % of Tot Species		**115%**	**91%**	**105%**	**100%**	**43%**	**63%**	**101%**	**106%**	**111%**	**116%**	**134%**	**176%**	**152%**	**137%**	**85%**

	For period April 1996 through June 2005 Species / Date	Total Individuals Sighted	Percent of Total	Total Occasions Sighted	Percent of Total
	Person-minutes per visit	**7,304**		**109**	**67**
	Water level (in meters)	**45**		**-0.346**	
1	Western Grebe	12	0.06%	12	0.52%
2	Red-necked Grebe	2	0.01%	1	0.04%
3	Horned Grebe	3	0.02%	2	0.09%
4	Eared Grebe	21	0.11%	15	0.65%
5	Pied-billed Grebe	35	0.19%	23	1.00%
6	Double-crested Cormorant	98	0.52%	45	1.96%
7	Pelagic Cormorant	1	0.01%	1	0.04%
8	Brown Pelican	78	0.41%	29	1.26%
9	Great Blue Heron	106	0.56%	71	3.09%
10	Great Egret	183	0.97%	70	3.05%
11	Snowy Egret	587	3.11%	93	4.05%
12	Little Blue Heron	1	0.01%	1	0.04%
13	Green Heron	121	0.64%	58	2.52%
14	Black-crowned Night Heron	63	0.33%	26	1.13%
15	Domestic (Greylag) Goose	2	0.01%	1	0.04%
16	Brant	3	0.02%	3	0.13%
17	Ruddy Duck	4	0.02%	2	0.09%
18	American Wigeon	169	0.89%	12	0.52%
19	Mallard	1,898	10.05%	101	4.40%
20	Blue-winged Teal	2	0.01%	1	0.04%
21	Green-winged Teal	2	0.01%	1	0.04%
22	Greater Scaup	20	0.11%	2	0.09%
23	Lesser Scaup	258	1.37%	21	0.91%
24	Bufflehead	142	0.75%	26	1.13%
25	Common Goldeneye	2	0.01%	2	0.09%
26	Red-breasted Merganser	409	2.17%	49	2.13%
27	Surf Scoter	32	0.17%	5	0.22%
28	Red-tailed Hawk	1	0.01%	1	0.04%
29	American Kestral	13	0.07%	13	0.57%
30	American Coot	8	0.04%	8	0.35%
31	Black-bellied Plover	169	0.89%	54	2.35%
32	Killdeer	457	2.42%	86	3.74%
33	Semipalmated Plover	18	0.10%	9	0.39%
34	Greater Yellowlegs	5	0.03%	5	0.22%
35	Willet	460	2.44%	91	3.96%
36	Spotted Sandpiper	2	0.01%	2	0.09%
37	Whimbrel	213	1.13%	73	3.18%
38	Marbled Godwit	994	5.26%	67	2.92%
39	Dunlin	47	0.25%	12	0.52%
40	Sanderling	1	0.01%	1	0.04%
41	Western Sandpiper	3,065	16.23%	31	1.35%
42	Least Sandpiper	970	5.14%	26	1.13%
43	Short-billed Dowitcher	33	0.17%	7	0.30%
44	Long-billed Dowitcher	1,672	8.85%	42	1.83%
45	Wilson's Snipe	1	0.01%	1	0.04%
46	Red-necked Phalarope	1	0.01%	1	0.04%
47	Ring-billed Gull	506	2.68%	67	2.92%
48	California Gull	367	1.94%	31	1.35%
49	Herring Gull	5	0.03%	5	0.22%
50	Thayer's Gull	1	0.01%	1	0.04%
51	Western Gull	131	0.69%	53	2.31%
52	Glaucous-winged Gull	2	0.01%	2	0.09%
53	Heerman's Gull	1	0.01%	1	0.04%
54	Caspian Tern	3	0.02%	2	0.09%
55	Forster's Tern	20	0.11%	11	0.48%
56	Least Tern	217	1.15%	24	1.04%
57	Black Skimmer	2	0.01%	1	0.04%
58	Rock Dove	277	1.47%	74	3.22%
59	Mourning Dove	278	1.47%	64	2.79%
60	Spotted Dove	59	0.31%	41	1.78%
61	Yellow-chevroned Parakeet	4	0.02%	1	0.04%
62	Black-chinned Hummingbird	1	0.01%	1	0.04%
63	Anna's Hummingbird (or Sp?)	31	0.16%	23	1.00%
64	Rufous Hummingbird	1	0.01%	1	0.04%
65	Allen's Hummingbird	47	0.25%	28	1.22%
66	Belted Kingfisher	65	0.34%	51	2.22%
67	Cassin's Kingbird	1	0.01%	1	0.04%
68	Western Kingbird	1	0.01%	1	0.04%
69	Black Phoebe	147	0.78%	76	3.31%
70	Say's Phoebe	19	0.10%	15	0.65%
71	Pacific-slope Flycatcher	1	0.01%	1	0.04%
72	Northern Rough-winged Swallow	12	0.06%	7	0.30%
73	Cliff Swallow	30	0.16%	8	0.35%
74	Barn Swallow	51	0.27%	21	0.91%
75	Western Scrub-Jay	2	0.01%	2	0.09%
76	American Crow	281	1.49%	86	3.74%
77	Bushtit	49	0.26%	7	0.30%
78	No. Mockingbird	113	0.60%	57	2.48%
79	Loggerhead Shrike	1	0.01%	1	0.04%
80	Bewick's Wren	2	0.01%	2	0.09%
81	House Wren	5	0.03%	5	0.22%
82	Ruby-crowned Kinglet	1	0.01%	1	0.04%
83	European Starling	1,642	8.69%	98	4.26%
84	Orange-crowned Warbler	3	0.02%	3	0.13%
85	Yellow-rumped Warbler	25	0.13%	15	0.65%
86	Common Yellowthroat	22	0.12%	14	0.61%
87	Song Sparrow	2	0.01%	2	0.09%
88	Lincoln's Sparrow	3	0.02%	2	0.09%
89	White-crowned Sparrow	97	0.51%	24	1.04%
90	Golden-crowned Sparrow	1	0.01%	1	0.04%
91	Hooded Oriole	4	0.02%	3	0.13%
92	House Finch	593	3.14%	78	3.39%
93	Lesser Goldfinch	25	0.13%	2	0.09%
94	House Sparrow	1,354	7.17%	80	3.48%
Total Birds Sighted		**18,889**	**100.00%**	**2,298**	**100.00%**
% of Tot Sightings		**100.0%**			
Total Species Sighted		**94**			
% of Tot Species		**100.0%**			
Average Total Birds Sighted					
Average % of Tot Sightings					
Average Total Species Sighted					
Average % of Tot Species					

Total # Individuals	Individ. Percents	Total Occur Sightings	Sightings Percents	Summary
73	0.39%	53	2.31%	**Grebes**
177	0.94%	75	3.26%	**Cormorant & Pelican**
1,061	5.62%	319	13.88%	**Herons**
2,943	15.58%	226	9.83%	**Ducks**
14	0.07%	14	0.61%	**Raptors**
8	0.04%	8	0.35%	**Coots**
8,108	42.92%	508	22.11%	**Shorebirds**
1,255	6.64%	198	8.62%	**Gulls & Terns**
614	3.25%	179	7.79%	**Doves**
4	0.02%	1	0.04%	**Parrots**
80	0.42%	53	2.31%	**Hummingbirds**
65	0.34%	51	2.22%	**Kingfishers**
4,487	23.75%	613	26.68%	**Passerines**
18,889	100.00%	2,298	100.00%	**Totals**

	BALLONA LAGOON BIRD CENSUS FOR: June, 2005							
Date:	6/24/2005 Friday		Low Tide:	06:15 am -1.5 ft.				
Start Time:	7:35 AM		End Time:	8:13 AM				
Observer:	Chuck Almdale		Recorder:	Chuck Almdale				**Total**
							Individual	**of**
Species		**Zone 1**	**Zone 2**	**Zone 3**	**Zone 4**	**Zone 5**	**Total**	**Species**
Pied-billed Grebe								
Double-crested Cormorant								
Brown Pelican								**0**
Great Blue Heron								
Great Egret								
Snowy Egret		1W					**1**	
Green Heron								
Black-crowned Night Heron								**1**
Mallard		2Me 3Ws	6Ws 22Bw				**33**	
Bufflehead								
Red-breasted Merganser								**1**
American Kestral								**0**
Black-bellied Plover								
Killdeer								
Willet		1Me	1Mw			1Me 1Mw	**4**	
Whimbrel								
Marbled Godwit								
Western Sandpiper								
Least Sandpiper								
Short-billed Dowitcher								
Long-billed Dowitcher								**1**
Ring-billed Gull								
California Gull								
Western Gull								
Least Tern								**0**
Rock Dove				6UBw		2Bw	**8**	
Mourning Dove				2UBw			**2**	
Spotted Dove								**2**
Anna's Hummingbird								
Belted Kingfisher								**0**
Black Phoebe					1Mw	1Me 2Mw	**4**	
Say's Phoebe								
Cliff Swallow								
Barn Swallow								
American Crow				2A	2Pw		**4**	
Bushtit								
No. Mockingbird		1Be		1Pw			**1**	
European Starling		1Bw	3Bw 1Pw	3UBw	2Bw	2Me 1Mw 1Bw	**14**	
Common Yellowthroat								
White-crowned Sparrow								
House Finch		2Bw	2A			1Be 2Bw	**7**	
House Sparrow		9Be 2Bw	5Bw 2UBw	4Be		4Bw	**26**	**6**
Dunlin			1Mw sleeping				**1**	
Rough-winged Swallow						2A feeding	**2**	
Hooded Oriole		1A					**1**	
								3
Other Notes:	Outlet level +0.05m @ 8:13am, flow rate 0 ft/sec					**Totals**	**108**	**14**
Many 10,000's small fish 2-5", thin, looking like tiny Jack Mackerel. 1 fish appears like Kelp Rockfish among the rocks. 3 coal-gray fish with 2 white spots								
like Opaleye. 3 very large sea slugs. 1 scallop moving by flapping shells.								
Habitat Codes			**Zones (3 Blocks Long)**					
W - Open Water	**s - swimming**		**1 - South end to Union Jack St.**					
M - Intertidal Mud Flat (may be wet or dry)			**2 - Union Jack to Reef St.**					
S - Saltmarsh (pickleweed, fleshy jaumea)			**3 - Reef to Outrigger St.**					
UB - Unvegetated Bank (above high tide zone)			**4 - Outrigger to Foot Bridge**					
B - Vegetated Bank			**5 - Foot Bridge to North End**					
P - Perches	**A - Aerial (overhead)**		**e - east**	**w - west**				
::								

1	**33**	**Ducks**
2	**0**	**Water - other**
3	**1**	**Herons**
4	**0**	**Raptors**
5	**5**	**Shorebirds**
6	**0**	**Gulls & Terns**
7	**10**	**Doves**
8	**0**	**Nonpasserine - other**
9	**59**	**Passerines**
	108	**Total Individuals**
	14	**Total Species**

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APPENDIX **E**

TRAFFIC IMPACT STUDY

VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

APPENDIX E-1

TRAFFIC COUNTS

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

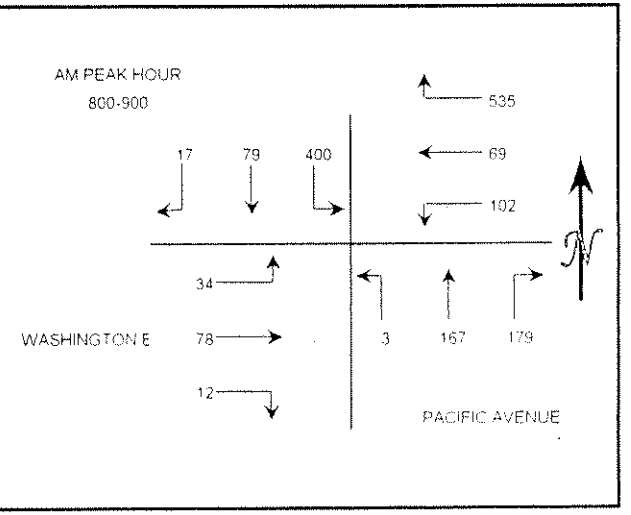
CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S PACIFIC AVENUE
E/W WASHINGTON BOULEVARD

15 MIN COUNTS — 7:00 AM TO 9:00 AM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	7	8	43	81	13	12	29	18	0	4	6	8	229
715-730	3	6	53	104	19	16	34	29	0	4	9	3	280
730-745	10	11	58	126	16	20	29	37	2	3	20	3	335
745-800	10	10	84	109	15	18	29	38	1	4	21	9	348
800-815	5	16	110	132	21	30	40	44	0	4	19	9	430
815-830	2	22	83	132	13	23	38	40	1	3	14	8	379
830-845	4	25	102	156	13	25	78	39	1	1	26	12	482
845-900	6	16	105	115	22	24	23	44	1	4	19	5	384

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	30	35	238	420	63	66	121	122	3	15	56	23	1192
715-815	28	43	305	471	71	84	132	148	3	15	69	24	1393
730-830	27	59	335	499	65	91	136	159	4	14	74	29	1492
745-845	21	73	379	529	62	96	185	161	3	12	80	38	1639
800-900	17	79	400	535	69	102	179	167	3	12	78	34	1675

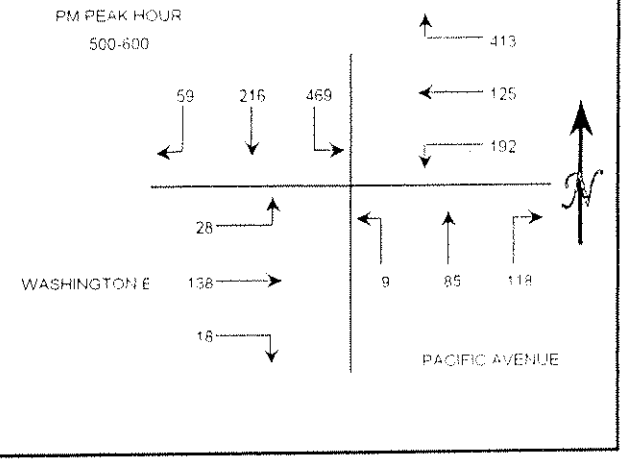


15 MIN COUNTS — 4:00 PM TO 6:00 PM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	13	46	109	99	28	46	41	25	3	7	30	7	454
415-430	15	47	105	92	32	34	32	21	1	2	24	11	416
430-445	18	47	91	113	31	36	30	35	4	13	33	7	458
445-500	14	49	112	100	21	42	41	23	4	4	32	10	452
500-515	11	54	101	100	30	55	30	15	1	2	35	11	445
515-530	14	59	105	109	32	45	34	27	2	7	47	3	484
530-545	11	54	133	113	27	49	25	21	4	6	33	7	483
545-600	23	49	130	91	36	43	29	22	2	3	23	7	458

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	60	189	417	404	112	158	144	104	12	26	119	35	1780
415-515	58	197	409	405	114	167	133	94	10	21	124	39	1771
430-530	57	209	409	422	114	178	135	100	11	26	147	31	1839
445-545	50	216	451	422	110	191	130	86	11	19	147	31	1864
500-600	59	216	469	413	125	192	118	85	9	18	138	28	1870



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: SPEEDWAY AVENUE BETWEEN PRIVATEER STREET AND QUARTERDECK STREET
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	4	4	6	2	16
1:00	4	1	1	0	6
2:00	1	5	1	1	8
3:00	3	0	1	0	4
4:00	0	1	1	3	5
5:00	0	0	1	1	2
6:00	2	8	4	10	24
7:00	10	12	8	12	42
8:00	11	17	8	12	48
9:00	10	18	16	16	60
10:00	16	11	8	20	55
11:00	14	13	16	16	59
12:00	20	22	18	15	75
13:00	17	14	14	14	59
14:00	16	10	13	16	55
15:00	17	18	22	26	83
16:00	18	16	10	18	62
17:00	20	26	17	16	79
18:00	20	15	12	22	69
19:00	19	20	18	10	67
20:00	12	9	18	11	50
21:00	16	9	13	11	49
22:00	16	19	14	6	55
23:00	9	12	10	1	32
				TOTAL	1064

AM PEAK HOUR	0915-1015
VOLUME	66
PM PEAK HOUR	1515-1615
VOLUME	84

DIRECTION:	O				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	0	0	0
6:00	0	0	0	0	0
7:00	0	0	0	0	0
8:00	0	0	0	0	0
9:00	0	0	0	0	0
10:00	0	0	0	0	0
11:00	0	0	0	0	0
12:00	0	0	0	0	0
13:00	0	0	0	0	0
14:00	0	0	0	0	0
15:00	0	0	0	0	0
16:00	0	0	0	0	0
17:00	0	0	0	0	0
18:00	0	0	0	0	0
19:00	0	0	0	0	0
20:00	0	0	0	0	0
21:00	0	0	0	0	0
22:00	0	0	0	0	0
23:00	0	0	0	0	0
				TOTAL	0

AM PEAK HOUR	0000-0100
VOLUME	0
PM PEAK HOUR	1200-1300
VOLUME	0

TOTAL BI-DIRECTIONAL VOLUME	1064

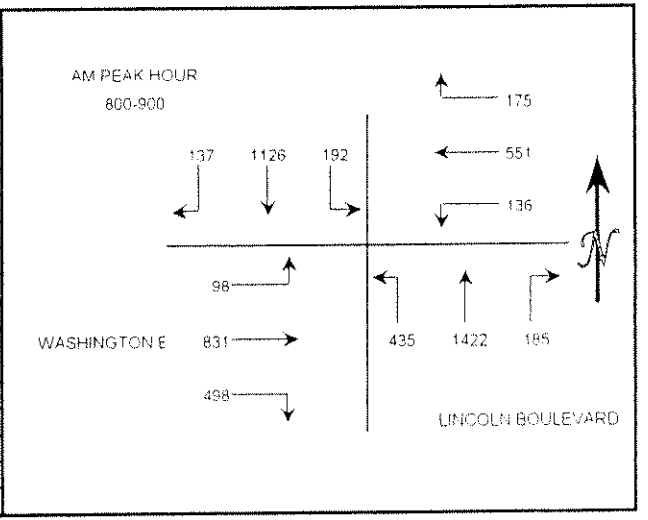
WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

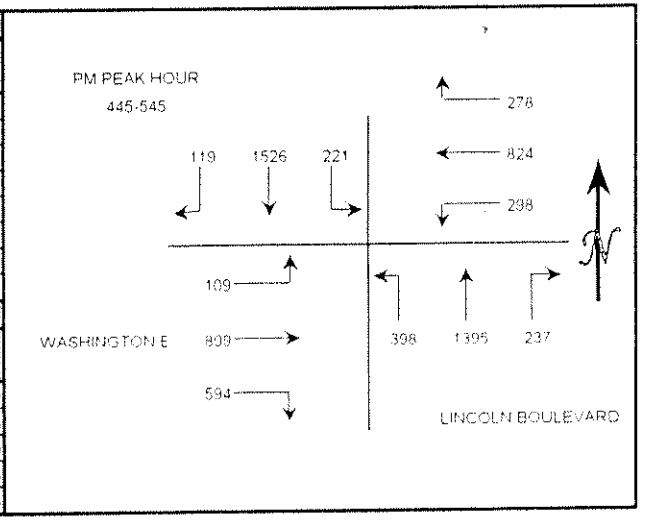
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S LINCOLN BOULEVARD
E/W WASHINGTON BOULEVARD

15 MIN COUNTS													7:00 AM TO 9:00 AM
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	27	151	17	36	91	35	24	341	78	74	105	14	993
715-730	33	201	25	41	84	20	39	423	90	79	118	14	1167
730-745	22	228	30	32	118	32	45	408	117	115	179	18	1344
745-800	40	265	40	50	120	40	36	381	103	114	157	23	1369
800-815	36	259	43	42	145	26	44	368	100	96	164	21	1344
815-830	29	286	38	41	121	33	32	340	114	108	210	24	1376
830-845	47	281	64	42	128	37	55	314	101	141	221	22	1453
845-900	25	300	47	50	157	40	54	400	120	153	236	31	1613
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	122	845	112	159	413	127	144	1553	388	382	559	69	4873
715-815	131	953	138	165	467	118	164	1580	410	404	618	76	5224
730-830	127	1038	151	165	504	131	157	1497	434	433	710	86	5433
745-845	152	1091	185	175	514	136	167	1403	418	459	752	90	5542
800-900	137	1126	192	175	551	136	185	1422	435	498	831	98	5786



15 MIN COUNTS													4:00 PM TO 6:00 PM
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	29	338	53	54	195	81	95	378	128	139	191	25	1706
415-430	27	307	43	85	161	87	70	304	102	135	200	30	1551
430-445	36	309	55	67	208	56	48	287	143	130	198	32	1569
445-500	29	374	63	84	228	77	57	338	100	155	198	20	1723
500-515	28	386	50	70	173	85	66	329	101	151	184	32	1655
515-530	29	372	53	64	207	63	66	356	95	126	218	33	1682
530-545	33	394	55	60	216	73	48	372	102	162	209	24	1748
545-600	31	376	44	69	206	59	42	318	116	103	208	38	1610
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	121	1328	214	290	792	301	270	1307	473	559	787	107	6549
415-515	120	1376	211	306	770	305	241	1258	446	571	780	114	6498
430-530	122	1441	221	285	816	281	237	1310	439	562	798	117	6629
445-545	119	1526	221	278	824	298	237	1395	398	594	809	109	6808
500-600	121	1528	202	263	802	280	222	1375	414	542	819	127	6695



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

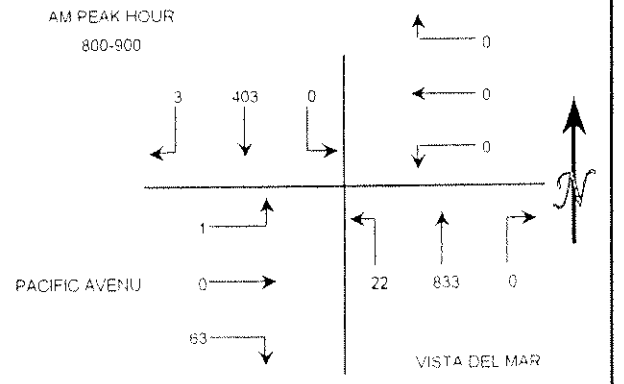
CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S VISTA DEL MAR
E/W PACIFIC AVENUE

15 MIN COUNTS — 7:00 AM TO 9:00 AM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	57	0	0	0	0	0	203	3	8	0	2	273
715-730	1	70	0	0	0	0	0	247	1	8	0	0	327
730-745	0	58	0	0	0	0	0	203	5	12	0	0	278
745-800	0	88	0	0	0	0	0	197	0	16	0	2	303
800-815	0	103	0	0	0	0	0	211	9	16	0	0	339
815-830	1	84	0	0	0	0	0	192	3	23	0	0	303
830-845	1	108	0	0	0	0	0	227	4	11	0	0	351
845-900	1	108	0	0	0	0	0	203	6	13	0	1	332

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	1	273	0	0	0	0	0	850	9	44	0	4	1181
715-815	1	319	0	0	0	0	0	858	15	52	0	2	1247
730-830	1	333	0	0	0	0	0	803	17	67	0	2	1223
745-845	2	383	0	0	0	0	0	827	16	66	0	2	1296
800-900	3	403	0	0	0	0	0	833	22	63	0	1	1325

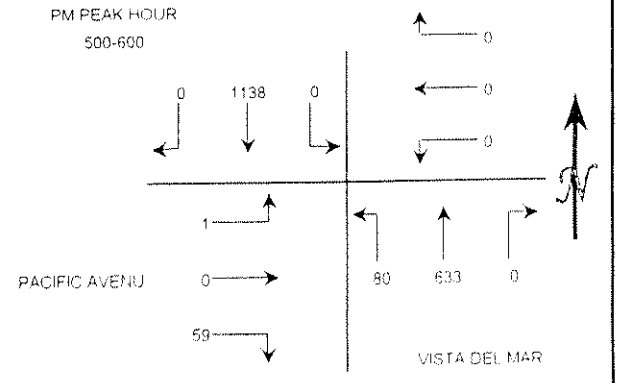


15 MIN COUNTS — 4:00 PM TO 6:00 PM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	0	230	0	0	0	0	0	150	9	21	0	0	410
415-430	0	190	0	0	0	0	0	125	15	15	0	0	345
430-445	0	240	0	0	0	0	0	120	11	21	0	0	392
445-500	0	216	0	0	0	0	0	142	15	14	0	1	388
500-515	0	289	0	0	0	0	0	153	15	14	0	0	471
515-530	0	250	0	0	0	0	0	175	22	11	0	1	459
530-545	0	306	0	0	0	0	0	151	22	18	0	0	497
545-600	0	293	0	0	0	0	0	154	21	16	0	0	484

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	0	876	0	0	0	0	0	537	50	71	0	1	1535
415-515	0	935	0	0	0	0	0	540	56	64	0	1	1596
430-530	0	995	0	0	0	0	0	590	63	60	0	2	1710
445-545	0	1061	0	0	0	0	0	621	74	57	0	2	1815
500-600	0	1138	0	0	0	0	0	633	80	59	0	1	1911



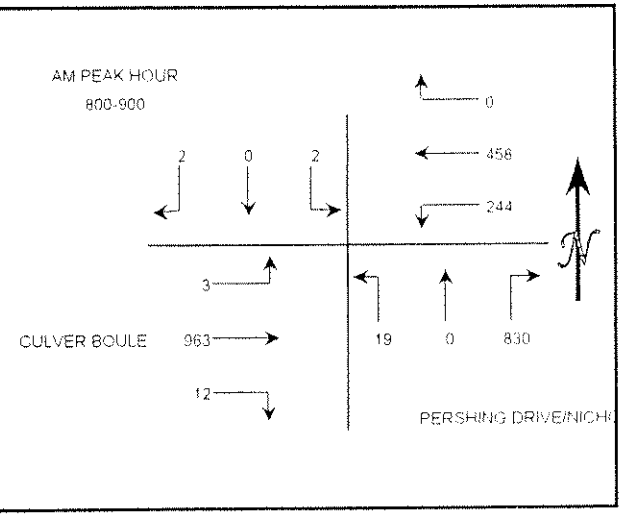
WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

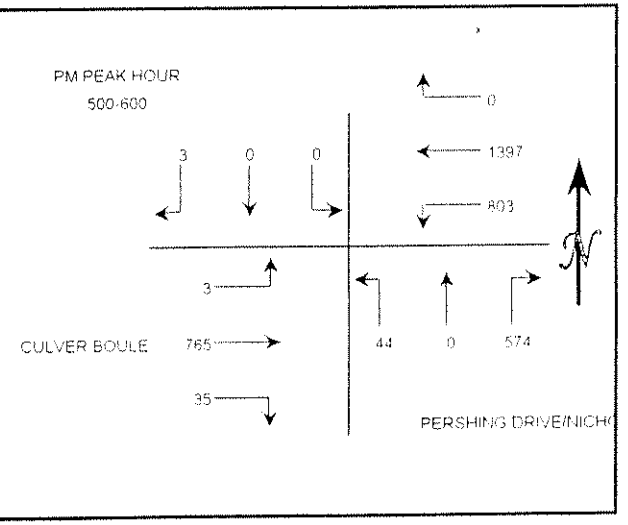
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S PERSHING DRIVE/NICHOLSON
E/W CULVER BOULEVARD

15 MIN COUNTS						7:00 AM TO 9:00 AM							
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	0	0	0	67	35	206	0	3	3	245	0	559
715-730	0	0	0	0	78	41	215	0	2	3	253	1	593
730-745	0	0	0	0	71	56	215	0	4	0	249	0	595
745-800	0	0	0	0	109	71	211	1	4	2	224	0	622
800-815	0	0	2	0	106	64	220	0	5	3	229	1	630
815-830	1	0	0	0	112	70	215	0	4	4	224	0	630
830-845	1	0	0	0	124	53	200	0	7	2	248	0	635
845-900	0	0	0	0	116	57	195	0	3	3	262	2	638
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	0	0	0	0	325	203	847	1	13	8	971	1	2369
715-815	0	0	2	0	364	232	861	1	15	8	955	2	2440
730-830	1	0	2	0	398	261	861	1	17	9	926	1	2477
745-845	2	0	2	0	451	258	846	1	20	11	925	1	2517
800-900	2	0	2	0	458	244	830	0	19	12	963	3	2533



15 MIN COUNTS						4:00 PM TO 6:00 PM							
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	0	1	0	0	262	167	132	0	6	5	173	1	747
415-430	0	0	0	0	232	145	159	0	18	10	181	1	746
430-445	0	0	0	0	292	172	133	0	6	4	155	3	765
445-500	0	0	0	0	297	178	136	0	7	3	176	1	798
500-515	1	0	0	0	353	189	145	0	10	11	181	1	891
515-530	1	0	0	0	319	181	153	0	8	4	187	0	853
530-545	0	0	0	0	363	207	155	0	14	10	194	1	944
546-600	1	0	0	0	362	226	121	0	12	10	203	1	936
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	0	1	0	0	1083	662	560	0	37	22	685	6	3056
415-515	1	0	0	0	1174	684	573	0	41	28	693	6	3200
430-530	2	0	0	0	1261	720	567	0	31	22	699	5	3307
445-545	2	0	0	0	1332	755	589	0	39	28	738	3	3486
500-600	3	0	0	0	1397	803	574	0	44	35	765	3	3624



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

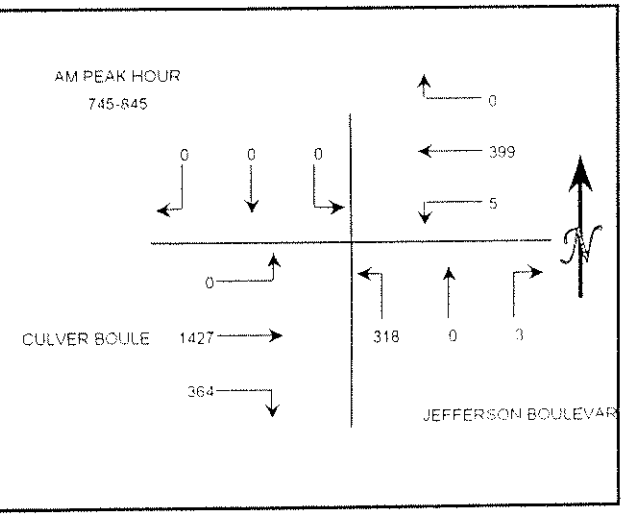
CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S JEFFERSON BOULEVARD
E/W CULVER BOULEVARD

15 MIN COUNTS — 7:00 AM TO 9:00 AM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	0	0	0	65	2	0	0	28	66	362	0	523
715-730	0	0	0	0	75	0	1	0	45	84	386	0	591
730-745	0	0	0	0	76	2	0	0	54	88	390	0	610
745-800	0	0	0	0	99	2	1	0	89	75	365	0	631
800-815	0	0	0	0	97	2	0	0	73	85	354	0	611
815-830	0	0	0	0	103	1	1	0	77	95	349	0	626
830-845	0	0	0	0	100	0	1	0	79	109	359	0	648
845-900	0	0	0	0	99	3	0	0	75	96	345	0	618

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	0	0	0	0	315	6	2	0	216	313	1503	0	2355
715-815	0	0	0	0	347	6	2	0	261	332	1495	0	2443
730-830	0	0	0	0	375	7	2	0	293	343	1458	0	2478
745-845	0	0	0	0	399	5	3	0	318	364	1427	0	2516
800-900	0	0	0	0	399	6	2	0	304	385	1407	0	2503

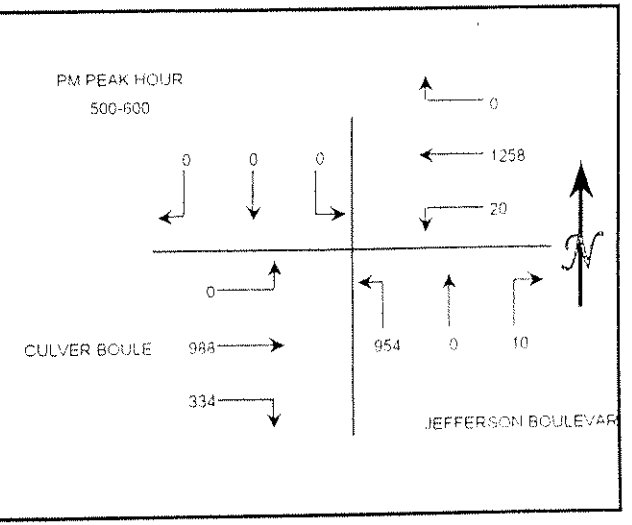


15 MIN COUNTS — 4:00 PM TO 6:00 PM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	0	0	0	0	225	6	4	0	150	66	208	0	659
415-430	0	0	0	0	241	8	3	0	177	89	236	0	754
430-445	0	0	0	0	280	4	0	0	214	72	216	0	786
445-500	0	0	0	0	254	5	2	0	208	92	272	0	833
500-515	0	0	0	0	289	6	4	0	230	88	227	0	844
515-530	0	0	0	0	282	4	4	0	235	70	244	0	839
530-545	0	0	0	0	350	5	1	0	239	88	271	0	954
545-600	0	0	0	0	337	5	1	0	250	88	246	0	927

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	0	0	0	0	1000	23	9	0	749	319	932	0	3032
415-515	0	0	0	0	1064	23	9	0	829	341	951	0	3217
430-530	0	0	0	0	1105	19	10	0	887	322	959	0	3302
445-545	0	0	0	0	1175	20	11	0	912	338	1014	0	3470
500-600	0	0	0	0	1258	20	10	0	954	334	988	0	3564



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

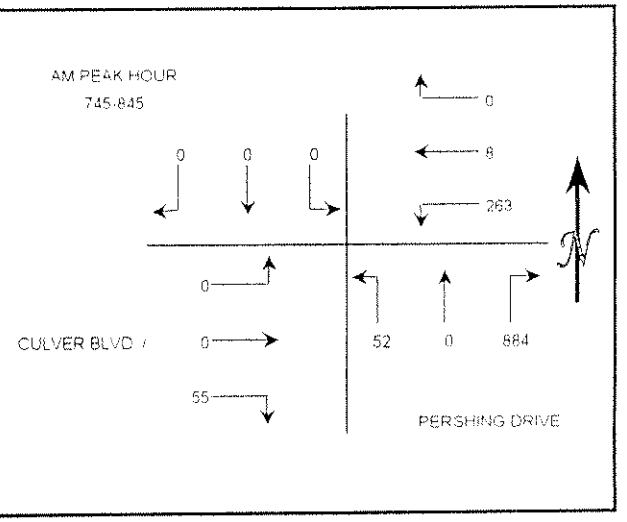
CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S PERSHING DRIVE
E/W CULVER BLVD. / NICHOLSON ST.

15 MIN COUNTS — 7:00 AM TO 9:00 AM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	0	0	0	1	30	201	0	5	13	0	0	250
715-730	0	0	0	0	0	38	208	0	7	6	0	0	259
730-745	0	0	0	0	1	51	214	0	17	13	0	0	296
745-800	0	0	0	0	2	81	243	0	10	14	0	0	350
800-815	0	0	0	0	4	63	217	0	9	13	0	0	306
815-830	0	0	0	0	1	65	213	0	15	10	0	0	304
830-845	0	0	0	0	1	54	211	0	18	18	0	0	302
845-900	0	0	0	0	2	63	209	0	16	15	0	0	305

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	0	0	0	0	4	200	866	0	39	46	0	0	1155
715-815	0	0	0	0	7	233	882	0	43	46	0	0	1211
730-830	0	0	0	0	8	260	887	0	51	50	0	0	1256
745-845	0	0	0	0	8	263	884	0	52	55	0	0	1262
800-900	0	0	0	0	8	245	850	0	58	56	0	0	1217

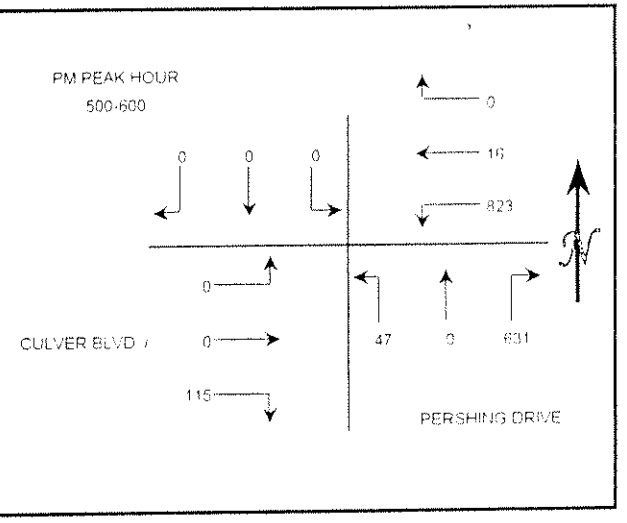


15 MIN COUNTS — 4:00 PM TO 6:00 PM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	0	0	0	0	5	162	130	0	18	32	0	0	347
415-430	0	0	0	0	7	168	190	0	13	18	0	0	396
430-445	0	0	0	0	3	178	130	0	7	38	0	0	356
445-500	0	0	0	0	1	178	152	0	17	39	0	0	387
500-515	0	0	0	0	2	168	143	0	12	32	0	0	357
515-530	0	0	0	0	4	208	177	0	14	23	0	0	426
530-545	0	0	0	0	4	220	169	0	9	33	0	0	435
545-600	0	0	0	0	6	227	142	0	12	27	0	0	414

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	0	0	0	0	16	686	602	0	55	127	0	0	1486
415-515	0	0	0	0	13	692	615	0	49	127	0	0	1496
430-530	0	0	0	0	10	732	602	0	50	132	0	0	1526
445-545	0	0	0	0	11	774	641	0	52	127	0	0	1605
500-600	0	0	0	0	16	823	631	0	47	115	0	0	1632



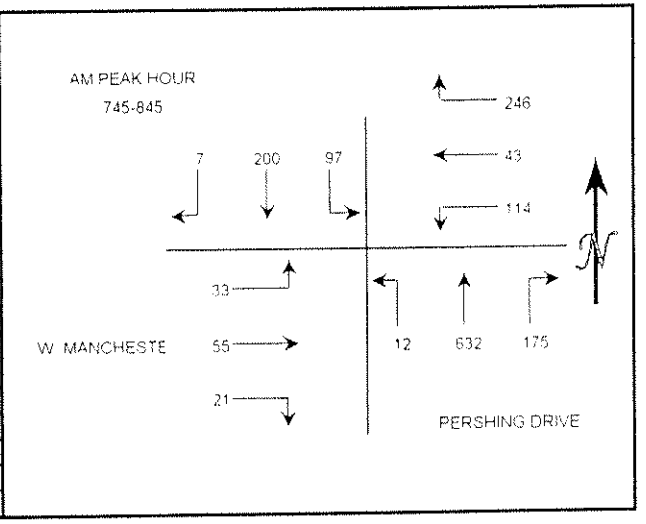
WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

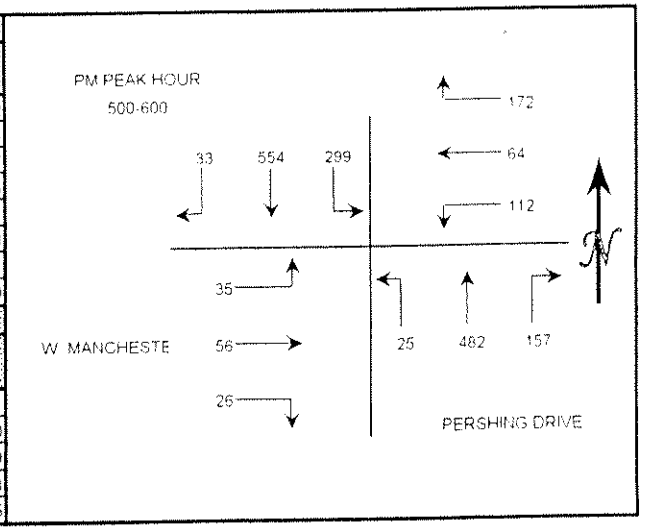
INTERSECTION TURNING MOVEMENT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S PERSHING DRIVE
E/W W. MANCHESTER AVENUE

15 MIN COUNTS								7:00 AM TO 9:00 AM					
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	3	29	19	54	3	25	35	155	1	4	4	5	337
715-730	1	38	19	52	8	25	32	181	2	3	10	8	379
730-745	3	44	28	55	11	29	28	138	3	2	10	5	356
745-800	3	55	27	67	14	33	50	173	6	5	11	9	453
800-815	2	57	20	61	5	30	43	152	1	11	11	8	401
815-830	1	46	26	63	13	23	45	160	3	2	14	3	399
830-845	1	42	24	55	11	28	37	147	2	3	19	13	382
845-900	0	47	23	55	9	26	90	162	6	8	13	7	446
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	10	166	93	228	36	112	145	647	12	14	35	27	1525
715-815	9	194	94	235	38	117	153	644	12	21	42	30	1589
730-830	9	202	101	246	43	115	166	623	13	20	46	25	1609
745-845	7	200	97	246	43	114	175	632	12	21	55	33	1635
800-900	4	192	93	234	38	107	215	621	12	24	57	31	1628



15 MIN COUNTS								4:00 PM TO 6:00 PM					
PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	9	117	66	48	16	30	36	98	7	4	15	6	452
415-430	5	115	69	50	13	20	33	128	4	6	14	17	474
430-445	4	111	77	37	17	26	24	116	6	3	11	5	437
445-500	8	125	64	47	18	34	32	108	7	5	11	9	468
500-515	7	126	79	39	16	32	36	113	7	4	13	9	481
515-530	8	133	58	50	10	18	37	136	5	8	14	6	483
530-545	11	149	84	45	22	29	35	130	6	8	13	9	541
545-600	7	146	78	38	16	33	49	103	7	6	16	11	510
HOUR TOTALS													
TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	26	468	276	182	64	110	125	450	24	18	51	37	1831
415-515	24	477	289	173	64	112	125	465	24	18	49	40	1860
430-530	27	495	278	173	61	110	129	473	25	20	49	29	1869
445-545	34	533	285	181	66	113	140	487	25	25	51	33	1973
500-600	33	554	299	172	64	112	157	482	25	26	56	35	2015



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

INTERSECTION TURNING MOVEMENT COUNT SUMMARY

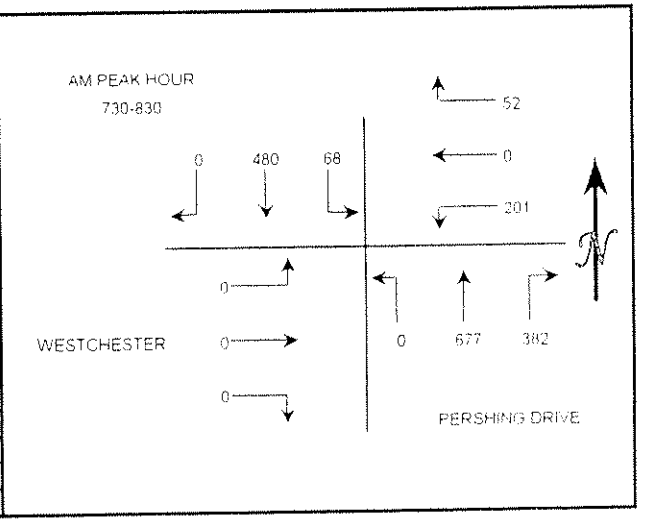
CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
DATE: TUESDAY, JULY 19TH, 2005
PERIODS: 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM
INTERSECTION: N/S PERSHING DRIVE
E/W WESTCHESTER PARKWAY

15 MIN COUNTS — 7:00 AM TO 9:00 AM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-715	0	81	4	4	0	27	35	112	0	0	0	0	263
715-730	0	70	12	7	0	34	79	156	0	0	0	0	358
730-745	0	119	18	8	0	57	93	145	0	0	0	0	440
745-800	0	132	22	18	0	40	114	193	0	0	0	0	519
800-815	0	126	13	10	0	45	92	170	0	0	0	0	456
815-830	0	103	15	16	0	59	83	169	0	0	0	0	445
830-845	0	101	18	15	0	46	95	153	0	0	0	0	428
845-900	0	93	33	6	0	41	106	186	0	0	0	0	465

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
700-800	0	402	56	37	0	158	321	606	0	0	0	0	1580
715-815	0	447	65	43	0	176	378	664	0	0	0	0	1773
730-830	0	480	68	52	0	201	382	677	0	0	0	0	1860
745-845	0	462	68	59	0	190	384	685	0	0	0	0	1848
800-900	0	423	79	47	0	191	376	678	0	0	0	0	1794

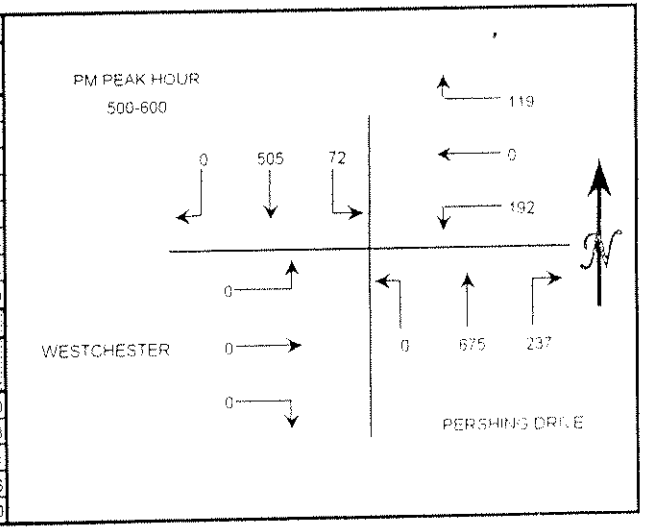


15 MIN COUNTS — 4:00 PM TO 6:00 PM

PERIOD	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-415	0	95	20	25	0	36	73	132	0	0	0	0	381
415-430	0	97	22	33	0	49	88	161	0	0	0	0	450
430-445	0	114	18	24	0	31	73	143	0	0	0	0	403
445-500	0	116	16	24	0	33	75	142	0	0	0	0	406
500-515	0	124	16	25	0	40	58	181	0	0	0	0	444
515-530	0	111	16	27	0	60	54	170	0	0	0	0	438
530-545	0	134	17	31	0	50	60	166	0	0	0	0	458
545-600	0	136	23	36	0	42	65	158	0	0	0	0	460

HOUR TOTALS

TIME	1 SBRT	2 SBTH	3 SBLT	4 WBRT	5 WBTH	6 WBLT	7 NBRT	8 NBTH	9 NBLT	10 EBRT	11 EBTH	12 EBLT	TOTAL
400-500	0	422	76	106	0	149	309	578	0	0	0	0	1640
415-515	0	451	72	106	0	153	294	627	0	0	0	0	1703
430-530	0	465	66	100	0	164	260	636	0	0	0	0	1691
445-545	0	485	65	107	0	183	247	659	0	0	0	0	1746
500-600	0	505	72	119	0	192	237	675	0	0	0	0	1800



WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES, INC.
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: SPEEDWAY AVENUE BETWEEN FLEET STREET AND GALLEON STREET
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	2	4	2	0	8
1:00	2	0	2	1	5
2:00	0	2	2	1	5
3:00	2	1	0	0	3
4:00	0	1	0	0	1
5:00	0	1	2	2	5
6:00	2	2	6	6	16
7:00	8	4	5	10	27
8:00	10	8	12	10	40
9:00	9	16	19	12	56
10:00	6	10	11	11	38
11:00	8	15	20	20	63
12:00	16	18	19	14	67
13:00	12	14	10	15	51
14:00	17	23	12	12	64
15:00	16	16	14	19	65
16:00	10	5	12	19	46
17:00	24	14	12	10	60
18:00	14	20	16	16	66
19:00	12	19	19	9	59
20:00	10	12	14	0	36
21:00	10	15	6	6	37
22:00	5	6	7	7	25
23:00	4	6	4	4	18
				TOTAL	861

AM PEAK HOUR	1100-1200
VOLUME	63
PM PEAK HOUR	1630-1730
VOLUME	69

DIRECTION:	O				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	0	0	0
6:00	0	0	0	0	0
7:00	0	0	0	0	0
8:00	0	0	0	0	0
9:00	0	0	0	0	0
10:00	0	0	0	0	0
11:00	0	0	0	0	0
12:00	0	0	0	0	0
13:00	0	0	0	0	0
14:00	0	0	0	0	0
15:00	0	0	0	0	0
16:00	0	0	0	0	0
17:00	0	0	0	0	0
18:00	0	0	0	0	0
19:00	0	0	0	0	0
20:00	0	0	0	0	0
21:00	0	0	0	0	0
22:00	0	0	0	0	0
23:00	0	0	0	0	0
				TOTAL	0

AM PEAK HOUR	0000-0100
VOLUME	0
PM PEAK HOUR	1200-1300
VOLUME	0

TOTAL BI-DIRECTIONAL VOLUME	861

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: SPEEDWAY AVENUE BETWEEN PRIVATEER STREET AND QUARTERDECK STREET
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	4	4	6	2	16
1:00	4	1	1	0	6
2:00	1	5	1	1	8
3:00	3	0	1	0	4
4:00	0	1	1	3	5
5:00	0	0	1	1	2
6:00	2	8	4	10	24
7:00	10	12	8	12	42
8:00	11	17	8	12	48
9:00	10	18	16	16	60
10:00	16	11	8	20	55
11:00	14	13	16	16	59
12:00	20	22	18	15	75
13:00	17	14	14	14	59
14:00	16	10	13	16	55
15:00	17	18	22	26	83
16:00	18	16	10	18	62
17:00	20	26	17	16	79
18:00	20	15	12	22	69
19:00	19	20	18	10	67
20:00	12	9	18	11	50
21:00	16	9	13	11	49
22:00	16	19	14	6	55
23:00	9	12	10	1	32
				TOTAL	1064

AM PEAK HOUR	0915-1015
VOLUME	66
PM PEAK HOUR	1515-1615
VOLUME	84

DIRECTION:	O				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	0	0	0
6:00	0	0	0	0	0
7:00	0	0	0	0	0
8:00	0	0	0	0	0
9:00	0	0	0	0	0
10:00	0	0	0	0	0
11:00	0	0	0	0	0
12:00	0	0	0	0	0
13:00	0	0	0	0	0
14:00	0	0	0	0	0
15:00	0	0	0	0	0
16:00	0	0	0	0	0
17:00	0	0	0	0	0
18:00	0	0	0	0	0
19:00	0	0	0	0	0
20:00	0	0	0	0	0
21:00	0	0	0	0	0
22:00	0	0	0	0	0
23:00	0	0	0	0	0
				TOTAL	0

AM PEAK HOUR	0000-0100
VOLUME	0
PM PEAK HOUR	1200-1300
VOLUME	0

TOTAL BI-DIRECTIONAL VOLUME	1064

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: SPEEDWAY AVENUE BETWEEN WESTWIND STREET AND YAWL STREET
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	2	1	2	0	5
1:00	0	1	1	0	2
2:00	2	1	0	1	4
3:00	0	0	0	0	0
4:00	0	1	0	0	1
5:00	0	0	0	0	0
6:00	1	1	2	0	4
7:00	1	0	4	1	6
8:00	3	4	0	2	9
9:00	1	2	5	4	12
10:00	2	1	6	1	10
11:00	4	4	5	8	21
12:00	5	7	3	4	19
13:00	8	2	5	4	19
14:00	2	2	3	5	12
15:00	6	5	5	3	19
16:00	2	1	1	2	6
17:00	5	5	3	2	15
18:00	2	1	0	1	4
19:00	3	5	8	2	18
20:00	0	2	8	2	12
21:00	2	2	0	0	4
22:00	0	2	2	3	7
23:00	2	1	2	1	6
				TOTAL	215

AM PEAK HOUR	1100-1200
VOLUME	21
PM PEAK HOUR	1215-1315
VOLUME	22

DIRECTION:	O				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	0	0	0
6:00	0	0	0	0	0
7:00	0	0	0	0	0
8:00	0	0	0	0	0
9:00	0	0	0	0	0
10:00	0	0	0	0	0
11:00	0	0	0	0	0
12:00	0	0	0	0	0
13:00	0	0	0	0	0
14:00	0	0	0	0	0
15:00	0	0	0	0	0
16:00	0	0	0	0	0
17:00	0	0	0	0	0
18:00	0	0	0	0	0
19:00	0	0	0	0	0
20:00	0	0	0	0	0
21:00	0	0	0	0	0
22:00	0	0	0	0	0
23:00	0	0	0	0	0
				TOTAL	0

AM PEAK HOUR	0000-0100
VOLUME	0
PM PEAK HOUR	1200-1300
VOLUME	0

TOTAL BI-DIRECTIONAL VOLUME	215

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: PACIFIC AVENUE BETWEEN FLEET STREET AND GALLEON STREET
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	8	9	4	26
1:00	7	2	6	3	18
2:00	5	2	1	4	12
3:00	1	1	6	1	9
4:00	0	1	6	4	11
5:00	6	5	14	13	38
6:00	14	22	25	40	101
7:00	41	42	49	46	178
8:00	55	47	59	71	232
9:00	65	72	62	52	251
10:00	62	52	56	61	231
11:00	54	54	49	45	202
12:00	50	33	48	43	174
13:00	46	41	45	48	180
14:00	53	49	44	50	196
15:00	40	46	48	41	175
16:00	48	46	42	46	182
17:00	36	46	43	44	169
18:00	44	41	62	52	199
19:00	41	35	37	41	154
20:00	39	41	21	24	125
21:00	22	24	21	24	91
22:00	22	28	13	12	75
23:00	10	14	12	10	46
				TOTAL	3075

AM PEAK HOUR	0845-0945
VOLUME	270
PM PEAK HOUR	1800-1900
VOLUME	199

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	21	24	14	13	72
1:00	9	10	7	16	42
2:00	8	5	3	0	16
3:00	5	3	2	1	11
4:00	1	3	0	2	6
5:00	2	2	9	7	20
6:00	9	7	16	17	49
7:00	16	20	18	28	82
8:00	37	36	34	33	140
9:00	44	37	48	51	180
10:00	38	45	44	55	182
11:00	41	64	58	65	228
12:00	67	60	60	66	253
13:00	72	66	65	72	275
14:00	74	72	60	72	278
15:00	80	86	72	81	319
16:00	80	58	78	68	284
17:00	94	84	74	86	338
18:00	96	64	76	90	326
19:00	86	94	96	60	336
20:00	79	58	64	56	257
21:00	62	56	56	44	218
22:00	49	60	52	43	204
23:00	35	35	23	16	109
				TOTAL	4225

AM PEAK HOUR	1100-1200
VOLUME	228
PM PEAK HOUR	1845-1945
VOLUME	366

TOTAL BI-DIRECTIONAL VOLUME	7300

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: MARQUESAS WAY BETWEEN VIA DOLCE AND VIA MARINA
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	8	7	3	23
1:00	3	2	2	2	9
2:00	1	2	1	2	6
3:00	2	0	2	0	4
4:00	1	2	0	2	5
5:00	1	4	5	6	16
6:00	4	13	17	15	49
7:00	23	22	26	27	98
8:00	38	44	32	40	154
9:00	35	40	26	35	136
10:00	30	25	30	28	113
11:00	19	21	20	22	82
12:00	28	35	25	39	127
13:00	31	36	34	23	124
14:00	20	19	24	25	88
15:00	44	30	32	26	132
16:00	32	28	26	25	111
17:00	38	44	42	46	170
18:00	40	33	50	41	164
19:00	44	32	27	20	123
20:00	34	24	34	22	114
21:00	26	22	14	17	79
22:00	17	19	10	13	59
23:00	5	10	5	7	27
				TOTAL	2013

AM PEAK HOUR	0800-0900
VOLUME	154
PM PEAK HOUR	1715-1815
VOLUME	172

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	3	2	3	0	8
1:00	0	2	1	4	7
2:00	0	0	3	0	3
3:00	1	0	1	1	3
4:00	2	1	0	1	4
5:00	1	3	2	4	10
6:00	6	10	12	11	39
7:00	20	13	24	28	85
8:00	39	25	25	16	105
9:00	30	14	26	21	91
10:00	20	26	13	20	79
11:00	19	20	20	25	84
12:00	12	20	18	20	70
13:00	17	20	22	16	75
14:00	19	14	16	12	61
15:00	19	20	15	24	78
16:00	20	16	10	32	78
17:00	19	22	18	21	80
18:00	10	21	28	20	79
19:00	19	18	18	23	78
20:00	20	12	15	14	61
21:00	10	20	13	8	51
22:00	8	14	8	5	35
23:00	11	8	4	4	27
				TOTAL	1291

AM PEAK HOUR	0745-0845
VOLUME	117
PM PEAK HOUR	1645-1745
VOLUME	91

TOTAL BI-DIRECTIONAL VOLUME	3304

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: PACIFIC AVENUE BETWEEN WESTWIND STREET AND YAWL STREET
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	6	6	4	10	26
1:00	3	0	5	6	14
2:00	3	2	0	3	8
3:00	1	2	1	0	4
4:00	0	1	2	1	4
5:00	0	3	5	2	10
6:00	6	8	10	12	36
7:00	17	14	16	14	61
8:00	14	12	21	24	71
9:00	25	22	22	26	95
10:00	23	25	24	28	100
11:00	27	28	30	26	111
12:00	24	16	33	23	96
13:00	22	28	35	30	115
14:00	34	26	30	22	112
15:00	23	24	31	32	110
16:00	16	24	39	29	108
17:00	24	39	32	19	114
18:00	21	36	34	29	120
19:00	32	28	40	26	126
20:00	36	34	20	22	112
21:00	16	18	20	15	69
22:00	25	23	12	16	76
23:00	20	13	9	7	49
				TOTAL	1747

AM PEAK HOUR	1045-1145
VOLUME	113
PM PEAK HOUR	1930-2030
VOLUME	136

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	4	10	4	5	23
1:00	4	4	2	6	16
2:00	8	2	0	1	11
3:00	3	2	1	0	6
4:00	2	2	1	0	5
5:00	2	2	7	3	14
6:00	6	4	8	13	31
7:00	2	8	16	16	42
8:00	12	21	22	23	78
9:00	29	20	21	22	92
10:00	30	21	22	18	91
11:00	10	35	24	34	103
12:00	30	31	32	33	126
13:00	34	40	42	40	156
14:00	41	42	40	25	148
15:00	38	46	40	40	164
16:00	38	33	27	38	136
17:00	42	28	44	40	154
18:00	44	44	46	46	180
19:00	43	52	38	32	165
20:00	46	34	30	34	144
21:00	16	21	22	16	75
22:00	20	32	21	18	91
23:00	23	18	6	7	54
				TOTAL	2105

AM PEAK HOUR	1100-1200
VOLUME	103
PM PEAK HOUR	1830-1930
VOLUME	187

TOTAL BI-DIRECTIONAL VOLUME	3852

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: ROMA COURT BETWEEN LIGHTHOUSE MALL AND OUTRIGGER MALL
DATE: TUESDAY AUGUST 2ND, 2005

DIRECTION:	TOTAL				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	3	4	2	5	14
1:00	0	1	4	2	7
2:00	2	2	2	3	9
3:00	0	2	6	1	9
4:00	0	1	4	5	10
5:00	3	0	1	2	6
6:00	2	0	2	3	7
7:00	4	8	18	6	36
8:00	8	7	6	4	25
9:00	18	10	6	8	42
10:00	8	7	6	6	27
11:00	8	2	9	4	23
12:00	10	7	8	13	38
13:00	8	4	6	10	28
14:00	12	8	8	0	28
15:00	6	8	6	8	28
16:00	12	7	5	14	38
17:00	8	3	5	5	21
18:00	5	1	5	4	15
19:00	6	6	5	5	22
20:00	4	1	4	2	11
21:00	4	6	5	1	16
22:00	4	1	7	1	13
23:00	3	2	0	0	5
				TOTAL	478

AM PEAK HOUR	0900-1000
VOLUME	42
PM PEAK HOUR	1200-1300
VOLUME	38

DIRECTION:	O				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	0	0	0
6:00	0	0	0	0	0
7:00	0	0	0	0	0
8:00	0	0	0	0	0
9:00	0	0	0	0	0
10:00	0	0	0	0	0
11:00	0	0	0	0	0
12:00	0	0	0	0	0
13:00	0	0	0	0	0
14:00	0	0	0	0	0
15:00	0	0	0	0	0
16:00	0	0	0	0	0
17:00	0	0	0	0	0
18:00	0	0	0	0	0
19:00	0	0	0	0	0
20:00	0	0	0	0	0
21:00	0	0	0	0	0
22:00	0	0	0	0	0
23:00	0	0	0	0	0
				TOTAL	0

AM PEAK HOUR	0000-0100
VOLUME	0
PM PEAK HOUR	1200-1300
VOLUME	0

TOTAL BI-DIRECTIONAL VOLUME	478

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VIA DONTE BETWEEN VOYAGE MALL AND WESTWIND MALL
DATE: TUESDAY AUGUST 2ND, 2005

DIRECTION:	TOTAL				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	1	0	0	0	1
1:00	0	0	3	1	4
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	1	1
5:00	2	2	2	1	7
6:00	2	9	2	4	17
7:00	3	4	3	11	21
8:00	6	8	7	8	29
9:00	18	8	2	11	39
10:00	8	10	8	5	31
11:00	6	10	10	8	34
12:00	4	16	10	20	50
13:00	11	10	10	5	36
14:00	10	15	6	8	39
15:00	8	11	10	20	49
16:00	20	10	12	6	48
17:00	13	10	12	12	47
18:00	6	8	14	12	40
19:00	9	4	11	7	31
20:00	12	8	4	4	28
21:00	4	6	4	4	18
22:00	4	3	2	4	13
23:00	3	0	1	0	4
				TOTAL	587

AM PEAK HOUR	0815-0915
VOLUME	41
PM PEAK HOUR	1545-1645
VOLUME	62

DIRECTION:	O				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	0	0	0	0	0
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	0	0	0
6:00	0	0	0	0	0
7:00	0	0	0	0	0
8:00	0	0	0	0	0
9:00	0	0	0	0	0
10:00	0	0	0	0	0
11:00	0	0	0	0	0
12:00	0	0	0	0	0
13:00	0	0	0	0	0
14:00	0	0	0	0	0
15:00	0	0	0	0	0
16:00	0	0	0	0	0
17:00	0	0	0	0	0
18:00	0	0	0	0	0
19:00	0	0	0	0	0
20:00	0	0	0	0	0
21:00	0	0	0	0	0
22:00	0	0	0	0	0
23:00	0	0	0	0	0
				TOTAL	0

AM PEAK HOUR	0000-0100
VOLUME	0
PM PEAK HOUR	1200-1300
VOLUME	0

TOTAL BI-DIRECTIONAL VOLUME	587

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VIA MARINA EAST OF PACIFIC AVENUE
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	10	5	7	27
1:00	4	5	2	8	19
2:00	6	2	1	1	10
3:00	5	2	1	0	8
4:00	1	2	4	0	7
5:00	2	2	8	5	17
6:00	7	6	10	21	44
7:00	7	12	15	19	53
8:00	16	18	26	27	87
9:00	28	21	16	27	92
10:00	16	18	25	25	84
11:00	16	32	24	30	102
12:00	28	31	36	26	121
13:00	26	38	38	27	129
14:00	22	24	34	41	121
15:00	44	46	38	40	168
16:00	37	32	50	38	157
17:00	47	50	54	56	207
18:00	46	44	46	50	186
19:00	45	46	57	33	181
20:00	49	44	36	32	161
21:00	18	22	24	24	88
22:00	30	33	22	24	109
23:00	20	26	6	5	57
				TOTAL	2235

AM PEAK HOUR	0830-0930
VOLUME	102
PM PEAK HOUR	1700-1800
VOLUME	207

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	8	5	4	9	26
1:00	2	1	4	1	8
2:00	6	2	0	5	13
3:00	1	2	1	0	4
4:00	0	1	3	0	4
5:00	0	8	3	3	14
6:00	6	10	10	16	42
7:00	16	13	16	13	58
8:00	13	22	20	24	79
9:00	24	22	28	27	101
10:00	17	32	23	30	102
11:00	27	31	34	22	114
12:00	24	18	33	27	102
13:00	20	30	40	32	122
14:00	36	24	34	26	120
15:00	34	26	33	31	124
16:00	20	31	46	32	129
17:00	33	50	35	26	144
18:00	26	43	34	32	135
19:00	35	35	48	40	158
20:00	38	33	23	23	117
21:00	24	17	21	19	81
22:00	24	28	19	19	90
23:00	16	12	10	4	42
				TOTAL	1929

AM PEAK HOUR	1045-1145
VOLUME	122
PM PEAK HOUR	1630-1730
VOLUME	161

TOTAL BI-DIRECTIONAL VOLUME	4164

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VIA DOLCE NORTH OF MARQUESAS WAY
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	2	5	2	14
1:00	0	0	2	2	4
2:00	0	0	2	0	2
3:00	4	0	1	0	5
4:00	0	1	0	3	4
5:00	2	5	9	6	22
6:00	16	17	14	17	64
7:00	35	38	48	38	159
8:00	70	44	47	51	212
9:00	39	36	46	37	158
10:00	39	42	36	47	164
11:00	32	36	36	27	131
12:00	30	34	26	34	124
13:00	35	30	21	32	118
14:00	20	42	33	25	120
15:00	33	36	26	27	122
16:00	30	21	29	24	104
17:00	25	22	30	13	90
18:00	18	29	23	27	97
19:00	24	24	28	16	92
20:00	23	16	28	10	77
21:00	16	16	10	14	56
22:00	20	9	7	6	42
23:00	6	8	5	5	24
				TOTAL	2005

AM PEAK HOUR	0800-0900
VOLUME	212
PM PEAK HOUR	1415-1515
VOLUME	133

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	8	9	10	4	31
1:00	3	4	2	0	9
2:00	1	4	1	3	9
3:00	0	0	2	0	2
4:00	0	1	0	1	2
5:00	2	0	0	4	6
6:00	7	4	12	12	35
7:00	24	10	12	16	62
8:00	17	26	24	11	78
9:00	22	15	28	28	93
10:00	23	24	21	16	84
11:00	24	18	21	20	83
12:00	24	27	28	37	116
13:00	44	44	30	27	145
14:00	25	18	20	31	94
15:00	38	38	31	16	123
16:00	31	28	28	31	118
17:00	50	46	46	44	186
18:00	64	58	72	58	252
19:00	50	41	46	26	163
20:00	51	32	28	34	145
21:00	28	21	20	24	93
22:00	26	25	11	16	78
23:00	12	16	8	6	42
				TOTAL	2049

AM PEAK HOUR	0930-1030
VOLUME	103
PM PEAK HOUR	1800-1900
VOLUME	252

TOTAL BI-DIRECTIONAL VOLUME	4054

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VIA DOLCE BETWEEN PRIVATEER STREET AND QUARTERDECK STREET
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	4	0	1	0	5
1:00	0	2	2	1	5
2:00	0	0	1	1	2
3:00	1	0	0	0	1
4:00	1	0	0	3	4
5:00	5	0	4	0	9
6:00	2	4	4	6	16
7:00	11	6	10	14	41
8:00	14	12	10	13	49
9:00	8	8	10	12	38
10:00	4	2	4	8	18
11:00	10	2	10	2	24
12:00	6	12	4	6	28
13:00	8	6	8	14	36
14:00	9	10	2	13	34
15:00	5	4	8	7	24
16:00	6	6	10	4	26
17:00	9	12	10	9	40
18:00	3	10	6	5	24
19:00	4	6	6	12	28
20:00	2	5	1	5	13
21:00	4	4	0	0	8
22:00	4	4	4	4	16
23:00	3	0	2	0	5
				TOTAL	494

AM PEAK HOUR	0730-0830
VOLUME	50
PM PEAK HOUR	1330-1430
VOLUME	41

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	3	1	2	1	7
1:00	4	1	2	2	9
2:00	1	1	2	1	5
3:00	0	0	0	0	0
4:00	0	0	1	4	5
5:00	4	2	0	4	10
6:00	1	1	3	4	9
7:00	4	13	6	6	29
8:00	5	16	12	14	47
9:00	11	14	7	7	39
10:00	11	8	13	16	48
11:00	14	13	15	16	58
12:00	13	16	8	14	51
13:00	3	15	11	9	38
14:00	12	12	16	10	50
15:00	10	12	8	10	40
16:00	9	13	19	12	53
17:00	16	15	17	12	60
18:00	15	12	9	12	48
19:00	14	19	16	4	53
20:00	12	17	12	2	43
21:00	4	14	10	12	40
22:00	7	5	5	8	25
23:00	6	4	1	4	15
				TOTAL	782

AM PEAK HOUR	1045-1145
VOLUME	58
PM PEAK HOUR	1630-1730
VOLUME	62

TOTAL BI-DIRECTIONAL VOLUME	1276

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: MARQUESAS WAY BETWEEN VIA DOLCE AND VIA MARINA
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	8	7	3	23
1:00	3	2	2	2	9
2:00	1	2	1	2	6
3:00	2	0	2	0	4
4:00	1	2	0	2	5
5:00	1	4	5	6	16
6:00	4	13	17	15	49
7:00	23	22	26	27	98
8:00	38	44	32	40	154
9:00	35	40	26	35	136
10:00	30	25	30	28	113
11:00	19	21	20	22	82
12:00	28	35	25	39	127
13:00	31	36	34	23	124
14:00	20	19	24	25	88
15:00	44	30	32	26	132
16:00	32	28	26	25	111
17:00	38	44	42	46	170
18:00	40	33	50	41	164
19:00	44	32	27	20	123
20:00	34	24	34	22	114
21:00	26	22	14	17	79
22:00	17	19	10	13	59
23:00	5	10	5	7	27
				TOTAL	2013

AM PEAK HOUR	0800-0900
VOLUME	154
PM PEAK HOUR	1715-1815
VOLUME	172

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	3	2	3	0	8
1:00	0	2	1	4	7
2:00	0	0	3	0	3
3:00	1	0	1	1	3
4:00	2	1	0	1	4
5:00	1	3	2	4	10
6:00	6	10	12	11	39
7:00	20	13	24	28	85
8:00	39	25	25	16	105
9:00	30	14	26	21	91
10:00	20	26	13	20	79
11:00	19	20	20	25	84
12:00	12	20	18	20	70
13:00	17	20	22	16	75
14:00	19	14	16	12	61
15:00	19	20	15	24	78
16:00	20	16	10	32	78
17:00	19	22	18	21	80
18:00	10	21	28	20	79
19:00	19	18	18	23	78
20:00	20	12	15	14	61
21:00	10	20	13	8	51
22:00	8	14	8	5	35
23:00	11	8	4	4	27
				TOTAL	1291

AM PEAK HOUR	0745-0845
VOLUME	117
PM PEAK HOUR	1645-1745
VOLUME	91

TOTAL BI-DIRECTIONAL VOLUME	3304

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VIA MARINA NORTH OF MARQUESAS WAY
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	21	30	20	16	87
1:00	13	9	8	4	34
2:00	18	6	3	1	28
3:00	12	3	1	6	22
4:00	3	11	12	15	41
5:00	16	30	51	40	137
6:00	60	78	106	131	375
7:00	133	162	180	208	683
8:00	191	224	224	238	877
9:00	194	186	160	172	712
10:00	134	136	143	123	536
11:00	118	124	125	145	512
12:00	139	152	150	150	591
13:00	141	150	128	147	566
14:00	120	138	155	128	541
15:00	180	168	158	133	639
16:00	148	136	166	133	583
17:00	156	148	170	153	627
18:00	150	150	156	144	600
19:00	150	168	117	126	561
20:00	134	110	128	112	484
21:00	97	71	62	67	297
22:00	74	72	53	45	244
23:00	45	55	27	23	150
				TOTAL	9927

AM PEAK HOUR	0815-0915
VOLUME	880
PM PEAK HOUR	1500-1600
VOLUME	639

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	48	38	28	40	154
1:00	20	21	26	16	83
2:00	9	11	5	7	32
3:00	5	6	6	3	20
4:00	3	5	6	5	19
5:00	5	10	11	18	44
6:00	26	36	62	68	192
7:00	53	52	82	85	272
8:00	87	88	76	89	340
9:00	110	94	92	95	391
10:00	103	106	88	102	399
11:00	114	130	122	121	487
12:00	118	120	142	114	494
13:00	106	125	154	123	508
14:00	146	142	157	120	565
15:00	142	136	131	142	551
16:00	139	158	165	174	636
17:00	196	166	190	147	699
18:00	176	193	204	192	765
19:00	237	202	200	203	842
20:00	194	161	172	178	705
21:00	156	158	130	111	555
22:00	127	125	114	80	446
23:00	100	72	54	54	280
				TOTAL	9479

AM PEAK HOUR	1100-1200
VOLUME	487
PM PEAK HOUR	1900-2000
VOLUME	842

TOTAL BI-DIRECTIONAL VOLUME	19406

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VIA MARINA SOUTH OF TAHITI WAY
DATE: THURSDAY JULY 21ST, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	14	18	16	7	55
1:00	8	6	6	6	26
2:00	13	5	0	2	20
3:00	9	2	1	3	15
4:00	3	8	9	5	25
5:00	10	18	25	24	77
6:00	43	42	64	80	229
7:00	86	98	112	112	408
8:00	120	128	148	135	531
9:00	106	104	90	92	392
10:00	70	83	78	82	313
11:00	66	76	74	74	290
12:00	80	87	98	90	355
13:00	82	96	91	97	366
14:00	77	92	90	76	335
15:00	112	104	85	82	383
16:00	82	90	106	76	354
17:00	100	90	124	96	410
18:00	92	79	104	94	369
19:00	106	88	90	84	368
20:00	94	72	82	62	310
21:00	54	49	48	45	196
22:00	64	47	32	31	174
23:00	31	37	23	11	102
				TOTAL	6103

AM PEAK HOUR	0800-0900
VOLUME	531
PM PEAK HOUR	1700-1800
VOLUME	410

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	29	25	22	23	99
1:00	15	13	17	10	55
2:00	5	7	2	4	18
3:00	3	3	4	1	11
4:00	2	3	4	1	10
5:00	4	11	7	13	35
6:00	14	22	27	31	94
7:00	34	32	40	40	146
8:00	48	55	48	49	200
9:00	58	53	63	59	233
10:00	55	64	62	56	237
11:00	64	70	71	63	268
12:00	84	69	92	76	321
13:00	72	80	96	66	314
14:00	102	823	93	78	1096
15:00	86	88	90	78	342
16:00	82	95	108	96	381
17:00	119	114	106	102	441
18:00	128	121	116	136	501
19:00	137	122	126	132	517
20:00	124	0	108	106	338
21:00	86	109	78	70	343
22:00	85	71	68	54	278
23:00	56	45	37	28	166
				TOTAL	6444

AM PEAK HOUR	1100-1200
VOLUME	268
PM PEAK HOUR	1400-1500
VOLUME	1096

TOTAL BI-DIRECTIONAL VOLUME	12547

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: PACIFIC AVENUE NORTH OF CONVOY STREET
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	4	6	6	1	17
1:00	8	0	8	0	16
2:00	2	3	3	2	10
3:00	1	3	2	0	6
4:00	2	5	2	0	9
5:00	4	2	0	4	10
6:00	6	1	6	8	21
7:00	6	6	11	12	35
8:00	17	15	12	10	54
9:00	22	15	22	24	83
10:00	12	18	21	20	71
11:00	20	26	33	24	103
12:00	28	24	26	22	100
13:00	24	26	34	28	112
14:00	40	22	28	26	116
15:00	22	28	26	22	98
16:00	36	30	26	32	124
17:00	40	24	35	24	123
18:00	55	42	38	48	183
19:00	34	41	38	48	161
20:00	28	22	18	14	82
21:00	21	10	17	18	66
22:00	9	8	18	18	53
23:00	9	5	8	6	28
				TOTAL	1681

AM PEAK HOUR	1100-1200
VOLUME	103
PM PEAK HOUR	1800-1900
VOLUME	183

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	6	5	4	20
1:00	8	0	3	4	15
2:00	1	0	1	4	6
3:00	0	3	2	0	5
4:00	0	1	2	0	3
5:00	1	0	2	5	8
6:00	8	6	5	9	28
7:00	12	14	9	16	51
8:00	18	18	20	20	76
9:00	16	13	14	20	63
10:00	16	17	13	22	68
11:00	16	28	25	16	85
12:00	16	22	15	18	71
13:00	17	28	20	21	86
14:00	15	16	17	19	67
15:00	30	22	20	22	94
16:00	24	18	18	27	87
17:00	26	21	26	16	89
18:00	21	25	27	28	101
19:00	28	18	24	23	93
20:00	40	24	20	17	101
21:00	12	4	6	15	37
22:00	5	6	10	10	31
23:00	4	4	10	2	20
				TOTAL	1305

AM PEAK HOUR	1045-1145
VOLUME	91
PM PEAK HOUR	1930-2030
VOLUME	111

TOTAL BI-DIRECTIONAL VOLUME	2986

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: PERSHING DRIVE SOUTH OF WESTCHESTER DRIVEWAY
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	28	17	24	21	90
1:00	14	18	16	11	59
2:00	18	13	11	10	52
3:00	6	8	12	5	31
4:00	7	8	6	15	36
5:00	9	16	31	32	88
6:00	58	87	138	156	439
7:00	206	231	286	276	999
8:00	265	275	262	270	1072
9:00	238	209	184	176	807
10:00	155	136	100	110	501
11:00	136	126	110	143	515
12:00	124	134	113	124	495
13:00	125	132	124	121	502
14:00	137	116	154	150	557
15:00	136	122	162	157	577
16:00	183	200	178	172	733
17:00	214	197	218	206	835
18:00	187	190	140	200	717
19:00	136	115	108	86	445
20:00	76	91	95	91	353
21:00	81	86	64	74	305
22:00	76	70	60	46	252
23:00	52	37	42	24	155
				TOTAL	10615

AM PEAK HOUR	0730-0830
VOLUME	1102
PM PEAK HOUR	1700-1800
VOLUME	835

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	18	6	12	9	45
1:00	11	9	6	10	36
2:00	8	10	4	6	28
3:00	6	10	7	12	35
4:00	17	17	44	39	117
5:00	38	57	69	83	247
6:00	71	103	128	126	428
7:00	115	130	158	178	581
8:00	172	162	156	148	638
9:00	152	102	121	121	496
10:00	100	114	84	100	398
11:00	121	102	100	100	423
12:00	122	104	134	127	487
13:00	126	137	134	98	495
14:00	92	104	94	96	386
15:00	102	118	124	118	462
16:00	136	138	132	137	543
17:00	156	175	158	164	653
18:00	143	149	158	158	608
19:00	125	132	113	92	462
20:00	94	69	62	71	296
21:00	57	58	47	56	218
22:00	39	46	34	23	142
23:00	23	27	17	11	78
				TOTAL	8302

AM PEAK HOUR	0730-0830
VOLUME	670
PM PEAK HOUR	1700-1800
VOLUME	653

TOTAL BI-DIRECTIONAL VOLUME	18917

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: PERSHING DRIVE BETWEEN CULVER BOULEVARD AND NICHOLSON STREET
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	6	4	2	3	15
1:00	0	2	1	2	5
2:00	3	2	0	1	6
3:00	0	0	1	0	1
4:00	2	0	5	0	7
5:00	1	1	5	4	11
6:00	2	5	6	12	25
7:00	10	10	10	12	42
8:00	19	9	16	22	66
9:00	17	25	18	20	80
10:00	18	8	21	18	65
11:00	12	14	30	24	80
12:00	20	16	22	28	86
13:00	34	26	26	28	114
14:00	20	22	24	24	90
15:00	28	20	18	30	96
16:00	23	24	20	28	95
17:00	31	30	28	25	114
18:00	24	34	27	29	114
19:00	35	18	20	16	89
20:00	18	28	22	21	89
21:00	15	15	16	14	60
22:00	18	16	15	9	58
23:00	14	6	5	4	29
				TOTAL	1437

AM PEAK HOUR	0845-0945
VOLUME	82
PM PEAK HOUR	1815-1915
VOLUME	125

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	2	14	0	2	18
1:00	1	1	2	0	4
2:00	1	0	2	1	4
3:00	2	0	0	0	2
4:00	1	3	2	0	6
5:00	0	2	3	4	9
6:00	8	6	13	20	47
7:00	8	46	24	16	94
8:00	12	12	26	18	68
9:00	12	16	13	25	66
10:00	22	14	15	15	66
11:00	14	25	32	32	103
12:00	30	12	22	30	94
13:00	25	18	14	24	81
14:00	16	20	24	17	77
15:00	25	16	18	18	77
16:00	20	20	16	28	84
17:00	21	20	16	14	71
18:00	14	16	17	22	69
19:00	29	19	22	15	85
20:00	11	21	20	18	70
21:00	12	11	8	12	43
22:00	11	6	9	6	32
23:00	12	12	4	2	30
				TOTAL	1300

AM PEAK HOUR	1100-1200
VOLUME	103
PM PEAK HOUR	1230-1330
VOLUME	95

TOTAL BI-DIRECTIONAL VOLUME	2737

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: NICHOLSON STREET BETWEEN CULVER BOULEVARD AND PERSHING DRIVE
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	16	21	16	18	71
1:00	6	6	8	4	24
2:00	5	7	6	3	21
3:00	2	4	9	4	19
4:00	4	9	4	12	29
5:00	17	29	34	48	128
6:00	56	100	178	192	526
7:00	299	320	336	300	1255
8:00	318	337	326	296	1277
9:00	280	270	231	202	983
10:00	156	179	144	134	613
11:00	128	118	126	112	484
12:00	124	110	128	102	464
13:00	97	95	126	102	420
14:00	122	116	108	102	448
15:00	126	114	105	136	481
16:00	146	154	154	134	588
17:00	166	161	169	164	660
18:00	138	136	112	136	522
19:00	112	94	74	97	377
20:00	77	53	54	50	234
21:00	51	54	54	40	199
22:00	60	42	47	44	193
23:00	35	22	30	16	103
				TOTAL	10119

AM PEAK HOUR	0730-0830
VOLUME	1291
PM PEAK HOUR	1700-1800
VOLUME	660

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	28	24	28	25	105
1:00	23	15	12	15	65
2:00	12	9	4	9	34
3:00	6	6	5	8	25
4:00	11	11	24	22	68
5:00	22	25	29	28	104
6:00	33	43	40	56	172
7:00	40	35	54	62	191
8:00	62	58	85	56	261
9:00	53	59	51	58	221
10:00	62	64	67	61	254
11:00	75	78	82	76	311
12:00	98	93	100	109	400
13:00	124	104	78	103	409
14:00	92	112	120	112	436
15:00	102	101	122	118	443
16:00	150	178	188	178	694
17:00	225	194	211	212	842
18:00	227	223	237	238	925
19:00	200	224	194	166	784
20:00	168	134	148	110	560
21:00	123	128	100	112	463
22:00	88	77	82	62	309
23:00	60	47	48	44	199
				TOTAL	8275

AM PEAK HOUR	1100-1200
VOLUME	311
PM PEAK HOUR	1800-1900
VOLUME	925

TOTAL BI-DIRECTIONAL VOLUME	18394

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: CULVER BOULEVARD EAST OF NICHOLSON STREET
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	36	35	29	24	124
1:00	14	13	12	13	52
2:00	13	11	11	7	42
3:00	6	6	13	9	34
4:00	8	13	13	27	61
5:00	31	54	83	108	276
6:00	126	222	334	406	1088
7:00	547	625	590	606	2368
8:00	594	651	524	577	2346
9:00	513	531	448	389	1881
10:00	331	339	306	286	1262
11:00	287	266	256	254	1063
12:00	240	237	260	254	991
13:00	230	248	273	264	1015
14:00	270	258	257	242	1027
15:00	258	259	270	269	1056
16:00	296	326	308	299	1229
17:00	380	388	450	434	1652
18:00	376	424	370	368	1538
19:00	346	344	234	226	1150
20:00	171	158	152	126	607
21:00	139	104	120	104	467
22:00	112	100	90	92	394
23:00	78	55	58	39	230
				TOTAL	21953

AM PEAK HOUR	0730-0830
VOLUME	2441
PM PEAK HOUR	1730-1830
VOLUME	1684

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	48	42	38	39	167
1:00	24	30	16	20	90
2:00	17	8	11	12	48
3:00	9	5	8	12	34
4:00	15	15	26	26	82
5:00	33	34	46	64	177
6:00	76	78	102	110	366
7:00	98	96	145	160	499
8:00	146	179	192	172	689
9:00	156	140	130	144	570
10:00	150	144	153	153	600
11:00	181	177	192	196	746
12:00	193	226	216	256	891
13:00	224	230	230	241	925
14:00	230	273	294	264	1061
15:00	282	271	336	344	1233
16:00	358	424	470	468	1720
17:00	506	484	504	536	2030
18:00	546	533	574	542	2195
19:00	458	462	392	324	1636
20:00	324	312	264	228	1128
21:00	221	217	201	175	814
22:00	164	135	153	104	556
23:00	107	72	77	64	320
				TOTAL	18577

AM PEAK HOUR	1100-1200
VOLUME	746
PM PEAK HOUR	1800-1900
VOLUME	2195

TOTAL BI-DIRECTIONAL VOLUME	40530

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VISTA DEL MAR SOUTH OF NAPOLEON STREET
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	19	17	10	20	66
1:00	16	12	13	6	47
2:00	5	5	2	2	14
3:00	4	4	3	3	14
4:00	3	4	8	7	22
5:00	17	17	32	61	127
6:00	68	117	144	200	529
7:00	232	256	248	296	1032
8:00	278	330	264	284	1156
9:00	240	222	206	196	864
10:00	154	147	148	142	591
11:00	128	152	126	152	558
12:00	144	126	110	129	509
13:00	134	112	127	116	489
14:00	128	132	145	144	549
15:00	156	146	146	138	586
16:00	140	162	144	141	587
17:00	168	194	197	200	759
18:00	186	201	160	177	724
19:00	129	128	110	108	475
20:00	94	106	55	79	334
21:00	72	60	52	60	244
22:00	62	56	48	52	218
23:00	38	34	42	28	142
				TOTAL	10636

AM PEAK HOUR	0745-0845
VOLUME	1168
PM PEAK HOUR	1730-1830
VOLUME	784

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	29	22	23	25	99
1:00	22	8	11	8	49
2:00	9	10	8	6	33
3:00	3	2	1	5	11
4:00	1	3	2	4	10
5:00	12	8	24	31	75
6:00	44	42	46	59	191
7:00	50	60	72	89	271
8:00	82	97	90	110	379
9:00	76	80	69	27	252
10:00	58	56	72	74	260
11:00	74	74	96	96	340
12:00	82	96	100	110	388
13:00	99	113	124	108	444
14:00	116	156	120	132	524
15:00	150	170	171	195	686
16:00	208	214	206	236	864
17:00	233	300	260	242	1035
18:00	252	218	258	232	960
19:00	280	254	232	216	982
20:00	197	165	134	138	634
21:00	117	97	91	114	419
22:00	98	106	90	81	375
23:00	53	20	46	34	153
				TOTAL	9434

AM PEAK HOUR	0800-0900
VOLUME	379
PM PEAK HOUR	1715-1815
VOLUME	1054

TOTAL BI-DIRECTIONAL VOLUME	20070

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: VISTA DEL MAR BETWEEN PACIFIC AVENUE AND SURF STREET
DATE: THURSDAY JULY 28TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	21	20	15	21	77
1:00	15	15	18	12	60
2:00	10	5	4	0	19
3:00	2	2	8	4	16
4:00	1	2	12	4	19
5:00	22	22	21	68	133
6:00	64	121	140	212	537
7:00	229	259	244	302	1034
8:00	300	320	300	300	1220
9:00	241	200	212	300	953
10:00	159	141	148	149	597
11:00	130	156	122	151	559
12:00	144	130	100	130	504
13:00	132	129	123	121	505
14:00	122	130	140	148	540
15:00	160	141	141	130	572
16:00	129	168	148	140	585
17:00	164	200	200	220	784
18:00	200	200	168	200	768
19:00	121	121	100	104	446
20:00	100	102	52	78	332
21:00	70	62	52	62	246
22:00	64	52	42	52	210
23:00	32	31	44	30	137
				TOTAL	10853

AM PEAK HOUR	0745-0845
VOLUME	1222
PM PEAK HOUR	1715-1815
VOLUME	820

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	30	21	24	25	100
1:00	21	4	14	14	53
2:00	12	8	14	8	42
3:00	8	4	2	2	16
4:00	2	1	4	15	22
5:00	6	14	22	30	72
6:00	48	48	50	62	208
7:00	56	62	78	100	296
8:00	100	100	100	122	422
9:00	77	121	100	62	360
10:00	121	100	79	78	378
11:00	77	70	100	100	347
12:00	100	71	100	121	392
13:00	100	121	121	100	442
14:00	121	156	120	141	538
15:00	162	171	178	200	711
16:00	205	200	200	230	835
17:00	233	302	268	242	1045
18:00	262	220	259	230	971
19:00	301	258	200	200	959
20:00	200	168	130	150	648
21:00	139	100	58	121	418
22:00	121	100	68	68	357
23:00	62	22	42	32	158
				TOTAL	9790

AM PEAK HOUR	0800-0900
VOLUME	422
PM PEAK HOUR	1715-1815
VOLUME	1074

TOTAL BI-DIRECTIONAL VOLUME	20643

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: PACIFIC AVENUE NORTH OF CONVOY STREET
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	4	6	6	1	17
1:00	8	0	8	0	16
2:00	2	3	3	2	10
3:00	1	3	2	0	6
4:00	2	5	2	0	9
5:00	4	2	0	4	10
6:00	6	1	6	8	21
7:00	6	6	11	12	35
8:00	17	15	12	10	54
9:00	22	15	22	24	83
10:00	12	18	21	20	71
11:00	20	26	33	24	103
12:00	28	24	26	22	100
13:00	24	26	34	28	112
14:00	40	22	28	26	116
15:00	22	28	26	22	98
16:00	36	30	26	32	124
17:00	40	24	35	24	123
18:00	55	42	38	48	183
19:00	34	41	38	48	161
20:00	28	22	18	14	82
21:00	21	10	17	18	66
22:00	9	8	18	18	53
23:00	9	5	8	6	28
				TOTAL	1681

AM PEAK HOUR	1100-1200
VOLUME	103
PM PEAK HOUR	1800-1900
VOLUME	183

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	6	5	4	20
1:00	8	0	3	4	15
2:00	1	0	1	4	6
3:00	0	3	2	0	5
4:00	0	1	2	0	3
5:00	1	0	2	5	8
6:00	8	6	5	9	28
7:00	12	14	9	16	51
8:00	18	18	20	20	76
9:00	16	13	14	20	63
10:00	16	17	13	22	68
11:00	16	28	25	16	85
12:00	16	22	15	18	71
13:00	17	28	20	21	86
14:00	15	16	17	19	67
15:00	30	22	20	22	94
16:00	24	18	18	27	87
17:00	26	21	26	16	89
18:00	21	25	27	28	101
19:00	28	18	24	23	93
20:00	40	24	20	17	101
21:00	12	4	6	15	37
22:00	5	6	10	10	31
23:00	4	4	10	2	20
				TOTAL	1305

AM PEAK HOUR	1045-1145
VOLUME	91
PM PEAK HOUR	1930-2030
VOLUME	111

TOTAL BI-DIRECTIONAL VOLUME	2986

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: KAKU ASSOCIATES
PROJECT: VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
LOCATION: PACIFIC AVENUE BETWEEN 63rd AVENUE AND 64th AVENUE
DATE: TUESDAY JULY 26TH, 2005

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	3	1	1	2	7
1:00	2	0	4	0	6
2:00	0	2	1	2	5
3:00	1	2	1	0	4
4:00	1	2	1	0	4
5:00	0	0	0	2	2
6:00	3	1	3	5	12
7:00	3	1	6	3	13
8:00	6	9	6	3	24
9:00	10	3	13	7	33
10:00	10	10	9	14	43
11:00	10	16	11	16	53
12:00	6	9	12	7	34
13:00	6	12	12	11	41
14:00	8	14	14	14	50
15:00	15	12	6	14	47
16:00	9	6	12	16	43
17:00	17	17	14	10	58
18:00	20	20	12	21	73
19:00	8	18	14	20	60
20:00	9	16	6	8	39
21:00	6	6	3	6	21
22:00	6	2	13	12	33
23:00	3	3	5	3	14
				TOTAL	719

AM PEAK HOUR	1100-1200
VOLUME	53
PM PEAK HOUR	1800-1900
VOLUME	73

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	1	3	1	1	6
1:00	0	0	0	0	0
2:00	0	0	0	2	2
3:00	1	2	1	0	4
4:00	0	2	1	1	4
5:00	0	0	1	2	3
6:00	3	3	1	6	13
7:00	2	4	2	7	15
8:00	9	14	4	6	33
9:00	7	4	4	6	21
10:00	6	4	8	10	28
11:00	6	14	6	4	30
12:00	12	10	9	10	41
13:00	4	7	2	7	20
14:00	4	8	6	12	30
15:00	4	10	3	9	26
16:00	10	6	7	12	35
17:00	12	10	6	10	38
18:00	6	12	15	10	43
19:00	7	8	6	8	29
20:00	8	12	10	7	37
21:00	4	2	5	2	13
22:00	6	6	5	4	21
23:00	3	1	3	0	7
				TOTAL	499

AM PEAK HOUR	1030-1130
VOLUME	38
PM PEAK HOUR	1815-1915
VOLUME	44

TOTAL BI-DIRECTIONAL VOLUME	1218

APPENDIX E-2

EXISTING STREET CHARACTERISTICS, BIKEWAYS AND ON-STREET PARKING SUPPLY

APPENDIX E-2-1
EXISTING SURFACE STREET CHARACTERISTICS

Segment	From	To	Functional Classification	Lane		Median Type	Parking Restrictions		Speed Limit
				NB/EB	SB/WB		NB/EB	SB/WB	
Speedway Ave	Fleet St	Galleon St	Local	1	n/a	UD	NSAT	NSAT	15
	Privateer St	Quarterdeck St.	Local	1	n/a	UD	NSAT	NSAT	15
	Westwind St	Yawl St	Local	1	n/a	UD	NSAT	NSAT	15
Pacific Ave	Fleet St	Galleon St	Local	1	1	SDY	PA	NPAT	30
	Privateer St	Quarterdeck St	Local	1	1	SDY	PA	NPAT	30
	Westwind St	Yawl St	Local	1	1	SDY	PA	NPAT	30
Pacific Ave	North of Convoy St		Local	1	1	UD	PA	PA	25
	63rd Ave and 64th Ave		Local	1	1	UD	PA	PA	25
Roma Court	Lighthouse Mall	Outrigger Mall	Local	1	1	UD	NPAT	NPAT	15
Via Donte	Union Jack Mall	Voyage Mall	Local	1	1	UD	PA	PA	15
Via Marina	East of Pacific Ave		Collector	1	1	SDY	PA	NSAT	30
	North of Marquesas Way		Secondary	3	3	RM	NPAT	NPAT	30
	South of Tahiti Way		Secondary	2	2	RM	NSAT	NSAT	30
	North of Harbor Lane		Secondary	2	2	RM	NSAT	NSAT	30
Via Dolce	North of Marquesas Way		Secondary	2	2	2LT	PA	PA	30
	Privateer St	Quarterdeck St	Collector	1	1	SDY	PA	PA	25
Marquesas Way	Via Dolce	Via Marina	Secondary	2	2	2LT	PA	PA	35
Pershing Dr	South of Westchester Parkway		Major Hwy Class II	3	3	DY/2LT/RM	NPAT	NPAT	55
	Culver Blvd	Nicholson St	Local	1	1	DY	PA	PA	25
Cabora Drive	Culver Blvd	Pershing Dr	Local	1	1	DY	NPAT	NPAT	25
Culver Blvd	East of Nicholson St		Secondary	2	2	DY	NSAT	NSAT	35
Vista del Mar	South of Napoleon St		Major Hwy Class II	2	2	DY	PA/NP 10pm-6am	PA/NP 10pm-6am	35
	Pacific Ave	Surf St	Major Hwy Class II	2	2	DY	NSAT	NSAT	35

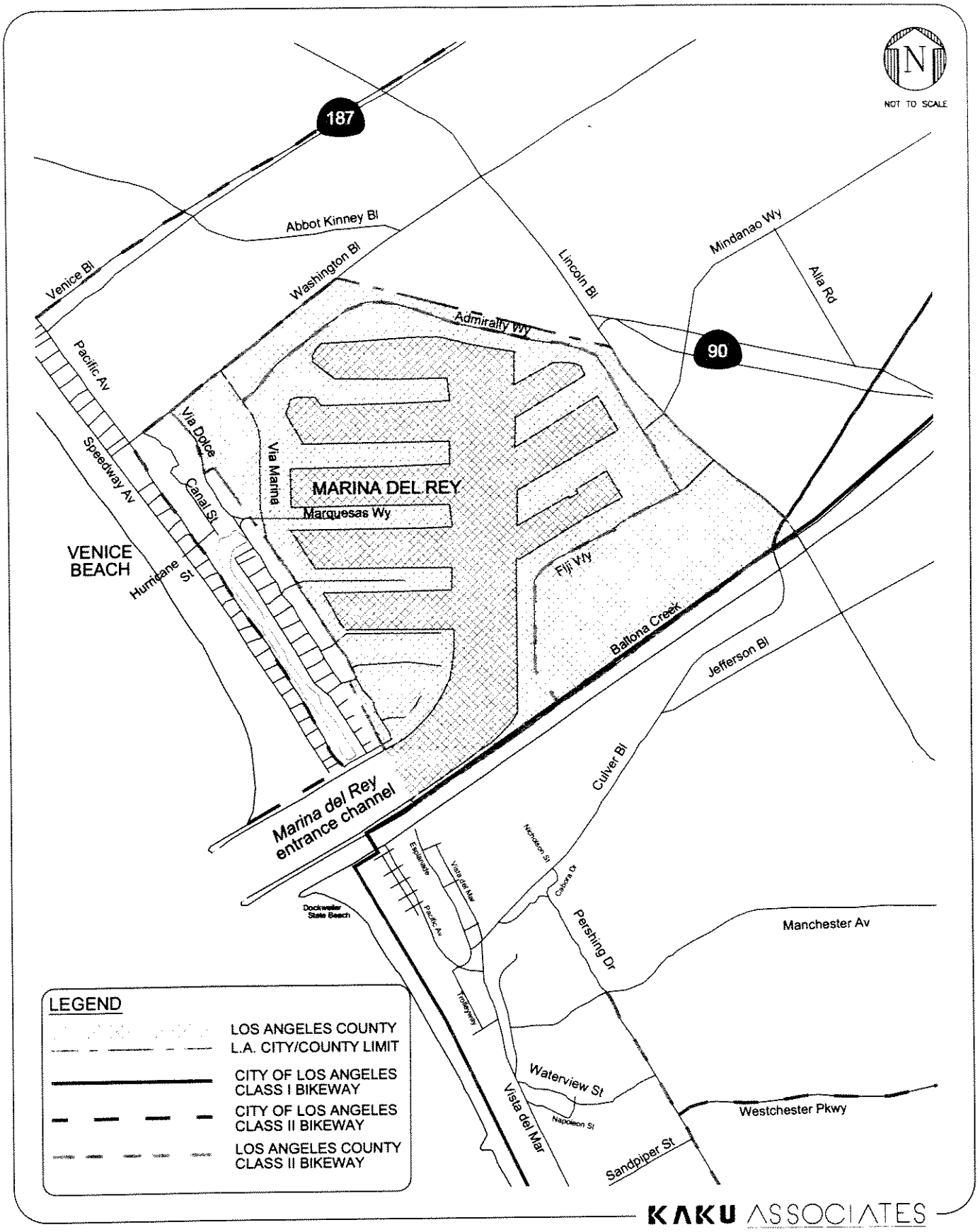
Notes:

Median Type:
- DY = Double Yellow Centerline
- SDY = Single Dashed Yellow Centerline
- 2LT = Dual Left Turn Centerline
- RM = Raised Median
- UD = Undivided Lane

Speed Limit: miles per hour

Parking: PA = Parking Allowed
- NSAT = No Stopping Anytime
- GZ = Green zone - Passenger loading and unloading
- RZ = Red zone - No parking allowed

Lanes: # = Number of lanes



APPENDIX E-2-2
EXISTING BIKEWAYS

APPENDIX E-2-3
EXISTING ON-STREET PARKING SUPPLY IN STUDY AREA

Street	From	To	Approximate Distance (feet)	Number of Parking Spaces*	
				SB/WB	NB/EB
Speedway	Venice Bl North	Via Marina	--	0	0
North Pacific Av	Via Marina	Westwind St	500	10	0
	Westwind St	Union Jack St	500	6	0
	Union Jack St	Reef St	740	21	0
	Reef St	Outrigger St	740	24	0
	Outrigger St	Lighthouse St	740	20	0
	Lighthouse St	Jib St	500	12	0
	Jib St	Hurricane St	500	17	0
	Hurricane St	Fleet St	500	10	0
	Fleet St	Driftwood St	500	13	0
	Driftwood St	Catamaran St	210	5	
	Catamaran St	Washington Bl	690	13	26
	Washington Bl	29th Av	500	6	
	29th Av	27th Av	500	6	
	27th Av	25th Av	500	7	
	25th Av	Venice Bl South	740	11	70
Via Dolce	Via Donte	Spinnaker Ct	500	11	19
	Spinnaker Ct	Quarterdeck Ct	500	8	
	Quarterdeck Ct	Northstar Ct	690	29	31
	Northstar Ct	Lighthouse Ct	500	11	
	Lighthouse Ct	Roma Ct	370	7	
	Roma Ct	Marquesas Wy	630	7	37
	Marquesas Wy	Washington Bl	1,850	51	61
Strongs Dr	Washington Bl	Driftwood St	1,050	21	37
Hurricane St	Esplanade	Pacific Av	420	17	10
	Pacific Av	Ocean Front Walk	320	11	5
Washington Bl	Ocean Front Walk	Pacific Av	500	22	28
	Pacific Av	Via Dolce	780	13	15
	Via Dolce	Via Marina	900	18	20
Via Marina	Washington Bl	Channel Walk	--	0	0
	Channel Walk	Pacific Av	800	0	60
Culver Bl	Jefferson Bl	Nicholson St	--	0	0
	Nicholson St	Pershing Dr	1,160	22	10
	Pershing Dr	Esplanade	500	3	5
	Esplanade	street end	500	5	1

APPENDIX E-2-3 (Continued)
EXISTING ON-STREET PARKING SUPPLY IN STUDY AREA

Street	From	To	Approximate Distance (feet)	Number of Parking Spaces*	
				SB/WB	NB/EB
Vista del Mar	63rd Av	66th Av	630	9	8
	66th Av	Argonaut St	680	9	8
	Argonaut St	Culver Bl	260	2	3
Culver Pl	Vista del Mar	Culver Bl	--	2	0
Esplanade	Culver Bl	Convoy St	200	4	5
	Convoy St	63rd St	1,470	5	13
South Pacific Av	62nd Av	64th Av	500	9	0
	64th Av	66th Av	500	8	13
	66th Av	Culver Bl	1,150	37	39
Trolleyway	Culver Bl	Surf St	950	0	32
Waterview	Vista del Mar	Whitlock	500	11	10
	Whitlock	Ringe Av	500	16	3
Napoleon St	Vista del Mar	Ringe Av	680	9	28
Vista del Mar	Waterview	Napoleon St	370	9	1
Pershing Dr	Culver Bl	Cabora Dr	900	16	19
	Cabora Dr	Fowling St	500	11	12
	Fowling St	Sunridge St	500	21	10
	Sunridge St	Manchester Av	740	4	18

Note:

*Where parking stalls were not marked, the number of parking spaces was estimated by measuring the distance and dividing by 22.5 feet per space.

APPENDIX E-3

LEVEL OF SERVICE DEFINITIONS

APPENDIX E-3-1
ROADWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE	DEFINITION	DESCRIPTION
A	$V/C \leq 0.6$	Describes primarily free flow operations at average travel speeds usually about 90% of the free flow speed for the arterial class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
B	$0.6 < V/C \leq 0.7$	Represents reasonably unimpeded operations at average travel speeds usually about 70% of the free flow speed for the arterial class. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome.
C	$0.7 < V/C \leq 0.8$	Represents stable operations, however, ability to maneuver and change lanes in midblock locations may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50% of the average free flow speed for the arterial class.
D	$0.8 < V/C \leq 0.9$	Borders on a range on which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40% of free flow speed.
E	$0.9 < V/C \leq 1.0$	Is characterized by significant approach delays and average travel speeds of one-third the free flow speed or lower. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.
F	$V/C > 1.0$	Characterizes arterial flow at extremely low speeds below one-third to one-quarter of the free flow speed. Intersection congestion is likely at critical signalized locations, with high approach delays resulting. Adverse progression is frequently a contributor to this condition.

Source: Urban and Suburban Arterials", Highway Capacity Manual, Transportation Research Board (1985).

APPENDIX E-3-2
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	VOLUME/CAPACITY RATIO (V/C)	DEFINITION
A	≤ 0.600	EXCELLENT. No vehicle waits longer than one red light, and no approach phase is fully used.
B	$> 0.600 \leq 0.700$	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	$> 0.700 \leq 0.800$	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	$> 0.800 \leq 0.900$	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	$> 0.900 \leq 1.000$	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 1.000	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, *Transportation Research Circular No. 212, Interim Materials on Highway C*

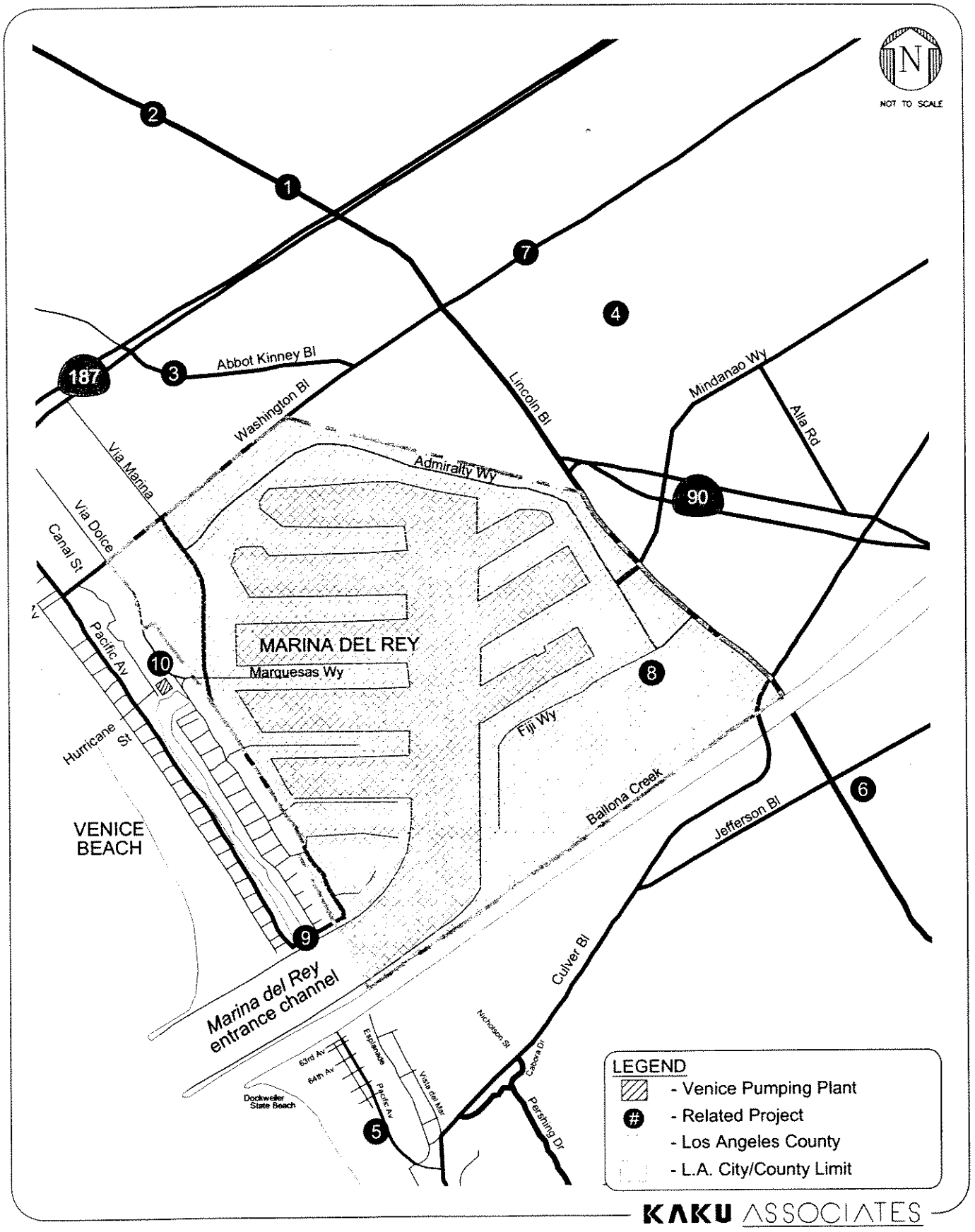
APPENDIX E-3-3
LEVEL OF SERVICE DEFINITIONS FOR STOP-CONTROLLED INTERSECTIONS

Level of Service	Average Total Delay (seconds/vehicle)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

Source: Transportation Research Board, *Highway Capacity Manual, Special Report 209, 2000.*

APPENDIX E-4

LOCATION OF RELATED PROJECTS AND TRIP GENERATION ESTIMATES



APPENDIX E-4-1
LOCATION OF RELATED PROJECTS

APPENDIX E-4-2
TRIP GENERATION ESTIMATES FOR RELATED PROJECTS

Index	Project Name	Project Description	City	Project Location	Daily Trips	AM Peak Hour			PM Peak Hour		
						In	Out	Total	In	Out	Total
1	Gas Station / Mini Market [a]	0.72 ksf mini market w/ 6 fueling stations	Los Angeles	2005 Lincoln Bl	1,953	61	61	121	81	81	161
2	Apartments & Retail [a]	197 ksf retail and 280-unit apartment	Los Angeles	1430 Lincoln Bl	7,251	86	167	253	323	265	588
3	General Commercial Office [a]	Renovate existing manufacturing building into 15.180 ksf general commercial office with 36 parking spaces	Los Angeles	2100 Abbot Kinney Bl (at Victoria Av)	122	13	2	15	6	27	33
4	Condominiums [a]	Construct 118 dwelling unit condominiums	Los Angeles	4155 Redwood Av	575	5	25	30	40	19	59
5	Townhouse, Specialty Retail & Restaurant [a]	Mixed use with 35-du townhouse, 2 ksf special retail and 2 ksf restaurant	Los Angeles	6719 Pacific Av	548	15	25	40	34	22	56
6	Playa Vista Phase I [b]	3,246 residential units, 2,077 ksf office space, 35 ksf of retail space, 1,129.9 ksf of production and staging support uses and 120 ksf of community serving uses	Los Angeles	Jefferson Bl	29,447	2,579	246	2,825	796	2,359	3,155
7	Commercial Retail Development [b]	Two-story 4,257 sf commercial building	Culver City	13322 Washington Bl	896	15	9	24	38	41	79
8	Marina del Rey Development [b]	Development incorporated in Local Coastal Plan	County of Los Angeles	Marina del Rey	N/A	785	1,625	2,410	1,096	1,277	2,373
9	Tide Gates [c]	Tide Gates Rehabilitation	County of Los Angeles	Marina del Rey	N/A	N/A			N/A		
10	Venice Pumping Plant Sluice Gate Replacement [d]	Wastewater collection system rehabilitation project, involving temporarily bypassing the Venice Sewage Pumping Plant while the existing sluice gate within it is replaced. Sewer pumps and an above-ground bypass pipeline would be temporarily installed along the Grand Canal Esplanade between Driftwood Street and Hurricane Street to conduct the diversion.	Los Angeles	North of Grand Canal	N/A	N/A			N/A		
	Total				**40,792**	**2,774**	**535**	**3,308**	**1,318**	**2,814**	**4,131**

Sources:

[a] Trip generation estimates were provided by LADOT (including daily trips and total peak hour trips), June 23, 2005. Directional distribution is based on ITE *Trip Generation, 7th Edition*.

[b] Source of trip generation estimates: *Traffic Impact Study for the Symantec Office Development Project,* Kaku Associates, June 2004

[c] Source: County of Los Angeles, Department of Public Works. Trip generation for this project would be negligible during both construction and operations.

[d] Source: *Mitigated Negative Declaration and Initial Study for the Venice Pumping Plant Sluice Gate Replacement*, City of Los Angeles & Los Angeles County Bureau of Engineering, November 10, 2005. This project would not coincide with the proposed Venice Pumping Plant Dual Force Main Project. Trip generation estimates for this project would be negligible during both construction phase and operations.

APPENDIX E-5

BASELINE INTERSECTION IMPROVEMENTS

APPENDIX E-5
BASELINE INTERSECTION BASE IMPROVEMENTS

Intersection	Approach	Improvement [a]	Source [b]
CITY OF LOS ANGELES			
CULVER BL/JEFFERSON BL			1
Culver Bl	Northbound	Add second RT lane.	
CULVER BL/MARINA EXPWY EB RAMPS			1,2
Culver Bl	Southbound	Add third TH lane.	
	Northbound	Restripe shared TH and RT lane to TH lane, add RT lane	
Marina Expwy EB ramps	Eastbound	Restripe TH lane to shared LT and TH lane.	
CULVER BL/MARINA EXPWY WB RAMPS			1,2
Culver Bl	Southbound	Restripe shared RT lane to shared TH and RT lane.	
Marina Expwy WB ramps	Westbound	Restripe TH lane to shared TH and LT lane.	
CULVER BL/VISTA DEL MAR			1
Culver Bl	Southbound	Add LT lane.	
CULVER BL (SOUTHEAST)/LINCOLN BL RAMP			1
Lincoln Bl Ramp	Northbound	Add RT lane.	
Culver Bl (Southeast)	Eastbound	Add TH lane, add RT lane.	
	Westbound	Add TH lane, add LT lane.	
JEFFERSON BL/LINCOLN BL			1,2
Lincoln Bl	Southbound	Restripe RT lane to shared RT and TH lane.	
	Northbound	Add shared RT and TH lane.	
Jefferson Bl	Westbound	Add second RT lane.	
JEFFERSON BL/PLAYA VISTA ST			1
Playa Vista St	Southbound	Add RT lane, add two TH lanes, add LT lane.	
	Northbound	Add LT lane, add TH lane, add shared RT and TH lane.	
Jefferson Bl	Eastbound	Add LT lane, add three TH lanes, add shared RT and TH lane.	
	Westbound	Add LT lane, add three TH lanes, add shared RT and TH lane.	
MARINA EXPWY EB RAMPS/MINDANAO WY			1,2
Mindanao Way	Southbound	Add second LT lane.	
MARINA EXPWY WB RAMPS/MINDANAO WY			1,2
Mindanao Way	Southbound	Restripe shared RT and TH lane to TH lane, add third TH lane, add RT lane.	
	Northbound	Remove LT lane, restripe TH lane to shared LT and TH lane.	
COUNTY OF LOS ANGELES			
FIJI WAY/LINCOLN BL			3
Lincoln Bl	Northbound	Restripe shared RT and TH lane to TH lane, add	
LINCOLN BL/MINDANAO WAY			1,2
Lincoln Bl	Northbound	Add fourth TH lane.	

Notes:
[a] TH is a through lane, LT is a left-turn lane, RT is a right-turn lane.
[b] Improvements listed are from the following sources, unless otherwise noted, the documents
1. Playa Vista First Phase Project
2. California Department of Transportation (CALTRANS)
3. Los Angeles Department of Transportation files

APPENDIX E-6-1

EXISTING ROADWAY PEAK HOUR TRAFFIC VOLUMES AND LEVEL OF SERVICE ANALYSIS

APPENDIX E-6-1
EXISTING STUDY ROADWAY SEGMENT VOLUMES AND LEVELS OF SERVICE

				EXISTING (2005) PEAK HOUR TRAFFIC VOLUMES				EXISTING ROADWAY CAPACITY					EXISTING ROADWAY PEAK HOUR LEVEL OF SERVICE							
													NB/EB				SB/EB			
				NB/WB		SB/EB			NB/WB		SB/EB		AM		PM		AM		PM	
Segment #	Location	From	To	AM	PM	AM	PM	Roadway Class.	No. of Lanes	Capacity	No. of Lanes	Capacity	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1	Speedway Av	Fleet St	Galleon St	63	69	0	0	L	1	600	--	--	0.105	A	0.115	A	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	66	84	0	0	L	1	600	--	--	0.110	A	0.140	A	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	21	22	0	0	L	1	600	--	--	0.035	A	0.037	A	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	270	199	228	366	S	1	750	1	750	0.360	A	0.265	A	0.304	A	0.488	A
5	Pacific Av	Privateer St	Quarterdeck St	123	127	160	253	S	1	750	1	750	0.164	A	0.169	A	0.213	A	0.337	A
6	Pacific Av	Westwind St	Yawl St	113	136	103	187	S	1	750	1	750	0.151	A	0.181	A	0.137	A	0.249	A
7	Roma Court	Lighthouse Mall	Outrigger Mall	42	38	0	0	L	1	600	1	600	0.070	A	0.063	A	0.000	A	0.000	A
8	Via Donte	Voyage Mall	Westwind Mall	41	62	0	0	L	1	600	1	600	0.068	A	0.103	A	0.000	A	0.000	A
9	Via Marina	East of Pacific Av		122	161	102	207	C	1	650	1	650	0.188	A	0.248	A	0.157	A	0.318	A
10	Via Dolce	North of Marquesas Wy		212	133	103	252	S	2	1,500	2	1,500	0.141	A	0.089	A	0.069	A	0.168	A
11	Via Dolce	Privateer St	Quarterdeck St	50	41	58	62	C	1	650	1	650	0.077	A	0.063	A	0.089	A	0.095	A
12	Marquesas Way	Via Dolce	Via Marina	117	91	154	172	S	2	1,500	2	1,500	0.078	A	0.061	A	0.103	A	0.115	A
13	Via Marina	North of Marquesas Wy		880	639	487	842	S	3	2,250	3	2,250	0.391	A	0.284	A	0.216	A	0.374	A
14	Via Marina	South of Tahiti Wy		531	410	268	1,096	S	2	1,500	2	1,500	0.354	A	0.273	A	0.179	A	0.731	C
15	Via Marina	North of Harbor Ln		117	188	132	154	S	2	1,500	2	1,500	0.078	A	0.125	A	0.088	A	0.103	A
16	Pershing Dr	South of Westchester Pkwy		1,102	835	670	653	HWY II	3	2,400	3	2,400	0.459	A	0.348	A	0.279	A	0.272	A
17	Pershing Dr	Culver Bl	Nicholson St	103	95	82	125	L	1	600	1	600	0.172	A	0.158	A	0.137	A	0.208	A
18	Nicholson St	Culver Bl	Pershing Dr	1,291	660	311	925	L	1	600	1	600	2.152	F	1.100	F	0.518	A	1.542	F
19	Culver Blvd	East of Nicholson St		746	2,195	2,441	1,684	S	2	1,500	2	1,500	0.497	A	1.463	F	1.627	F	1.123	F
20	Vista del Mar	South of Napoleon St		1,168	784	379	1,054	HWY II	2	1,600	2	1,600	0.730	C	0.490	A	0.237	A	0.659	B
21	Vista del Mar	Pacific Av	Surf St	1,222	820	422	1,074	HWY II	2	1,600	2	1,600	0.764	C	0.513	A	0.264	A	0.671	B
22	Pacific Av	North of Convoy St		103	183	91	111	L	1	600	1	600	0.172	A	0.305	A	0.152	A	0.185	A
23	Pacific Av	63rd Av	64th Av	53	73	38	44	L	1	600	1	600	0.088	A	0.122	A	0.063	A	0.073	A

Source: Kaku Associates, Inc
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

APPENDIX E-6-2

CUMULATIVE BASE ROADWAY PEAK HOUR TRAFFIC VOLUMES AND LEVEL OF SERVICE ANALASIS

APPENDIX E-6-2

FUTURE (YEAR 2011) CUMULATIVE BASE STUDY ROADWAY SEGMENT VOLUMES AND LEVEL OF SERVICE ANALYSIS

				FUTURE CUMULATIVE BASE PEAK HOUR TRAFFIC VOLUMES				FUTURE CUMULATIVE BASE ROADWAY CAPACITY					DIRECTION							
													NB/EB				SB/EB			
				NB/WB		SB/EB			NB/WB		SB/EB		AM		PM		AM		PM	
Segment #	Location	From	To	AM	PM	AM	PM	Roadway Class.	No. of Lanes	Capacity	No. of Lanes	Capacity	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	L	1	600	--	--	0.112	A	0.122	A	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	L	1	600	--	--	0.117	A	0.148	A	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	L	1	600	--	--	0.037	A	0.038	A	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	S	1	750	1	750	0.381	A	0.281	A	0.323	A	0.517	A
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	S	1	750	1	750	0.173	A	0.180	A	0.227	A	0.357	A
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	S	1	750	1	750	0.160	A	0.192	A	0.145	A	0.264	A
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	L	1	600	1	600	0.075	A	0.067	A	0.000	A	0.000	A
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	L	1	600	1	600	0.072	A	0.110	A	0.000	A	0.000	A
9	Via Marina	East of Pacific Av		129	171	108	219	C	1	650	1	650	0.198	A	0.263	A	0.166	A	0.337	A
10	Via Dolce	North of Marquesas		225	141	109	267	S	2	1,500	2	1,500	0.150	A	0.094	A	0.073	A	0.178	A
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	C	1	650	1	650	0.082	A	0.066	A	0.094	A	0.102	A
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	S	2	1,500	2	1,500	0.083	A	0.064	A	0.109	A	0.121	A
13	Via Marina	North of Marquesas		933	677	516	893	S	3	2,250	3	2,250	0.415	A	0.301	A	0.229	A	0.397	A
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	S	2	1,500	2	1,500	0.375	A	0.290	A	0.189	A	0.775	C
15	Via Marina	North of Harbor Ln		124	199	140	163	S	2	1,500	2	1,500	0.083	A	0.133	A	0.093	A	0.109	A
16	Pershing Dr	South of Westchester		1,184	918	732	718	HWY II	3	2,400	3	2,400	0.493	A	0.383	A	0.305	A	0.299	A
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	L	1	600	1	600	0.250	A	0.218	A	0.220	A	0.280	A
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	L	1	600	1	600	2.307	F	1.222	F	0.587	A	1.678	F
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	S	2	1,500	2	1,500	0.577	A	1.582	F	1.772	F	1.228	F
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	HWY II	2	1,600	2	1,600	0.799	C	0.569	A	0.292	A	0.739	C
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	HWY II	2	1,600	2	1,600	0.823	D	0.569	A	0.300	A	0.732	C
22	Pacific Av	North of Convoy St		124	219	130	140	L	1	600	1	600	0.207	A	0.365	A	0.217	A	0.233	A
23	Pacific Av	63rd Av	64th Av	56	77	40	47	L	1	600	1	600	0.093	A	0.128	A	0.067	A	0.078	A

Source: Kaku Associates

HWYII = Major Hwy Class II

S = Secondary

C = Collector

L = Local

APPENDIX E-6-3

PROJECT ONLY AND FUTURE WITH PROJECT ROADWAY PEAK HOUR TRAFFIC VOLUMES

APPENDIX E-6-3A

FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES

MARQUESAS WAY/VIA MARINA - SOUTH PACIFIC AVENUE

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	0	23	23	0	286	234	265	388
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	0	0	0	130	135	170	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	0	0	0	120	144	109	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	0	0	0	0	129	171	108	219
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	23	0	0	23	147	96	163	205
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	46	46	0	933	723	562	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	45	45	0	563	480	329	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	45	45	0	124	244	185	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	2	0	0	2	1,186	918	732	720
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	25	0	0	25	175	131	132	193
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	25	0	0	25	890	2,373	2,658	1,867
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	11	0	0	11	1,290	911	467	1,193
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	14	0	0	14	1,330	910	480	1,185
22	Pacific Av	North of Convoy St		124	219	130	140	45	0	0	45	169	219	130	185
23	Pacific Av	63rd Av	64th Av	56	77	40	47	45	0	0	45	101	77	40	92

APPENDIX E-6-3I

FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES

VPP TO LAX SHAFT VIA DOCKWEILER BEACH

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	9	62	62	9	295	273	304	397
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	0	0	0	130	135	170	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	0	0	0	120	144	109	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	0	0	0	0	129	171	108	219
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	0	0	0	933	677	516	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	0	0	0	563	435	284	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	0	0	0	124	199	140	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	0	0	0	0	1,184	918	732	718
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	16	3	3	16	166	134	135	184
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	16	3	3	16	881	2,376	2,661	1,858
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	15	20	20	15	1,294	931	487	1,197
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	3	16	16	3	1,319	926	496	1,174
22	Pacific Av	North of Convoy St		124	219	130	140	0	0	0	0	124	219	130	140
23	Pacific Av	63rd Av	64th Av	56	77	40	47	0	0	0	0	56	77	40	47

APPENDIX E-6-3C
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES
PACIFIC AVENUE - SOUTH PACIFIC AVENUE

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av [a]	Privateer St	Quarterdeck St	70	89	0	0	130	155	0	0	200	244	0	0
3	Speedway Av [a]	Westwind St	Yawl St	22	23	0	0	120	164	0	0	142	187	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	0	20	20	0	286	231	262	388
5	Pacific Av [a]	Privateer St	Quarterdeck St	130	135	170	268	-130	-135	20	0	0	0	190	268
6	Pacific Av [a]	Westwind St	Yawl St	120	144	109	198	-120	-144	20	0	0	0	129	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	25	0	0	25	154	171	108	244
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	26	26	0	933	703	542	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	25	25	0	563	460	309	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	25	25	0	124	224	165	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	2	0	0	2	1,186	918	732	720
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	25	0	0	25	175	131	132	193
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	25	0	0	25	890	2,373	2,658	1,867
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	11	0	0	11	1,290	911	467	1,193
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	14	0	0	14	1,330	910	480	1,185
22	Pacific Av	North of Convoy St		124	219	130	140	45	0	0	45	169	219	130	185
23	Pacific Av	63rd Av	64th Av	56	77	40	47	45	0	0	45	101	77	40	92

NOTE:

[a] Analysis assumes NB traffic (including project traffic) on Pacific Avenue to be detoured to Speedway.

APPENDIX E-6-3D
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES
PACIFIC AVENUE - SOUTH DOCKWEILER BEACH

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av [a]	Privateer St	Quarterdeck St	70	89	0	0	130	155	0	0	200	244	0	0
3	Speedway Av [a]	Westwind St	Yawl St	22	23	0	0	120	164	0	0	142	187	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	0	20	20	0	286	231	262	388
5	Pacific Av [a]	Privateer St	Quarterdeck St	130	135	170	268	-130	-135	20	0	0	0	190	268
6	Pacific Av [a]	Westwind St	Yawl St	120	144	109	198	-120	-144	20	0	0	0	129	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	25	0	0	25	154	171	108	244
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	26	26	0	933	703	542	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	25	25	0	563	460	309	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	25	25	0	124	224	165	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	2	0	0	2	1,186	918	732	720
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	25	0	0	25	175	131	132	193
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	25	0	0	25	890	2,373	2,658	1,867
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	11	0	0	11	1,290	911	467	1,193
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	14	0	0	14	1,330	910	480	1,185
22	Pacific Av	North of Convoy St		124	219	130	140	45	0	0	45	169	219	130	185
23	Pacific Av	63rd Av	64th Av	56	77	40	47	45	0	0	45	101	77	40	92

NOTE:

[a] Analysis assumes NB traffic (including project traffic) on Pacific Avenue to be detoured to Speedway

APPENDIX E-6-3E
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES
DOCKWEILER BEACH - SOUTH PACIFIC AVENUE

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	N Pacific Av	Fleet St	Galleon St	286	211	242	388	0	19	19	0	286	230	261	388
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	19	19	0	130	154	189	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	19	19	0	120	163	128	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	26	0	0	26	155	171	108	245
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	26	26	0	933	703	542	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	26	26	0	563	461	310	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	26	26	0	124	225	166	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	2	0	0	2	1,186	918	732	720
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	25	0	0	25	175	131	132	193
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	25	0	0	25	890	2,373	2,658	1,867
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	11	0	0	11	1,290	911	467	1,193
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	14	0	0	14	1,330	910	480	1,185
22	Pacific Av	North of Convoy St		124	219	130	140	45	0	0	45	169	219	130	185
23	Pacific Av	63rd Av	64th Av	56	77	40	47	45	0	0	45	101	77	40	92

APPENDIX E-6-3F
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES
DOCKWEILER BEACH - SOUTH DOCKWEILER BEACH

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	0	19	19	0	286	230	261	388
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	19	19	0	130	154	189	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	19	19	0	120	163	128	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	26	0	0	26	155	171	108	245
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	26	26	0	933	703	542	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	26	26	0	563	461	310	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	26	26	0	124	225	166	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	2	0	0	2	1,186	918	732	720
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	25	0	0	25	175	131	132	193
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	25	0	0	25	890	2,373	2,658	1,867
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	11	0	0	11	1,290	911	467	1,193
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	14	0	0	14	1,330	910	480	1,185
22	Pacific Av	North of Convoy St		124	219	130	140	45	0	0	45	169	219	130	185
23	Pacific Av	63rd Av	64th Av	56	77	40	47	45	0	0	45	101	77	40	92

APPENDIX E-6-3G
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - DOCKWEILER BEACH

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	9	62	62	9	295	273	304	397
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	0	0	0	130	135	170	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	0	0	0	120	144	109	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	0	0	0	0	129	171	108	219
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	0	0	0	933	677	516	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	0	0	0	563	435	284	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	0	0	0	124	199	140	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	3	0	0	3	1,187	918	732	721
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	30	3	3	30	180	134	135	198
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	30	3	3	30	895	2,376	2,661	1,872
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	21	5	5	21	1,300	916	472	1,203
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	3	30	30	3	1,319	940	510	1,174
22	Pacific Av	North of Convoy St		124	219	130	140	0	0	0	0	124	219	130	140
23	Pacific Av	63rd Av	64th Av	56	77	40	47	0	0	0	0	56	77	40	47

APPENDIX E-6-3H

FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES

LARGE TUNNEL - DOCKWEILER BEACH SHAFT TO LAX SHAFT

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	9	62	62	9	295	273	304	397
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	0	0	0	130	135	170	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	0	0	0	120	144	109	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	0	0	0	0	129	171	108	219
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	0	0	0	933	677	516	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	0	0	0	563	435	284	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	0	0	0	124	199	140	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	0	0	0	0	1,184	918	732	718
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	16	3	3	16	166	134	135	184
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	16	3	3	16	881	2,376	2,661	1,858
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	15	20	20	15	1,294	931	487	1,197
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	3	16	16	3	1,319	926	496	1,174
22	Pacific Av	North of Convoy St		124	219	130	140	0	0	0	0	124	219	130	140
23	Pacific Av	63rd Av	64th Av	56	77	40	47	0	0	0	0	56	77	40	47

APPENDIX E-6-31

FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES

VPP TO LAX SHAFT VIA DOCKWEILER BEACH

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	9	62	62	9	295	273	304	397
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	0	0	0	130	135	170	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	0	0	0	120	144	109	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	0	0	0	0	129	171	108	219
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	0	0	0	933	677	516	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	0	0	0	563	435	284	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	0	0	0	124	199	140	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	0	0	0	0	1,184	918	732	718
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	16	3	3	16	166	134	135	184
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	16	3	3	16	881	2,376	2,661	1,858
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	15	20	20	15	1,294	931	487	1,197
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	3	16	16	3	1,319	926	496	1,174
22	Pacific Av	North of Convoy St		124	219	130	140	0	0	0	0	124	219	130	140
23	Pacific Av	63rd Av	64th Av	56	77	40	47	0	0	0	0	56	77	40	47

APPENDIX E-6-3J
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR TRAFFIC VOLUMES
VPP TO LAX SHAFT VIA INLAND

				CUMULATIVE BASE				PROJECT CONSTRUCTION				CUMULATIVE PLUS PROJECT			
				DIRECTION				DIRECTION				DIRECTION			
				NB/WB		SB/EB		NB/WB		SB/EB		NB/WB		SB/EB	
Segment #	LOCATION	FROM	TO	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Speedway Av	Fleet St	Galleon St	67	73	0	0	0	0	0	0	67	73	0	0
2	Speedway Av	Privateer St	Quarterdeck St	70	89	0	0	0	0	0	0	70	89	0	0
3	Speedway Av	Westwind St	Yawl St	22	23	0	0	0	0	0	0	22	23	0	0
4	Pacific Av	Fleet St	Galleon St	286	211	242	388	9	62	62	9	295	273	304	397
5	Pacific Av	Privateer St	Quarterdeck St	130	135	170	268	0	0	0	0	130	135	170	268
6	Pacific Av	Westwind St	Yawl St	120	144	109	198	0	0	0	0	120	144	109	198
7	Roma Court	Lighthouse Mall	Outrigger Mall	45	40	0	0	0	0	0	0	45	40	0	0
8	Via Donte	Voyage Mall	Westwind Mall	43	66	0	0	0	0	0	0	43	66	0	0
9	Via Marina	East of Pacific Av		129	171	108	219	0	0	0	0	129	171	108	219
10	Via Dolce	North of Marquesas Wy		225	141	109	267	0	0	0	0	225	141	109	267
11	Via Dolce	Privateer St	Quarterdeck St	53	43	61	66	0	0	0	0	53	43	61	66
12	Marquesas Way	Via Dolce	Via Marina	124	96	163	182	0	0	0	0	124	96	163	182
13	Via Marina	North of Marquesas Wy		933	677	516	893	0	0	0	0	933	677	516	893
14	Via Marina	South of Tahiti Wy		563	435	284	1,162	0	0	0	0	563	435	284	1,162
15	Via Marina	North of Harbor Ln		124	199	140	163	0	0	0	0	124	199	140	163
16	Pershing Dr	South of Westchester Pkwy		1,184	918	732	718	0	0	0	0	1,184	918	732	718
17	Pershing Dr	Culver Bl	Nicholson St	150	131	132	168	16	3	3	16	166	134	135	184
18	Nicholson St	Culver Bl	Pershing Dr	1,384	733	352	1,007	0	0	0	0	1,384	733	352	1,007
19	Culver Blvd	East of Nicholson St		865	2,373	2,658	1,842	16	3	3	16	881	2,376	2,661	1,858
20	Vista del Mar	South of Napoleon St		1,279	911	467	1,182	15	20	20	15	1,294	931	487	1,197
21	Vista del Mar	Pacific Av	Surf St	1,316	910	480	1,171	3	16	16	3	1,319	926	496	1,174
22	Pacific Av	North of Convoy St		124	219	130	140	0	0	0	0	124	219	130	140
23	Pacific Av	63rd Av	64th Av	56	77	40	47	0	0	0	0	56	77	40	47

APPENDIX E-6-4

FUTURE ROADWAY PEAK HOUR TRAFFIC LEVEL OF SERVICE ANALAYSIS

APPENDIX E-6-4A
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
MARQUESAS WAY/VIA MARINA - SOUTH PACIFIC AVENUE

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.112	A	0.122	A	--	--	--	--	0.007	NO	0.007	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.117	A	0.148	A	--	--	--	--	0.007	NO	0.008	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.037	A	0.038	A	--	--	--	--	0.002	NO	0.002	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.381	A	0.312	A	0.353	A	0.517	A	0.021	NO	0.047	NO	0.049	NO	0.029	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.173	A	0.180	A	0.227	A	0.357	A	0.009	NO	0.011	NO	0.013	NO	0.020	NO
6	Pacific Av	Westwind St	Yawl St	S	0.160	A	0.192	A	0.145	A	0.264	A	0.009	NO	0.011	NO	0.008	NO	0.015	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.075	A	0.067	A	0.000	A	0.000	A	0.005	NO	0.003	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.072	A	0.110	A	0.000	A	0.000	A	0.003	NO	0.007	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.198	A	0.263	A	0.166	A	0.337	A	0.011	NO	0.015	NO	0.009	NO	0.018	NO
10	Via Dolce	North of Marquesas Wy		S	0.150	A	0.094	A	0.073	A	0.178	A	0.009	NO	0.005	NO	0.004	NO	0.010	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.082	A	0.066	A	0.094	A	0.102	A	0.005	NO	0.003	NO	0.005	NO	0.006	NO
12	Marquesas Way [a]	Via Dolce	Via Marina	S	0.098	A	0.064	A	0.217	A	0.273	A	0.020	NO	0.003	NO	0.115	NO	0.159	NO
13	Via Marina	North of Marquesas Wy		S	0.415	A	0.321	A	0.250	A	0.397	A	0.024	NO	0.037	NO	0.033	NO	0.023	NO
14	Via Marina [b]	South of Tahiti Wy		S	0.375	A	0.320	A	0.439	A	1.549	F	0.021	NO	0.047	NO	0.260	NO	0.819	**YES**
15	Via Marina [c]	North of Harbor Ln		S	0.083	A	0.163	A	0.247	A	0.217	A	0.005	NO	0.037	NO	0.159	NO	0.115	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.494	A	0.383	A	0.305	A	0.300	A	0.028	NO	0.021	NO	0.017	NO	0.017	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.292	A	0.218	A	0.220	A	0.322	A	0.052	NO	0.010	NO	0.008	NO	0.055	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.307	F	1.222	F	0.587	A	1.678	F	0.128	**YES**	0.067	**YES**	0.032	NO	0.093	**YES**
19	Culver Blvd	East of Nicholson St		S	0.593	A	1.582	F	1.772	F	1.245	F	0.047	NO	0.088	**YES**	0.097	**YES**	0.084	**YES**
20	Vista del Mar	South of Napoleon St		HWY II	0.806	D	0.569	A	0.292	A	0.746	C	0.051	**YES**	0.029	NO	0.014	NO	0.046	NO
21	Vista del Mar [d]	Pacific Av	Surf St	HWY II	1.663	F	1.138	F	0.300	A	0.741	C	0.886	**YES**	0.599	**YES**	0.016	NO	0.049	NO
22	Pacific Av	North of Convoy St		L	0.282	A	0.365	A	0.217	A	0.308	A	0.085	NO	0.018	NO	0.008	NO	0.087	NO
23	Pacific Av	63rd Av	64th Av	L	0.168	A	0.128	A	N/A	N/A	N/A	N/A	0.080	NO	0.007	NO	N/A	**YES**	N/A	**YES**

NOTE:
CLASS: Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

Source: Kaku Associates, Inc
[a] Analysis assumed temporary closure of one lane EB on Marquesas Way between Via Dolce and Via Marina.
[b] Analysis assumed temporary closure of one lane SB on Via Marina south of Tahiti Way.
[c] Analysis assumed temporary closure of one lane SB on Via Marina north of Harbor Lane.
[d] Analysis assumed temporary closure of one lane WB on Vista del Mar between Pacific Avenue and Surf Street.

APPENDIX E-6-4I
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
VPP TO LAX SHAFT VIA DOCKWEILER BEACH

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.110	A	0.140	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.035	A	0.037	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.372	A	0.348	A	0.387	A	0.500	A	0.012	NO	0.083	NO	0.083	NO	0.012	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.164	A	0.169	A	0.213	A	0.337	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
6	Pacific Av	Westwind St	Yawl St	S	0.151	A	0.181	A	0.137	A	0.249	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.188	A	0.248	A	0.157	A	0.318	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.284	A	0.216	A	0.374	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.273	A	0.179	A	0.731	C	0.000	NO	0.000	NO	0.000	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.125	A	0.088	A	0.103	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.466	A	0.362	A	0.288	A	0.283	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.267	A	0.213	A	0.217	A	0.293	A	0.027	NO	0.005	NO	0.005	NO	0.027	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.557	A	1.496	F	1.677	F	1.171	F	0.011	NO	0.002	NO	0.002	NO	0.011	NO
20	Vista del Mar	South of Napolcon St		HWY II	0.765	C	0.553	A	0.290	A	0.709	C	0.009	NO	0.013	NO	0.013	NO	0.009	NO
21	Vista del Mar	Pacific Av	Surf St	HWY II	0.779	C	0.548	A	0.294	A	0.694	B	0.002	NO	0.010	NO	0.010	NO	0.002	NO
22	Pacific Av	North of Convoy St		L	0.197	A	0.347	A	0.208	A	0.222	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
23	Pacific Av	63rd Av	64th Av	L	0.088	A	0.122	A	0.063	A	0.073	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO

NOTE:
Source: Kaku Associates, Inc
CLASS: Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

APPENDIX E-6-4C
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
PACIFIC AVENUE - SOUTH PACIFIC AVENUE

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.327	A	0.398	A	--	--	--	--	0.217	NO	0.258	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.235	A	0.310	A	--	--	--	--	0.200	NO	0.273	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.360	A	0.292	A	0.331	A	0.488	A	0.000	NO	0.027	NO	0.027	NO	0.000	NO
5	Pacific Av [a]	Privateer St	Quarterdeck St	S	N/A	N/A	N/A	N/A	0.240	A	0.337	A	N/A	**YES**	N/A	**YES**	0.027	NO	0.000	NO
6	Pacific Av [b]	Westwind St	Yawl St	S	N/A	N/A	N/A	N/A	0.164	A	0.249	A	N/A	**YES**	N/A	**YES**	0.027	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.226	A	0.248	A	0.157	A	0.357	A	0.038	NO	0.000	NO	0.000	NO	0.038	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.296	A	0.228	A	0.374	A	0.000	NO	0.012	NO	0.012	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.290	A	0.195	A	0.731	C	0.000	NO	0.017	NO	0.017	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.142	A	0.105	A	0.103	A	0.000	NO	0.017	NO	0.017	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.467	A	0.362	A	0.288	A	0.284	A	0.001	NO	0.000	NO	0.000	NO	0.001	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.282	A	0.208	A	0.212	A	0.308	A	0.042	NO	0.000	NO	0.000	NO	0.042	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.563	A	1.494	F	1.675	F	1.177	F	0.017	NO	0.000	NO	0.000	NO	0.017	NO
20	Vista del Mar	South of Napoleon St		HWY II	0.763	C	0.540	A	0.278	A	0.706	C	0.007	NO	0.000	NO	0.000	NO	0.007	NO
21	Vista del Mar [c]	Pacific Av	Surf St	HWY II	1.571	F	1.076	F	0.284	A	0.701	C	0.794	**YES**	0.538	**YES**	0.000	NO	0.009	NO
22	Pacific Av	North of Convoy St		L	0.272	A	0.347	A	0.208	A	0.297	A	0.075	NO	0.000	NO	0.000	NO	0.075	NO
23	Pacific Av	63rd Av	64th Av	L	0.163	A	0.122	A	N/A	N/A	N/A	N/A	0.075	NO	0.000	NO	N/A	**YES**	N/A	**YES**

NOTE:
CLASS: Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

Source: Kaku Associates, Inc
[a] Analysis assumed temporary closure of one lane NB on Pacific Avenue between Privateer Street and Quarterdeck Street.
[b] Analysis assumed temporary closure of one lane NB on Pacific Avenue between Westwind Street and Yawl Street
[c] Analysis assumed temporary closure of one lane WB on Vista del Mar between Pacific Avenue and Surf Street.

APPENDIX E-6-4D
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
PACIFIC AVENUE - SOUTH DOCKWEILER BEACH

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.327	A	0.398	A	--	--	--	--	0.217	NO	0.258	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.235	A	0.310	A	--	--	--	--	0.200	NO	0.273	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.450	A	0.365	A	0.331	A	0.488	A	0.090	NO	0.100	NO	0.027	NO	0.000	NO
5	Pacific Av [a]	Privateer St	Quarterdeck St	S	N/A	N/A	N/A	N/A	0.240	A	0.337	A	N/A	**YES**	N/A	**YES**	0.027	NO	0.000	NO
6	Pacific Av [b]	Westwind St	Yawl St	S	N/A	N/A	N/A	N/A	0.164	A	0.249	A	N/A	**YES**	N/A	**YES**	0.027	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.226	A	0.248	A	0.157	A	0.357	A	0.038	NO	0.000	NO	0.000	NO	0.038	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.296	A	0.228	A	0.374	A	0.000	NO	0.012	NO	0.012	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.290	A	0.195	A	0.731	C	0.000	NO	0.017	NO	0.017	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.142	A	0.105	A	0.103	A	0.000	NO	0.017	NO	0.017	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.467	A	0.362	A	0.288	A	0.284	A	0.001	NO	0.000	NO	0.000	NO	0.001	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.282	A	0.208	A	0.212	A	0.308	A	0.042	NO	0.000	NO	0.000	NO	0.042	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.563	A	1.494	F	1.675	F	1.177	F	0.017	NO	0.000	NO	0.000	NO	0.017	NO
20	Vista del Mar	South of Napoleon St		HWY II	0.763	C	0.540	A	0.278	A	0.706	C	0.007	NO	0.000	NO	0.000	NO	0.007	NO
21	Vista del Mar	Pacific Av	Surf St	HWY II	0.786	C	0.538	A	0.284	A	0.701	C	0.009	NO	0.000	NO	0.000	NO	0.009	NO
22	Pacific Av	North of Convoy St		L	0.272	A	0.347	A	0.208	A	0.297	A	0.075	NO	0.000	NO	0.000	NO	0.075	NO
23	Pacific Av	63rd Av	64th Av	L	0.163	A	0.122	A	0.063	A	0.148	A	0.075	NO	0.000	NO	0.000	NO	0.075	NO

NOTE:
CLASS: Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

Source: Kaku Associates, Inc
[a] Analysis assumed temporary closure of one lane NB on Pacific Avenue between Privateer Street and Quarterdeck Street.
[b] Analysis assumed temporary closure of one lane NB on Pacific Avenue between Westwind Street and Yawl Street.

APPENDIX E-6-4E
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
DOCKWEILER BEACH - SOUTH PACIFIC AVENUE

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.110	A	0.140	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.035	A	0.037	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.360	A	0.291	A	0.329	A	0.488	A	0.000	NO	0.025	NO	0.025	NO	0.000	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.164	A	0.195	A	0.239	A	0.337	A	0.000	NO	0.025	NO	0.025	NO	0.000	NO
6	Pacific Av	Westwind St	Yawl St	S	0.151	A	0.207	A	0.163	A	0.249	A	0.000	NO	0.025	NO	0.025	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.228	A	0.248	A	0.157	A	0.358	A	0.040	NO	0.000	NO	0.000	NO	0.040	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.296	A	0.228	A	0.374	A	0.000	NO	0.012	NO	0.012	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.291	A	0.196	A	0.731	C	0.000	NO	0.017	NO	0.017	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.143	A	0.105	A	0.103	A	0.000	NO	0.017	NO	0.017	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.467	A	0.362	A	0.288	A	0.284	A	0.001	NO	0.000	NO	0.000	NO	0.001	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.282	A	0.208	A	0.212	A	0.308	A	0.042	NO	0.000	NO	0.000	NO	0.042	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.563	A	1.494	F	1.675	F	1.177	F	0.017	NO	0.000	NO	0.000	NO	0.017	NO
20	Vista del Mar	South of Napoleon St		HWY II	0.763	C	0.540	A	0.278	A	0.706	C	0.007	NO	0.000	NO	0.000	NO	0.007	NO
21	Vista del Mar [a]	Pacific Av	Surf St	HWY II	1.571	F	1.076	F	0.284	A	0.701	C	0.794	**YES**	0.538	**YES**	0.000	NO	0.009	NO
22	Pacific Av	North of Convoy St		L	0.272	A	0.347	A	0.208	A	0.297	A	0.075	NO	0.000	NO	0.000	NO	0.075	NO
23	Pacific Av	63rd Av	64th Av	L	0.163	A	0.122	A	N/A	N/A	N/A	N/A	0.075	NO	0.000	NO	N/A	**YES**	N/A	**YES**

NOTE:
CLASS: Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

Source: Kaku Associates, Inc
[a] Analysis assumed temporary closure of one lane WB on Vista del Mar between Pacific Avenue and Surf Street.

APPENDIX E-6-4F
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
DOCKWEILER BEACH - SOUTH DOCKWEILER BEACH

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.110	A	0.140	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.035	A	0.037	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.360	A	0.291	A	0.329	A	0.488	A	0.000	NO	0.025	NO	0.025	NO	0.000	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.164	A	0.195	A	0.239	A	0.337	A	0.000	NO	0.025	NO	0.025	NO	0.000	NO
6	Pacific Av	Westwind St	Yawl St	S	0.151	A	0.207	A	0.163	A	0.249	A	0.000	NO	0.025	NO	0.025	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.228	A	0.248	A	0.157	A	0.358	A	0.040	NO	0.000	NO	0.000	NO	0.040	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.296	A	0.228	A	0.374	A	0.000	NO	0.012	NO	0.012	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.291	A	0.196	A	0.731	C	0.000	NO	0.017	NO	0.017	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.143	A	0.105	A	0.103	A	0.000	NO	0.017	NO	0.017	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.467	A	0.362	A	0.288	A	0.284	A	0.001	NO	0.000	NO	0.000	NO	0.001	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.282	A	0.208	A	0.212	A	0.308	A	0.042	NO	0.000	NO	0.000	NO	0.042	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.563	A	1.494	F	1.675	F	1.177	F	0.017	NO	0.000	NO	0.000	NO	0.017	NO
20	Vista del Mar	South of Napoleon St		HWY II	0.763	C	0.540	A	0.278	A	0.706	C	0.007	NO	0.000	NO	0.000	NO	0.007	NO
21	Vista del Mar	Pacific Av	Surf St	HWY II	0.786	C	0.538	A	0.284	A	0.701	C	0.009	NO	0.000	NO	0.000	NO	0.009	NO
22	Pacific Av	North of Convoy St		L	0.272	A	0.347	A	0.208	A	0.297	A	0.075	NO	0.000	NO	0.000	NO	0.075	NO
23	Pacific Av	63rd Av	64th Av	L	0.163	A	0.122	A	0.063	A	0.148	A	0.075	NO	0.000	NO	0.000	NO	0.075	NO

NOTE:
Source: Kaku Associates, Inc
CLASS: Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

APPENDIX E-6-4G
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
LARGE TUNNEL - DOCKWEILER BEACH

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.110	A	0.140	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.035	A	0.037	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.372	A	0.348	A	0.387	A	0.500	A	0.012	NO	0.083	NO	0.083	NO	0.012	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.164	A	0.169	A	0.213	A	0.337	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
6	Pacific Av	Westwind St	Yawl St	S	0.151	A	0.181	A	0.137	A	0.249	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.188	A	0.248	A	0.157	A	0.318	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.284	A	0.216	A	0.374	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.273	A	0.179	A	0.731	C	0.000	NO	0.000	NO	0.000	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.125	A	0.088	A	0.103	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.467	A	0.362	A	0.288	A	0.284	A	0.001	NO	0.000	NO	0.000	NO	0.001	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.290	A	0.213	A	0.217	A	0.317	A	0.050	NO	0.005	NO	0.005	NO	0.050	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.567	A	1.496	F	1.677	F	1.181	F	0.020	NO	0.002	NO	0.002	NO	0.020	YES
20	Vista del Mar	South of Napoleon St		HWY II	0.769	C	0.543	A	0.281	A	0.713	C	0.013	NO	0.003	NO	0.003	NO	0.013	NO
21	Vista del Mar	Pacific Av	Surf St	HWY II	0.779	C	0.557	A	0.303	A	0.694	B	0.002	NO	0.019	NO	0.019	NO	0.002	NO
22	Pacific Av	North of Convoy St		L	0.197	A	0.347	A	0.208	A	0.222	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
23	Pacific Av	63rd Av	64th Av	L	0.088	A	0.122	A	0.063	A	0.073	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO

NOTE:
Source: Kaku Associates, Inc
CLASS: Roadway Classification
HWY II = Major Hwy Class II
S = Secondary
C = Collector
L = Local

APPENDIX E-6-4H
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
LARGE TUNNEL - DOCKWEILER BEACH SHAFT TO LAX SHAFT

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.110	A	0.140	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.035	A	0.037	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.372	A	0.348	A	0.387	A	0.500	A	0.012	NO	0.083	NO	0.083	NO	0.012	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.164	A	0.169	A	0.213	A	0.337	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
6	Pacific Av	Westwind St	Yawl St	S	0.151	A	0.181	A	0.137	A	0.249	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.188	A	0.248	A	0.157	A	0.318	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.284	A	0.216	A	0.374	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.273	A	0.179	A	0.731	C	0.000	NO	0.000	NO	0.000	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.125	A	0.088	A	0.103	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.466	A	0.362	A	0.288	A	0.283	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.267	A	0.213	A	0.217	A	0.293	A	0.027	NO	0.005	NO	0.005	NO	0.027	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.557	A	1.496	F	1.677	F	1.171	F	0.011	NO	0.002	NO	0.002	NO	0.011	NO
20	Vista del Mar	South of Napoleon St		HWY II	0.765	C	0.553	A	0.290	A	0.709	C	0.009	NO	0.013	NO	0.013	NO	0.009	NO
21	Vista del Mar	Pacific Av	Surf St	HWY II	0.779	C	0.548	A	0.294	A	0.694	B	0.002	NO	0.010	NO	0.010	NO	0.002	NO
22	Pacific Av	North of Convoy St		L	0.197	A	0.347	A	0.208	A	0.222	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
23	Pacific Av	63rd Av	64th Av	L	0.088	A	0.122	A	0.063	A	0.073	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO

NOTE:
Source: Kaku Associates, Inc
CLASS: Roadway Classification
HWY II = Major Hwy Class II
S = Secondary
C = Collector
L = Local

APPENDIX E-6-41
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
VPP TO LAX SHAFT VIA DOCKWEILER BEACH

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.110	A	0.140	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.035	A	0.037	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.372	A	0.348	A	0.387	A	0.500	A	0.012	NO	0.083	NO	0.083	NO	0.012	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.164	A	0.169	A	0.213	A	0.337	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
6	Pacific Av	Westwind St	Yawl St	S	0.151	A	0.181	A	0.137	A	0.249	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.188	A	0.248	A	0.157	A	0.318	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.284	A	0.216	A	0.374	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.273	A	0.179	A	0.731	C	0.000	NO	0.000	NO	0.000	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.125	A	0.088	A	0.103	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.466	A	0.362	A	0.288	A	0.283	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.267	A	0.213	A	0.217	A	0.293	A	0.027	NO	0.005	NO	0.005	NO	0.027	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.557	A	1.496	F	1.677	F	1.171	F	0.011	NO	0.002	NO	0.002	NO	0.011	NO
20	Vista del Mar	South of Napoleon St		HWY II	0.765	C	0.553	A	0.290	A	0.709	C	0.009	NO	0.013	NO	0.013	NO	0.009	NO
21	Vista del Mar	Pacific Av	Surf St	HWY II	0.779	C	0.548	A	0.294	A	0.694	B	0.002	NO	0.010	NO	0.010	NO	0.002	NO
22	Pacific Av	North of Convoy St		L	0.197	A	0.347	A	0.208	A	0.222	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
23	Pacific Av	63rd Av	64th Av	L	0.088	A	0.122	A	0.063	A	0.073	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO

NOTE:
Source: Kaku Associates, Inc
CLASS. Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

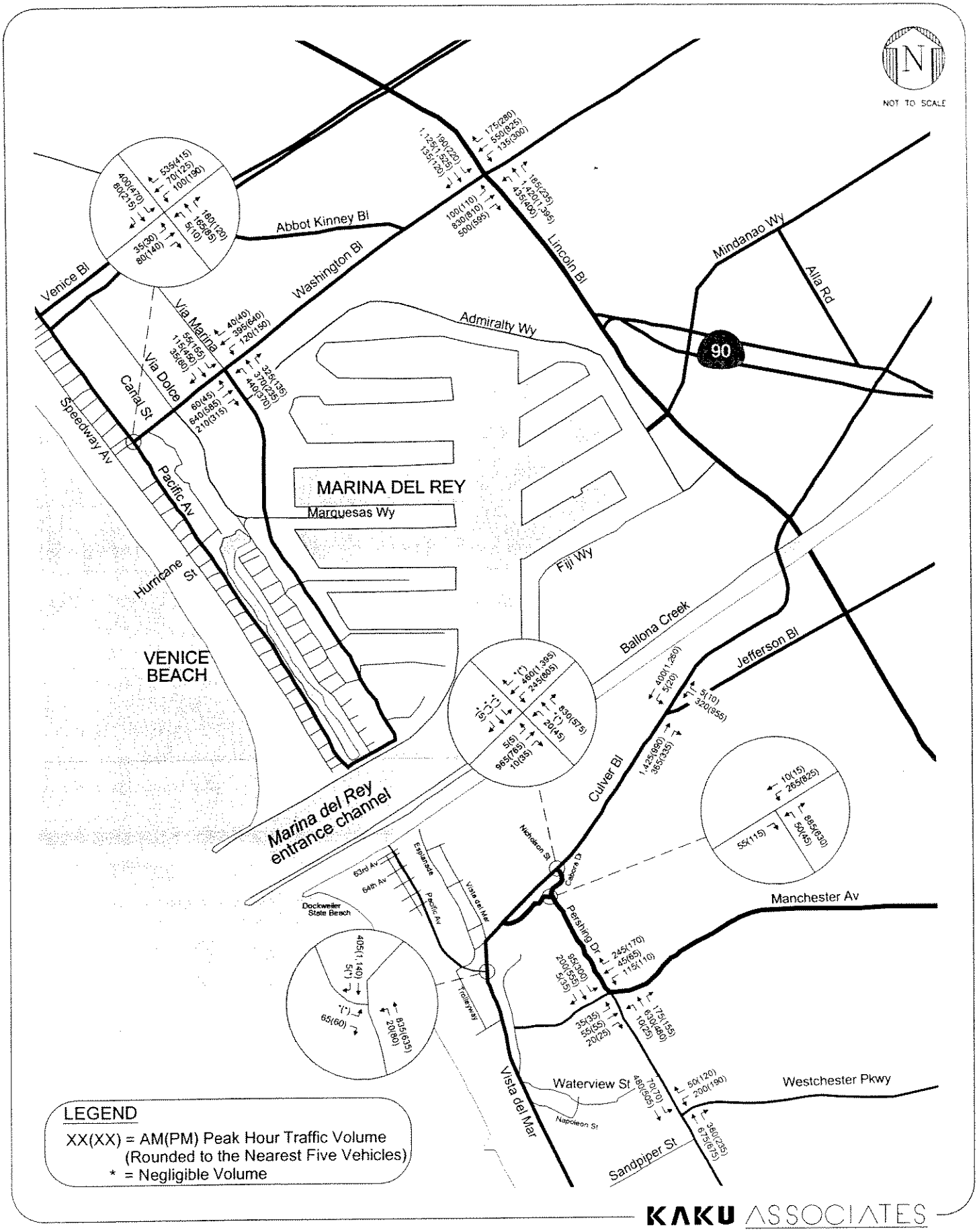
APPENDIX E-6-4J
FUTURE (2011) CUMULATIVE ROADWAY PEAK HOUR LEVELS OF SERVICE
VPP TO LAX SHAFT VIA INLAND

					CUMULATIVE PLUS PROJECT CONSTRUCTION								DIFFERENCE IN V/C							
					DIRECTION								DIRECTION							
					NB/WB				SB/EB				NB/WB				SB/EB			
					AM		PM		AM		PM		AM		PM		AM		PM	
SEGMENT#	LOCATION	FROM	TO	CLASS.	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?	V/C	Adverse Impact?
1	Speedway Av	Fleet St	Galleon St	L	0.105	A	0.115	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
2	Speedway Av	Privateer St	Quarterdeck St	L	0.110	A	0.140	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
3	Speedway Av	Westwind St	Yawl St	L	0.035	A	0.037	A	--	--	--	--	0.000	NO	0.000	NO	--	--	--	--
4	Pacific Av	Fleet St	Galleon St	S	0.372	A	0.348	A	0.387	A	0.500	A	0.012	NO	0.083	NO	0.083	NO	0.012	NO
5	Pacific Av	Privateer St	Quarterdeck St	S	0.164	A	0.169	A	0.213	A	0.337	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
6	Pacific Av	Westwind St	Yawl St	S	0.151	A	0.181	A	0.137	A	0.249	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
7	Roma Court	Lighthouse Mall	Outrigger Mall	L	0.070	A	0.063	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
8	Via Donte	Voyage Mall	Westwind Mall	L	0.068	A	0.103	A	0.000	A	0.000	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
9	Via Marina	East of Pacific Av		C	0.188	A	0.248	A	0.157	A	0.318	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
10	Via Dolce	North of Marquesas Wy		S	0.141	A	0.089	A	0.069	A	0.168	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
11	Via Dolce	Privateer St	Quarterdeck St	C	0.077	A	0.063	A	0.089	A	0.095	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
12	Marquesas Way	Via Dolce	Via Marina	S	0.078	A	0.061	A	0.103	A	0.115	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
13	Via Marina	North of Marquesas Wy		S	0.391	A	0.284	A	0.216	A	0.374	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
14	Via Marina	South of Tahiti Wy		S	0.354	A	0.273	A	0.179	A	0.731	C	0.000	NO	0.000	NO	0.000	NO	0.000	NO
15	Via Marina	North of Harbor Ln		S	0.078	A	0.125	A	0.088	A	0.103	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
16	Pershing Dr	South of Westchester Pkwy		HWY II	0.466	A	0.362	A	0.288	A	0.283	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
17	Pershing Dr	Culver Bl	Nicholson St	L	0.267	A	0.213	A	0.217	A	0.293	A	0.027	NO	0.005	NO	0.005	NO	0.027	NO
18	Nicholson St	Culver Bl	Pershing Dr	L	2.178	F	1.155	F	0.555	A	1.585	F	0.000	NO	0.000	NO	0.000	NO	0.000	NO
19	Culver Blvd	East of Nicholson St		S	0.557	A	1.496	F	1.677	F	1.171	F	0.011	NO	0.002	NO	0.002	NO	0.011	NO
20	Vista del Mar	South of Napoleon St		HWY II	0.765	C	0.553	A	0.290	A	0.709	C	0.009	NO	0.013	NO	0.013	NO	0.009	NO
21	Vista del Mar	Pacific Av	Surf St	HWY II	0.779	C	0.548	A	0.294	A	0.694	B	0.002	NO	0.010	NO	0.010	NO	0.002	NO
22	Pacific Av	North of Convoy St		L	0.197	A	0.347	A	0.208	A	0.222	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO
23	Pacific Av	63rd Av	64th Av	L	0.088	A	0.122	A	0.063	A	0.073	A	0.000	NO	0.000	NO	0.000	NO	0.000	NO

NOTE:
Source: Kaku Associates, Inc
CLASS: Roadway Classification
HWYII = Major Hwy Class II
S = Secondary
C = Collector
L = Local

APPENDIX E-7-1

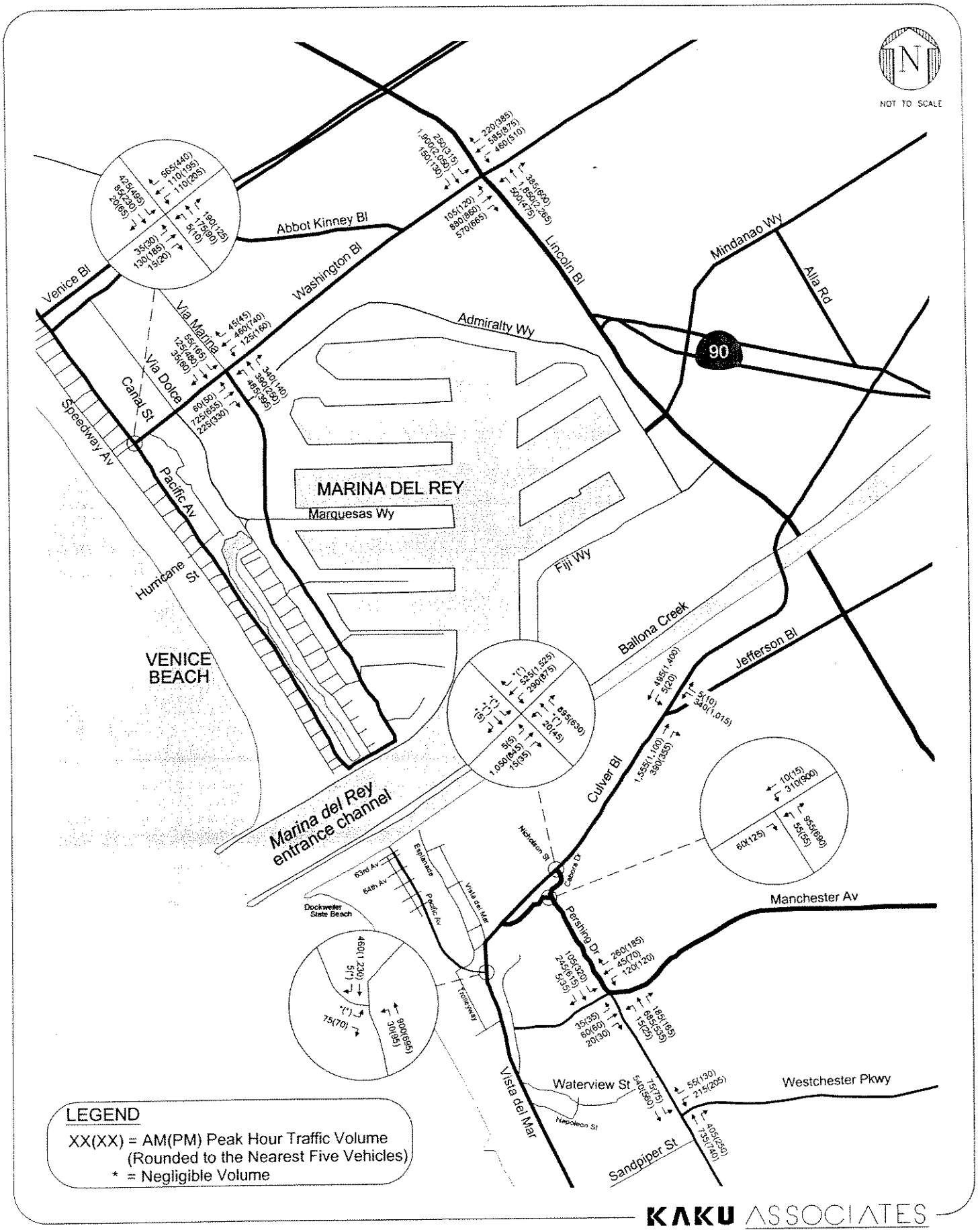
EXISTING PEAK HOUR INTERSECTION TRAFFIC VOLUMES



APPENDIX E-7-1
EXISTING (2005) INTERSECTION PEAK HOUR TRAFFIC VOLUMES

APPENDIX E-7-2

CUMULATIVE BASE INTERSECTION PEAK HOUR TRAFFIC VOLUMES

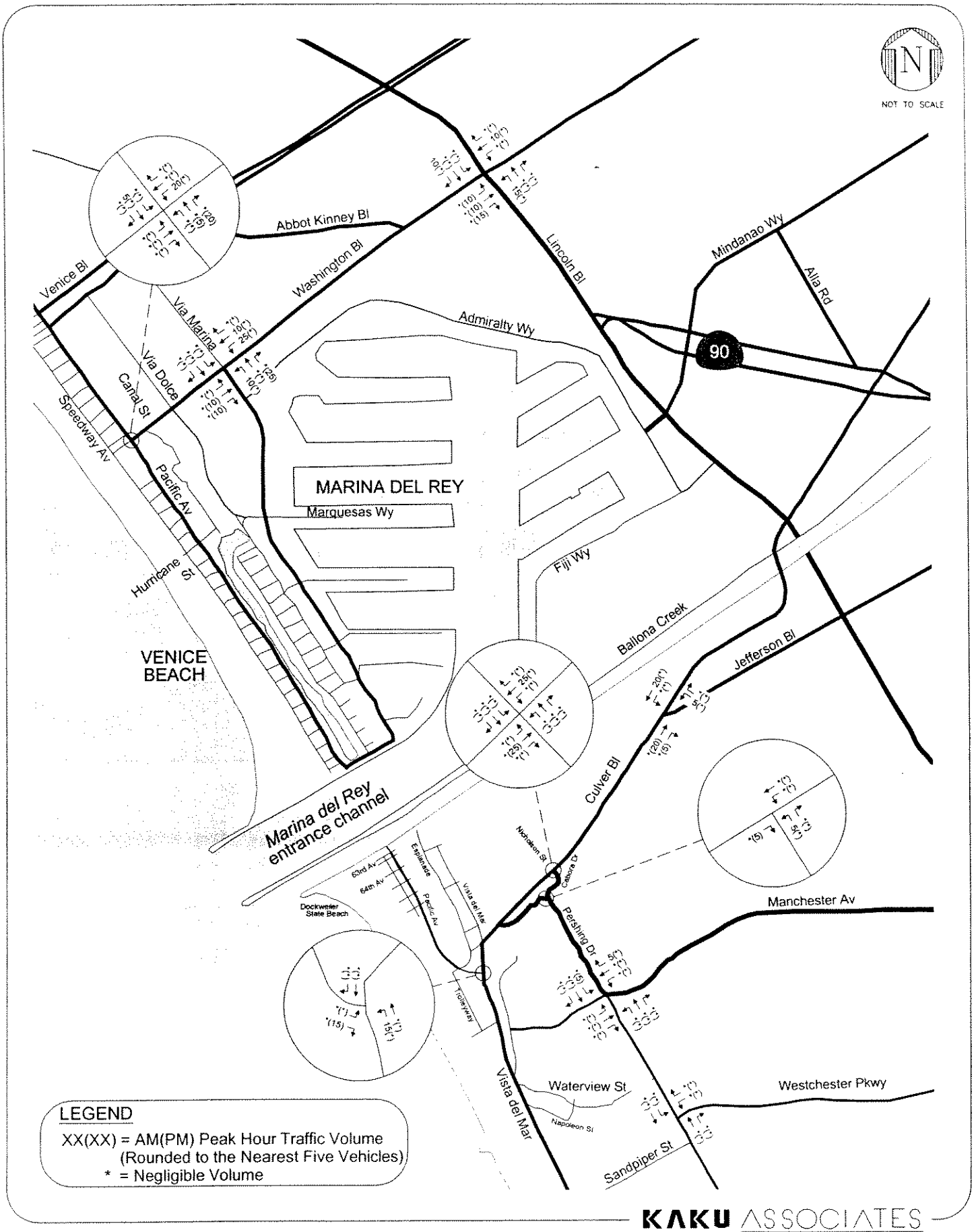


KAKU ASSOCIATES

APPENDIX E-7-2
CUMULATIVE BASE (2011) PEAK HOUR TRAFFIC VOLUMES

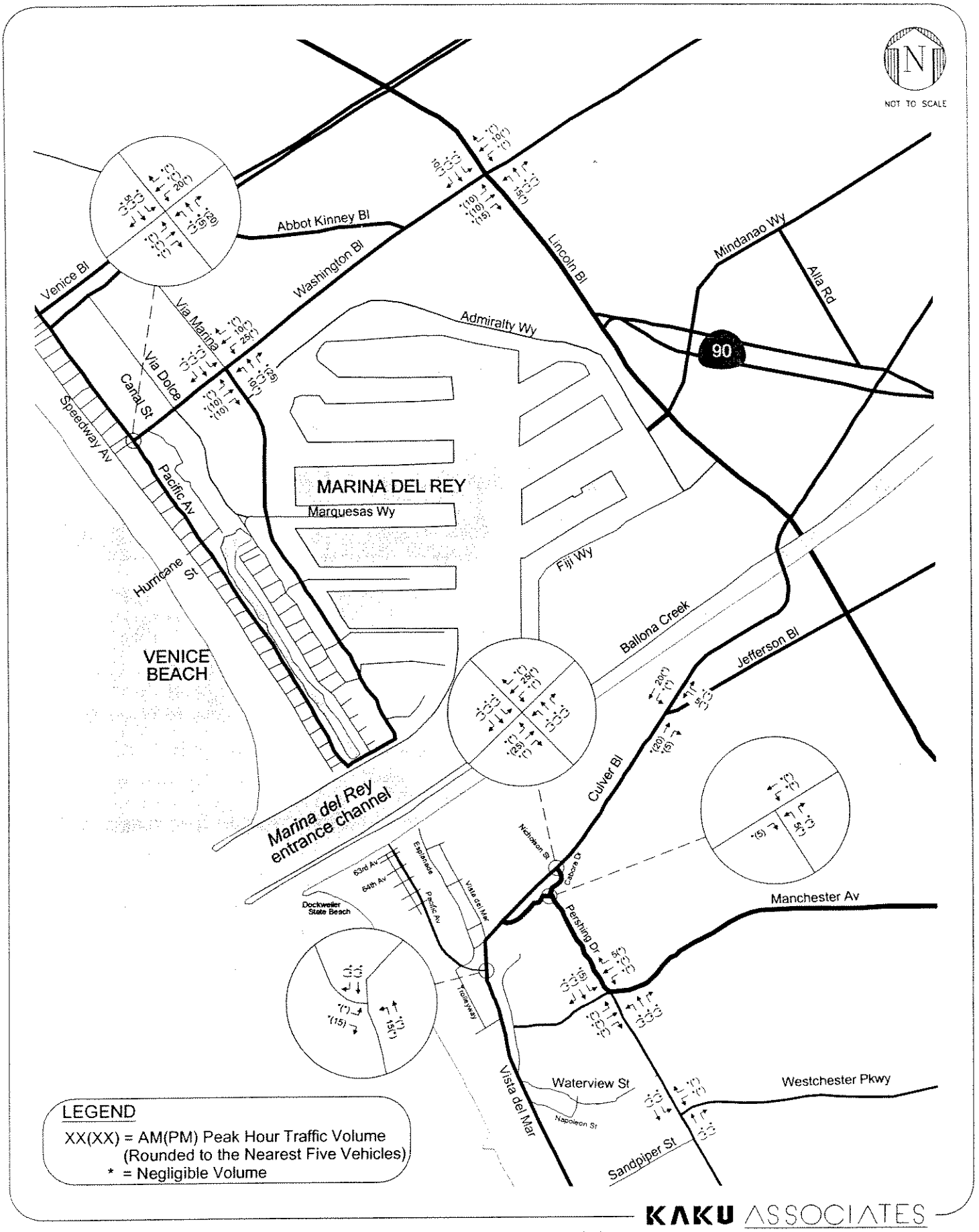
APPENDIX E-7-3

PROJECT ONLY PEAK HOUR INTERSECTION TRAFFIC VOLUMES



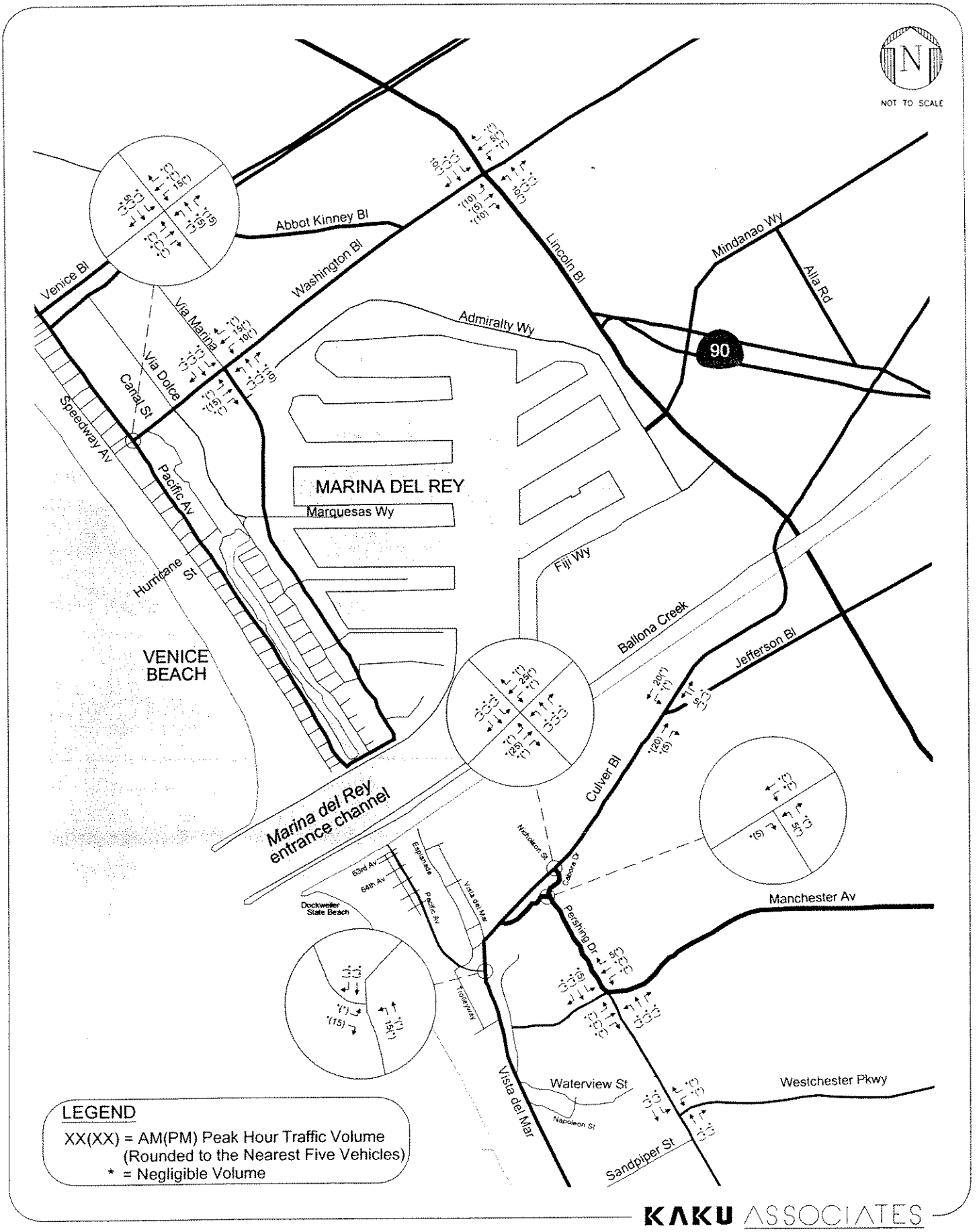
KAKU ASSOCIATES

APPENDIX E-7-3A
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
MARQUESAS WAY/VIA MARINA - SOUTH PACIFIC AVENUE



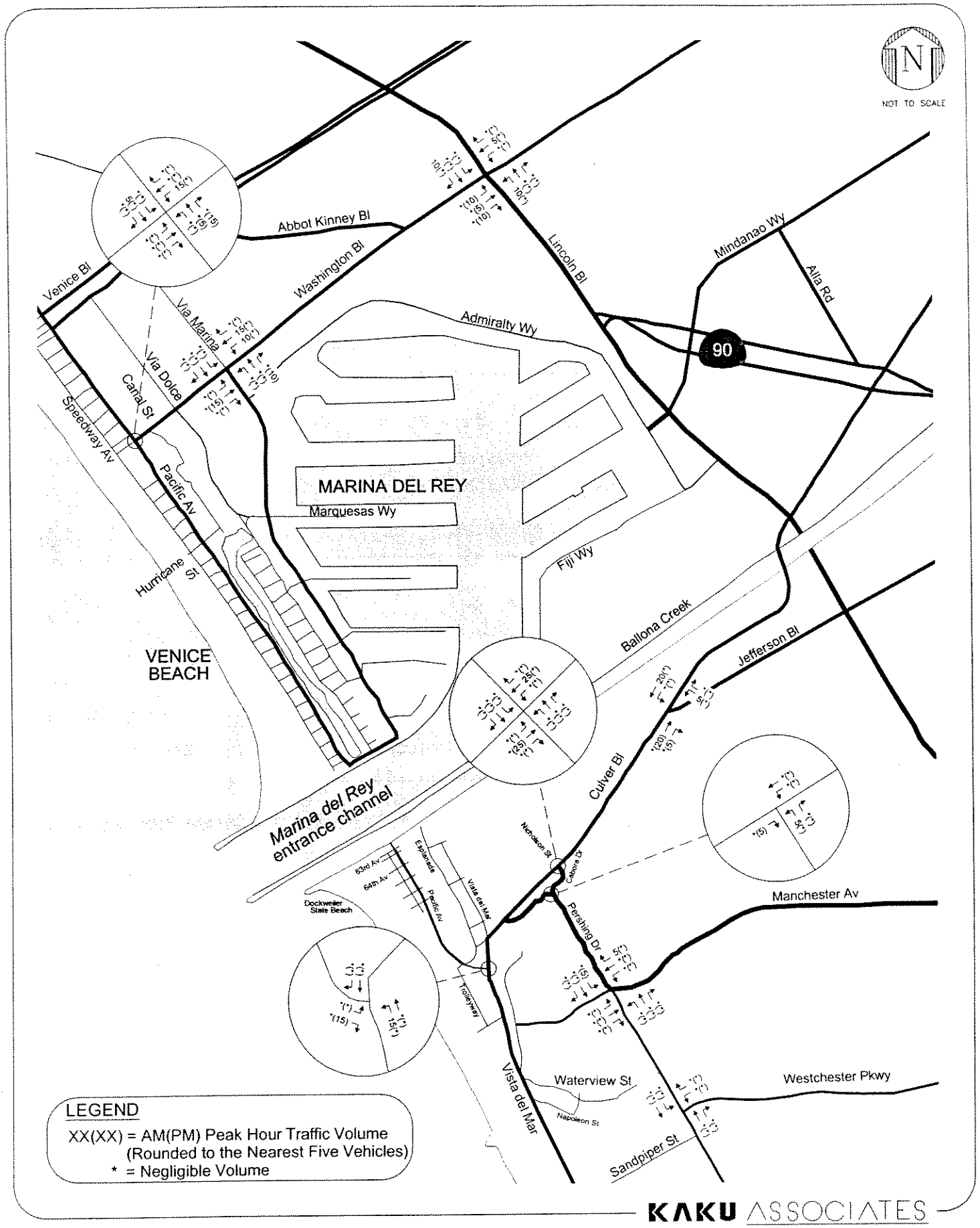
KAKU ASSOCIATES

APPENDIX E-7-3B
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
MARQUESAS WAY/VIA MARINA - DOCKWEILER BEACH



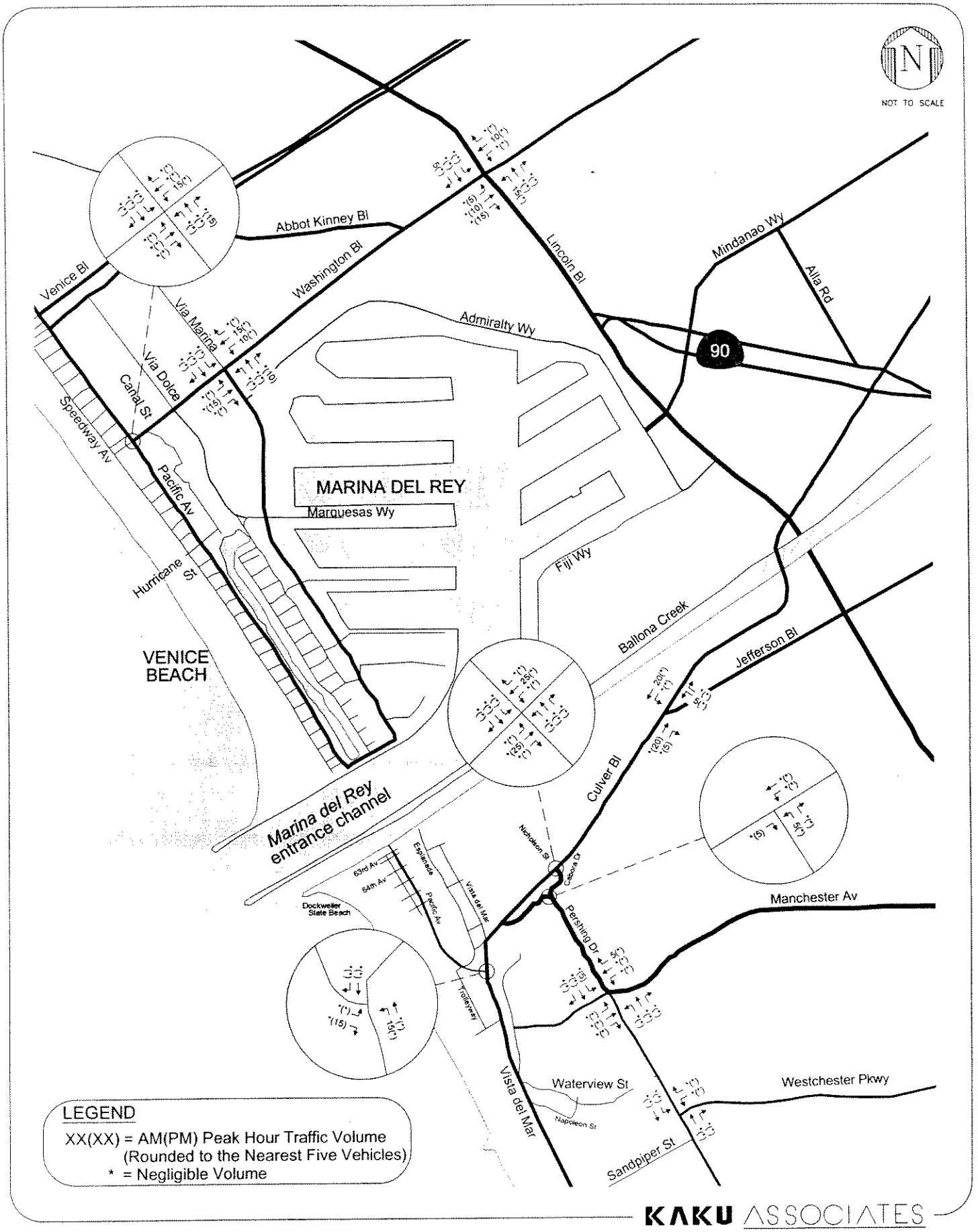
KAKU ASSOCIATES

APPENDIX E-7-3C
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
PACIFIC AVENUE - SOUTH PACIFIC AVENUE



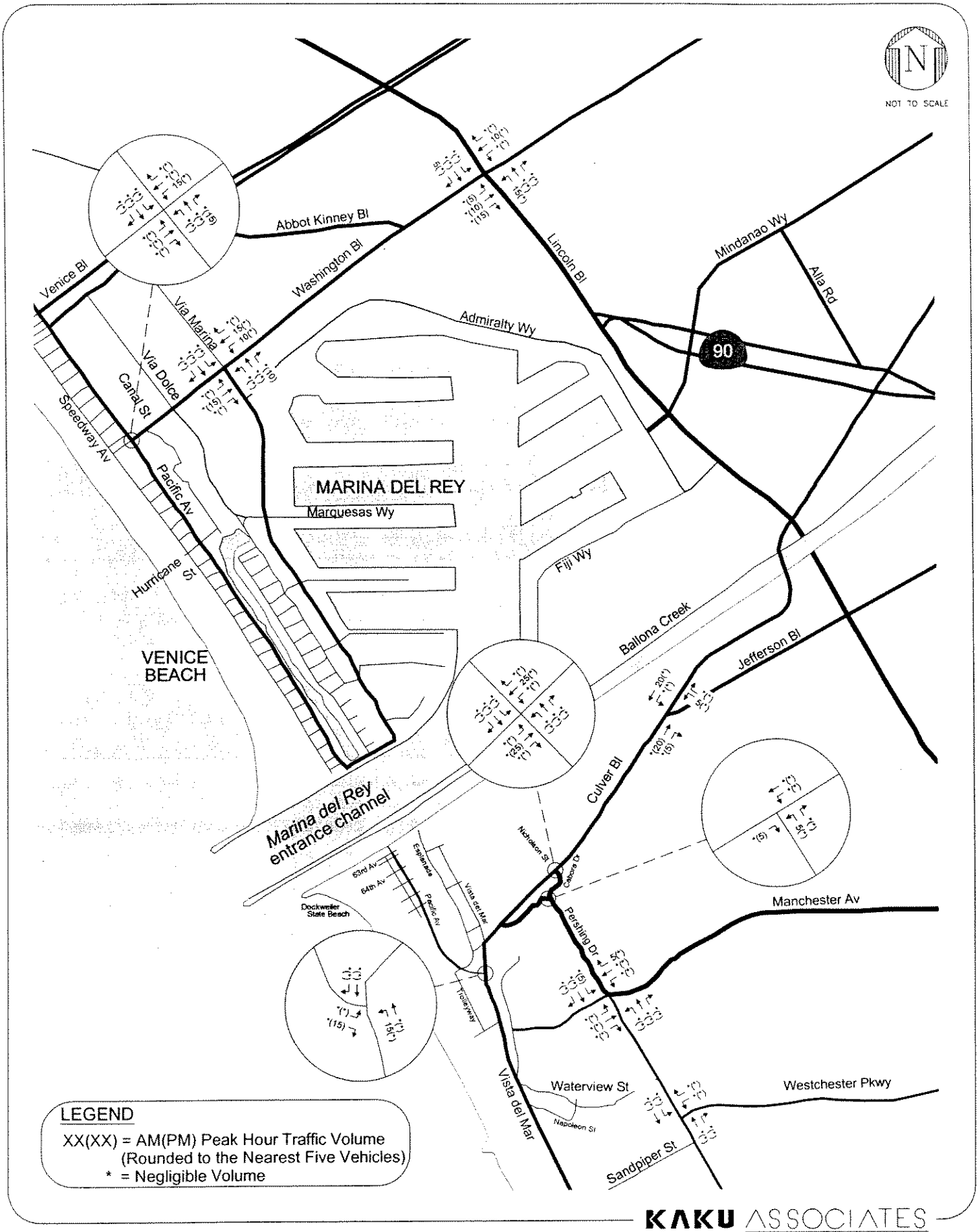
KAKU ASSOCIATES

APPENDIX E-7-3D
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
PACIFIC AVENUE - SOUTH DOCKWEILER BEACH



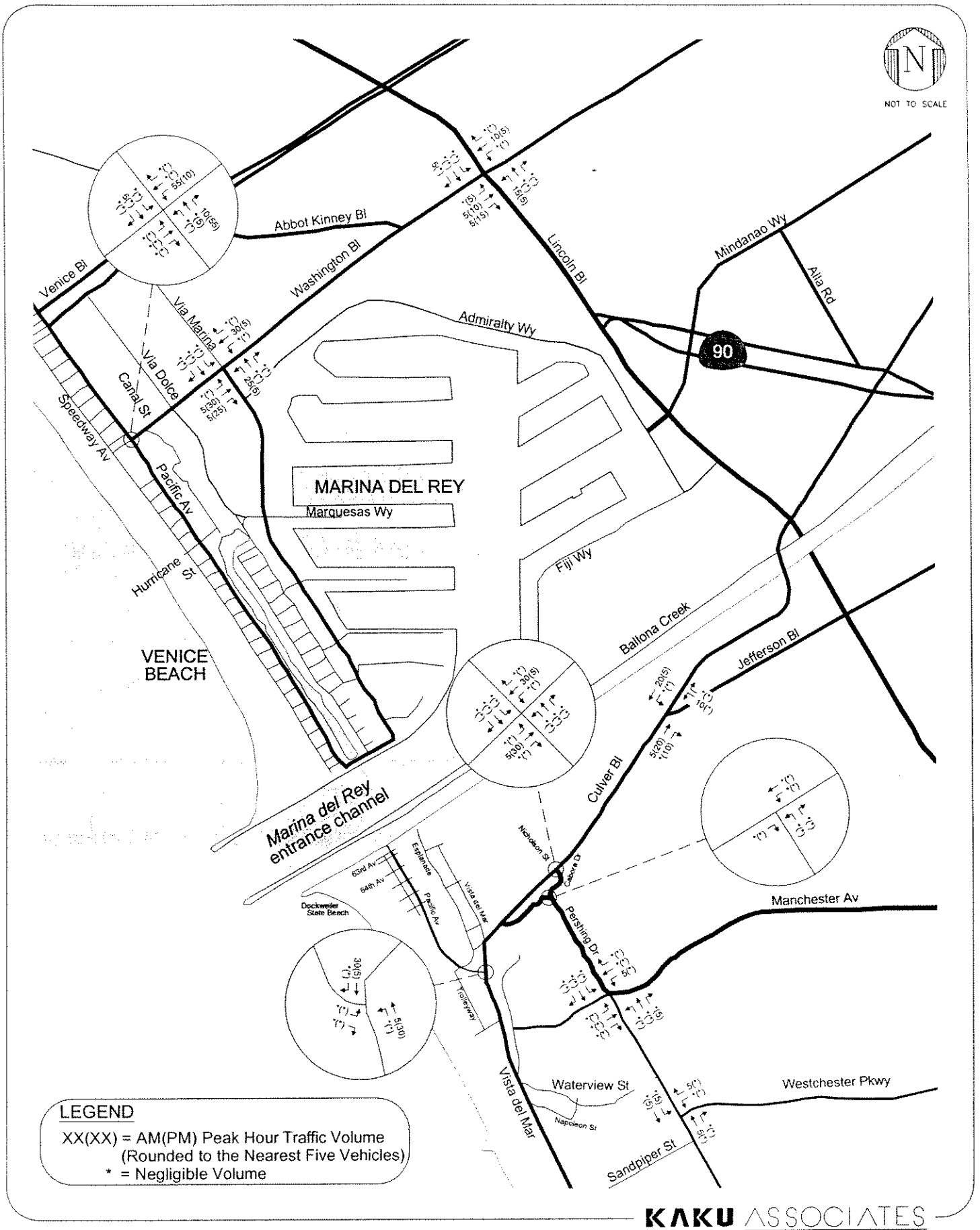
KAKU ASSOCIATES

APPENDIX E-7-3E
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
DOCKWEILER BEACH - SOUTH PACIFIC AVENUE



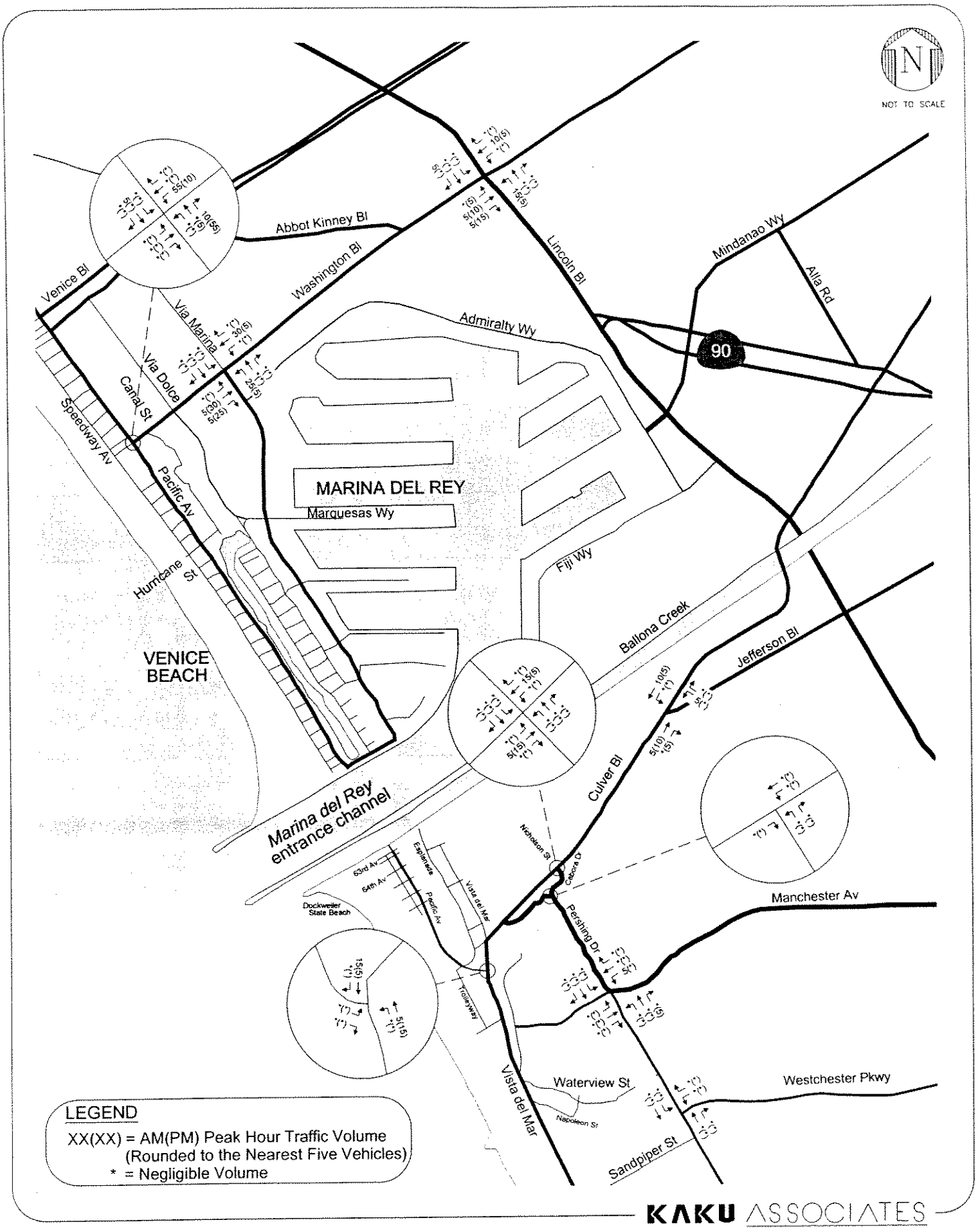
KAKU ASSOCIATES

APPENDIX E-7-3F
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
DOCKWEILER BEACH - SOUTH DOCKWEILER BEACH



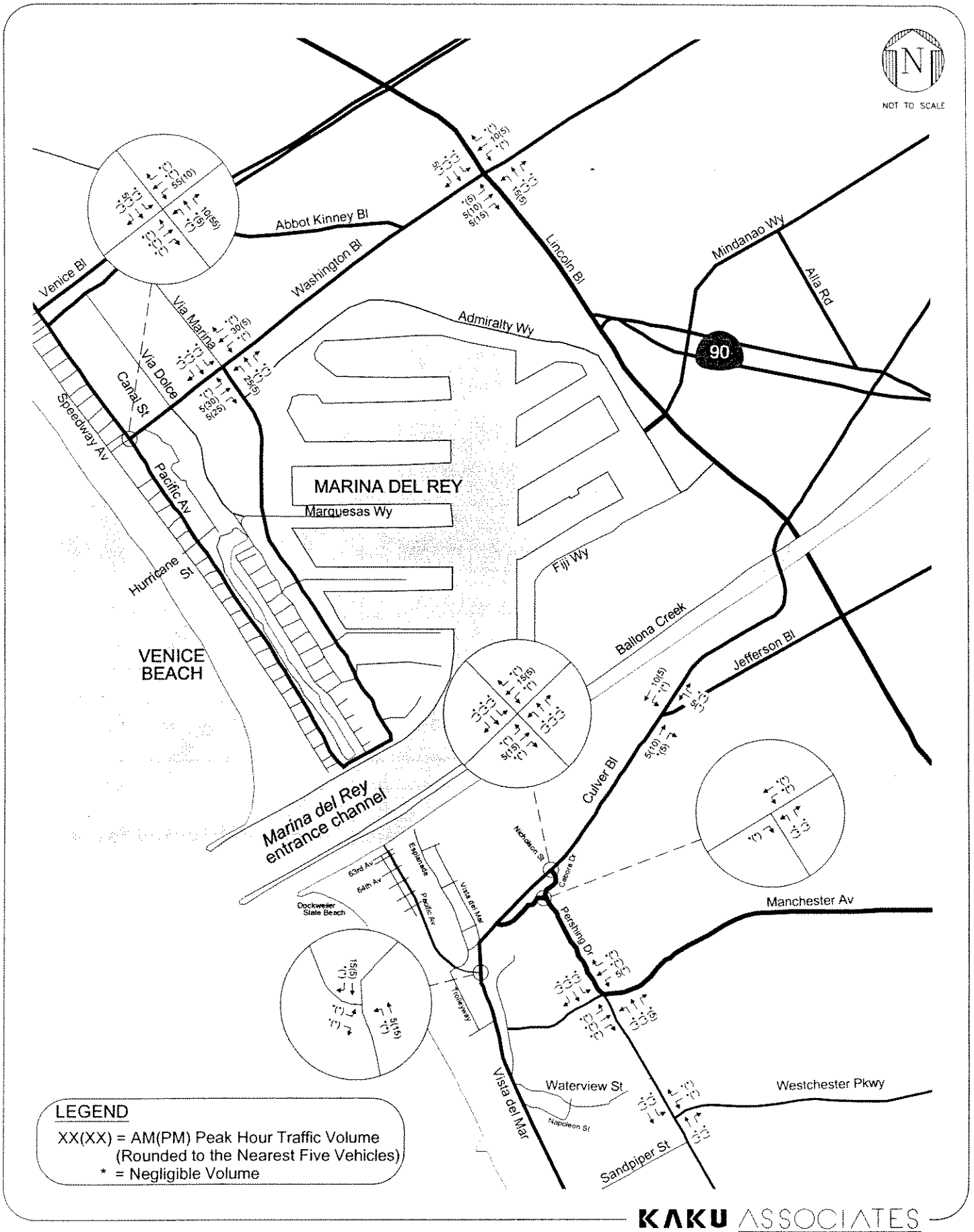
KAKU ASSOCIATES

APPENDIX E-7-3G
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - DOCKWEILER BEACH



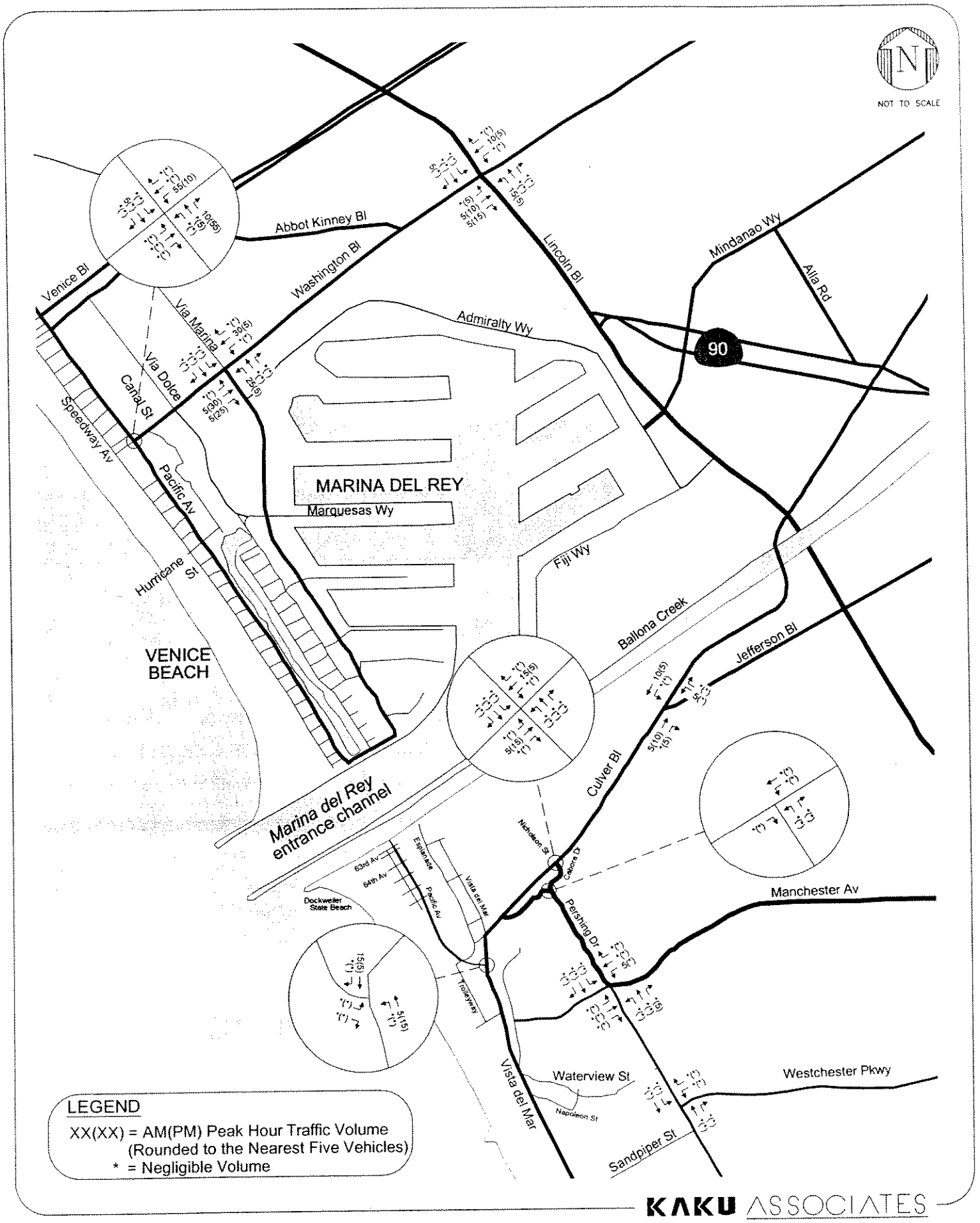
KAKU ASSOCIATES

APPENDIX E-7-3H
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - DOCKWEILER BEACH SHAFT TO LAX SHAFT



KAKU ASSOCIATES

APPENDIX E-7-3I
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - VPP TO LAX SHAFT VIA DOCKWEILER BEACH

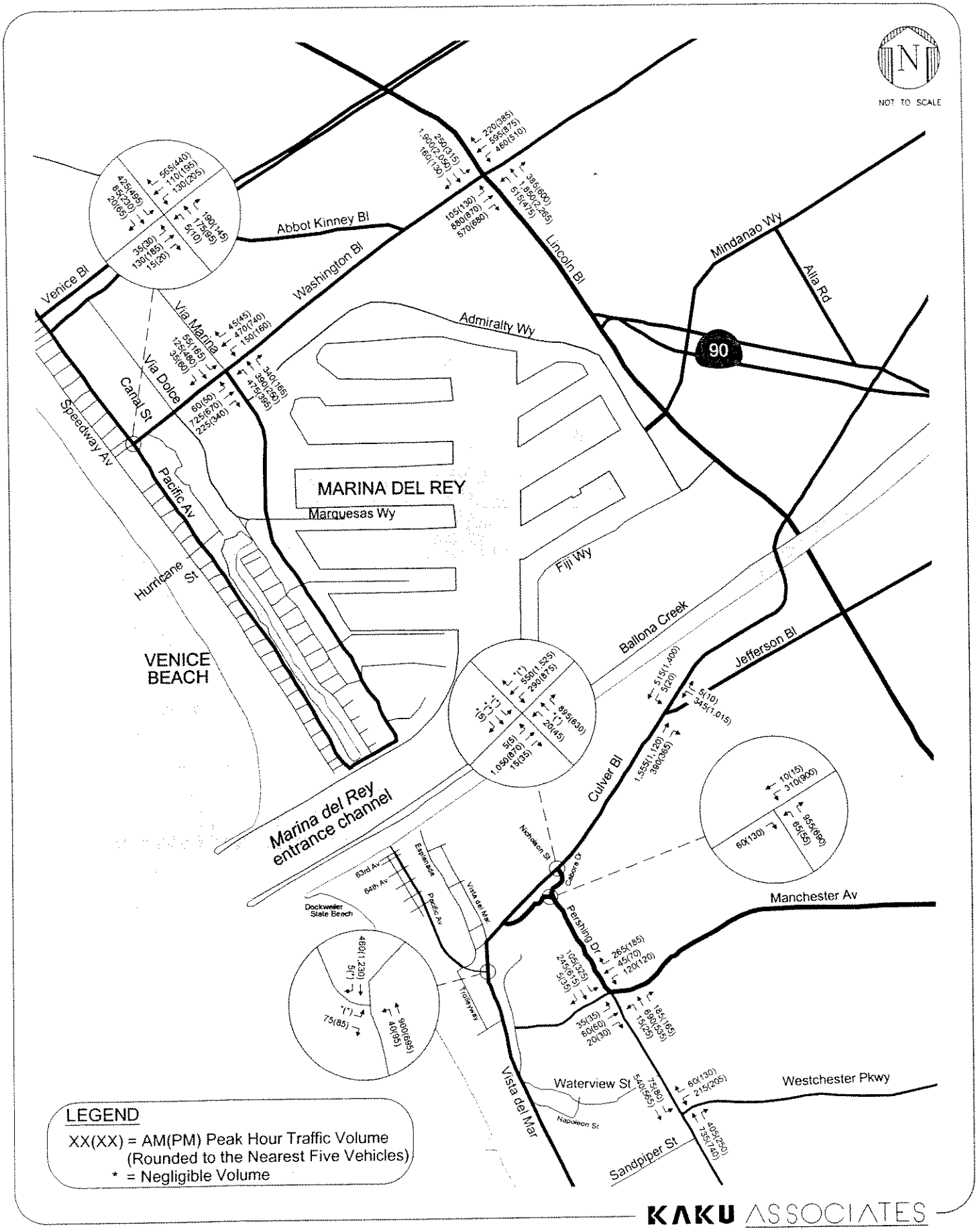


KAKU ASSOCIATES

APPENDIX E-7-3J
PROJECT ONLY PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - VPP TO LAX SHAFT VIA INLAND

APPENDIX E-7-4

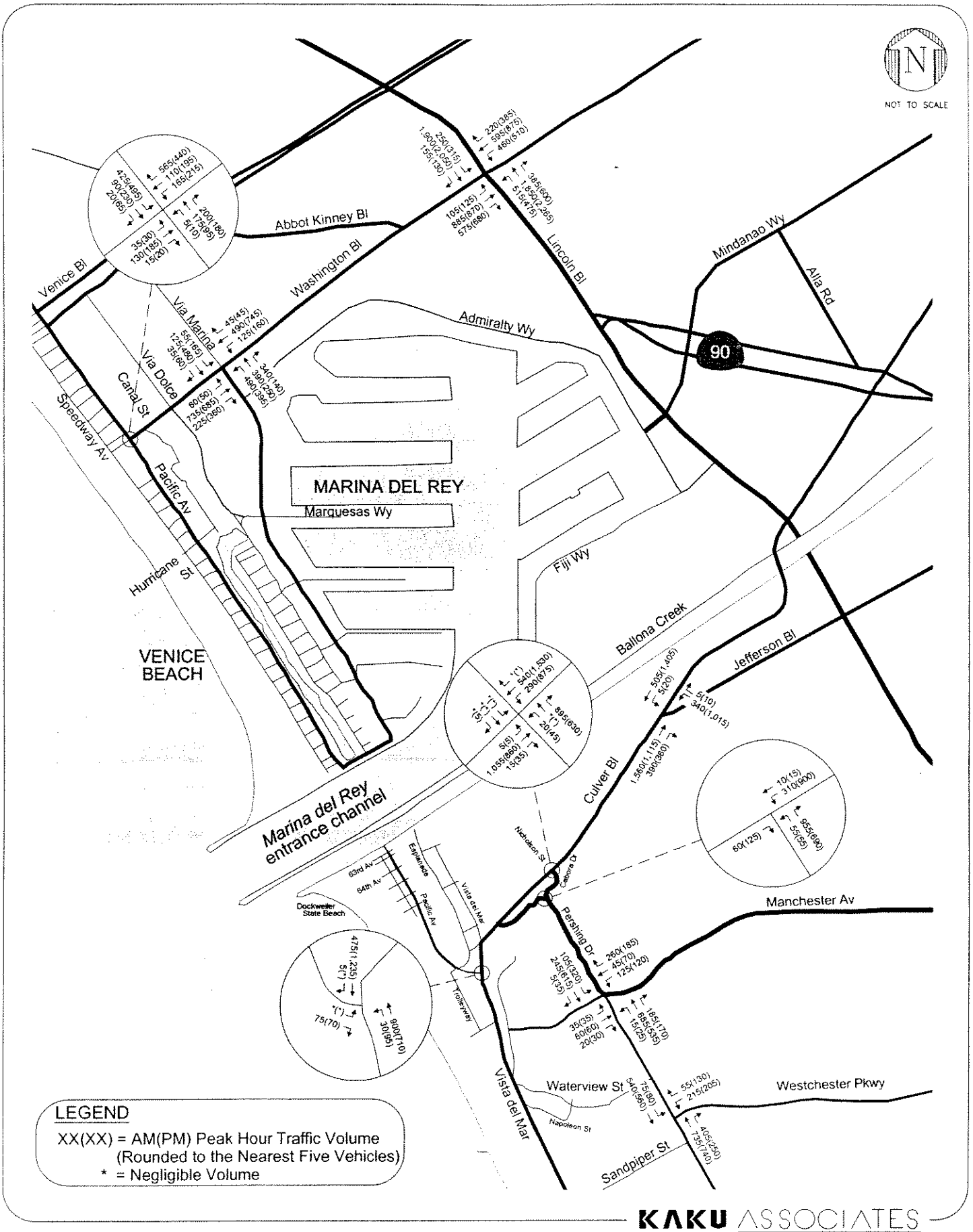
FUTURE WITH PROJECT INTERSECTION PEAK HOUR TRAFFIC VOLUMES



KAKU ASSOCIATES

APPENDIX E-7-4A

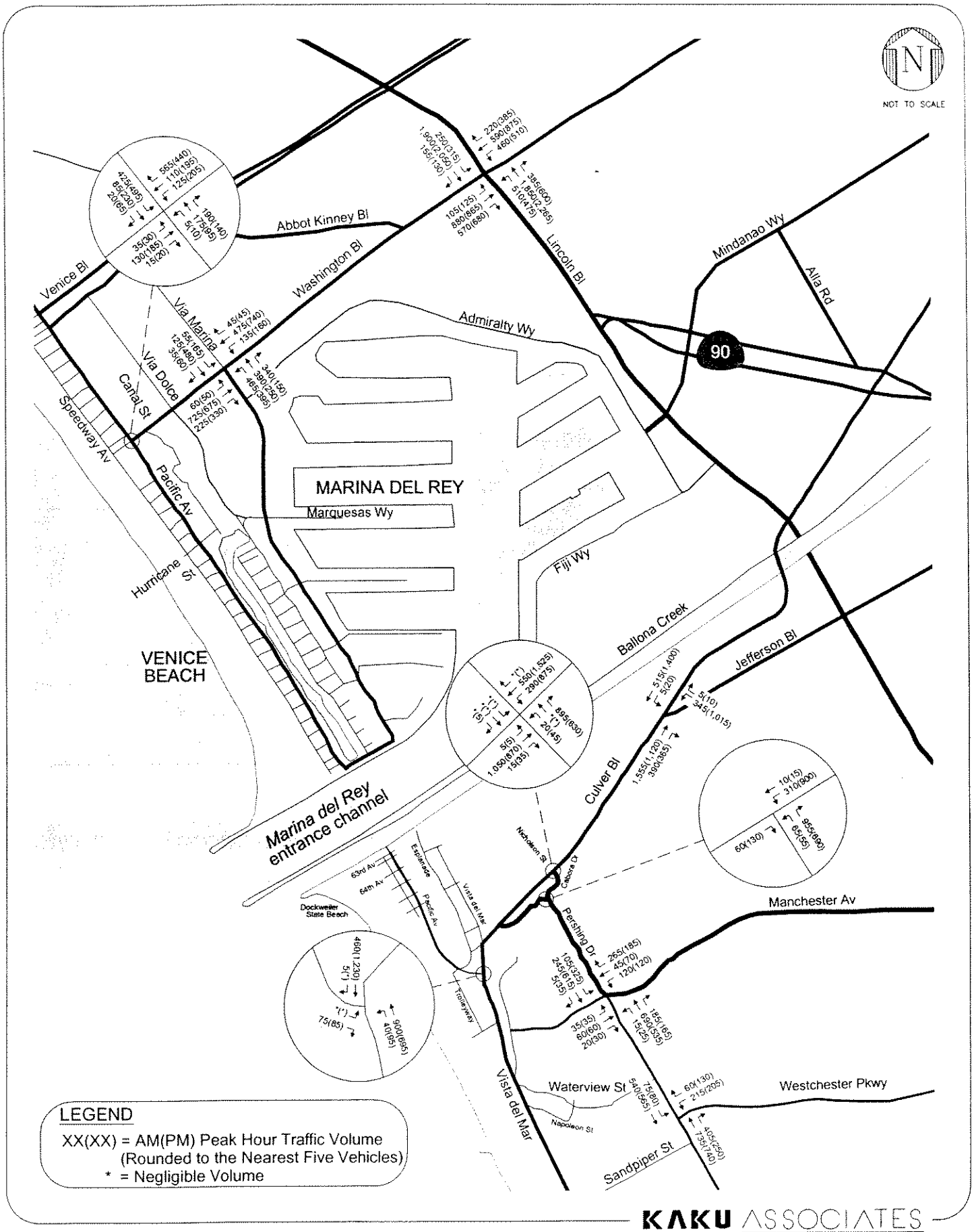
FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES MARQUESAS WAY/VIA MARINA - SOUTH PACIFIC AVENUE



KAKU ASSOCIATES

APPENDIX E-7-4I

FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - VPP TO LAX SHAFT VIA DOCKWEILER BEACH

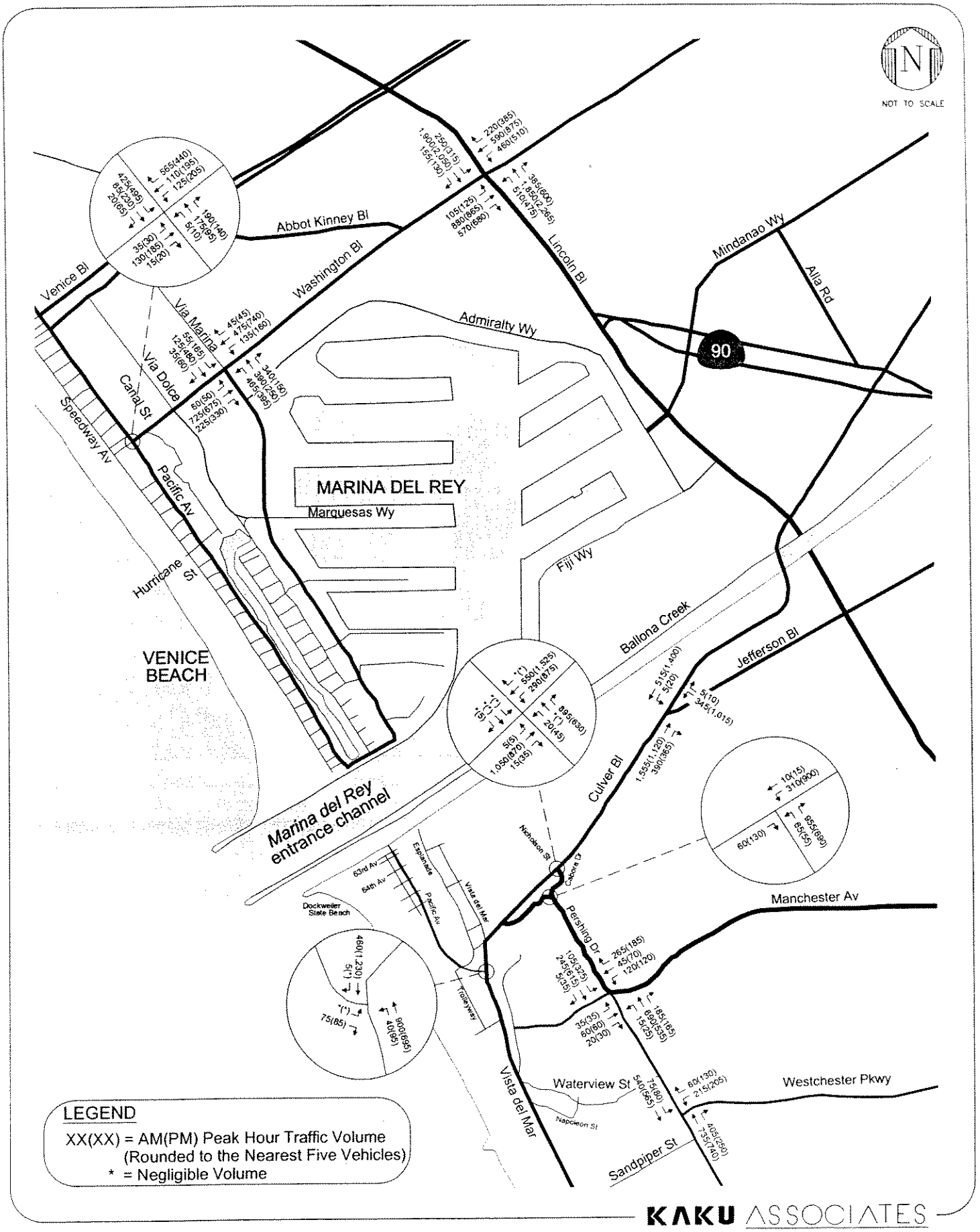


KAKU ASSOCIATES

APPENDIX E-7-4C

FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

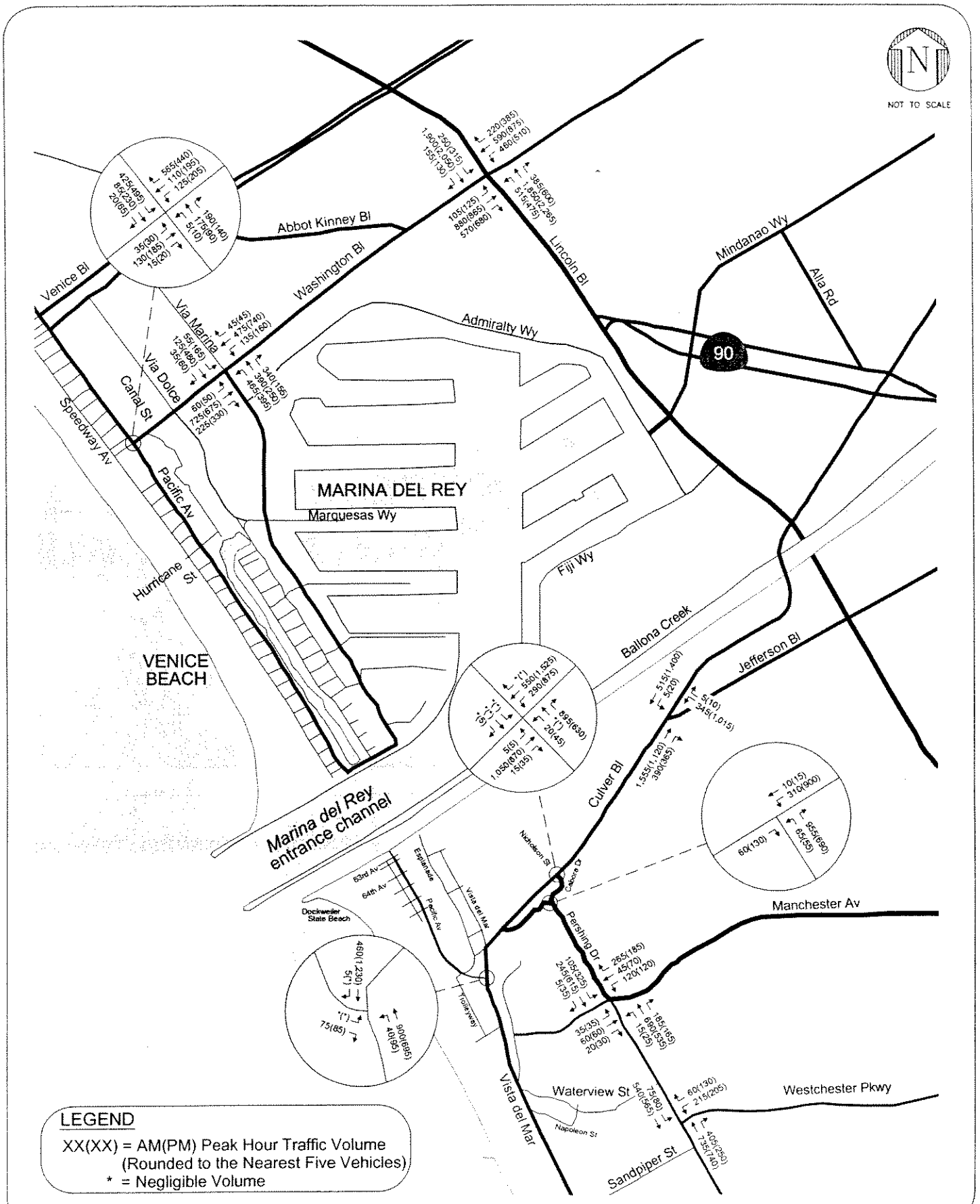
PACIFIC AVENUE - SOUTH PACIFIC AVENUE



KAKU ASSOCIATES

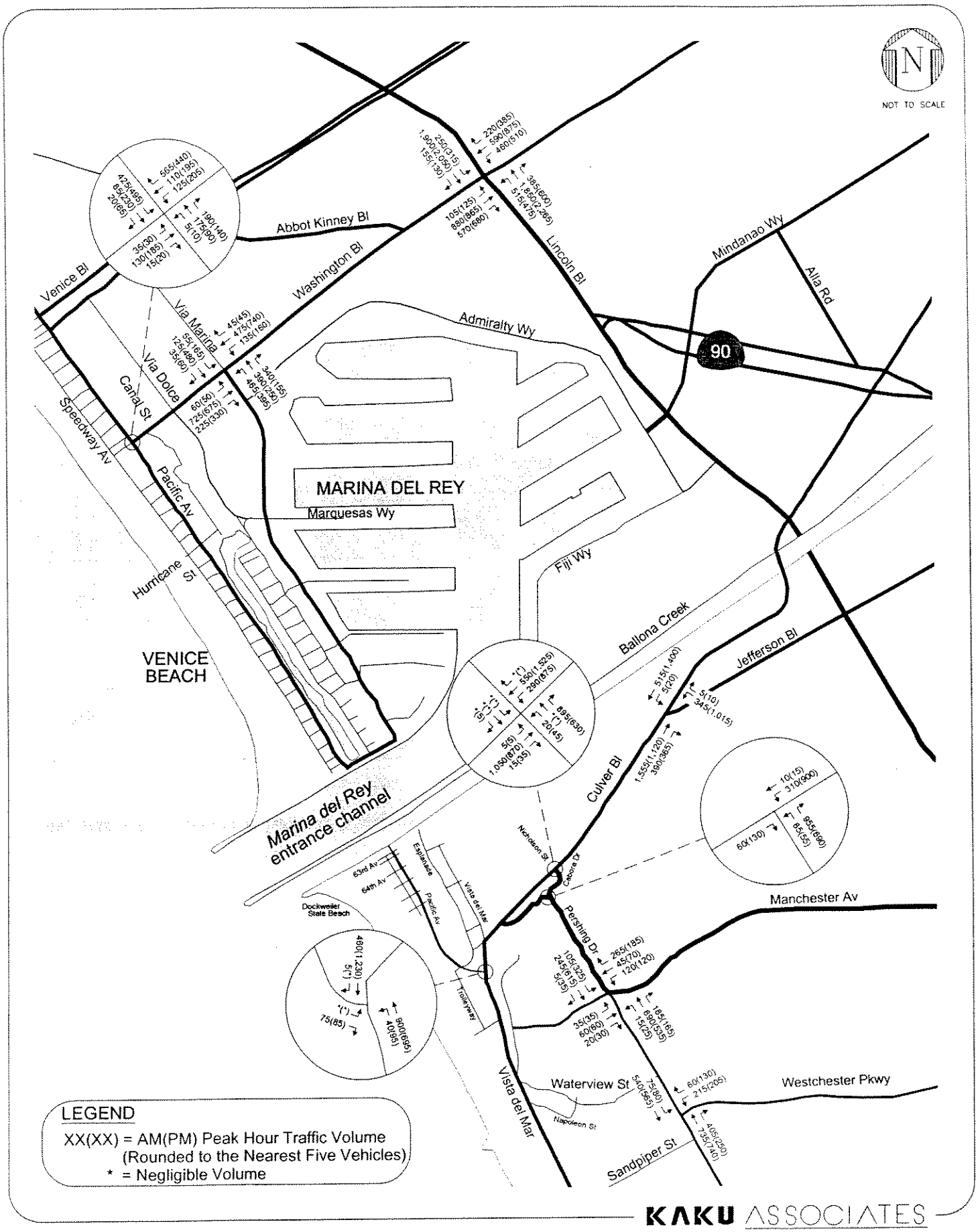
APPENDIX E-7-4D

FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES PACIFIC AVENUE - SOUTH DOCKWEILER BEACH



KAKU ASSOCIATES

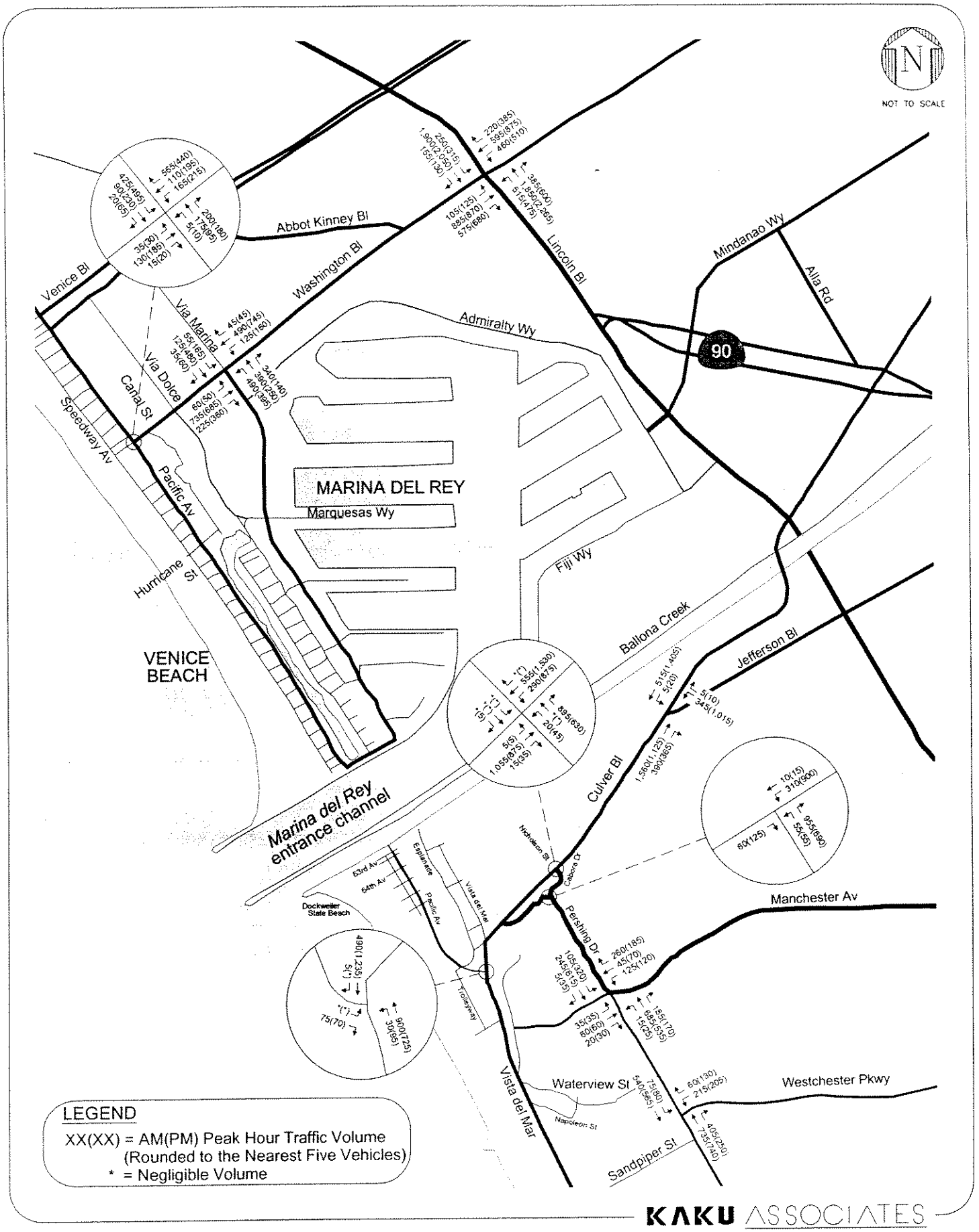
APPENDIX E-7-4E
FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES
DOCKWEILER BEACH - SOUTH PACIFIC AVENUE



KAKU ASSOCIATES

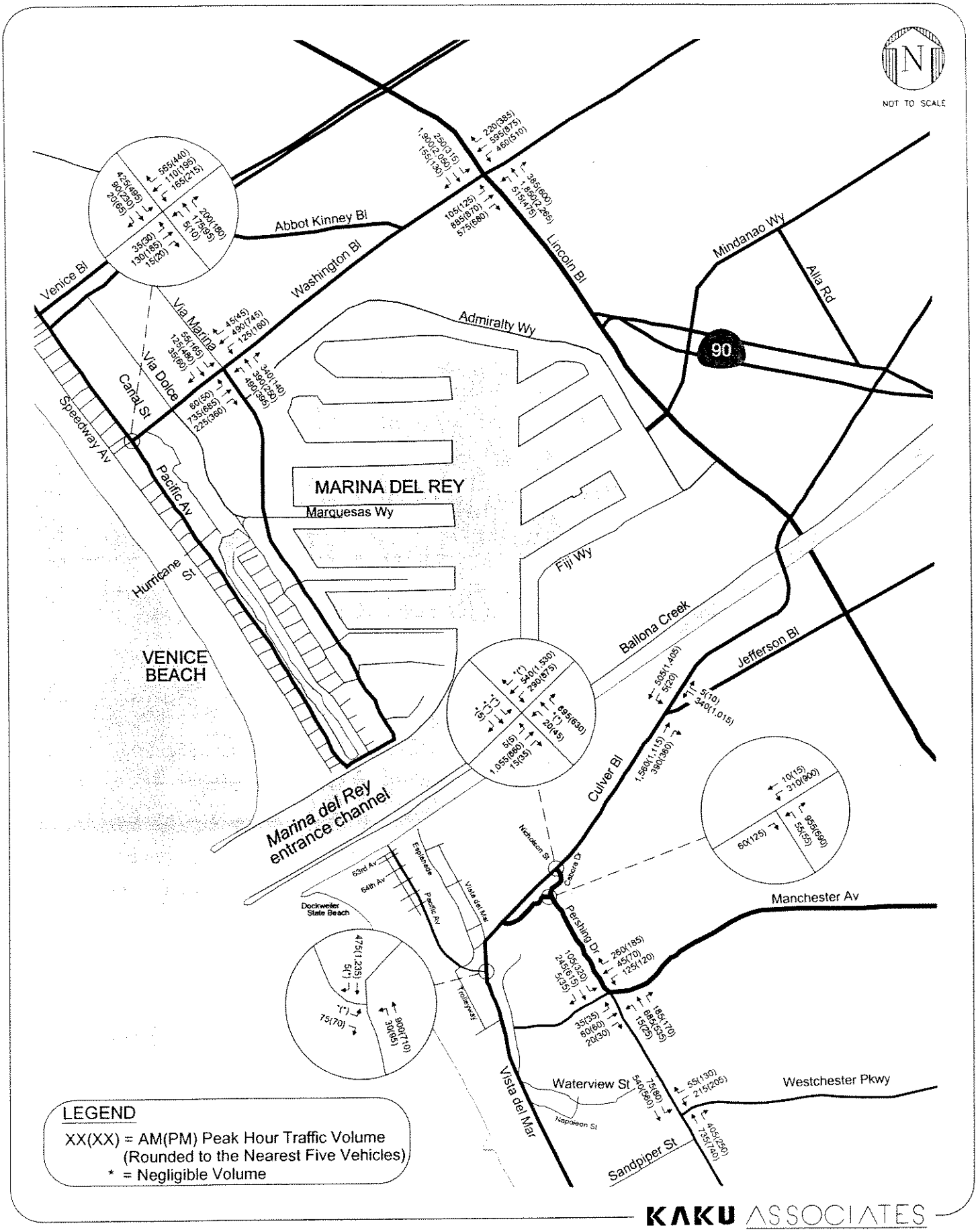
APPENDIX E-7-4F

FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES DOCKWEILER BEACH - SOUTH DOCKWEILER BEACH



KAKU ASSOCIATES

APPENDIX E-7-4G
FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - DOCKWEILER BEACH

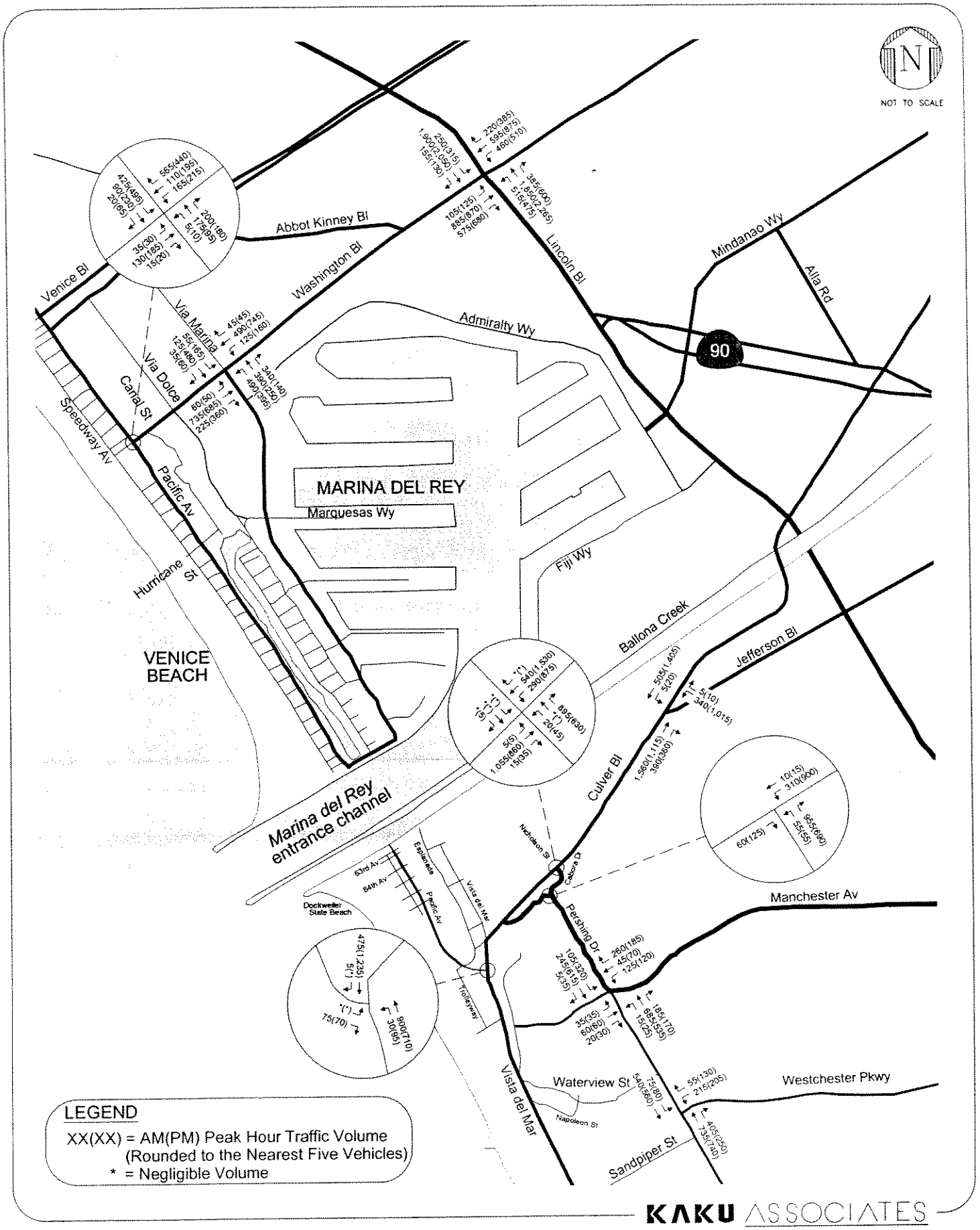


KAKU ASSOCIATES

APPENDIX E-7-4H

FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

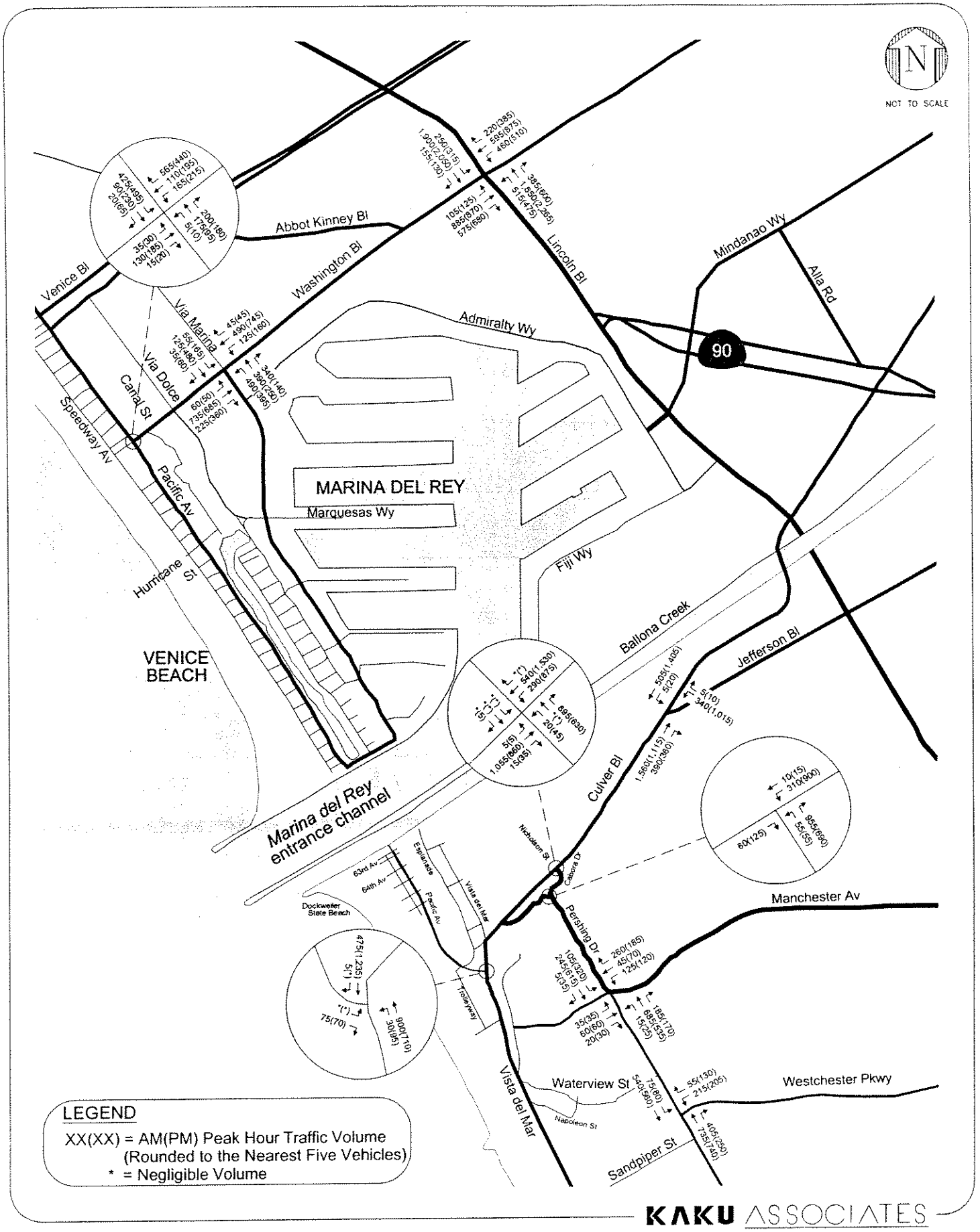
LARGE TUNNEL - DOCKWEILER BEACH SHAFT TO LAX SHAFT



KAKU ASSOCIATES

APPENDIX E-7-4I

FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - VPP TO LAX SHAFT VIA DOCKWEILER BEACH



KAKU ASSOCIATES

APPENDIX E-7-4J

FUTURE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES
LARGE TUNNEL - VPP TO LAX SHAFT VIA INLAND

APPENDIX E-7-5

INTERSECTION PEAK HOUR TRAFFIC LEVEL OF SERVICE ANALYSIS

APPENDIX E-7-5A
EXISTING INTERSECTION LEVELS OF SERVICE

Intersection	Peak Hour	Existing (2005) V/C or Delay	Existing (2005) LOS
*1 . Pacific Avenue & Washington Boulevard	AM PM	0.495 0.606	A B
*2 . Via Marina & Washington Boulevard	AM PM	0.602 0.762	B C
*3 . Lincoln Boulevard & Washington Boulevard	AM PM	0.767 0.960	C E
4 . Vista del Mar & Pacific Avenue [a]	AM PM	10 15	A B
*5 . Pershing Drive/Nicholson Street & Culver Boulevard	AM PM	0.942 0.895	E D
*6 . Culver Boulevard & Jefferson Boulevard	AM PM	0.647 0.739	B C
7 . Pershing Drive & Cabora Drive [a]	AM PM	45 **	E F
*8 . Pershing Drive & Manchester	AM PM	0.401 0.434	A A
*9 . Pershing Drive & Westchester Parkway	AM PM	0.280 0.280	A A

Notes:

Source: Kaku Associates, Inc.

* Intersection is currently operating under ATSAC system.

[a] Intersection is one-way stop controlled. Average vehicular delay in seconds per vehicle is reported for the worst-case approach rather than V/C ratio.

APPENDIX E-7-5B
FUTURE (YEAR 2011) CUMULATIVE BASE INTERSECTION LEVEL OF SERVICE ANALYSIS

Intersection	Peak Hour	Cumulative Base	
		V/C or Delay	LOS
*1 . Pacific Avenue & Washington Boulevard	AM PM	0.562 0.672	A B
*2 . Via Marina & Washington Boulevard	AM PM	0.659 0.824	B D
*3 . Lincoln Boulevard & Washington Boulevard	AM PM	1.130 1.346	F F
4 . Vista del Mar & Pacific Avenue [a]	AM PM	10 16	B C
*5 . Nicholson Street & Culver Boulevard	AM PM	1.035 0.990	F E
*6 . Jefferson Boulevard & Culver Boulevard	AM PM	0.705 0.811	C D
7 . Pershing Drive & Cabora Drive [a]	AM PM	65 **	F F
*8 . Pershing Drive & Manchester	AM PM	0.438 0.475	A A
*9 . Pershing Drive & Westchester Parkway	AM PM	0.280 0.280	A A

Notes:

Source: Kaku Associates, Inc.

* Intersection is currently operating under ATSA

[a] Intersection is one-way stop controlled. Average intersection vehicular delay in seconds per vehicle is reported rather than V/C ratio.

APPENDIX E-7-5C

FUTURE (2011) INTERSECTION LEVEL OF SERVICE ANALYSIS

Intersection	Peak Hour	Cumulative Base V/C or Delay	Cumulative Base LOS	CP [N1-S1] V/C or Delay	CP [N1-S1] LOS	Project Increase in V/C	Adverse Project Impact?	CP [N1-S2] V/C or Delay	CP [N1-S2] LOS	Project Increase in V/C	Adverse Project Impact?	CP [N2-S1] V/C or Delay	CP [N2-S1] LOS	Project Increase in V/C	Adverse Project Impact?	CP [N2-S2] V/C or Delay	CP [N2-S2] LOS	Project Increase in V/C	Adverse Project Impact?	CP [N3-S1] V/C or Delay	CP [N3-S1] LOS	Project Increase in V/C	Adverse Project Impact?	CP [N3-S2] V/C or Delay	CP [N3-S2] LOS	Project Increase in V/C	Adverse Project Impact?
*1 Pacific Avenue &	AM	0.562	A	0.576	A	0.014	NO	0.576	A	0.014	NO	0.574	A	0.012	NO	0.574	A	0.012	NO	0.574	A	0.012	NO	0.574	A	0.012	NO
Washington Boulevard	PM	0.672	B	0.686	B	0.014	NO	0.686	B	0.014	NO	0.684	B	0.012	NO	0.684	B	0.012	NO	0.684	B	0.012	NO	0.684	B	0.012	NO
*2 Via Marina &	AM	0.659	B	0.675	B	0.016	NO	0.675	B	0.016	NO	0.665	B	0.006	NO	0.665	B	0.006	NO	0.667	B	0.008	NO	0.667	B	0.008	NO
Washington Boulevard	PM	0.824	D	0.828	D	0.004	NO	0.828	D	0.004	NO	0.830	D	0.006	NO	0.830	D	0.006	NO	0.830	D	0.006	NO	0.830	D	0.006	NO
*3 Lincoln Boulevard &	AM	1.130	F	1.138	F	0.008	NO	1.138	F	0.008	NO	1.136	F	0.006	NO	1.136	F	0.006	NO	1.137	F	0.007	NO	1.137	F	0.007	NO
Washington Boulevard	PM	1.346	F	1.355	F	0.009	NO	1.355	F	0.009	NO	1.354	F	0.008	NO	1.354	F	0.008	NO	1.355	F	0.009	NO	1.355	F	0.009	NO
4 Vista del Mar &	AM	10	B	10	B	0		10	B	0	-	10	B	0	-	10	B	0	-	10	B	0		10	B	0	-
Pacific Avenue [a]	PM	16	C	15	B	-1	-	16	C	0	-	15	B	-1	-	16	C	0	-	15	B	-1	-	16	C	0	
If signalized	AM	0.369		0.677	-	0.308	NO	0.377	-	0.008	NO	0.677	-	0.308	NO	0.377	-	0.008	NO	0.677	-	0.308	NO	0.377	-	0.008	NO
If signalized	PM	0.521	-	0.581	-	0.060	NO	0.530	-	0.009	NO	0.581	-	0.060	NO	0.530	-	0.009	NO	0.581	-	0.060	NO	0.530	-	0.009	NO
*5 Nicholson Street &	AM	1.035	F	1.035	F	0.000	NO	1.035	F	0.000	NO	1.035	F	0.000	NO	1.035	F	0.000	NO	1.035	F	0.000	NO	1.035	F	0.000	NO
Culver Boulevard	PM	0.990	E	0.999	E	0.009	NO	0.999	E	0.009	NO	0.999	E	0.009	NO	0.999	E	0.009	NO	0.999	E	0.009	NO	0.999	E	0.009	NO
*6 Culver Boulevard &	AM	0.705	C	0.708	C	0.003	NO	0.708	C	0.003	NO	0.708	C	0.003	NO	0.708	C	0.003	NO	0.708	C	0.003	NO	0.708	C	0.003	NO
Jefferson Boulevard [b]	PM	0.811	D	0.811	D	0.000	NO	0.811	D	0.000	NO	0.811	D	0.000	NO	0.811	D	0.000	NO	0.811	D	0.000	NO	0.811	D	0.000	NO
7 Pershing Drive &	AM	65	F	65	F	0		65	F	0	-	65	F	0	-	65	F	0	-	65	F	0	-	65	F	0	-
Cabora Drive [a]	PM	**	F	**	F	N/A		**	F	N/A	-	**	F	N/A	-	**	F	N/A		**	F	N/A		**	F	N/A	-
If signalized	AM	0.251	-	0.255	-	0.004	NO	0.255	-	0.004	NO	0.255	-	0.004	NO	0.255	-	0.004	NO	0.255	-	0.004	NO	0.255	-	0.004	NO
If signalized	PM	0.646	-	0.646	-	0.000	NO	0.646	-	0.000	NO	0.646	-	0.000	NO	0.646	-	0.000	NO	0.646	-	0.000	NO	0.646	-	0.000	NO
*8 Pershing Drive &	AM	0.438	A	0.441	A	0.003	NO	0.441	A	0.003	NO	0.441	A	0.003	NO	0.441	A	0.003	NO	0.441	A	0.003	NO	0.441	A	0.003	NO
Manchester Avenue	PM	0.475	A	0.478	A	0.003	NO	0.478	A	0.003	NO	0.478	A	0.003	NO	0.478	A	0.003	NO	0.478	A	0.003	NO	0.478	A	0.003	NO
*9 Pershing Drive &	AM	0.280	A	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO
Westchester Parkway	PM	0.280	A	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO
Total Number of Impacts							0				0				0				0				0				0

Intersection	Peak Hour	Cumulative Base V/C or Delay	Cumulative Base LOS	CP [M1] V/C or Delay	CP [M1] LOS	Project Increase in V/C	Adverse Project Impact?	CP [M2] V/C or Delay	CP [M2] LOS	Project Increase in V/C	Adverse Project Impact?	CP [M3] V/C or Delay	CP [M3] LOS	Project Increase in V/C	Adverse Project Impact?	CP [M4] V/C or Delay	CP [M4] LOS	Project Increase in V/C	Adverse Project Impact?
*1 Pacific Avenue &	AM	0.562	A	0.608	B	0.046	NO	0.608	B	0.046	NO	0.608	B	0.046	NO	0.608	B	0.046	NO
Washington Boulevard	PM	0.672	B	0.719	C	0.047	YES	0.719	C	0.047	YES	0.719	C	0.047	YES	0.719	C	0.047	YES
*2 Via Marina &	AM	0.659	B	0.661	B	0.002	NO	0.661	B	0.002	NO	0.661	B	0.002	NO	0.661	B	0.002	NO
Washington Boulevard	PM	0.824	D	0.835	D	0.011	NO	0.835	D	0.011	NO	0.835	D	0.011	NO	0.835	D	0.011	NO
*3 Lincoln Boulevard &	AM	1.130	F	1.137	F	0.007	NO	1.137	F	0.007	NO	1.137	F	0.007	NO	1.137	F	0.007	NO
Washington Boulevard	PM	1.346	F	1.355	F	0.009	NO	1.355	F	0.009	NO	1.355	F	0.009	NO	1.355	F	0.009	NO
4 Vista del Mar &	AM	10	B	10	B	0	-	10	B	0	-	10	B	0	-	10	B	0	-
Pacific Avenue [a]	PM	16	C	16	C	0	-	16	C	0		16	C	0	-	16	C	0	-
If signalized	AM	0.369	-	0.369		0.000	NO	0.369	-	0.000	NO	0.369	-	0.000	NO	0.369	-	0.000	NO
If signalized	PM	0.521	-	0.522	-	0.001	NO	0.522	-	0.001	NO	0.522	-	0.001	NO	0.522	-	0.001	NO
*5 Nicholson Street &	AM	1.035	F	1.037	F	0.002	NO	1.037	F	0.002	NO	1.037	F	0.002	NO	1.037	F	0.002	NO
Culver Boulevard	PM	0.990	E	1.000	E	0.010	YES	0.995	E	0.005	NO	0.995	E	0.005	NO	0.995	E	0.005	NO
*6 Culver Boulevard &	AM	0.705	C	0.710	C	0.005	NO	0.708	C	0.003	NO	0.708	C	0.003	NO	0.708	C	0.003	NO
Jefferson Boulevard [b]	PM	0.811	D	0.813	D	0.002	NO	0.813	D	0.002	NO	0.813	D	0.002	NO	0.813	D	0.002	NO
7 Pershing Drive &	AM	65	F	65	F	0	-	65	F	0	-	65	F	0		65	F	0	
Cabora Drive [a]	PM	**	F	**	F	N/A		**	F	N/A	-	**	F	N/A	-	**	F	N/A	
If signalized	AM	0.251	-	0.251	-	0.000	NO	0.251	-	0.000	NO	0.251	A	0.000	NO	0.251		0.000	NO
If signalized	PM	0.646	-	0.646	-	0.000	NO	0.646	-	0.000	NO	0.646	B	0.000	NO	0.646	-	0.000	NO
*8 Pershing Drive &	AM	0.438	A	0.438	A	0.000	NO	0.438	A	0.000	NO	0.438	A	0.000	NO	0.438	A	0.000	NO
Manchester Avenue	PM	0.475	A	0.475	A	0.000	NO	0.475	A	0.000	NO	0.475	A	0.000	NO	0.475	A	0.000	NO
*9 Pershing Drive &	AM	0.280	A	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO
Westchester Parkway	PM	0.280	A	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO	0.280	A	0.000	NO
Total Number of Impacts							2				1				1				1

Notes:

Source: Kaku Associates, Inc

CP Cumulative Plus Project Condition

[N3-S1] Manchester Way/Via Marina - Pacific Av

[N1-N2] Manchester Way/Via Marina - South Dockweiler Beach

[N2-S1] Pacific Avenue

[S2-S2] Pacific Avenue - South Dockweiler Beach

[S1-S1] Dockweiler Beach - Pacific Avenue

[N3-S2] Dockweiler Beach - South Dockweiler Beach

[M1] Large Tunnel - Dockweiler Beach

[M2] Large Tunnel - Dockweiler Beach Shaft to LAX Shaft

[M3]

Large Tunnel - Venice Pumping Plant to LAX Shaft via Dockweiler Beach

[M4] Large Tunnel - Venice Pumping Plant to LAX Shaft via Inland

[a]

Intersection is two-way stop controlled. The input uses three analyses using *Highway Capacity Manual* stop controlled methodology. For the purpose of evaluating the operating condition of the intersection, Average intersection vehicular delay in seconds per vehicle is reported rather than V/C ratio. The bottom rows show analyses using the LAX methodology. For the purposes of applications of City of Los Angeles significance criteria, V/C ratio is reported.

[b] Lane configuration different from existing condition

* Intersection is currently operating under ATSAC system

** Overflow condition indicating oversaturated conditions for a longer peak. Average vehicle delay cannot be calculated

APPENDICES **PART TWO**
VENICE PUMPING PLANT
DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

Prepared for

City of Los Angeles
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December 20, 2005

URS

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Los Angeles, California 90017

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APPENDIX **F**

CULTURAL AND PALEONTOLOGICAL RESOURCES

VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

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INTRODUCTION

Greenwood and Associates has conducted an archaeological investigation for the proposed construction of the Venice Pumping Plant Dual Force Main Project in the community of Marina del Rey (MDR) in the City of Los Angeles.

PROJECT DESCRIPTION

The City of Los Angeles, Department of Public Works has identified a need to prepare California Environmental Quality Act (CEQA) documentation in support of advancing the final engineering design and construction of the Venice Pumping Plant (VPP) No. 646 located at 140 Hurricane Avenue in the community of Venice to an existing junction structure to the North Outfall Sewer (NOS) located near the intersection of Pacific Avenue and Waterview Street in the community of Playa del Rey (Figure 1).

The VPP Dual Force Main Project is proposed as a solution to expanding existing capacity of the 48-inch diameter Coastal Interceptor Sewer (CIS) force main by constructing an additional 54-inch diameter dual force main. The proposed 54-inch sewer will be constructed in a 76-inch steel casing. Given an ever-increasing need to accommodate wastewater flows, three distinct site-location alternatives are identified for CEQA assessment (Figure 2). They are:

1. The approximately 10,000-foot VPP-Pacific Avenue-Waterview Street junction structure;

2. The approximately 10,000-foot VPP-Marquesas Way-Via Marina-Pacific Avenue/Waterview Street junction structure; and

3. The approximately 10,000-foot VPP-Venice Beach/Dockweiler State Beach existing 20-foot wide sewer easement-Waterview Street junction structure. This alignment will be located within the existing 20-foot easement for the existing line and offset to the east by an as-yet undetermined number of feet.

Since all three alternatives include crossing the Marina del Rey Channel and Ballona Creek, micro-tunneling is the only construction method being considered. The two tunnel boring locations situated in the south side of the MDR Channel/Ballona Creek will be launching sites; the three boring locations situated on the north side of the MDR Channel will be receiving sites. Site Alternative 2 also includes crossing the Venice Grand Canal. Micro-tunneling is the only construction method being considered for obvious environmental protection reasons. Three boring locations will flank the Grand Canal crossing from the VPP to and including the intersection of Via Dolce and Via Marina in MDR.

The method of construction to be utilized for all land portions of the project will be open excavation (cut-and-cover).

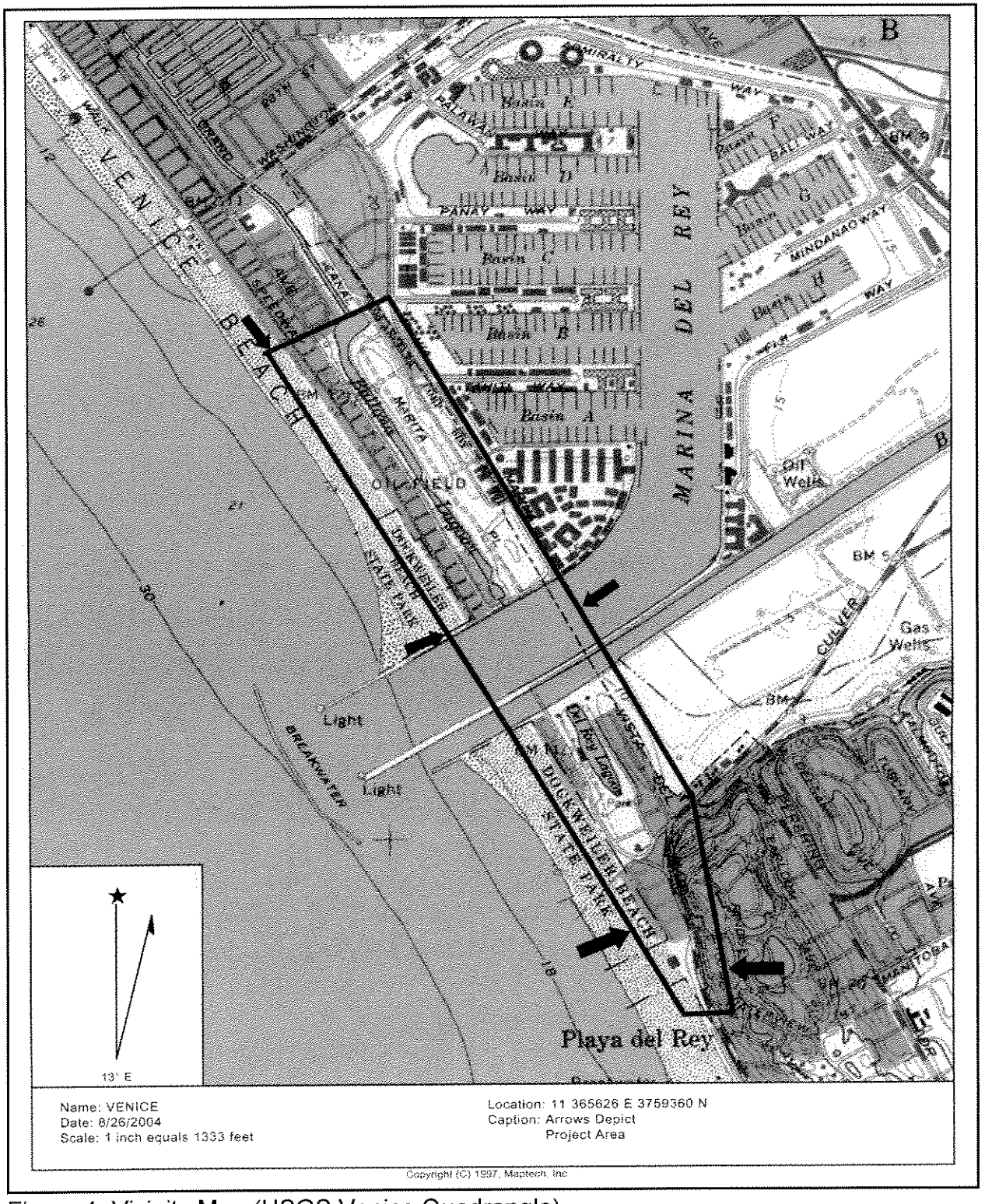

Figure 1. Vicinity Map (USGS Venice Quadrangle).

GENERAL LOCATION OF CULTURAL FINDINGS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 2

The alignment along Dockweiler Beach is open beach with residential units, apartments, condos, and single family residences on the east side (Figure 3). The housing is on the beach with some areas of sidewalk meeting the sand. The beach extends outward 900 feet west to the ocean. The Least Tern nesting area is present just north of the Marina del Rey Channel. The nesting area is rectangular and fenced with chainlink and barbed wire with clumps of vegetation present. The rest of the beach is manicured and contains volleyball courts, drainage pipes, and trash containers at selected points. The Dockweiler Beach alignment is covered with sand.

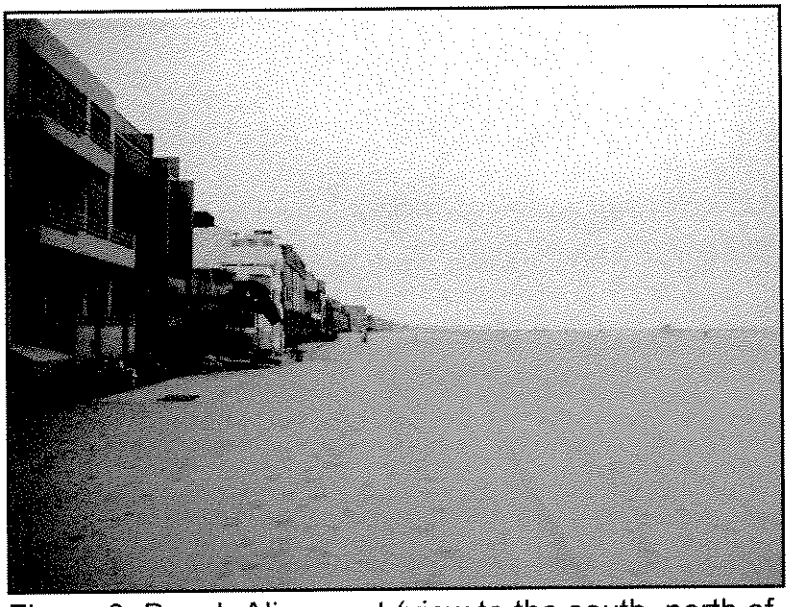

Figure 3. Beach Alignment (view to the south, north of the Channel).

South of the Channel

The combined alternatives south of the Marina del Rey channel include residential units, park areas, parking areas, sand dunes, commercial structures, and eroded bluffs near the southern terminus. The alignment follows Pacific Avenue which turns northeast at Culver Boulevard and transitions to Vista del Mar. A large residential unit is currently being constructed west of Vista del Mar near Surf Street. The beach area alignment is sand, two cement curvilinear paths, and sand dunes.

BACKGROUND

The following summary is based on the literature search conducted at the South Central Coastal Information Center, California State University, Fullerton for the Venice Dual Force Main project. It is designed both to indicate the potential for the presence of cultural resources within the project area, and to provide a context for any cultural data that may be present within the study area.

Prehistory

The archaeological record indicates that sedentary populations occupied the coastal and inland regions of California more than 9,000 years ago. Early periods were characterized by processing of hard seeds with the mano and milling stone and the use of the atlatl (dart throwers) to bring down large game, e.g., deer. Villages were typically around permanent water sources that allowed exploitation of a variety of different habitats for food. In the later periods, prior to the arrival of Europeans, the bow and arrow was in use, beads were being

used as money, trade and social networks had evolved, and the mortar and pestle were used to process acorns.

For the Ballona Lagoon area, one of the more significant research questions was the seeming lack of permanent village sites in the resource rich environment. Excavations at the Admiralty Site, CA-LAN-47, near the northeastern edge of Marina del Rey harbor, revealed that the Ballona area "appears to have been visited by small groups on short-term forays that targeted a wide spectrum of the region's abundant resources" (Altschul et al. 1992:376). It was theorized that "the dynamic nature of the ecosystem may have been so volatile that long-term dependence on the resources of the Ballona may have been perceived as too risky to base a sedentary subsistence strategy" and "exploited only on an opportunistic basis" (Altschul et al. 1992:375).

The Admiralty site is only one of several prehistoric sites located along the lower reaches of Ballona and Centinela creeks. Analysis of dated components suggests that a distinct break in settlement patterns occurs between Middle and Late Periods. During the Middle Period, settlement was restricted to bluff tops while Late Period usage appears to be limited and confined to the margin of the wetlands. This shift was probably triggered by environmental causes. As sedimentation increased in the Ballona, the open lagoon was transformed into a resource-rich estuary and marsh (Altschul et al. 1992:416).

Significant excavations have been carried out in the search area along the bluffs of Ballona Creek. Van Horn and his associates conducted a number of excavations at a series of sites (CA-LAN-59, -61, -63, -64, and -206) in the Del Rey Hills (Murray and Van Horn 1983;Van Horn 1984, 1987; Van Horn and Murray 1984, 1985). Brian Dillon conducted excavations in the Del Rey Hills at CA-LAN-61 and LAN-1018 (1982). In 1961 Keith Johnson investigated a portion of CA-LAN-47 and found numerous artifacts including harpoons, bone tools, choppers, hammerstones, and other items. Multiple burials were also encountered. Dillon (et al. 1988) did additional excavations on another part of CA-LAN-47 and found dense concentrations of artifactual and faunal materials. Statistical Research conducted data recovery where Dillon worked and recovered significant archaeological data, which led researchers to believe that the site was a series of temporary camps that were established along the lagoon at various times throughout the year when resources became available (Grenda et al. 1994:35). Excavation of a major burial ground (>300 individuals) is on-going in the area north of Lincoln Boulevard at the site of the Playa Vista housing development. These investigations serve to highlight the sensitivity of the area for archaeological materials.

Ethnography

Based on their association with the Spanish Mission establishment of San Gabriel Archangel, the Native American people described as inhabiting the region surrounding the project area are known as Gabrielino. These people were hunters and gatherers with permanent villages, specialized processing sites, formal cemeteries, and trade networks with local and non-local groups. It is believed that initially they practiced a seasonal

strategy, moving from location to location exploiting various food resources, but with technological advances they were able to maintain permanent year round villages with reliance on acorns and marine resources. At the time of European contact, the Gabrielino occupied an area that included the watersheds of the Los Angeles, San Gabriel, and Santa Ana rivers, the Los Angeles Basin, the coast from Orange County's Aliso Creek north to Topanga Canyon, and the Channel Islands of Santa Catalina, San Clemente, and San Nicholas (Bean and Smith 1978: Kroeber 1953; McCawley 1996). Several chronological frameworks have been developed for the Gabrielino region including those by Wallace (1955) and Warren (1968) and later, McCawley (1996).

Spanish Period

The Spanish Period of American history witnessed exploration of the New World from 1541 to 1769. Spanish explorers were searching for wealth, conquest, and adventure. After conquering the Aztecs in Central America, sailing expeditions undertaken by Hernando Cortes and his men surveyed and roughly recorded the coastlines of the western shores of the Pacific Ocean and the Gulf of California. Inland expeditions were undertaken by Coronado, de Alarcón, and Diaz through Arizona, New Mexico, Texas, and Kansas. Diaz explored the east side of the Colorado River in 1541, entering California in what is now Imperial County (Whitehead 1978). In 1542, Juan Rodrigues Cabrillo undertook a voyage along the Pacific coastline from Puerto de Navidad in Mexico to San Diego, reaching the Channel Islands and as far north as Monterey. Cabrillo met with the Native Americans living along the coast and ventured inland for a short distance. Native Americans related stories to Cabrillo that other contact with Spanish explorers along the Colorado River had resulted in violence and they were afraid of him and his men. Cabrillo died in 1543 and was buried on San Miguel Island. Bartolome Ferrelo continued the voyage to Gold Beach, Oregon and returned to Navidad when his ships needed repairs. Sebastian Vizcaino, backed by the Crown and Church, repeated much of Cabrillo's journey 60 years later. He brought with him four priests, who accurately recorded the coastline and bays and noted all aspects of the land and its peoples. Exploration ceased until Gaspar de Portolá's arrival in the area in 1769 (Whitehead 1978).

California had been claimed by Spain during the sixteenth century as part of the empire it was establishing in the New World. Fearing an invasion of the territory by Russians, Carlos III, King of Spain, ordered that settlements be made in Alta California (Whitehead 1978). To solidify their claims, the Spanish government fortified San Diego and Monterey and started to establish Mission outposts. In conjunction with the founding of the Missions, the Spanish governor of California, Felipe de Neve, ordered the establishment of several pueblos to provide food and goods to the presidios that would protect Alta California. One of these locations was Los Angeles, founded by colonists from Sinaloa and Sonora on September 4, 1781. With abundant good land, the town prospered and grew and by 1840, it was the largest settlement in California (Costello and Wilcoxon 1978:18). Grants of land were made to individuals who had made contributions to the Crown through service in the government or army or through other means. The lands granted, referred to as ranchos, really represented grazing rights for cattle. These individuals also purchased land around the center of the pueblo to establish homes to use when in town.

San Gabriel Mission was founded in September 1771. Padres baptized Native American Indians, calling them neophytes, and used their labor to produce items for trade and provide food. "San Gabriel Mission was recognized as the richest of the missions" (Black 1975:xvii), trading in hides and cattle. Records were kept by each Mission for all baptisms and marriages and it is from these records that we learn much of what occurred.

Mexican Period

Mexico declared independence from Spain in 1821, and the Los Angeles City Council was formed in 1822. Mission lands during the Mexican period were to be held in trust for the Indians. "The missions had never held title to the land" (Black 1975:190). Political maneuvering by the Spanish grantees, men like Tiburcio Tapia and Antonio Maria Lugo, forced a weak Governor Figueroa to issue "Provisional Regulations" allowing them to occupy the land (Black 1975).

The project area is in the southwest corner of the Rancho La Ballona that stretched inland from the ocean into what is now Palms and Culver City. The rancho contained 13,920 acres and was a land grant issued by the Mexican governor in 1839 to Ygnacio and Augustin Machado and Felipe and Tomas Talamantes (Cowan 1977:18). The early landowners who had accumulated great tracts of land to graze cattle were known as "Beef Barons" (Whitehead 1987:315). They grew quite rich and supported large families and large numbers of employees, many of them Native Americans. Commonly, they hired a majordomo to oversee the daily operations of the rancho. At the conclusion of the Mexican period, the Treaty of Guadalupe in 1848 specified "that Mexican citizens in the territory were guaranteed their property rights" (Black 1975:215).

American Period

Alta California became a state in 1850 with Monterey as the capital. It was during the American Period that men from the eastern and midwestern states settling in California found the means to acquire great wealth in a relatively short time, often by marrying the daughters of the Beef Barons. During the 1860s, the population grew rapidly, partly because many of the old rancho families lost title to their land, leaving a vacuum which was promptly filled by settlers from central and eastern United States. At Ballona Lagoon in the 1860s, squatters had set up a shack and supplied food, drink, and boats to duck hunters.

Moses Wicks, a land speculator believed the area had investment potential and purchased the property around the inlet of Ballona Lagoon. His intentions were to develop a harbor site that would compete with the Southern Pacific's monopoly on coastal traffic through San Pedro, Wilmington, and Santa Monica. The Santa Fe Railroad saw promise in this scheme and agreed to run track to the development. Wicks raised $300,000 and started dredging the harbor (Altschul et al. 1992:68). The first train arrived at Port Ballona on August 24, 1887 (Figure 4). Round the clock dredging, massive tides that swept the sand back into the harbor, storms, and hard soils eventually bankrupted the company and the plan failed (Playadelrey.com 2004).

In 1902, another investment firm announced the formation of the Beach Land Company which had teamed with Henry Barbour. Barbour owned 1,000 acres around the lagoon and renamed the community Playa del Rey (Figure 5). The intent was to develop a Venetian style resort. Sherman and Clark, who owned the Los Angeles Pacific Electric trolley line, extended it to the new resort. This led to an increase in lot sales but it never became a viable enterprise. The trolley company built the $200,000 Hotel del Rey with 50 guest rooms and a restaurant. A fishing pier, an incline railroad, boat course, a motordrome, grandstands, and other amenities drew in the crowds. In the early 1900s, a combination of natural and man-made disasters destroyed these attractions and the area settled into decline (Playadelrey.com 2004).

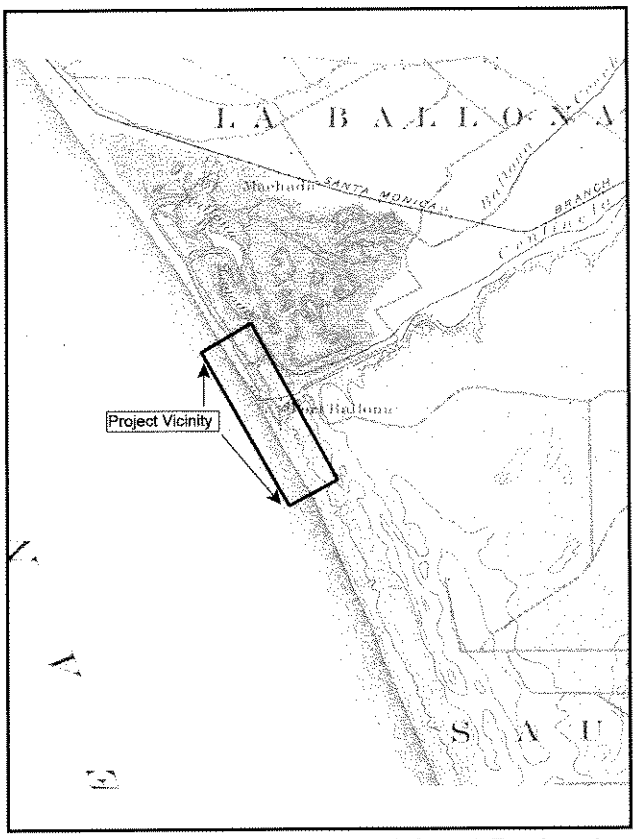

Figure 4. Port Ballona (USGS 15' Redondo Quadrangle, 1896).

The Ohio Oil Company hit a wildcat well east of Venice's Grand Canal in 1929, and drilling began throughout the area south of Washington Boulevard and west of Lincoln Boulevard. By the end of 1930, Playa del Rey, with more than 50 wells, was the fourth largest oil field in California (naid.sppsr.ucla.edu/venice/articles 2004) and by the end of 1931, there were 325 active oil wells in the Ballona Lagoon area. The 1923(1940) USGS Venice 7.5' quadrangle map depicts many of these wells (Altschul et al. 1991:69). At first, wells were located on artificially constructed islands in the wetlands, but increasing production led to the demand for channelization of the lower course of Ballona Creek,

Figure 5. Playa del Rey, ca. 1929 (Los Angeles Public Library).

completed by 1935. Otherwise, the area was subjected to little development by its primarily oil company owners.

A California State Division of Mines map (Gay and Hoffman 1954:Plates 5 and 6) shows the Playa del Rey oilfield extending southeast from Santa Monica Bay across the southern part of the city of Venice and into the Del Rey Hills. As of May 1, 1953, the Del Rey field had produced more than 56 million barrels of oil and 56 million cubic feet of gas since its inception in 1929 (Gay and Hoffman 1954:578-579).

The oil demands of World War II depleted most of the Playa del Rey wells, and they were dismantled during the 1950s and 1960s (Altschul et al. 1991:76). By 1953, there were 103 wells remaining (Gay and Hoffman 1954:578-579). Since 1942, natural gas has been piped into the depleted oil fields. Southern California Gas records indicate that billions of cubic feet of natural gas are being stored at pressures of 1700 pounds psi and above (www.saveballona.org).

In 1938 the Army Corps of Engineers channelized Ballona Creek which resulted in a loss of much of the lagoon. Dredging for the yacht harbor at Marina del Rey began in 1961. More of the lagoon was lost in the early 1960s when the entrance channel was cut for Marina del Rey.

Moses Wicks' dream of a harbor was studied several times and eventually revived by Chamber of Commerce President, Larry Norman. The problem of storms causing severe wave action was corrected by the construction of a breakwater at the channel mouth in January 1965 (Marinadelrey.com). Norman secured the funds and approvals, and the harbor was dedicated in April of 1965. After its official dedication in 1965, the marina became a huge success, raising property values and attracting residential and commercial development (Altschul et al. 1992:87-88). The character of the area changed from industrial to resort/residential.

The most current USGS Venice 7.5' quadrangle map [1964(1981)] depicts a remaining oil field within the Ballona Lagoon portion of the project area, as well as a few oil and gas wells on either side of Ballona Creek less than 1 mile inland from Dockweiler State Beach.

LITERATURE AND ARCHIVAL REVIEW

A review of available literature, archaeological site archives, and relevant historical maps was conducted at the South Central Coastal Information Center on July 14, 2004 by Linda Rehberger of Greenwood and Associates. The search area for the archival research was one-half mile around the boundaries of the project area to encompass any potential minor changes in design and provide a broader context to evaluate the sensitivity of any cultural resources encountered (Tables 1 and 2). Some of the sites in Table 1 were encountered in surveys that overlap the VPP but which are not located in this project area.

One archaeological site, CA-LAN-66, was recorded within or adjacent to the project area. It is located at the south end of Trolley Way, near Surf Street under what was the Westport Beach Club. The site was originally located by R. F. Van Valkenburgh and then informally recorded by Malcolm Farmer in 1936. Rozaire and Belous completed an archaeological site record in 1950 and the site was designated as CA-LAN-66. The record indicates that the "grounds of the Westport Beach Club are completely covered so that it is impossible to locate any signs of Indian occupation there" (Rozaire and Belous 1950). Vista del Mar is noted as being on the east side, possibly obscuring the remains. Van Valkenburgh was a noted archaeologist and it is probable that the site was of prehistoric origin. In 1980, another survey was conducted at the Westport Beach Club and no archaeological materials were observed (Singer 1980a). The Singer investigation focused on finding the site and confidence was high that it was destroyed sometime before 1950. It was reported that "the buildings and facilities which exist today are not the same as those which stood on the grounds in 1936, or in 1950 for that matter" (Singer 1980a:5). Monitoring was recommended if any ground disturbing activities were initiated. A State Parks archaeologist did a survey along Dockweiler State Beach and mapped the site location, as previously recorded, but made no comments about it (Woodward 1987). No follow-up reports were on file at the South Central Coastal Information Center.

Table 1. Summary of Archaeological Investigations, Venice Pumping Station Project Area.

Reference Number	Name of Project	Type of Investigation	Author/Date	Results
L-27	Del Rey/ Strand	EIR	Engineering Service Corp.	No impact
L-188	Evaluation of the area known as Tentative Tract 31351	EIR	Kaufman 1976	No impact
L-442	Silver Strand Tract, Marina Del Rey	Records search and survey	Clewlow 1979	No impact
L-630	Silver Strand Tract, Marina Del Rey	Record search and survey	Singer 1979	Negative
L-751	La Ballona Creek Area	Survey, EIR	Rozaire and Belous 1950	19-000066
L-798	Westpoint Beach Club in Playa Del Rey	Phase I report and excavation	Singer 1980a	19-000066 could not be located.
L-839	Baldwin Hills Campsites, Ballona Creek area	Survey	Farmer 1936	19-000068
L-1282	Playa Sol Project	Survey	Padon 1983	Negative

Table 1. Summary of Archaeological Investigations, Venice Pumping Station Project Area.				
Reference Number	Name of Project	Type of Investigation	Author/Date	Results
L-1626	Dockweiler State Beach	Survey	Woodward 1987	Negative, photos of historic buildings
L-3583	Compilation of Archaeological Site Information	Special study/ analysis - standardization report of all sites in the Los Angeles Basin	Bucknam 1974	All known sites listed by quadrangle
L-4865	Cultural Resource Assessment Facility No. SM 018-01	Records search	Duke 2001	Negative
L-4868	Sempra Energy Gas	Record search	Shepard, Mason, Lander 2000	19-000064, 19-000065, 19-000203, 19-000204, 19-000206
L-5556	Vista Del Mar, Culver Boulevard to Napoleon Street	Survey	Tillman 1977	Nothing historic, mentions an archaeological site

Table 2. Summary of Archaeological Investigations, Venice Pumping Station, Search Area.				
Reference Number	Name of Project	Type of Investigation	Author/Date	Results
L-436	Summa Corp.	Record search and survey	Pence 1979	19-000054, 19-000059, 19-000060, 19-000061, 19-000062, 19-000063, 19-000064, 19-000065, 19-000193, 19-000203, 19-000211, 19-000212, 19-000212, 19-000213, 19-000216, 19-001018
L-624	Corner of Via Dulce and Topsail	Records search and survey	Rosen 1979	No impact
L-682	120-126 Driftwood Street	Records search and survey	Greenwood 1980	Negative
L-846	3312 Pacific Avenue	Records search and survey	Singer 1980b	Negative

Table 2. Summary of Archaeological Investigations, Venice Pumping Station, Search Area.				
Reference Number	Name of Project	Type of Investigation	Author/Date	Results
L-873	373-375 Fowling Street	Records search and survey	Singer 1980c	No impact
L-1157	Job. No. 1GOL0601	Records search and survey	Dillon 1982	Negative
L-4868	Sempra Energy Gas	Record search	Shepard, Mason, Lander 2000	CA-LAN-64, -65, -203, -204, -206
L-4910	LAX	Survey	Raschke, Stadum and Bissell 1995	19-000202, 19-000214, 19-000691, 19-001118; NR#9200095, 74000522, 86001666
L-5556	Vista Del Mar, Culver Boulevard to Napoleon Street	Historic survey	Tillman 1977	Nothing historic, mentions an archaeological site
L-5559	AT & T Wireless Services Facility Number R319	Records search and survey	Lapin 2000a	19-001716, 19-000066
L-5561	Pacific Bell Wireless Facility	Records search and phase I survey	Lapin 2000b	Negative
L-5563	Request for Determination of Effect, 07-LA-187, P.M. 2.0/3.5	Road construction	US Department of the Interior, National Park Service	19-167308, 19-167310
L-5761	Facility No. Sm 018-01 (appears to be a duplicate)	Records search	Duke 2001	Negative

Historical maps consulted:

USGS Redondo Beach 15' Quadrangle, 1896, no structures.

USGS Redondo Beach 15' Quadrangle, 1944, 3 structures north of Ballona Creek; many structures south of Ballona Creek.

Persons/Organizations Contacted

Ms. Barbara Whitney, President, California Associations of Museums, Los Angeles.
Dr. Christopher Donnan, Director, Fowler Museum of Cultural History, UCLA.
Dr. Jerome Selmer, Executive Director, Southwest Museum, Los Angeles.
Mr. Jeffrey Rudolph, Executive Director, California Museum of Science and Industry, Los Angeles.
Dr. William Lee, Director, Los Angeles Maritime Museum, San Pedro.
Supervising Ranger, Malibu Lagoon State Beach, Malibu.
Ms. Louise Gabriel, President, Santa Monica Historical Society and Museum, Santa Monica.
Mr. Lawrence Jelinek, American Historical Association, Los Angeles.
Banning Residence Museum, Wilmington.
History and Heritage Committee, American Society of Civil Engineers, Los Angeles.
Dr. Thomas Andrews, Director, Historical Society of Southern California.
Dr. William Estrada, El Pueblo de Los Angeles Historic Park, Los Angeles.
Electric Railway Historical Association of Southern California.
Society of Architectural Historians, Los Angeles.

Native American Groups/Interested Parties

Native American Heritage Commission, Rob Wood, Sacramento.
Samuel Dunlap, Temecula.
Los Angeles City/County Native American Indian Committee, Ron Andrade, Los Angeles.
Ti'At Society, Cindi Alvitre, Reseda.
Gabrielino Tongva Indians of California Tribal Council, John Tomy Rosas, Marina del Rey.
Gabrielino/Tongva Tribal Council, Anthony Morales, San Gabriel.
Craig Torres, Santa Ana.
Coastal Gabrielino Diegueno, Jim Velasques, Riverside.
Gabrielino/Tongva Council/Gabrielino Tongva Nation, Santa Monica.
Gabrielino Band of Mission Indians of California, Susan Frank, Beaumont.
Gabrielino Tongva Indians of California Tribal Council, Robert Dorame, Culver City.
Gabrielino Tongva Indians of California Tribal Council, Mercedes Dorame, Malibu.

RESULTS OF THE INVESTIGATION

Archival Research

The archival research indicated that one archaeological site, CA-LAN-66, was present within the project alignment south of the Marina del Rey channel. Two previous investigations had concluded that the site had been destroyed (Rozaire and Belous 1950; Singer 1980a) by development.

The area surrounding the project alignments can be characterized as highly sensitive for archaeological sites with six known archaeological sites (CA-LAN-47, -66, -1118, -1716, -1970, and -100116) within a half mile of the project alignments.

Persons Contacted

The Native American Heritage Commission (Wood 2004) reported that the "Village of *Sa'aanga*, including recorded archaeological sites CA-LAN-63, -64, -65, -203, 204, and 206a are in the vicinity" of the Venice Pumping Plant Project. These sites are in the Del Rey hills and are outside of this record search boundary. Johnson (1991) believed that *Sa'aanga* was not a village but either a Gabrielino placename or a Gabrielino settlement of Indian laborers associated with one of the Spanish/Mexican ranchos in the Ballona vicinity.

Field Survey

The field survey was conducted on July 26 and 29, 2004 by John M. Foster, RPA. The record search for the project area indicated that the general area was sensitive for archaeological resources. The project area was surveyed by zigzaging the alignments, checking all open ground, and examining erosional cuts, rodent burrows, and construction sites along the way.

Alternatives North of the Channel

Pacific Avenue Alignment

Marine shell was noted in planters and isolated sections of open ground.

Dockweiler Beach Alignment

Marine shell was noted in beach sand along the entire alignment.

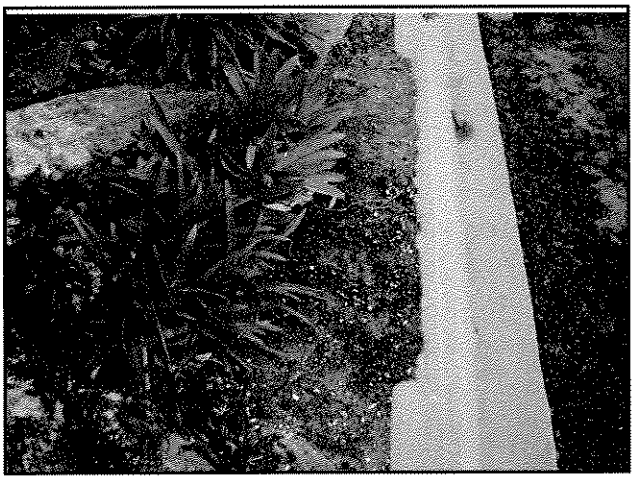

Figure 6. Shell Fragments in Median on Via Marina.

Marquesas Way-Via Marina

Marine shell was noted in planters, street median (Figure 6), and isolated sections of open ground.

Alternatives South of the Channel

Pacific Avenue Alignments

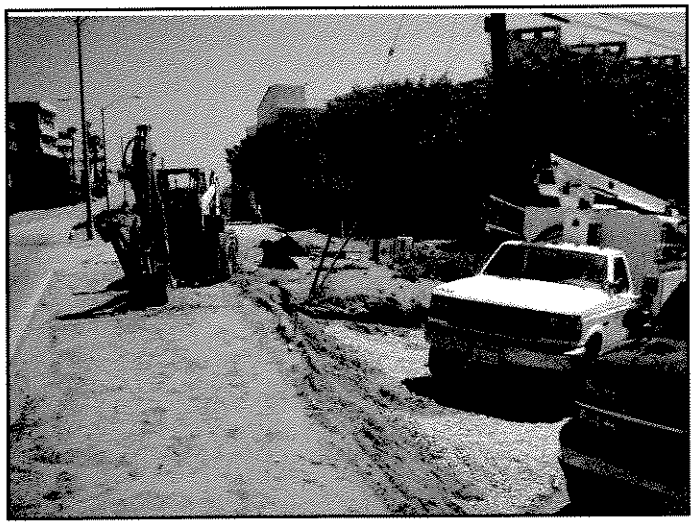
Figure 7. Utility Pole near CA-LAN-66.

The location of the recorded archaeological site, CA-LAN-66, was intensively examined for evidence of cultural remains. Based on the mapping of the site on the USGS Venice Quadrangle, it would appear that the majority of the site is under a housing development in construction. Previous investigations (Rozaire and Belous 1950; Singer 1980a) had failed to find any evidence of the site and had reasoned it had been destroyed by development. During the field survey, the site location was visited. The site area is under active construction for multiple residential units. The only area that was accessible was a small triangular section of open ground around a utility pole at Vista del Mar and the northwestern corner of the new housing development (Figure 7). Three fragments of weathered shell were observed, two unidentifiable pieces of marine shell and one piece of *Amiantis callosa*.

The survey of the rest of the alignment encountered weathered shell in every location where soil could be observed including a small hill at the southern terminus of the alignment.

Dockweiler Beach Alignment

Marine shell was noted in beach sand along the entire alignment.

The presence of marine shell can be indicative of cultural activities and its prevalence within the project area warranted research into its origin. The archival research had identified several surveys that have been conducted within 0.5 mile of the project area. Many of these studies encountered marine shell which provided identifications (Table 3).

Table 3. Shell Species Identified in Project Search Area				
Shell Species	Survey Authors			
	Dillon 1982	Rosen 1979	Singer 1979	Current Investigation
Tivela stultorum		x		
Argopecten aequisulcatus		x		x
Cerithidea californica	x	x		x
Chione sp.	x	x	x	x
Macoma nasuta		x	x	x
Mytilus californianus		x		
Ostrea lurida	x	x	x	x
Polinices sp.		x		
Solen rosacens	x			
Protothaca staminea	x			
Plagioctenium circularis aquisulcatus			x	
Petricola pholadiformus			x	
Tagelus californianus			x	x
Amiantis callosa				x
Chama arcana				x

Extremely weathered fragments of clam shell were encountered in one survey and the investigator thought their condition suggested old or beach rolled specimens, possibly fossils (Singer 1980b:3). No artifacts or bones were observed and no obvious soil discoloration. In an earlier report, Singer had encountered shell species west of Via Marina. He reported that "these shells appear to be relatively fresh...not associated with any prehistoric or early historic features," and "the shells are of all sizes and do not appear to be human food remains" (Singer 1979:6).

In another survey where shellfish remains were observed, it was the opinion of the investigator that the shell was brought in with fill, although he indicated that the parcel investigated was 3-4 feet below adjacent properties (Rosen 1979). Dr. Charles Rozaire

conducted a survey on Via Dolce, just west of Via Marina, and noted "presence of shellfish remains in concentrations referred to as middens" and "the area in question does have evidence of shell ranging from a few scatterings to heavy concentrations, the latter being in the southeast portion." He believed that the "occurrence of these shells is the result of dredging, dumping and leveling and natural causes rather than due to ancient man's occupation" (Rozaire 1974). He noted that there was an absence of the "usual cultural debris such as stone flakings and food bone refuse in addition to any artifacts."

North of the project area, Dillon reported finding concentrations of shell species. He noted that "this combination of shellfish populations does not normally occur in nature (Dillon 1982). As supporting evidence, he indicated that no man-made artifacts were found in association with the shells and that the most common food source of these Indians, mussels, was not found, while *Cerithidea californica* was not eaten by these Indians. Rozaire's report (1974) was cited as evidence of dumping, filling, and leveling of the area.

In the only excavation conducted within the harbor area of Marina del Rey, the Admiralty Site yielded considerable quantities of shellfish. Seven major species of economic value were reported: *Chione californiensis, Chione undatella, Chione fluctafraga, Ostrea lurida, Argopecten aeqisulcatus, Protothaca staminea,* and *Tresus nuttalli.* Pismo clam, abalone, mussel, and white venus, which are uncommon in lagoons, were found in such small numbers that they are a minor component of the analysis. Seventeen species of noneconomic mollusks were recovered from the site but in such small amounts that they would not have been a focus of shellfish collecting activities (Altschul et al. 1992:293).

CONCLUSIONS

The archival research indicated the presence of one recorded archaeological site, CA-LAN-66 within the project area. Various studies of the site area failed to document any shellfish remains, artifacts, or other cultural features. Two of the studies (Rozaire and Belous 1950; Singer 1980a) concluded that the site had probably been destroyed. The area was resurveyed in this investigation and three fragments of weathered shell were observed adjacent to Vista del Mar. Van Valkenburgh, who had originally identified the site, was a respected archaeologist and it is likely that he had found some evidence of prehistoric usage. What is clear is that the mapped boundaries of the resource have been repeatedly built over, probably destroying most of it or at least seriously affecting its integrity. The three fragments of shell found adjacent to Vista del Mar may indicate survival of archaeological remains or simply be part of the pervasive "background shell" present throughout the project area.

Based on the analysis of shellfish remains by various investigators, it is likely that the pervasive scattering of marine shell is the result of dredging, dumping, and leveling as postulated by Rozaire (1974). The history of the project area demonstrates that the area has been significantly modified through various construction efforts including development of Port Ballona in 1887 and culminating in the creation of Marina del Rey in the 1960s. The absence of artifacts, archaeological features, and ecofacts typical of prehistoric

occupation or usage are the key components that would distinguish whether or not the shellfish remains are cultural. While the area has been the scene of significant development, the discovery of the Admiralty Site, CA-LAN-47, with its assemblage of prehistoric tools, human burials, and food remains is a cautious reminder that there are prehistoric sites in the immediate area.

EVALUATION OF IMPACTS

According to CEQA Guidelines, impacts are defined as those results that are directly attributable to the project and which occur at the same time and place. Direct impacts are those that may result from the immediate disturbance of resources, whether from vegetation removal, demolition of structures, earth-moving activities, or excavation. A project with an effect that may cause a substantial adverse change in the qualities that contribute to the significance of an historical or prehistoric resource is a project that may have an effect on the environment (CEQA 15064.5[b]). Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation or alteration of the resource or its immediate surroundings such that the significance of the resource would be materially impaired.

Since project development will entail surface and subsurface disturbance of the ground, the proposed development of the sewer alignment has the potential to cause a significant impact on unknown cultural resources. The potential for permanent effects to occur to cultural resources would be related to such project activities as grading, cutting and filling, excavation, trenching, augering, pile driving, utility installation, landscaping, or other pre-construction or construction process which disturbs, removes, or destroys an historic property. Permanent effects may also be caused by damage or disturbance of previously unknown resources that are unexpectedly encountered during subsurface activities or construction. For deposits or features that will be buried or covered by new construction, the effect will be lack of access of these resources for research or public interpretation.

CA-LAN-66

One archaeological site is recorded in the vicinity of the southern alignment at Vista del Mar. The location of the site has been repeatedly impacted by development. It is possible that if the location retains any integrity, then remnants may be present under pavement of Vista del Mar. However, in our opinion, there is insufficient evidence that a cultural resource is present and no impacts are expected.

RECOMMENDATIONS

The preferred mitigation for impacts to cultural resources is preservation by avoiding areas where cultural resources are known to exist, wherever possible. When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented. If previously unknown cultural resources are encountered during site clearance and preparation, or during project

construction, and they cannot be avoided, then contingency measures must be in place to react promptly to protect these resources and ameliorate the impacts to a level of not significant.

There are two recommendations that can be made:

1. Monitor all construction in the vicinity of CA-LAN-66 by an archaeologist qualified to recognize and assess both prehistoric and historical resources; and

2. Develop a contingency plan for addressing unanticipated new discoveries; evaluate and report any additional resources encountered either through monitoring or trenching.

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Figure 1 Topographic/surficial geologic/paleontologic resource sensitivity map, proposed Venice Pumping Plant Dual Force Main Project site, Los Angeles, Los Angeles County, California 7

SECTION 1

INTRODUCTION

1.1 BACKGROUND

Paleontologic resources include fossil remains, fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata. This technical report summarizes the results of the paleontologic resource inventory/impact assessment conducted by Paleo Environmental Associates, Inc. (PEAI), in support of the proposed Venice Pumping Plant Dual Force Main Project environmental impact report (EIR). The City of Los Angeles, the CEQA lead agency for the project, has required this inventory/impact assessment be conducted because of the potential for fossil sites and remains being encountered by earth-moving activities associated with project construction.

1.2 PERSONNEL

This technical report was prepared by Dr. E. Bruce Lander, a paleontologist with PEAI, Altadena, California. Dr. Lander has a Ph.D. degree in paleontology and has conducted research, authored published scientific contributions, and prepared environmental impact review documents on the paleontologic resources of California in support of other major construction projects, including a number of major earth-moving projects in the project site vicinity. Dr. Lander conducted the literature review, archival search, and field survey for this report.

SECTION 2

ENVIRONMENTAL SETTING

The Venice Pumping Plant Dual Force Main Project consists of three alignments (Marquesas Way/Via Marina, Pacific Avenue, Dockweiler Beach) that lie in the Venice Beach-Marina del Rey and Dockweiler Beach-Playa del Rey areas of Los Angeles and cross the Marina del Rey inlet channel and Ballona Creek (see Figure 1). The project site occupies the unsurveyed portion of Township 2 South, Range 15 West of the San Bernardino Base and Meridian. Topographic map coverage of the project site is provided at a scale of 1:24,000 by the United States Geological Survey (USGS) Venice Quadrangle, California—Los Angeles Co., 7.5 Minute Series (Topographic) (1964, photorevised 1981). Except for portions of the Dockweiler Beach Alignment and where the three alignments cross the Marina del Rey inlet channel and Ballona Creek, the entire project site is covered by urban development, mostly roadways. One alignment will be selected for construction

Paleontologic resources of the project site include sedimentary or stratigraphic rock units that immediately underlie the surface and have a potential for yielding particular types of fossil remains because they have yielded similar fossil remains at previously recorded fossil sites near the project site. Fossils, the remains or indications of once-living organisms, are a very important scientific resource because of their use in 1) documenting the evolution of particular groups of organisms, 2) reconstructing the environments in which they lived, 3) and in determining the ages of the strata in which they occur and of the geologic events that resulted in the deposition of the sediments constituting these strata.

2.1 METHODS

The following tasks were conducted to develop a baseline paleontologic resource inventory of the project site by rock unit, and to assess the potential paleontologic productivity and the paleontologic/scientific importance of each rock unit, these assessments being based on the fossil remains previously recorded from the rock unit in the project site vicinity. These tasks were completed in compliance with Society of Vertebrate Paleontology (SVP, 1995) guidelines for assessing the scientific importance of the paleontologic resources in an area of potential environmental effect.

2.1.1 Stratigraphic Inventory

Geologic maps and reports covering the surficial geology of the project site were reviewed 1) to determine the rock units present at the project site, particularly those rock units known to be fossiliferous, and 2) to delineate their respective areal distributions.

2.1.2 Paleontologic Resource Inventory

Published and unpublished geologic and paleontologic literature was reviewed to document the number and locations of previously recorded fossil sites at and near the project site from each rock unit present at the project site, and the types of fossil remains the rock unit has produced locally. The literature review was supplemented by an archival search conducted at the Natural History Museum of Los Angeles County Vertebrate Paleontology Department (LACMVP) for additional information regarding the occurrences of fossil sites and remains at and near the project site. A field survey of the project site was conducted 1) to determine the condition of any previously recorded site at the project site, 2) to document the presence of any unrecorded fossil site, and 3) to substantiate the presence of strata suitable for containing fossil remains.

2.1.3 Paleontologic Resource Assessment Criteria

The paleontologic importance (high, moderate, low, none, undetermined) of a rock unit present at the project site is the measure most amenable to assessing the scientific importance of the paleontologic resources of the project site because the areal distribution of a rock unit can be delineated on a topographic map. The paleontologic importance of a rock unit reflects 1) its potential paleontologic productivity and 2) the scientific importance of the fossils it has produced locally.

The potential paleontologic productivity (high, moderate, low, none, undetermined) of a rock unit present at the project site is based on the abundance/densities of fossil specimens and/or unrecorded/previously recorded fossil sites in exposures of the unit at and near the project site. Exposures of a specific rock unit at the project site are most likely to yield fossil remains representing particular species in quantities similar to those previously recorded from the unit at and near the project site, or to contain fossil sites at similar densities. The criteria for establishing the potential paleontologic productivity of a rock unit present at the project site are described below.

1) High potential: rock unit contains comparatively high density of unrecorded/previously recorded fossil sites and has produced numerous fossil remains at and/or near project site, and is very likely to yield additional similar remains at project site.

2) Moderate potential: rock unit contains relatively moderate density of unrecorded/previously recorded fossil sites and has produced some fossil remains at and/or near project site, and is somewhat likely to yield additional similar remains at project site.

3) Low potential: rock unit contains no or comparatively low density of previously recorded fossil sites and has yielded very few or no fossil remains near project site, and is not likely to yield any remains at project site.

4) Undetermined potential: rock unit has limited or no exposure at and/or near project site, is poorly studied, contains no previously recorded fossil site, and has produced no fossil remains near project site. However, in project site region, same or correlative and/or lithologically similar rock unit contains sufficient recorded fossil sites to suggest rock unit at project site has at least a moderate potential for containing unrecorded fossil sites (note: elsewhere in California, exposures of rock units with few or no previously recorded fossil sites have recently proven abundantly fossiliferous during surveying, monitoring, or processing of fossiliferous rock samples as part of mitigation programs for other earth-moving projects).

5) No potential: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units with no potential for containing any unrecorded fossil site or yielding any fossil remains.

A fossil specimen is considered scientifically highly important if it is 1) identifiable, 2) complete, 3) well preserved, 4) age diagnostic, 5) useful in environmental reconstruction, 6) a type or topotypic specimen, 7) a member of a rare species, 8) a species that is part of a diverse assemblage, and/or 9) a skeletal element different from, or a specimen more complete than those now available for its respective species. Identifiable fossil land mammal remains, for example, are considered scientifically highly important because of their potential use in providing very accurate age determinations and environmental reconstructions for the rock units in which they occur. The geologic age of some fossil mollusk and land mammal and plant remains can be determined by carbon-14 dating analysis. Moreover, land mammal and plant remains are comparatively rare in the fossil record.

Using the definitions presented above, the paleontologic or scientific importance of a rock unit present at the project site would be assessed using the following criteria.

1) High importance: rock unit has comparatively high potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at project site similar to those previously recorded from rock unit at and/or near project site.

2) Moderate importance: rock unit has relatively moderate potential for containing unrecorded fossil sites and for yielding scientifically important fossil remains at project site similar to those previously recorded from rock unit near project site.

3) Low importance: rock unit has comparatively low potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at project site.

4) Undetermined importance: rock unit for which too few data are available from project site and vicinity

to allow an accurate assessment of its potential for containing any unrecorded fossil site or for yielding any scientifically important fossil remains at project site.

5) No importance: unfossiliferous artificial fill and igneous and high-grade metamorphic rock units having no potential for containing any unrecorded fossil site or for yielding any fossil remains.

Note, however, that any fossil site containing identifiable fossil remains and the fossil-bearing strata are considered highly important paleontologically, regardless of the paleontologic or scientific importance of the rock unit in which the site and strata occur.

The following tasks were completed to establish the paleontologic importance of each rock unit present at the project site.

1) The scientific importance of fossil remains recorded from a rock unit present at the project site was assessed.

2) The potential paleontologic productivity of the rock unit was assessed, based on the density of fossil remains and/or previously recorded and newly documented fossil sites it contains at and/or near the project site.

3) The paleontologic importance of the rock unit was assessed, based on its documented and/or potential fossil content at the project site.

This method of resource assessment is the most appropriate for an areal paleontologic resource investigation of the project site because discrete levels of paleontologic importance can be delineated on a topographic/geologic map.

2.2 RESULTS

2.2.1 Stratigraphic Inventory

The project site lies on the western shelf of the Cenozoic Los Angeles Basin (Wright, 1991), which, in turn, is situated at the northwestern corner of the Peninsular Ranges Province, where major linear geographic features (mountains, valleys) and the underlying geologic structures (faults, folds) trend in a northwesterly direction (see Jahns, 1954). The western shelf is composed of sedimentary or stratigraphic rock units consisting of late Cenozoic marine and stratigraphically overlying nonmarine strata reflecting the final filling of the basin and its accompanying emergence above sea level.

Regional surficial geologic mapping of the project site and vicinity is provided by Jennings (1962) at a scale of 1:250,000. Larger-scale (1:31,680) geologic mapping of the area by Poland and others (1959) indicates that the project site is underlain by three Quaternary rock units. In ascending stratigraphic order, these rock units include the Pleistocene marine Palos Verdes Sand and Holocene dune sand, which form the lower portion of the bluff at the southeastern corner of the project site; and by Holocene coastal deposits, which underlie the remaining flat-lying portion of the project site. A surficial geologic map of the project site is presented at a scale of 1:24,000 in Figure 1.

2.2.2 Paleontologic Resource Inventory and Assessment by Rock Unit

An inventory of the paleontologic resources of the rock units present at the project site is presented below, and the scientific importance of these resources is assessed. Although neither the literature review, the archival search, nor the field survey conducted for this inventory documented any previously recorded fossil site as occurring at the project site, a number of previously recorded fossil sites were documented as occurring in areas mapped as being underlain by these rock units near the project site. The fossil remains from some of these fossil sites were uncovered as a result of earth-moving activities associated with other major construction projects.

2.2.2.1 Palos Verdes Sand.—Although no previously recorded fossil site is reported as occurring in the Palos Verdes Sand at the project site, abundant fossilized remains representing a taxonomically highly diverse assemblage

consisting of more than 300 species of Pleistocene marine invertebrates, a number of marine vertebrate species, and one land mammal species, was recovered at a fossil site in the Palos Verdes Sand at LACMVP fossil site 1024 (= Natural History Museum of Los Angeles County Invertebrate Paleontology Department (LACMIP) fossil site 59), approximately 1.7 miles east of the project site at the intersection of Lincoln Boulevard and Cabora Drive, which overlies the North Outfall Sewer. This fossil site was discovered as a result of trenching for the sewer. The taxa represented by the fossil remains recovered at the fossil site include bryozoans (moss animals), tusk shells, snails, clams, barnacles, crabs, sand dollars, sea urchins, sharks, rays, fishes, birds, seals, porpoises, and a gopher (Jefferson, 1991a; Lander, 1990, 2003; Miller and DeMay, 1942; Willett, 1937). LACMVP fossil site 1024 is the type locality for one of the extinct species of bird. Poland and others (1959) considered the fossil-bearing interval to be a sandstone layer constituting the lower 6 feet of the Palos Verdes Sand. Two additional fossil sites that yielded the fossilized shells of marine clams occur along Lincoln Boulevard, very near the previous fossil site (Lander, 1990, 2003).

The occurrence of several previously recorded fossil sites near the project site suggests that there probably is a high potential for additional similar, scientifically highly important fossil remains at the project site being encountered by earth-moving activities at unrecorded fossil sites in the Palos Verdes Sand. Identifiable fossil remains recovered from this rock unit at the project site would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. Moreover, the recovery of remains representing environmentally sensitive species would be critical in paleoenvironmental and habitat reconstruction. Finally, the remains would contribute to a more comprehensive documentation of the diversity of animal life that existed at and near the project site during the Pleistocene Epoch.

2.2.2.2 Dune Sand.—Although no previously recorded fossil site is reported as occurring in the dune sand at the project site, fossilized remains representing an extinct species of elephant might have been recovered from this rock unit at LACM fossil site 3264, which was encountered at a depth of 25 feet below previous grade approximately 2.4 miles east-southeast of the project site at Los Angeles International Airport. However, the fossil site also might have been in the stratigraphically underlying terrace cover, which is mapped with the Palos Verdes Sand and has yielded the fossilized bones and teeth of extinct species of land mammals, including mastodon, mammoth, horse, bison, and rabbit, near the airport at LACM fossil sites 1180, 3789, 4942, and 7332 (Jefferson, 1991b; Miller, 1971). These sites were encountered at depths 13.5 to 16 feet below previous grade. The occurrence of fossilized remains representing an extinct species of Pleistocene bison (*Bison*), which defines the beginning of the Rancholabrean North American Land Mammal Age (NALMA) (Savage, 1951), indicates that the terrace cover is Rancholabrean in age.

The possible occurrence of only one previously recorded fossil site near the project site suggests that there is an undetermined (but probably no more than moderate) potential for additional similar, scientifically highly important fossil remains at the project site being encountered at depth by earth-moving activities at unrecorded fossil sites in the dune sand. However, any identifiable fossil remains recovered from this rock unit at the project site would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. Moreover, there is a potential for encountering land mammal remains representing species rarely if ever recorded from the rock unit or the immediate project site vicinity. In addition, the recovery of remains representing age-diagnostic species or whose age can be determined by carbon-14 dating analysis would be critical in determining if the rock unit is assignable partly to the Rancholabrean NALMA or is entirely Holocene in age, while the remains of environmentally sensitive species would be critical in paleoenvironmental and habitat reconstruction. The remains also would contribute to a more comprehensive documentation of the diversity of animal life that existed at and near the project site during the Pleistocene and/or Holocene Epochs. Finally, land mammal remains also are scientifically highly important because such remains are comparatively rare in the fossil record.

The potential for fossil remains being encountered at and very near the surface is considered to be only low because any remains encountered at such shallow depths probably would be too young to be considered fossilized.

2.2.2.3 Coastal Deposits.—Although no previously recorded fossil site is reported as occurring in the coastal deposits at the project site, fossilized shells of marine mollusks were encountered below the water table at depths of

2 to 31 feet below previous grade in 28 borings from Playa Vista, immediately east of the project site, and fossilized wood was encountered in one of the borings at a depth nearly 70 feet below previous grade (Converse Consultants, Inc., 1981; Lander, 1990, 2003; LeRoy Crandall and Associates, 1988).

During the field survey conducted in support of this inventory, the shells of marine snails and clams of presumed Holocene age were observed on the embankment above Ballona Lagoon. However, it was not possible to determine if the shells were derived from undisturbed strata (if any) exposed along the embankment, or were in spoils excavated from the lagoon.

The occurrence of numerous previously recorded fossil sites near the project site suggests that there is a high potential for additional similar, scientifically highly important fossil remains at the project site being encountered by earth-moving activities at unrecorded fossil sites in the coastal deposits. Identifiable fossil remains recovered from this rock unit at the project site would be particularly important if they represented a new or rare species; geologic (temporal) and/or geographic range extension; new taxonomic record for the rock unit; age-diagnostic species; and/or a skeletal element different from, or a specimen more complete than those now available for its respective species. Moreover, the recovery of remains representing age-diagnostic species or whose age can be determined by carbon-14 dating analysis would be critical in determining if the rock unit is partly Pleistocene or entirely Holocene in age, while the remains of environmentally sensitive species would be critical in paleoenvironmental and habitat reconstruction. In addition, the remains of environmentally sensitive species would be critical in paleoenvironmental and habitat reconstruction. Finally, the remains would contribute to a more comprehensive documentation of the diversity of animal life that existed at and near the project site during the Pleistocene and/or Holocene Epochs.

The potential for fossil remains being encountered at and very near the surface is considered to be only low because any remains encountered at such shallow depths probably would be too young to be considered fossilized.

SECTION 3

ENVIRONMENTAL IMPACTS

3.1 CONSTRUCTION PHASE IMPACTS

Paleontologic resources, including an undetermined number of fossil remains and unrecorded fossil sites; associated specimen data and corresponding geologic and geographic site data; and the fossil-bearing strata, could be adversely affected by (i.e., would be sensitive to) the significant direct and indirect environmental impacts resulting from earth-moving activities associated with project construction in the selected alignment.

Direct impacts would result mostly from earth-moving activities (primarily trenching and boring for pipeline) in previously undisturbed strata. Although earth-moving activities would be comparatively short term, the possible accompanying loss of some fossil remains, unrecorded fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata is a potentially significant long-term adverse environmental impact.

Easier access to fresh exposures of fossiliferous strata and the accompanying potential for unauthorized fossil collecting by construction personnel, rock hounds, and amateur and commercial fossil collectors could result in the loss of some additional fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data. The loss of these additional paleontologic resources is another potentially significant long-term (but indirect) environmental impact.

3.1.1 Significance Criteria

The following tasks were conducted in compliance with SVP (1995) guidelines for assessing the significance of construction-related adverse environmental impacts on paleontologic resources, or the paleontologic sensitivity of a particular rock unit to adverse impacts.

The paleontologic significance (high, moderate, low, none, undetermined) of the potential adverse impacts of earth-moving activities on the paleontologic resources of each rock unit present at the project site was assessed and reflects the paleontologic or scientific importance/impact sensitivity of the rock unit, which, in turn, primarily reflects the potential for fossil remains and fossil sites being encountered by these activities. Note, however, that any impact on a fossil site and the fossil-bearing strata would be considered highly significant paleontologically, regardless of the paleontologic importance of the rock unit in which the site and strata occur. For example, trenching in an area underlain by a moderately important rock unit would have only a moderate potential for the disturbance or burial of fossil remains and sites (i.e., the rock unit would be moderately sensitive to adverse impacts). Although the accompanying loss of any fossil remains and site would be a highly significant impact paleontologically, the impact of earth-moving activities would be considered only moderately significant because of the moderate potential for the loss of paleontologic resources. This method of impact assessment is most appropriate to an areal paleontologic resource investigation of the project site because discrete levels of paleontologic impact sensitivity/significance can be delineated on a topographic/geologic map of the project site.

A paleontologic resource impact sensitivity assessment of the project site is presented below and on the geologic map of the project site included as Figure 1.

3.1.2 Impact Assessment

3.1.2.1 Palos Verdes Sand.—The Palos Verdes Sand has yielded abundant fossil remains at several previously recorded fossil sites near the project site. For this reason, adverse environmental impacts on the paleontologic resources of the Palos Verdes Sand that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

3.1.2.2 Dune Sand.—The dune sand possibly has yielded fossil remains at only one previously recorded fossil site near the project site. For this reason and because this fossil site was encountered at depth, adverse environmental impacts on the paleontologic resources of the dune sand that would result from earth-moving activities at the project site would be considered to be of undetermined (but probably no more than moderate) paleontologic significance at depth because the potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities is undetermined.

On the other hand, any adverse environmental impact on the paleontologic resources of the dune sand that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the dune sand probably is too young at and near the surface to contain remains old enough to be considered fossilized.

3.1.2.3 Coastal Deposits.—The coastal deposits have yielded fossil remains at numerous previously recorded fossil sites near the project site. For this reason and because these fossil sites were encountered at depth, adverse environmental impacts on the paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

On the other hand, any adverse environmental impact on the paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

3.2 OPERATIONAL PHASE

There would be no impact on paleontologic resources during the operational phase of the project if there were no earth-moving activity.

3.3 CUMULATIVE IMPACTS

Development of the project site, in combination with other projects in the region where a project site is underlain by the Palos Verdes Sand might lead to the progressive loss of fossil-bearing strata in these rock units that could be prospected for fossil remains and unrecorded fossil sites. The loss of these additional paleontologic resources is another potentially significant long-term adverse environmental impact.

SECTION 4

MITIGATION MEASURES

4.1 CONSTRUCTION PHASE

The following measures comprise a paleontologic resource impact mitigation program that would reduce, to an insignificant level, the direct, indirect, and cumulative adverse environmental impacts on paleontologic resources that might accompany earth-moving activities (primarily trenching and boring for pipeline) associated with project construction in the selected alignment. The program would allow for the recovery of some scientifically highly important fossil remains, should any be encountered by these activities, as well as associated specimen data and corresponding geologic and geographic site data; their preservation in a recognized museum repository; and their availability for future study by qualified scientific investigators. These specimens and data otherwise might have been lost to the earth-moving activities and unauthorized fossil collecting. Specimen recovery would be allowed under CEQA Appendix G (5.c).

4.1.1 Mitigation Program Design Criteria

The recommended level and type of mitigation effort in a particular area of the project site reflects the paleontologic importance/impact sensitivity of the rock unit underlying the area and the corresponding potential for fossil remains being encountered by earth-moving activities at the project site, the type of rock comprising the rock unit, the type or earth-moving activity, and the magnitude of the impact that would occur in the area. For example, trenching in an area underlain by a paleontologically highly important rock unit or one containing a fossil site would require more intensive paleontologic construction monitoring than trenching in an area underlain by a rock unit of moderate, low, or undetermined paleontologic importance. Monitoring would not be required in an area underlain by artificial fill or a rock unit of no paleontologic importance (unless a rock unit of higher importance would be encountered at depth), or one in which a rock unit would be buried, but not otherwise disturbed. No rock sample would be processed if the rock were too coarse grained or resistant to breaking down in water.

The discovery and subsequent recovery of fossil remains as part of the mitigation program might result in a slight delay of some earth-moving activities. However, the mitigation measures presented below have been designed to eliminate or reduce any delay to the greatest extent possible by 1) ensuring that a paleontologic construction monitor would be present when and where fossil remains were most likely to be uncovered by earth-moving activities; 2) allowing for the rapid recovery of fossil remains, should any be encountered by these activities, and associated specimen and site data; and 3), if necessary, diverting the activities temporarily around a newly discovered fossil site until the remains had been removed by the monitor and the activities allowed to proceed through the site. Similar paleontologic resource impact mitigation programs usually have resulted in no delay of earth-moving activities.

4.1.2 Beneficial Environmental Effects of Mitigation Program

If the paleontologic resource impact mitigation program detailed below were implemented, earth-moving activities at the project site might produce some beneficial effects. The fresh exposure of fossil-bearing strata would allow for the discovery of an undetermined number of unrecorded fossil sites and the recovery of some scientifically highly important fossil remains that otherwise might not even have been exposed without these activities. Moreover, these remains and associated specimen data and corresponding geologic and geographic site data, instead of being lost to earth-moving activities or to unauthorized fossil collecting, would be preserved in a museum repository, where they would be made available to qualified scientific investigators for future study. There also is the potential that some of these remains might represent new or rare species; new geologic or geographic records; and/or skeletal elements different from, or specimens more complete than those now available for their respective species. Finally, these remains would provide a more comprehensive paleontologic resource inventory of the project site and vicinity than is now available or would have been available without the project.

4.1.3 Qualifications of Paleontologist Conducting Mitigation Program

All mitigation measures presented below should be directed by a vertebrate paleontologist approved by the City of

Los Angeles and LACMVP. The paleontologist should have substantial experience designing and conducting paleontologic resource impact mitigation programs in areas underlain by fossil-bearing strata. The paleontologic monitor and other paleontologic staff working under the direction of the paleontologist should have experience monitoring earth-moving activities, recovering large vertebrate fossil specimens, and recovering and processing large samples of fossiliferous rock or sediment.

4.1.4 Compliance with Lead Agency and Professional Society Guidelines

The mitigation measures described below would be in compliance with any City of Los Angeles environmental guideline and with SVP (1995, 1996) standard guidelines for mitigating adverse construction-related impacts on paleontologic resources. The paleontologist would ensure implementation of these measures and verify the effectiveness of the measures. The results of the program would be summarized in a final technical report of results and findings submitted to the City of Los Angeles.

4.1.5 Mitigation Measures

The literature review, archival search, and field survey, as well as a review of the geologic maps covering the project site, indicated that the project site is underlain partly by paleontologically highly sensitive strata, in which earth-moving activities associated with project construction would have a high potential for encountering fossil remains (see Figure 1). Mitigation measures that would be implemented in a particular area of the project site are based on the sensitivity of the underlying rock unit and include paleontologic construction monitoring, which would be conducted in conjunction with other measures provided below.

4.1.5.1 Task 1—Retention of Paleontologist.—Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program during earth-moving activities at the project site.

4.1.5.2 Task 2—Museum Storage Agreement.—The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.

4.1.5.3 Task 3—Pre-construction Coordination.—The paleontologist or monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.

4.1.5.4 Task 4—Paleontologic Monitoring and Fossil/Sample Recovery.—Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.

Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any

fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to proceed through the site immediately. The location and proper geologic context of any fossil occurrence will be documented, as appropriate. Any recovered rock sample will be processed to allow for the recovery of smaller fossil remains.

Rock samples will be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor. No more than 6,000 pounds (12,000 pounds total) of rock will be processed from either the Palos Verdes Sand or coastal deposits.

4.1.5.5 Task 5—Final Laboratory Tasks.—All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.

4.1.5.6 Task 6—Reporting.—The monitor will maintain daily monitoring logs that include the particular tasks accomplished, the earth-moving activity monitored, the location where monitoring was conducted, the rock unit encountered, fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings will be prepared by the paleontologist in accordance with any City of Los Angeles requirement.

4.2 OPERATIONAL PHASE

No mitigation measure would be necessary during the operational phase if there were no earth-moving activity.

4.3 ENVIRONMENTAL COMPLIANCE

The project will comply with any applicable environmental law, ordinance, regulation, or standard regarding paleontologic resources during earth-moving activities associated with project construction.

Paleontologic resources, including fossil remains, associated specimen data and corresponding geologic and geographic site data, fossil sites, and the fossil-bearing strata, are a limited, nonrenewable, and very sensitive scientific and educational resource and, particularly with regard to fossil sites, are afforded protection under the following state environmental legislation (see California Office of Historic Preservation, 1983).

California Environmental Quality Act of 1970 (CEQA) (Division 13, California Public Resources Code: 21000 *et seq.*).—Requires that a public agency or private interest identify the environmental consequences of its proposed project on any object or site of significance to the scientific annals of California (Division I, Public Resources Code: 5020.1 [b]).

Guidelines for the Implementation of CEQA, as amended May 10, 1980, and March 29, 1999 (Title 14, Chapter 3, California Administrative Code: 15000 *et seq.*).—Define procedures, types of activities, persons, and public agencies required to comply with CEQA, and include definitions of significant impacts on a fossil locality (Section 15023, Appendix G [5.c]).

California Public Resources Code, Section 5097.5 (Statute 1965, Chapter 1136, Paragraph 2792).—Defines any unauthorized disturbance or removal of a fossil locality or remains on public land as a misdemeanor.
California Public Resources Code, Section 30244.—Requires reasonable mitigation of adverse environmental impacts that result from development of public land and affect paleontologic resources.

Angeles, also have developed environmental guidelines for protecting paleontologic resources in areas under their respective jurisdictions. Under its guidelines, a CEQA lead agency can require the completion of a paleontologic resource impact assessment of an area to be adversely impacted by a discretionary project deemed nonexempt under its guidelines. As part of such an assessment, the agency can require the compilation of a paleontologic resource inventory and the mapping of fossil-bearing rock units and previously recorded and newly documented fossil sites by a qualified paleontologist in the area to be affected, an evaluation of the scientific importance of these resources, a determination of the adverse environmental impacts that might arise from the project and an appraisal of their significance, and the formulation of measures to mitigate these impacts to an insignificant level. The City of Los Angeles has required that such an assessment be conducted in support of the proposed Venice Pumping Plant Dual Force Main Project EIR because earth-moving activities associated with project construction might result in the loss of fossil remains and unrecorded fossil sites. This paleontologic resource assessment technical report, particularly with regard to the mitigation measures presented above, is in compliance with SVP (1995, 1996) standard measures for assessing the scientific importance of paleontologic resources in an area of potential environmental effect, developing measures to mitigate significant adverse construction-related environmental impacts on these resources, and with conditions for the acceptance of a paleontologic resource impact mitigation program fossil collection by a museum repository.

SECTION 3

ENVIRONMENTAL IMPACTS

3.1 CONSTRUCTION PHASE IMPACTS

Paleontologic resources, including an undetermined number of fossil remains and unrecorded fossil sites; associated specimen data and corresponding geologic and geographic site data; and the fossil-bearing strata, could be adversely affected by (i.e., would be sensitive to) the significant direct and indirect environmental impacts resulting from earth-moving activities associated with project construction in the selected alignment.

Direct impacts would result mostly from earth-moving activities (primarily trenching and boring for pipeline) in previously undisturbed strata. Although earth-moving activities would be comparatively short term, the possible accompanying loss of some fossil remains, unrecorded fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata is a potentially significant long-term adverse environmental impact.

Easier access to fresh exposures of fossiliferous strata and the accompanying potential for unauthorized fossil collecting by construction personnel, rock hounds, and amateur and commercial fossil collectors could result in the loss of some additional fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data. The loss of these additional paleontologic resources is another potentially significant long-term (but indirect) environmental impact.

3.1.1 Significance Criteria

The following tasks were conducted in compliance with SVP (1995) guidelines for assessing the significance of construction-related adverse environmental impacts on paleontologic resources, or the paleontologic sensitivity of a particular rock unit to adverse impacts.

The paleontologic significance (high, moderate, low, none, undetermined) of the potential adverse impacts of earth-moving activities on the paleontologic resources of each rock unit present at the project site was assessed and reflects the paleontologic or scientific importance/impact sensitivity of the rock unit, which, in turn, primarily reflects the potential for fossil remains and fossil sites being encountered by these activities. Note, however, that any impact on a fossil site and the fossil-bearing strata would be considered highly significant paleontologically, regardless of the paleontologic importance of the rock unit in which the site and strata occur. For example, trenching in an area underlain by a moderately important rock unit would have only a moderate potential for the disturbance or burial of fossil remains and sites (i.e., the rock unit would be moderately sensitive to adverse impacts). Although the accompanying loss of any fossil remains and site would be a highly significant impact paleontologically, the impact of earth-moving activities would be considered only moderately significant because of the moderate potential for the loss of paleontologic resources. This method of impact assessment is most appropriate to an areal paleontologic resource investigation of the project site because discrete levels of paleontologic impact sensitivity/significance can be delineated on a topographic/geologic map of the project site.

A paleontologic resource impact sensitivity assessment of the project site is presented below and on the geologic map of the project site included as Figure 1.

3.1.2 Impact Assessment

3.1.2.1 Palos Verdes Sand.—The Palos Verdes Sand has yielded abundant fossil remains at several previously recorded fossil sites near the project site. For this reason, adverse environmental impacts on the paleontologic resources of the Palos Verdes Sand that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

3.1.2.2 Dune Sand.—The dune sand possibly has yielded fossil remains at only one previously recorded fossil site near the project site. For this reason and because this fossil site was encountered at depth, adverse environmental impacts on the paleontologic resources of the dune sand that would result from earth-moving activities at the project site would be considered to be of undetermined (but probably no more than moderate) paleontologic significance at depth because the potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities is undetermined.

On the other hand, any adverse environmental impact on the paleontologic resources of the dune sand that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the dune sand probably is too young at and near the surface to contain remains old enough to be considered fossilized.

3.1.2.3 Coastal Deposits.—The coastal deposits have yielded fossil remains at numerous previously recorded fossil sites near the project site. For this reason and because these fossil sites were encountered at depth, adverse environmental impacts on the paleontologic resources of the coastal deposits that would result from earth-moving activities at the project site would be considered to be of high paleontologic significance at depth because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

On the other hand, any adverse environmental impact on the paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits probably are too young at and near the surface to contain remains old enough to be considered fossilized.

3.2 OPERATIONAL PHASE

There would be no impact on paleontologic resources during the operational phase of the project if there were no earth-moving activity.

3.3 CUMULATIVE IMPACTS

Development of the project site, in combination with other projects in the region where a project site is underlain by the Palos Verdes Sand might lead to the progressive loss of fossil-bearing strata in these rock units that could be prospected for fossil remains and unrecorded fossil sites. The loss of these additional paleontologic resources is another potentially significant long-term adverse environmental impact.

SECTION 4

MITIGATION MEASURES

4.1 CONSTRUCTION PHASE

The following measures comprise a paleontologic resource impact mitigation program that would reduce, to an insignificant level, the direct, indirect, and cumulative adverse environmental impacts on paleontologic resources that might accompany earth-moving activities (primarily trenching and boring for pipeline) associated with project construction in the selected alignment. The program would allow for the recovery of some scientifically highly important fossil remains, should any be encountered by these activities, as well as associated specimen data and corresponding geologic and geographic site data; their preservation in a recognized museum repository; and their availability for future study by qualified scientific investigators. These specimens and data otherwise might have been lost to the earth-moving activities and unauthorized fossil collecting. Specimen recovery would be allowed under CEQA Appendix G (5.c).

4.1.1 Mitigation Program Design Criteria

The recommended level and type of mitigation effort in a particular area of the project site reflects the paleontologic importance/impact sensitivity of the rock unit underlying the area and the corresponding potential for fossil remains being encountered by earth-moving activities at the project site, the type of rock comprising the rock unit, the type or earth-moving activity, and the magnitude of the impact that would occur in the area. For example, trenching in an area underlain by a paleontologically highly important rock unit or one containing a fossil site would require more intensive paleontologic construction monitoring than trenching in an area underlain by a rock unit of moderate, low, or undetermined paleontologic importance. Monitoring would not be required in an area underlain by artificial fill or a rock unit of no paleontologic importance (unless a rock unit of higher importance would be encountered at depth), or one in which a rock unit would be buried, but not otherwise disturbed. No rock sample would be processed if the rock were too coarse grained or resistant to breaking down in water.

The discovery and subsequent recovery of fossil remains as part of the mitigation program might result in a slight delay of some earth-moving activities. However, the mitigation measures presented below have been designed to eliminate or reduce any delay to the greatest extent possible by 1) ensuring that a paleontologic construction monitor would be present when and where fossil remains were most likely to be uncovered by earth-moving activities; 2) allowing for the rapid recovery of fossil remains, should any be encountered by these activities, and associated specimen and site data; and 3), if necessary, diverting the activities temporarily around a newly discovered fossil site until the remains had been removed by the monitor and the activities allowed to proceed through the site. Similar paleontologic resource impact mitigation programs usually have resulted in no delay of earth-moving activities.

4.1.2 Beneficial Environmental Effects of Mitigation Program

If the paleontologic resource impact mitigation program detailed below were implemented, earth-moving activities at the project site might produce some beneficial effects. The fresh exposure of fossil-bearing strata would allow for the discovery of an undetermined number of unrecorded fossil sites and the recovery of some scientifically highly important fossil remains that otherwise might not even have been exposed without these activities. Moreover, these remains and associated specimen data and corresponding geologic and geographic site data, instead of being lost to earth-moving activities or to unauthorized fossil collecting, would be preserved in a museum repository, where they would be made available to qualified scientific investigators for future study. There also is the potential that some of these remains might represent new or rare species; new geologic or geographic records; and/or skeletal elements different from, or specimens more complete than those now available for their respective species. Finally, these remains would provide a more comprehensive paleontologic resource inventory of the project site and vicinity than is now available or would have been available without the project.

4.1.3 Qualifications of Paleontologist Conducting Mitigation Program

All mitigation measures presented below should be directed by a vertebrate paleontologist approved by the City of

Los Angeles and LACMVP. The paleontologist should have substantial experience designing and conducting paleontologic resource impact mitigation programs in areas underlain by fossil-bearing strata. The paleontologic monitor and other paleontologic staff working under the direction of the paleontologist should have experience monitoring earth-moving activities, recovering large vertebrate fossil specimens, and recovering and processing large samples of fossiliferous rock or sediment.

4.1.4 Compliance with Lead Agency and Professional Society Guidelines

The mitigation measures described below would be in compliance with any City of Los Angeles environmental guideline and with SVP (1995, 1996) standard guidelines for mitigating adverse construction-related impacts on paleontologic resources. The paleontologist would ensure implementation of these measures and verify the effectiveness of the measures. The results of the program would be summarized in a final technical report of results and findings submitted to the City of Los Angeles.

4.1.5 Mitigation Measures

The literature review, archival search, and field survey, as well as a review of the geologic maps covering the project site, indicated that the project site is underlain partly by paleontologically highly sensitive strata, in which earth-moving activities associated with project construction would have a high potential for encountering fossil remains (see Figure 1). Mitigation measures that would be implemented in a particular area of the project site are based on the sensitivity of the underlying rock unit and include paleontologic construction monitoring, which would be conducted in conjunction with other measures provided below.

4.1.5.1 Task 1—Retention of Paleontologist.—Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program during earth-moving activities at the project site.

4.1.5.2 Task 2—Museum Storage Agreement.—The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.

4.1.5.3 Task 3—Pre-construction Coordination.—The paleontologist or monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.

4.1.5.4 Task 4—Paleontologic Monitoring and Fossil/Sample Recovery.—Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.

Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any

fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to proceed through the site immediately. The location and proper geologic context of any fossil occurrence will be documented, as appropriate. Any recovered rock sample will be processed to allow for the recovery of smaller fossil remains.

Rock samples will be processed to allow for the recovery of smaller fossil remains that normally are too small to be observed by the monitor. No more than 6,000 pounds (12,000 pounds total) of rock will be processed from either the Palos Verdes Sand or coastal deposits.

4.1.5.5 Task 5—Final Laboratory Tasks.—All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.

4.1.5.6 Task 6—Reporting.—The monitor will maintain daily monitoring logs that include the particular tasks accomplished, the earth-moving activity monitored, the location where monitoring was conducted, the rock unit encountered, fossil specimens recovered, and associated specimen data and corresponding geologic and geographic site data. A final technical report of results and findings will be prepared by the paleontologist in accordance with any City of Los Angeles requirement.

4.2 OPERATIONAL PHASE

No mitigation measure would be necessary during the operational phase if there were no earth-moving activity.

4.3 ENVIRONMENTAL COMPLIANCE

The project will comply with any applicable environmental law, ordinance, regulation, or standard regarding paleontologic resources during earth-moving activities associated with project construction.

Paleontologic resources, including fossil remains, associated specimen data and corresponding geologic and geographic site data, fossil sites, and the fossil-bearing strata, are a limited, nonrenewable, and very sensitive scientific and educational resource and, particularly with regard to fossil sites, are afforded protection under the following state environmental legislation (see California Office of Historic Preservation, 1983).

California Environmental Quality Act of 1970 (CEQA) (Division 13, California Public Resources Code: 21000 *et seq.*).—Requires that a public agency or private interest identify the environmental consequences of its proposed project on any object or site of significance to the scientific annals of California (Division I, Public Resources Code: 5020.1 [b]).

Guidelines for the Implementation of CEQA, as amended May 10, 1980, and March 29, 1999 (Title 14, Chapter 3, California Administrative Code: 15000 *et seq.*).—Define procedures, types of activities, persons, and public agencies required to comply with CEQA, and include definitions of significant impacts on a fossil locality (Section 15023, Appendix G [5.c]).

California Public Resources Code, Section 5097.5 (Statute 1965, Chapter 1136, Paragraph 2792).—Defines any unauthorized disturbance or removal of a fossil locality or remains on public land as a misdemeanor.
California Public Resources Code, Section 30244.—Requires reasonable mitigation of adverse environmental impacts that result from development of public land and affect paleontologic resources.

Angeles, also have developed environmental guidelines for protecting paleontologic resources in areas under their respective jurisdictions. Under its guidelines, a CEQA lead agency can require the completion of a paleontologic resource impact assessment of an area to be adversely impacted by a discretionary project deemed nonexempt under its guidelines. As part of such an assessment, the agency can require the compilation of a paleontologic resource inventory and the mapping of fossil-bearing rock units and previously recorded and newly documented fossil sites by a qualified paleontologist in the area to be affected, an evaluation of the scientific importance of these resources, a determination of the adverse environmental impacts that might arise from the project and an appraisal of their significance, and the formulation of measures to mitigate these impacts to an insignificant level. The City of Los Angeles has required that such an assessment be conducted in support of the proposed Venice Pumping Plant Dual Force Main Project EIR because earth-moving activities associated with project construction might result in the loss of fossil remains and unrecorded fossil sites. This paleontologic resource assessment technical report, particularly with regard to the mitigation measures presented above, is in compliance with SVP (1995, 1996) standard measures for assessing the scientific importance of paleontologic resources in an area of potential environmental effect, developing measures to mitigate significant adverse construction-related environmental impacts on these resources, and with conditions for the acceptance of a paleontologic resource impact mitigation program fossil collection by a museum repository.

SECTION 6

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APPENDIX G

HAZARDS AND HAZARDOUS MATERIALS

VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT EIR

STATE CLEARINGHOUSE NUMBER: 2003031001

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Regulatory Database Descriptions and Corresponding ASTM Search Distances

Type of Database/Date	Description of Database	Radius Searched
Required Federal Database Listings		
NPL	The National Priorities List (NPL) identifies uncontrolled or abandoned hazardous waste sites. To appear on the NPL, sites must have met or surpassed a predetermined hazard ranking system score, been chosen as a state's top priority site, pose a significant health or environmental threat, or be a site where the EPA has determined that remedial action is more cost-effective than removal action.	1.0 mile
CORRACTS	Resource Conservation & Recovery Act (RCRA) facilities ordered to implement corrective actions.	1.0 mile
CERCLIS	The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) database identifies hazardous waste sites that require investigation and possible remedial action to mitigate potential negative impacts on human health or the environment.	0.5 mile
RCRA TSDs	RCRA treatment, storage, or disposal (TSD) sites.	0.5 mile
CERCLIS- NFRAP	No Further Remedial Action is Planned (NFRAP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for these sites and they have been removed from CERCLIS list based on findings of site investigations.	Site and Adjoining
RCRA Generators	RCRA regulated hazardous waste generator notifiers list; both large quantity and small quantity generators are included in this list.	Site and Adjoining
ERNS	EPA's Emergency Response Notification System (ERNS) list contains reported spill records of oil and hazardous substances.	Site
Supplemental Federal Database Listings		
CONSENT	Superfund (CERCLA) Consent Decrees by the Department of Justice. Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.	1.0 mile
ROD	Record of Decision (ROD) documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.	1.0 mile
DELISTED NPL	NPL Deletions. The National Oil and Hazardous Substances Pollution Contingency Plan establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 Code of Federal Regulations (CFR) 300.425 (e), sites may be deleted from the NPL where no further response is appropriate.	1.0 mile
DOD	Department of Defense (DOD) Sites. This data set consists of federally owned or administered lands, administered by the DOD, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.	1.0 mile
INDIAN RESERVE	This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.	1.0 mile
FUDS	Formerly Used Defense Sites (FUDS). The listing includes locations of FUDS properties where the USACOE is actively working or will take necessary cleanup actions.	1.0 mile
US ENG CONTROLS	Engineering Controls Sites List. A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.	0.5 mile
ODI	Open Dump Inventory (ODI). An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.	0.5 mile
UMTRA	Uranium Mill Tailings Sites. Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.	0.5 mile
FINDS	The Facility Index System (FINDS) database identifies different databases that contain information regarding federally listed sites.	Site and Adjoining
MINES	Mines Master Index File. Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.	Site and Adjoining
TSCA	Toxic Substances Control Act (TSCA). TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.	Site and Adjoining

Type of Database/Date	Description of Database	Radius Searched
SSTS	Section 7 Tracking Systems. Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the EPA by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.	Site and Adjoining
TRIS	The Toxic Release Inventory System (TRIS) database identifies facilities that release toxic chemical to the air, water, or land in reportable quantities.	Site and Adjoining
FTTS	Tracks administrative cases and pesticide enforcement actions and compliance activities related to the Federal Insecticide, Fungicide, and Rodenticide Act, the TSCA, and the Emergency Planning and Community Right-to-Know Act.	Site and Adjoining
HMIRS	The Hazardous Material Information Reporting System records of spills or hazardous materials incidents reported to the Department of Transportation.	Site
MLTS	Material Licensing Tracking System (MLTS). The MLTS is maintained by the Nuclear Regulatory Commission (NRC) and contains a list of approximately 8,100 sites, which possess or use radioactive materials and which are subject to NRC licensing requirements.	Site
NPL LIENS	Federal Superfund Liens. Federal Superfund Liens. Under the authority granted the EPA by the CERCLA of 1980, the EPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. EPA compiles a listing of filed notices of Superfund Liens.	Site
PADS	Polychlorinated Biphenyl (PCB) Activity Database System. PADS identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify the EPA of such activities.	Site
RAATS	RCRA Administration Action Tracking System (RAATS). RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.	Site
Required State Database Listings		
AWP/ Former BEP	Annual Work Plan (formerly known as Bond Expenditure Plan [BEP]) sites – known hazardous waste sites targeted for cleanup. This is the state-equivalent to the NPL.	1.0 mile
CalSites	The CalSites database contains potential or confirmed release properties. This is the state equivalent to CERCLIS.	0.5 mile
VCP	Voluntary Cleanup Program sites – low-threat sites with either confirmed or unconfirmed releases and that have requested DTSC oversight and cleanup activities and have agreed to cover cleanup costs. (Similar to Brownfields sites below)	0.5 mile
TOXIC PITS	Toxic Pits Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.	0.5 mile
STATE LANDFILL	Solid Waste Information System. Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.	0.5 mile
WMUDS/SWAT	State inventory of solid waste disposal and landfill sites.	0.5 mile
LUST	List of information pertaining to all reported leaking underground storage tanks (LUSTs). This includes listings at the state and local level.	0.5 mile
Cortese	The Hazardous Waste & Substances Sites list identifies older LUST sites and sites listed by the Department of Health. It is no longer updated.	0.5 mile
INDIAN LUST	LUSTs on indian land in Arizona, California, New Mexico and Nevada.	0.5 mile
CA UST	State listing of active underground storage tank (UST) sites.	Site and Adjoining
INDIAN UST	USTs on indian land in Arizona, California, New Mexico and Nevada.	Site and Adjoining
CA FID UST	State listing of active and inactive UST sites. This list is no longer updated.	Site and Adjoining
HIST UST	State listing of historical UST sites. This list is no longer updated.	Site and Adjoining

Type of Database/Date	Description of Database	Radius Searched
NOTIFY 65	Proposition 65 Notification Records. The NOTIFY 65 list contains facility notifications about any release that could impact drinking water and thereby expose the public to a potential health risk.	Site and Adjoining
CHMIRS	The California Hazardous Material Incident Report System records of spills or hazardous materials incidents.	Site
Supplemental State and Local Database Listings		
SLIC	The Regional Water Quality Control Board issues this list of sites with non-tank spill, leaks, investigations, and cleanups.	0.5 mile
Brownfields	Database of low-threat properties with either confirmed or unconfirmed releases that have requested DTSC oversight and cleanup activities and have agreed to cover cleanup costs. (Similar to VCP sites above)	0.5 mile
DEED	Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.	0.5 mile
City of L.A. Landfills	The City Engineering and Construction Division maintain a list of landfills within city limits.	0.5 mile
L.A. County SWLF	The Los Angeles County Department of Public Works maintains a list of historic, current, and potential landfills within the county.	0.5 mile
WDS	The State Water Resources Control Board generates this list of industrial wastewater dischargers.	Site and Adjoining
HAZNET	Facility and manifest data is gathered for this database from hazardous wastes manifests that are submitted to DTSC.	Site and Adjoining
EMI	Database of facilities reporting toxic and criteria pollutant emissions data to the local air pollution agencies.	Site and Adjoining
NFA	No Further Action Determination. This category contains properties at which DTSC has made a clear determination that the property does not pose a problem to the environment or to public health.	Site and Adjoining
REF	Unconfirmed Properties Referred to Another Agency. This category contains properties where contamination has not been confirmed and which were determined as not requiring direct DTSC Site Mitigation Program action or oversight. Accordingly, these sites have been referred to another state or local regulatory agency.	Site and Adjoining
SCH	School Property Evaluation Program. This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.	Site and Adjoining
NFE	Properties Needing Further Evaluation. This category contains properties that are suspected of being contaminated. These are unconfirmed contaminated properties that need to be assessed using the PEA process. PEA in Progress indicates properties where DTSC is currently conducting a PEA. PEA Required indicates properties where DTSC has determined a PEA is required, but not currently underway.	Site and Adjoining
Dry Cleaners	EDR compiles a database of dry cleaning facilities based on their having a hazardous waste generator ID and certain SIC codes.	Site and Adjoining
L.A. County HMS	The Los Angeles County Department of Public Works maintains a listing of files they maintain for sites with USTs or facilities with industrial wastewater permits.	Site and Adjoining
Site Mitigation List	The L. A. County Department of Public Health maintains a listing of industrial sites that have had some sort of spill or complaint.	Site and Adjoining
AST	Registered Aboveground Storage Tanks.	Site

Regulatory Database Findings for Proposed Venice Force Main Alignments

EDR Map ID	Facility Name Address	Proximity to Via Marina Alignment Alternative	Proximity to Pacific Ave Alignment Alternative	Proximity to Beach Alignment Alternative	Database Lists	Description	Current Agency Status	Recognized Environmental Condition Potential
5	LA Pumping Plant #46 140 Hurricane Street	On site	On site	On site	RCRS-SQG	Small quantity generator of hazardous waste	No violations reported	Low
					Notify 65	Site has notified the State Water Resources Control Board that a release of hazardous substances could potentially impact drinking water	Not applicable-notification only	Low
					FINDS	Included on RCRIS	Not provided	Low
18	7332 Vista Del Mar	On site	On site	On site	ERNS	Sewer collapsed on 4/17/1992; release to land only.	Not provided	Low
7	Timberlake Group Int'l 4100-5000 Pacific	Approx. 900 feet. southwest	On site	Approx. 500 feet northeast	CA SLIC	Total petroleum hydrocarbons (TPH) contamination	Case closed	Low
11	S. California Gas Co. 5400 Pacific Avenue	Approx. 900 feet. southwest	On site	Approx. 500 feet northeast	CA SLIC	TPH contamination	Case closed	Low
					HAZNET	Generator of contaminated soil from site cleanup	Not provided	Low
Unmapped	S. California Gas Co. 143 Union Jack	Approx. 700 feet southwest	Approx. 200 feet northeast	Approx. 700 feet northeast	CA SLIC	TPH contamination	Case closed	Low
12	OHN Kearney 6512 Pacific Avenue	Approx. 1000 feet southwest	On site	Approx. 400 feet northeast	HAZNET	One-time generator of asbestos-containing waste.	Not provided	Low
8	Unocal #0407 13800 Bora Bora Way	Approx. 0.25 mile east	<0.25 mile east	<0.25 mile east	Cortese	Leaking UST site	Not provided	Low
					LUST	Release of gasoline to groundwater in 1991 as a result of piping failure. Methyl tert-butyl ether (MTBE) detected.	Case closed in 1997	Low
9	Unocal Corp SS 0407 1 Bora Bora Way (File review indicates actually same location as above)	Same as above	Same as above	Same as above	CA FID UST	UST location	Active	Low
9	Service Station No. 1 Bora Bora Way (Same as above)	Same as above	Same as above	Same as above	HIST UST	Historic UST site with 10,000-gallon Product 10,000-gallon Premium 10,000-gallon Unleaded 10,000-gallon Diesel (1) 550-gallon Waste oil (1) Unidentified contents	Not provided	Low

EDR Map ID	Facility Name Address	Proximity to Via Marina Alignment Alternative	Proximity to Pacific Ave Alignment Alternative	Proximity to Beach Alignment Alternative	Database Lists	Description	Current Agency Status	Recognized Environmental Condition Potential
9	Pegasus Carriers, Inc. (Same as above)	Same as above	Same as above	Same as above	RCRIS-SQG	Small Quantity Generator of hazardous waste	No violations reported	Low
					FINDS	Identified on RCRIS	Not provided	Low
3	Via Dolce Acquisition Area 3 3700-3706 Canal North-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	CA SLIC	TPH contamination	Case closed	Low
3	Via Dolce Acquisition Area 2 3600-3615 Canal North-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	Approx. 1000 feet north-northwest	CA SLIC	TPH contamination	Case closed	Low
4	Via Dolce Acquisition Area 1 3602 Pacific Avenue Northwest	Approx. 1000 feet northwest	Approx. 1000 feet northwest	Approx. 1000 feet northwest	CA SLIC	TPH contamination	Case closed	Low
10	Southern California Gas Company 5101 Ocean Front Walk West	Approx. 200 feet southwest	Approx. 1200 feet southwest	Less than 100 feet northeast	CA SLIC	TPH contamination	Case closed	Low
14	Del Rey Cleaners 310 Culver Blvd. Northeast	Approx. 200 feet northeast	Approx. 200 feet northeast	Approx. 2000 feet southeast	CA SLIC	Perchloroethylene, VOC (volatile organic compounds) release from non-tank source	Site assessment	Moderate
					RCRIS-SQG	Small quantity generator of hazardous waste	No violations reported	Low
					FINDS	Identified on RCRIS	Not provided	Low
					HAZNET	Generator of hazardous waste: Halogenated solvents; Liquids with halogenated organic compounds >1,000 milligrams per liter.	Not provided	Low
					Cleaners	Dry cleaning establishment	Not provided	Low

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APPENDIX **H**

NOISE AND VIBRATION ANALYSIS

VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT EIR

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REPORT

VENICE PUMPING PLANT DUAL FORCE MAIN NOISE AND VIBRATION TECHNICAL STUDY

Prepared for

City of Los Angeles
Department of Public Works
BUREAU OF ENGINEERING

October 5, 2005

URS

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Santa Ana, California 92705

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1.0 PURPOSE AND INTRODUCTION

This Technical Report presents the results of a noise and vibration impact assessment for the Venice Pumping Plant Dual Force Main Project (Project). The assessment presented herein was conducted for the Project's Draft Environmental Impact Report and prepared in accordance with the City of Los Angeles guidelines for the California Environmental Quality Act (Los Angeles, July 2002). This report describes the existing levels of environmental noise at sensitive receptors along the alignments of the project alternatives, identifies the applicable regulatory background, and presents the predicted noise and vibration impacts associated with the project alternatives. Mitigation measures are recommended for consideration where appropriate.

As shown in Figure 1-1, the project is located in the Venice and Westchester / Playa Del Rey communities of the city of Los Angeles, California. The existing 48-inch diameter Venice Pumping Plant force main was built in 1958 and is a pressurized pipeline that conveys wastewater flows to the Hyperion Treatment Plant located in Los Angeles. The City of Los Angeles proposes to construct and install a new force main sewer extending from the existing Venice Pumping Plant (VPP) at 140 Hurricane Avenue in Venice to a junction structure on the North Outfall Sewer in Vista del Mar near Waterview Street in Playa Del Rey. The second force main would be used in tandem with the existing force main to fulfill two key objectives:

- To expand the capacity of the Coastal Interceptor Sewer's force main segment from the VPP to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all projected wet weather flows can be safely conveyed without future threats of spilling onto city streets and adjacent surface waters; and

- To provide force main redundancy to allow for much needed maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods.

The four alignment alternatives under consideration are known as the Marquesas Way/Via Marina Alignment, the Pacific Avenue Alignment, the Dockweiler Beach / Pacific Avenue Alignment, and the Dockweiler Beach Alignment. In addition, the pipeline will pass under the Marina Del Rey Channel along one of six possible Marina Del Rey Channel Alignments.

The Marquesas Way/Via Marina Alignment would begin at the existing VPP on Hurricane Street, and proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel. It would then cross under the Marina Del Rey and Ballona Creek channels and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long.

The Pacific Avenue Alignment would begin at the VPP and proceed westerly to Pacific Avenue, then turn south and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue south within Pacific Avenue to a junction structure in Vista Del Mar near Waterview street. This alignment is the shortest route – about 10,000 feet.

The Dockweiler Beach to Pacific Avenue Alignment would begin at the VPP and would proceed westerly to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels, and continue south within the Pacific Avenue alignment to a junction structure in Vista Del Mar near Waterview street. This alignment is about 10,400 feet long.

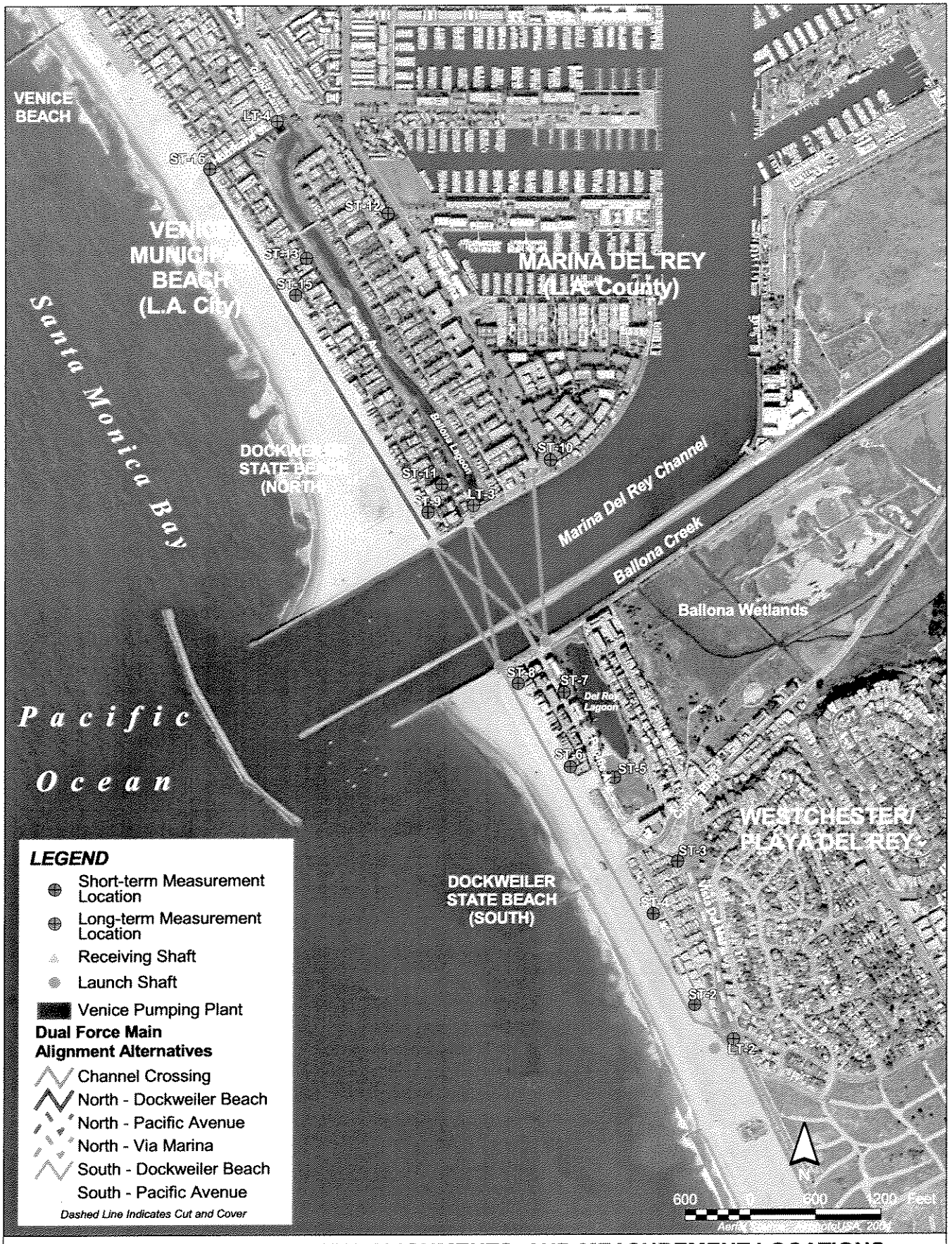
The Dockweiler Beach Alternative would begin at the VPP and would proceed westerly to the existing 20-foot wide sewer easement in Dockweiler State Beach, then turn south and cross under the Marina Del Rey and Ballona Creek channels. The alignment would continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point the line runs east to the junction structure in Vista Del Mar near Waterview Street. This alignment is about 11,000 feet long.

Construction Methods: The alignments under consideration cross the Marina entrance channel and Ballona Creek channel, requiring about 1,800 feet of micro-tunneling under the two channels. Elsewhere along each alignment, three Alternative construction methods are analyzed for consideration in the DRAFT EIR, consisting of; cut and cover, micro-tunneling, and large diameter tunneling. Each method provides both benefits and issues of concern for the project. While open trench construction costs less, micro tunneling would eliminate the majority of traffic and parking impacts to residential areas both north and south of the channels and can facilitate mitigation of other impacts such as noise. The Large Diameter Tunneling and continuous full length alternative method of installation/construction of the sewer is under consideration for the following alignment areas:

a. Dockweiler Beach - South to North Shafts
b. Dockweiler Beach - LAX to North Shaft
c. LAX to VPP Shafts via Dockweiler Beach
d. LAX to VPP Shafts via Inland Route

Unless otherwise stated, it is assumed that the project will be designed, constructed and operated following all applicable laws, regulations, ordinances and other formally adopted City standards (e.g., *Los Angeles Municipal Code* and Bureau of Engineering *Standard Plans*). Also, this analysis assumes that construction will follow the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., *Standard Specifications for Public Works Construction* and the *Work Area Traffic Control Handbook*) as specifically adapted by the City of Los Angeles (e.g., The City of Los Angeles Department of Public Works *Additions and Amendments to the Standard Specifications For Public Works Construction* ("The Brown Book," formerly Standard Plan S-1610).

The terms and metrics associated with noise that are used in this technical report can be complex and are discussed in detail in Appendix A. In general and in this document, noise or sound levels are expressed in A-weighted decibels (dBA) relative to 20 micropascals and vibration levels are expressed in inches per second.



PROJECT AREA OVERVIEW, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 1-1

VENICE PROJECT AREA, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 1-2

PLAYA DEL REY PROJECT AREA, ALIGNMENTS, AND MEASUREMENT LOCATIONS

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure 1-3

2.0 EXISTING NOISE AND VIBRATION ENVIRONMENT

The proposed project is located on the immediate coastline and inland adjacent to the coastline in the southern portion of the community of Venice and in the community of Playa Del Rey (see Figure 1-1). The primary land uses in these areas are medium to high density residential with some recreational and light commercial designations, particularly in the Playa Del Rey and Marina Del Rey areas. Two Environmentally Sensitive Habitat Areas (ESHAs) are located in close proximity to most of the potential alignments; the Grand Canal/Ballona Lagoon in the Venice and Marina Del Rey area, and the Del Rey Lagoon situated in Playa Del Rey. These ESHAs, as well as Dockweiler State Beach, are designated as conservation and open space. A large protected breeding ground of the California Least Tern exists on Venice Beach just north of the Marina Del Rey entrance channel and adjacent to one of the proposed alignments – this species is both a state and federally listed endangered species. The project area is near the Los Angeles International Airport (LAX), with the southern end approximately 1/2 mile away from the westbound departure flight path of the northernmost runway (Runway 24/6) and the northern end approximately 2 1/2 miles away. Overflights by departing commercial aircraft are frequent, and are particularly noticeable in the project area south of Marina Del Rey Channel.

In order to characterize the existing noise in the project area and as a point of comparison for the project alternatives, ambient noise and meteorological conditions were measured along the proposed alignments during a three-day period from Wednesday, June 8 to Friday, June 10, 2005. Appendix B contains a complete list of the instruments used in the study to measure noise, weather, and traffic. (The calibration certificates for the acoustical instruments are shown in Appendix C.) The "raw" noise measurement data are presented in Appendices D and E. Sections 2.1, 2.2 and 2.3 address the observed noise, vibration and weather environments, respectively.

2.1 NOISE

Two types of ambient noise measurements were conducted: Short-Term (ST) and Long-Term (LT). The ST measurements consisted of separate measurements at 16 representative noise-sensitive locations, and were each 15 minutes in duration. These sampling measurements are considered representative of the hourly noise levels at the measurement sites. "Precision" grade (Type 1) Sound Level Meters (SLMs) were used to conduct the ST noise measurements. All of the ST measurements were attended (i.e. performed by persons with training and experience in measuring environmental sound). In addition to operating the SLMs, the noise specialists actively observed and noted the acoustical, weather, and community activity conditions. The LT noise measurements were unattended. Automated "Engineering" grade (Type 2) Community Noise Analyzers (CNAs) were deployed at four representative locations along the proposed alignments to collect continuous hour-by-hour sound level data for 24 hours at each location. Noise levels are reported here using the Equivalent Noise Level (L_{eq}) and Community Noise Equivalent Level (CNEL), which are described further in Appendix A.

The laboratory calibration of the sound instruments was verified in the field before and after each measurement period using a reference acoustical calibrator. The accuracy of the acoustical calibrator is maintained through a program established by the manufacturer, and is traceable to the National Institute

of Standards and Technology. The sound measurement instruments meet the requirements of the American National Standards Institute and International Electrotechnical Commission Publications. Appendix D contains the calibration records of all acoustical instruments used in this study.

For the short-term sound level measurements, a SLM was mounted on a tripod so that the microphone was five feet above the ground. The microphone was fitted with a windscreen. For the long-term sound level measurements, the CNA was locked in a small steel container with the microphone and windscreen protruding at least four inches from the top of the container. The container was attached to a fence or tree or other structure such that the microphone was at least five feet above the ground. The CNA was placed more than 15 feet from the nearest acoustically reflective surface (e.g. wall) wherever possible.

For each measurement, field personnel completed a Field Measurement Data Sheet (FMDS). For each short-term measurement, the FMDS lists the site location and description, weather conditions, calibration parameters, noise level data, sound sources and traffic counts (if applicable). Photographs were also taken at each location. For the long-term measurements, the FMDS includes the same information as for the short-term measurements, except noise level data and traffic counts. For a long-term measurement, the sound sources and weather conditions listed on the FMDS are typically the sources and conditions extant during CNA installation.

The measurement locations are shown on Figure 1-1, and the ST and LT noise measurement data are summarized in Table 2-1 and Table 2-2, respectively. Noise associated with typical coastal residential activity (e.g. traffic, pedestrian, and wind/waves) dominates in the project area north of Marina Del Rey Channel. The measured noise levels were typical for the project area's land uses. Near the southern end of the project area, the predominant noise sources are traffic on Vista Del Mar and overflights of commercial aircraft taking off from LAX.

The 15-minute L_{eq}'s measured at the eight ST locations south of Marina Del Rey Channel ranged from 56 dBA at the beachfront patios of houses just south of 62nd Ave. (ST-8) to 66 dBA in the parking lot abutting Vista Del Mar between Sunridge St. and Surf St. (ST-1). Street traffic was the predominant noise source at ST-1 and ST-3, while aircraft overflights were the predominant noise source at ST-2 and ST-4 through ST-8. At the eight ST locations north of Marina Del Rey Channel, 15-minute L_{eq}'s ranged from 55 dBA at the beachfront sites (ST-9, ST-15, and ST-16) to 62 dBA at some inland sites (ST-12, ST-13, and ST-14). Community Noise Equivalent Sound Levels (CNEL) at the four LT locations ranged from 52 dBA at the east end of 62nd Ave. (LT-1) to 70 dBA near the intersection of Vista Del Mar and Waterview St.

Figures of the LT data in Appendix E show the hour-to-hour noise levels for LT-1 through LT-4. Although the overall noise levels differ at each of the six measurement locations, a brief comparison of these figures indicates that the general diurnal noise patterns are similar. The quietest hour of the 24-hour period is generally in the early morning, between 2 and 5 AM, followed by a rapid increase in the noise level beginning between 4 and 6 AM. The noise levels tend to reach a local maximum level during the morning commute time and then stabilize (within approximately 5 decibels) for the rest of the daytime hours, at which point the noise levels decline again. The lowest 1-hour L_{eq} measured at any of the four locations was 44 dBA at LT-1 (adjacent to the north end of Del Mar Lagoon) during the 4 – 5 AM hour.

Table 2-1. Short-Term Noise Measurement Data Summary

Site ID	Measurement Location	Measurement Period				Measurement Results, dBA					
		Date	Start Time	Duration (minutes)	Predominant Noise Source	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
ST-1	parking lot abutting W side of Vista Del Mar, S of Culver Blvd	6/8/2005	15:30	15:00	Vista Del Mar traffic, LAX aircraft takeoff overflights, rustling leaves, birds, distant landscaping	65.5	80.7	45.8	55.6	63.2	68.7
ST-2	oceanfront patios of condos S of Surf St	6/8/2005	15:45	15:00	wind, ocean surf, LAX aircraft takeoff overflights, Vista del Mar traffic, distant landscaping & vacuum cleaner	62.8	80.2	42.6	46.0	50.0	64.5
ST-3	Montreal St @ Vista Del Mar	6/8/2005	15:45	15:00	Pacific Ave traffic, LAX aircraft takeoffs, rustling leaves, distant barking dogs	64.1	81.7	45.5	50.4	60.1	67.5
ST-4	oceanfront patio of house between 6987/9 and 6995/7 Trolleyway	6/8/2005	16:15	15:42	LAX aircraft takeoffs, distant house construction (hammer & saw) & workers talking, birds, ocean surf, helicopter flyby along shore	61.8	77.4	42.6	46.0	50.0	63.5
ST-5	park S of Del Rey lagoon	6/8/2005	16:10	15:00	coach talking @ nearby baseball practice, rustling leaves, distant children playing	57.2	69.8	45.5	47.9	50.9	59.9
ST-6	oceanfront patio of 3rd building S of 66th Ave	6/8/2005	17:05	15:02	LAX aircraft takeoffs, distant volleyball practice, ocean surf, motorboat, helicopter passby along shore	61.7	77.7	43.6	49.5	55.0	65.5
ST-7	park @ Pacific Ave N of 64th Ave	6/8/2005	17:00	15:00	LAX aircraft takeoffs, rustling leaves, birds, wind chimes	59.5	74.6	44.2	46.9	51.7	69.2
ST-8	oceanfront patio of 3rd building S of 62nd Ave	6/8/2005	17:30	15:07	LAX aircraft takeoffs, people on beach & bike path, distant portable radio	55.9	69.8	41.4	43.5	49.0	60.0
ST-9	W end of Yawl St, even w/ building facades @ beach	6/9/2005	10:55	15:00	LAX aircraft, nearby pedestrians talking, rustling leaves	55.4	65.5	46.3	48.4	52.2	59.5
ST-10	park @ S curve of Via Marina, N of Marina Del Rey Channel	6/9/2005	10:55	15:00	Via Marina traffic, LAX aircraft, rustling leaves, distant landscaping, bids, distant back-up alarm	57.9	70.4	47.3	51.0	55.5	61.0
ST-11	Westwind St & Pacific Ave, S of 5315 Pacific Ave	6/9/2005	11:25	15:00	distant home construction, distant LAX aircraft, rustling leaves, birds	56.5	69.9	46.4	49.8	53.5	60.2
ST-12	NW corner of Via Marina & Tahiti Way	6/9/2005	11:45	15:12	Via Marina traffic, distant circular saw, birds	61.9	75.5	44.4	49.5	57.5	66.0
ST-13	Pacific Ave @ Outrigger St	6/9/2005	11:55	15:00	Pacific Ave traffic, distant LAX aircraft, rustling leaves, barking dogs, birds	61.8	79.6	43.2	45.5	51.5	66.7
ST-14	SW corner of Via Marina @ Marquesas Way	6/9/2005	15:00	15:00	Via Marina & Marquesas Way traffic, distant LAX aircraft, rustling leaves	62.3	82.7	47.9	51.4	58.0	65.1
ST-15	W end of Outrigger St, even w/ building facades @ beach	6/9/2005	16:10	15:00	distant LAX aircraft, distant traffic	54.8	67.9	45.5	47.7	51.4	57.4
ST-16	oceanfront patio of 3901 Speedway, S of Hurricane St	6/9/2005	16:15	15:00	ocean surf, distant LAX aircraft, distant dogs playing	54.9	70.3	46.0	48.0	50.5	57.0

Table 2-2. Long-Term Noise Measurement Data Summary

Site ID	Location	Measurement Period			Measurement Results, dBA					
		Start Date	Start Time	Duration (hours)	L_{eq}	L_{90}	L_{50}		L_{dn}	CNEL
LT-1	Back P/L of vacant lot N of 6206 Pacific Ave @ 62nd St	6/8/2005	13:00	24:00	52.3	46	49		57.2	57.5
LT-2	W side of Vista del Mar @ Waterview St	6/8/2005	14:00	24:00	69.5	55	67		72.7	73.3
LT-3	N side of Hurricane St @ Grand Canal	6/9/2005	16:00	24:00	52.5	47	50		56.0	56.6
LT-4	Via Marina @ S end of Ballona Lagoon	6/9/2005	16:00	0:00	61.1	49	55		64.0	64.4

2.2 VIBRATION

An ambient vibration survey was performed along the Pacific Avenue Alignment in October 2002 (Behrens, 2002). The survey measured existing ground vibration levels at four locations along Pacific Avenue north of the Marina Del Rey Channel. The measurement points were each at the sidewalk property line of residential buildings. The major sources of vibration were trucks and buses traveling on Pacific Avenue. The maximum ground vibration level for vibration "events" (i.e. bus or truck passbys) at any of the measurement sites was 0.02 inches per second peak-to-peak velocity. This level is within the range of human perception, but well below the threshold levels for architectural or structural damage.

During the June 2005 noise survey, survey personnel observed that the major sources of vibration were similar to those observed during the October 2002 vibration study: typical community sources and large road vehicles, such as trucks and buses. No unusual sources of vibration (e.g. pile driving or demolition) were observed in the project area during the 2005 survey.

2.3 METEOROLOGY

Meteorological data was measured and noted during the noise measurements. Using the hand-held instruments listed in Appendix B, field personnel made objective measurements and subjective observations of weather conditions (e.g., temperature, relative humidity, wind speed and direction, and cloud cover) during the measurement periods at each location. These observations were recorded on the FMDS shown in Appendix D. The weather during the measurement period was generally warm and sunny, with calm to light breezes. The weather conditions were generally favorable for conducting ambient measurements and there was no adverse effect on the measurement accuracy due to the weather.

3.0 IMPACT EVALUATION CRITERIA AND THRESHOLDS OF SIGNIFICANCE

The methods detailed in the City's *Draft Los Angeles CEQA Thresholds Guide* (Thresholds Guide) were used for the noise and vibration impact evaluation in this study.

Section 3.1 discusses the regulatory setting of the impact evaluation. Sections 3.2 and 3.3 present the impact criteria and evaluation procedure, respectively.

3.1 REGULATORY SETTING

There are a number of laws and guidelines at the Federal level relevant to the assessment of noise and vibration impacts. These include:

- Noise Control Act of 1972 (42 U.S.C. 4910);
- HUD Environmental Standards (24 C.F.R. Part 51);
- OSHA Occupational Noise Exposure; Hearing Conversation Amendment (FR 48 (46), 9738--9785 (1983).

At the State level, the California Environmental Quality Act (CEQA) requires that an environmental study and an analysis of environmental impacts be performed for every development project that requires discretionary approval from a government agency and that may cause either a direct physical change or a reasonably foreseeable indirect change in the environment.

For the City of Los Angeles, the thresholds of significance for impact under CEQA are given in the Thresholds Guide. The Noise Ordinance of the City of Los Angeles (Los Angeles Municipal Code, Chapter XI) also sets noise limits based on zoning district and the change from the ambient level. Noise from construction activities is regulated by reference to Chapter IV of the Los Angeles Municipal Code. The relevant standards are summarized in Table 3-1.

For the Marquesas Way/Via Marina Alignment Alternative, a portion of the project (at the intersection of Marquesas Way and Via Marina) would take place within the County of Los Angeles, and residences on the east side of Via Marina (located within the County of Los Angeles) have the potential to be affected by project-related construction noise. The Noise Control Ordinance of the County of Los Angeles (County) has established both general and construction noise and vibration limits for four types of land use "noise zones": noise-sensitive areas, residential properties, commercial properties, and industrial properties. The relevant standards are summarized in Table 3-1.

Table 3-1: Summary of Applicable LORS

Publication	Section	Applies to	Max Level	Measured At
City of Los Angeles Noise Ordinance	Los Angeles Municipal Code Section 112.05	Powered equipment, hand tool, or construction machinery in or within 500 feet of a residential zone	75 dBA	50 feet from noise-producing equipment
City of Los Angeles CEQA Thresholds Guide	Chapter I, Section 2, Subsection A	Construction Activities lasting more than 10 days in a 3-month period	Ambient + 5dBA	At a noise sensitive use
City of Los Angeles CEQA Thresholds Guide	Chapter I, Section 2, Subsection A	Any construction activities between 9:00 PM. and 7:00 AM. Monday through Friday, before 8:00 AM. or after 6:00 PM. on Saturday, or anytime on Sunday	Ambient + 5dBA	At the location of sensitive receptors
County of Los Angeles Noise Ordinance	Los Angeles County Code Title 12, Chapter 12.08, Section 12.08.390	Operation of any source of sound at any location within the unincorporated county	See Section 3.2.1	Exterior on any other property
County of Los Angeles Noise Ordinance	Los Angeles County Code Title 12, Section 12.08.440	Construction Activities affecting unincorporated County residential or commercial use.	See Section 3.2.2	At the location of sensitive receptors
County of Los Angeles Noise Ordinance	Los Angeles County Code, Section 12.08.560	"Any Device" Vibration Motion Velocity	0.01 in/sec over a range of 1 to 100 Hz	At or beyond the property boundary of the source, or 150 feet from the source if on a public space or public right-of-way

3.2 THRESHOLDS OF SIGNIFICANCE

Operational and construction noise and vibration are treated separately in the following four subsections.

3.2.1 Operational Noise

Screening Criteria are given in the Los Angeles CEQA Guidelines: If the proposed project triggers a "yes response to the following questions, than further study would be required:

- Would the project introduce a stationary noise source likely to be audible beyond the property line of the project site?
- Would the project include 75 or more dwelling units, 100,000 square feet or greater of nonresidential development, or have the potential to generate 10,000 or more average daily vehicle trips?

In the operational noise evaluation outlined in the Los Angeles Draft CEQA Guidelines, the thresholds for impact are based on the net change in the environmental noise level due to the project alternative. Similarly noise-sensitive land uses are grouped, and ambient noise levels are classified according to their compatibility with the various land use types. For each land use group, the ambient level is either Normally Acceptable, Conditionally Acceptable, Normally Unacceptable, or Clearly Unacceptable. The land use compatibility categories and their associated noise levels are given in Table 3-2.

Table 3-2. Land Use Compatibility Categories and Noise Levels

Land Use	Ambient Community Noise Exposure Level (dBA CNEL)		
	Normally/Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
single-family, duplex, mobile homes, multi-family homes	50 – 70	70 – 75	above 70
schools, libraries, churches, hospitals, nursing homes, motels, hotels	50 – 70	70 – 80	above 80
auditoriums, concert halls, amphitheatres	50 – 70	***	above 65
sports arenas, outdoor spectator sports	50 – 75	***	above 70
playgrounds, neighborhood parks	50 – 70	67 – 75	above 72
golf courses, riding stables, water recreation, cemeteries	50 – 75	70 – 80	above 80
office buildings, business and professional commercial	50 – 77	Above 75	***
industrial, manufacturing, utilities, and agriculture	50 – 80	Above 75	***

Source: Draft L.A. CEQA Thresholds Guide, Section I.2.A. *** values not given in Thresholds Guide

A project would have a significant impact on community noise if the operations caused the ambient noise level at the property line of the affected uses to either:

- Increase by 5 dBA CNEL or more, or
- Increase by 3 dBA CNEL *and* rise into either the Normally Unacceptable or Clearly Unacceptable category.

These criteria apply to various noise sources, respond to heightened community annoyance caused by late-night or early-morning noise, and respond to varying sensitivity of communities under different ambient conditions to noise from projects.

The County of Los Angeles addresses noise in Chapter 12.08 (Noise Control) of the County Code. Section 12.08.390 lists exterior noise standards for various land use zones. These noise standards are listed in Table 3-3. The noise standards shown in Table 3-3 would apply at residential and commercial structures that are within the unincorporated County and adjacent to the portion of the Via Marina Alignment Alternative taking place in the unincorporated County.

Table 3-3. Los Angeles County Exterior Noise Standards

Noise Zone	Designated Noise Zone Land Use (Receptor property)	Time Interval	Exterior Noise Level (dBA)
I	Noise-Sensitive Area	Anytime	45
II	Residential Property	10:00 PM to 7:00 AM 7:00 AM to 10:00 PM	45 50
III	Commercial Property	10:00 PM to 7:00 AM 7:00 AM to 10:00 PM	55 60
IV	Industrial Property	Anytime	70

Source: Los Angeles County Code, Section 12.08.390

If any Project alignment alternative exceeded the relevant noise criteria for impact, then noise abatement actions would be considered. Noise from any Project alignment alternative that is predicted to exceed the criteria for impact under CEQA would result in a significant adverse effect. In such a case, feasible/effective noise mitigation measures would need to be considered. If feasible/effective mitigation actions were not available, then unavoidable adverse impacts would occur if the particular alternative were to be selected.

3.2.2 Construction Noise

Depending upon the method of construction chosen, short-term increases in noise from construction would result from the operation of heavy equipment needed to construct the tunnels or cut, dig and re-fill the trenches and insert the pipeline for the Project. The City of Los Angeles regulates noise from construction, and the contractor will be required to adhere to these regulations.

Construction screening criteria are given in the Los Angeles CEQA Guidelines. If the proposed project triggers a "yes response to the following questions, than further study would be required:

- Would construction activities occur within 500 feet of a noise sensitive use?
- For projects located within the City of Los Angeles, would construction occur between the hours of 9:00 PM and 7:00 AM Monday Through Friday, before 8:00 AM or after 6:00 pm on Saturday, or at anytime on Sunday?

The City of Los Angeles Noise Ordinance (L.A.M.C. Section 112.03) regulates construction noise by referencing Section 41.40 of the Los Angeles Municipal Code. Section 41.40(a) prohibits use of any noise-producing device or powered equipment for construction or repair work on any building or structure between the hours of 9:00 PM and 7:00 AM on weekdays. Section 41.40(c) prohibits non-emergency grading or construction, other than by an individual homeowner on his/her own single-family residence, on or within 500 feet of residential land before 8:00 AM and after 6:00 PM on Saturdays and national holidays, and at any time on Sundays. These sections also prohibit operation, repair, or servicing of construction equipment and job-site delivering of construction materials during those hours.

The County of Los Angeles addresses noise from construction activities in Section 12.08.440 (Construction Noise) of the Los Angeles County Code. The operation of any tools used for construction or related activities such that a noise disturbance is created at a residential or commercial land use is prohibited on weekdays between 7:00 PM and 7:00 AM or at any time on Sundays or holidays. The noise standards listed in Table 3-4 are applicable to construction activities conducted within the unincorporated County. The only exception to this is in the case of emergency work of public service utilities or by variance issued by the County health officer.

Table 3-4. Los Angeles County Noise Standards for Mobile Construction Equipment

	Single-Family Residential	**Multi-Family Residential**	**Semi-Residential/ Commercial**
Daily, except Sundays and legal holidays, 7:00 AM to 8:00 PM	75 dBA	80 dBA	85 dBA
Daily, 8:00 PM to 7:00 AM and all day Sundays and legal holidays	60 dBA	64 dBA	70 dBA

Source: Los Angeles County Code, Section 12.08.440

3.2.3 Construction and Operations Vibration

The City of Los Angeles does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this project.

The County of Los Angeles addresses vibration in Section 12.08.560 of the County Code. Vibration from any device is prohibited that creates vibration above the threshold of perception at a distance of 150 feet from the source if the source is on a public space or public right-of-way. The threshold of perception is defined as 0.01 inch per second over the range of 1 to 100 Hertz.

4.0 IMPACT RESULTS

Section 4.1 addresses the results of the evaluation of Project noise impacts, and Section 4.2 addresses the results of the evaluation of Project vibration impacts.

4.1 NOISE

Project-related noise effects are presented for the two major phases of the project: operations and construction

4.1.1 Operations Noise

No-Build Alternative (No Project)

Under the No-Build Alternative, no new pipelines would be installed and the sewer system would continue to operate in the current manner. No significant noise effect is anticipated from the No-Build Alternative.

All "Build" Alignment Alternatives: Marquesas Way / Via Marina Alignment; Pacific Avenue Alignment; Dockweiler Beach / Pacific Avenue Alignment; Dockweiler Beach Alignment

No additional powered, noise-producing machinery such as pumps, compressors, motors etc. will be installed as part of this project. The physical elements of the project would consist of underground sewer pipe, which under normal operation would not produce audible or measurable noise at nearby noise-sensitive land uses. No significant noise effect is anticipated from operation of this project for any of the alignment alternatives.

Once in operation, the proposed underground sewer line would not generate noise in the surrounding community. No new stationary source noise equipment (such as pumps or motors) would be added as part of this project. Further, the project would not include additional dwellings or nonresidential development, nor would it have the potential to generate additional average daily vehicle trips; thus, no operational noise impacts would result from this project.

4.1.2 Construction Noise

Construction operations have the potential to temporarily increase noise levels at noise-sensitive land uses located near the project alignment or along construction vehicle routes.

Potential noise impacts from the construction phase of the various project alignment alternatives were assessed for each of the applicable construction methods (open trench, microtunneling, and large-diameter tunneling) and are summarized below.

4.1.2.1 No-Build Alternative (No Project)

Under the No-Build Alternative, no new pipeline would be installed and the construction would not occur. No significant noise effect is anticipated from the No-Build Alternative.

4.1.2.2 Marquesas Way / Via Marina Alignment

Open Trench Method: The open trench method (also known as cut-and-cover) for underground pipeline installation would include driving of sheet-piles, trenching (approximately 8 feet wide by up to 12 feet deep), pipe installation and backfill, compaction and repaving. Construction of the proposed 3,200 foot long Marquesas Way/Via Marina Alignment is expected to result in temporary increases in noise levels in the vicinity of construction sites for a period of up to two weeks around each active open trench zone, up to two months around the micro-tunneling jacking and extraction shafts between the estimated start (Year 2008) and end (Year 2010) of construction. Based upon construction worker and equipment information supplied by the project team, typical open trench activities for the project would require up to 28 workers on site per day, approximately 15 different types of equipment (i.e., concrete saw, pavement breaker, pile driver, crane, water truck, sweeper, haul truck, etc.), and approximately 15 round-trip truck loads per day for muck removal and supply delivery.

The construction of the pipeline would proceed in a sequential fashion from one section of pipe to the next, although more than one construction team may be at work along the alignment at any one time; it is assumed that approximately 40 feet of pipe installation would occur per day. Thus, construction noise will be taking place at different locations along the route at any given time, and noise impacts at any one point are short-term, typically lasting less than two weeks. Construction is planned to take place during normal weekday working hours. Table 4-1 lists the predicted noise levels from pipeline construction activities for the project at a reference distance of 50 feet. As Table 4-1 shows, the predicted noise levels from pipeline construction range from approximately 87 to 108 dBA at a distance of 50 feet.

TABLE 4-1
NOISE LEVELS FROM TYPICAL OPEN TRENCH CONSTRUCTION ACTIVITIES

Construction Activity[1]	Average Noise Level @ 50 feet (dBA)
Pile Driving (Impact)	Varies; up to 108
Trench Excavation	87
Pipe Laying	87
Pipe Bedding and Backfill	88
1 – Note that each of these activities are inclusive of the typical number and type of equipment necessary for that activity, and.would take place separately from the standpoint of any one noise-sensitive receiver	
Source: Acentech, 1999 (all levels except pile driving. For pile driving noise level, Technical European Sheet Piling Association, 2001)	

The pipeline alignment along the Marquesas Way/Via Marina Alignment would result in open trench construction activities taking place within approximately 25 feet of adjacent residences. Because construction noise increases and decreases at a rate of approximately 6 decibels per doubling (or halving) of distance, residences that are directly adjacent to an active open trench zone would experience noise levels of approximately 93 to 114 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 dBA to 102 dBA. Noise levels of this magnitude would violate the County of Los Angeles noise standards for construction activities taking place within the unincorporated County (i.e., at Marquesas Way and Via Marina), and would constitute a short-term but significant impact unless mitigation measures are implemented. Providing that construction activities take place within the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 AM to 9:00 PM on weekdays, 8:00 AM to 6:00 PM on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area, the noise levels at residences along the entire Marquesas Way/Via Marina Alignment would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for open trench construction activities are listed in Section 5.1.2.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of Occupational Safety and Health (Cal OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, §5095, et seq.) for worker noise exposure. Compliance with Cal/OSHA regulations will ensure that construction personnel are adequately protected from potential noise hazards. The noise exposure level to protect hearing of workers is regulated at 90 dBA Time-Weighted Average (TWA) over an eight-hour work shift. Areas above 85 dBA sound pressure level will be posted as high noise level areas and hearing protection will be provided and required to be worn. The project owners will implement or require implementation of a hearing conservation program for applicable employees as outlined in Cal/OSHA regulations.

The incremental increase in traffic volumes associated with the project alternative using open-trench construction was examined for the potential to increase offsite traffic noise levels. Based upon the traffic analysis conducted for the project (Kaku, 2005), the project alternative using open-trench construction is expected to result in a peak worker trip generation of approximately 28 worker trips. Because of the widespread nature of the work force, these worker trips are expected to originate from the north, east and south, and thus would enter and exit the project area from a variety of major roadways, all carrying relatively large volumes of traffic. The effect of this relatively small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 15 round-trip truckloads per day for excess material and supplies would not constitute a significant

noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

Micro-Tunneling Method: Micro-tunneling is a trenchless construction method which utilizes hydraulic jacks to push pipes through the ground behind a remotely operated Tunnel Boring Machine (TBM). Unlike conventional open trenching techniques that require excavation for the entire length of pipeline, excavation for micro-tunneling is limited to the endpoints of each drive at designated launching (jacking) and receiving pits. The launching pit contains the hydraulic jacks used to push the pipes. The receiving pit is used to recover the TBM at the end of each drive. The excavated material is carried via augers and conveyors, or by recycled slurry through closed-system pipelines to the surface for processing and disposal. Work can proceed intermittently, although it is sometimes necessary to proceed continuously at the end of long drives through sticky soils to prevent the pipe from getting stuck short of the receiving pit. Removal of the excavated soil materials from the drilling mud is accomplished by vibrating screens and cyclones installed at the surface near the jacking pit. The waste material is hauled away for disposal offsite. The remote control cabin for operating the TBM, as well as cranes and other construction equipment are at the surface near the jacking pit. The equipment setup is site specific, depending upon the available space. The jacking pipe, which is made of reinforced concrete or steel, serves as temporary tunnel liner. Upon completion of the tunnel drive, the carrier pipe is inserted and the annular space between it and the jacking pipe is filled with grout.

Based upon construction worker and equipment information supplied by the project team, typical micro-tunneling activities for the project would require 10 to 17 workers on site per day, approximately 9 different types of equipment (i.e., hydraulic jack, crane, generator/air compressor, tunneling machine etc.), and approximately 8 round-trip truck loads per day for muck removal and supply delivery. Because of the nature of the work (i.e., to preclude the possibility that the TBM could get stuck if left in place without rotating), micro-tunneling operations may extend beyond normally permitted hours for construction activities.

Unlike the open trench method of pipeline installation, in which noise-sensitive land uses along the entire alignment would be exposed to noise from construction activities, micro-tunneling would expose only the noise-sensitive uses in the vicinity of the launch and receiving pits to construction noise. However, the duration of noise exposure at any one affected noise-sensitive land use location would be longer for micro-tunneling than from the open trench method. Construction noise emissions from micro-tunneling would be dominated by stationary equipment (generators to power the TBM, a crane and trucks to move and load pipe segments, etc.). Assuming five pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, a supply truck and two air compressors), the typical noise level from micro-tunneling activity would be approximately 88 dBA at a distance of 50 feet, as shown in Table 4-2.

TABLE 4-2
NOISE LEVELS FROM TYPICAL

MICRO-TUNNELING EQUIPMENT OPERATIONS

Equipment Type	Average Noise Level @ 50 feet (dBA)
Power Unit for TBM	84
Crane	81
Supply or Muck Truck	81
Generator/Air Compressors (2)	80
Combined Noise Level	**88**
Source: Boyle Engineering, 2003.	

The proposed locations of the launch and receiving pit work areas for the Marquesas Way/Via Marina Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 100 feet (at the receiving pit located near the Venice Pumping Plant at Hurricane Street) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience noise levels of approximately 88 dBA. Because construction noise decreases at a rate of approximately 6 decibels per doubling of distance, residences located 100 feet from the micro-tunneling activity would experience noise levels of approximately 82 dBA. Noise levels of this magnitude would violate the County of Los Angeles noise standards for construction activities taking place within the unincorporated County (i.e., at Marquesas Way and Via Marina), and would constitute a short-term but significant impact unless mitigation measures are implemented. Providing that construction activities take place within the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 AM to 9:00 PM on weekdays, 8:00 AM to 6:00 PM on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.1.2.

The incremental increase in traffic volumes associated with the project alternative using micro-tunneling was examined for the potential to increase offsite traffic noise levels. Based upon the traffic analysis conducted for the project (Kaku, 2005), the project alternative using micro-tunneling is expected to result in a peak worker trip generation of approximately 17 worker trips. Because of the widespread nature of the work force, these worker trips are expected to originate from the north, east and south, and thus would enter and exit the project area from a variety of major roadways, all carrying relatively large volumes of traffic. The effect of this relatively

small increase in vehicle trips on levels of local traffic noise would not be audible or measurable. and thus would not be a significant impact. Similarly, the estimated 8 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

4.1.2.3 Pacific Avenue Alignment – North and South

Similarly to the Marquesas Way/Via Marina Alignment, the Pacific Avenue Alignment project alternative was assessed for both the open-trench and the micro-tunneling construction method, as described in Section 4.1.2.2.

Open Trench Method: The pipeline alignment along the Pacific Avenue Alignment would result in open trench construction activities taking place within approximately 25 feet of adjacent residences along most of the project alignment. Because construction noise increases and decreases at a rate of approximately 6 decibels per doubling (or halving) of distance, residences that are directly adjacent to an active open trench zone would experience noise levels of approximately 93 to 114 dBA. Residences at a distance of 100 feet from the construction activity would experience noise levels of approximately 81 dBA to 102 dBA. Providing that construction activities take place within the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 AM to 9:00 PM on weekdays, 8:00 AM to 6:00 PM on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area, the noise levels at residences along the entire Pacific Avenue Alignment would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for open trench construction activities are listed in Section 5.1.2.

The incremental increase in traffic volumes associated with the project alternative using open-trench construction was examined for the potential to increase offsite traffic noise levels. Based upon the traffic analysis conducted for the project (Kaku, 2005), the project alternative using open-trench construction is expected to result in a peak worker trip generation of approximately 28 worker trips. Because of the widespread nature of the work force, these worker trips are expected to originate from the north, east and south, and thus would enter and exit the project area from a variety of major roadways, all carrying relatively large volumes of traffic. The effect of this relatively small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 15 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

Micro-Tunneling Method: The proposed locations of the launch and receiving pit work areas for the Pacific Avenue Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience noise levels of approximately 88 dBA. Because construction noise decreases at a rate of approximately 6 decibels per doubling of distance, residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 AM to 9:00 PM on weekdays, 8:00 AM to 6:00 PM on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.1.2.

The incremental increase in traffic volumes associated with the project alternative using micro-tunneling was examined for the potential to increase offsite traffic noise levels. Based upon the traffic analysis conducted for the project (Kaku, 2005), the project alternative using micro-tunneling is expected to result in a peak worker trip generation of approximately 17 worker trips. Because of the widespread nature of the work force, these worker trips are expected to originate from the north, east and south, and thus would enter and exit the project area from a variety of major roadways, all carrying relatively large volumes of traffic. The effect of this relatively small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 8 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

4.1.2.4 Dockweiler Beach Alignment – North and South

Similarly to the Marquesas Way/Via Marina and Pacific Avenue Alignments, the Dockweiler Beach Alignment project alternative was assessed for both the open-trench and the micro-tunneling construction method, as described in Section 4.1.2.2.

Open Trench Method: The pipeline alignment along the Dockweiler Beach Alignment would result in open trench construction activities taking place within approximately 25 feet of adjacent residences along Hurricane Street, and within approximately 100 feet of residences along The Strand. Because construction noise increases and decreases at a rate of approximately 6 decibels per doubling (or halving) of distance, residences that are directly adjacent to an active open trench zone would experience noise levels of approximately 93 to 114 dBA. Residences at a

distance of 100 feet from the construction activity would experience noise levels of approximately 81 dBA to 102 dBA. Providing that construction activities take place within the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 AM to 9:00 PM on weekdays, 8:00 AM to 6:00 PM on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because of the proximity of noise-sensitive land uses to the construction work area, the noise levels at residences along the entire Dockweiler Beach Alignment would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for open trench construction activities are listed in Section 5.1.2.

The incremental increase in traffic volumes associated with the project alternative using open-trench construction was examined for the potential to increase offsite traffic noise levels. Based upon the traffic analysis conducted for the project (Kaku, 2005), the project alternative using open-trench construction is expected to result in a peak worker trip generation of approximately 28 worker trips. Because of the widespread nature of the work force, these worker trips are expected to originate from the north, east and south, and thus would enter and exit the project area from a variety of major roadways, all carrying relatively large volumes of traffic. The effect of this relatively small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 15 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

Micro-Tunneling Method: The proposed locations of the launch and receiving pit work areas for the Dockweiler Beach Alignment would result in construction activities taking place within approximately 100 feet (at the receiving pits located near the Venice Pumping Plant, at the west end of Hurricane Street and at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek channel) of adjacent residences. Because construction noise decreases at a rate of approximately 6 decibels per doubling of distance, residences located 100 feet from the construction activity would experience noise levels of approximately 82 dBA. Residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Providing that construction activities take place within the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 AM to 9:00 PM on weekdays, 8:00 AM to 6:00 PM on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.1.2.

The incremental increase in traffic volumes associated with the project alternative using micro-tunneling was examined for the potential to increase offsite traffic noise levels. Based upon the traffic analysis conducted for the project (Kaku, 2005), the project alternative using micro-tunneling is expected to result in a peak worker trip generation of approximately 17 worker trips. Because of the widespread nature of the work force, these worker trips are expected to originate from the north, east and south, and thus would enter and exit the project area from a variety of major roadways, all carrying relatively large volumes of traffic. The effect of this relatively small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 8 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

4.1.2.5 Marina Del Rey Channel Alignments

The Marina del Rey and Ballona Creek channels would be crossed using micro-tunneling construction methods, as described in Section 4.1.2.2 (Micro-Tunneling Method). For any combination of north and south alignments, the launching shaft would be located on the southern shore of the channel and the receiving shaft would be on the northern shore of the channel. Depending upon which of the six potential alignments is selected, the length of the channel crossing would be approximately 1,300 feet to 1,900 feet.

The proposed locations of the launch and receiving pit work areas for the Marina del Rey Channel Alignments would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 150 feet (at the two launch pits just south of the Ballona Creek channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience noise levels of approximately 88 dBA. Because construction noise decreases at a rate of approximately 6 decibels per doubling of distance, residences located 150 feet from the micro-tunneling activity would experience noise levels of approximately 78 dBA. Noise levels of this magnitude would violate the County of Los Angeles noise standards for construction activities taking place within the unincorporated County (i.e., at Marquesas Way and Via Marina), and would constitute a short-term but significant impact unless mitigation measures are implemented. Providing that construction activities take place within the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance (i.e., 7:00 AM to 9:00 PM on weekdays, 8:00 AM to 6:00 PM on Saturdays and national holidays, and at no time on Sundays), construction taking place within the City of Los Angeles would not violate the Noise Ordinance. However, because construction may extend beyond these hours and because of the proximity of noise-sensitive land uses to the micro-tunneling work areas, the noise levels at residences adjacent to the launch and receiving pit work areas would be of a magnitude that would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for micro-tunneling construction activities are listed in Section 5.1.2.

The incremental increase in traffic volumes associated with the project alternative using micro-tunneling was examined for the potential to increase offsite traffic noise levels. As for the Marquesas Way/Via Marina, Pacific Avenue and Dockweiler Beach Alignment alternatives, project-related construction traffic would not materially affect traffic noise levels. There would be no significant traffic noise impact.

4.1.2.6 Large-DiameterTunneling Alignment Alternatives

The four full-length large-diameter tunneling alignments with short open trench segments were evaluated as part of this project. In contrast to small-diameter micro tunnels, which are constructed by remote controlled pipe-jacking, full-size tunnels (i.e. minimum excavated diameter = 8 to 10 feet) allow for manned operations at the tunnel face. Whereas micro tunnels must be constructed in relatively small increments (with intermediate shafts usually spaced no more than about 1,000 ft apart) full-size tunnels may be constructed at any length. The following tunnel alignment alternatives are being evaluated:

1. Beach alignment with open trench connections to Venice Pumping Plant (VPP) in the north and Coast Interceptor Sewer (CIS) along Vista del Mar in the south.

2. Beach alignment with open trench connection to VPP and direct tunnel connection to North Outfall Sewer (NOS) or CIS - via a shaft on LAX property.

3. Beach alignment with direct tunnel connections to VPP and NOS or CIS - via a shaft on LAX property.

4. Direct (inland) tunnel connection between VPP and NOS or CIS - via a shaft on LAX property.

The majority of the large-diameter tunnel alignment would be constructed at a depth of 80 to 100 feet beneath the surface. Based upon construction worker and equipment information supplied by the project team, typical large-diameter tunneling activities for the project would require 25 workers on site per shift, approximately 16 different types of equipment (i.e., tunnel boring machine, diesel locomotive, muck cars, crane, fans, pumping system, etc.), and approximately 18 round-trip truck loads per day for muck removal and supply delivery. Large-diameter tunnel operations would likely continue around the clock, although nighttime activities would be arranged so as to avoid noisy and otherwise disturbing events at nearby sensitive receptors whenever practicable.

Activities from large-diameter tunnel construction would be similar in type but larger in scale, compared with micro-tunneling. Crew size and equipment type and number would be greater, although much of the equipment (such as the diesel locomotive) and crew would remain underground while in operation and thus would not materially contribute to above-ground noise levels. Additionally, as listed above two of the four large-diameter tunnel alignment alternatives would include a limited amount (approximately 50 to 300 feet) of open trench work at the north and south connection points, which would result in noise levels comparable to those listed in the open-trench noise analysis above. Assuming ten pieces of heavy equipment operating simultaneously (the power unit for the TBM, a crane, supply trucks, fans and generators/air compressors), the typical noise level from large-diameter tunneling activity would be approximately 91 dBA at a distance of 50 feet, as shown in Table 4-3.

TABLE 4-3
NOISE LEVELS FROM TYPICAL
LARGE-DIAMETER TUNNELING EQUIPMENT OPERATIONS

Equipment Type	Average Noise Level @ 50 feet (dBA)
Power Unit for TBM	87
Crane	81
Supply Trucks (2)	84
Fans (2)	77
Generator/Air Compressors (4)	83
Combined Noise Level	**91**
Source: Boyle Engineering, 2003, URS Corporation, 2005.	

The proposed locations of the tunnel construction shafts would result in construction activities taking place within approximately 100 feet (near the Venice Pumping Plant at Hurricane Street) to 200 feet (at the proposed shaft on LAX property) of adjacent residences. Because construction noise decreases at a rate of approximately 6 decibels per doubling of distance, residences located 100 feet from the large-diameter tunneling activity would experience noise levels of approximately 82 dBA. Residences located 200 feet from an active large-diameter tunneling work area would experience noise levels of approximately 76 dBA. Because large-diameter tunneling activities are expected to take place outside the proscribed hours of operation set forth in the City of Los Angeles Noise Ordinance and because of the proximity of noise-sensitive land uses to the work areas, construction noise would constitute a short-term but significant impact unless mitigation measures are implemented. Mitigation measures for large-diameter tunneling construction activities are listed in Section 5.1.2.

Based upon the construction noise data, noise levels on the construction site could exceed federal Occupational Safety and Health Act (OSHA) and California Department of Industrial Relations, Division of Occupational Safety and Health (Cal OSHA) regulations (8 CCR, General Industrial Safety Orders, Article 105, Control of Noise Exposure, §5095, et seq.) for worker noise exposure. Compliance with Cal/OSHA regulations will ensure that construction personnel are adequately protected from potential noise hazards. The noise exposure level to protect hearing of workers is regulated at 90 dBA Time-Weighted Average (TWA) over an eight-hour work shift. Areas above 85 dBA sound pressure level will be posted as high noise level areas and hearing protection will be provided and required to be worn. The project owners will implement or require implementation of a hearing conservation program for applicable employees as outlined in Cal/OSHA regulations.

The incremental increase in traffic volumes associated with the large-diameter tunneling project construction alternative was examined for the potential to increase offsite traffic noise levels. Based upon the traffic analysis conducted for the project (Kaku, 2005), the large-diameter project construction alternative is expected to result in a peak worker trip generation of approximately 25 worker trips. Because of the widespread nature of the work force, these worker trips are expected to originate from the north, east and south, and thus would enter and exit the project area from a variety of major roadways, all carrying relatively large volumes of traffic. The effect of this relatively small increase in vehicle trips on levels of local traffic noise would not be audible or measurable, and thus would not be a significant impact. Similarly, the estimated 18 round-trip truckloads per day for excess material and supplies would not constitute a significant noise impact, given the relatively high traffic volumes along the designated truck routes that the trucks would use.

4.2 VIBRATION

4.2.1 Operational Vibration

No additional powered machinery such as pumps, motors etc. will be installed as part of this project. Thus the operation of the pipeline is not anticipated to cause measurable or perceptible levels of vibration at adjacent land uses.

4.2.2 Construction Vibration

Groundborne vibration from heavy equipment operations during project construction were evaluated and compared with relevant vibration impact criteria. Ground-borne vibration is a small, rapidly fluctuating motion transmitted through the ground. Ground-borne vibration diminishes (or "attenuates") fairly rapidly over distance. Some soil types transmit vibration quite efficiently; other types (primarily "sandy" soils) do not. The Federal Transit Authority's (FTA's) *Transit Noise and Vibration Impact Assessment Manual* (1995) provides vibration impact criteria and recommended methodologies and guidance for assessment of vibration effects.

Vibration resulting from activities during project construction were analyzed, using the methodology contained in Section 10.2 of the FTA Manual. Vibration source levels for a variety of typical construction equipment types are supplied in Table 10-4 of the Manual in terms of peak particle velocity (PPV) in inches per second at a reference distance of 25 feet from the source. The reference source vibration level is then adjusted for the actual distance of interest using the equation

$$PPV_{equip} = PPV_{ref}\left(\frac{25}{D}\right)^{1.5}$$

where PPV_{equip} is the predicted vibration level at the receptor, PPV_{ref} is the reference source level, and D is the distance from the construction activity to the receptor.

The following discussion summarizes the results of the analysis conducted for each of the alternative construction methods, by alignment alternatives.

4.2.2.1 No-Build Alternative (No Project)

Under the No-Build Alternative, no new pipelines would be installed and the sewer system would continue to operate in the current manner. No significant vibration effect is anticipated from the No-Build Alternative.

4.2.2.2 Marquesas Way / Via Marina Alternative

The Marquesas Way / Via Marina Alignment project alternative was assessed for both the open-trench and the micro-tunneling construction methods.

Open Trench Method: The pipeline alignment along the Marquesas Way/Via Marina Alignment would result in open trench construction activities taking place within approximately 25 feet of

adjacent residences. If conventional pile-driving methods were utilized to install the sheet-piles during open-trench construction, the predicted vibration level at a distance of 25 feet would be approximately 0.644 inches per second assuming "typical" vibration levels for impact pile-driving. Thus, the FTA criteria levels for potential damage to fragile structures (0.20 inches per second) would be exceeded. The Los Angeles County vibration standard of 0.01 inches per second would also be exceeded at a distance of 150 feet as specified in the County Code. At a distance of 150 feet, the predicted vibration level from conventional pile-driving would be approximately 0.044 inches per second. Thus a significant impact would result from pile-driving activities during open-trench work, unless mitigation measures are implemented. Other activities associated with open-trench construction, such as loaded truck movements, backhoe loader/compactor, etc., would result in vibration levels of 0.076 inches per second at 25 feet or less, and 0.005 inches per second or less at 150 feet. Thus, there would be no significant vibration impact from construction activities other than pile-driving. Mitigation measures for pile-driving during open trench construction are listed in Section 5.2.2.

Micro-Tunneling Method: The proposed locations of the launch and receiving pit work areas for the Marquesas Way/Via Marina Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 100 feet (at the receiving pit located near the Venice Pumping Plant at Hurricane Street) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience vibration levels of approximately 0.031 inches per second. Residences located 100 feet from the micro-tunneling activity would experience vibration levels of approximately 0.011 inches per second. FTA criteria levels for potential damage to fragile structures (0.20 inches per second) would not be exceeded. At 150 feet (the County of Los Angeles' distance criteria for vibration impact), the vibration level would be approximately 0.006 inches per second, which is below the County vibration standard. No significant vibration impact from micro-tunneling activities are predicted for the Marquesas Way/Via Marina Alignment.

4.2.2.3 Pacific Avenue Alignment – North and South

Similarly to the Marquesas Way/Via Marina Alignment, the Pacific Avenue Alignment project alternative was assessed for both the open-trench and the micro-tunneling construction methods.

Open Trench Method: The pipeline alignment along the Pacific Avenue Alignment would result in open trench construction activities taking place within approximately 25 feet of adjacent residences along most of the project alignment. Residences that are directly adjacent to an active open trench zone would experience vibration levels of up to 0.644 inches per second from conventional pile-driving. Residences at a distance of 100 feet from the construction activity would experience vibration levels of approximately 0.081 inches per second from pile-driving. Thus a significant impact would result from pile-driving activities during open-trench work, unless mitigation measures are implemented. Other activities associated with open-trench

construction, such as loaded truck movements, backhoe loader/compactor, etc., would result in vibration levels of 0.076 inches per second at 25 feet or less, and 0.010 inches per second or less at 100 feet. Thus, there would be no significant vibration impact from construction activities other than pile-driving. Mitigation measures for pile-driving during open trench construction are listed in Section 5.2.2.

Micro-Tunneling Method: The proposed locations of the launch and receiving pit work areas for the Pacific Avenue Alignment would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Pacific Avenue) to 150 feet (at the launch pit located just south of the Ballona Creek channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience vibration levels of approximately 0.031 inches per second. Residences located 150 feet from the micro-tunneling activity would experience vibration levels of approximately 0.006 inches per second. FTA criteria levels for potential damage to fragile structures (0.20 inches per second) would not be exceeded. No significant vibration impact from micro-tunneling activities are predicted for the Pacific Avenue Alignment.

4.2.2.4 Dockweiler Beach Alignment – North and South

Similarly to the Marquesas Way/Via Marina and Pacific Avenue Alignments, the Dockweiler Beach Alignment project alternative was assessed for both the open-trench and the micro-tunneling construction methods.

Open Trench Method: The pipeline alignment along the Dockweiler Beach Alignment would result in open trench construction activities taking place within approximately 25 feet of adjacent residences along Hurricane Street, and within approximately 100 feet of residences along The Strand. . Residences that are directly adjacent to an active open trench zone would experience vibration levels of up to 0.644 inches per second from conventional pile-driving. Residences at a distance of 100 feet from the construction activity would experience vibration levels of approximately 0.081 inches per second from pile-driving. Thus a significant impact would result from pile-driving activities during open-trench work, unless mitigation measures are implemented. Other activities associated with open-trench construction, such as loaded truck movements, backhoe loader/compactor, etc., would result in vibration levels of 0.076 inches per second at 25 feet or less, and 0.010 inches per second or less at 100 feet. Thus, there would be no significant vibration impact from construction activities other than pile-driving. Mitigation measures for pile-driving during open trench construction are listed in Section 5.2.2.

Micro-Tunneling Method: The proposed locations of the launch and receiving pit work areas for the Dockweiler Beach Alignment would result in construction activities taking place within approximately 100 feet (at the receiving pits located near the Venice Pumping Plant, at the west end of Hurricane Street and at the southern end of Pacific Avenue) to 150 feet (at the launch pit

located just south of the Ballona Creek channel) of adjacent residences. Residences located 100 feet from the micro-tunneling activity would experience vibration levels of approximately 0.011 inches per second. Residences located 150 feet from the micro-tunneling activity would experience vibration levels of approximately 0.006 inches per second. FTA criteria levels for potential damage to fragile structures (0.20 inches per second) would not be exceeded. No significant vibration impact from micro-tunneling activities are predicted for the Dockweiler Beach Alignment.

4.2.2.5 Marina Del Rey Channel Alignments

The proposed locations of the launch and receiving pit work areas for the Marina del Rey Channel Alignments would result in construction activities taking place within approximately 50 feet (at the receiving pit located at the southern end of Via Marina) to 150 feet (at the two launch pits just south of the Ballona Creek channel) of adjacent residences. Residences located 50 feet from an active micro-tunneling work area would experience vibration levels of approximately 0.031 inches per second. Residences located 150 feet from the micro-tunneling activity would experience vibration levels of approximately 0.006 inches per second. FTA criteria levels for potential damage to fragile structures (0.20 inches per second) would not be exceeded. No significant vibration impact from micro-tunneling activities are predicted for the Marina Del Ray Channel Alignments.

4.2.2.6 Large-DiameterTunneling Alignment Alternatives

The proposed locations of the tunnel construction shafts would result in construction activities taking place within approximately 100 feet (near the Venice Pumping Plant at Hurricane Street) to 200 feet (at the proposed shaft on LAX property) of adjacent residences. Residences located 100 feet from the large-diameter-tunneling activity would experience vibration levels of approximately 0.011 inches per second. Residences located 200 feet from the large-diameter tunneling activity would experience vibration levels of approximately 0.004 inches per second. FTA criteria levels for potential damage to fragile structures (0.20 inches per second) would not be exceeded. No significant vibration impact from large-diameter tunneling activities are predicted for this alternative.

5.0 MITIGATION MEASURES

Sections 5.1 and 5.2 address noise and vibration mitigation measures, respectively. Each section addresses operational and construction impacts separately.

5.1 NOISE MITIGATION MEASURES

5.1.1 Operational Noise

Operational noise levels from the No Build Alternative and the proposed alignments are predicted to be less than significant. Therefore no abatement measures are recommended for the operational phase of the project.

5.1.2 Construction Noise

The following construction noise mitigation measures shall be implemented to the extent practicable. Use of these mitigation measures would reduce construction noise to a level below significance.

1. All construction activities shall be limited to the hours of 7:00 AM to 9:00 PM Monday through Friday (7:00 AM. to 7:00 PM for construction within the unincorporated County of Los Angeles), and 8:00 AM. to 6:00 PM. on Saturday. No construction or construction-related activities shall take place on any Sunday or national holiday.
2. Trucks shall be limited to designated truck routes and shall avoid residential streets to the extent practicable.
3. All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for such type of equipment.
4. All mobile or fixed noise-producing equipment used on the project, and that is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.
5. Pile-driving: "Press-in" pile drivers shall be utilized rather than impact or vibratory pile-drivers, if feasible. Use of this alternative pile driving technology would reduce pile-driving noise to a level below significance.
6. Temporary soundwall barriers shall be erected for launch and receiving pits and large-diameter tunnel shaft work areas. Such soundwall barriers shall be of a sufficient height, length and configuration so as to provide substantial noise reduction and effectively block the line-of-sight between nearby noise-sensitive receivers and the work zone.
7. Electrically-powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.
8. Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

9. Construction site and haul-road speed limits shall be established and enforced during the construction period.
10. The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.
11. No project-related public address or music system shall be audible at any adjacent receptor.
12. The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Bureau of Engineering shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.
13. The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.

5.2 VIBRATION MITIGATION MEASURES

5.2.1 Operational Vibration

Because no vibration impacts are predicted for operation of the project, no mitigation measures are necessary or recommended for the operational phase of the project.

5.2.2 Construction Vibration

The only vibration impact identified for the construction phase of the project was from pile-driving during open-trench type construction. Use of this mitigation measure would reduce construction noise to a level below significance.

1. Pile-driving: "Press-in" pile drivers shall be utilized rather than impact or vibratory pile-drivers, if feasible. Use of this alternative pile driving technology would reduce vibrations from pile-driving to a level below significance.

6.0 INDIRECT AND CUMULATIVE EFFECTS

Adverse indirect effects are not anticipated as a result of the project. Similarly, the project, when combined with other past, present and reasonably foreseeable future actions would not cause adverse cumulative noise effects. The project is consistent with all Federal, State and local land use plans. The project would not create unavoidable adverse environmental noise or vibration effects.

7.0 REFERENCES

Behrens and Associates, Inc (Behrens). November 11, 2002. *Venice Dual Force Main Construction Vibration Measurement Program, Construction Vibration Report and Construction Vibration Specifications*. Letter Report from Don Behrens to Sean Zahedi, City of Los Angeles Wastewater Conveying Engineering Division.

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U.S. Environmental Protection Agency. 1971. *Noise from Construction Equipment and Operations, Building Equipment and Home Appliances*. PB 206717. Prepared under contract by Bolt, et.al., Bolt, Beranek & Newman, Boston, MA. Washington, DC.

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Appendix A

Introduction to Noise, Construction Noise and Construction Vibration

Appendix A INTRODUCTION TO NOISE, CONSTRUCTION NOISE, AND CONSTRUCTION VIBRATION

In two primary sections, this appendix provides general information regarding the fundamentals of noise and construction noise and vibration. Section A-3 presents the references for this appendix.

A-1 Fundamentals of Noise

Noise is the common term used to describe "unwanted sound". The terms 'noise' and 'sound' are used interchangeably in this assessment.

A-1.1 A-Weighted Sound Level

The unit of sound pressure level measurement is the decibel (dB). It is a unit describing the amplitude of sound pressure compared to a reference pressure. Commonly encountered sound levels range from slightly above the threshold of hearing and very quiet (around 20 dBA) to very loud sounds at 130 dBA. The sound pressure level is mathematically equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to a reference pressure, which is 20 micropascals for acoustical analyses in air.

The most common descriptor of sound and noise associated with community noise measurements is the A-weighted sound pressure level, which is abbreviated as dBA. It is defined as the sound pressure level in decibels as measured on a sound meter using the A-weighting filter network. The A-weighted frequency filter de-emphasizes the very low and very high frequency components of sound in a manner similar to the frequency response of human hearing, and correlates well with people's group reactions to sound and environmental noise. All sound levels in this report are A-weighted. A-weighted sound pressure levels of typical sources of noise are shown in Table A-1.

Table A-1. Sound Levels of Typical Noise Sources and Noise Environments

Noise Source (at a Given Distance)	Scale of A-Weighted Sound Level in Decibels	Noise Environment	Human Judgment of Noise Loudness (Relative to a Reference Loudness of 70 Decibels*)
Military Jet Take-off with After-burner (50 ft) Civil Defense Siren (100 ft)	140 130	Aircraft Carrier Flight Deck	
Commercial Jet Take-off (200 ft)	120		Threshold of Pain *32 times as loud
Pile Driver (50 ft)	110	Rock Music Concert	*16 times as loud
Ambulance Siren (100 ft) Newspaper Press (5 ft) Power Lawn Mower (3 ft)	100		Very Loud *8 times as loud
Motorcycle (25 ft) Propeller Plane Flyover (1,000 ft) Diesel Truck, 40 mph (50 ft)	90	Boiler Room Printing Press Plant	*4 times as loud
Garbage Disposal (3 ft)	80	High Urban Ambient Sound	*2 times as loud
Passenger Car, 65 mph (25 ft) Vacuum Cleaner (10 ft)	70		Moderately Loud *70 decibels (Reference Loudness)
Normal Conversation (5 ft) Air Conditioning Unit (100 ft)	60	Data Processing Center Department Store	*1/2 as loud
Light Traffic (100 ft)	50	Private Business Office	*1/4 as loud
Bird Calls (distant)	40	Lower Limit of Urban Ambient Sound	Quiet *1/8 as loud
Soft Whisper (5 ft)	30	Quiet Bedroom	
	20	Recording Studio	Very Quiet
	10		
	0		Threshold of Hearing

Source: Compiled by URS Corporation

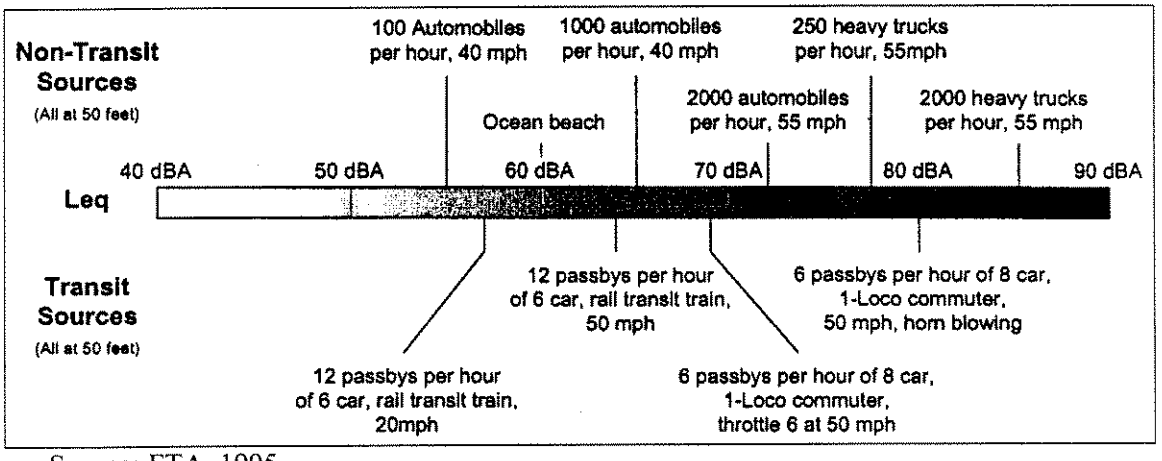
A-1.2 Equivalent Sound Level and Community Noise Equivalent Sound Level

The A-weighted sound levels of long-term noise-producing activities within and around a community vary with time. Certain noise descriptors are preferred for use in describing community noise environments. These descriptors are based upon noise energy and are called the Equivalent Noise Level (L_{eq}), and the Community Noise Equivalent Level (CNEL). CNEL is utilized by many jurisdictions within California, in lieu of the Day-Night Average Sound Level (DNL or L_{dn}). L_{eq} is defined as the continuous steady-state noise level that would have the same total acoustical energy as the real fluctuating noise measured during the same period. Although L_{eq} can be measured or computed for any period, it is typically specified for one hour ($L_{eq}(h)$) or 24 hours ($L_{eq}(24h)$). DNL is the same as a 24-hour L_{eq} except that noise occurring during the nighttime hours (10:00 p.m. – 6:59 a.m.) is weighted or penalized by 10

dBA. The nighttime penalty accounts for the increased annoyance of noise during typical sleeping hours. Both L_{eq} and DNL account for the tempo (operational frequency), acoustic magnitude, duration and time of day of noise events. CNEL differs from DNL only in that CNEL adds an additional penalty to the evening hours (7:00 p.m. to 10:00 p.m.). Many agencies and jurisdictions use the CNEL and DNL noise metrics interchangeably, because the difference between the two noise metrics is small in most cases (generally less than 1 dBA).

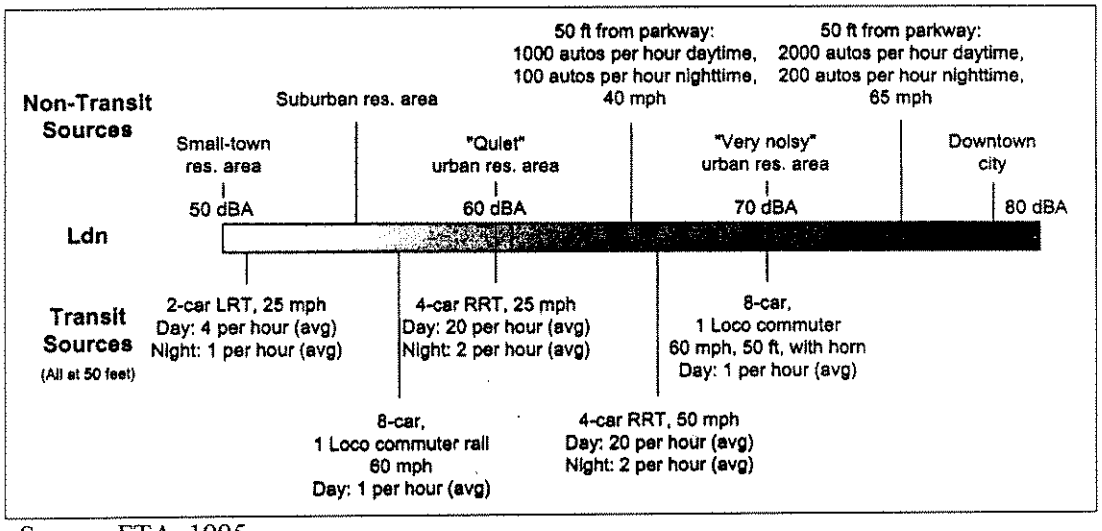
Both L_{eq} and CNEL/DNL descriptors are approved by various regulatory agencies for noise-related land use planning. The unit for each of these descriptors is dBA. Figure A-1 and Figure A-2 show typical L_{eq} and L_{dn}, respectively, for a variety of noise sources.

Figure A-1. Typical Hourly L_{eq}



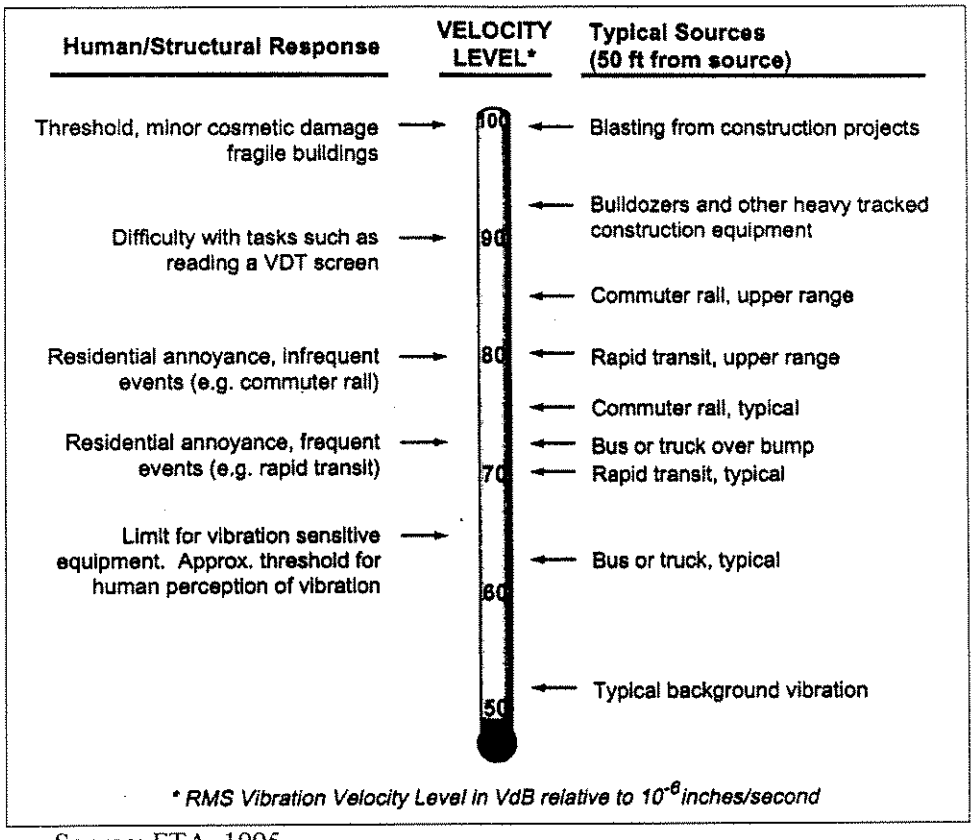
Source: FTA, 1995

Figure A-2. Typical L_{dn} Values



Source: FTA, 1995

Figure A-3. Typical Levels of Ground-Borne Vibration



Source: FTA, 1995

A-1.3 Insertion Loss

The insertion loss (abbreviated IL) is a measure of the effectiveness of a sound barrier. It is the noise level reduction at a specific receiver due to construction of a noise barrier between the noise source (such as traffic) and the receiver. Generally, it is the net effect of the (noise) barrier attenuation and the loss of ground effects.

A-1.4 Perception of Noise

Evaluating differences between an existing and total predicted future noise environment assesses the potential responses of persons to changes in their noise environment. The following relationships of perception and response to quantifiable increases in long-term sound level are used as a basis for assessing potential effects of transit noise:

- Except in a carefully controlled laboratory condition, a change of 1 dBA is very difficult to perceive.
- In the outside environment, a 3 dBA change is considered perceptible.

- An increase of 5 dBA is considered readily perceptible and would generally result in a change in community response to its noise environment.
- A 10 dBA increase is perceived as a doubling in loudness and would likely result in a widespread community response.

A-2 Vibration

Ground-borne vibration is a small, rapidly fluctuating motion transmitted through the ground. The strength of ground-borne vibration diminishes (or "attenuates") fairly rapidly over distance. Some soil types transmit vibration quite efficiently; other types (primarily "sandy" soils) do not. There are several basic measurement units commonly used to describe the intensity of ground vibration. The descriptors used by the Federal Transit Administration (FTA), one of the agencies which has thoroughly examined and set forth criteria and methodologies for community vibration analysis, are peak particle velocity, abbreviated PPV, in units of inches per second and the velocity decibel, abbreviated VdB. The velocity parameter (rather than acceleration or displacement) best correlates with human perception of vibration. Thus, the response of humans, buildings and sensitive equipment to vibration is described in this section in terms of the root-mean square (RMS) velocity level in VdB units relative to one micro-inch per second. As a point of reference, the average person can just barely perceive vibration velocity levels below 70 VdB (typically in the vertical direction).

A comparison of common ground-borne vibration levels is shown on Figure 2-3. Typical background vibration levels are between 50 and 60 VdB, whereas the levels for minor cosmetic damage to fragile buildings or blasting are generally 100 VdB.

A-3 References

United States Department of Labor, Occupational Safety and Health Administration, Office of Information. 1980. *Noise Control.* Washington, DC.

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Appendix B
List of Field Instrumentation

Appendix B LIST OF FIELD INSTRUMENTATION FOR JUNE 2005 MEASUREMENTS

Sound Level Meters

- Larson-Davis Laboratories Model 820 Type 1 Sound Level Meter, Serial Number 0775
- Brüel & Kjær Model 2236 Type 1 Precision Integrating Sound Level Meter, Serial Number 2015788

Community Noise Analyzers

- Metrosonics Model dB-308 Type 2 Sound Analyzer, Serial Number 2881
- Metrosonics Model dB-308 Type 2 Sound Analyzer, Serial Number 3068

Acoustical Calibrators

- Metrosonics Model CL-304 Acoustical Calibrator, Serial Number 2551
- Metrosonics Model CL-304 Acoustical Calibrator, Serial Number 3316
- Bruel & Kjaer Model 4231 Sound Level Calibrator, Serial Number 1850301

Meteorology Instrumentation

- Mannix Model CMM 880 Digital Thermometer/Hygrometer, Serial Number 8821784
- Kestrel Model K3000 Pocket Weather Meter, Serial Number 359744
- Sims Model DIC Digital Anemometer, Serial Number 95022
- Maximum Model DIC Digital Anemometer

Other Equipment

- 100-Foot Surveyor Tape Measures
- Laptop Computer

Appendix C
Instrument Calibration Certificates

Certificate of Calibration and Conformance

Certificate Number 2004-63864

Instrument Model 820, Serial Number 0775, was calibrated on 11-09-2004. The instrument meets factory specifications per Procedure D0001.8160, ANSI S1.4 1983, IEC 651-Type 1 1979, and IEC 804-Type 1 1985.

Instrument found to be in calibration as received: YES
Date Calibrated: 11-09-2004
Calibration due: 11-09-2006

Calibration Standards Used

MANUFACTURER	MODEL	SERIAL NUMBER	INTERVAL	CAL. DUE	TRACEABILITY NO.
Larson Davis	LDSigGn/2209	0589 / 0103	12 Months	12/04/2004	2003-54896
Larson Davis	PRM828	1302	12 Months	02/03/2005	2004-56474

Reference Standards are traceable to the National Institute of Standards and Technology (NIST)

Calibration Environmental Conditions

Temperature: 25 ° Centigrade

Relative Humidity: 32 %

Affirmations

This Certificate attests that this instrument has been calibrated under the stated conditions with Measurement and Test Equipment (M&TE) Standards traceable to the U.S. National Institute of Standards and Technology (NIST). All of the Measurement Standards have been calibrated to their manufacturers' specified accuracy / uncertainty. Evidence of traceability and accuracy is on file at Corporate Headquarters. An acceptable accuracy ratio between the Standard(s) and the item calibrated has been maintained. This instrument meets or exceeds the manufacturer's published specification unless noted.

This calibration complies with the requirements of ISO 17025 and ANSI Z540. The collective uncertainty of the Measurement Standard used does not exceed 25% of the applicable tolerance for each characteristic calibrated unless otherwise noted.

The results documented in this certificate relate only to the item(s) calibrated or tested. A one year calibration is recommended, however calibration interval assignment and adjustment are the responsibility of the end user. This certificate may not be reproduced, except in full, without the written approval of the issuer.

"AS RECEIVED" data same as shipped data.

Signed: Keith Driskill

Technician: Keith Driskill

Larson Davis A PCB GROUP CO.

Larson Davis, Inc. is an ISO 9001-2000 Registered Company

1681 West 820 North • Provo, UT 84601 U.S.A. • 801.375.0177 • Fax: 801.375.0182 • www.larsondavis.com

CERTIFICATE OF CONFORMANCE
13315-1
FOR BRÜEL & KJÆR INTEGRATING SOUND LEVEL METER

Model **2236**

Serial No. **2015788**
ID No. **N/A**

With Microphone Model **4188**
Serial No. **1740589**

Customer: **URS Corporation**
Santa Ana, CA 92705

P.O. # **Verbal**

was tested and met factory specifications
according to the Referenced Test Procedure

on **24 May, 2005** BY **HAROLD LYNCH**
Service Manager

As received condition: Within Specification.
Re-calibration due on: **24 May, 2007**

Certified References*

Mfg.	Type	Serial No.	Date Due
B&K	2636	1324114	15 JUL 2005
B&K	1049	1464545	29 JUL 2005
HP	34401A	MY41031678	22 JUL 2005
HP	3458A	2823A17713	15 JUL 2005
HP	34970A	CRN001301	29 JAN 2006
B&K	4226	1774068	31 MAR 2006
B&K	4231	1770857	19 JUL 2005

Performed in Compliance with ANSI, NCSL Z-540-1 (which also covers MIL STD 45662A) and ISO 17025, ISO 9001:2000 Certification NQA No. 11252

*References are traceable to NIST (National Institute of Standards and Technology).

Note: For calibration data see enclosed pages.
The data represent both "as found" and "as left."

Reference Test Procedure: **ACCT Procedure 2236 Ver. 1.3**

Brüel & Kjær Factory Service Instructions: **2236** Rev. Apr. 1985

Temperature	Relative Humidity	Barometric Pressure
23°C	**37%**	**985.58** hPa

Note: This calibration report shall not be reproduced, except in full, without written consent by Odin Metrology, Inc..

Signed: Harold Lynch

ODIN METROLOGY, INC.

CALIBRATION OF BRÜEL & KJÆR INSTRUMENTS
3533 OLD CONEJO ROAD; SUITE 125 THOUSAND OAKS CA 91320
PHONE: (805) 375-0830 FAX: (805) 375-0405

Excalibur Engineering
11 Musick
Irvine, CA 92618
Phone : (949) 454-6603
Fax : (949) 454-6642

Certificate Of Calibration

Customer	URS CORPORATION	**Dept.**	N/A
Report #	31623-4	**Bar Code #**	
Date Received	THURSDAY, MARCH 18, 2004	**P.O. #**	CREDIT CARD
Manufacturer	METROSONIC	**Serial #**	2881
Model #	DB308	**Asset #**	WCC-2
Description	DOSIMETER		

Calibration Information

Date Calibrated 3/23/2004 **Calibration Due Date** 3/23/2006 **Calibration Interval** 24

Maintenance Procedure 4226

Temperature 22 ° C **Humidity** 50 % **Calibration Performed By** 21

Accuracy ANSI TYPE 2

Condition Received

Received In Tolerance

Remarks

Condition Returned

Returned In Tolerance

Remarks

Standards Employed

ID #	Manufacturer	Model #	Description	Cycle	Calibration Expires
878	BRUEL & KJAER	4226	SLM CALIBRATOR	12	10/24/2004
610	BRUEL & KJAER	4228	PISTONPHONE	12	6/11/2004

Excalibur Engineering, Inc. certifies that the instrument specified above meets the manufacturer's specifications and has been calibrated using Standards and instruments also listed above whose accuracies are traceable to the National Institute of Standards and Technology(NIST), and the calibration systems and records are in compliance to ISO-10012 and ANSI Z540-1-1994.

This certificate/report shall not be reproduced without written approval of Excalibur Engineering, Inc.

EEQA 4 MAR 2 3 2004

Approved By

Excalibur Engineering is not liable for any damages, consequences or any remedy regarding this certification with the exception of the calibration within 30 days

Excalibur Engineering
11 Musick
Irvine, CA 92618
Phone : (949) 454-6603
Fax : (949) 454-6642

Certificate Of Calibration

Customer	URS CORPORATION	**Dept.**	N/A
Report #	31623-5	**Bar Code #**	
Date Received	THURSDAY, MARCH 18, 2004	**P.O. #**	CREDIT CARD
Manufacturer	METROSONIC	**Serial #**	3068
Model #	DB308	**Asset #**	WCC-3
Description	DOSIMETER		

Calibration Information

Date Calibrated 3/23/2004 **Calibration Due Date** 3/23/2006 **Calibration Interval** 24

Maintenance Procedure 4226

Temperature 22 ° C **Humidity** 50 % **Calibration Performed By** 21

Accuracy ANSI TYPE 2

Condition Received

Received In Tolerance

Remarks

Condition Returned

Returned In Tolerance

Remarks

Standards Employed

ID #	Manufacturer	Model #	Description	Cycle	Calibration Expires
878	BRUEL & KJAER	4226	SLM CALIBRATOR	12	10/24/2004
610	BRUEL & KJAER	4228	PISTONPHONE	12	6/11/2004

Excalibur Engineering, Inc. certifies that the instrument specified above meets the manufacturer's specifications and has been calibrated using Standards and instruments also listed above whose accuracies are traceable to the National Institute of Standards and Technology(NIST), and the calibration systems and records are in compliance to ISO-10012 and ANSI Z540-1-1994.

This certificate/report shall not be reproduced without written approval of Excalibur Engineering, Inc.

EEQA 4 MAR 2 3 2004

Approved By

Excalibur Engineering is not liable for any damages, consequences or any remedy regarding this certification with the exception of the calibration within 30 days

Excalibur Engineering
11 Musick
Irvine, CA 92618
Phone : (949) 454-6603
Fax : (949) 454-6642

Certificate Of Calibration

Customer	URS CORPORATION	**Dept.**	N/A
Report #	36856-2	**Bar Code #**	
Date Received	WEDNESDAY, MARCH 2, 2005	**P.O. #**	01158213.00061
Manufacturer	METROSONIC	**Serial #**	2551
Model #	CL304	**Asset #**	NAN
Description	ACOUS.CALIBRATOR		

Calibration Information

Date Calibrated 3/4/2005 **Calibration Due Date** 3/4/2006 **Calibration Interval** 12

Maintenance Procedure 1211

Temperature 22 ° C **Humidity** 47 % **Calibration Performed By** 21

Accuracy ±.3dB

Condition Received

Received In Tolerance

Remarks SEE ATTACHED DATA

Condition Returned

Returned In Tolerance

Remarks

Standards Employed

ID #	Manufacturer	Model #	Description	Calibration Expires
043	BRUEL & KJAER	4190	MICROPHONE	3/22/2005
051	BRUEL & KJAER	2639	PREAMPLIFIER	1/13/2006
610	BRUEL & KJAER	4228	PISTONPHONE	9/13/2005
713	FLUKE	8920A	TRUE RMS VOLTMETER	7/10/2005
938	AGILENT	8903B	AUDIO ANALYZER	1/3/2006
949	BRUEL & KJAER	2636	MEASURING AMPLIFIER	12/3/2005

Excalibur Engineering, Inc. certifies that the instrument specified above meets the manufactruer's specifications and has been calibrated using Standards and instruments also listed above whose accuracies are traceable to the National Institute of Standards and Technlogy(NIST), and the calibration systems and records are in compliance to ISO-10012 and ANSI Z540-1-1994.

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EEQA 8 MAR 4 2005

Approved By

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Excalibur Engineering
11 Musick
Irvine, CA 92618
Phone : (949) 454-6603
Fax : (949) 454-6642

Certificate Of Calibration

Customer	URS CORPORATION	**Dept.**	N/A
Report #	36856-1	**Bar Code #**	
Date Received	WEDNESDAY, MARCH 2, 2005	**P.O. #**	01158213.00061
Manufacturer	METROSONIC	**Serial #**	3316
Model #	CL304	**Asset #**	NAN
Description	ACOUS.CALIBRATOR		

Calibration Information

Date Calibrated 3/4/2005 **Calibration Due Date** 3/4/2006 **Calibration Interval** 12

Maintenance Procedure 1211

Temperature 22 ° C **Humidity** 48 % **Calibration Performed By** 21

Accuracy ±.3dB

Condition Received

Received In Tolerance

Remarks SEE ATTACHED DATA

Condition Returned

Returned In Tolerance

Remarks

Standards Employed

ID #	Manufacturer	Model #	Description	Calibration Expires
043	BRUEL & KJAER	4190	MICROPHONE	3/22/2005
051	BRUEL & KJAER	2639	PREAMPLIFIER	1/13/2006
610	BRUEL & KJAER	4228	PISTONPHONE	9/13/2005
713	FLUKE	8920A	TRUE RMS VOLTMETER	7/10/2005
938	AGILENT	8903B	AUDIO ANALYZER	1/3/2006
949	BRUEL & KJAER	2636	MEASURING AMPLIFIER	12/3/2005

Excalibur Engineering, Inc. certifies that the instrument specified above meets the manufactruer's specifications and has been calibrated using Standards and instruments also listed above whose accuracies are traceable to the National Institute of Standards and Technlogy(NIST), and the calibration systems and records are in compliance to ISO-10012 and ANSI Z540-1-1994.

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EEQA 8 MAR 4 2005

Approved By

Excalibur Engineering is not liable for any damages, consequences or any remedy regarding this certification with the exception of the calibration within 30 days

CERTIFICATE OF CALIBRATION FOR BRÜEL & KJÆR

Sound Level Calibrator Type 4231

The Sound Pressure Level has been measured by comparison with Standard Reference Pistonphone.

Type 4220 serial No. **1048473** and
Type 4220 serial No. **1048795**

Calibrated by: **TS** (BRÜEL & KJÆR)
Date of calibration: **02 AUG 2004**
Re-calibration due : **02 AUG 2005**

The calibrator type **4231**

Serial number **1850301**
ID number **N/A**

has been found to be **within** the specifications listed below.
Sound Pressure Level produced in the coupler terminated by a loading volume of 1.333 cm^3:

94.0 dB ± 0.2 dB
Level step: SPL increase of: **20 dB ± 0.1 dB**
Frequency: **1000 Hz ± 0.1 %**
Distortion: **< 1%**

For: **URS Corporation**
Santa Ana, CA 92705

Certificate: **13097-1** PO #: **Letter**

CONDITION OF TEST

Ambient Pressure:	**993.37**	hPa
Temperature	**23°**	C
Relative Humidity	**44**	%
Date of Calibration	**07 MAR 2005**	
Re-calibration due on	**07 MAR 2006**	

Calibration procedure: Brüel & Kjær 4231, Rev. 15 DEC 2004

PERFORMANCE AS RECEIVED:

Frequency	999.8	Hz
SPL	93.97	dB
SPL + 20 dB	114.04	dB
Distortion (at 94 dB)	+0.3	%
Battery voltage	1.4	Volt

Was frequency and SPL adjusted for improvement? **No!**
Was battery replaced with new alkaline type? **Yes!**

UNCERTAINTY OF MEASUREMENT:

A: Estimated Uncertainty of comparison:+/-0.09 dB at 99 % Confidence Level
B: Estimated Uncertainty of Ref. 4220: +/-0.09 dB at 99 % Confidence Level
C: Total Uncertainty : 0.13 dB (calculated as the Square root of the summed squares of a and b) at 99 % Confidence Level

FINAL PERFORMANCE:

Frequency	999.8	Hz
SPL	93.97	dB
SPL + 20 dB	114.04	dB
Distortion (at 94 dB)	+0.3	%

Note: This calibrator was **within** Mfg. Specifications as received.

Performed on a test system which operates in compliance with ANSI/ NCSL Z540-1(also covering MIL STD 45662A), ISO 17025, and ISO 9001:2000 Certification NQA No. 11252. Reference standards pistonphones calibrated traceable to NIST with, NIST test no.**822/268655-03, D1192**

ODIN METROLOGY, INC.
CALIBRATION OF BRÜEL & KJÆR INSTRUMENTS
3533 OLD CONEJO ROAD, SUITE # 125
THOUSAND OAKS, CA 91320
PHONE: (805) 375-0830 FAX: (805) 375-0405

Calibration performed by: Harold Lynch
Harold Lynch, Service Manager

Note: This calibration report shall not be reproduced, except in full, without written consent by Odin Metrology, Inc.

```
kk                                    t        t
 kk                                  tt       tt
 kk  kk pp ppp  rr rrr   aaaa      ttttt    ttttt
 kk kk   pp  pp  rrr rr     aa      tt       tt
 kkkk    pp  pp  rr  rr  aaaaa      tt       tt
 kk kk   ppppp   rr     aa  aa      tt t     tt t
kk  kk  pp     rrrr     aaa aa      tt       tt
        pppp
```

```
 2222    00000   9999
22  22  00   00 99  99
    22  00  000 99  99
  222   00 0000  99999
 22     0000 00     99
22  22  000  00    99
222222   00000   999
```

10/21/05

Appendix D
Noise Field Measurement Data Sheets

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: LT-1 OBSERVER(s): M. Greene, R. Romond, W. Conklin
START DATE & TIME: 6/8/05 12:15 END DATE & TIME: 6/9/05 14:00
ADDRESS: Fence @ Back P/L of 6206 S Pacific Ave, ~~End~~ E. end of 62nd Ave, by N. end of Del Mar Lagoon

Weather

TEMP: 78 °F HUMIDITY: 39 % R.H. WIND: CALM LIGHT MODERATE (VARIABLE)
WINDSPEED: 3-6 MPH DIR: N NE E SE S SW (W) NW STEADY / GUSTY
SKY: OVRCST PARTLY CLOUDY (CLEAR) SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: ~~LD 820~~ dB-308 TYPE: 1 (2) SERIAL #: 2881 WCC-2
CALIBRATOR: Metrosonic CL304 SERIAL #: 2551
CALIBRATION CHECK: PRE-TEST 102.0 dBA SPL POST-TEST 102.0 dBA SPL WINDSCREEN ✓
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

Rec #	Start time / ~~Duration~~	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
	12:30	55.7	92.3	<43	43	49	55
	1 day 1:21"		@ 11 39:15				
	/		6/8/05				

COMMENTS: dB-308 system clock set 1 hour behind
New guy set meter 1 hr early (11:30 Start time)

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL (AMBIENT) OTHER:
ROADWAY TYPE:

COUNT DURATION: ____-MINUTE

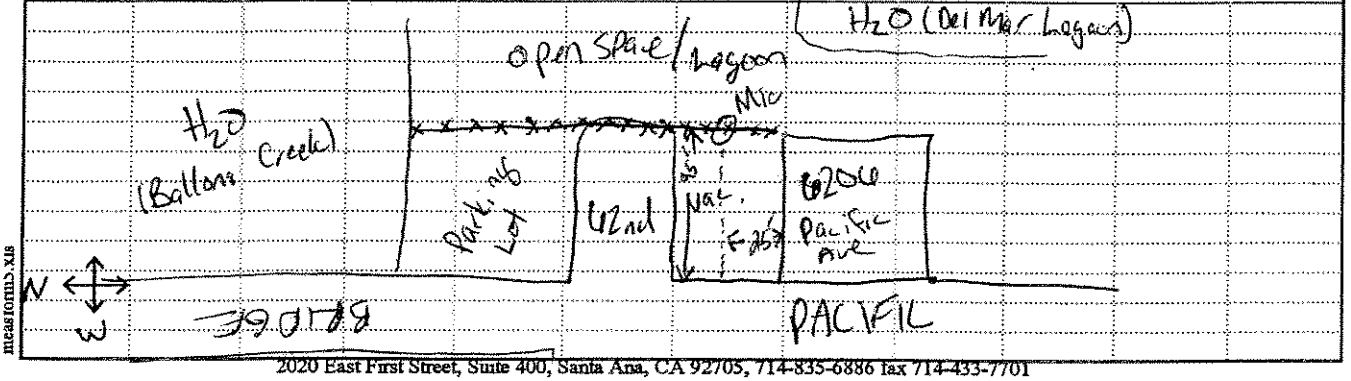
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	/	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: (distant AIRCRAFT overhead) (RUSTLING LEAVES) distant BARKING DOGS / (BIRDS) distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER:

Description / Sketch

TERRAIN: HARD (SOFT) MIXED FLAT OTHER:
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



SIX CHUOISEW

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

SITE IDENTIFICATION: LT-2 **OBSERVER(s):** M. Greene, R. Romond, W. Conklin
START DATE & TIME: 6/8/05 13:10 **END DATE & TIME:** 6/9/05 14:30
ADDRESS: W. Side of Vista del Mar @ Waterview St.

ID

TEMP: 75 °F HUMIDITY: 39 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 8-10 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Weather

INSTRUMENT: Metrosonic ~~WCC-3~~ db-308 **TYPE:** 1 2 **SERIAL #:** 3068 (WCC-3)
CALIBRATOR: Metrosonics CL-304 **SERIAL #:** 02551
CALIBRATION CHECK: **PRE-TEST** 103 **dBA SPL** **POST-TEST** 103 **dBA SPL WINDSCREEN** Yes
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

Rec #	~~Duration~~ Start time	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
	13:30	66.1	81.7	45.4	52.4	60.1	67.5	
	1d	69.9	107.8					
	0:47:08	69.9						

COMMENTS:

Acoustic Measurements

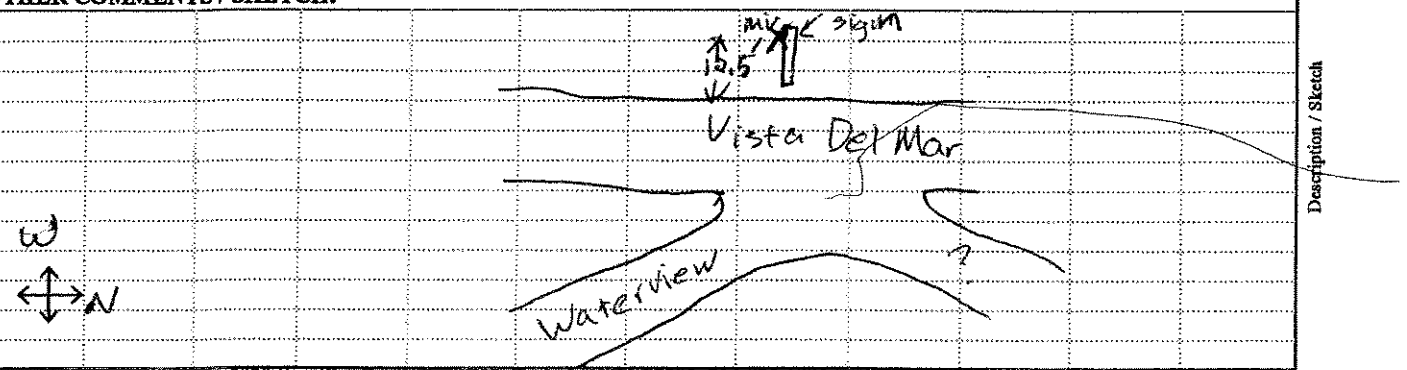
PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE: 2 Lane undivided
COUNT DURATION: -MINUTE

	SPEED (mph) NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:				
MED. TRUCKS:				
HVY TRUCKS:				
BUSES:				
MOTORCYCLES:				

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER
OTHER NOISE SOURCES: distant AIRCRAFT overhead RUSTLING LEAVES distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER:

Source Info and Traffic Counts

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS:
OTHER COMMENTS / SKETCH:



Description / Sketch

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: LT-3 OBSERVER(s): Wade & Rachel
START DATE & TIME: 6/9/05 15:15 END DATE & TIME: 6/10/05 17:00
ADDRESS: Hurricane St @ Grand Canal

Weather

TEMP: 94 °F HUMIDITY: 44 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 3-4 MPH DIR: ~~N NE~~ E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other: _____

Acoustic Measurements

INSTRUMENT: DB 308 TYPE: 1 2 SERIAL #: WCC 2) 2881
CALIBRATOR: CC 304 SERIAL #: 2551
CALIBRATION CHECK: PRE-TEST 102.0 dBA SPL POST-TEST 102.2 dBA SPL WINDSCREEN X
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
	24 hr				43	50	55
	1d 1:47:26	53.2	83.3		43	50	55

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____
ROADWAY TYPE: Alley
COUNT DURATION: _____-MINUTE

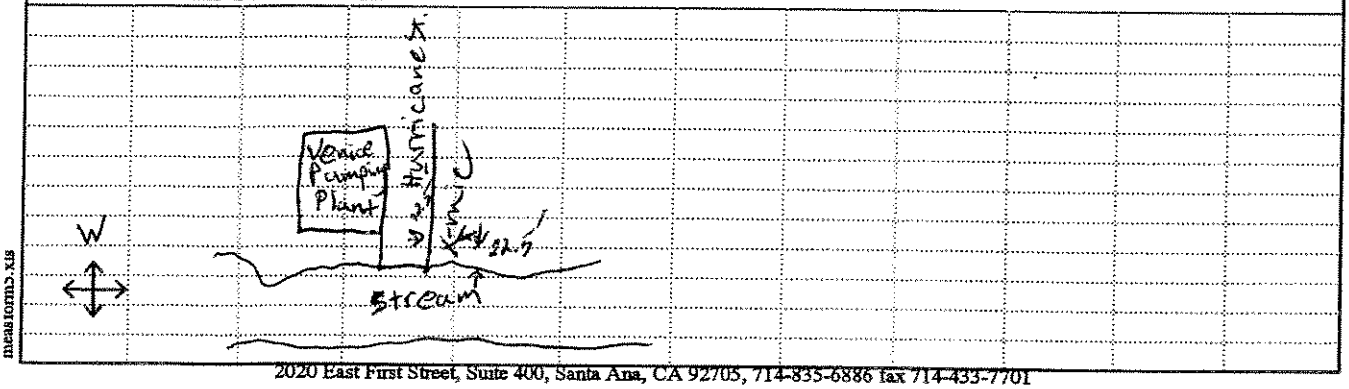
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:				
MED. TRUCKS:				
HVY TRUCKS:				
BUSES:				
MOTORCYCLES:				

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER: A/C unit @ plant (fan)

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER: _____
PHOTOS: X
OTHER COMMENTS / SKETCH:



2020 East First Street, Suite 400, Santa Ana, CA 92705, 714-835-6886 fax 714-433-7701

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: LT-4 OBSERVER(s): Wade, Rachel & Mike
START DATE & TIME: 6/9/05 16:00 END DATE & TIME: 6/10/05 17:14:48
ADDRESS: 7 Ballona Lagoon, N of Via Marina & Marina del Rey Channel
~~SW~~ cnr of

Weather

TEMP: 74 °F HUMIDITY: 44 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 3-4 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: DB304 TYPE: 1 2 SERIAL #: WCC3 (13068)
CALIBRATOR: CC304 SERIAL #: ~~2554~~ 2551
CALIBRATION CHECK: PRE-TEST 101.9 dBA SPL POST-TEST 101.8 dBA SPL WINDSCREEN ✗
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
	24hr							
	~~1d~~							
	1d 1:14:45	62.7	99.9		42	54	69	

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE:

COUNT DURATION: -MINUTE

	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	25 / 25	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

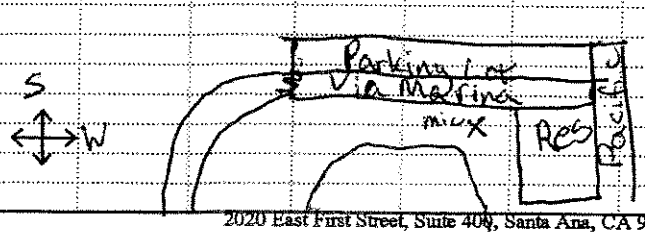
SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS

OTHER:

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



measforms.xls

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-1 OBSERVER(s): Wade & Mike
START DATE & TIME: 6/8/05 15:31 END DATE & TIME: 15:46 6/8/05
ADDRESS: Parking Lot abutting Vista Del Mar

Weather

TEMP: 79.0 °F HUMIDITY: 43.5 % R.H. WIND: CALM (LIGHT) MODERATE VARIABLE
WINDSPEED: 0-4 MPH DIR: N NE E SE S SW (W) NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY (CLEAR) SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: Larson Davis Model 820 TYPE (1) 2 SERIAL #: 0775
CALIBRATOR: CL 304 SERIAL #: 3316
CALIBRATION CHECK: PRE-TEST 102.0 dBA SPL POST-TEST 102.0 dBA SPL WINDSCREEN X
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
15:30 :	15 mins:	65.5	80.7	45.8	55.6	63.2	68.7
15:45 :	:						
:	:						
:	:						

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: (TRAFFIC) AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE: 2 lane undivided

COUNT DURATION: 7 -MINUTE

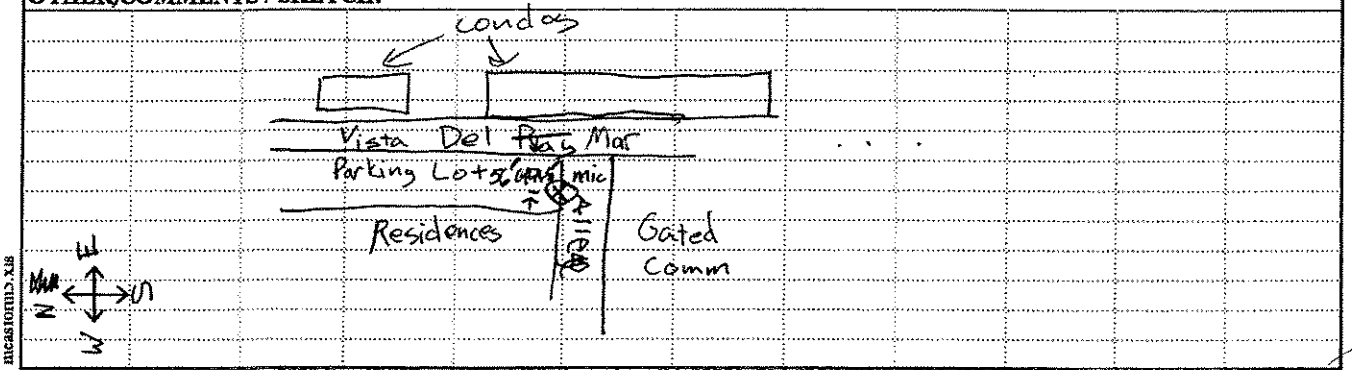
	NB / EB	SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB	SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	127	205	35 / 35			
MED. TRUCKS:		1				
HVY TRUCKS:						
BUSES:						
MOTORCYCLES:	4	2				

SPEED ESTIMATED BY: RADAR / DRIVING / (OBSERVER)

OTHER NOISE SOURCES: (distant AIRCRAFT overhead) (RUSTLING LEAVES) / distant BARKING DOGS / (BIRDS) distant CHILDREN PLAYING / distant TRAFFIC / (distant LANDSCAPING) distant TRAINS
OTHER:

Description / Sketch

TERRAIN: (HARD) SOFT MIXED FLAT OTHER:
PHOTOS: X
OTHER COMMENTS / SKETCH:



measforms.xls

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-2 OBSERVER(s): R. Romanel
START DATE & TIME: 6/8/05 15:40 END DATE & TIME: 6/8/05 16:05
ADDRESS: ~~Backyards~~ Ocean front patios of condos S. of Surf St. (@ S. end of project area)

Weather

TEMP: 68 °F HUMIDITY: 44 % R.H. WIND: CALM LIGHT (MODERATE) VARIABLE
WINDSPEED: 7-9 MPH DIR: N NE E SE S SW (W) NW (STEADY) GUSTY
SKY: OVRCST PARTLY CLOUDY (CLEAR) (SUNNY) FOG RAIN Other: _____

Acoustic Measurements

INSTRUMENT: B&K 2236 TYPE: (1) 2 SERIAL #: 2015788
CALIBRATOR: B&K 4231 SERIAL #: 1850301
CALIBRATION CHECK: PRE-TEST 94.0 dBA SPL POST-TEST 94.0 dBA SPL WINDSCREEN ✓
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER: _____

	Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
15:45	1	15:12	62.8	80.2	42.4	46.0	50.0	64.5

COMMENTS: dominated by aircraft overflights

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL (AMBIENT) OTHER: _____
ROADWAY TYPE: _____

COUNT DURATION: _____-MINUTE

	NB / EB / SB (WB)	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
~~AUTOS:~~ Planes (take offs)	/ IIIIIIII	/	/	/
MED. TRUCKS:	/ II	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES: (flybd →)	/ II	/	/	/
MOTORCYCLES:	/	/	/	/

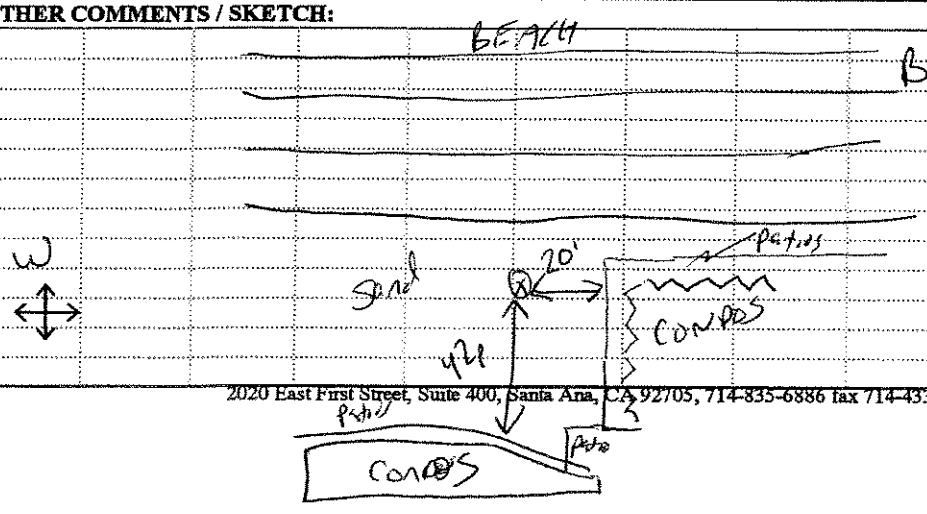
SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER visual/motor traffic

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS vacuuming inside condo, leaf blower, light
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS

OTHER: wind waves, LAX aircraft takeoff overflights, bikes + people passing on boardwalk

Description / Sketch

TERRAIN: HARD (SOFT) MIXED FLAT OTHER: _____
PHOTOS: NO
OTHER COMMENTS / SKETCH:



2020 East First Street, Suite 400, Santa Ana, CA 92705, 714-835-6886 fax 714-433-7701

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770-20000

SITE IDENTIFICATION: ST-3 **OBSERVER(s):** Wade & Mike
START DATE & TIME: 6-8-05 @ 15:45 **END DATE & TIME:** 6-8-05 @ 16:00
ADDRESS: Montreal st @ Pacific Ave/Vista Del Mar

ID

TEMP: 71.3 °F HUMIDITY: 58 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 1-3 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other: _____

Weather

INSTRUMENT: LD 820 **TYPE:** 1 2 **SERIAL #:** 0775
CALIBRATOR: CL 304 **SERIAL #:** 3316
CALIBRATION CHECK: **PRE-TEST** 102.0 **dBA SPL** **POST-TEST** 102.0 **dBA SPL WINDSCREEN** X
SETTINGS: **A-WEIGHTED** **SLOW** **FAST** **FRONTAL** **RANDOM** **ANSI** **OTHER:** _____

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
15:45-16:00	15 min	64.1	81.7	45.4	50.4	60.1	67.5	
:	:							
:	:							
:	:							

COMMENTS:

Acoustic Measurements

PRIMARY SOURCE: **TRAFFIC** **AIRCRAFT** **RAIL** **INDUSTRIAL** **AMBIENT** **OTHER:** _____
ROADWAY TYPE: 2 Lane Road

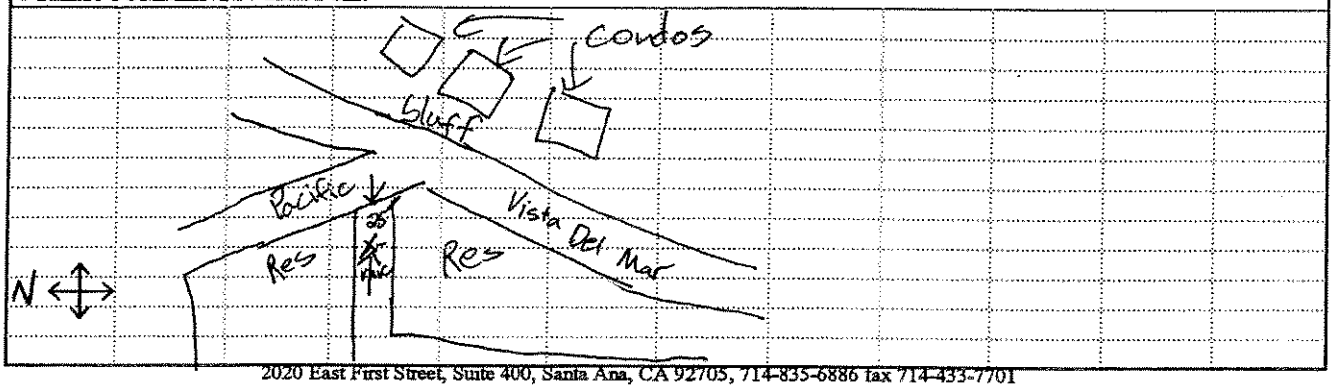
COUNT DURATION: -MINUTE	NB / EB	SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB	SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	212	121	/	/	/	/
MED. TRUCKS:	/	/	/	/	/	/
HVY TRUCKS:	/	/	/	/	/	/
BUSES:	/	/	/	/	/	/
MOTORCYCLES:	2	1	/	/	/	/

SPEED ESTIMATED BY: **RADAR** / **DRIVING** / **OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS**
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**
OTHER: _____

Source Info and Traffic Counts

TERRAIN: **HARD** **SOFT** **MIXED** **FLAT** **OTHER:** _____
PHOTOS: X
OTHER COMMENTS / SKETCH:



Description / Sketch

FIELD NOISE MEASUREMENT DATA

URS Project: VENICE FORCE MAIN Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-4 OBSERVER(s): R. Romond
START DATE & TIME: 6/8/05 16:10 END DATE & TIME: 6/8/05 16:35
ADDRESS: Back patio of house between 699517 + 699719 Trolleyway Oxnard

Weather

TEMP: 72 °F HUMIDITY: 58 % R.H. WIND: CALM (LIGHT) MODERATE VARIABLE
WINDSPEED: 4-6 MPH DIR: N NE E SE S SW (W) NW (STEADY) GUSTY
SKY: OVRCST PARTLY CLOUDY (CLEAR) (SUNNY) FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: B+K 2236 TYPE: (1) 2 SERIAL #: 2015788
CALIBRATOR: B+K 4231 SERIAL #: 1850501
CALIBRATION CHECK: PRE-TEST 94.0 dBA SPL POST-TEST 94.1 dBA SPL WINDSCREEN ✓
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
16:15 2	15:42	61.8	77.4	42.6	46.0	50.0	63.5

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL (AMBIENT) OTHER:
ROADWAY TYPE:
COUNT DURATION: -MINUTE

	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB		SPEED (mph) NB EB / SB WB
takeoff AUTOS:	~~1~~ / ~~1~~				
MED. TRUCKS:				helicopter	
HVY TRUCKS:					
pass BUSES:	/ 1111			passbye	
MOTORCYCLES:				shore	

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

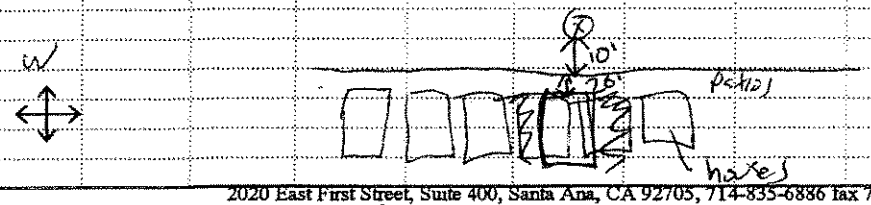
OTHER NOISE SOURCES: distant (AIRCRAFT overhead) RUSTLING LEAVES / distant BARKING DOGS (BIRDS) hammered sow
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS waves
OTHER: aircraft takeoff + fly-by, dist. surf, dist workers talking

Description / Sketch

TERRAIN: HARD (SOFT) MIXED FLAT OTHER:
PHOTOS: no
OTHER COMMENTS / SKETCH:

BOARDWALK

Lifeguard Stand 12/42



← TROLLEY WAY →

BIX CUSTOM

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-5 OBSERVER(s): Wade & Mike
START DATE & TIME: 6/8/05 @ 16:10 END DATE & TIME: 6/8/05 @ 16:25
ADDRESS: Park S. of Del Rey Lagoon

Weather

TEMP: 71 °F HUMIDITY: 52 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 2-6 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: LD820 TYPE: 1 2 SERIAL #: 0775
CALIBRATOR: CL 304 SERIAL #: 3316
CALIBRATION CHECK: PRE-TEST 102.0 dBA SPL POST-TEST 102.0 dBA SPL WINDSCREEN ✓
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
16:10-16:25	15 mins	57.2	69.8	45.4	47.9	50.9	59.9

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE:

COUNT DURATION: ____-MINUTE

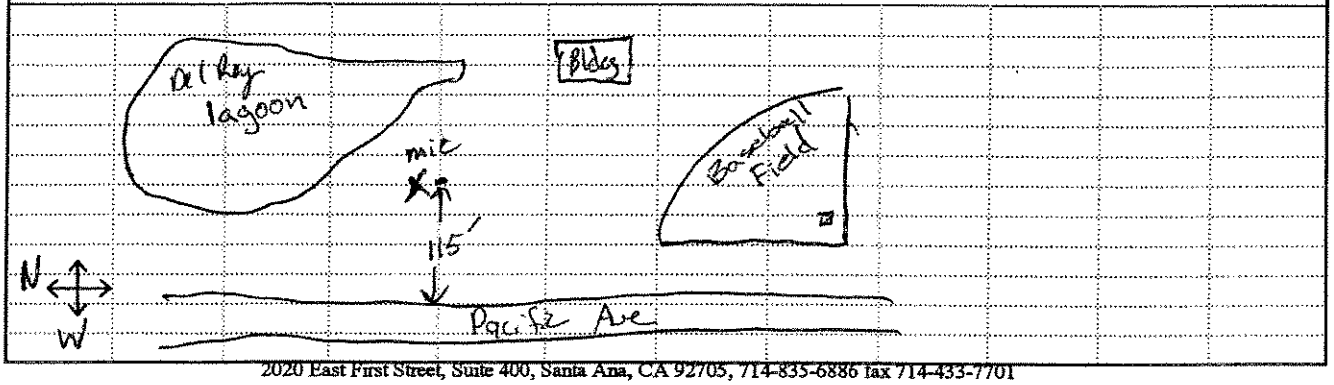
	NB / EB	SB / WB	SPEED (mph) NB EB	SPEED (mph) SB WB	#2 COUNT: NB / EB	#2 COUNT: SB / WB	SPEED (mph) NB EB	SPEED (mph) SB WB
AUTOS:								
MED. TRUCKS:								
HVY TRUCKS:								
BUSES:								
MOTORCYCLES:								

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS / distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER: Loud guy in background (baseball coach?)

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: X
OTHER COMMENTS / SKETCH:



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FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-6 OBSERVER(s): R. Romond
START DATE & TIME: 17:00 6/8/05 END DATE & TIME: 17:0 6/8/05
ADDRESS: Ocean patio of 3rd house S. of 16th Ave

Weather

TEMP: 73 °F HUMIDITY: 52 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 4 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: B+K 2236 TYPE: 1 2 SERIAL #: 2015788
CALIBRATOR: B+K 4231 SERIAL #: 1850301
CALIBRATION CHECK: PRE-TEST 94.1 dBA SPL POST-TEST 94.1 dBA SPL WINDSCREEN Y
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

	Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
17:05	3	15:02	61.7	77.7	43.6	49.5	55.0	65.5

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE:

COUNT DURATION: -MINUTE

	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	7777 /	/	/	/
MED. TRUCKS:	II /	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	I /	/	/	/
MOTORCYCLES:	/	/	/	/

takeoff

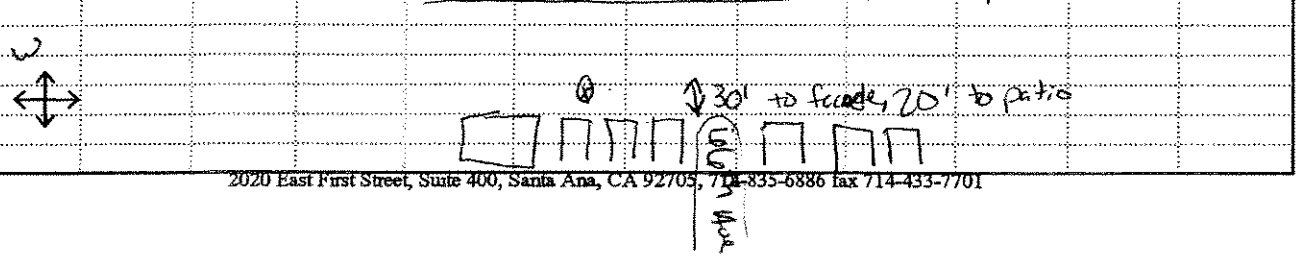
passing

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS helicopter over shore
OTHER: LAX takeoff aircraft, distant volleyball practice, waves, motorboat

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: YES
OTHER COMMENTS / SKETCH: Sig. obstacle use post Sig. mst patio



BIX CHUCK 5/9/91

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-7 OBSERVER(s): Wade & Mike
START DATE & TIME: 6/8/05 @ ~~17:17~~ 17:00 END DATE & TIME: 6/8/05 @ 17:15
ADDRESS: Park W. of Del Rey Lagoon, N of 69th St.

Weather

TEMP: 73 °F HUMIDITY: 52 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 2-5 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: LD820 TYPE: 1 2 SERIAL #: 0775
CALIBRATOR: CL 304 SERIAL #: 3376
CALIBRATION CHECK: PRE-TEST 102 dBA SPL POST-TEST 102.2 dBA SPL WINDSCREEN ✓
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
17:00 17:15	15 min	59.5	74.6	44.2	46.9	51.7	69.2	

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE: 2 Lane

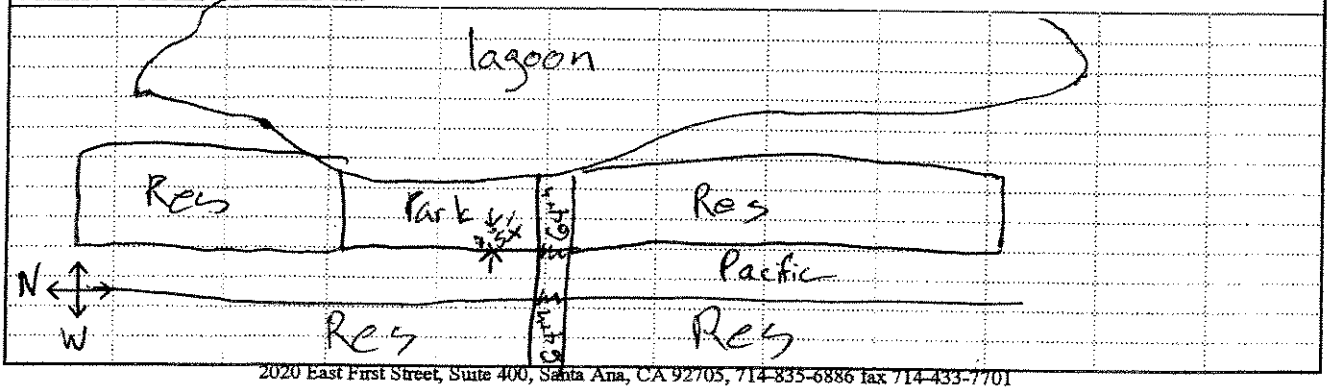
COUNT DURATION: -MINUTE	NB / EB	SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB	SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	12	6	/	/	/	/
MED. TRUCKS:	/	/	/	/	/	/
HVY TRUCKS:	/	/	/	/	/	/
BUSES:	/	/	/	/	/	/
MOTORCYCLES:	/	1	/	/	/	/

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER: wind chimes in background

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: X
OTHER COMMENTS / SKETCH:



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FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force MAIN Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-8 **OBSERVER(s):** R. Romanl
START DATE & TIME: 6/8/05 17:25 **END DATE & TIME:** 6/8/05 17:50
ADDRESS: Back patio of 3rd Bldg S. of 62nd Ave

Weather

TEMP: 72 °F HUMIDITY: 52 % R.H. WIND: CALM (LIGHT) MODERATE VARIABLE
WINDSPEED: 4 MPH DIR: N NE E SE S SW (W) NW (STEADY) GUSTY
SKY: OVRCST PARTLY CLOUDY (CLEAR) (SUNNY) FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: B+K 2236 **TYPE:** (1) 2 **SERIAL #:** 2015788
CALIBRATOR: B+K 4231 **SERIAL #:** 1850301
CALIBRATION CHECK: **PRE-TEST** 94.1 **dBA SPL** **POST-TEST** 94.0 **dBA SPL WINDSCREEN** X
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
7:30 (9)	15:07	55.9	69.8	41.4	43.5	49.0	60.0	

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: **TRAFFIC AIRCRAFT RAIL INDUSTRIAL** (AMBIENT) **OTHER:**
ROADWAY TYPE:

COUNT DURATION: ____ **-MINUTE**

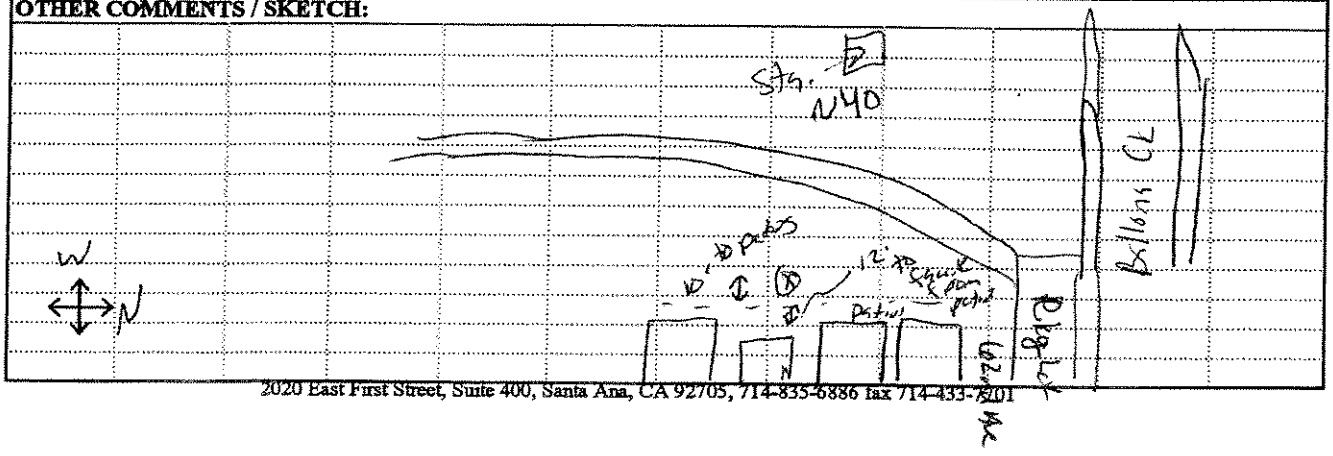
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS: (takeoff)	~~IIII~~ /	/	/	/
MED. TRUCKS:	~~IIII~~ II /	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES: (passby)	I /	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead / **RUSTLING LEAVES** / distant **BARKING DOGS** / (**BIRDS**) bikes on bike path
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**
OTHER: LAX takeoffs, voices of people on Beach, distant radio

Description / Sketch

TERRAIN: **HARD** (SOFT) **MIXED** (FLAT) **OTHER:**
PHOTOS: X
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

SITE IDENTIFICATION: ST-9 **OBSERVER(s):** Wade & Mike
START DATE & TIME: 6/9/05 10:55 **END DATE & TIME:** 6/9/05 11:10
ADDRESS: 5111 (?) (~~Next to~~ in between 5409 & house marked 4) Yawl & Anonymous Alley

Weather

TEMP: 69 °F HUMIDITY: 62 % R.H. WIND: **CALM LIGHT MODERATE VARIABLE**
WINDSPEED: 8-10 MPH DIR: **N NE E SE S SW W NW** **STEADY GUSTY**
SKY: **OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN** Other: _____

Acoustic Measurements

INSTRUMENT: LD820 **TYPE:** 1 2 **SERIAL #:** 0775
CALIBRATOR: CC 304 **SERIAL #:** 3316
CALIBRATION CHECK: **PRE-TEST** 102.0 **dBA SPL** **POST-TEST** 102.0 **dBA SPL WINDSCREEN** ✓
SETTINGS: **A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:** _____

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
	15 min	55.4	65.5	46.3	48.4	52.2	59.5	

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: **TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:** _____
ROADWAY TYPE: _____

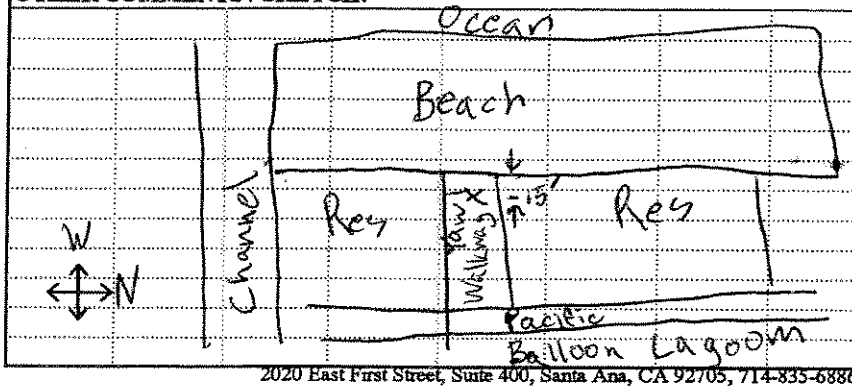
COUNT DURATION: ____ -MINUTE	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	/	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: **RADAR / DRIVING / OBSERVER**

OTHER NOISE SOURCES: distant **AIRCRAFT** overhead **RUSTLING LEAVES** / distant **BARKING DOGS** / **BIRDS**
distant **CHILDREN PLAYING** / distant **TRAFFIC** / distant **LANDSCAPING** / distant **TRAINS**
OTHER: People walking by & talking

Description / Sketch

TERRAIN: **HARD SOFT MIXED FLAT OTHER:** _____
PHOTOS: X
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-10 OBSERVER(s): R. Romero
6/9/05 START DATE & TIME: ~~ST: 8:10~~ END DATE & TIME: 6/9/05 11:15
10:50 ADDRESS: Parkle S. Curve of Via Marina

Weather

TEMP: 71 °F HUMIDITY: 62 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 3-6 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: B+K 2236 TYPE: 1 2 SERIAL #: 2015788
CALIBRATOR: B+K 4231 SERIAL #: 1850384
CALIBRATION CHECK: PRE-TEST 94.0 dBA SPL POST-TEST 93.9 dBA SPL WINDSCREEN X
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
10:55 1	15:00	57.9	70.4	47.3	51.0	55.5	61.0

COMMENTS:

Source Info and Traffic Counts

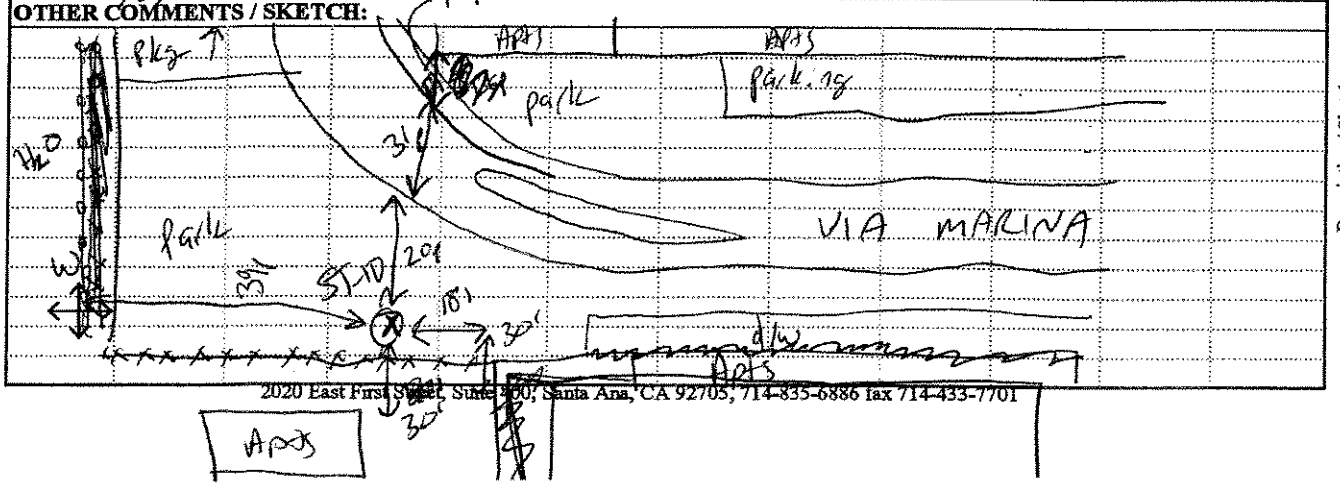
PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE: Curve of Via Marina
COUNT DURATION: 15 -MINUTE

	NB / EB	SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB	SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	33	25				
MED. TRUCKS:						
HVY TRUCKS:						
BUSES:						
MOTORCYCLES:						

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER
OTHER NOISE SOURCES: distant AIRCRAFT overhead RUSTLING LEAVES distant BARKING DOGS BIRDS distant CHILDREN PLAYING / distant TRAFFIC distant LANDSCAPING distant TRAINS
OTHER: dist. Back-up alarm

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: Yes
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-11 **OBSERVER(s):** MC, WC
START DATE & TIME: 6/9/05 11:20 **END DATE & TIME:** 6/9/05 11:40
ADDRESS: @ WESTWIND ST + PACIFIC AVE S. OF 5315 PACIFIC AVE

Weather

TEMP: 78 °F HUMIDITY: 47 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 0-1 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: L-D 820 **TYPE:** 1 2 **SERIAL #:** 0775
CALIBRATOR: CL 304 **SERIAL #:** 3316

CALIBRATION CHECK: **PRE-TEST** 102.0 **dBA SPL** **POST-TEST** 102.0 **dBA SPL WINDSCREEN** ✓

SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
	11:25-11:40	56.5	69.9	46.4	49.8	53.8	60.2	

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE: PACIFIC AVE, 2-LANE UNDIV.

COUNT DURATION: ____-MINUTE

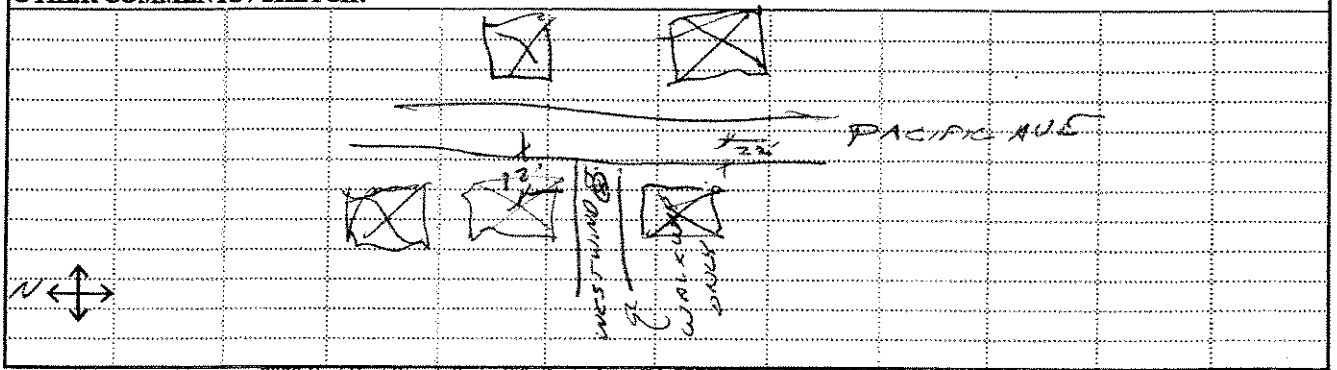
	NB / EB	SB / WB	SPEED (mph) NB EB	SPEED (mph) SB WB	#2 COUNT: NB / EB	#2 COUNT: SB / WB	SPEED (mph) NB EB	SPEED (mph) SB WB
AUTOS:	22	22	25	25				
MED. TRUCKS:								
HVY TRUCKS:								
BUSES:								
MOTORCYCLES:								

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER: DISTANT HOME CONST. WORK

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-12 OBSERVER(s): R. Romond
START DATE & TIME: 6/9/05 11:45 END DATE & TIME: 6/9/05
ADDRESS: Via Marina @ Tahiti Way

Weather

TEMP: 73 °F HUMIDITY: 49 % R.H. WIND: CALM (LIGHT) MODERATE (VARIABLE)
WINDSPEED: 2-4 MPH DIR: N NE E SE S SW (W) NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: B+K 2236 TYPE: (1) 2 SERIAL #: 2015788
CALIBRATOR: B+K 4231 SERIAL #: 1850801
CALIBRATION CHECK: PRE-TEST 93.9 dBA SPL POST-TEST 93.9 dBA SPL WINDSCREEN ✓
SETTINGS: (A-WEIGHTED) (SLOW) FAST FRONTAL (RANDOM) (ANSI) OTHER:

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
11:45 01	15:12	61.9	75.5	44.4	49.5	57.5	66.0

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL (AMBIENT) OTHER:
ROADWAY TYPE: Via Marina

COUNT DURATION: -MINUTE	NB / EB	SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB	SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	113	97				
MED. TRUCKS:	1	0				
HVY TRUCKS:	0	0				
BUSES:	0	0				
MOTORCYCLES:	11	0				

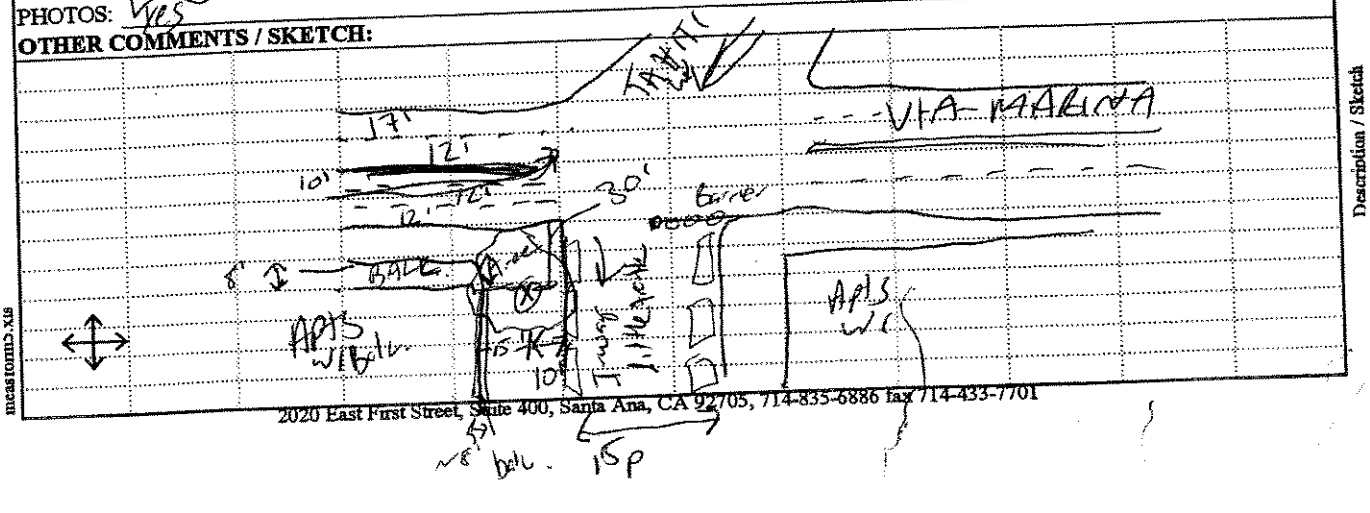
SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / (BIRDS) distant CHILDREN PLAYING / distant (TRAFFIC) / distant LANDSCAPING / distant TRAINS

OTHER: dist. saw

Description / Sketch

TERRAIN: (HARD) SOFT MIXED FLAT OTHER:
PHOTOS: YES
OTHER COMMENTS / SKETCH:



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FIELD NOISE MEASUREMENT DATA

URS Project: VENICE FORCE MAIN Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-13 OBSERVER(s): MO, WC
START DATE & TIME: 6/9/05 @ 11:55 END DATE & TIME: 6/9/05 @ 12:10
ADDRESS: PACIFIC AVE @ OUTRIGGER ST. S. OF 27 OUTRIGGER ST.

Weather

TEMP: 80 °F HUMIDITY: 41 % R.H. WIND: CALM (LIGHT) MODERATE VARIABLE
WINDSPEED: 0-3 MPH DIR: N NE E SE S SW (W) NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY (CLEAR) SUNNY FOG RAIN Other: _____

Acoustic Measurements

INSTRUMENT: CO 820 TYPE: (1) 2 SERIAL #: 0775
CALIBRATOR: CC 304 SERIAL #: 3316
CALIBRATION CHECK: PRE-TEST 102.0 dBA SPL POST-TEST 102.1 dBA SPL WINDSCREEN ✓
SETTINGS: (A-WEIGHTED) SLOW FAST FRONTAL (RANDOM) (ANSI) OTHER: _____

Rec #	Duration							
	11:55-12:10	L_{eq} 61.8	L_{max} 77.6	L_{min} 43.2	L_{90} 45.5	L_{50} 51.5	L_{10} 66.7	
		L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
		L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
		L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: (TRAFFIC) (AIRCRAFT) RAIL INDUSTRIAL (AMBIENT) OTHER: _____
ROADWAY TYPE: PACIFIC AVE (2-LN UNDIV.)

COUNT DURATION: ____-MINUTE	NB / EB	/ (SB) / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	21	/ 31	34 / 30	/	/
MED. TRUCKS:	1	/ 2	/	/	/
HVY TRUCKS:		/	/	/	/
BUSES:		/	/	/	/
MOTORCYCLES:		/	/	/	/

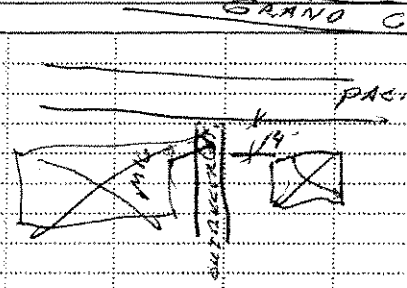
SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: (distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS)
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS

OTHER: _____

Description / Sketch

TERRAIN: (HARD) SOFT MIXED FLAT OTHER: _____
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



measforms.xls

FIELD NOISE MEASUREMENT DATA

URS Project: VENICE FORCE MAIN Job # 29401770.20000

SITE IDENTIFICATION: ST-14 **OBSERVER(s):** MG
START DATE & TIME: 6/9/05 @ 15:05 **END DATE & TIME:** 6/9/05 @ 15:15
ADDRESS: ADJ. TO CORNER OF VIA MARINA & MARQUESAS WY

ID

TEMP: 74 °F HUMIDITY: 52 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 3-5 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Weather

INSTRUMENT: LD 820 **TYPE:** 1 / 2 **SERIAL #:** 0775
CALIBRATOR: CL 305 **SERIAL #:** 3316
CALIBRATION CHECK: **PRE-TEST** 102.0 **dBA SPL** **POST-TEST** 102.0 **dBA SPL WINDSCREEN** ✓
SETTINGS: A WEIGHTED SLOW FAST FRONTAL RANDOM ANSI **OTHER:**

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
	15:00-15:15	62.3	82.7	47.9	51.4	58.0	65.1	

COMMENTS:

Acoustic Measurements

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE: PACIFIC AVE - 2 LANE EA DIR.
COUNT DURATION: ____ -MINUTE

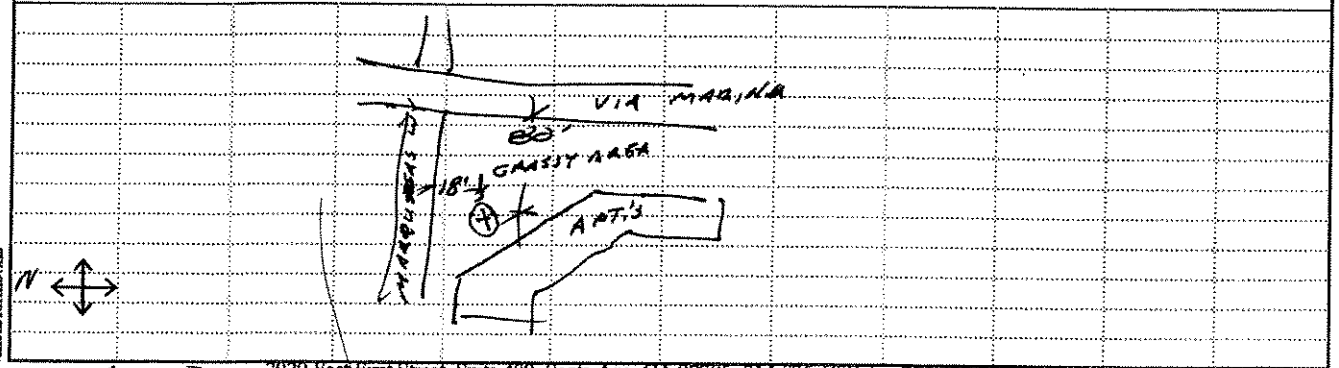
	NB / EB	SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: (MARQUESAS WY) NB / EB	SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	99	112	40 / 40	16	11	/
MED. TRUCKS:	(4) 111	111 (3)	/		/	/
HVY TRUCKS:	/	/	/		/	/
BUSES:	/	/	/		/	/
MOTORCYCLES:	2	1	/		/	/

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead RUSTLING LEAVES / distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER:

Source Info and Traffic Counts

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



Description / Sketch

2020 East First Street, Suite 400, Santa Ana, CA 92705, 714-835-6886 fax 714-433-7701

WS 58
65

FIELD NOISE MEASUREMENT DATA

URS Project: VENICE FORCE MAIN Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-15 OBSERVER(s): MG
START DATE & TIME: 6/9/05 @ 16:10 END DATE & TIME: 6/9/05 @ 16:25
ADDRESS: BEACH @ OUTRIGGER ST. (N. OF OUTRIGGER ST.)

Weather

TEMP: 73 °F HUMIDITY: 49 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 5-7 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other:

Acoustic Measurements

INSTRUMENT: LD 820 TYPE: 1 2 SERIAL #: 0775
CALIBRATOR: CL 304 SERIAL #: 3316
CALIBRATION CHECK: PRE-TEST 102.0 dBA SPL POST-TEST 102.0 dBA SPL WINDSCREEN ✓
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER:

Rec #	Duration							
	16:10-16:25	L_{eq} 54.8	L_{max} 67.9	L_{min} 45.5	L_{90} 47.7	L_{50} 51.4	L_{10} 57.4	
		L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
		L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	
		L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}	

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER:
ROADWAY TYPE:

COUNT DURATION: -MINUTE

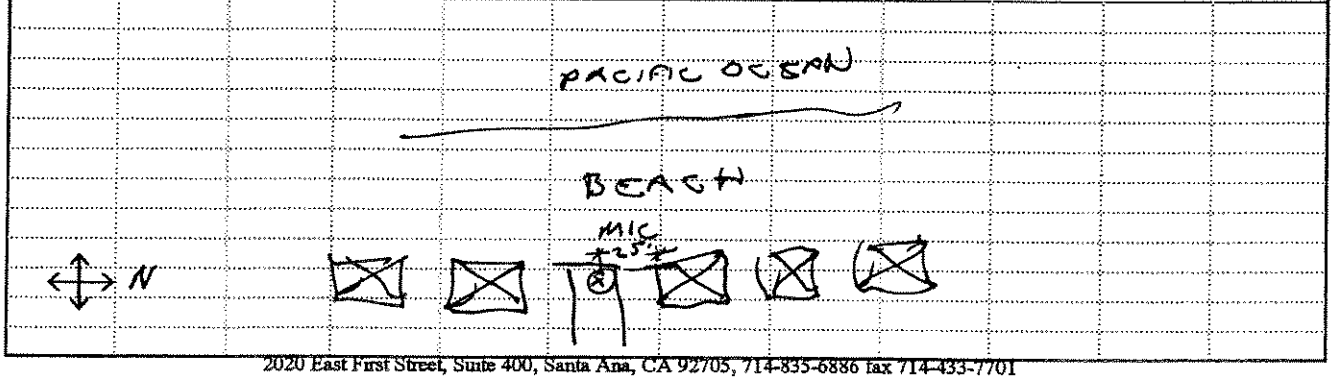
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	/	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER:

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER:
PHOTOS: ✓
OTHER COMMENTS / SKETCH:



2020 East First Street, Suite 400, Santa Ana, CA 92705, 714-835-6886 fax 714-433-7701

HCS CHUSTOM SYSTEM

FIELD NOISE MEASUREMENT DATA

URS Project: Venice Force Main Job # 29401770.20000

ID

SITE IDENTIFICATION: ST-14 16 OBSERVER(s): Wade & Rachel
START DATE & TIME: 6/9/05 16:15 END DATE & TIME: 6/9/05 16:30
ADDRESS: 5901 Speedway

Weather

TEMP: 73 °F HUMIDITY: 49 % R.H. WIND: CALM LIGHT MODERATE VARIABLE
WINDSPEED: 3-4 MPH DIR: N NE E SE S SW W NW STEADY GUSTY
SKY: OVRCST PARTLY CLOUDY CLEAR SUNNY FOG RAIN Other: _____

Acoustic Measurements

INSTRUMENT: B&K 2236 TYPE: 1 2 SERIAL #: 2015788
CALIBRATOR: B&K 4231 SERIAL #: 1850301
CALIBRATION CHECK: PRE-TEST 93.9 dBA SPL POST-TEST 93.9 dBA SPL WINDSCREEN X
SETTINGS: A-WEIGHTED SLOW FAST FRONTAL RANDOM ANSI OTHER: _____

Rec #	Duration	L_{eq}	L_{max}	L_{min}	L_{90}	L_{50}	L_{10}
:	15 min	54.9	70.3	46.0	48.0	50.5	57.0
:	:						
:	:						
:	:						

COMMENTS:

Source Info and Traffic Counts

PRIMARY SOURCE: TRAFFIC AIRCRAFT RAIL INDUSTRIAL AMBIENT OTHER: _____
ROADWAY TYPE: _____

COUNT DURATION: _____-MINUTE

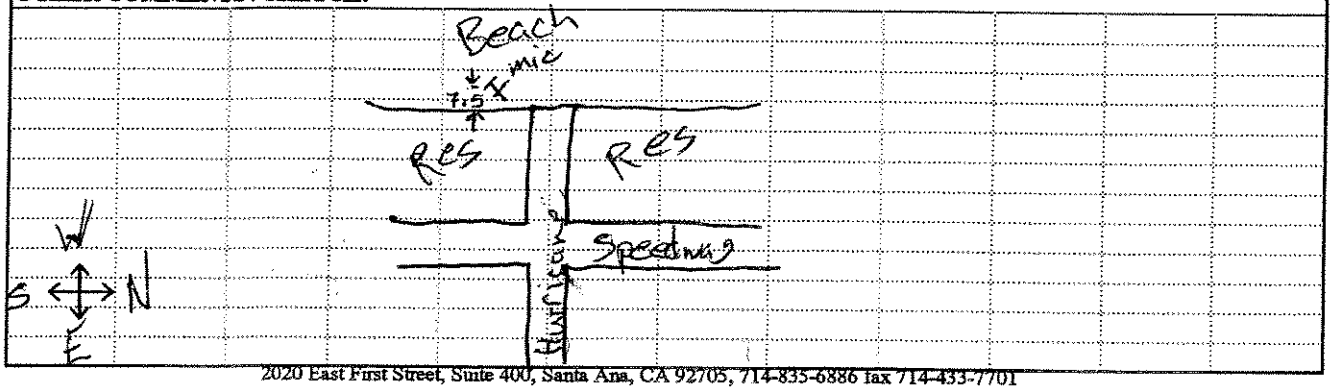
	NB / EB / SB / WB	SPEED (mph) NB EB / SB WB	#2 COUNT: NB / EB / SB / WB	SPEED (mph) NB EB / SB WB
AUTOS:	/	/	/	/
MED. TRUCKS:	/	/	/	/
HVY TRUCKS:	/	/	/	/
BUSES:	/	/	/	/
MOTORCYCLES:	/	/	/	/

SPEED ESTIMATED BY: RADAR / DRIVING / OBSERVER

OTHER NOISE SOURCES: distant AIRCRAFT overhead / RUSTLING LEAVES / distant BARKING DOGS / BIRDS
distant CHILDREN PLAYING / distant TRAFFIC / distant LANDSCAPING / distant TRAINS
OTHER: ocean

Description / Sketch

TERRAIN: HARD SOFT MIXED FLAT OTHER: _____
PHOTOS: X
OTHER COMMENTS / SKETCH:



Appendix E

Hourly Noise Levels for Long-Term Measurement Sites

Figure E-1. Hourly Noise Levels: LT-1 (62nd Ave at Del Rey Lagoon) June 8-9, 2005

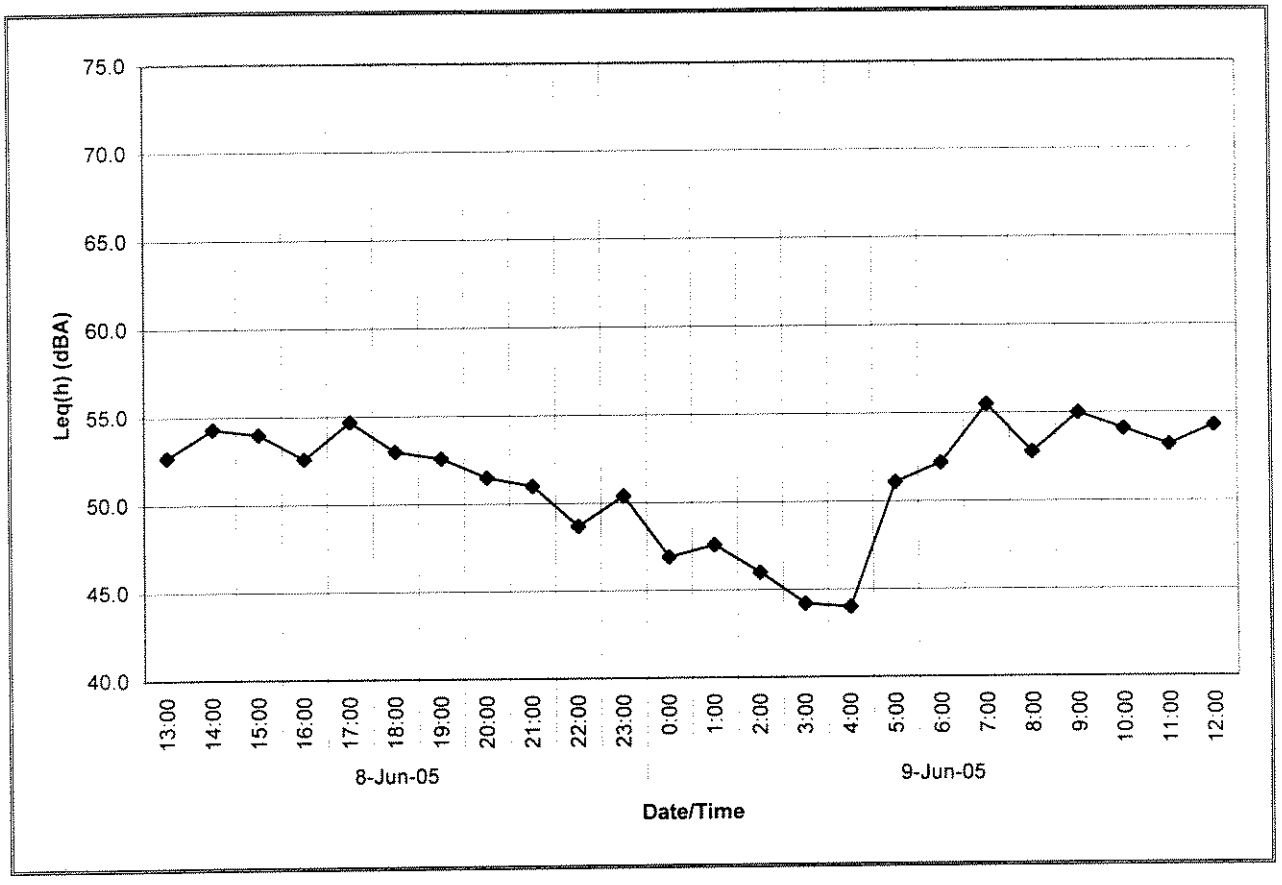


Figure E-2. Hourly Noise Levels: LT-2 (Vista Del Mar at Waterview St) June 8-9, 2005

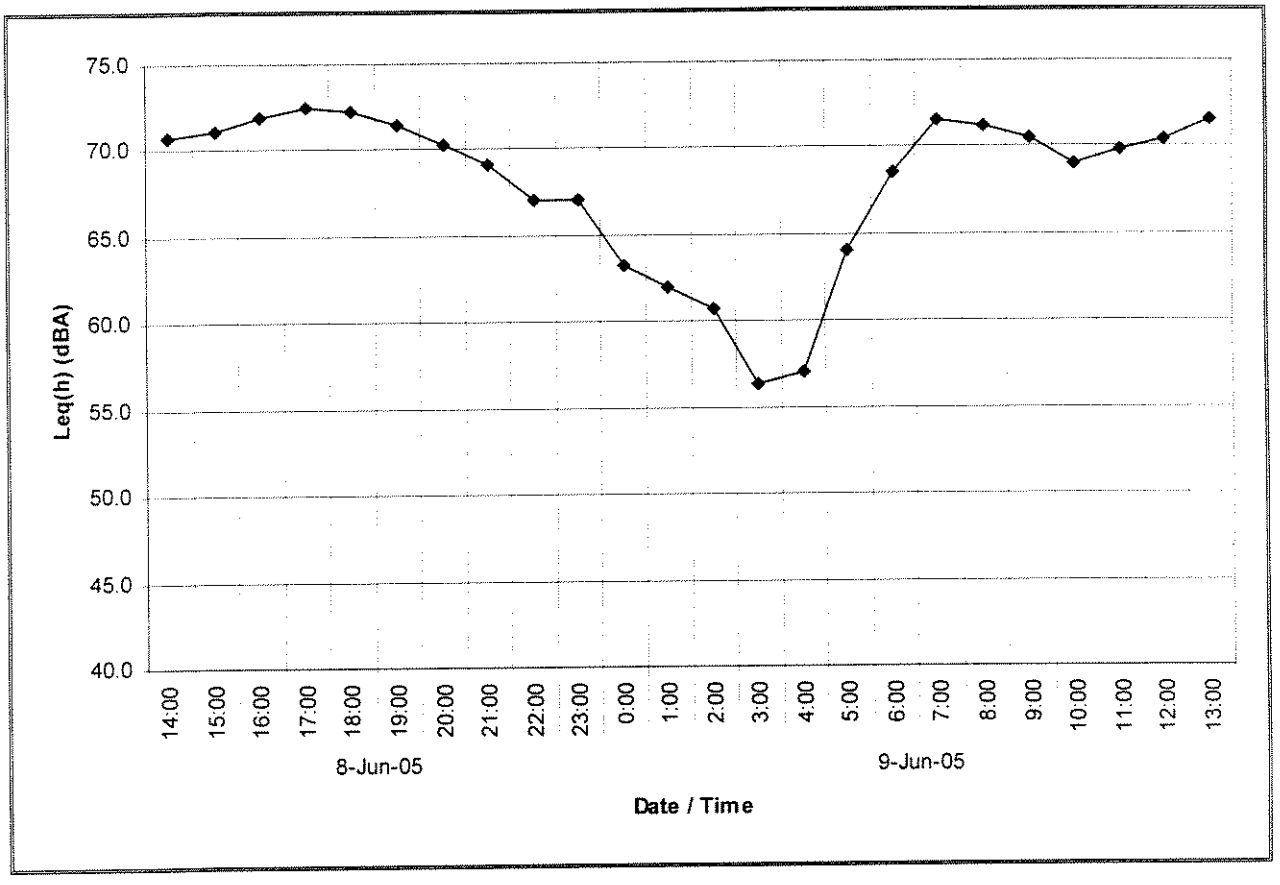


Figure E-3. Hourly Noise Levels: LT-3 (Hurricane St at Grand Canal) June 9-10, 2005

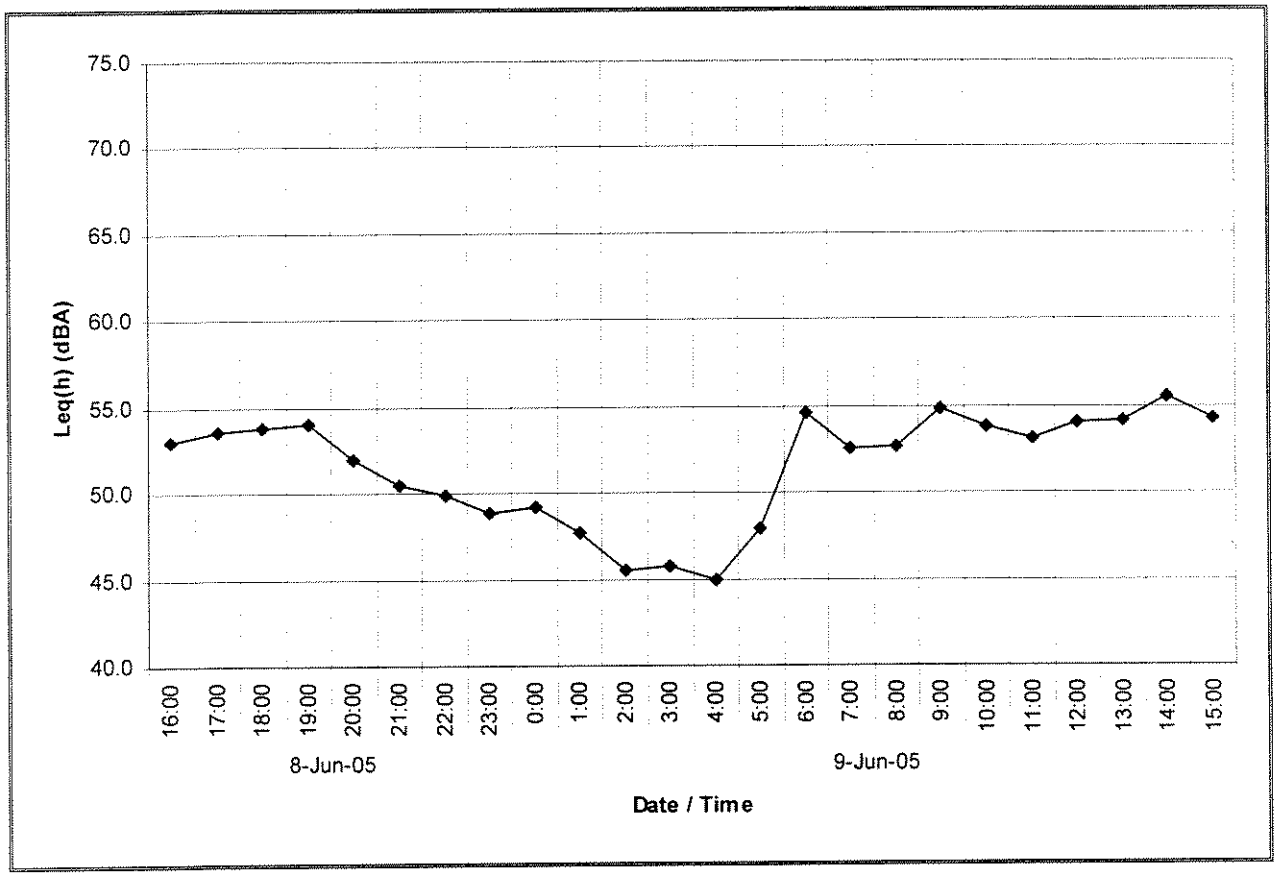
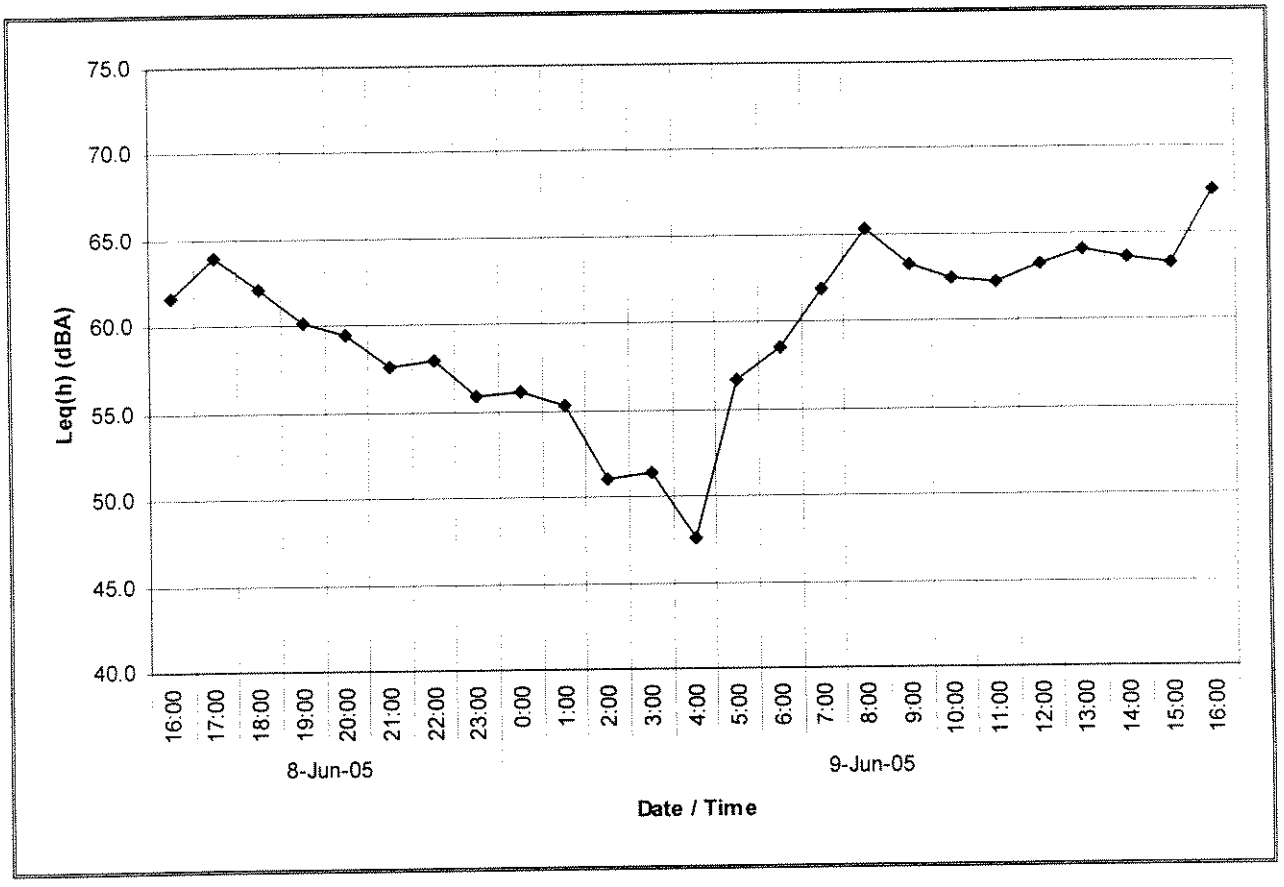


Figure E-4. Hourly Noise Levels: LT-4 (Via Marina at South end of Ballona Lagoon)
June 9-10, 2005



File Name.....bin1
Test Location.....LT-1: Pacific Ave @ Lagoo
Employee Name.....
Employee Number...
Department.....
Comment Field 1...Venice Force Main
Comment Field 2...
Numeric Code #1... #2... #3... #4... #5...

METROSONICS db-308 SN 2881 V2.3
REPORT PRINTED 06/09/05 AT 14:01:12

EXCHANGE RATE..... 3dB FILTER.....A WGHT
DOSE CRITERION....100dB RESPONSE...SLOW
PRE-TEST CALIBRATION TIME.... 6/08/05 AT 12:23:34
PRE-TEST CALIBRATION RANGE... 43.3dB TO 139.3dB
Calibrator Type & Serial #...

Calibrator Calibration Date..

-- OVERALL STATISTICS REPORT --

TEST BEGAN.... 6/08/05 AT 11:30:19
TEST LENGTH... 1 DAYS 1:21:53

Lav..... 55.7dB
SEL.....105.1dB
Lmax..... 92.3dB ON 6/08/05 AT 11:39:15
Lpk.....120 dB ON 6/08/05 AT 11:34:21
TIME OVER 115dB.. 0 DAYS 0:00:00.00

8 HR DOSE (80dB CUTOFF)..... 0.00%
8 HR DOSE (90dB CUTOFF)..... 0.00%

-- TABULAR TIME HISTORY REPORT --

OF PERIODS: 102 MODE: CONTINUOUS
PERIOD LENGTH: 0:15:00
TIME HISTORY CUTOFF: NONE
Ln(1): 50.0% Ln(2): 90.0%

DATE: 6/08/05

INT	TIME	Lav	Lmx	Lpk	L1	L2
1	11:30:19	69	92.3	120.6	62	54
2	11:45:19	53.2	68.1	UNR	50	46
3	12:00:19	53.6	65.6	UNR	52	46
4	12:15:19	53.6	64	UNR	52	48
5	12:30:19	51.5	62.4	UNR	49	45
6	12:45:19	51.4	64.8	UNR	49	45

	7	13:00:19	52.3	63.7	UNR	51	47			
	8	13:15:19	52.8	62.6	UNR	51	46			
	9	13:30:19	51.3	64.4	UNR	49	46			
	10	13:45:19	57.6	68.8	UNR	52	47			
	11	14:00:19	52.8	69.1	UNR	48	45			
	12	14:15:19	55.8	68	UNR	53	49			
	13	14:30:19	53.3	69.8	UNR	49	46			
	14	14:45:19	53.2	64.2	UNR	51	45			
	15	15:00:19	52.9	63.5	UNR	50	46			
	16	15:15:19	52.6	63.8	UNR	50	45			
	17	15:30:19	52.9	64.4	UNR	51	48			
	18	15:45:19	51.9	63.9	UNR	49	44			
	19	16:00:19	55	66.2	UNR	51	47			
	20	16:15:19	57.6	74.2	UNR	51	47			
	21	16:30:19	49.9	62	UNR	48	45			
	22	16:45:19	52.7	63	UNR	50	44			
	23	17:00:19	52.9	63.5	UNR	50	47			
	24	17:15:19	50.9	64.6	UNR	49	44			
	25	17:30:19	50	60.6	UNR	48	45			
	26	17:45:19	55.9	71.4	UNR	53	48			
	27	18:00:19	51	61.3	UNR	49	48			
	28	18:15:19	53.1	61.2	UNR	51	48			
	29	18:30:19	52.8	71.9	UNR	50	47			
	30	18:45:19	53.2	66.3	UNR	52	49			
	31	19:00:19	53.8	66.7	UNR	51	49			
	32	19:15:19	50.5	62.4	UNR	48	47			
	33	19:30:19	48.3	59.2	UNR	47	46			
	34	19:45:19	51.6	65.1	UNR	49	46			
	35	20:00:19	51.4	62.9	UNR	48	44			
	36	20:15:19	50.4	61.1	UNR	48	45			
	37	20:30:19	52.4	66.8	UNR	47	44			
	38	20:45:19	49.4	64.4	UNR	44	43			
	39	21:00:19	47.8	62.2	UNR	45	43			
	40	21:15:19	49.8	62	UNR	46	43			
	41	21:30:19	47.1	64.7	UNR	45	43			
	42	21:45:19	49.4	61.1	UNR	47	43			
	43	22:00:19	51.3	62.9	UNR	46	43			
	44	22:15:19	52.2	72.3	UNR	45	43			
	45	22:30:19	47.4	61.6	UNR	44	43			
	46	22:45:19	49	67.3	UNR	45	43			
□	47	23:00:19	47.4	58.3	UNR	44	43			
	48	23:15:19	47.8	62.9	UNR	44	43			
	49	23:30:19	45.4	59.2	UNR	43	43			
	50	23:45:19	46.6	59.7	UNR	43	43			
	51	0:00:19	45.2	55	UNR	43	43			
	52	0:15:19	46.2	59.4	UNR	43	43			
	53	0:30:19	48.5	62.2	UNR	43	43			
	54	0:45:19	49.4	61.2	UNR	44	43			
	55	1:00:19	48.1	62.5	UNR	43	43			
	56	1:15:19	45.2	58	UNR	43	43			
	57	1:30:19	45.1	57.9	UNR	43	43			
	58	1:45:19	44.6	58.4	UNR	43	43			

	59	2:00:19	43.3	46.8	UNR	43	43			
	60	2:15:19	44.5	54	UNR	43	43			
	61	2:30:19	44.7	55.3	UNR	43	43			
	62	2:45:19	44.2	53.3	UNR	43	43			
	63	3:00:19	43.3	47.7	UNR	43	43			
	64	3:15:19	43.8	57.4	UNR	43	43			
	65	3:30:19	44.9	56.2	UNR	43	43			
	66	3:45:19	43.8	57.5	UNR	43	43			
	67	4:00:19	46.6	58	UNR	45	43			
	68	4:15:19	51.2	65.7	UNR	48	45			
	69	4:30:19	52.7	65.2	UNR	51	47			
	70	4:45:19	51.8	70.2	UNR	49	44			
	71	5:00:19	51.4	60.2	UNR	50	46			
	72	5:15:19	51.1	66.2	UNR	50	46			
	73	5:30:19	53.3	67.3	UNR	50	46			
	74	5:45:19	52.5	65.5	UNR	51	46			
	75	6:00:19	58.8	84.8	UNR	51	47			
	76	6:15:19	54.1	65.1	UNR	52	47			
	77	6:30:19	52.7	65	UNR	50	46			
	78	6:45:19	53.2	67.7	UNR	51	46			
	79	7:00:19	52.3	61.8	UNR	50	45			
	80	7:15:19	51.7	61.6	UNR	50	46			
	81	7:30:19	52.8	63.4	UNR	51	47			
	82	7:45:19	54	70.1	UNR	50	45			
	83	8:00:19	52.1	61.9	UNR	49	46			
	84	8:15:19	53.7	65.5	UNR	52	47			
	85	8:30:19	57.5	77.2	UNR	54	51			
	86	8:45:19	70.2	89.8	UNR	55	49			
	87	9:00:19	55.4	69.3	UNR	53	48			
	88	9:15:19	55.1	67.1	UNR	53	49			
	89	9:30:19	52	61.3	UNR	49	46			
	90	9:45:19	53.2	65.6	UNR	51	46			
	91	10:00:19	52.9	64.8	UNR	51	48			
	92	10:15:19	53.5	71.4	UNR	51	46			
	93	10:30:19	53.3	68.1	UNR	51	46			
	94	10:45:19	53	71	UNR	50	47			
	95	11:00:19	53.9	69.7	UNR	51	47			
	96	11:15:19	54.5	64.5	UNR	52	49			
	97	11:30:19	54.8	67.5	UNR	52	47			
	98	11:45:19	54	64.3	UNR	51	47			
	99	12:00:19	54.9	71.6	UNR	51	47			
	100	12:15:19	55.7	79	UNR	49	46			
	101	12:30:19	55	70.4	UNR	53	48			
	102	12:45:19	64.6	81	UNR	57	52			
	-- AMPLITUDE DISTRIBUTION REPORT --									
	TOTAL SAMPLES =		730511							
	dB	SAMPLES	% OF TOTAL							

	43	132300	**********	18.11						
	44	25337	***	3.47						
	45	33851	*****	4.63						
	46	43208	******	5.91						
	47	57972	********	7.94						
	48	54709	*******	7.49						
	49	57668	********	7.89						
	50	57347	********	7.85						
	51	53720	*******	7.35						
	52	48647	*******	6.66						
	53	39812	*****	5.45						
	54	32925	*****	4.51						
	55	22187	***	3.04						
	56	17674	**	2.42						
	57	16094	**	2.2						
	58	9944	*	1.36						
	59	7271	*	1						
	60	4619	*	0.63						
	61	3307	+	0.45						
	62	2523	+	0.35						
	63	1991	+	0.27						
	64	1177	+	0.16						
	65	1117	+	0.15						
	66	930	+	0.13						
	67	734	+	0.1						
	68	684	.	0.09						
	69	607	.	0.08						
	70	412	.	0.06						
	71	316	.	0.04						
	72	262	.	0.04						
	73	157	.	0.02						
	74	159	.	0.02						
	75	125	.	0.02						
	76	134	.	0.02						
	77	109	.	0.01						
	78	75	.	0.01						
	79	82	.	0.01						
	80	99	.	0.01						
	81	61	.	0.01						
	82	39	.	0.01						
	83	36	.	0						
	84	33	.	0						
	85	21	.	0						
	86	14	.	0						
	87	9	.	0						
	88	4	.	0						
	89	4	.	0						
	90	1	.	0						
	91	2	.	0						
	92	2	.	0						
	Ln(0.0) = 92dB									

Ln(10.0) = 55dB			
Ln(50.0) = 49dB			
Ln(99.9) = 43dB			
	NO CUTOFF	80.0dB CUTOFF	90.0dB CUTOFF
Leq	55.2dB	49.7dB	43.3dB
Ldod	52.6dB	43.3dB	43.3dB
Losha	51.5dB	43.3dB	43.3dB
Leq(6)	51.0dB	43.3dB	43.3dB

File Name.....bin1
Test Location.....LT-2 Vista D.M. @ WaterVu
Employee Name.....
Employee Number...
Department.....
Comment Field 1...Venice Force Main
Comment Field 2...
Numeric Code #1... #2... #3... #4... #5...

METROSONICS db-308 SN 3068 V3.0
REPORT PRINTED 06/09/05 AT 14:21:20

EXCHANGE RATE..... 3dB FILTER.....A WGHT
DOSE CRITERION.... 90dB RESPONSE...SLOW
PRE-TEST CALIBRATION TIME.... 6/08/05 AT 13:21:14
PRE-TEST CALIBRATION RANGE... 42.7dB TO 142.7dB
NO POST-TEST CALIBRATION
Calibrator Type & Serial #..._____

Calibrator Calibration Date.._____

-- OVERALL STATISTICS REPORT --

TEST BEGAN.... 6/08/05 AT 13:30:03
TEST LENGTH... 1 DAYS 0:47:08
TEST ENDED.... 6/09/05 AT 14:17:11
TEST INTERRUPTIONS...1

Lav..... 69.9dB
SEL.....119.2dB
Lmax.....107.8dB ON 6/09/05 AT 14:16:37
Lpk.....141.9dB ON 6/09/05 AT 14:16:37
TIME OVER 115dB.. 0 DAYS 0:00:00.00

8 HR DOSE (40dB CUTOFF)..... 2.98%
8 HR DOSE (40dB CUTOFF)..... 2.98%

-- TABULAR TIME HISTORY REPORT --

OF PERIODS: 100 MODE: CONTINUOUS
PERIOD LENGTH: 0:15:00
TIME HISTORY CUTOFF: NONE
Ln(1): 50.0% Ln(2): 90.0%

DATE: 6/08/05

INT	TIME	Lav	Lmx	Lpk	L1	L2
1	13:30:03	70.5	82.4	127.5	66	55
2	13:45:03	68.2	79.7	UNR	63	52
3	14:00:03	69.9	79.5	UNR	65	55

	4	14:15:03	71.8	94.4	119.9	64	53				
	5	14:30:03	71.2	91.2	113.9	64	54				
	6	14:45:03	69.6	81.9	UNR	65	53				
	7	15:00:03	69.8	80	UNR	65	54				
	8	15:15:03	71.1	84.9	UNR	65	55				
	9	15:30:03	71.4	83.9	UNR	67	55				
	10	15:45:03	71.7	83.1	UNR	67	55				
	11	16:00:03	71.5	84	UNR	66	55				
	12	16:15:03	72.1	87.9	111	67	56				
	13	16:30:03	71.7	86.2	UNR	66	55				
	14	16:45:03	72.2	87.2	UNR	69	57				
	15	17:00:03	73	84.5	UNR	68	56				
	16	17:15:03	72.3	83.8	UNR	68	56				
	17	17:30:03	72.5	91.6	UNR	68	56				
	18	17:45:03	72.3	80.3	UNR	70	55				
	19	18:00:03	72.3	82.5	UNR	70	57				
	20	18:15:03	72.9	86.2	112.5	69	56				
	21	18:30:03	71.2	80.3	UNR	67	55				
	22	18:45:03	72.2	88.6	115	67	55				
	23	19:00:03	71.8	83.4	UNR	67	56				
	24	19:15:03	70.8	81.1	UNR	66	55				
	25	19:30:03	71.4	84.4	113.9	66	58				
	26	19:45:03	71.7	89	114.7	66	58				
	27	20:00:03	72.4	83.1	113.5	68	57				
	28	20:15:03	69.5	80.4	113	64	57				
	29	20:30:03	68.5	80.5	UNR	61	54				
	30	20:45:03	69.8	85.9	UNR	65	54				
	31	21:00:03	70.4	82.7	UNR	64	54				
	32	21:15:03	68.6	80.2	UNR	63	54				
	33	0.8958681	68.7	79.3	UNR	63	54				
	34	0.9062847	68.3	78.9	UNR	60	51				
	35	0.9167014	68.4	82.5	UNR	63	52				
	36	0.9271181	68.2	82.5	UNR	62	54				
	37	0.9375347	65.4	78	UNR	59	52				
	38	0.9479514	65.3	76.6	UNR	59	53				
	39	0.9583681	66.3	78.6	UNR	61	54				
	40	0.9687847	70.6	94.2	117	60	51				
	41	0.9792014	62.2	75.2	UNR	53	48				
	42	0.9896181	64	82.2	UNR	56	50				
	43	0:00:03	64.8	77.5	UNR	57	51				
	44	0:15:03	63.8	75.9	UNR	58	52				
	45	0:30:03	62.6	77.6	UNR	56	50				
	46	0:45:03	60.5	73.5	UNR	53	49				
☐	47	1:00:03	61.3	74.3	UNR	54	49				
	48	1:15:03	61.3	74.7	UNR	56	49				
	49	1:30:03	61.4	74.5	UNR	52	49				
	50	1:45:03	63.6	77.9	UNR	56	50				
	51	2:00:03	62.7	76.8	UNR	53	50				
	52	2:15:03	60.1	76.2	UNR	52	50				
	53	2:30:03	60.9	76.4	UNR	54	52				
	54	2:45:03	58	72.7	UNR	52	50				
	55	3:00:03	56.6	75.7	UNR	51	50				

	56	3:15:03	55.3	73.2	UNR	51	50				
	57	3:30:03	55	72.7	UNR	51	49				
	58	3:45:03	58.1	72.7	UNR	50	49				
	59	4:00:03	55.4	77.3	UNR	50	49				
	60	4:15:03	55.1	71.7	UNR	51	49				
	61	4:30:03	58	78.7	UNR	51	49				
	62	4:45:03	58.5	74.8	UNR	51	49				
	63	5:00:03	59.7	73.8	UNR	52	51				
	64	5:15:03	63.5	78.7	UNR	57	53				
	65	5:30:03	65.5	81	UNR	58	53				
	66	5:45:03	65.6	78.8	UNR	59	52				
	67	6:00:03	66.8	77.7	UNR	60	54				
	68	6:15:03	66.7	76.3	UNR	62	54				
	69	6:30:03	70	82.1	UNR	65	55				
	70	6:45:03	69.6	77.7	UNR	66	56				
	71	7:00:03	71.6	83.5	UNR	68	58				
	72	7:15:03	71.4	84.8	UNR	69	58				
	73	7:30:03	71.4	80.9	UNR	69	58				
	74	7:45:03	71.5	80.7	UNR	69	61				
	75	8:00:03	71.6	79.8	UNR	69	58				
	76	8:15:03	71	80.5	UNR	68	57				
	77	8:30:03	70.3	78.9	UNR	67	58				
	78	8:45:03	71.7	83.9	UNR	68	57				
	79	9:00:03	70.6	79.7	UNR	68	59				
	80	9:15:03	70.4	79.4	UNR	68	59				
	81	9:30:03	71.1	83.6	UNR	67	57				
	82	9:45:03	69.7	80.4	UNR	66	57				
	83	10:00:03	68.6	80.3	UNR	64	56				
	84	10:15:03	68.7	80.2	UNR	64	55				
	85	10:30:03	69.5	83.5	UNR	62	55				
	86	10:45:03	69.1	83.1	UNR	64	56				
	87	11:00:03	69.6	84.4	UNR	65	57				
	88	11:15:03	70	85.5	UNR	65	56				
	89	11:30:03	69.7	84.7	UNR	64	56				
	90	11:45:03	69.7	85.4	UNR	65	56				
	91	12:00:03	70.5	84.4	UNR	63	56				
	92	12:15:03	71.3	85.9	UNR	65	57				
	93	12:30:03	70	84.4	UNR	64	56				
	94	12:45:03	69.8	80.2	UNR	66	57				
	95	13:00:03	71.5	84.1	UNR	65	56				
	96	13:15:03	69	78.5	UNR	65	55				
	97	13:30:03	73.3	88	UNR	65	58				
	98	13:45:03	71.2	82.8	UNR	64	56				
	99	14:00:03	70.7	83.7	120.7	65	56				
	100	14:15:03	87.7	108	141.9	70	66				
	-- AMPLITUDE DISTRIBUTION REPORT --										
	TOTAL SAMPLES = 1427652										
	dB	SAMPLES	% OF TOTAL								

44	14	.	0							
45	153	.	0.01							
46	0:00:00	.	0.04							
47	2454	+	0.17							
48	6922	+	0.48							
49	24487	**	1.72							
50	52949	****	3.71							
51	62460	****	4.38							
52	55308	****	3.87							
53	50506	****	3.54							
54	50991	****	3.57							
55	55844	****	3.91							
56	54955	****	3.85							
57	53874	****	3.77							
58	56691	****	3.97							
59	56728	****	3.97							
60	50519	****	3.54							
61	52346	****	3.67							
62	46294	***	3.24							
63	51890	****	3.63							
64	44735	***	3.13							
65	45960	***	3.22							
66	46041	***	3.22							
67	50188	****	3.52							
68	48551	***	3.4							
69	48967	***	3.43							
70	49777	***	3.49							
71	53149	****	3.72							
72	51602	****	3.61							
73	51011	****	3.57							
74	46883	***	3.28							
75	39939	***	2.8							
76	27980	**	1.96							
77	15160	*	1.06							
78	8360	*	0.59							
79	4968	+	0.35							
80	2828	+	0.2							
81	1906	+	0.13							
82	1604	+	0.11							
83	901	.	0.06							
84	321	.	0.02							
85	230	.	0.02							
86	165	.	0.01							
87	105	.	0.01							
88	65	.	0							
89	46	.	0							
90	39	.	0							
91	35	.	0							
92	22	.	0							
93	21	.	0							
94	14	.	0							

95	4	.	0
96	4	.	0
97	4	.	0
98	4	.	0
99	4	.	0
100	4	.	0
101	4	.	0
102	4	.	0
103	4	.	0
104	4	.	0
105	3	.	0
106	4	.	0
107	5	.	0

Ln(1.0) = 78dB
Ln(10.0) = 74dB
Ln(50.0) = 62dB
Ln(90.0) = 51dB

	NO CUTOFF	40.0dB CUTOFF	40.0dB CUTOFF
Leq	69.4dB	69.4dB	69.4dB
Ldod	67.9dB	67.9dB	67.9dB
Losha	66.9dB	66.9dB	66.9dB
Leq(6)	66.2dB	66.2dB	66.2dB

File Name.....bin3
Test Location.....LT-3: Hurricane Street
Employee Name.....at stream by pump plant
Employee Number...
Department.....
Comment Field 1...29401770.20000 Venice
Comment Field 2...Dual Force Main EIR
Numeric Code #1... #2... #3... #4... #5...

METROSONICS db-308 SN 2881 V2.3
REPORT PRINTED 06/13/05 AT 11:38:49

EXCHANGE RATE..... 3dB FILTER.....A WGHT
DOSE CRITERION....100dB RESPONSE...SLOW
PRE-TEST CALIBRATION TIME.... 6/08/05 AT 12:23:34
PRE-TEST CALIBRATION RANGE... 43.3dB TO 139.3dB
Calibrator Type & Serial #...

Calibrator Calibration Date..

-- OVERALL STATISTICS REPORT --

TEST BEGAN.... 6/09/05 AT 15:15:19
TEST LENGTH... 1 DAYS 1:47:26

Lav..... 53.2dB
SEL.....102.7dB
Lmax..... 83.3dB ON 6/09/05 AT 15:19:14
Lpk.....119 dB ON 6/09/05 AT 15:18:55
TIME OVER 115dB.. 0 DAYS 0:00:00.00

8 HR DOSE (80dB CUTOFF)..... 0.00%
8 HR DOSE (90dB CUTOFF)..... 0.00%

-- TABULAR TIME HISTORY REPORT --

OF PERIODS: 106 MODE: CONTINUOUS
PERIOD LENGTH: 0:15:00
TIME HISTORY CUTOFF: NONE
Ln(1): 50.0% Ln(2): 90.0%

DATE: 6/09/05

INT	TIME	Lav	Lmx	Lpk	L1	L2
1	15:15:19	62.4	83.3	119.1	52	49
2	15:30:19	56.9	69.1	UNR	53	50
3	15:45:19	54	68.6	UNR	52	49
4	16:00:19	53.6	65.8	UNR	52	48
5	16:15:19	53.6	65.3	UNR	52	49
6	16:30:19	52.9	59.6	UNR	51	49

	7	16:45:19	51.7	58.5	UNR	50	48				
	8	17:00:19	52.9	65.6	UNR	50	48				
	9	17:15:19	55.2	67.4	UNR	53	49				
	10	17:30:19	53.4	65.4	UNR	51	48				
	11	17:45:19	52.6	59.6	UNR	51	48				
	12	18:00:19	54.1	62.6	UNR	52	48				
	13	18:15:19	52.4	58.8	UNR	51	49				
	14	18:30:19	55	68.3	UNR	52	49				
	15	18:45:19	53.3	60.8	UNR	52	49				
	16	19:00:19	52.8	60.9	UNR	51	49				
	17	19:15:19	52.3	62.1	UNR	50	48				
	18	19:30:19	55.9	71.7	UNR	51	47				
	19	19:45:19	54	66.3	UNR	50	47				
	20	20:00:19	52	59.5	UNR	50	47				
	21	20:15:19	53.2	60.5	UNR	52	47				
	22	20:30:19	51.4	59.5	UNR	49	46				
	23	20:45:19	51	58.1	UNR	49	45				
	24	21:00:19	51.1	58	UNR	49	47				
	25	21:15:19	50.8	60	UNR	48	46				
	26	21:30:19	49.9	56.1	UNR	48	45				
	27	21:45:19	50.1	58.3	UNR	48	45				
	28	22:00:19	51.5	71.9	118.3	49	46				
	29	22:15:19	49.4	60.8	UNR	48	45				
	30	22:30:19	50	61.7	UNR	47	44				
	31	22:45:19	48.1	55.1	UNR	46	44				
	32	23:00:19	49.3	57.8	UNR	47	44				
	33	23:15:19	48.6	61.5	UNR	46	43				
	34	23:30:19	47.2	54.9	UNR	45	43				
	35	23:45:19	50	61.7	UNR	46	44				
	36	0:00:19	48.9	63	UNR	45	44				
	37	0:15:19	50.9	66.6	UNR	48	44				
	38	0:30:19	48.2	57.1	UNR	45	43				
	39	0:45:19	48	64.4	UNR	45	44				
	40	1:00:19	48	57.4	UNR	45	43				
	41	1:15:19	47.9	59.3	UNR	44	43				
	42	1:30:19	47.3	55.3	UNR	44	43				
	43	1:45:19	47.5	67.2	UNR	43	43				
	44	2:00:19	45.4	52.7	UNR	43	43				
	45	2:15:19	45.4	53.7	UNR	43	43				
	46	2:30:19	45.5	53.3	UNR	43	43				
☐	47	2:45:19	45.7	54.4	UNR	43	43				
	48	3:00:19	46.3	57.1	UNR	43	43				
	49	3:15:19	46.3	53.9	UNR	44	43				
	50	3:30:19	45	55	UNR	43	43				
	51	3:45:19	45	53.4	UNR	43	43				
	52	4:00:19	44.7	51.9	UNR	43	43				
	53	4:15:19	45.6	50.4	UNR	44	43				
	54	4:30:19	44.7	50.8	UNR	43	43				
	55	4:45:19	44.6	54.2	UNR	43	43				
	56	5:00:19	47.2	65.4	UNR	45	43				
	57	5:15:19	48.3	58.8	UNR	47	45				
	58	5:30:19	48.6	57.3	UNR	47	44				

59	5:45:19	47.7	59.9	UNR	46	44				
60	6:00:19	49.5	66.3	UNR	47	44				
61	6:15:19	53.8	72.5	UNR	48	44				
62	6:30:19	57.6	69.6	UNR	55	48				
63	6:45:19	54.1	63.2	UNR	52	48				
64	7:00:19	52.9	65.7	UNR	50	47				
65	7:15:19	52.6	63.4	UNR	51	49				
66	7:30:19	52.1	61.3	UNR	51	48				
67	7:45:19	52.7	68.8	UNR	51	47				
68	8:00:19	52.1	66.9	UNR	50	47				
69	8:15:19	51.7	65.5	UNR	50	48				
70	8:30:19	53.2	64.4	UNR	52	49				
71	8:45:19	53.7	63.6	UNR	52	49				
72	9:00:19	53.6	62.6	UNR	52	48				
73	9:15:19	55.9	66.6	UNR	55	51				
74	9:30:19	61.9	83.3	UNR	54	50				
75	9:45:19	55.2	65	UNR	53	50				
76	10:00:19	55.6	71.2	UNR	52	50				
77	10:15:19	53	62.2	UNR	52	48				
78	10:30:19	52	63.1	UNR	51	47				
79	10:45:19	53.7	77.1	UNR	51	48				
80	11:00:19	53.3	64.1	UNR	51	49				
81	11:15:19	53.4	63.9	UNR	52	49				
82	11:30:19	53.6	63.1	UNR	52	49				
83	11:45:19	52	68.4	UNR	50	48				
84	12:00:19	52.8	62.4	UNR	51	48				
85	12:15:19	52.1	59	UNR	51	48				
86	12:30:19	52.9	64.1	UNR	51	48				
87	12:45:19	56.5	74.5	UNR	53	49				
88	13:00:19	53.3	62.2	UNR	52	49				
89	13:15:19	54.3	62.2	UNR	52	49				
90	13:30:19	55	61.6	UNR	54	49				
91	13:45:19	54.1	62	UNR	52	49				
92	14:00:19	57.5	74.2	UNR	53	50				
93	14:15:19	54.9	72.3	UNR	52	50				
94	14:30:19	52.5	61.6	UNR	51	48				
95	14:45:19	55.6	71.5	UNR	52	49				
96	15:00:19	56.2	69.7	UNR	53	49				
97	15:15:19	53.8	62.4	UNR	53	50				
98	15:30:19	53.7	63.5	UNR	52	50				
99	15:45:19	52.9	62.8	UNR	52	49				
100	16:00:19	53.4	59.2	UNR	52	49				
101	16:15:19	52.5	62.2	UNR	51	48				
102	16:30:19	53	62.6	UNR	52	50				
103	16:45:19	52.8	68.4	UNR	51	49				
104	17:00:19	58.1	72.4	UNR	53	50				
DATE: 6/10/05										
INT	TIME	Lav	Lmx	Lpk	L1	L2				
105	17:03:00	51.9	53.3	UNR	51	50				

DATE: 6/10/05

INT	TIME	Lav	Lmx	Lpk	L1	L2
106	17:03:08	53.7	54.1	UNR	53	53

-- AMPLITUDE DISTRIBUTION REPORT --

TOTAL SAMPLES = 742774

dB	SAMPLES	% OF TOTAL	
43	71364	**********	9.61
44	37095	*****	4.99
45	30311	****	4.08
46	29148	****	3.92
47	40753	*****	5.49
48	50579	*******	6.81
49	73468	**********	9.89
50	72973	**********	9.82
51	71627	**********	9.64
52	67928	*********	9.15
53	59806	********	8.05
54	49413	*******	6.65
55	29976	****	4.04
56	18049	**	2.43
57	15372	**	2.07
58	9235	*	1.24
59	5620	*	0.76
60	2819	+	0.38
61	1918	+	0.26
62	1354	+	0.18
63	1047	+	0.14
64	725	.	0.1
65	593	.	0.08
66	351	.	0.05
67	241	.	0.03
68	209	.	0.03
69	193	.	0.03
70	132	.	0.02
71	113	.	0.02
72	78	.	0.01
73	70	.	0.01
74	46	.	0.01
75	26	.	0
76	22	.	0
77	21	.	0
78	19	.	0
79	14	.	0
80	23	.	0
81	24	.	0
82	13	.	0

83	6	.	0	
Ln(0.0) = 83dB				
Ln(10.0) = 55dB				
Ln(50.0) = 50dB				
Ln(99.9) = 43dB				
	NO CUTOFF	80.0dB CUTOFF	90.0dB CUTOFF	
Leq	52.8dB	43.3dB	43.3dB	
Ldod	51.7dB	43.3dB	43.3dB	
Losha	51.3dB	43.3dB	43.3dB	
Leq(6)	51.0dB	43.3dB	43.3dB	

File Name.....bin4
Test Location.....LT-4: Via Marina @ S end
Employee Name.....@ S end of Grand Channel
Employee Number...by Marina Del Rey Chanel
Department.....
Comment Field 1...29401770.20000 Venice
Comment Field 2...Dual Force Main EIR
Numeric Code #1... #2... #3... #4... #5...

METROSONICS db-308 SN 3068 V3.0
REPORT PRINTED 06/13/05 AT 11:45:37

EXCHANGE RATE..... 3dB FILTER.....A WGHT
DOSE CRITERION.... 90dB RESPONSE...SLOW
PRE-TEST CALIBRATION TIME.... 6/08/05 AT 13:21:14
PRE-TEST CALIBRATION RANGE... 42.7dB TO 142.7dB
NO POST-TEST CALIBRATION
Calibrator Type & Serial #..._____

Calibrator Calibration Date.._____

-- OVERALL STATISTICS REPORT --

TEST BEGAN.... 6/09/05 AT 16:00:03
TEST LENGTH... 1 DAYS 1:14:45
TEST ENDED.... 6/10/05 AT 17:14:48
TEST INTERRUPTIONS...1

Lav..... 62.7dB
SEL.....112.1dB
Lmax..... 99.9dB ON 6/10/05 AT 13:01:01
Lpk.....127.4dB ON 6/09/05 AT 16:00:03
TIME OVER 115dB.. 0 DAYS 0:00:00.00

8 HR DOSE (40dB CUTOFF)..... 0.57%
8 HR DOSE (40dB CUTOFF)..... 0.57%

-- TABULAR TIME HISTORY REPORT --

OF PERIODS: 101 MODE: CONTINUOUS
PERIOD LENGTH: 0:15:00
TIME HISTORY CUTOFF: NONE
Ln(1): 50.0% Ln(2): 90.0%

DATE: 6/09/05

INT	TIME	Lav	Lmx	Lpk	L1	L2
1	16:00:03	61.1	78.5	127.4	57	50
2	16:15:03	61.8	78.2	UNR	58	50
3	16:30:03	62.7	79.8	UNR	56	49

	4	16:45:03	60.8	80.5	UNR	55	49			
	5	17:00:03	67.7	88.1	UNR	56	49			
	6	17:15:03	59.2	69.5	UNR	56	50			
	7	17:30:03	63.5	79.5	UNR	58	51			
	8	17:45:03	59.9	75.2	UNR	57	48			
	9	18:00:03	62.1	77.7	UNR	57	50			
	10	18:15:03	64.3	89.5	UNR	55	50			
	11	18:30:03	60.8	74.9	UNR	57	51			
	12	18:45:03	60	73.9	UNR	57	51			
	13	19:00:03	61.2	76.2	UNR	57	50			
	14	19:15:03	59.4	71.8	UNR	55	50			
	15	19:30:03	60.6	73.3	UNR	57	47			
	16	19:45:03	59.5	71.8	UNR	55	46			
	17	20:00:03	60	74.7	UNR	55	47			
	18	20:15:03	60.1	76.1	UNR	54	49			
	19	20:30:03	60	75.7	UNR	55	47			
	20	20:45:03	57.6	68.7	UNR	52	44			
	21	21:00:03	57.3	71.2	UNR	53	46			
	22	21:15:03	57.5	74	UNR	51	43			
	23	21:30:03	58.6	78.9	UNR	50	43			
	24	21:45:03	57	69.6	UNR	51	43			
	25	22:00:03	58.6	75.5	UNR	53	44			
	26	22:15:03	57.9	71.2	UNR	54	46			
	27	22:30:03	57.9	70.7	UNR	50	42			
	28	22:45:03	57.4	71.1	UNR	53	45			
	29	23:00:03	56.5	67.9	UNR	52	43			
	30	23:15:03	54.9	67.5	UNR	47	43			
	31	23:30:03	52.9	65.5	UNR	45	42			
	32	23:45:03	57.8	74.4	UNR	47	42			
	33	0:00:03	57.5	72.2	UNR	49	42			
	34	0:15:03	55.3	72.7	UNR	48	42			
	35	0:30:03	56.3	72.5	UNR	48	42			
	36	0:45:03	54.8	67.2	UNR	47	42			
	37	1:00:03	55.9	68.3	UNR	50	42			
	38	1:15:03	55.7	69.2	UNR	49	42			
	39	1:30:03	55.2	68.4	UNR	49	42			
	40	1:45:03	54.4	67.1	UNR	42	42			
	41	2:00:03	49.9	64.1	UNR	42	42			
	42	2:15:03	49.3	66.3	UNR	42	42			
	43	2:30:03	52.6	71.4	UNR	42	42			
	44	2:45:03	51.8	73.8	UNR	42	42			
	45	3:00:03	54.3	73.5	UNR	42	42			
	46	3:15:03	48.8	68.3	UNR	42	42			
☐	47	3:30:03	49.2	65.7	UNR	42	42			
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	53	5:00:03	50.2	64.4	UNR	44	42			
	54	5:15:03	55.9	75.1	UNR	45	43			
	55	5:30:03	59.2	77.9	UNR	49	44			

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59	6:30:03	58.8	78.8	UNR	51	46			
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67	8:30:03	59.8	74.7	UNR	55	50			
68	8:45:03	60.4	75	UNR	55	49			
69	9:00:03	59.3	70.5	UNR	55	48			
70	9:15:03	61.6	81	UNR	57	49			
71	9:30:03	65.9	85	UNR	59	50			
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75	10:30:03	63.3	76.1	UNR	59	51			
76	10:45:03	61.2	76.7	UNR	56	50			
77	11:00:03	62.6	79.2	UNR	58	50			
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89	14:00:03	63.9	81.2	UNR	58	51			
90	14:15:03	63	79.8	UNR	59	52			
91	14:30:03	63	78.9	UNR	57	51			
92	14:45:03	64.2	81.5	UNR	59	52			
93	15:00:03	63.3	77.7	UNR	58	52			
94	15:15:03	62.8	78.9	UNR	58	52			
95	15:30:03	64	79.5	UNR	58	53			
96	15:45:03	62.6	76.8	UNR	59	52			
97	16:00:03	67.9	77.1	UNR	63	53			
98	16:15:03	68.4	88.7	112.1	61	52			
99	16:30:03	64.5	77.3	UNR	59	51			
100	16:45:03	68.1	89.6	111.5	58	52			
101	17:00:03	62.5	78.2	UNR	58	51			

-- AMPLITUDE DISTRIBUTION REPORT --

TOTAL SAMPLES = 1454173

dB	SAMPLES	% OF TOTAL	
42	162817	**********	11.2
43	44285	***	3.05
44	38597	***	2.65
45	38620	***	2.66
46	32846	**	2.26
47	40174	***	2.76
48	35924	**	2.47
49	48603	***	3.34
50	53602	****	3.69
51	61297	****	4.22
52	67961	*****	4.67
53	65244	****	4.49
54	67383	*****	4.63
55	70659	*****	4.86
56	65796	*****	4.52
57	63802	****	4.39
58	68262	*****	4.69
59	64791	****	4.46
60	57917	****	3.98
61	56716	****	3.9
62	47785	***	3.29
63	46376	***	3.19
64	36022	**	2.48
65	29692	**	2.04
66	23375	**	1.61
67	17587	*	1.21
68	12056	*	0.83
69	8847	*	0.61
70	6728	+	0.46
71	4904	+	0.34
72	3757	+	0.26
73	3032	+	0.21
74	2237	+	0.15
75	1760	+	0.12
76	1448	.	0.1
77	844	.	0.06
78	622	.	0.04
79	510	.	0.04
80	344	.	0.02
81	205	.	0.01
82	170	.	0.01
83	106	.	0.01
84	75	.	0.01
85	46	.	0
86	56	.	0
87	55	.	0
88	68	.	0
89	37	.	0
90	10	.	0
91	10	.	0

	92	11	.	0						
	93	11	.	0						
	94	11	.	0						
	95	12	.	0						
	96	13	.	0						
	97	12	.	0						
	98	16	.	0						
	99	27	.	0						
	Ln(1.0) = 72dB									
	Ln(10.0) = 64dB									
	Ln(50.0) = 54dB									
	Ln(90.0) = 42dB									
		NO CUTOFF	40.0dB CUTOFF	40.0dB CUTOFF						
	Leq	62.2dB	62.2dB	62.2dB						
	Ldod	59.5dB	59.5dB	59.5dB						
	Losha	58.2dB	58.2dB	58.2dB						
	Leq(6)	57.4dB	57.4dB	57.4dB						

APPENDIX I

VISUAL AND AESTHETIC RESOURCES

VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT EIR

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Appendix I

VISUAL/AESTHETIC RESOURCES

1.0 Overview

This report assesses the potential for the construction of the Venice Pumping Plant Dual Force Main (the Proposed Project) to adversely impact the Visual/Aesthetic Resources (Visual Resources) in the project vicinity and the significance of such impacts. The analytical approach to addressing these concerns is compliant with the requirements of CEQA and addresses the City of Los Angeles Draft CEQA Threshold Guide for determining impact significance. Accordingly, the visual resources assessment:

- Identifies those views potentially affected by the Project over which the public is most likely to express concern (critically sensitive public views);
- Describes the existing character and quality of those potentially affected critically sensitive views;
- Estimates the intensity of possible adverse visual impacts on those views;
- Evaluates the significance of the possible impacts; and
- As applicable, considers possible mitigation measures that could lessen the impacts to negligible levels of intensity.

2.0 Environmental Setting

2.1 Visual Sensitivity

2.1.1 Technical Approach

The technical approach to this visual impact assessment is presented in detail in Attachment A. The following is a summary of the approach to assessing Visual Sensitivity, the first attribute of the affected landscape to be addressed. Sensitivity is the social setting for visual resources. As applied to visual impact analyses, sensitivity refers to public attitudes about specific views, or interrelated views, and is the key to assessing how important a visual impact may be and whether or not it represents a significant

impact. To assess visual sensitivity, indicators of public concern were identified and sensitivity rated accordingly. The indicators are listed in Table K-1 of Attachment A and reflect the concepts and methods of several federal agencies that treat sensitivity as a function of viewer activity, awareness, values, and goals.

The four levels of sensitivity are high, moderate, low and no sensitivity.

- **High Sensitivity.** High sensitivity suggests that at least some part of the public is likely to react strongly to a threat to visual quality. A highly concerned public is assumed to be more aware of any given level of adverse change and less tolerant than a public that has little concern. A small modification of the existing landscape may be visually distracting to a highly sensitive public and represent a substantial reduction in visual quality.
- **Moderate Sensitivity.** Moderate sensitivity suggests that the public would probably voice some concern over substantial visual impacts. Often the affected views are secondary in importance or are similar to others commonly available to the public. Noticeably adverse changes would probably be tolerated if the essential character of the views remains dominant.
- **Low Sensitivity.** Low sensitivity is considered to prevail where the public is expected to have little or no concern about changes in the landscape. This may be because the affected views are not "public" (not accessible to the public) or because there are no indications that the public values the affected views.
- **No Sensitivity**. There is no sensitivity where the potentially affected views are not "public" (not accessible to the general public) or because there are no indications that the affected views are valued by the public.

2.1.2 Sensitivity of Project Locale

By definition (Table K-1, Attachment A), views from areas serving residential, recreational and tourism land uses, as well as from the transportation routes serving those land uses, are considered to be highly sensitive. The public is expected to value such views and potentially to react strongly to adverse changes in the visual character and quality of their surroundings.

The Coastal Commission's primary concern over visual resources within the Coastal Zone is:

> "...the protection of ocean and coastal views from public areas such as highways, roads, beaches, parks, coastal trails and accessways, vista points, coastal streams and waters used for recreational purposes, and other public preserves rather than coastal views from private residences where no public vistas are involved."

The last statement notwithstanding, this assessment considers the collective views from homes within residential areas and those from the roads serving as primary access to them to be highly sensitive and important to the consideration of the significance of visual impacts.

The Proposed Project Alternative Alignments are, with one exception, located in the City of Los Angeles within what are primarily residential areas in the communities of Venice, Westchester and Playa del Rey. The exception is an alternative alignment which would

pass through Marina del Rey, an unincorporated area within Los Angeles County. The Venice, Westchester, Playa del Rey and Marina del Rey areas also feature commercial, industrial, and tourism/recreation land uses. Views from residential and recreation land use areas are highly sensitive (Table K-1, Attachment A), and such areas flank, or are near, the Venice and Marina del Rey Alternative Alignments, as well as the Westchester/Playa del Rey Alignment Alternative

Large Diameter (Mined) Tunnel alignment alternatives would primarily present limited areas of disturbance above ground, these being the Starter and Extraction Shaft sites. These sites are within view of beach recreation sites and residential areas. Also, some aspects of the Project Alternatives would be within the field of view of recreation marine traffic passing along the Marina del Rey Entrance Channel. Further, certain roads within the marina area and one in Playa del Rey are part of routes that have been designated as Scenic Highways and, in one case, also as a Scenic Drive.

Marina Del Rey Alignment

Marquesas Way/Via Marina

Sensitivity. Figure 1 shows the viewing positions used in this assessment. There are numerous highly sensitive viewing positions within and around Marina del Rey, given its scenic, recreation and tourist-oriented attractions. Foremost among these are views from Via Marina, Admiralty Way and Fiji Way, which form a route designated as a Scenic Highway and also to be designated as a Scenic Drive (Scenic Highway Element, Los Angeles County General Plan; see Section 3.1, Coastal Plan Policies). Of specific importance to the Proposed Project is Via Marina, from its intersection with Marquesas Way to where it turns sharply to the southwest to parallel the entrance channel for the marina. Along this stretch of road there would be cut-and-cover pipeline installation, as well as the construction of receive and Push Sites for micro-tunneling.

A number of recreation and tourist attractions are to be found in the marina: Burton Chace Park, Fisherman's Village, Admiralty Park, Mother's Beach, and the picturesque marina itself. Views from these locations, however, are not important to the analysis, as they do not include Project construction activities and sites. On the other hand, at the southeast end of Via Marina, where it turns to the southwest, there is a small park called Aubrey E. Austin Park. There, too, is the northeast end of the North Jetty Promenade, a popular walk along the scenic Marina del Rey Entrance Channel. Views from Aubrey Park and the Promenade are also, by definition, highly sensitive, and the receive site for the micro-tunneling connection to the Marina del Rey Alignment would be within full view of these recreation resources across Via Marina.

A moderately high-density multi-family residential area lines both sides of Marquesas Way and the west side of Via Marina. Both of these roads serve as the primary access to the residential areas flanking Ballona Lagoon and the Grand Canal to the west. The collective views from the residences on Via Marina and Marquesas Way are highly sensitive. Because these roads are part of the primary access to these residential areas, road-based views would be considered to be highly sensitive. As noted, Via Marina is also highly sensitive due to its Scenic Highway/Scenic Drive status.

Also, some aspects of the Project Alternatives would be seen from boats passing along the Entrance Channel, and such views, being recreation oriented, are highly sensitive.

Critical Views. Critical views are partly defined as those that are the most sensitive, as described in the previous section. Where the public is considered to be potentially moderately to highly sensitive to changes in visual quality, there is likely to be a substantial concern over noticeably adverse visual impacts.

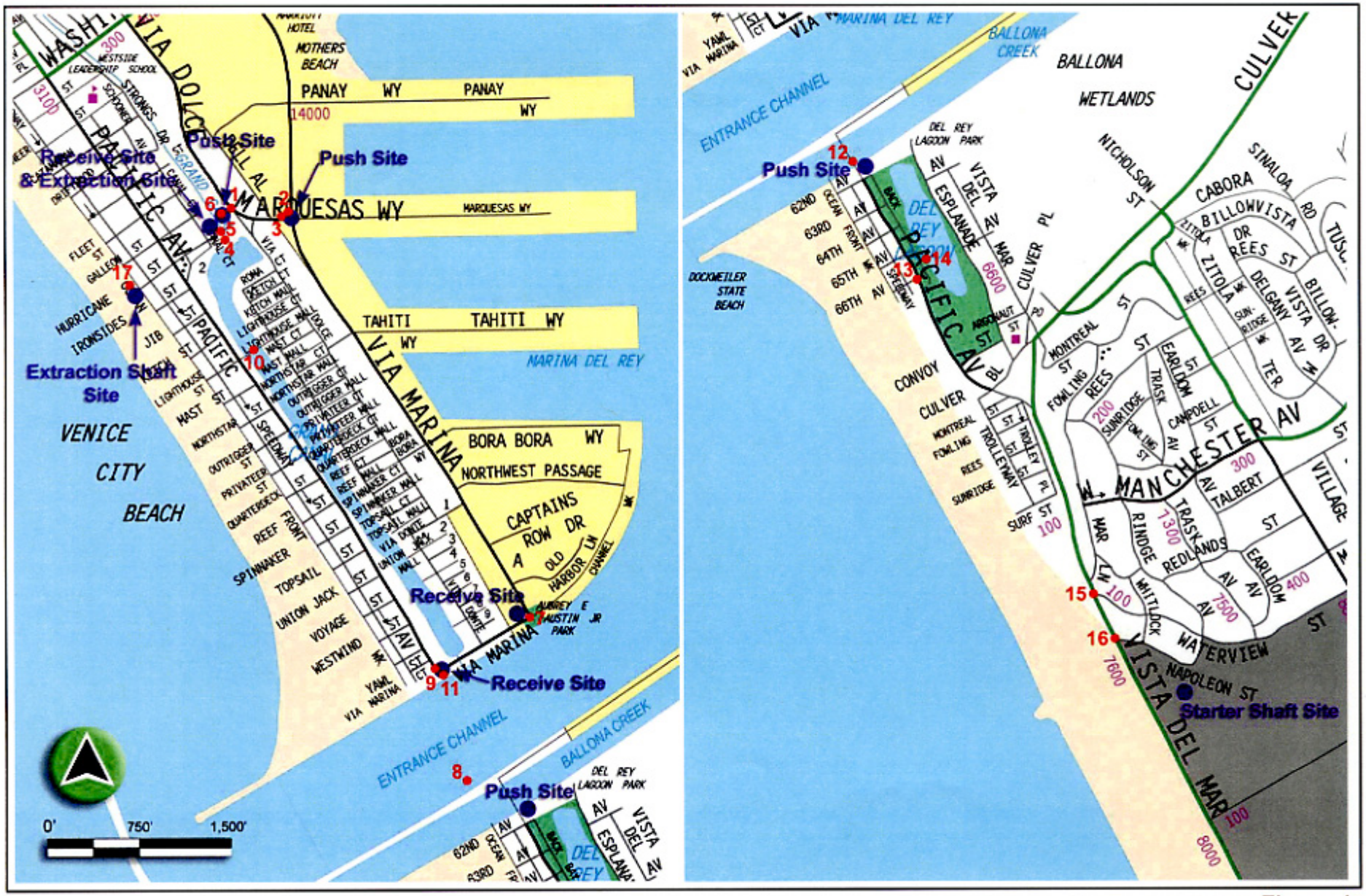
Critical views also are defined as being those which would be most affected by the subject action (e.g., the greatest intensity of impact due to viewer proximity to the project, duration of the affected view, the frequency of viewing, etc.). Consideration is also given to having the views be representative of the public experience; i.e., that they be from viewing positions frequently used by the public and readily located, based on the description and photographs presented in the visual impact assessment. The views critical to the analysis of visual impacts due to the Marina del Rey Alternative Alignment are those from Via Marina, a scenic highway and scenic drive, from Marquesas Way to where it turns to the southwest to flank the channel; from the residences bordering this road and Marqessas Way; from the residences lining the east side of the Grand Canal near the Venice Pumping Plant; from the Grand Canal in this vicinity; from the residences at the northeast end of Hurricane St., next to the Pumping Plant; from Aubrey E. Austin Park; from the east end of North Jetty Promenade; and from the Marina del Rey Entrance Channel. The Proposed construction activities would be in the foreground of these views.

Figures 2 and -3, show representative views of Marquesas Way and Via Marina, in the vicinity of the two optional Push Sites for micro-tunneling under Ballona Lagoon to the receive site opposite the Venice Pumping Plant. Also shown in these figures are optional construction/laydown areas that would support the construction and operation of the two alternative Push Sites. Figure 4 shows the receive site at the Venice Pumping Plant, which is in the vacant lot opposite the Plant, as well as Push Site Option 2, in the vacant lot on the east side of the canal. These sites would be within full view from the residences lining the east side of Ballona Lagoon/Grand Canal across from the Plant, as well as those walking along the lagoon/canal or boating on it.

Figure 5 is a panoramic view from a residence along the east bank of the Grand Canal across from the Venice Pumping Station. This view shows the point where the canal becomes "Ballona Lagoon," which is at the left corner of the Plant, in the upper image. Recreationists walking along the canal and the lagoon, or boating on these waters, would be expected to be highly sensitive to visual impacts. As noted above, the receive site for the Marquesas Way/Via Marina alignment alternative would be in the vacant lot shown in Figure 5.

Figure 6 shows the view from Aubrey E. Austin Park, looking to the northwest along Via Marina. This view shows the location of one option for the receive site for the under-channel micro-tunneling construction alternative. The site is within the parking lot shown in the upper image, and the construction/laydown area would also be within this parking lot. The view shown also represents that from the North Jetty Promenade and Via Marina.

Figure 7 is a panoramic view from the Entrance Channel that includes the Via Marina receive site as well as Aubrey E. Austin Park. Views from the channel would not be the most critical, as they would be comparatively distant, relative to views from Via Marina, Aubrey E. Austin Park, and the North Jetty Promenade. While boats may pass along the northwest side of the channel and be within about 240 ft of the nearest Project feature, the North Jetty would block such views. From points nearer the center of the Channel but



City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Viewing Positions Corresponding to
Figures 2 - 15

Figure 1

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Panorama Showing Site for Push Option 2 for
Marquesas Way/Via Marina Cut-and-Cover Alternative,
Seen from Marquesas Way/Via Dolce Intersection (VP 1).

Figure 2

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Views of Via Marina/Marquesas Way Intersection, the Site for Site Push Option 1 for Marquesas Way/Via Marina Cut-and-Cover Alternative, Seen from, and near, Marquesas Way/Via Dolce Intersection (VPs 2 and 3).

Figure 3

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

(Top): View along the Grand Canal Showing Residences from Which Receive and Push Sites, Cut-and-Cover, or Extraction Shaft Construction Activities Would Be Seen (VP 4). **(Bottom):** Hurricane St. at the Venice Pumping Plant, Showing Receive and Alternative Extraction Shaft Sites (VP 5).

Figure 4

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

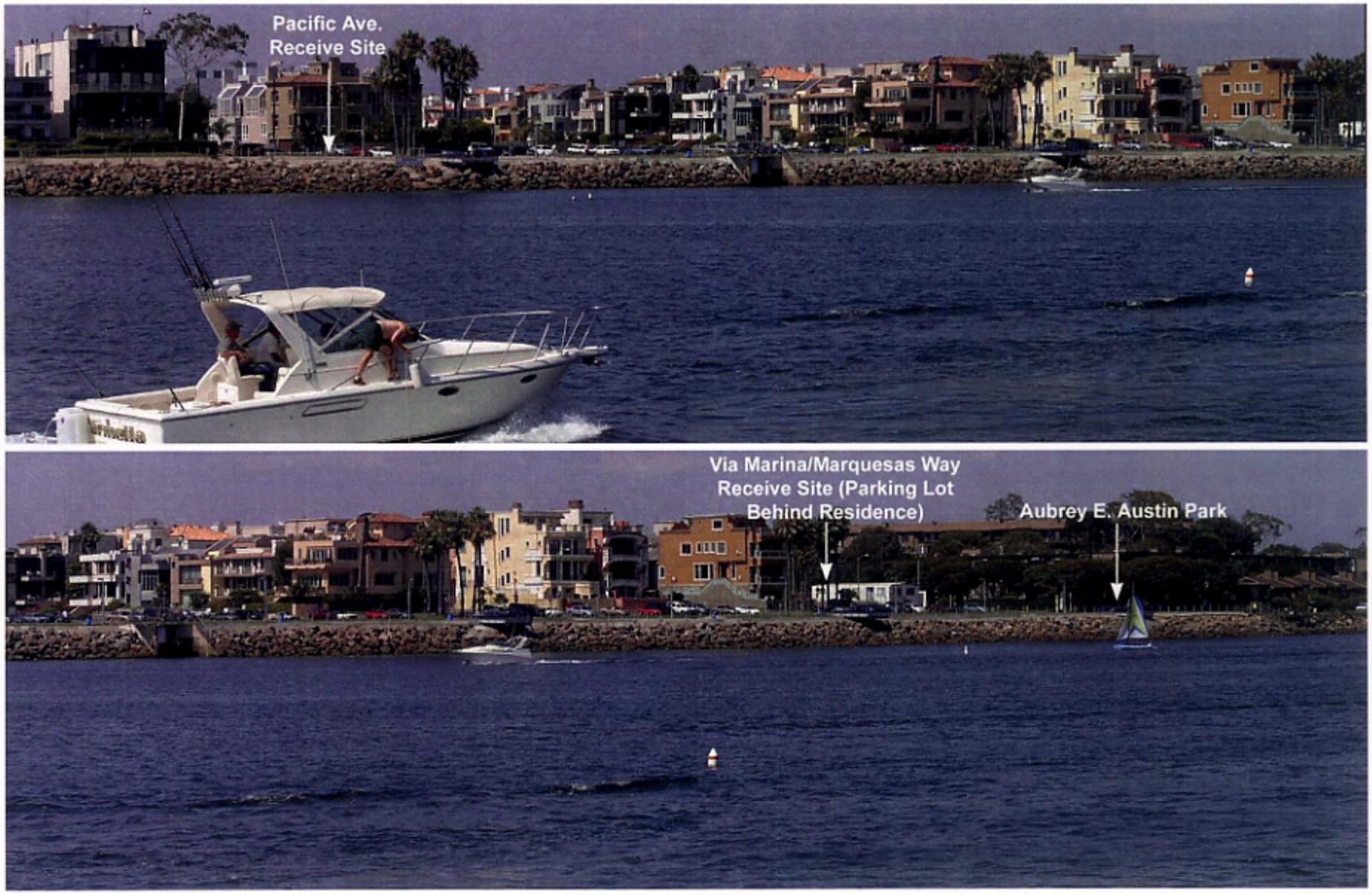
View from Residence on East Side of Ballona Lagoon/Grand Canal Showing the Venice Pumping Plant, a Receive Site for Micro-Tunneling, and Optional Mined Tunneling Extraction Site (VP 6).

Figure 5

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

Panoramic View from Aubrey E. Austin Park, Looking Northwest along Via Marina. **(Top):** The Receive Site and Cut-and-Cover Construction for the Via Marina/Marqesas Way Alignment Alternative would be in the Parking Lot (VP 7)

Figure 6



City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

A Panoramic View from the Marina del Rey Entrance Channel, Showing the Locations of the Receive Sites at Pacific Ave. and Via Marina, the Entrance to the Grand Canal, and Aubrey E. Austin Park (VP 8).

Figure 7

City of Los Angeles
Venice Pumping Plant
Dual Force Main Project

(Top): Looking Northwest along Pacific Ave. from the Intersection with Via Marina (VP 9). **(Bottom):** Looking Southeast along Ballona Lagoon and Pacific Ave. from the Pedestrian Bridge at Lighthouse St.(VP 10).

Figure 8

within the ocean-bound lane, points from which the Project could be seen, the viewing positions would be not closer than about 350 ft or more. By contrast, from Aubrey E. Austin Park and Via Marina, one is only about 80 - 90 ft from where the receive site may be within the parking lot northwest of the park. Consequently, views from the Entrance Channel would not be considered further, as the focus of the assessment is on the most critical views.

Venice Alignment Alternatives

Pacific Avenue Alignment.

Sensitivity. In general, the Pacific Avenue Alignment Alternative would be within highly sensitive public views that include the collective residential views along the alignment, along Hurricane St. and Pacific Ave., from Ballona Lagoon/Grand Canal, and those from a pedestrian trail lining the east side of the lagoon.

The Pacific Avenue Alignment runs west along Hurricane St. to Pacific Avenue and then south to Via Marina where it would meet with a receive site for the micro-tunneled alignment under the Marina del Rey Entrance Channel and Ballona Creek. The collective residential views along these two streets are treated in this analysis as highly sensitive, as noted. Cut-and-cover activities would be visible from residences lining the east side of the Grand Canal across from the Venice Pumping Plant and those along Hurricane St. As well, residents along Pacific Avenue south of Hurricane St. to Via Marina would view cut-and-cover construction activities while approaching their homes and from their residences as construction progresses along the street.

Concerning recreation, most of the highly varied recreation opportunities within the community of Venice occur to the north of the Project site, including the famous Venice Beach, bike path and Ocean Front Walk. In general, public recreation use of area of the Project is less intensive than that of the North Venice Beach portion. Uses are primarily sunbathing, swimming, picnicking, active recreational uses on the sand, and fishing from the Marina Channel jetty. The walkways and waterways along the Venice Canals and Ballona Lagoon provide opportunities for more passive recreational and educational uses, such as birdwatching, nature study, strolling, and sightseeing. A Class II Bikeway runs along Pacific Ave. (See Section 4.2 of the EIR, Figure 4.2.5-4), and non-motorized boating is permitted in the Venice Canals. Potentially, the Project activities would be seen by boaters along the Lagoon, those walking along the beach access trail in the vicinity, and bicyclists using Pacific Avenue. Also, where Pacific Avenue intersects with Via Marina, there is the North Jetty Promenade, a frequently used walkway featuring observation decks from which the Entrance Channel may be appreciated. Fishing is a popular activity below the Promenade.

Finally, the south terminus of the subject alignment may be seen from the numerous pleasure craft that use the Entrance Channel.

Critical Views. The critical views would be any of those from along the alignment from Ballona Lagoon/Grand Canal, pedestrian beach access, Hurricane St. and Pacific Ave. and their adjoining residences, the bikeway along Pacific Ave., the North Jetty Promenade, and from the Entrance Channel.

Figure 4 shows the route for the Pacific Ave. Alignment along Hurricane St., within view of residences lining this street. Figure 5 shows the proximity of Ballona Lagoon/Grand

Canal to the Venice Pumping Plant and the north end of the Pacific Ave. Alignment Alternative. Figure 8 shows the length of Pacific Ave. from the pedestrian bridge at Lighthouse St. southeast to Via Marina, as well as Ballona Lagoon flanking it on the northeast side. The latter figure also shows that residences line both sides of Pacific Ave. at its southeast end where it meets Via Marina.

Figure 7 discloses the view of the receive site area as seen from the Entrance Channel, while Figure 9 shows the southeast terminus of this alignment alternative and the receive site for micro-tunneling under the Marina del Rey Entrance Channel and Ballona Creek. The Receive site would be close to the observation platform overhanging the revetment (upper image).

Dockweiler Beach to Pacific Avenue Alignment.

This alternative was considered in the EIR but was deemed not to be viable and will not be dealt with further in this assessment.

Dockweiler Beach Alignment.

As is the case for the previous alignment alternative, this alternative was considered but deemed not to be viable and also will not be dealt with further in this assessment.

Westchester/Playa del Rey Alignment Alternatives.

Pacific Avenue/Vista del Mar Alignment

Sensitivity. At the northerly end of this alignment, the alignment extends to a Push Site for micro-tunneling under the Entrance Channel to either the Pacific Avenue or the Via Marina Alternative Alignments on the north side of the Entrance Channel. Here there is a boat launch ramp that may be affected due to construction of the Push Site, a bicycle path, a fishing bridge, and a residential area. The construction/laydown area that would support the micro-tunneling activities would be in the parking lot along the southwest side of the bridge. Views from areas of recreation and residential land uses, including the associated access routes are highly sensitive.

The parking lot for Del Rey Lagoon Park provides access not only to the park, but also to Dockweiler Beach via a path that leads from the parking lot. Views from Pacific Avenue, the residences along it, Del Rey Lagoon Park, the parking lot at the park, and the beach access path, are all highly sensitive.

To the southwest of the Del Rey Lagoon Park parking lot, Pacific Avenue intersects with Vista del Mar. From here this alignment alternative follows Vista del Mar to the junction with the existing C.I.S. near Waterview St. As has been noted, Vista del Mar is a designated scenic highway, and in the vicinity of Waterview St. motorists have an elevated and panoramic view of Dockweiler Beach and the Pacific Ocean. Views from this road are of the highest sensitivity. As well, the collective views from the residences lining Vista del Mar are also highly sensitive, many of which include panoramic ocean views.

Critical Views. All of the views noted would be considered critical, as they are of the highest sensitivity and would include the Proposed Project construction activities within the foreground. Perhaps the most critical of these along Pacific Ave. would be the ones from the bicycle path, the fishing bridge, the residential area along Pacific Ave., Del Rey

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(Top): View of Receive Site and Construction/Laydown Area from the Corner of Pacific Ave. and Via Marina, Looking Northeast (VP 9). **(Bottom):** View along the North Jetty Promenade from Observation Platform at End of Pacific Ave. and Via Marina (VP 11).

Figure 9

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Views from Pacific Ave. Bridge; **(Top):** Push Site in Parking Lot for Under-Channel Alignment; **(Bottom):** View to Southeast along Pacific Ave., Showing Bicycle Path in Foreground (VP 12).

Figure 10

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(Top) Pacific Ave. and 66th Ave. Looking Northwest, and **(Bottom)** Looking North (VP 13); Del Rey Lagoon Park is Seen to the Right.

Figure 11

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Panoramic Views of Del Rey Lagoon Park **(Top):** Looking to the Northwest, and **(Bottom):** Looking to the Southeast (VP 14).

Figure 12

Lagoon Park, and the beach access path. Figure 10 shows views from the bridge over Ballona Creek, looking southeast. The upper image shows the Push Site area to the north of the bridge (left). The lower image is a better view of the residential area along Pacific Avenue. The bridge links the bicycle path, which is along the jetty separating the Entrance Channel and Ballona Creek and the stretch of Dockweiler Beach south of the channel and creek.

Figure 11 shows the scene from the intersection of 66th Ave. and Pacific Ave., looking northwest and north, which includes the residential area along Pacific Ave., with a glimpse of Del Rey Lagoon Park. Figure 12 presents two panoramas of this park, which abuts Pacific Avenue and from which details of Project construction activities would be visible. Along Vista del Mar, there are multi-story residential residences, as seen in Figure 13, which presents photographs from the intersection at Waterview St. and a representative view from the Vista del Mar. These street-based views are considered to generally represent those from the residences.

Channel Crossing

The Push Site, and the two alternative receive sites associated with micro-tunneling under the Marina del Rey Entrance Channel and Ballona Creek would be within public view. These sites are addressed relative to the cut-and-cover alternative alignments.

Large Diameter (Mined) Tunneling Alignment Alternatives

There are four Mined Tunnel Alignment Alternatives, which would present noticeable disturbance above ground at the sites for the Starter and Extraction Shaft sites. These sites are within highly sensitive views from beach recreation sites, residential areas, and, within view of a designated scenic highway (Vista del Mar). Alternatives 1 and 2 call for cut-and-cover construction as well, which would also be within recreation oriented and/or residential views

Alternative 1: Dockweiler Beach Alignment

Alternative 1 has been considered not to be a viable alternative in the EIR and therefore is not addressed in detail in this assessment.

Alternative 2: LAX - Dockweiler Beach

Sensitivity. This alternative calls for a Mined Tunnel connection from the LAX property Starter Shaft to the Extraction Shaft on Dockweiler Beach and cut-and-cover connections between the Venice Pumping Plant and the Extraction Shaft. The views affected by Starter Shaft and associated laydown area would be from Vista del Mar (scenic highway) and residences lining the northeast side of Napoleon St. As noted earlier, residential views and those from designated scenic highways are highly sensitive. The sensitive views potentially affected by the Extraction Shaft and the cut-and-cover part of the alignment were described relative to Alternative 1.

Critical Views. Figure 14, upper image, shows the general area for the Starter Shaft and laydown area for this alternative. Foreground views from the designated scenic highway (Vista del Mar) and residences shown are of the greatest sensitivity and are highly critical. Critical views including the Extraction Shaft site for this alternative and the cut-and-cover part of the alignment are the same as for Alternative 1.

Alternative 3: Direct Mined Tunnel Connection from LAX Property to Venice Pumping Plant Via Dockweiler Beach

Sensitivity and Critical Views. This alternative alignment would be a mined tunnel construction alternative from the Starter Shaft on the LAX property direct to the Extraction Shaft in the vacant lot northwest of Hurricane St. and opposite the Venice Pumping Plant, via Dockweiler Beach. Views of the Starter Shaft have been discussed relative to Alternative 2. As for Alternative 2, there would be as much as 300 ft of cut-and-cover construction from the Starter Shaft to the junction with the existing C.I.S. under Vista del Mar to the southwest.

The Extraction Shaft would be in the vacant lot across Hurricane St. from the Venice Pumping Plant, as shown in Figure 5. The sensitivity and critical nature of the affected views potentially affected by the Extraction Shaft have been discussed relative to the Via Marina/Marquesas Way cut-and-cover alignment alternative.

Alternative 4: Direct Mined Tunnel Connection from LAX Property to Venice Pumping Plant Under Ballona Lagoon

Sensitivity and Critical Views. This alternative alignment would be a continuous Mined Tunnel construction alternative from the Starter Shaft on LAX property to the Extraction Shaft in the vacant lot on the northwest side of Hurricane St., across from the Venice Pumping Plant. The tunnel would be inland from the beach and generally under Vista del Mar, Pacific Ave. and Ballona Lagoon. The Starter Shaft site and associated laydown site areas are shown in Figure 14, and sensitive and critical views relative to it have been described regarding Alternatives 2 and 3. Figure 15 shows the area within which the Extraction Shaft would be constructed. The laydown area is also expected to be within this vacant lot. The sensitivity and criticality of views from residences and the Grand Canal have been discussed relative to the Marquesas Way/Via Marina Alignment and the Pacific Avenue Alternative Alignments.

2.2 Visual Character and Existing Visual Condition

2.2.1 Introduction

To address the most important impacts, in conformance with CEQA, detailed descriptions of the existing visual character and quality of the Project vicinity are limited to those views deemed to be "critical," as defined in Section 2.1. Accordingly, attention is directed primarily to those moderately to highly sensitive views that would be most affected by a Proposed Action. Where the greatest of impact intensity may occur, low sensitivity views will also be considered. The assessment of visual character and existing visual condition serves as the baseline for the quality of Visual/Aesthetic Resources. The estimated visual impacts of the Project will be compared with the baseline conditions to assess the degree of adverse change (intensity) and significance of the potential impacts.

Visual Character: Features and Their Patterns of Distribution.

The landscape is described in terms of the features inherent to the "character type" which lend it its distinctive character. Project features are described in terms of their degree of contrast, if any, with those that are part of the affected views. Typically addressed are landforms, vegetation, water features and the built environment. As relevant, the form, line, color and texture of the features are described. The scale (apparent size) of features,

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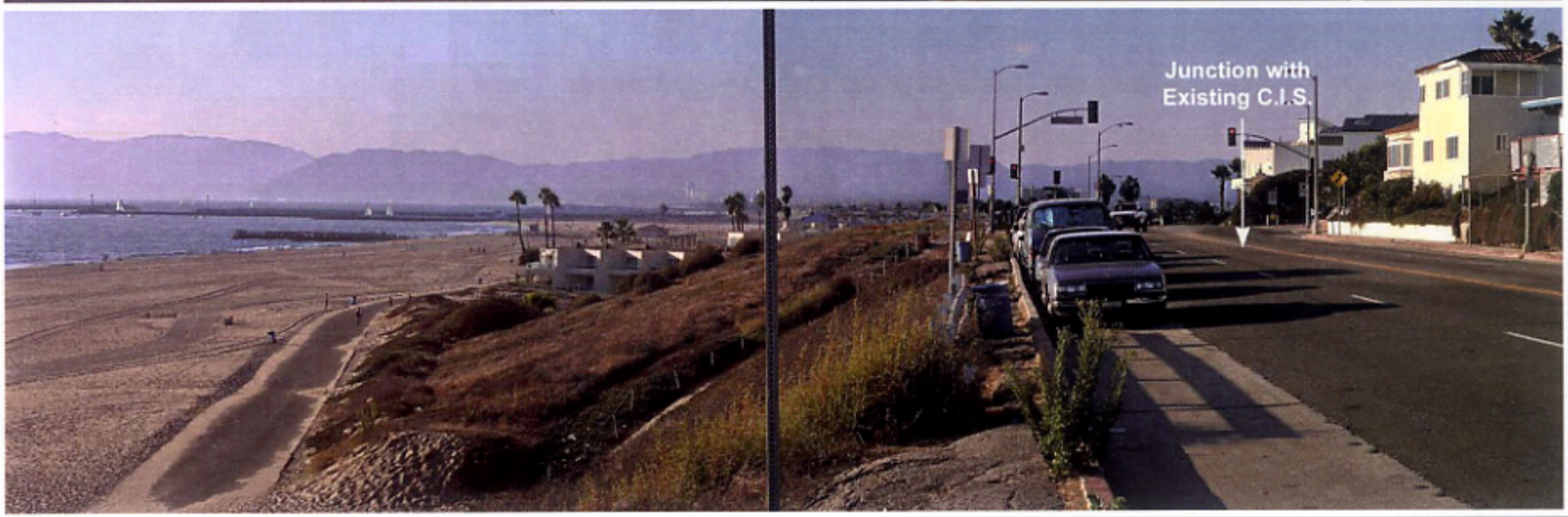
(Top) Vista del Mar and Waterview St. Looking Northwest to North; and **(Bottom)** Looking East to Southeast (VP 15).

Figure 13



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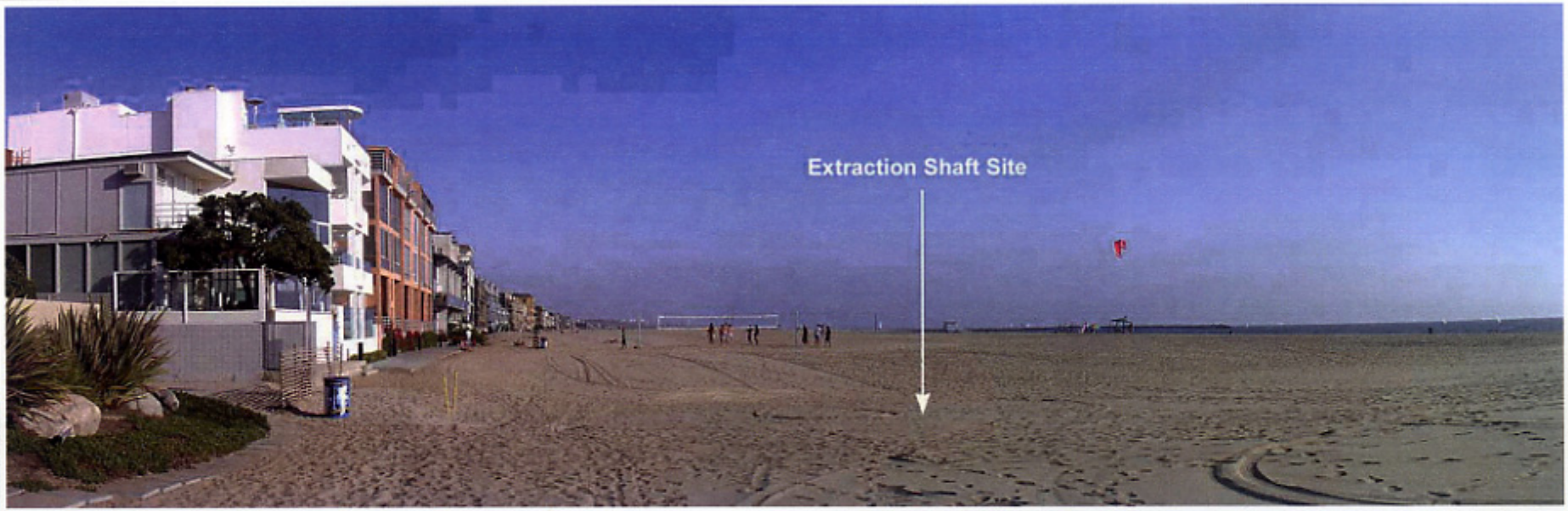
Views from the Vista del Mar-Napoleon St. Intersection; **(Top):** LAX Site, Looking East to Southeast; and **(Bottom):** Dockweiler Beach and Vista del Mar, Looking Northwest (VP 16).

Figure 14



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(Top): Extraction Shaft Alternate Sites at Dockweiler Beach near Hurricane St. (VP 17); and **(Bottom)**: at Venice Pumping Plant (VP 6).

Figure 15

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Clockwise from Top: Construction Equipment for Typical Cut-and-Cover Construction. Sound Barriers, Seen from Street and from within Shaft Construction Area. Shaft, within Sound Barrier.

Figure 16

the composition of the affected view, and the breadth of the view (panoramic versus focal) often are aspects of some importance. Features of the landscape which make it vulnerable to adverse impacts are important too, such as focal point sensitivity (where features frame a view or direct attention to a particular area), or proximity to highly sensitive viewing positions. The arrangement of landscape features may be important to consider, as a Project can disrupt the pattern of their distribution. For instance, ecotones might define the distribution of vegetation in a natural setting. Architectural styles or density of housing might be defining attributes of a residential area.

Existing Visual Condition.

Key to assessing baseline environmental conditions of visual/aesthetic resources is "existing visual condition," which is used in this assessment to mean "visual quality." The existing visual condition is described as the degree to which past actions have noticeably changed the landscape in ways that appear inconsistent with the inherent visual resources of the affected lands. Existing visual conditions serve as the baseline for evaluating the magnitude and intensity of potentially adverse changes in the landscape. They vary with how noticeable incongruous features may be within current public views and are defined in terms of four Visual Modification Classes (VMC), defined in Table K-1, Attachment A. Landscapes where all features appear compatible with the inherent visual resources of the area are of the highest existing visual condition, while those where incompatible features dominate the scene are of the lowest condition.

2.2.2 Landscape Character and Existing Visual Conditions within Critical Public Views

Marina del Rey Alignment Alternatives

Marquesas Way/Via Marina Alignment

Character. The critical views relative to this alternative alignment are those from Via Marina, Marquesas Way, the residences bordering these roads, the residences lining the east side of the Grand Canal and Hurricane St. near the Venice Pumping Plant, Aubrey E. Austin Park, the North Jetty Promenade, and the Marina del Rey Entrance Channel, as described in Section 2.1. Figures 2 - 6 show representative views from these locations.

The character of the subject views is entirely that of a "built" environment of residences and infrastructure serving those residences, urban landscaping along Via Marina and Marquesas Way, and the water feature alternately referred to as Ballona Lagoon (southeast of the pumping plant) and the Grand Canal (from the pumping plant to the northwest). The latter is the most striking feature within the potentially affected landscape and arguably the most memorable.

Regarding the views from residences along Marquesas Way and Via Marina, the views from these roads are deemed to represent those from the residences, albeit they are from ground level and those from the residences include elevated positions on the second stories of the homes and apartments. The vegetation along these streets is highly varied in species and type (trees, shrubs, groundcover) and presents an interestingly irregular pattern as one drives along these roads. The street trees are mature and stately, and, in places, represent the visual signature of the area. For instance, the tree in the island shown in the lower image of Figure 2 (Marquesas Way/Via Dolce intersection) is the focus of attention. Those shown in the island and along Via Marina in Figure 6 present

memorably sculptural forms. The latter image represents the panoramic view from Aubrey E. Austin Park. From the North Jetty Promenade along the southeast side of the park, this view of Via Marina is framed by the trees within the park, but the angle of view is about the same. Views from the park, being close-up to Via Marina, are more sensitive than those from the promenade.

All the views from the critical viewing positions noted are foreground views that are "focal"; that is, the views are framed by structures and street-side plantings such that attention is channeled in the direction of travel. This would not be true for views from the apartments and homes, the lines of sight being transverse to the alignment of the roads. Focal views are important because potential project impacts, if they occur within such views, unavoidably receive maximum attention.

Figure 5 shows the most critical view from the residences lining the east side of the Grand Canal near the Venice Pumping Plant. These residences are partly shown in the upper image in Figure 4. Only those residences abutting the plant on its southwest side along Hurricane St. would be affected by this alignment alternative, as the receive site and tie-in to the plant would be constructed in the vacant lot shown. The view shown in Figure 5 is dominated by the Venice Pumping Plant and Ballona Lagoon/Grand Canal. While trees line the canal to the northwest, in this vicinity vegetation is sparse and contributes little to the character of the views.

Existing Visual Conditions.

Views from Marquesas Way and Via Marina include no features that would be considered incongruous with the visual character of the area. The overall impression is that of highly manicured boulevards and a moderately high-density residential area. The views in Figures 2, 3, and 6 show no evidence of past actions resulting in features incongruous with the setting. Therefore, the existing conditions are within Visual Modification Class 1 (VMC 1; Table K-2, Attachment A).

Regarding the views from the residences on the east side of the Grand Canal opposite to the Venice Pumping Plant, as well as views from the Grand Canal itself, the Venice Pumping Plant dominates views toward the southwest (Figures 4 and 5). This is the primary orientation for views from the residences. This would also be true for residences along Hurricane St., for views to the east. However, the primary viewing direction from these homes is more to the southeast, somewhat away from the Plant. The Pumping Plant is an industrial facility within the context of a residential neighborhood. The chain-link fence around the vacant lot on the northwest side of Hurricane St. opposite the plant lends an industrial character to that parcel, giving it the appearance of a storage yard serving the plant. In character the Plant and fenced yard are anomalous within their setting, are in the immediate foreground of the affected views, and, particularly because of the Plants large scale, are the "subject:" of these views. Given the visual dominance of the Plant, the existing visual conditions are rated VMC 4. This means that for the views from the residences noted and the Canal, visual quality is at its lowest (Table K-2, Attachment A).

Venice Alignment Alternatives

Pacific Avenue Alignment

Character. The critical views relative to the Pacific Avenue Alignment are those from Ballona Lagoon/Grand Canal, Hurricane St and Pacific Ave., the residences lining those streets, the North Jetty Promenade, and those from the Entrance Channel (see Section

2.1). Figure 4 shows Hurricane St. and its adjoining residences. Figure 8 shows Pacific Ave. and Ballona Lagoon, from the pedestrian bridge at Lighthouse St., as well as Pacific Ave. seen from its intersection with Via Marina. The North Jetty Promenade at the corner of Pacific Ave. and Via Marina, and a view along Via Marina from that intersection, are disclosed in Figure 9. Views from the Entrance Channel that include the Pacific Ave./Via Marina intersection are represented by Figure 7. The intersection of Pacific Ave. and Via Marina is especially important because the receive site for one alternative for the under-channel micro-tunneling construction alternative would be proximate to this intersection. Note that the views from residences along this alignment are deemed to be represented by those from the roads serving as the primary access to them (Pacific Ave. and Hurricane St.), with the same caveat as discussed relative to the Marquesas Way/Via Marina Alignment.

The character of most of the critical views potentially affected by the Pacific Ave. Alignment, as is the case for the Marquesas Way/Via Marina Alignment, is that of a "built" environment. Along Hurricane St. and Pacific Ave., the visual character is predominately residential, the dominant features being the multi-story homes and apartments along these streets. Vegetation is sparse and contributes little to the visual character of the area. But, unlike the nearly all of the Marquesas Way/Via Marina Alignment, landforms and water features draw substantial attention. The lagoon and its channel (the only landform within the area) present the most memorable positive features, given the rarity of waterways within residential areas along the southern California coast. Note that the lagoon has been "engineered" to be the linear feature it is today. The straight-lined banks are uncharacteristic of natural waterways, but are characteristic of built environments.

From Hurricane St., the views are framed by the nearby residences and are extremely focal, being directed along the alignment of the street. Those from Pacific Ave. are relatively distant, framed to a much lesser degree, but are also somewhat focal. Note the converging lines of the lagoon banks and Pacific Ave. in the lower image in Figure 8.

At the south end of this alignment alternative, views include the Entrance Channel from points along the North Jetty Promenade. Note in Figures 7 and -9 the observation decks along the promenade, which focus attention to the southeast. The character of views from Via Marina and the promenade differs significantly from that for views from Hurricane St. and Pacifica Ave. While both sets of views are totally engineered (the Channel and Ballona Creek are both structured features), the views from the promenade and Via Marina are panoramic and distant, while those from the other streets are more limited and are focal. Next, the promenade and Via Marina views are dominated by the channel to the southeast and ocean in the distance to the west. Also, the views are dynamic, being influenced by the coming and going of recreational marine traffic that is itself a focus of attention.

Views from the Entrance Channel toward the alignment alternative, as noted in Section 2.1, are not the most critical of the views considered and are not addressed further in this assessment.

<u>Existing Visual Conditions</u>. Views from the residences along Hurricane St. at its northeast end, those lining the east side of the canal in this area, and those from the Grand Canal itself, are dominated by the Venice Pumping Plant. It and the chain-link fenced lot on the opposite side of the street are industrial in character (see the discussion of these features in the section describing the Marquesas Way/Via Marina Alignment). The

anomalous nature of the Plant is incongruous with the residential area around it and dominates views from these residences and from the Grand Canal. Moreover, views from Hurricane St. to the northeast focus on the Plant because the views are framed by residences, limited to the foreground, and are directed toward the Plant by the converging lines of the street. Because the Plant dominates the subject views, the affected views have a visual condition of Visual Modification Class 4 (Table K-2, Attachment A).

Views from Pacific Ave., its intersection with Via Marina, the North Jetty Promenade, and the Entrance Channel include no anomalous features introduced by past actions that would be considered incongruous with the character of the area. Therefore, the existing conditions are within Visual Modification Class 1 (Table K-2, Attachment A).

Dockweiler Beach to Pacific Avenue Alignment

This alternative was considered in the EIR But was deemed not to be viable and is not addressed further in this assessment

Dockweiler Beach Alignment

This alignment is considered in the EIR not to be a viable alternative and is not addressed further in this assessment.

Westchester/Playa del Rey Alignment Alternatives

Pacific Avenue/Vista del Mar Alignment

Character. The critical views relative to this alternative alignment are those from the bicycle path along the Pacific Ave. "fishing" bridge, the bridge itself, the residential area along Pacific Ave., those from Del Rey Lagoon Park and the nearby beach access route, and the views from Vista del Mar, a designated scenic highway. Figures 10, -11, -13 and -14 show images representing these potentially affected views.

The character of landscape within these views is that of a built environment which is mostly a residential area with adjoining recreation areas, including parking areas serving those sites, a bicycle path, Del Rey Lagoon Park, and Dockweiler Beach. Views from the bridge and bicycle path are panoramic across 360 degrees, taking in Ballona Creek and the Entrance Channel to the northwest, the Pacific Ocean to the southwest, as well as the residential area around the intersection of 62nd St. and Pacific Ave. to the southeast.

Figure 10 shows panoramic views from the northeast to the southwest, seen from the bridge. These views also represent those from the bicycle path on the bridge, and the adjoining public parking areas. The dominate features in the views shown are the multi-story residences at the end of Pacific Ave. in the foreground, and those in the background lining the northeast side of Del Rey Lagoon Park to the northeast. Unlike the views along Via Marina, vegetation plays a minor role in distinguishing the visual character of the area, and the only landform is the southeast bank of Ballona Creek. However, these views are part of a continuum of the visual experience that includes the views to the northwest and southwest noted above, in which the Entrance Channel, Ballona Creek, and are the dominant features.

The views in Figure 11 show the character of the residential area along Pacific Ave. as well as the proximity of Del Rey Lagoon Park. One of the parking areas serving the park is in the view shown in the lower image. The character of this part of the alignment is

almost entirely residential, with the somewhat natural character of the adjoining park and its lagoon being the focus of attention (Figure 12). At the terminus of this alignment alternative, along Vista del Mar near Waterview St., views are panoramic and include the Pacific Ocean and Dockweiler Beach to the southwest, and the residences lining the northeast side of the street. Figures 13 and -14 are views from points at or near where Vista del Mar intersects with Waterview St. and Napoleon St., respectively. Views from the homes noted cannot be represented directly, so those from the street are treated as representative of those from the residences shown.

Existing Visual Conditions. From the critical public viewing positions noted there are no features or land uses in view that would be considered incongruous with of those inherent to character of the area. The overall impression is that of well-maintained urban residential area with adjoining public recreation sites (the park and beach). Therefore, the potentially affected views have a visual condition of Visual Modification Class 1 (Table K-2, Attachment A).

Large Diameter (Mined) Tunneling Alignment Alternatives

Alternative 1: Dockweiler Beach Alignment

This alternative has been deemed in the EIR not to be viable and is not addressed in this assessment.

Alternative 2: LAX – Dockweiler Beach

Character. The critical public views relative to the Starter Shaft site for this alternative are those from Vista del Mar, Napoleon St., the residences along the northeast side of Napoleon St., and a pedestrian access trail which runs along the southwest side of Napoleon St. (Figure 14, upper image). Regarding the Extraction Shaft site, the critical views would be from residences fronting Dockweiler Beach near Hurricane St., as well as those using the beach or playing volleyball at the nearby court (Figure 15, upper image). Critical views relative to cut-and-cover construction would be those from Hurricane St., the residences along that street, the Grand Canal near the Venice Pumping Plant, and from residences lining the east side of the canal (Figure 4 and -14).

Views from Vista del Mar, a designated scenic highway, are panoramic across 360 degrees, taking in the vacant land around the Starter Shaft site (LAX property) and the beach and ocean to the southwest. The LAX property is relatively featureless, being a gently sloping area of grassland and low shrubs. There are several paved roads in the area, but these are barely visible in the view shown in Figure 14. To the southwest, the view takes in Dockweiler Beach, the ocean and distant points along the coast to the northwest (lower image, Figure 14).

Views from the residences in the area could not be directly evaluated, but would be of the same character as those from Vista del Mar. However, the views from Napoleon St. and the nearby residences would be panoramic across 180 degrees; given the orientation of the residences, views face to the southwest toward the Starter Shaft site. From Napoleon St., the views are directed to the northwest and southeast, in the direction of travel. The character of these views is the same as that for views from Vista del Mar, primarily featureless open land and beach, with the Pacific Ocean seen in the distance.

Views including the Extraction Shaft site are panoramic from points on the beach and from the nearby residences. The broad expanse of the beach is nearly featureless, except for the volleyball "court" shown, lifeguard stands in the distance, and the ocean surface.

The character of views from Hurricane St. has been described relative to the Pacific Ave. Alignment Alternative: the views are focal, being framed by the residences along this street, and constrained to the immediate foreground. It is entirely a "built" environment defined by the homes in the area, and landscaping is of minor importance, especially as compared to that which lines Marquesas Way and Via Marina to the northeast.

The cut-and-cover construction activities, where they occur near the pumping plant, would be within view of residences lining the east side of the Grand Canal and from the canal itself. The character of these views was described relative to the Marquesas Way/Via Marina Alignment. The views are dominated by the Venice Pumping Plant and the canal, with vegetation being sparse in this location.

Existing Visual Conditions. Critical views including the Starter Shaft include no features that would be considered incongruous with the visual character of the area. The vicinity is relatively featureless open land serving as a foreground for distant ocean views and views of the nearby beach. There being no incongruous features, the existing conditions are considered to Visual Modification Class 1 (Table K-2, Attachment A). This is also true for the critical views which include the Extraction Shaft area and those including most of the cut-and-cover construction activities along Hurricane St. The exception are those views from this street and the residences on the east bank of the canal which include the Venice Pumping Plant. Here the plant dominates the available views and is a feature that is incongruent with the residential context and the Grand Canal. The existing conditions are considered to be Visual Modification Class 4.

Alternative 3: Direct Mined Tunnel Connection from LAX Property Venice Pumping Plant Via Dockweiler Beach

For this alternative, the Starter Shaft would be located in the same place as that for Alternative 2, on the LAX property described. The character and existing visual condition of the lands within critical public views have been described relative to that alternative. The Extraction Shaft, would be located in the vacant lot opposite to the Venice Pumping Plant. The character and existing visual conditions for views that include this site were described relative to the Marquesas Way/Via Marina Alternative Alignment.

Alternative 4: Direct Mined Tunnel Connection from LAX Property to Venice Pumping Plant

The Starter Shaft and Extraction Shaft sites for this alternative are the same as those for Alternative 3, and the character and existing visual conditions for these sites have been described relative to Alternative 2 and the Marquesas Way/Via Marina Alternative Alignment.

3.0 Regulatory Setting

3.1 City of Los Angeles General Plan

The City of Los Angeles General Plan is an advisory document comprising 11 Citywide Elements: Transportation, Infrastructure Systems, Housing, Noise, Air Quality, Conservation, Open Space, Historic Preservation and Cultural Resources, Safety, and Public Facilities and Services, and the Land Use Element. Of these elements only the Transportation and Land Use Elements are relevant to the Aesthetics/Visual Resources assessment. The Land Use Element is composed of 35 local area plans, known as Community Plans, as well as counterpart plans for the Port of Los Angeles and Los Angeles International Airport. The relevant parts of the Transportation Element and Community Plans are listed discussed below.

3.1.1 Transportation Element

The relevant part of the Transportation Element of the General Plan is the identification of Designated Scenic Highways (Map E) within City limits. One such road is of specific importance to the Proposed Project, the stretch of Vista del Mar between Culver Blvd. and West Imperial Highway. All of the inland Project Alignment Alternatives south of the Marina del Rey Channel and Ballona Creek would be constructed within Vista del Mar up to the terminus near Waterview St. Specific Scenic Highways Guidelines are presented in the Element as interim direction pending the adoption of Scenic Corridor Plans. However, none of the guidelines is pertinent to the Proposed Project, inasmuch as they address roadway design; grading; planting/landscaping; signs/outdoor advertising; and utilities. However, the Vista del Mar's designation as a Scenic Highway is an indication that views from this road are of the highest sensitivity and importance to the consideration of visual impacts (See Section 2.1, Visual Sensitivity). Moreover, potential interruption of access to this Scenic Highway would be important in the consideration of Visual Impacts.

3.1.2 Venice Community Plan

The Alternative Pacific Avenue and North Dockweiler Beach Alignments for the Proposed Project are within the community of Venice. Specific goals and policies addressing Visual Resources directly or indirectly are found in Chapter 3 (Land Use Policies and Programs).

Historic and Cultural Resources

<u>Coastal Resources Goal 18: Preservation of the Scenic and Visual Qualities of Coastal Areas</u>

The policy supporting this goal is to enhance public access to the coast, but the program for implementation also includes preventing development from interfering with ocean and scenic coastal areas, minimizing the alteration of natural land forms, and assuring that Projects are visually compatible with the character of surrounding areas.

Land Use

Design Principles for New Development

Any development within the Venice Coastal zone is regulated by the Venice Land Use Plan as well as the Venice Coastal Zone Specific Plan. The relevant policy is: (e) Views of distinctive visual resources (e.g., bluffs, wetlands) will not be significantly disturbed.

Coastal Visual Resources

Four policies are articulated relative to Visual Resources:

- Protect existing views of the wetlands from the surrounding public streets and open space areas.
- No billboards or off-premise commercial signs will be permitted.
- Sources of funding shall be sought to allow undergrounding of existing transmission lines inland adjacent to the wetlands.
- Landscaping and plant materials should be used to screen and soften visually obtrusive elements.

3.1.3 Westchester—Playa del Rey Community Plan

The inland Alternative Alignments either follow Pacific Avenue to Vista del Mar and end at Waterview Street or the LAX Starter Shaft site, depending on the construction alternative, or run under South Dockweiler Beach via deep-tunnel construction to end at the LAX site. Specific goals and policies addressing Visual Resources directly or indirectly are found in Chapter 3—Land Use Policies and Program.

Coastal Resources

The communities of Westchester and Playa del Rey have not yet prepared a Local Coastal Program (LCP) to effect the policies of the California Coastal Act (the Act). The Coastal Resources section of the Community Plan has as one objective the provision of a Land Use guide for implementing the policies of the Act (Objective 18-1). This will consist of a Local Coastal Program and Land Use Plan to define local policies and ordinances regarding coastal resources. Specific to Visual Resources in this section is the following goal:

Goal 18.

"Protect Westchester-Playa del Rey's unique coastal qualities by maintaining the coastal zone in an environmentally sensitive manner and preserving the scenic views of the area, while ensuring access and public use of coastal resources."

The following objective and policy are relevant to the Project:

Objective 18-5, Policy 18-5.1. Specific to Visual Resource protection is this objective: "Preserve coastal visual resources by protecting and enhancing scenic views of the ocean and wetlands from designated Scenic Highways, and public view sites." Vista del Mar is a designated Scenic Highway from Culver Blvd. to W. Imperial Highway. Aspects of the Project alternatives would fall within views from this roadway, as well as from

Dockweiler Beach below this road. This beach, by definition, would be a "public view site." Policy 18-5.1 stipulates that:

- "The scenic and visual qualities of Westchester-Playa del Rey Coastal Zone should be protected and enhanced where feasible by siting and designing development in order to:
    - Protect public views to and along the ocean and scenic coastal areas;
    - Minimize the alteration of natural landforms;
    - Be visually compatible with the character of the surrounding area; and
    - Retain existing views from designated public view areas and Scenic Highways.
- All new development in the Coastal Zone, <u>including public works</u> and recreational facilities, should be subordinate to their setting, and minimized in height and bulk to the extent feasible to accomplish view protection (emphasis added)."
- Under this Policy it is required that any development limit or shield outside lighting.

3.2 Coastal Plan Policies

The vicinity of the Project Alternatives is entirely within the coastal zone. As noted above, Westchester and Playa del Rey do not have a Local Coastal Program and Land Use Plan. Those communities, in their Community Plan, have as a policy the preparation of such a program and plan. Coastal Zone issues are addressed, for now, solely in the Community Plan.

3.2.1 Venice Local Coastal Program Land Use Plan

The community of Venice, however, does have a Local Coastal Program. The relevant parts are found in the Land Use Plan for that Program. This Local Coastal Program represents the Venice Community's response to the California Coastal Act of 1976 requirement that local governments prepare land use plans and implementing actions to effect the policies of the Act. The Coastal Act policies address specific issues which include the protection and preservation of visual and scenic resources. The Act additionally establishes a framework for prioritizing land uses, with the highest priority being accorded to the preservation and protection of natural resources, including prime agricultural lands.

Section 30251. This section of the Venice Local Coastal Program Land Use Plan Policies repeats Section 30251 of the Coastal Act, which requires the consideration of scenic and visual qualities of coastal areas and their protection as a resource of public importance. Specifically:

- Permitted development shall be sited and designed to protect views to and along the ocean and scenic coastal areas,
- To minimize the alteration of natural land forms,

- To be visually compatible with the character of surrounding areas, and
- Where feasible, to restore and enhance visual quality in visually degraded areas.
- New development in highly scenic areas…shall be subordinate to the character of its setting.

The Coastal Commission added the following statement regarding this section:

> "The primary concern…is the protection of ocean and coastal views from public areas such as highways, roads, beaches, parks, coastal trails and accessways, vista points, coastal streams and waters used for recreational purposes, and other public preserves rather than coastal views from private residences where no public vistas are involved."

3.2.2 Los Angeles County Local Coastal Program: Marina del Rey Land Use Plan

Coastal Act Policies

The aspect of the Los Angeles County Local Coastal Program pertinent to the Proposed Project is the Marina del Rey Land Use Plan, certified by the California Coastal Commission in 1996. Common to all such LCPs are the Policies of the Coastal Act listed in Section 30251 of the Act and the LCPs (see Section 30251 of the Venice LCP). The Marina del Rey Land Use Plan specifically addresses the protection and maintenance of harbor views in conjunction with new development, as well as the visual compatibility of such development with existing natural and manmade environments.

The Scenic Highway Element (Los Angeles County General Plan) identifies Via Marina, from Pacific Avenue to Admiralty Way as a Scenic Highway. Included in the Element's recommendations is the proposal to direct the County departments to give special consideration to aesthetics in the planning, design, and construction of public facilities along scenic highways.

Policy "e-1"

Pertinent to the Proposed Project is the policy to enhance the ability of the public to experience and view the Marina waters and to allow for greater public access to such views. Since the part of Via Marina flanking the Marina del Rey Entrance Channel up to Pacific Avenue is to become part of an officially designated Scenic Drive (Policy e-3), it is assumed that access to—and protection and enhancement of—views of the entrance channel are part of this policy, rather than strictly the protection and enhancement of views of the marina. Moreover, vantage points from lands adjacent to the Main Channel are identified as being among the particularly significant vantage points within the Marina area. The pertinence of the Scenic Drive designation is clear for the Marquesas Way/Via Marina Alignment given that it would be constructed within this street and would have both receive and Push Sites for micro-tunneling along the right-of-way. The Pacific Avenue Alignment Alternative extends to a receive site at Via Marina, as well.

Policy "e-3"

This is the policy with establishes the status of Via Marina as a Scenic Drive: "Through appropriate signing, a Scenic Drive shall be designated from Via Marina at Pacific Avenue north to Admiralty Way...."

4.0 Environmental Impacts

4.1 Technical Approach

The assessment was conducted in conformance with the California Environmental Quality Act (CEQA) documentation requirements. CEQA defines significant impacts as those having a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including ... objects of ... aesthetic significance" (Article 20, Section 15382).

Appendix G of CEQA (Environmental Checklist) more specifically identifies four areas of concern regarding a project's potential impact on aesthetics:

- Substantial, adverse effects on a scenic vista.
- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within [view from] a state scenic highway.
- Substantial degradation of existing visual character or quality of a site and its surroundings.
- Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

The methodology for assessing visual impacts is detailed in Attachment A. The focus for this report is to determine whether or not the Project has the potential to cause significant visual impacts. A significant impact is, in accordance with the CEQA definition, a substantial, or potentially substantial, adverse change in the visual resources of the affected environment. An adverse "change," relative to visual impact assessment occurs when features are changed, introduced, made less visible, or are removed, such that the resultant effect on public views is perceptibly incongruous with their inherent character. Changes that seem uncharacteristic are those that appear out of place, discordant, or distracting. The intensity of a visual impact depends upon how noticeable the adverse change may be. Noticeability is a function of project features and their context and viewing conditions (angle of view, distance, primary viewing directions, lighting, etc.). Four levels of visual impact intensity (noticeability) may occur. These are termed "Visual Modification Classes" (VM Classes) and are defined in Table K-2, Attachment A.

Significant (substantial) changes (significant visual impacts) are further defined as those that would:

- Result in an inconsistency with laws, ordinances, regulations, and standards (LORS) applicable to the protection of visual resources; or
- Cause a perceptible reduction of visual quality. The perception that visual quality has been reduced is partly a function of public sensitivity to adverse visual

impacts. Table K-3 of Attachment A summarizes the relationship of impact intensity, sensitivity, and the perceived reduction in visual quality.

Most usually a third criterion is applied which stipulates that an impact must endure for greater than one year before it may be considered to be significant. However, in this assessment, no particular duration is stipulated because much of the sensitivity for the potentially affected views is due to recreation activities and sites in the vicinity of the Project. The value to the public of a single peak-use season is assumed to be extremely important, and any substantial, adverse visual impacts on the aesthetics of the area during this period are considered to be significant, even if temporary or short-term. Since no information is available regarding when Project construction would commence, it is assumed that construction may occur during the late spring and summer months.

4.2 Thresholds of Significance

4.2.1 CEQA

The threshold for significance, according to CEQA, is that point where an adverse visual impact is deemed to be substantial, i.e., a perceptible reduction in visual quality. CEQA offers no specific criteria for what is deemed "substantial." Therefore, criteria from other sources have been used to provide a systematic approach to this issue, which is summarized in Table K-3 of Attachment A. The matrix in the table illustrates the relationship of public sensitivity, impact intensity, and what is considered to be a substantial visual impact. The criteria are based upon the principles common to the three primary federal systems for visual resource management and analysis (USDA-FS, 1995; USDI-BLM, 1978; USDOT-FHWA, 1981). This approach has been applied to numerous CEQA-compliant documents over a 15-year period (Headley, 1990-2003).

4.2.2 City of Los Angeles CEQA Thresholds

The City of Los Angeles Draft CEQA Thresholds Guide offers a list of 12 areas of concern to consider in assessing the significance of an impact in accordance with the CEQA Checklist. However, no specific significance criteria accompany this Guideline to use in making that determination. Moreover, the Marquesas Way/Via Marina Alignment Alternative is not within the City of Los Angeles, so the City Guidelines do not apply to this alignment alternative.

In the absence of specific significance criteria in the City of Los Angeles Draft CEQA Thresholds Guide, or for projects within the County of Los Angeles, the methodology in Attachment A, specifically the matrix in Table K-3, has been applied to the determination of significance. Note that all of the City of Los Angeles "Thresholds Guide" issues of concern are considered, as appropriate, in this assessment but are grouped relative to the four CEQA Checklist issues. An exception occurs for the City's concern over Project-caused shading. The current CEQA Checklist does not require consideration of shading. That notwithstanding, this City issue of concern is listed along with the CEQA-related issues.

AES-1: Would the Proposed Project or its alternatives cause a substantial degradation of existing visual character or quality of a site and its surroundings?

The City of Los Angeles Draft Thresholds Guide directs that; "The determination shall be made on a case-by-case basis, considering the following factors:"

- The amount or relative proportion of existing features or elements that substantially contribute to the valued visual character or image of a neighborhood, community, or localized area, which would be removed, altered, or demolished.
- The amount of natural open space to be graded or developed.
- The degree to which proposed structures in natural open space areas would be effectively integrated into the aesthetics of the site, through appropriate design, etc.
- The degree of contrast between proposed features and existing features that represent the valued aesthetic image of an area.
- The degree to which a proposed zone change would result in buildings that would detract from the existing style or image of the area due to density, height, bulk, setbacks, signage, or other physical elements.
- The degree to which the project would contribute to the aesthetic value of an area.

AES-2: Would the Proposed Project or its alternatives cause substantial, adverse effects on a scenic vista?

This CEQA issue of concern is interpreted in this assessment as addressing the degree to which Project-related features interfere with a scenic vista, either by obstructing it or interfering with access to it. The City of Los Angeles Draft CEQA Thresholds Guide is relevant to this CEQA issue as follows:

- The extent of obstruction (e.g., total blockage, partial interruption, or minor diminishment) of recognized or valued views (such as natural topography, settings, manmade or natural features of visual interest, and resources such as mountains or the ocean).
- The extent to which the project affects recognized views available from a length of a public roadway, bike path, or trail, as opposed to a single, fixed vantage point.

AES-3: Would the Proposed Project or its alternatives cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway ?

One issue expressed by the City of Los Angeles Draft CEQA Thresholds Guide is relevant to this CEQA issue:

- Whether the project affects views from a designated scenic highway, corridor, or parkway.

AES-4: Would the Proposed Project or alternatives result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

Relative to the City of Los Angeles Draft CEQA Thresholds Guide, the factors that are to be considered in determining whether the Project would have a significant impact through nighttime illumination are:

- The change in ambient illumination levels as a result of project sources.
- The extent to which project lighting would spill off the project site and affect adjacent light sensitive areas.

AES-5: Would the Proposed Project or alternatives result in substantial negative shadow effects on nearby shadow-sensitive uses?

The City of Los Angeles Draft CEQA Thresholds Guide requires the consideration of the potential impact of shading by project-related structures. The current CEQA Checklist does not require consideration of shading, however it did so at the time the Draft Thresholds Guide was prepared and is, therefore, listed here as an issue to be addressed. However, the analysis does not address this issue because the Project has no potential to create any shading impacts as defined by the City guidelines.

AES-6: Would the Proposed Project or alternatives result in visual impacts that would not be consistent with applicable rules and regulations?

This impact is not expressed in the CEQA Checklist, but is listed in the City of Los Angeles Draft CEQA Thresholds Guide. As stated above, it is interpreted as asking whether the Project and its alternatives would result in any inconsistencies with applicable plans, policies, objectives, standards, ordinances, regulations or statutes.

- Applicable guidelines and regulations.

4.3 Project Description

This section describes those aspects of the Proposed Project and its Alternatives which are pertinent to the assessment of impacts on the visual/aesthetics resources. The potential visual impacts of the Project would be due entirely to its construction; there would be no aspect of its operation which would be visible. Therefore, the critical aspects of the Project have to do with the spatial extent of construction, the equipment and activity associated with it, and the duration of the activities from the start of construction until Project completion. A general description of Project construction activities is presented in Section 3.1.5 of the DEIR (Construction Alternatives). This section of the visual/aesthetic impact assessment summarizes the relevant aspects of construction presented in Section 3.1.5 of the DEIR, while also introducing more detailed information that is not found in the DEIR.

Micro-Tunneling (Boring) and Cut-and-Cover Construction

All the Cut-and-Cover Construction Alignment Alternatives require tunneling under the Marina del Rey Entrance Channel to connect the Playa del Rey alignment with the Venice or the Marina del Rey Alignment Alternatives. Additionally, the Marina del Rey Via Marina Alignment Alternative, would require tunneling under the Grand Canal in order to connect with the Venice Pumping Plant. The tunneling referred to is alternatively termed "Micro-Tunneling" or "Boring."

The visible aspect of Boring would be the excavation at the starting and ending points of the under-channel and under-canal sections of the alignments. The starting point is variously referred to as the "Launch," "Jacking," or "Push" site, while the endpoint is referred to as the "Receive Site." There is only one viable Push Site for under-channel Boring, and this would be located at the northerly end of the Playa del Rey Alignment Alternative, on the south side of the Entrance Channel, along the northeast side of the Pacific Ave. fishing bridge. There are two options for push sites for under-canal tunneling, as described relative to the Marina del Rey Alignment.

Also, there would be two alternative Receive Sites on the north side of the Entrance Channel. One would be in the parking lot northwest side of the corner where Via Marina turns 90 degrees to the southwest, and the other would be at the southeast end of Pacific Ave.

No graphic examples of the above-ground features of "Boring" construction and the construction of the Push and Receive Sites specific to the Proposed Project were available at the time of the assessment (photo-simulations or photographs of similar construction activities). However, the lower images in Figure 16 shows shaft construction on a scale larger than that proposed for the construction of Push and Receive Sites.

Push Site Equipment

The major visible elements of the Push Sites would be:

- Jacking pit (from which the hydraulic jacks push pipes through the ground behind a remotely operated Tunnel Boring Machine (TBM).
- Remote control cabin for operating the TBM.
- Crane.
- Support facilities (generator, power pack, bentonite lubrication unit).
- Slurry separation equipment and tanks.
- Construction/Laydown area, 10 – 12,000 sq ft in area, for pipe and other equipment storage and staging
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment. There would be eight truck round trips per day for muck removal and material supply.
- Construction crew. There would be 17 construction crew on site and 17 passenger-car round trips daily.

- Nighttime construction and lighting. It may be required to proceed continuously at the end of long drives through sticky soils to prevent the pipe from getting stuck short of the receiving site. In such cases nighttime construction would be required. It is assumed that there would be a need for lighting at the Push site throughout the night, on occasion.
- Acoustic curtain (sound barrier). To minimize the transmission of noise, it is proposed that a 20- to 30-ft tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the Push Site except for the crane. Typical curtains are shown in three of the images in Figure 16.

Push Site Construction Duration

The two Push Sites would require about two months each to complete and must be constructed prior to the start of Boring under the Entrance Channel and the Grand Canal. The under-channel tunnel is 1,800 ft long and boring rates range from 30 – 50 ft per eight-hour shift. A conservative estimate allows for no nighttime work, so it is assumed that there would be one shift per day. Under this assumption, Boring could require from 36 to 60 days (about one to two months). Cumulatively, Push Site construction and Boring would take up to about four months and would be considered to be "temporary" (see Appendix A). Even if tunnel Boring were to be sequential to cut-and-cover construction activities (see below), the cumulative total construction time would be less than one year and would also be considered to be temporary. However, it is assumed that Boring and trench construction would be concurrent.

For under-Canal boring, the rate of advance would be the same as for under-channel boring. The tunnel length would range from about 100 ft to 500 ft, depending on which of two alternative Push Sites is used. Tunneling could therefore require from 10 to 16 days for the longer route, or 3 to 4 days for the shorter route. It is assumed that there would be no nighttime construction.

Receive Site Equipment

Construction activity at the Receive Sites would occur during two periods: the initial construction of the Shaft, and then, later, when the TBM is extracted from the tunnel and the pipeline is either connected at the Receive Sites to the alignment along Via Marina or that along Pacific Ave., or, at the north end of the Via Marina alignment, the pipeline is tied in to the Venice Pumping Plant. The major equipment that would be utilized at the Receive Sites would be:

- Crane
- Jacking equipment
- Construction/Laydown site, about 5,000 sq ft in area, for pipe and other equipment storage and staging
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment. There would be approximately 15 truck round trips per day for muck removal and material supply.
- Construction crew. There would be 25 construction crew on site and 25 passenger-car round trips daily.

- Acoustic curtain. To minimize the transmission of noise, it is proposed that a 20- to 30-ft tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the Receive Site except for the crane, which will extend beyond the top of the curtain.

Receive Site Duration

As noted, there would be two alternative Receive Sites along the north side of the Entrance Channel. Construction of these Receive Sites would require about six weeks each to complete. Then all activity at the sites would cease until under-channel Tunnel Boring reaches them. At that point the TBM would be extracted from one or the other of the Receive Site shafts and the pipeline would be tied in with either the Via Marina or Pacific Ave. cut-and-cover alignment. It is estimated that the extraction and tie-in activities would require about one week.

Similarly, the Receive Site in the vacant lot opposite to the Venice Pumping Plant would require six weeks to complete, then would lie dormant until under-Canal Tunnel Boring reached the site. One week would be required for TBM extraction and tying the pipeline in with the Venice Pumping Plant.

Cut-and-Cover Construction Site Equipment

Cut-and-cover construction is a common method of linear pipeline construction that involves an open trench and sequential activities. The trench would be excavated and then shored up with sheet piles that would be installed 200 to 300 ft ahead of the pipeline crew. Construction involves excavation, the pouring of a concrete foundation, backfilling with a bed of gravel, pipeline installation, backfill and compaction, restoration of curbs and utilities, and re-paving the affected road. Figure 16 shows one example of a typical array of equipment used in cut-and-cover construction along a public street.

The major visible elements of the Cut-and-Cover Sites would be:

- Concrete saw
- Pavement Breaker
- Pile driver
- Excavator
- Rubber tire loader
- Cranes (2)
- Backhoe loader/compactor
- Generator/compressor
- Soil compactor
- Asphalt paver
- Sweeper
- Water truck
- Supply truck

- Haul/dump truck
- Minimum of 17 to 28 workers on site daily
- A moving Construction/Laydown area along 1,000-ft stretches of the alignment.
- A Construction/Laydown area next to that serving the Push and Receive Site construction activities.

Cut-and-Cover Construction Duration

The proposed cut-and-cover construction method of construction would take 12 weeks to install approximately 1,800 ft of pipeline, completed to the point that the affected road is returned to its pre-construction state (paved). Given that rate of construction, the duration of construction for the alignment alternatives north of the Marina del Rey Entrance Channel would be about seven (7) months, while that for the alignment south of the Entrance Channel (Pacific Ave./Vista del Mar) would also be about seven (7) months. It is assumed that cut-and-cover construction north and south of the Entrance Channel would occur concurrently. Moreover, it is assumed that the construction and operation of the Push and Receive Sites would be concurrent with the cut-and-cover construction. However, these assumptions are not critical to the assessment of visual impacts, as entirely different public views are affected by north- and the south-Channel alternatives. Also, even if the Boring construction activities were sequential to cut-and-cover construction, the cumulative total construction time would be less than one year. Therefore, the visual impacts would be considered to be "temporary" in duration, regardless (see Attachment A).

Large-Diameter (Mined) Tunneling Construction

There are four alternative alignments for Mined Tunneling Construction; however, Alternative 1 was considered but found not to be viable. While Alternative 2 primarily would require mined tunneling, it would also use about 1,000 ft of cut-and-cover construction, and Alternatives 2 and 3 would require about 300 ft of cut-and-cover construction. Mined tunneling involves a Starter Shaft and an Extraction Shaft. The Starter Shaft would be located on LAX property about 300 ft northeast of Vista del Mar and as close as 220 ft south of Napoleon St. There are two alternative Extraction Sites, one on Dockweiler Beach at the southwest end of Hurricane St., and the other at the northeast end of Hurricane St. in a vacant lot directly across from the Venice Pumping Plant. The lower images in Figure 16 show a shaft site under construction and enclosed by an acoustic curtain. The scale of the area shown is similar to that which would be required for construction of the Starter Shaft. The Extraction Shaft would require approximately half this area.

Mined tunneling uses manned TBMs along a continuous alignment that may be of any length, so this construction alternative would require just the Starter Shaft and one Extraction Shaft. Additionally, two 3-ft diameter escape shafts would be needed, one north and one south of the Marina del Rey Entrance Channel, but these would be so minimally visible, and their construction would require so little time (a few days), that they are not considered further in this assessment.

Starter Shaft Equipment

The major visible elements of the Starter Sites would be:

- 30-ft diameter Starter Shaft.
- One 160-ton crane to lift/set the TBM and hoist muck cars.
- One 35-ton RT crane to handle segments and load segment cars.
- Office facilities, change houses.
- Cut-and-cover equipment (see above) for open trench construction.
- Support facilities (generator for pumps, electrical substation).
- Construction/Laydown area, 12,000 sq ft in area, for storage of tunnel liner and carrier pipe segments throughout the duration of the tunneling.
- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment. There would be 15 truck round trips per mining shift.
- Construction crew. There would be 20 – 25-man construction crew on site and 20- to 25 passenger-car round trips daily.
- Lighting may be required for security of the construction site and nighttime construction.
- Acoustic curtain. To minimize the transmission of noise, it is proposed that a 20- to 30-ft tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the Extraction Site except for the crane.

Starter Shaft Construction Duration

The Starter Shaft would require approximately seven months to construct (see Table 4.2-7 in the DEIR), and the tunnel portion of construction would last from 27 to 28 months for Alternative 2 and Alternatives 3 and 4, respectively. For Alternative 2, there would be 1000 ft of cut-and-cover construction. About 700 ft of this would occur along Hurricane St., while 300 ft would be needed to tie in the pipeline at the Starter Shaft with the existing C.I.S. in Vista del Mar. For Alternatives 3 and 4, only the tie-in open trench construction from the Starter Shaft to Vista del Mar would be needed. It is assumed that cut-and-cover construction would occur during tunnel construction and would not add to the duration of construction activities.

Extraction Site Equipment

The major visible elements of the Extraction Sites would differ depending on the phase involved. The first phase is the construction of the shaft, and the second phase is the removal of the TBM and construction of the tie-in with the pipeline that would be installed along Hurricane St. For construction of the shaft, the following equipment would be needed:

- 20-ft diameter Extraction Shaft.
- Muck cars
- Cranes (2)
- Cut-and-cover equipment (see above) for open trench construction.
- Support facilities (generator for pumps, electrical substation).
- Construction/Laydown area, 5,000 sq ft in area.

- Truck traffic to and from the pit for transporting tunnel muck, pipe sections and tunneling equipment. There would be an estimated 15 truck trips per day for muck removal, and about three truck loads per day for supplies.
- Construction crew. There would be approximately 25 construction crew on site and 25 passenger-car round trips daily.
- Lighting may be required for security of the construction site.
- Acoustic curtain. To minimize the transmission of noise, it is proposed that a 20- to 30-ft tall acoustic curtain be installed around the site. This curtain would shield from view all equipment around the Extraction Site except for the crane.

Extraction Shaft and Cut-and-Cover Construction Duration

The Extraction Shaft would require 10 weeks to construct and about one week for TBM removal after tunnel excavation has been completed. The cut-and-cover construction that is part of the Mined Tunnel construction alternative is expected to occur concurrently with tunnel construction.

4.4 Visual/Aesthetics Resources Impacts

The visible changes that would be brought about by the Proposed Project and its alternatives, and their potential to create aesthetic impacts, are evaluated in detail in this section relative to each alignment alternative, as well as relative to the several construction alternatives to the Proposed Project (Mined Tunneling Alignment Alternatives). The significance of these visual impacts has been determined by applying criteria summarized is Section 4.3 (and detailed in Attachment A), and the guidelines developed by the City of Los Angeles. Following, in Section 5.0, mitigation measures are recommended for changes that have the potential to create significant impacts; and evaluations are made of whether these measures are likely to reduce the impacts to a level that is less than significant.

4.4.1 Marina del Rey Alternative: Marquesas Way/Via Marina

Overview

Critical sensitive public views and existing visual conditions are described in Sections 2.1 and 2.2 of this Technical Appendix. The methodology for the following impact assessment is presented in detail in Attachment A.

The critical sensitive viewing positions along this alignment alternative include those from:

- Via Marina, a scenic highway and scenic drive;
- Aubrey E. Austin Park;
- North Jetty Promenade, east end;
- Marina del Rey Entrance Channel;
- Marquesas Way, Via Dolce, and adjoining residences;

- Residences along the Grand Canal near the Venice Pumping Plant;
- Grand Canal;
- Residences at the northeast end of Hurricane St.

Via Marina, Aubrey E. Austin Park, North Jetty Promenade, and Entrance Channel.

Relative to Via Marina and the nearby residences, the Project's visual impact would be significant and temporary, except for the loss of mature street trees, which would cause a long-term impact. The Project features potentially causing the impact would be the Push Site Option 1 and its related construction/laydown area, the cut-and-cover construction along the roadway, and the Receive Site and its construction/laydown area near the Entrance Channel.

For views from Aubrey E. Austin Park, North Jetty Promenade, and Entrance Channel, the Project's visual impact would also be significant but temporary. The impact would be due solely to the construction of the Receive Site and the related construction/laydown area nearby. The associated activities would be in the foreground of views from the park and Promenade, the residences noted, and Via Marina. To a lesser extent, they would be visible from the northwest lane of the Entrance Channel.

Existing features within view from these sensitive public roads and areas have not been noticeably and unfavorably modified by past activities (Section 2.2). These views are shown in Figures 2 – 7. The industrial character of Project activities and equipment associated with cut-and-cover pipeline installation and the construction and operation of the Push and Receive Sites along this alignment alternative would be incongruous with the established settings for the several potentially affected views.

To a limited extent, in-street and in-parking-lot construction activity might also be visible from Aubrey E. Austin Park and the east end of the North Jetty Promenade. The activities would not, however, be prominent and distracting due to the viewing distance and intervening parkway plantings, so the impact would not be significant. Such construction activities would not be visible from the Entrance Channel due to intervening structures and vegetation.

Marquesas Way, Via Dolce, and Adjoining Residences.

For views from these two streets and the nearby residences, the Project would potentially cause significant but temporary visual impacts. These impacts would be due to activities and equipment needed under Push Site Option 2, its associated construction/laydown area, and cut-and-cover construction activities. The potentially affected views have not be adversely affected by past actions such that the effects are noticeably incongruous with their setting. By contrast, the industrial character of Project features would noticeably and adversely affect public views. The construction/laydown site for this option would be in the foreground of views from Marquesas Way, Via Dolce, and their adjoining residences. Also, a public beach-access path starts near the construction/laydown site and runs along the east side of Ballona Lagoon to the south. From the beginning of this path, the construction/laydown site would be within the foreground.

The Push Site Shaft would be in the vacant lot shown in the upper image of Figure 4. The construction activities here would be in the foreground of residences along the northeast

side of Via Dolce at its intersection with Marquesas Way. The shaft site would be screened by an acoustic curtain from 20 – 30 ft tall on four sides. Cranes would be substantially in view above these curtains, and truck traffic to and from the sites would occur intermittently throughout the construction shifts. As such, these Project features would be incongruous with the established settings for these potentially affected views.

Grand Canal Residences, Grand Canal, and Hurricane St. Residences.

The visual impact of the Project on views from these residences and the Grand Canal would be adverse but not significant. Push Site Option 2 and the Receive Site, both shown in Figure 4, would be in the foreground of the residences lining the east side of the canal, the canal itself, and residences at the northeast end of Hurricane St. The Receive Site, like the Push Site, would be screened by an acoustic curtain 20 to 30 ft tall. Cranes would be well in view above these curtains, and truck traffic to and from the sites would occur at different points of the day. The curtained construction area and visible equipment would appear industrial and be incongruous with the generally residential setting.

However, relative to views from residences along the east side of the Grand Canal and the Grand Canal itself, the industrial character of the Venice Pumping Plant dominates attention. This would also be true for views from residences along the northeast end of Hurricane, at least for views to the east. Given the visual dominance of the Plant, the existing visual conditions are such that further visual impacts would not noticeably lessen the quality of the affected views.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are summarized and discussed below relative to the thresholds for significance noted in Section 4.3.

AES-1: The Proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary as well as long term.

Concerning the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the visual impacts are summarized as follows:

- One or more mature street trees which contribute substantially to the value of the scenic highway/drive status of Via Marina would be removed.
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area.
- No zone change is proposed
- There would be no positive contribution to the aesthetic value of the area.

Certain critical public views would affected by the Project to the point that the impact would be significant. However, the duration would be temporary. Elsewhere, the Venice Pumping Plant has adversely affected the quality of critical public views to the point that the additional impact of the Project would not significantly affect these views. The

impact would worsen the existing visual quality, but the current visual condition due to the Plant is already at the lowest rating. A more detailed analysis follows.

Via Marina and Adjoining Residences. Existing visual conditions for views from this designated scenic highway/drive are VMC 1. From this road the following Project features would be within foreground views, proceeding from its intersection with Marquesas Way to where it turns to the southwest:

- The 10- 12,000 sq ft construction/laydown area for Push Site Option 1;
- The Push Site Option 1 shaft construction area within the Via Marina/Marquesas Way intersection;
- Cut-and-cover construction along 0.5 mile of roadway and approximately 1,000 ft of parking lot;
- The Receive Site near the Entrance Channel.

These activities and their associated equipment and work force would dominate views from this road and its flanking residences and would be industrial in character and incongruous with the setting. Note that the Push Site would occupy much of the Via Marina/Marquesas Way intersection and would be surrounded by an acoustic curtain 20 – 30 ft high. The equipment and activity within the curtains would be screened from view, but a crane would be substantially taller than the curtains. The site would have an apparent mass of a two- to three-story building due to the curtains.

The construction/laydown area, if square in configuration, would occupy an area 110 ft on a side. This storage of industrial equipment in a parking lot currently serving recreation and commercial uses within Marina del Rey would appear discordant and dominate views.

From Via Marina's intersection with Marquesas Way, for about 0.5 mile to the southeast, cut-and-cover construction would occur in one of the two lanes serving travel to the southeast. At end of the in-street construction, the alignment would angle to the south into a parking lot serving nearby residences and proceed for approximately 1,000 ft to the tie-in with the under-channel pipeline at the Receive Site. For the length of the in-street construction, motorists would be restricted to one lane of travel and pass in close proximity to the cut-and-cover construction activities in the second lane. Where the alignment crosses over into the parking lot, one or more mature trees would be removed due to trenching activities and the movement of equipment. In the parking lot mentioned, cut-and-cover construction would be within the immediate foreground of residences along the southwest side of the lot, as well as in the foreground of views from the scenic highway/drive.

Cut-and-cover construction along a 0.5-mile length of Via Marina would be immediately proximate to residences and motorists using this scenic highway. The associated activity and equipment would displace the current positive aesthetic features along the drive and dominate the views. A separate concern is the transition of the in-street construction to the parking lot, which would require the removal of one or more trees on the southwest side of Via Marina. This would be a noticeable loss of a valued visual resource.

From northwest end of Via Marina to the southeast where it passes by Aubrey E. Austin Park, the visual conditions would change from VMC 1 to VMC 4 (dominant),

representing an Impact Intensity Level 3 (Table K-3, Attachment A). Within a highly sensitive view, such an impact would be significant.

The loss of the street tree(s) would be long term, requiring many years to be mitigated by the maturation of new plantings. The duration of the other impacts is uncertain, as it is not known to what degree certain activities would occur concurrently. The cut-and-cover construction would last for about three months, and it is likely that most of the Push and Receive Site construction would be completed concurrently. If not, the cumulative construction could last for about five months. In either case, the time frame would be considered to be temporary. *Conclusion: the impact would be significant and primarily temporary, except for the loss of mature street trees, which would be a long-term impact..*

Aubrey E. Austin Park, North Jetty Promenade, east end, and Marina del Rey Entrance Channel. The existing visual condition for views from this these critical public viewing areas is VMC 1. The most critical of these views is that from the park, followed by those from the Promenade and the Channel. The only Project feature that would affect views from the Park and Promenade would be the 5,000 sq ft construction/laydown area for Receive Site for the under-channel tunnel boring and the shaft site itself. The cut-and-cover construction would be largely obscured by the intervening street trees and hedges (see Figure 6).

The Receive Site would be surrounded by a 20- to 30-ft-tall acoustic curtain and would be peripheral to the primary views from the park. Given the park's proximity to the Entrance Channel, it is assumed that views most usually would be directed away from the Receive Site and toward the boating activity in the Channel and the ocean to the southwest. This would also be true for views from the North Jetty Promenade, which is proximate to the Channel. Also, views from the Promenade toward the Receive Site are screened by mature trees within the Park. Regarding views from the Entrance Channel, they would tend to be focused along the Channel either to the northeast or southwest, in the directions of travel.

The most critical of these views are those from the park. Although most viewing might be away from the Receive Site, the park is oriented for viewing to the northwest as well (toward the Receive Site). A conservative approach would be to assume that substantial attention is directed toward Via Marina and the Receive Site. Accordingly, the Site would attract considerable attention to the point of competing with other features in view, if not dominating attention. The two- to three-story curtained area would appear out of place and discordant, not appearing to be an inherent feature of the largely residential area. The resulting visual condition would be VMC 3 (co-dominant). The change in visual conditions would be Intensity Level 2. *Within a highly sensitive view, such an impact intensity would be considered to be significant, although the cumulative duration of construction activities at the Receive Site would be seven weeks and, therefore, temporary.*

Due to the primary direction of views from the Promenade and the Entrance Channel, coupled with screening by vegetation and attenuation by distance (for the Channel views), the affect of constructing the Receive Site at Via Marina is not expected to be substantial (not significant).

Marquesas Way, Via Dolce, and Adjoining residences. The existing visual conditions for potentially affected views from these roads and residences is currently VMC 1. From

these roads and residences, the following Project features would be within foreground views:

- The 10- to 12,000 sq ft construction /laydown area for Push Site Option 2;
- The Push Site Option 2 shaft construction area;
- Cut-and-cover construction along Marquesas Way/Via Dolce that would connect with the Push Site Option 2 Shaft site.

Activities associated with Push Site Option 1 primarily would not be visible from these roads and residences, as there would be no construction along Marquesas Way or within the "island" at the intersection with Via Dolce. Here, micro-tunneling would occur from this Push site, located northeast of the Via Marina/Marquesas Way intersection, to the Receive site in the vacant lot across from the Venice Pumping Plant. A small part of the cut-and-cover construction at Via Marina would be briefly in view but would be at a distance and not within primary views from most of the residences or along much of the street. An exception would occur for motorists driving on Marquesas Way when approaching the stop light at Via Marina. Here in-road construction would be seen for a relatively short part of the alignment where it would tie in

On the other hand, the activities, equipment and work force associated with Push Site Option 2, the nearby construction \laydown area, and cut-and-cover construction would dominate views from the roads and residences noted. They would be industrial in character and incongruous with the setting. The construction/laydown area, if it were square in configuration, would occupy an area up to 110 ft long on each side, or an equilateral triangle up to 155 ft on a side (the available space is triangular). It would appear that there is insufficient area in the designated "island" location at the intersection of these two streets, as there is less than 6,000 sq ft of space there. Use of this space for a construction/laydown area is further complicated by the alignment of the cut-and-cover construction needed to bring the pipeline to Push Site Option 2. The alignment seemingly would need to traverse the laydown area in order to directly reach the Push Site, thereby diminishing the area available for laydown. Additional laydown space may be available in the vacant lot next to the Push Site construction area, but that space is limited as well. Consequently, some additional part of Via Dolce or Marquesas Way may have to serve as a construction/laydown area.

Using the island for a construction/laydown area would likely cause the damage and removal of the large, mature tree, as well as all of the landscape materials in the island. This island (see Figure 2) is an entry statement for residential area and the visual focus of traffic along both streets. The loss of the tree and other plantings would cause an irretrievable loss of visual quality.

Regarding the Option 2 Push Site, the construction/laydown site for this option would be in the foreground of views from Marquesas Way, Via Dolce, and their adjoining residences. Also, a public beach access path starts near the construction/laydown site and runs along the east side of Ballona Lagoon to the south. From the beginning of this path, the construction/laydown site would be within the foreground.

The Push Site Shaft would be in the vacant lot shown in the upper image of Figure 4. The construction activities here would be in the foreground of residences along the northeast side of Via Dolce at its intersection with Marquesas Way. The 20- to 30-ft-tall acoustic

curtain around the Push Site would largely fill the vacant lot. This two- to three-story curtain wall would be on all four sides of the site, and would look like a featureless block structure incongruous with the setting. The crane inside the site would protrude well above the curtain walls, and the necessary truck traffic would be visible intermittently throughout the day.

The effect of cut-and-cover construction would be the same as described for the Via Marina views. Views from the roads would be dominated by the proximate construction. Additionally, since open trench construction would need to proceed more or less straight to the Push Site in the vacant lot, the planted island area described above would be traversed by the alignment. The trench construction would unavoidably destroy plantings and cut the roots of the mature tree in the island. Using the area as a laydown site most likely would damage the tree, and trench construction would cause further damage. Together, the activities could cause the tree to be removed.

The visual impacts associated with the construction of the Option 2 Push Site, its operation, the use of the intersection island for a laydown site, and cut-and-cover construction would severally and together dominate views with features incongruous with the setting. The existing visual conditions would change from VMC 1 to VMC 4, representing and impact intensity of Level 3. Given the sensitivity of the views affected, the impact would be significant.

The duration of the construction activities note is as follows. The Option 2 Push Site shaft would be constructed within about two months, and the approximately 500 ft of cut-and-cover construction along Marquesas Way that would be required for this Push Site would take about three to four weeks. It is assumed that shaft construction and cut-and-cover activities would be concurrent, but at worst, if they were not, the duration would extend to three months instead of two. *The impacts, while significant, would, therefore, be temporary in duration.*

<u>Grand Canal Residences, Grand Canal, and Hurricane St. Residences</u>. The existing visual conditions for potentially affected views from these roads and residences is currently VMC 4 due to the presence of the Venice Pumping Plant. From the residences and the canal, the following Project features would be within foreground views:

- The Option 2 Push Site; and
- The Receive Site in the vacant lot opposite the Venice Pumping Plant;

These activities and equipment, activity, and work force associated with the Push Site and Receive Site would be co-dominant with the Venice Pumping Plant. The appearance of the acoustic curtain-enclosed sites, the protruding crane, and truck traffic have has been described relative to AES-1. These features would be industrial in character and incongruous with the generally residential setting. *However, because the existing visual conditions are VMC 4, the conditions could not substantially worsen and the impact, while adverse, would not be significant.* This adverse impact would endure for six weeks of construction for the receive site, but this would be concurrent with the construction of the Push Site, which would last for about two months. The adverse impact would, therefore, be temporary.

AES-2: The Proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant, primarily temporary but to a limited extent long-term.

The impacts of the Project, relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, are summarized as follow:

- There would be a significant impact due to partial obstruction of recognized and valued views due to roadside cut-and-cover construction, construction/laydown areas, and optional Push Sites.
- The impact would significantly affect the recognized views currently available from lengths of public roadways (Via Marina, Marquesas Way, and Via Dolce).

Via Marina is a designated scenic highway/drive, and the views from this road represent a continuous series of scenic vistas culminating in view of the Entrance Channel. Also, there are scenic vistas from Aubrey E. Austin Park and the North Jetty Promenade which extend out across the Entrance Channel, but in the case of the park also extend along Via Marina. Furthermore, the views from the residences lining the east bank of the Grand Canal near the Venice Pumping Plant are highly scenic vistas which include the canal and the Ballona Lagoon to the southeast. The adverse impact on the views noted has been assessed in detail relative to AES-1. That on views from Via Marina and Aubrey E. Austin Park would be significant and primarily temporary, excepting the loss of street trees, which would be a long-term impact. *The impact on views from the Grand Canal residences, the Grand Canal, and Hurricane St. residences would be adverse but not significant due to the existing effect of the Venice Pumping Plant.*

AES-3: The Proposed Project or its alternatives would cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway. The impact would be significant and long-term.

Regarding the one Los Angeles City Threshold factor for Significance that under AES-3:

- The Project would significantly impact views from a designated scenic highway. This has been discussed.

The Project would result in the loss of mature street trees along Via Marina, a designated scenic highway (designated by the County of Los Angeles) and one mature tree at the intersection of Via Dolce and Marquesas Way. *The impact of the loss of these trees has been described relative to AES-1, and would be significant and long-term.*

AES-4: The Proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5: The Proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the Proposed Project or its alternatives.

AES-6: The Proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

The applicable regulatory setting is the Los Angeles County Local Coastal Program for Marina del Rey, embodied in the Marina del Rey Land Use Plan and discussed in Section 3.2. Policy "e-3" of the Plan established Via Marina as a scenic drive, and the Scenic Highway Element of the County General Plan identifies Via Marina as a scenic highway. It is assumed that unfettered access to Via Marina and its continuous enjoyment by the public is implicitly a policy of the Plan, as would be the protection from adverse impacts the views from this road. The adverse impacts from Via Marina have been described and are deemed in this assessment not to be consistent with the Plan. *Therefore, these visual impacts would be significant; however, they would be temporary.*

4.4.2 Venice Alignment Alternatives: Pacific Avenue Alignment

The critical sensitive viewing positions along this alignment alternative include those from:

- Hurricane St. and adjoining residences;
- Pacific Ave. and adjoining residences;
- Bikeway along Pacific Ave.;
- Ballona Lagoon/Grand Canal;
- Public beach access path along easterly side of Ballona Lagoon;
- The North Jetty Promenade

Overview

Hurricane St., Grand Canal at Hurricane St., and Adjoining Residences

The Project does not have the potential to significantly and adversely impact views from this street, the canal or the nearby residences. Cut-and-cover construction would occur in one of the two lanes of Hurricane St. and would be in the immediate foreground of motorists and residents along the street. Construction activities would also be noticeable from the residences lining the east side of the Grand Canal just northeast of the end of the street, as demonstrated in Figures 4 and 5. However, the existing visual condition for views from these sensitive viewing positions has been adversely affected by the Venice Pumping Plant to the degree that a noticeable lessening of visual quality is not possible. The views are dominated by the industrial character of the Plant.

Pacific Ave. and Residences, Southwest End of Via Marina, Bikeway, Ballona Lagoon, Beach Access Path and North Jetty Promenade

The Project has the potential to cause significant, but temporary, visual impacts relative to views from the sensitive viewing positions listed. In these views, no features anomalous with the character of the area are currently noticeable. The Project, however,

would introduce an industrial character to the affected area. Cut-and-Cover construction would be within the foreground of views from Pacific Ave., the bikeway and Ballona Lagoon. For the residences along Pacific Ave., those driving along the street, and those using the bikeway, construction activity would unavoidably dominate the views. The industrial nature of the activity would sharply contrast with the residential character of the neighborhood and the semi-natural character of the lagoon.

In addition, this alternative would require that a Receive Site be constructed along the North Jetty Promenade at the intersection of Via Marina and Pacific Ave. To construct the Receive Site and the open trench pipeline, one lane of Via Marina along the Entrance Channel and the adjoining public parking would be used for a construction/laydown area. In essence, Via Marina in this area would be closed to public use, amounting to eliminating public access to a scenic route and the associated views. Also, the three-story-tall Receive Site would interfere with views toward the Entrance Channel from sensitive public viewing positions in the vicinity.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 4.3.

AES-1: The Proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished.
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area.
- No zone change is proposed
- There would be no positive contribution to the aesthetic value of the area.

Most of the critical public views would affected by the Project such that the impact would be significant. However, the duration would be temporary. For views from Hurricane St. and residences at its northeast end, as well as the Grand Canal and residences close to this end of the street, the Venice Pumping Plant has adversely affected the quality of critical public views to the point that the additional impact of the Project would not significantly affect these views. The impact would worsen the existing visual quality, but the current visual condition due to the Plant is already at the lowest rating. A more detailed analysis follows.

Hurricane St., Residences, Grand Canal and its Residences. As noted, the existing visual condition for views from the points listed is VMC 4. The cut-and-cover construction would be in the immediate foreground of residences along the street, while from the

"Grand Canal" residences and the canal itself, the construction activity and equipment would be seen at a distance of about 150 ft.

These construction activities and their associated equipment and work force would attract substantial attention first because they would occur in the immediate foreground of some views, and second because they would represent a sudden change. Although the Venice Pumping Plant is industrial and currently dominates these views, the construction of the pipeline would command more attention from the closest viewing positions (Hurricane St. and its residences). Nonetheless, visual quality here is currently at the lowest rating, and the construction activities could not substantially impact the views further. While the impact would be adverse, it would not be significant in this case.

The length of Hurricane St. affected by construction (from the Pumping Plant to Pacific Ave.) is about 400 ft, Given the rate of advance expected, the cut-and-cover construction would last for about three weeks. The time frame would be considered to be temporary. *Conclusion: the impact would not be significant and would be temporary*

Pacific Ave. and Residences, Southwest End of Via Marina, Bikeway, Ballona Lagoon, Beach Access Path and North Jetty Promenade. As noted, the existing visual condition for views from these critical public viewing areas is VMC 1. Relative to views from most of Pacific Ave., the bikeway, Ballona Lagoon, and the Beach Access Path, the cut-and-cover construction along about 3,800 ft of Pacific Ave. would be within view. Given that the beach access path would be about 270 ft from the construction activity, it is expected that the quality of views from the path would not be appreciably affected. Were a person to be boating on the lagoon, they could be close to the moving construction site. For the residences along Pacific Ave., those driving along the street, and those using the bikeway, construction activity would unavoidably dominate the views. The industrial nature of the activity would sharply contrast with the residential character of the neighborhood and the semi-natural character of the lagoon. The visual conditions would change to VMC 4, representing an impact intensity of Level 3. Within a highly sensitive view, this change would signal a substantial reduction in visual quality.

From the southeast end of Pacific Ave. where it intersects with Via Marina, the major concern over visual impacts would be the effect of constructing the Receive Site. First, Via Marina is a scenic highway/drive, and the North Jetty Promenade is a popular recreation facility. To construct the Receive Site, a 10- to 12,000 sq ft construction/laydown area would be required. To accommodate this laydown area, one lane of Via Marina and most of the public parking along this road would have to be closed. This would bring the industrial nature of what amounts to an equipment yard into the immediate foreground of views from the Promenade and the road, as well as the residences along Via Marina across from the public parking.

The impact of closing the road to public use and eliminating public parking is addressed relative to AES-2, -3, and -6. The Receive Site would be enclosed by an acoustic curtain 20 to 30 ft high, as noted earlier in the analysis. This box-like structure, apart from the tall crane protruding above it, would be featureless and impose upon views toward the Entrance Channel from the residences in the vicinity, the southeast end of Pacific Ave., what remains of Via Marina during construction, and the North Jetty Promenade. It would be as much as three stories tall, or approximately as high as the neighboring residences. Moreover, intermittent truck traffic would occur during the work shifts.

Figure 9 shows a close-up view of the site from the intersection of Pacific Ave. and Via Marina, while Figure 7 is a view from the Entrance Channel. The latter view discloses the array of residences that would be close to the Receive Site. The curtained site, alone, would dominate views that are highly sensitive. But the construction/laydown area would also dominate views. Together the laydown area and the Receive site would substantially lessen the visual quality of the area, resulting in visual conditions of VMC 4. The reduction from VMC 1 would be an impact of intensity Level 3. For highly sensitive views, this impact would be especially significant.

Concerning the duration of construction, the cut-and-cover operation along the 4,000-ft length of the Pacific Ave. would last nearly seven months. During this period, the construction/laydown area along Via Marina would be remain. The Receive Site construction would require six weeks to construct, then the acoustic curtains would be removed and the shaft would be covered by a metal plate. When the under-channel tunnel boring is complete, the TBM would be extracted and the pipeline tied to that installed along Pacific Ave. This latter activity would last one week. It is assumed that the Receive Site Construction and operation would be concurrent with the cut-and-cover construction and that construction would be complete and all evidence removed at the end of seven months. The duration of the impact would, therefore, be temporary. *Conclusion: the impact would be significant but temporary in duration.*

AES-2: The Proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant but temporary.

Relative to the two Los Angeles City Thresholds for Significance that are grouped under AES-2, the impacts may be summarized as follows:

- There would be a significant impact due to partial obstruction of, and elimination of pubic access to, recognized and valued views because of roadside cut-and-cover construction, construction/laydown areas, and a Receive Site.
- The impact would significantly affect the recognized views currently available from lengths of public roadways (Via Marina and Pacific Avenue) and the bike path along Pacific Ave.

Concerning the first of these two City of L.A. Thresholds, Via Marina is a designated scenic highway/drive, and the views from this road are, therefore, "recognized." Also, there are "recognized" scenic vistas from the North Jetty Promenade which extend out across the Entrance Channel. The closing of Via Marina to public use and eliminating public parking would make inaccessible to the public scenic vistas from that road and the Promenade that are currently enjoyed by the public. The impact would, functionally, be the same as totally obstructing the views; therefore, impact would be significant.

Conclusion: The adverse effect on the recognized views from Via Marina, the Promenade, Pacific Ave. its Class II bikeway, and Ballona Lagoon, while significant, would be temporary, as discussed in detail relative to AES-1.

AES-3: The Proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

One Los Angeles City Threshold factor for Significance is relevant to this CEQA issue and is summarized as follows:

- The Project would significantly impact views from a designated scenic highway (see AES-1), but would not impact any specific scenic resources.

The Project would not directly damage features contributing to the visual aesthetics of the potentially affected views. Rather, the Project would introduce features into these views which are incongruous with the established setting and would block specific views (for instance, the Receive Site would interfere with views of the Entrance Channel from various viewing positions). These impacts have been addressed under AES-1 and AES-2.

Views from a designated scenic highway (Via Marina) would be adversely affected, but aesthetic features in view would not, as noted, be adversely impacted. A separate impact not specifically addressed by the City of Los Angeles Thresholds is that access to a designated scenic highway would be eliminated, temporarily (traffic would be restricted to local residents and controlled along one lane), as would access to the Promenade and the Entrance Channel views through the temporary elimination of public parking in the area. In essence, eliminating access to views represents an irretrievable loss of the resource (the scenic highway and public parking at least partly serving as access to scenic views) for the period of construction. This impact is addressed under AES-6 and would be temporary.

AES-4: The Proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5: The Proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the Proposed Project or its alternatives.

AES-6: The Proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

The applicable regulatory documents are the Venice Community Plan and the Venice Local Coastal Program land Use Plan, as this alignment alternative lies entirely within the boundaries of Venice. Section 3.0 details the applicable plans and policies. Coastal Resources Goal 18 of the Venice Community Plan calls for the preservation of the scenic and visual qualities of coastal areas. The policy is to assure that projects are visually compatible with the character of surrounding areas. Moreover, design principles set forth in the Venice Land Use Plan requires that views of distinctive visual resources not be significantly disturbed. As discussed relative to AES-1, the Project would introduce features into view which are visually incompatible with the character of the affected area. Also, views of the Entrance Channel would be directly impacted, and the Channel arguably presents a distinctive visual resource. *Conclusion: Because the Project would not be consistent with the regulatory setting, the visual impacts described would be considered to be significant. They would, however, be short term, lasting for about seven months.*

4.4.3 Westchester/Playa del Rey Alignment Alternatives: Pacific Avenue/Vista del Mar Alignment.

The critical sensitive viewing positions along this alignment alternative include those from:

- Pacific Ave. Fishing Bridge;
- Bikeway along Pacific Ave. Bridge;
- Pacific Ave. and 62nd St., including adjacent residences;
- Del Rey Lagoon and adjacent parking area;
- Dockweiler Beach Access from Pacific Ave.
- Vista del Mar (scenic highway) and adjacent residences.

Overview

Pacific Ave. Fishing Bridge, Bikeway, Boat Launch, Pacific Ave. and 62nd St., Residences along 62nd St.

The Project has the potential to significantly, but temporarily, impact views from the public viewing positions listed. Today, within views from positions along the bridge and bikeway, in the vicinity of the boat launch, at the northwest end of Pacific Ave., and along 62nd St., there are no noticeably incongruous features in sight. The existing views are shown in Figure 10. In this vicinity, the activities and equipment associated with cut-and-cover construction, as well as the construction and operation of the Push Site, would be within the immediate foreground. Such equipment and activities would have a decidedly industrial appearance that would be incongruous with the recreation and residential land uses and character there. The appearance of these project features would command attention.

Pacific Ave. and Adjoining Residential Area, Del Rey Lagoon Park, Beach Access Path

In the vicinity of Del Rey Lagoon Park, views from the park, Pacific Ave., the nearby residential area and the beach access path would be significantly, but temporarily impacted by the Project. From these sensitive viewing positions, the potentially affected views include no anomalous features incongruous with the character of the area. Figures 11 and 12 show the residential area along Pacific Ave., the adjacent Del Rey Lagoon Park, and one of its parking lots. Cut-and-cover construction would occur in one of the two lanes of Pacific Ave. and would be in the immediate foreground for park users, local residents, and those using the beach access path leading from the parking area along Pacific Ave. that also serves the park. Such construction would contrast unfavorably with the character of the setting and dominate attention.

Vista del Mar and Adjacent Residences

As is the case for the other views from this alignment alternative, the Project would significantly, but temporarily affect sensitive public views that currently have not been adversely affected by past actions. Figures 13 and 14 show the terminus of the alignment where the new pipeline would tie in with the existing C.I.S., as well as the character of the residential area and the quality of the ocean views available from this road. Cut-and-

Cover construction would be within one lane of Vista del Mar and, therefore, be in the immediate foreground of views from the street and residences noted. The appearance of this activity would be incongruous with the residential setting and inconsistent with scenic highway status of Vista del Mar.

Impact Intensity, Significance and Duration

The visual impacts for this alignment are discussed and summarized below relative to the thresholds for significance noted in Section 4.3.

AES-1: The Proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but temporary.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished.
- No natural open space would be graded or developed;
- No structures are proposed for any natural open space;
- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area.
- No zone change is proposed
- There would be no positive contribution to the aesthetic value of the area.

The critical public views noted would be affected by the Project such that the impact would be significant. The affected views are highly sensitive and Project construction activities would be within the immediate foreground of these views. Of particular importance is that Vista del Mar is a scenic highway, and therefore views from this road are especially important. However, the duration of the impacts noted would be temporary.

A detailed impact assessment follows:

Pacific Ave. Fishing Bridge, Bikeway, Boat Launch, Pacific Ave. and 62nd St., Residences along 62nd St. From these critical viewing positions, the following Project features would be within the foreground:

- The 10- to 12,000 sq ft construction/laydown area for the Push Site;
- The Push Site;
- Cut-and-cover construction at the northwest end of Pacific Ave. south of the Entrance Channel;

The activities, equipment, and work force associated with these Project features would dominate these views and be incongruous with the setting, as noted. The Push Site would be located in the parking lot abutting the bridge on its northeast side. It would also have to accommodate some space for construction/laydown, as the primary location for this,

the parking lot abutting the southwest side of the bridge, would be too small. Therefore, it is assumed that the Push Site would occupy the entire area between the boat launch and the bridge, including the northeast end of 62nd St. As well, the associated construction/laydown site would occupy the entire parking lot flanking the southwest side of the bridge.

As has been noted before, the Push Site (like the Receive Sites) would be surrounded by an acoustic screen that would be 20 to 30 ft high. A crane would be substantially higher than the curtain, so not all of the equipment would be shielded from view. Also, truck traffic required for the delivery of materials and supplies and muck hauling would be periodically within the subject views.

A limited stretch of cut-and-cover construction would affect the views noted, as this aspect of the Project terminates at the Push Site. Here the trenched pipeline would be tied in with the under-channel pipeline. Cut-and-cover construction would require a moveable construction/laydown area alongside of the open-trench construction, as well as a portion of the parking lots noted.

The existing visual conditions would change from VMC 1 to VMC 4 (dominant, incongruous features), representing an impact intensity of Level 3 (Table K-3, Attachment A). *Conclusion: Within a highly sensitive view, such an impact would be significant.*

Regarding the duration of the impact on the subject views, the Push Site must be completed prior to Tunnel Boring and would require two months to construct. Tunnel Boring would require from one to two months (Section 4.4, Project Description). Cumulatively, Push Site construction and Boring would therefore be completed over a four-month period. It is assumed that the short stretch of cut-and-cover construction within the subject views would occur within this time frame. *Consequently, the visual impact of construction would be temporary.*

<u>Pacific Ave. and Adjoining Residential Area, Del Rey Lagoon Park, Beach Access Path</u>. Relative to these critical viewing positions, primarily it would be cut-and-cover construction that would adversely impact the visual quality of the area. However, truck traffic required for the construction and operation of the Push Site, and that needed for delivery of materials for open-trench construction, would also be within view and pose an adverse impact.

The activities, equipment, and work force associated with pipeline installation, and the truck traffic noted, would occur within a few feet of the edge of Del Rey Lagoon Park, the nearby residences, parking for the residences and Lagoon, and the beach access path. The scale, proximity, contrast, and movement of the equipment and work force would unavoidably draw focused attention and dominate the scene. The existing visual conditions would change from VMC 1 to VMC 4 (dominant, incongruous features), representing an impact intensity of Level 3. Within the highly sensitive views noted, such an impact would be significant.

There would be about 2,000 ft of cut-and-cover construction along Pacific Ave. up to where it intersects with Vista del Mar. At the rates of advance described in the summary Project Description in Section 4.4, construction along this road would be complete within about 3.5 months. *Consequently, the visual impact of construction, while significant, would be temporary.*

Vista del Mar and Adjacent Residences. As would be the case for the Pacific Ave. stretch of the alignment, along Vista del Mar, the primary aspect of the Project that would be within view would be cut-and-cover construction within one lane of the roadway. The impact of this construction would be as described earlier relative to other foreground views. There would be an impact of Level 3 intensity, and it would therefore be significant. The length of Vista del Mar that would be affected would be about 1,600 ft long. At the rate of advance projected, it would take about 3 months to complete this part of the alignment. *Therefore, the impact, while significant, would be temporary.*

AES-2: The Proposed Project or its alternatives would cause substantial, adverse effects on scenic vistas. The impact would be significant but temporary.

Relative to the two Los Angeles City Thresholds for Significance that are grouped under AES 2, the impacts may be summarized as follows:

- There would be a significant impact due to partial obstruction of recognized and valued views due to the construction and operation of a Push Site.
- The impact would substantially affect recognized views currently available from a length of a public roadway and a portion of a bikeway.

Vista del Mar is a designated scenic highway, and the views from this road represent a continuous series of scenic vistas of the Pacific Ocean and Dockweiler Beach. Also, there are scenic vistas from the bikeway along the South Jetty, the Pacific Ave. Fishing Bridge, and 62nd St. which extend out across the Entrance Channel. *The potential adverse impact on the views noted has been assessed in detail relative to AES-1 and has been considered to be significant but temporary.*

AES-3: The Proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway.

One Los Angeles City Threshold factor for Significance is relevant to this CEQA issue and the impact is summarized as follows:

- The Project would significantly impact views from a designated scenic highway (see AES-1 and -2), but would not impact any specific scenic resources within view of a scenic highway.

The Project would not directly damage features contributing to the visual aesthetics of the potentially affected views, particularly views from a scenic highway. Rather, the Project would introduce features into these views which are incongruous with the established setting. These impacts have been addressed under AES-1 and AES-2.

AES-4: The Proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5: The Proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the Proposed Project or its alternatives.

AES-6: The Proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impact would, therefore, be significant, but it would be temporary.

Section 3.0 details the applicable plans and policies. The applicable regulatory document is the Coastal Resources chapter of the Westchester-Playa del Rey Community Plan. Objective 18-5 is relevant: "Preserve coastal visual resources by protecting and enhancing scenic views of the ocean and wetlands from designated Scenic Highways, and public view sites." Vista del Mar is a designated scenic highway.

Policy 18-5.1 for this objective calls for the following relevant stipulations for siting and designing development in order to:

- Protect public views to and along the ocean and scenic coastal areas;
- Be visually compatible with the character of the surrounding area; and
- Retain existing views from designated public view areas and Scenic Highways.

Under this policy, "all new development in the Coastal Zone, including public works and recreational facilities, should be subordinate to its setting, and minimized in height and bulk to the extent feasible to accomplish view protection (emphasis added)."

Siting the pipeline construction within a designated scenic highway is inconsistent with this policy. Doing so does not protect views to and long the ocean; the activities, equipment and workforce needed will be visually incompatible with the character of the surrounding area; and closing off one lane of this highway will substantially limit public enjoyment of this scenic highway.

Consequently, the impact of the Project is significant due to its inconsistency with Policy 18-5.1. The duration of the impact would be about two months, so, while significant, the impact would be temporary.

4.4.4 Mined Tunnel Construction Alternatives

The Mined Tunnel Construction Alternatives comprise three viable alternative alignments. All require a Starter Shaft on LAX land southeast of the Napoleon St./Vista del Mar intersection. Alternative 2 requires an Extraction Shaft on Dockweiler Beach at the end of Hurricane St. and cut-and-cover construction to tie the pipeline to the Venice Pumping Plant. Alternatives 3 and 4 entail direct, continuous tunneling from the LAX Starter Shaft to an Extraction Shaft in a vacant lot at the northeast end of Hurricane St. across from the Pumping Plant. Alternatives 3 and 4, relative to above-ground features, would be identical. Rather than by alternative, the impacts have been assessed relative to:

- The Starter Shaft;
- The Extraction Shaft at Dockweiler Beach;
- The Extraction Shaft at the Venice Pumping Plant.

To summarize, Alternatives 3 and 4 would have the potential for significant, but short-term visual impacts due to the Starter Shaft, but would affect primarily private, residential views. Alternative 2 would have the same "Starter Shaft" impacts--significant, but short term—but would also have the potential for significant—albeit temporary--"Extraction Shaft" impacts that would affect not only private residential views, but also public views from Dockweiler Beach. Additionally, Alternative 2 would have the potential for significant, temporary visual impacts due to cut-and-cover construction of the Hurricane St. part of the alignment.

There will be no detailed discussion of the Hurricane St. cut-and-cover construction, as the impact on residential views along this street has been discussed relative to the Pacific Ave. Alternative Alignment within Venice. For Alternative 2, cut-and-cover construction would extend from the southwest end of Hurricane St. about 785 ft to the Venice Pumping Plant, whereas for the Pacific Ave. alignment, it would extend about 450 ft from Pacific Ave. to the Plant. The nature and intensity of the impact would be the same. The existing visual conditions are VMC 1 until reaching the Plant, where they are VMC 4. The construction activities, equipment and workforce would dominate views (VMC 4), representing a substantial reduction in visual quality for views from most of Hurricane St. (impact intensity Level 3). *The impact would, therefore, be significant. The 785-ft alignment would be completed in less than 6 weeks, so it will be temporary in duration.*

Impact Intensity, Significance and Duration

AES-1: The Proposed Project or its alternatives would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The impact would be significant but short term.

Relative to the six Los Angeles City Thresholds for Significance that are grouped under AES-1, the impacts are summarized as follows:

- No features contributing to valued visual character or neighborhood image would be removed, altered, or demolished.
- Natural open space would be graded or developed;
- A Structures is proposed for a natural open space;

- There would be a high degree of contrast between proposed features and existing features representing the valued aesthetic image of the area.
- No zone change is proposed
- There would be no positive contribution to the aesthetic value of the area.

The critical public views noted would be affected by the Project such that the impact would be significant. The affected views are highly sensitive and Project construction activities would be within the foreground of these views. Of particular importance are views from nearby residences and Vista del Mar, a scenic highway. However, the duration of the impacts noted would be short term, lasting for about two years.

A detailed impact assessment follows:

Starter Shaft

The critical sensitive viewing positions potentially affected by the construction and operation of the Starter Shaft are those from:

- The residences lining the northeast side of Napoleon St. and facing the Site;
- The beach access path along Napoleon St.; and
- Vista del Mar, a scenic highway.

The existing visual conditions are VMC 1 for these potentially affected views. The Starter Shaft Site would require about 12,000 sq ft of space, including space for a construction/laydown site, and would be enclosed by a 20- to 30-ft-tall acoustic curtain just as would the Push and Receive Sites relative to the Bored Tunneling construction alternatives. There will be two cranes on site that will be taller than the curtains, so these would be visible. The remainder of the facilities within this site would be screened from view. However, the 15 daily truck round trips would be noticeable, and there would be as much as 300 ft of cut-and-cover construction to tie the pipeline to the existing C.I.S. within Vista del Mar.

Residences and beach access path. The beach access path runs along the fence skirting the northerly side of the LAX property along Napoleon St. Views from there are closely similar to those from the residence on the other side of Napoleon, except that the residences are multi-story and views from the upper stories would be more elevated. Figure 14 shows the vacant LAX land in which the Starter Shaft would be sited, seen from VP 16 (see Figure 1). This land appears substantially natural; there are no structures, but there are several unobtrusive roads within this area. The location of the site is approximate in this photograph. If it were to be sited as shown in Figure 1, it would be over 700 ft away from the viewing position from which the photograph was taken. By way of contrast, the nearest residence on Napoleon St. would be about 224 ft from the center point of this site, as shown in Figure 1. If the configuration of the Starter Shaft Site were to be square, the site would be about 110 ft on a side (12,000 sq ft). This means that the edge closest to the residences would be at least 55 ft closer than the center of the site, or just 164 ft. Seen at that distance, which is about half the length of a football field, a 20- to 30-ft-tall "box" 110 ft on a side would attract considerable attention, particularly since the open land around the site is featureless and some of the residences are oriented directly toward the site. Stated differently, the Shaft Site would be as tall as the

residences from which it would be viewed, but it would occupy substantially more square footage.

Given that the land around the Starter Shaft Site is vacant and featureless, the Starter Shaft Site would command attention to the point of at least competing with the ocean views to the southwest. The acoustic curtained "box" would not be a feature that would be mistaken for a building. The presence of the cranes extending above the curtains and the truck traffic would, together with the screening, lend an industrial character to the site. Moreover, it is not clear that all equipment would be within the enclosure. For instance, with a construction crew of 20 to 25 persons,20 to 25 vehicles may need to be parked on site in order to allow the pubic to park along Vista del Mar. Were the site to compete for attention, the visual conditions would be rated VMC 3, a reduction by two ratings from the current VMC 1. The impact intensity would be Level 2. Given the sensitivity of residential views, the impact would be significant.

The length of time needed to construct the Starter Shaft would be seven months. However, it would be in operation for up to about 28 months during the Mined Tunneling. Therefore, from the start of construction to completion, the Shaft would be within view for nearly 3 years. *Conclusion: The visual impact would be significant but short term.*

Vista del Mar. Views from Vista del Mar (scenic highway) would tend to be directed toward the scenic Pacific Ocean and the Beach below the road. The site would be oblique to the directions of travel and peripheral to the main views to the southwest. For most of the public, the Starter Shaft might have to be pointed out to be noticed, given the primary direction of viewing, either along the road (to safely operate the vehicle) or toward the ocean, away from the site. *Conclusion: In views from this road, visual quality would likely not be substantially lessened.*

Extraction Shaft—Dockweiler Beach

The critical sensitive viewing positions potentially affected by the construction and operation of the Starter Shaft are those from:

- The residences lining the Dockweiler Beach;
- Dockweiler Beach

The existing visual conditions are VMC 1 for these potentially affected views. The Extraction Shaft Site would require about 5,000 sq ft of space, including the construction/laydown area, and would be enclosed by a 20- to 30-ft-tall acoustic curtain, just as would the Starter Shaft, and the Push and Receive Sites (Bored Tunneling). There would be a crane on site that would be taller than the curtains, so it would be visible. The remainder of the facilities within this site would be screened from view. However, the daily truck round trips would be noticeable.

Apart from the multi-story residences, there is "Ocean Front Walk," a pedestrian beach access running along the beach side of the residences. A few feet away from the Extraction Shaft Site is a beach volleyball court, and passive beach uses may occur anywhere in the vicinity of the site. The Extraction Shaft Site would be much smaller than the Starter Shaft Site, being only 5,000 sq ft in size. This would be a square 70 ft on a side. However, the site may be within 50 ft or less of the residences and pedestrian

beach access path. It would inevitably dominate views from the residences with its industrial appearance, as it could be as tall as the residences (VMC 4). Moreover, the associated truck traffic would also be a distraction. The impact would be intensity Level 3, as the existing conditions are VMC 1. *Conclusion*: Relative to the highly sensitive views affected, the impact would be significant.

The period of its initial construction would be 10 weeks. After it is constructed, all equipment would be removed from the site and a steel plate would be placed over the shaft. It can be expected not to be especially noticeable at that point, as wind-driven sand would naturally tend to cover the plate over time. The Shaft would become operational at the point that the TBM needs to be extracted from the Mined Tunnel, which would be about 28 months later. The TBM would be extracted, and the pipeline tied into the pipeline installed with cut-and-cover construction, over a one-week period. *The cumulative seven-week period in which the Shaft would be constructed and operated would be temporary.*

Extraction Shaft—Venice Pumping Plant

The critical sensitive viewing positions potentially affected by the construction and operation of the Starter Shaft are those from:

- The residences lining the east side of the Grand Canal near the Venice Pumping Plant;
- The Grand Canal;
- Residences along Hurricane St. at its northeast end.

The existing visual conditions are VMC 4 for these potentially affected views. The Extraction Shaft Site has been described relative to the Dockweiler Beach Extraction Shaft Site. It would appear industrial and be as large as the nearby multi-story residences. The visible part of the crane and truck traffic, coupled with the acoustic screened site, would attract considerable attention and compete for it with the existing Venice Pumping Plant. However, the existing conditions are VMC 4, and while there would be and adverse visual impact, no substantial reduction in visual quality would occur. Moreover, the duration of the impact would be temporary, lasting cumulatively just seven weeks.

AES-2: The Proposed Project or its alternatives would not cause substantial, adverse effects on scenic vistas

Relative to the two Los Angeles City Thresholds for Significance that are grouped under AES 2, the impacts may be summarized as follows:

- There would be no significant impact due to partial obstruction of recognized and valued views.
- The impact would not substantially affect recognized views currently available from a length of a public roadway and a portion of a bikeway.

Alternatives 2, 3 and 4 would not have the potential to obstruct any recognized or valued views, nor would they substantially affect recognized views from a public roadway or bikeway.

AES-3: The Proposed Project or its alternatives would not cause substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, within view from a state scenic highway

One Los Angeles City Threshold factor for Significance is relevant to this CEQA issue and the impact is summarized as follows:

- The Project would neither significantly impact views from a designated scenic highway (see AES-1 and -2) nor significantly impact any specific scenic resources within view of a scenic highway.

Alternatives 2, 3 and 4 would not significantly impact views from Vista del Mar, the only scenic highway in the vicinity of these alternatives. Moreover, the construction of the Starter and Extraction Shafts would not adversely affect any landscape features contributing to scenic quality.

AES-4: The Proposed Project or alternatives would not result in a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No nighttime construction would be required for construction activities along the subject alignment alternative. However, if there were such construction required for the Starter and Extraction Shafts, the acoustic curtains would shield such lighting from view. The Los Angeles City Threshold factors for AES-4 do not, therefore, apply.

AES-5: The Proposed Project or alternatives would not result in substantial negative shadow effects on nearby shadow-sensitive uses.

There are no shadow-sensitive land uses in the vicinity of the Proposed Project or its alternatives.

AES-6: The Proposed Project or alternatives would result in visual impacts that would not be consistent with applicable rules and regulations. The impacts would, therefore, be significant, but they would be temporary and short term.

Section 3.0 details the applicable plans and policies. The applicable regulatory document is the Coastal Resources chapter of the Westchester-Playa del Rey Community Plan, relative to the Starter Shaft Site. Concerning the two alternate Extraction Shaft Sites, both are in Venice; the relevant regulatory documents are the Venice Community Plan and the Venice Local Coastal Program Land Use Plan.

Regarding the Westchester-Playa del Rey Community Plan, Objective 18-5 is relevant: "Preserve coastal visual resources by protecting and enhancing scenic views of the ocean and wetlands from designated Scenic Highways, and public view sites." Vista del Mar is a designated scenic highway. However, views from this scenic highway would not be significantly impacted.

Policy 18-5.1 for this objective calls for the following relevant stipulations for siting and designing development in order to:

- Protect public views to and along the ocean and scenic coastal areas;
- Be visually compatible with the character of the surrounding area; and

- Retain existing views from designated public view areas and Scenic Highways.

Under this policy, "all new development in the Coastal Zone, including public works and recreational facilities, should be subordinate to its setting, and minimized in height and bulk to the extent feasible to accomplish view protection (emphasis added)."

The Starter Shaft would not interfere with public views to and along the ocean. There are no public view areas in the vicinity, and the Shaft Site would not interfere with scenic highway-based views. However, the Shaft Site would not be visually compatible with the natural open space character of the LAX property. Consequently, the impact of the Project would not be entirely consistent with Policy 18-5.1 of the subject Plan. The impact, though, would be short term.

Concerning the Venice Community Plan and the Venice Local Coastal Program land Use Plan, Coastal Resources Goal 18 of the Venice Community Plan calls for the preservation of the scenic and visual qualities of coastal areas. The policy is to assure that projects are visually compatible with the character of surrounding areas. Moreover, design principles set forth in the Venice Land Use Plan require that views of distinctive visual resources not be significantly disturbed. As discussed relative to AES-1, the Starter and Extraction Shafts would be visually incompatible with the character of the affected area. Because the Project would not be consistent with certain policies and goals of the Venice regulatory setting, the visual impacts described would be considered to be significant. They would, however, be temporary and short term in duration, lasting for seven weeks in the case of the Extraction Shaft Sites, and less than three years in the case of the Extraction Shaft.

5.0 Mitigation Measures

5.1 Direct Mitigation Measures

As noted in Section 4.4.2, cut-and-cover, micro-tunneling, and mined tunneling alternative construction activities, and their associated equipment and work force, would all have the potential to cause significant visual impacts, to varying degrees, that would primarily be temporary in duration. With one exception, the Project or its alternatives would cause no damage to scenic resources (features contributing to the positive visual quality of potentially affected views), no new source of light and glare, and no negative shadow effects. Instead, depending on the alternative, the impacts would variably be due to:

- The introduction to views of features not congruent with the existing visual character of the area;
- Partial obstruction of views, or the limiting of access to the views;
- Adverse effects on views from scenic highways or the temporary elimination of access to these highways;
- And inconsistency with one or more regulatory goals, objectives or policies.

Mitigation measures either entail redesigning a project so as to site it in an area not within sensitive public views, screening the Project features from view with landscaping, or re-designing the Project features to mimic those that are characteristic of the area. In the case of the Project, the visual impacts are due to construction activities, equipment and

the presence and movement of the workforce, and not because of its appearance once it is complete. Because the visual impacts of construction are all temporary or short term, they end with the completion of the Project. No feasible measures can mitigate the impacts of construction to a level that is less than significant, for it is assumed that, by definition, such measures must occur within the context of undertaking the Project. That is, construction activities must occur. Regarding re-siting the alignment of the Project, the alignments are constrained by the starting and ending points. The area in between is characterized by dense, residential development, the presence of scenic highways, and the attraction of recreation opportunities. It would not be possible to avoid sensitive views.

Where specific positive landscape features are damaged, obscured, or removed, direct mitigation may take the form of adjusting the siting of an aspect of the project to avoid the impact, or replacing the feature if it is damaged or removed. In the case of the Marquesas Way/Via Marina Alignment Alternative, several mature street trees will be removed by cut-and-cover construction and/or the use of an area as a construction/laydown site. Based on available information, otherwise logical options are not viable. These include a choice to re-align the pipeline to avoid crossing from Via Marina into the parking lot serving the Receive Site, and re-locating the Option 2 Push Site construction/laydown area at the Via Dolce/Marquesas Way intersection. The only feasible mitigation measure is:

- **Mitigation Measure AES-1:** Replace street trees destroyed by construction activities with very large-diameter, mature trees. Depending on the species, this may or may not be possible.

5.2 Offsetting Mitigations

Where impacts may not be directly mitigated, they may be offset by actions taken elsewhere to compensate for the loss of visual quality. It would be speculative to definitively list specific offsetting actions at this time. However, such actions generally would include:

- Landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly;
- Screening from public view existing features which are incongruous with the character of their surroundings (such as the Venice Pumping Plant);
- Creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking.

During public scoping meetings, some suggested that the existing Venice Pumping Plant could be made to be more aesthetically pleasing. Currently, this industrial facility has reduced visual conditions in its vicinity to VMC 4. One measure would be to paint the facility a color matching nearby residences and removing the art deco-like treatment of the wall facing the Grand Canal. Plantings which soften the Plant's profile or cover its walls with vines might be investigated, if there is the physical space available to landscape the perimeter. A walkway abutting the blue wall fronting the Grand Canal (Figure 5, upper image) might be converted into a planter, or several large, decorative planters with tall shrubs or small trees might be installed along that part of the walk (since the walk ends here, the loss of this stretch of sidewalk would not be important to pedestrians). A small strip of fill at the northeast end of Hurricane could provide room for

large trees that would block some views of the Plant. In the upper image of Figure 4, large trees are growing along the edge of the sidewalk. In the lower image in Figure 5, it is apparent that such plantings could be installed between the chain-link fence along the vacant lot and the sidewalk next to it. These trees, in time, would screen the lot and provide a more aesthetic edge to the Grand Canal. The residual impact of offsetting mitigations would be inversely proportional to the degree of public acceptance of the measures.

Regarding the improvement of the visual quality in public spaces, Figure 10 discloses, in the upper image, the opportunity to improve the appearance of the parking lot along the bridge in the vicinity of where the Push Site for under-channel tunneling would occur. The bank in the foreground might be planted to shield from view the parking lot and conceal or replace the jumbled chunks of concrete rip-rap. Similar plantings on the other side of the bridge along the parking area there (the site for the construction/laydown area) would aesthetically frame the bikeway's entrance into Playa del Rey.

6.0 Unavoidable Adverse Impacts

All of the significant, temporary and short term impacts described in Section 4.4.2 are unavoidable. These impacts will end, however, with the completion of construction. These impacts may be offset by actions taken elsewhere within the affected communities to improve the aesthetics of existing views. The acceptability of any measures contemplated is best addressed through public involvement.

The long-term impact of the destruction of mature street plantings along Via Marina and Marquesas Way might be improved to the point that the duration would be short term (less than five years in duration) if trees of a large size are planted. Several years of growth would be required for the replacement trees to approach in height that of those trees that would be removed.

7.0 Cumulative and Secondary Impacts

Of the projects listed as related to the Proposed Project in the Introduction to the DEIR, Section G, Table G-1, only two would be relevant. In neither case would there be significant cumulative impacts.

- *Marina del Rey Tide Gates Project*. This project entails the removal, rehabilitation and improvement of portions of the existing outlet structure for the Grand Canal. The outlet is at the southeast end of the Grand Canal where it passes under Via Marina, so the "Gates" project would occur where aspects of the Proposed Project would also occur. The one aspect of construction that would be relevant to cumulative impacts is that the "Gates" project may require the closure of one lane of Via Marina St. during construction, with traffic controlled by a flagman. The Proposed Project also calls for such closure and traffic control. At the time of this assessment, no specific time frames for construction of either project had been identified. It can only be said that if the projects do not occur simultaneously, sequential construction would result in a prolonged period during which views from a designated scenic highway/drive (Via Marina) are unavailable to the public; e.g., it would seem likely that traffic along Via Marina would be restricted to local residential access because there would be no public

parking along the road and, therefore, no place to stop and enjoy the view. The impact of closing one lane due to the Proposed Project would, by itself, represent a significant, albeit, temporary visual impact. Lane closure due to the "Gates" project would also be a temporary but significant visual impact. If the two projects were to occur sequentially, the combined effect would solely be to lengthen the duration of the impact to the point of being short-term (one to five years' duration).

To mitigate the impact, if it is feasible both projects should be completed within the same time frame, thereby limiting the time during which the one lane of Via Marina would have to be closed.

- *Venice Pumping Plant Sluice Gate Replacement Project*. This project involves the temporary diversion of sewer flows in order to bypass the Venice Pumping Plant while the sluice gate within the Plant is rehabilitated. The bypass would be via a pipeline placed above ground along the Grand Canal from Driftwood St. to Hurricane St. along the Esplanade. The pumping mechanisms and pipeline would be in place for about one month. This project is relevant to the Proposed Project in consideration of cumulative impacts because activities associated with the Project would occur in the same area as the southeast end of the "Sluice Gate" project (near the Pumping Plant).

  The initial study for the Sluice Gate project found that there would be no significant visual impacts, based partly on their short duration. CEQA does not recognize specific time limits as thresholds of significance, nor does the City of L.A. Thresholds Guide. However, as noted in Section 2.2, the existing visual condition for views potentially affected by the Sluice Gate project is VMC 4 due to the presence of the Pumping Plant. This industrial facility dominates the views from points in its vicinity. For that reason, not due to the duration of the impact, the Sluice Gate project would not be a significant impact, as the condition of the affected views cannot worsen. Likewise, together with the Proposed Project, the Sluice Gate project would not cumulatively cause a significant impact, due to the existing condition of the area.

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Attachment A

Technical Approach

Environmental Setting

Definition of the Resource.

The visual resources of an area comprise the features of its landforms, vegetation, water surfaces and cultural modifications (physical changes caused by human activities) that give the landscape its visually aesthetic qualities. Landscape features, natural appearing or otherwise, form the overall impression of an area. This impression is referred to as "visual character." Visual character is studied as a point of reference to assess whether a given project would appear compatible with the established features of the setting or would contrast noticeably and unfavorably with them. Existing landforms, water surfaces, vegetation, and cultural modifications are treated as an established part of the setting if they reflect how the landscape was formed (i.e., ecological processes versus human activities), how it functions (i.e., as part of an urban versus agricultural context), and how it is structured ("patterns" of development, such as irrigated croplands versus natural mosaic of grasslands and woodlands).

Visual resources have a social setting, which includes public values, goals, awareness and concern regarding visual quality. This social setting is addressed as "visual sensitivity," the relative degree of public interest in visual resources and concern over adverse changes in the quality of that resource (U.S. Department of Interior, Bureau of Land Management [BLM], 1978; U.S. Department of Agriculture, Forest Service [U.S. Forest Service], 1977). As applied to visual impact analyses, sensitivity refers to public attitudes about specific views, or interrelated views, and is key in assessing how important a visual impact may be and whether or not it represents a significant impact.

Visual Sensitivity.

The assessment of visual sensitivity establishes the most important (critical) viewing positions early in the analytical process. The other attribute, visual character, is assessed only in relation to the important, potentially affected views. Visual impacts subsequently are evaluated in the context of the character of these views.

To assess visual sensitivity, indicators of public concern were identified and sensitivity rated accordingly. The indicators are listed in Table K-1 and reflect the concepts and methods of several federal agencies which treat sensitivity as a function of viewer activity, awareness, values, and goals (U.S. Forest Service, 1979a; U.S. Department of Agriculture - Soil Conservation Service [SCS], 1978; BLM, 1986; U.S. Department of Transportation, Federal Highway Administration [FHWA], 1980). Certain activities tend to heighten viewer awareness of scenic resources, while others tend to be distracting. People who are camping, picnicking, or driving for pleasure are more apt to notice the surrounding scenery than those commuting in heavy traffic or working at a construction site. Viewer awareness may also be heightened where areas are formally classified or otherwise designated as being of special interest, such as national historic monuments, national and state parks and forests, scenic routes and overlooks, visitor information centers, and wildlife refuges.

High visual sensitivity is assumed to exist where landscapes, particular views, or the visual characteristics of certain features are protected through policies, goals, objectives, and design controls in public planning documents. Visual significance is not always a function of aesthetic appeal. The public may confer visual significance on landscape components and areas that would otherwise appear unexceptional (FHWA, 1980). For example, unexceptional landscapes along tertiary roads may be particularly important to local residents (Kaplan, 1979) as undesignated open spaces. Other areas may have regional or national cultural significance, but not be especially scenic. Nonetheless, their visual character may be considered important to their cultural value (FHWA, 1980). The three levels of sensitivity are high, moderate, and low:

- ***High Sensitivity***. High sensitivity suggests that at least some part of the public is likely to react strongly to a threat to visual quality. Concern is expected to be great because the affected views are rare, unique, or in other ways are special to the region or locale. A highly concerned public is assumed to be more aware of any given level of adverse change and less tolerant than a public that has little concern. A small modification of the existing landscape may be visually distracting to a highly sensitive public and represent a substantial reduction in visual quality.
- ***Moderate Sensitivity***. Moderate sensitivity suggests that the public would probably voice some concern over visual impacts of moderate to high intensity. Often the affected views are secondary in importance or are similar to others commonly available to the public. Noticeably adverse changes would probably be tolerated if the essential character of the views remains dominant.
- ***Low Sensitivity***. Low sensitivity is considered to prevail where the public is expected to have little concern about changes in the landscape. Only a visual impact of the greatest intensity would be perceived as substantial (significant).
- ***No Sensitivity***. There is no sensitivity where the potentially affected views are not "public" (not accessible to the general public) or because there are no indications that the affected views are valued by the public.

Identification of Critical Viewing Positions.

Critical views are partly defined as those that are moderately to highly sensitive. The public is considered to have a substantial concern over adverse changes in the quality of such views. Criteria used to identify moderate to high sensitivity have been presented in Table K-1.

Critical views also are defined as being those public views that would be most affected by the subject action (e.g., the greatest intensity of impact due to viewer proximity to the project and project visibility, duration of the affected view, etc.). The approach to identifying critical viewing positions starts with an inventory of moderately to highly sensitive viewing positions in the project vicinity, using the referenced criteria. A review of literature and maps, and an inspection of the project site and the potentially affected environs, serves to identify those features and public use areas of cultural, historic, recreational, and aesthetic significance.

The range of sensitive views is then considered and several representative views in which the proposed facilities would be most noticeable are selected for detailed analysis. This decision is based primarily on proximity and degree of project exposure. Consideration is

also given to having the views be representative of the public experience; i.e., that they be from viewing positions frequently used by the public and readily located, based on the description and photographs presented in this report.

Visual Character.

As has been noted, visual character is assessed only relative to those moderately to highly sensitive views that may be affected by a proposed action. The visual character of the potentially affected landscape typically is described in terms of its landforms, vegetation, water features, and the "built" features of the environment. There are three objectives in assessing visual character:

- **Visual Resources**. The first is to identify the types of features considered both to be "visual resources," (i.e., features contributing to the positive visual quality of the potentially affected lands) and to be inherent to the area. It is usually obvious which features are visual resources and which are not. Rarely, features may be considered to be visual resources by the public yet have no demonstrable aesthetic appeal, as has been noted (Kaplan, 1979). For instance, local laws and regulations protecting certain views may indicate high sensitivity, even though the aggregate of features may possess no obvious positive visual qualities. Features are treated as inherent if they are expressive of the prevailing land uses, for instance, in an urban or rural area, or if they are among the physical features associated with the physiographic provinces in which a natural appearing landscape is located. The more defined the landscape is (i.e., totally natural appearing, purely residential, consistently rural), the more opportunity there is for introduced features not part of the prevailing character to noticeably contrast with those defining the landscape.
- **Patterns**. The second objective in assessing visual character is to identify patterns or the distribution of features that are characteristic of the affected setting. For instance, ecotones might define the distribution of vegetation in a natural setting. Architectural styles or density of housing might be defining attributes of a residential area.
- **Existing Visual Condition**. If the analysis of character identifies visual resources (an aggregate of features with visually aesthetic qualities), after identifying the characteristic patterns or distribution of the visual resource features, the analysis turns to the third objective for assessing visual character. This objective is to assess the one parameter of visual quality that may be adversely affected by a proposed action, its existing visual condition. The existing visual condition of the landscape is a measure of the degree to which past actions have noticeably changed the landscape in ways that appear inconsistent with the visual resources of the affected lands. Existing visual conditions serve as the baseline for evaluating the magnitude and intensity of potentially adverse changes in the landscape. They vary inversely with how noticeable incongruous features may be within current public views and are defined in terms of four Visual Modification Classes (VMC), defined in Table K-2. Landscapes where all features appear compatible with the inherent visual resources of the area are of the highest quality, while those where incompatible features dominate the scene are of the lowest quality. In some cases, the character of the potentially affected lands comprise features with no obvious aesthetic qualities (i.e., there are no "visual resources"). Here, although all features within view may appear compatible with one another, visual quality is low. A purely

industrial landscape is an example; there are no visual resources, visual quality is low, yet all features are compatible with the setting. For such lands, there is no potential for adverse visual impacts and an assessment of existing visual conditions is not informative.

Visual Impact Assessment

CEQA considers an effect to be a change in any of the physical conditions within the area affected by the project (State of California, 1970) but does not delineate specific criteria or thresholds for the significance of impacts. CEQA limits the guidance concerning the determination of significance to whether or not the effect is both adverse and substantial: a significant effect would be "...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including...objects of...aesthetic significance." (Section 15382, Article 20). Four specific issues of concern over substantial/significant visual impacts are listed in Appendix G of CEQA (Environmental Checklist) as follows:

- Substantial, adverse effects on a scenic vista.
- Substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway (sic).
- Substantial degradation of existing visual character or quality of a site and its surroundings.
- Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

No further guidance is provided. Apparently it is at the discretion of the investigator, or the agency responsible for the EIR, to determine criteria for what constitutes a "substantial" effect, damage, degradation, or new source of light or glare.

Definition of Visual Impacts.

This section presents definitions useful in understanding the methodology for identifying adverse visual impacts, their intensity, and their significance:

- **Visual Impact.** An "adverse change" in aesthetics/visual resources occurs when, relative to a public view:
    - An action will perceptibly <u>change</u> features of the physical environment so that they no longer appear to be characteristic of those inherent to the region and/or locale;
    - An action will <u>introduce</u> features to the physical environment that are perceptibly uncharacteristic of the region and/or locale; and/or
    - Visual access to the landscape, or the visibility of one or more valued features of the landscape, will be adversely affected (e.g., partially or totally blocked from view);

  (Features that are, or have become, uncharacteristic are those that appear out of place, discordant, or distracting.)

Visual impacts are further defined as follows:

- **Visual Impact Intensity**. The terms "intensity" and "magnitude" are used interchangeably. The magnitude—or intensity—of a visual impact is the degree to which existing visual conditions (the baseline for the analyses) would change as a result of project construction and operation. Visual Conditions are described in terms of Visual Modification Classes (Table K-2)

  Three levels of visual impact intensity may occur. Level 1 is a reduction in Visual Conditions by one Visual Modification Class (VMC) rating; Level 2 is a reduction by two VMC ratings; and Level 3 is a reduction by three VMC ratings.

- **Temporary Visual Impacts:** Those lasting for one year or less.

- **Short-Term Impacts:** Those lasting for more than one year but fewer than five years.

- **Long-Term Impacts:** Those lasting for five years or more.

- **Significant Visual Impact**

  The following definition augments the CEQA Guidelines for determining visual impacts to be significant. As noted, CEQA considers a significant effect to be "...a substantial, or potentially substantial, adverse change...." Accordingly, significant (substantial) changes (significant visual impacts) are defined as those occurring <u>for more than one year</u> and which result in:

  - An inconsistency with public laws, ordinances, regulations, plans, policies or objectives, or other directives concerning visual resources; and/or

  - A perceptible reduction of visual condition (quality). The perception that visual quality has been reduced is partly a function of the observable intensity of the impact. However, the context of social conditions, including public values, goals, awareness and concern regarding visual quality, influences the degree to which the public perceives a change in visual conditions as significant and reacts adversely to it. That context is referred to as Visual Sensitivity, as noted above. The influence of Visual Sensitivity on the perception that a change in visual conditions (Intensity) is substantial (significant) is described as follows:

    - <u>No Sensitivity</u>. Where there is demonstrably no public sensitivity, particularly where there are no public views of a project under consideration, it is assumed that there would be no adverse public response to visual impacts of even the greatest intensity.

    - <u>Low Sensitivity</u>. Where there is low sensitivity, it is assumed that at least a minority of the viewing public may have some concern over visual quality. This public would notice only the greatest change in visual conditions as a substantial (significant) reduction in visual quality (Intensity Level 3: a reduction by three Visual Modification Classes).

    - <u>Moderate Sensitivity</u>. Where there is moderate public sensitivity, a change of two or more Visual Modification Classes (to VMC 3, or 4) would be considered to be an adverse visual impact of substantial (significant) importance, and the public would be likely to react negatively to the change.

- High Sensitivity. Within a highly sensitive view, any change in visual conditions (a change of one or more Visual Modification Classes to VMC 2, 3, or 4) would be considered to be an adverse visual impact of substantial (significant) importance.

Table K-3 summarizes the relationship of impact intensity, sensitivity, and the perception that a reduction in visual conditions is substantial (significant).

Magnitude (Intensity) of Visual Impacts.

Instrumental in determining the magnitude of visual impact is the use of Visual Simulations. These are realistic computer-generated three-dimensional images of a proposed project that simulate project features in their context as they would be seen in critical views and under specific viewing conditions matching baseline photographs of the same views. These conditions include angle of view, distance, time of day, and ambient lighting and atmospheric perspective (the attenuation of details due to particulates or moisture). The computer imaging is generally restricted to features of the project, with the context being represented by a photograph. The image and photograph are then blended to realistically portray the project in its context.

Details about the camera used for the base photograph are recorded and later emulated by the computer program used for the simulation. Key information about the camera includes its location, tilt, bearing, lens focal length, time of the photograph, and exposure information. A Global Positioning System is used to identify the location and elevation of the camera lens in order to correlate the computer image with the photograph.

The camera data collected in the field is input into a computer program (3d Studio Max, an Autodesk product widely used for architectural visualization) that digitally replicates the three dimensional world at full scale. The computer simulation can vary in detail from a highly detailed architectural model of the project to a simple massing study lacking detail but representing the volume and dimensions of the project. Projects seen at a moderate distance, for instance, can be successfully simulated using a massing study because details cannot be discerned beyond a certain distance. A closer view would justify a more detailed simulation.

Confirmation of scale and position of the computer rendering is often accomplished by installing marker poles on site at points correlating with the project plan to provide registration points. The preliminary computer image will simulate the project and poles, and the image will be positioned and scaled until the simulated poles overlay exactly those appearing in the underlying base photograph. Aerial photographs and USGS maps are typically used to confirm locations and angles of view

The impression of the project can be represented under specific lighting and atmospheric conditions. For instance, the computer can simulate the effect of haze and backlighting (where the sun is behind the project) on color. The amount of haze is estimated by sampling shadow tones in the foreground and background, comparing the two, and arriving at a color and density for the atmospheric haze. Shadows and sun angle are derived from the latitude and time of day so they match what appears in the photograph. Using visual simulations, the magnitude of the impact may be estimated. The magnitude (noticeability) of the potential visual impacts is described in terms of the estimated future Visual Modification Class of the affected view. Several factors affecting the context of views are considered: viewer activity; primary viewing direction(s); viewing distance;

project exposure; duration of viewing; relationship of the subject view to the sequence available; the presence of existing features of competing visual interest; and established features tending to draw attention toward the project facilities (focal point sensitivity).

Significance of Visual Impacts

See the definition of significance at the start of this Section. The magnitude of the impact (Visual Modification Class) is compared to the sensitivity of the affected view to determine whether a perceptible reduction in visual quality is likely to occur. Table K-3 presents the relationship of magnitude and sensitivity to a perceptible reduction in visual quality. As noted, the perception of lowered visual quality is one of three criteria for significance; the other two are duration of the impact and its consistency with laws, ordinances, regulations, and standards applicable to the protection of visual resources. Note that a perceptible reduction in visual quality is not treated in this methodology as significant unless it is estimated to persist for more than one year. Also, an adverse visual impact may be significant if it is inconsistent with laws, ordinances, regulations, and standards (LORS), whether or not it meets the criteria in Table K-3; the impact, however, must be estimated to last more than one year.

TABLE K-1

INDICATORS OF VISUAL SENSITIVITY

HIGH SENSITIVITY

- Views of and from areas the aesthetic values of which are protected in laws, public regulations and policies, and public planning documents.
- Views of and from designated areas of aesthetic, recreational, cultural, or scientific interest, including national, state, county, and community parks, reserves, memorials, scenic roads and trails, interpretive sites of scientific value, scenic overlooks, recreation areas, designated open space, and historic structures, sites, and districts.
- Views of and from areas or sites of cultural/religious importance to Native Americans.
- Views from national or state-designated scenic highways or roads, or designated scenic highways or roads of regional importance.
- Views from resort areas.
- Views from urban residential subdivisions and segments of roads near them that serve as their primary access route.
- Views from segments of travel routes, such as roads, rail lines, pedestrian and equestrian trails, and bicycle paths, that are near designated areas of aesthetic, recreational, cultural, or scientific interest and which lead directly to them. Views seen while approaching an area of interest may be closely related to the appreciation of the aesthetic, cultural, scientific, or recreational significance of that destination.

MODERATE SENSITIVITY

- Views from segments of travel routes near highly sensitive use areas of interest serving as a secondary access route to those areas.
- Views from highways or roads locally designated as scenic routes and of importance only to the local population, or informally designated as such in literature, road maps and road atlases.
- Views from rural residential areas (groups of four or more homes) and segments of roads near them that serve as their primary access route.
- Views of, and from, undesignated but protected or popularly used or appreciated areas of aesthetic, recreational, cultural, or scientific significance at the local, county, or state level.
- Views from segments of travel routes, such as roads, trails, bicycle paths, and equestrian trails, that are near protected or popularly used undesignated areas important for their aesthetic, recreational, cultural, or scientific interest, and which lead directly to them.
- Views of and from religious facilities and cemeteries.

LOW SENSITIVITY

- Views from farmsteads, or groupings of fewer than four residences.
- Views from industrial (i.e., research, development, and manufacturing), commercial, and agricultural land areas.
- Views from travel routes serving as secondary access to moderately sensitive areas, or serving primarily commercial, industrial, or agricultural traffic.

TABLE K-2

VISUAL MODIFICATION CLASS DEFINITIONS

- **VM Class 1** - Not noticeable: changes in the landscape are within the field of view but generally would be overlooked by all but the most concerned and interested viewers; they generally would not be noticed unless pointed out (inconspicuous because of such factors as distance, screening, low contrast with context, or other features in view, including the adverse impacts of past activities).

- **VM Class 2** - Noticeable, visually subordinate: changes in the landscape would not be overlooked (noticeable to most without being pointed out), they may attract some attention but do not compete for it with other features in the field of view, including the adverse impacts of past activities. Such changes often are perceived as being in the background.

- **VM Class 3** - Distracting, visually co-dominant: changes in the landscape compete for attention with other features in view, including the adverse impacts of past activities (attention is drawn to the change about as frequently as to other features in the landscape).

- **VM Class 4** - Visually dominant, demands attention: changes in the landscape, are the focus of attention and tend to become the subject of the view; such chances often cause a lasting impression of the affected landscape.

TABLE K-3

RELATIONSHIP OF IMPACT INTENSITY AND VISUAL SENSITIVITY TO PUBLIC PERCEPTION OF AN EFFECT'S BEING A SUBSTANTIAL (SIGNIFICANT) ADVERSE IMPACT ON VISUAL QUALITY

		Visual Sensitivity[1]			
		High	**Moderate**	**Low**	**None**
Intensity of Impact[2]	**Level 1**	S[3]	N	N	N
	Level 2	S	S	N	N
	Level 3	S	S	S	N

1) **High Sensitivity (H):** The potential for public concern over adverse change in scenic/visual quality is great. Affected views are rare, unique, or in other ways are special and highly valued in the region or locale. Any perceptible change in visual conditions would be considered to be a significant lessening of visual quality.

Moderate Sensitivity (M): The potential for public concern over adverse change in scenic/visual quality is substantial. Affected views are secondary in importance or similar to views commonly found in the region or locale. A moderately to highly intense visual impact would be perceived as a significant lessening of visual quality.

Low Sensitivity (L): There is little evidence of public concern over, or interest in, scenic/ visual resource impacts on the affected area. Only the highest intensity of adverse change in the condition of aesthetics/visual resources would be noticed as a substantial (significant) impact on visual quality.

No Sensitivity (None): The views are not public, or there are no indications of public concern over, or interest in, scenic/visual resource impacts on the affected area.

2) **Intensity of Impact:**
- **(Level 1)** A reduction in Visual Condition by one Visual Modification Class rating (Table K-2)
- **(Level 2)** A reduction in Visual Condition by two Visual Modification Class ratings
- **(Level 3)** A reduction in Visual Condition by three Visual Modification Class ratings

3) **S:** Substantial (Significant) Reduction in Visual Quality
N: Less than Substantial (No Significant) Reduction in Visual Quality.

VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

FINAL ENVIRONMENTAL IMPACT REPORT

STATE CLEARINGHOUSE NUMBER: 2003031001

VOLUME II

City of Los Angeles
Bureau of Engineering
Department of Public Works
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December 2007

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VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

EXECUTIVE SUMMARY FINAL ENVIRONMENTAL IMPACT REPORT

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EXECUTIVE SUMMARY

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1.0 INTRODUCTION

1.1 PURPOSE OF THE EIR

An EIR is an informational document which will inform public agency decision-makers and the public generally of the significant environmental effects of a project, identify possible ways to minimize the significant effect and describe reasonable alternatives to the project[1] .

This EIR the evaluates the environmental impacts which could occur if the City of Los Angeles constructs and operates a new two-mile long, 54-inch diameter force main sewer pipeline from the existing Venice Pumping Plant (VPP) in the community of Venice to a junction structure on the Coastal Interceptor Sewer in the community of Playa Del Rey on Vista Del Mar near Waterview Street (the proposed Project). The new force main would supplement the existing 48-inch force main between the two locations. From the Coastal Interceptor Sewer, effluent would be carried through an existing line to the Hyperion Treatment Plant. The EIR provides mitigation measures to avoid or reduce the severity of the identified significant impacts. It considers alternatives to the project which could reduce environmental impacts while meeting the project objectives. The no project alternative is evaluated and the environmentally superior alternative is identified.

This Executive Summary briefly summarizes the Final EIR and describes areas of controversy and issues to be resolved by the decisionmakers including the choice among the project alternatives.

1.2 LEAD AGENCY AND DOCUMENT FORMAT

The City of Los Angeles is the lead agency for the EIR[2] and has supervised its preparation. The City of Los Angeles City Council has primary responsibility for the certification of the Final EIR and adoption and implementation of the proposed Project.

This EIR is organized into four volumes:

Volume I. Draft Environmental Impact Report
Volume II. Final Environmental Impact Report
Appendices Part One: A through E
Appendices Part Two: D through I

The EIR contains all of the components required by the CEQA Guidelines. These requirements and their location in the EIR are listed in Table 1.2-1. During the course of the EIR preparation, the City of Los Angeles' Department of Public Works consulted with affected agencies and organizations. Responses to the City's Notice of Preparation (NOP) are provided in Appendix A in the Draft EIR. Within the 45-day public review and comment period on the Draft EIR, the City conducted one public comment meeting

[1] Section 15121(a) of the State Guidelines for the implementation of the California Environmental Quality Act (CEQA) California Code of Regulations (CCR), Title 14, Division 6, Chapter 3 "Guidelines"
[2] Section 21067 of CEQA

(see Appendix J). Agency and public comments on the Draft EIR and the City's written responses to these comments are provided in the Final EIR, Section 11, Responses to Comments.

Table 1.2-1. Required Contents of an EIR – CEQA Guidelines

Required Analysis (CEQA Guidelines Section Number)	In Draft EIR
Table of Contents (Section 15122)	TOC
Summary (Section 15123)	1
Project Description (Section 15124)	2
Environmental Setting (Section 15125)	3 and 5
Environmental Impacts (Section 15126)	5
Significant Environmental Effects of Proposed Project [Section 15126.2(a)]	5
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Mitigation Measures Proposed to Minimize Significant Effects [Section 15126.4]	5
Alternatives to the Proposed Project [Section 15126.6]	4 and 6
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References, Persons Contacted and Preparers of the Draft EIR (Section 15129)	9 and 10
Cumulative Impacts (Section 15130)	5 and 7
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Comments and Recommendations on Draft EIR [Section 15132(b)]	11
List of persons, organizations, and public agencies commenting on the draft EIR [Section 15132(c)]	11
Lead Agency Responses to significant environmental points raised in the review and consultation process. [Section 15132(d)]	11

Technical studies were prepared to provide substantial evidence to support this EIR and are provided in the appendices to the Draft EIR. Appendix D, Biological Resources is reprinted in full in the Final EIR. Other technical reports and studies providing substantial evidence in support of the EIR and its appendices are listed in the Draft EIR, Section 10.0: References and Persons Contacted, and are available for public review at the City of Los Angeles' Bureau of Engineering, Department of Public Works at 1149 South Broadway, Los Angeles, 90015-2237.

1.3 FOCUS OF THE EIR

This is a "project" level EIR[3] for the construction and operation of the proposed new force main sewer. The EIR is focused on the expected environmental effects that may occur with the approval of and the subsequent implementation of the proposed force main sewer project: air quality, biological resources, circulation, traffic and transportation, cultural resources, geology, soils and seismicity, hazardous waste and materials, hydrology, water quality/stormwater runoff, land use plans, noise and vibration, public facilities and services, and visual and aesthetic resources. These issues were identified in the Initial Study prepared by the City of Los Angeles (included in Appendix A to the Draft EIR) and reconfirmed after considering the comments received on the Draft EIR. Fiscal issues and impacts are not addressed in the EIR as such analysis is not required by CEQA.

[3] Section 15180 of the CEQA Guidelines

1.4 INTENDED USE OF THE EIR

The City of Los Angeles City Council, as Lead Agency under CEQA, will consider the Final EIR and must certify it prior to considering approval of the Venice Force Main Sewer Project. Other state, regional, and local agencies will also use the Final EIR prior to their consideration of any subsequent discretionary approvals (see Section 1.6 below).

1.5 REVIEWING AGENCIES

The following agencies will review this Project:

- Los Angeles County (various departments);
- California Coastal Commission (CCC);
- California Department of Fish and Game (CDFG);
- Department of Conservation;
- Department of Parks and Recreation;
- Native American Heritage Commission;
- State Lands Commission;
- California Department of Transportation (Caltrans), District 7;
- National Marine Fisheries Service;
- United States Fish and Wildlife Service (USFWS);
- Regional Water Quality Control Board (RWQCB), Region 4;
- South Coast Air Quality Management District (SCAQMD);
- United States Army Corps of Engineers (USACOE); and
- Others as determined.

1.6 PERMITS AND APPROVAL REQUIREMENTS

Table 1.6-1 identifies the names of agencies responsible for review and approval of the proposed Project and the permits required. Others not listed may also apply:

Table 1.6-1. Permit Requirements

Agency	Permit/Requirement	Issues of Concern
Los Angeles County	▪ Geotechnical/Grading/Hauling Permits ▪ Dept. of Beaches and Harbors; Right-of-Entry Permit ▪ Right-of-Way (ROW)/Easements for construction and future maintenance and operations	▪ Impacts from dewatering, tunneling ▪ Staging areas and additional easement

Agency	Permit/Requirement	Issues of Concern
Regional Water Quality Control Board, Los Angeles Region	▪ National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Pollution Prevention Plan (SWPPP) Permit ▪ 401C Section Certification	Water Quality and placement of discharges associated with dewatering activities. No permit required for discharges to sewer. General Permit saves time with RWQCB.
United States Defense Department, Army Corps of Engineers	Section 10 or Section 404 Permit required if excavated material discharged to waters and construction permit.	▪ Location, placement and depth of pipeline ▪ Obstruction of navigation or other channel activities ▪ Channel safety ▪ Impacts to wildlife ▪ Dredging/filling activities
California Department of Fish and Game	1600 et seq. (Streambed Alteration)	Impacts to fish habitat
California Coastal Commission	Coastal Development Permit	▪ Obstruction of recreation and beachfront facilities ▪ Impacts to animal species and habitat ▪ Impacts to parking and traffic
California State Lands Commission	Possible lease requirement	Verification of jurisdiction
National Marine Fisheries Service	Consultation notification	Impacts to aquatic and marine life
California Department of Conservation, Division of Oil, Gas and Geothermal Resources	A construction notification form should be submitted to the Division prior to any activity.	Project is inside administrative bounds of the Playa Del Rey Oil Field containing numerous plugged and abandoned oil wells
State of California Department of Health Services	Project Review for compliance with Title 22, Section 64630 (Conducted through County Environmental Services Division)	Separation of water and sewer mains
United States Fish and Wildlife Service	Notification	Impacts to habitat (i.e., least tern)

Source: URS Corporation

1.7 RELATED PROJECTS

This EIR evaluates the cumulative impacts of the proposed Project. "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts[4]. Cumulative impacts may be analyzed by considering a list of past, present, and probable future projects producing related or cumulative impacts[5]. Table 1.7-1 provides a list of related projects in the City and County of Los Angeles within an approximate 2-mile radius of the project site at the time of the Notice of Preparation of the EIR. The list includes 15 projects of various land uses, including residential, retail, general commercial, and mixed uses.

Table 1.7-1. Related Projects

Project No.	Jurisdiction	Location	Type of Project	Status
1	County of Los Angeles	Bora Bora Way	120 D.U.s; Net decrease of 271 slips; Demolish 4 KSF offices	10/18/2000 (approval date)

[4] CEQA Guidelines Section 15355
[5] CEQA Guidelines Section 15130(b)(1)(A).

Project No.	Jurisdiction	Location	Type of Project	Status
2	County of Los Angeles	Tahiti Way	Remodel existing apartments (no increase in D.U.s)	10/18/2000 (approval date)
3	County of Los Angeles	Marquesas Way	Net increase of 282 D.U.s; 354 senior apartments; Net decrease of 3.6 KSF retail; Net decrease. of 237 slips	12/6/2000 (approval date)
4	County of Los Angeles	Panay Way	68 D.U.s; 60 Congregate Care units	6/13/1996 (approval date)
5	County of Los Angeles	Panay Way	Net increase of 250 D.U.s; 47 senior apartments; Net decrease of 41 slips; Demolish 4.4 KSF restaurant	12/6/2000 (approval date)
6	County of Los Angeles	Panay Way	99 D.U.s; Net increase of 4.94 KSF Yacht Club; 2.3 KSF Office; Transfer of 97 D.U.s from DZ1 to DZ4	10/2/2000 (approval date)
7	County of Los Angeles	Palawan Way/ Beach Ave	450 s.f. net retail increase	6/25/2003 (approval date)
8	County of Los Angeles	Palawan Way/ Beach Ave	Net increase of 115 D.U.s	12/10/2003 (approval date)
9	County of Los Angeles	Admiralty Way	Library expansion – 2,454 S.F.	3/5/1997 (approval date)
10	County of Los Angeles	Mindanao Way	4.7 KSF retail increase	To Be Announced (TBA)
11	County of Los Angeles	Via Marina	11.4 KSF net retail increase, 288 restaurant seats, 1.3 KSF reduction in office	6/16/2004 (approval date)
12	County of Los Angeles	Marina Del Rey Tide Gates	Tide Gate Rehabilitation	11/2007 (permits pending)
13	County of Los Angeles	Hotel at Via Marina	TBA	TBA
14	City of Los Angeles	Grand Canal	Gates at Washington Street	TBA
15	City of Los Angeles	Grand Canal	Between Driftwood Street and Hurricane Street Temporary VPP bypass pipeline for sluice gate replacement in VPP	11/2007 (permits pending)

Sources: City of Los Angeles Planning Department; County of Los Angeles Department of Regional Planning, Bureau of Engineering and Los Angeles County Department of Public Works.

1.8 AREAS OF PUBLIC CONCERN OR KNOWN CONTROVERSY

A community meeting was held on May 31, 2005, at the Westchester Community Center, to discuss the scope of the Draft EIR. The scoping meeting participants were introduced to the EIR process and the proposed Project and were invited to provide information and/or comments regarding potential impacts to the environment resulting from construction of the proposed Project (see Appendix J, Public Participation). During the preparation of the Draft EIR, the City of Los Angeles considered the comments received in response to the Notice of Preparation and during the public meeting. The Draft EIR was released for a 45-day public review period on February 1, 2006 and a public comment meeting was conducted on February 23, 2006. The public comment period closed on March 17, 2006. Substantive comments received on the Draft EIR along with written responses are provided in the Final EIR, Section 11, Responses to Comments.

The primary issues and areas of concern identified by the public regarding the proposed Project, which are addressed in the EIR, are:

- Noise impacts during project construction;
- Limited on-street parking availability during construction;
- Aesthetic and visual impacts during construction;
- Air quality impacts during construction;
- Possible impacts to the Least Tern and other wildlife during and after construction;
- Potential impacts to recreational facilities and public events on the beachfront;
- Staging and operation of construction equipment on existing bike paths, walking trails and bridges;
- Impacts to water quality in both the Marina Del Rey Channel and Ballona Creek Channel;
- Impacts to traffic circulation and emergency access during construction;
- Impacts to residential access to and from housing during construction; and
- Impacts to structural foundations resulting from construction-related activities.

1.9 EIR PARTICIPANTS AND PUBLIC REVIEW

This EIR has been prepared in conformance with the local and state CEQA Guidelines, as amended. URS Corporation provided environmental consultation services to the City for the EIR. The City of Los Angeles proposed responses to agency comments on the Draft EIR are being provided to public agencies and private organizations prior to City of Los Angeles consideration of certification of the Final EIR and project approval.

The City of Los Angeles circulated an NOP for this EIR to responsible agencies on May 2, 2005, to solicit comments on issues relevant to their agency or jurisdiction, and for subsequent consideration of the proposed Project. The City considered all comments received during the scoping period in the preparation of the Draft EIR. The Notice of Availability of the Draft EIR was issued on February 1, 2006 [see Final EIR Appendix J, Public Outreach]. The Draft EIR was made available for a 45-day public review period ending on March 17, 2006. The document was made available to the public at the City of Los Angeles Bureau of Engineering, Environmental Management Division and at the City of Los Angeles Central Library, Venice Branch Library, Westchester Library, and Playa Vista Public Library. The City conducted one public community meeting on the Draft EIR February 23, 2006 at the Westchester Municipal Building in Westchester, CA. The City provided written responses to all comments received on the Draft EIR in the Final EIR (see Final EIR, Section 11.0, Responses to Comments).

1.10 PROJECT LOCATION

The proposed project is in the City of Los Angeles in the communities of Venice and Playa Del Rey (see Figure ES-1, Regional Project Location Map). The City of Los Angeles is proposing to construct and operate a new force main sewer extending from the existing Venice Pumping Plant at 140 Hurricane Street and the westerly bank of the Grand Canal and the northerly bank of the Ballona Lagoon in the community of Venice, and extends southerly under both the Grand Canal and Ballona Creek, to a junction

REGIONAL PROJECT LOCATION MAP

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-1

The project's intent is to construct a second force main sewer (54-inch diameter) to be used in tandem with the existing force main sewer. The City's three key project objectives include 1) Sewage Conveyance Capacity, 2) Pipeline Redundancy, and 3) Ability to Perform Maintenance. These are summarized below.

Sewage Conveyance Capacity

The Venice Pumping Plant is the largest pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City through an existing 48-inch pipeline and transports it to the Hyperion Treatment Plant in Playa Del Rey (see Figure ES-2). Over the years, the existing pipeline has gradually approached maximum capacity placing substantial strain on the system forcing the water level in the wet-well of the Venice Pumping Plant basement to rise.

The City of Los Angeles first identified the need for additional sewer capacity during the heavy storms of 1995 when sewage and infiltrated stormwater in the sewage system exceeded the capacity of the existing 48-inch line, creating a potentially serious human and environmental health risk. Although the pumping plant had all five pumps running during peak rainfall, the existing downstream sewer force main that runs along the beach could only handle approximately 60 percent of the flows that would otherwise run through the pumps – the pipeline was serving as a bottleneck in the system. The amount of sewage and infiltrated stormwater in the sewage system exceeded its capacity, forcing the water level in the wet-well of the Venice Pumping Plant to rise. In an effort to prevent potential sewage spillage as a result of an overload situation, the City proposes to install an additional 54-inch pipeline to convey the sewage and infiltrated stormwater flows. The new force main would be used in tandem with the existing force main; together, the two force mains would provide the necessary capacity to meet current and future peak wet weather flow demands.

Pipeline Redundancy

The new force main would provide force main redundancy in the case where either one of the pipelines was taken out of service for any reason. This redundancy is not provided by the current single force main pipeline. The installation of the proposed 54-inch force main bypass capability would also allow repair and maintenance of the existing pipeline as described below.

Ability to Perform Maintenance

The existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. Development of the new 53-inch would allow the first opportunity for rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods. One of the two force mains would be taken out of service for maintenance while the second force main would continue to convey sewage wastewater to the Hyperion Treatment Plant.

2.0 PROPOSED PROJECT AND ALTERNATIVES

The Initial Study for the proposed Project determined that the Project would not result in significant effects to the environment during the operations phase of the project. Temporary significant impacts resulting from the Project would be directly related to construction activities. This EIR considers a range of reasonable alternatives that would meet the project objectives and would also avoid or substantially reduce the significant effects of the proposed Project.

The EIR considers four (4) route alignment alternatives, and three (3) alterative construction methods in order to balance their ability to meet the project objectives and avoid or substantially reduce the significant environmental impacts of the proposed Project. The No Project Alternative is also evaluated in the EIR.

2.1 ROUTE ALIGNMENT ALTERNATIVES

The EIR considers three primary alternative pipeline route alignments between the Venice Pumping Plant and the Coastal Interceptor Sewer in the community of Playa Del Rey (see Figure ES-2, Alignment Alternatives):

- Via Marina / Pacific Avenue
- Pacific Avenue
- Dockweiler Beach

Via Marina/Pacific Avenue

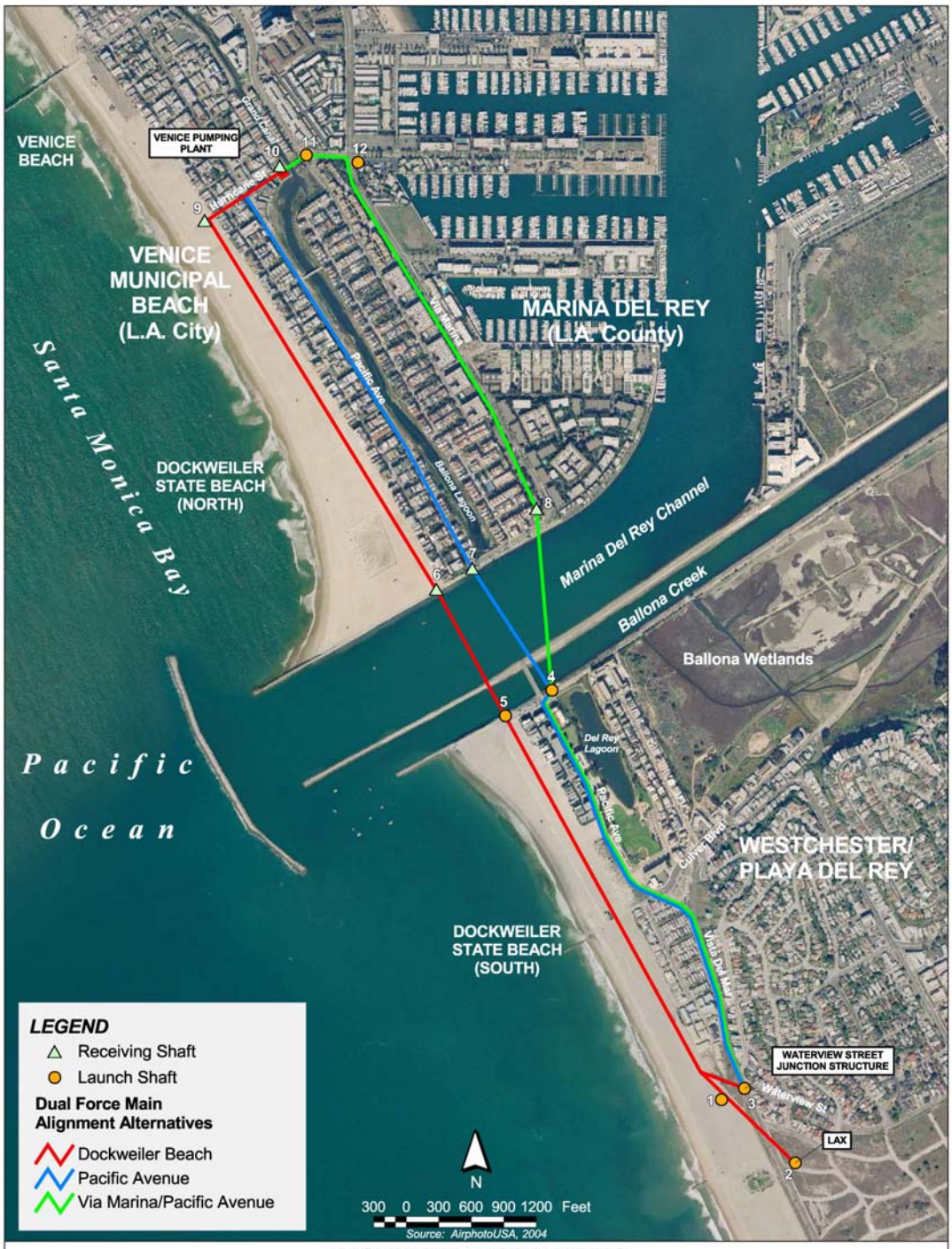
From the existing Venice Pumping Plant on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina to the Marina Del Rey entrance channel. The route crosses the channel to Pacific Avenue. From there, the alignment continues south along Pacific Avenue to Vista Del Mar to the Coastal Intercept Sewer junction connection near Waterview Street. This alignment is about 10,400 feet long.

Pacific Avenue Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to Pacific Avenue, then turn southeast and proceed along Pacific Avenue, cross under the Marina Del Rey and Ballona Creek channels, and continue southeast within Pacific Avenue and Vista Del Mar to the junction structure under Vista Del Mar near Waterview Street.

Dockweiler Beach Alignment

From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point, the line runs easterly to the junction structure under Vista Del Mar near Waterview



ALIGNMENT ALTERNATIVES

URS	Project No.: 29870322	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-2

Street. If the mined large-diameter tunnel construction method is used, the construction shaft and staging area could be on the Los Angeles Airport property (LAX) slightly further to the southeast.

CHANNEL CROSSING

As noted above each of the alignments under consideration crosses the Marina entrance channel and Ballona Creek and would require approximately 1,800 feet of tunneling under the two channels.

SHAFTS AND LAYDOWN AREAS

Boring and tunneling operations and pipeline staging and laydown areas would also be required. Boring shaft locations along the three alternative routes (that is, locations where construction equipment would be used on the surface and visible during the construction of the particular alignment) may be located at any of the numbered locations shown on Figure ES-2).

2.2 CONSTRUCTION METHODS

The City's project objectives can be achieved by using one or more of three construction methods considered in this EIR. These are:

(1) Cut-and-cover,

(2) Small-Diameter Micro-tunneling ("Boring"), and

(3) Large-diameter ("Mined") tunneling.

CUT-AND-COVER CONSTRUCTION METHOD

URS	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-3

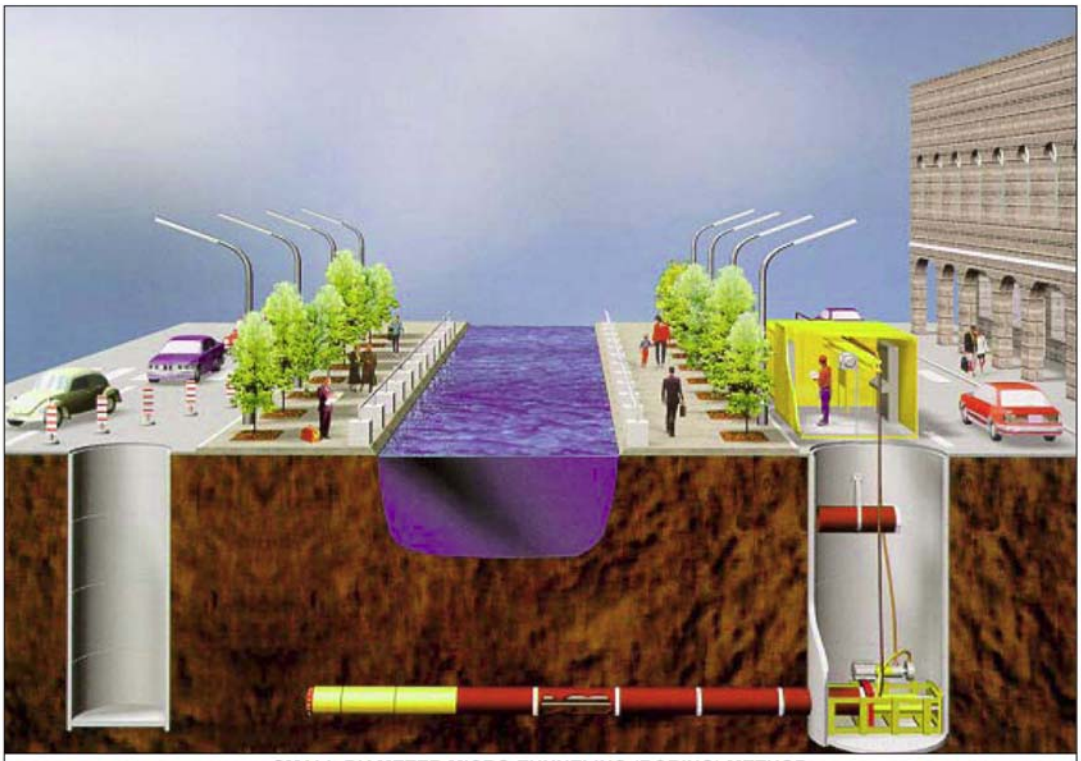
Each method could provide both benefits and issues of concern for the project. A combination of construction methods could be used for each of the alternative routes described in Section 2.1 above. The construction methods are described below.

2.2.1 Cut-and-Cover Construction

Cut-and-cover construction is a very common method of linear pipeline construction (see Figure ES-3, Cut-and-Cover Construction Method). The contractor would not work in all areas of the pipeline corridor at the same time, but would open relatively short segments of the corridor (about 1,000 feet), install the pipeline, and proceed with back-filling, finishing and restoring the segments. Underground utilities that conflict with the surface trenched construction would be temporarily relocated as necessary. With this approach, major construction activities could be limited to within the relatively short corridor segments. During the preparation of this EIR, the cut-and-cover method of construction was considered and determined to be not viable for the Dockweiler Beach Alignment because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes.

2.2.2 Small-Diameter Micro-Tunneling (Boring)

Boring is a trenchless construction method, which uses hydraulic jacks located in surface pits to drive pipes through the ground behind a remotely operated Tunnel Boring Machine (TBM) (see Figure ES-4,



SMALL-DIAMETER MICRO-TUNNELING (BORING) METHOD

URS	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-4

Small-Diameter Micro-Tunneling (Boring) Method). Drive lengths are generally limited to about 1,000 feet, depending upon ground conditions and pipe size; but intermediate jacking stations can be used to extend the drive length. Unlike conventional cut-and-cover trenching techniques that require excavation for the entire length of pipeline as described in Section 2.2.1 above, excavation for micro-tunneling is limited to the endpoints of each drive within designated launching (jacking) and receiving pits. The launching pit contains the hydraulic jacks used to push the pipes, and the receiving pit is used to recover the TBM at the end of each drive. Tunneling can proceed intermittently; although, it is often necessary to proceed continuously, particularly on long drives through sticky soils, to prevent the pipe from getting stuck short of the receiving pit. Tunnel advance rates are typically between 30 and 50 feet per 8-hour work shift, depending on soil conditions and pipe size.

2.2.3 Large-Diameter (Mined) Tunneling

In contrast to small-diameter micro-tunnels, which are constructed by remote-controlled TBMs and pipe-jacking, large-diameter tunnels (i.e., minimum excavated diameter = 10 to 12 feet) can be constructed with staffed TBMs) (see Figure ES-5, Large Diameter (Mined) Tunnel Method). In addition to the difference in tunnel diameter, the most important difference between these larger TBMs and the micro-tunneling machines discussed in Section 2.2.2 above is that the concrete tunnel liner is erected in segments immediately behind the TBM. This type of tunnel liner does not need to be continuously pushed (jacked) forward, and there is no length limitation due to frictional resistance building up with increasing tunnel length. For tunneling below the groundwater level without the need for dewatering, pressurized-face TBMs are used to stabilize the tunnel face and prevent the water from entering the TBM.

LARGE-DIAMETER (MINED) TUNNEL METHOD

URS	Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR	Figure ES-5

3.0 ENVIRONMENTAL IMPACT ANALYSIS

As stated above, the Initial Study for the proposed project concluded that there would be no significant environmental impacts during the operations phase of the project. All potential significant impacts would be associated with the construction phase of the project. The summary environmental impact analysis below addresses the alternative route alignments and alternative construction methods. The environmental effects of the No Project Alternative are summarized. The Environmentally Superior Alternative is also identified.

3.1 SUMMARY OF PROJECT ALTERNATIVES

The potential project alternatives analyzed in the EIR are briefly described in Sections 3.1.1 and 3.1.2 below. The summary of the comparative environmental analysis follows Section 3.2 below.

3.1.1 New Force Main Sewer Line Alternatives

A new force main would provide redundancy to the existing sewer, allowing for adequate conveyance from the Venice Pumping Plant to the Hyperion Treatment Plant in Playa Del Rey, and would provide the ability to periodically shut-down and conduct maintenance on the existing 48-inch force main.

- Micro-tunneling could be used along the Dockweiler Beach alignment, Via Marina/ Pacific Avenue alignment and the Pacific Avenue Alignment (see Figure ES-2 Alignment Alternatives).

- The cut-and-cover/micro-tunneling method of construction may be used for the Via Marina/ Pacific Avenue alignment and the Pacific Avenue Alignment. Each cut-and-cover alignment also involves micro-tunneling under the Marina Del Rey Channel and includes shafts on either side of the channel for the purpose entering and/or exiting the tunnel as required to install the sewer pipe under the channel. Note that cut-and-cover construction was considered for the beachfront alignment initially, but deemed to be not viable because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes.

- The Large-diameter tunneling method could be used for the Dockweiler Beach alignments. Under this alignment option, the large tunnel could terminate either on the beach west of the Waterview Street Junction Structure or at Los Angeles Airport (see Figure ES-2). From these large tunnel termination points, cut-and-cover or boring would be used to tie-in to the junction structure.

Table 3.1, Project Alternative Impact Areas, lists the project areas (streets) subject to environmental impact during project construction. The numbers in the table refer to the associated shaft locations for tunneling construction along each route depicted on Figure ES-2, Alignment Alternatives.

Table 3.1-1. Project Alternative Impact Areas

Cut and Cover Alternatives	Impact Areas/ Associated Shaft Locations
• Via Marina/ Pacific Avenue	Marquesas Way, Via Marina Way, Pacific Ave., Vista del Mar, and Sites10, 11, 12, 8, 4, 3
• Pacific Avenue	Hurricane Street, Pacific Ave, Vista del Mar, and Sites 10, 7, 4, 3

Micro Tunnel Alternatives	Impact Areas/ Associated Shaft Locations
• Dockweiler Beach Alignment	Sites 10, 9, 6, 5, 3
• Via Marina/ Pacific Avenue	Sites 10, 11, 12, 8, 4, 3
• Pacific Avenue	Sites 10, 7, 4, 3

Large Diameter Alternatives	Impact Areas/ Associated Shaft Locations
• Beach Alignment	Sites 10, 2, and Beach Alignment
• Beach Alignment (with cut and cover ends)	Hurricane Street, Site 9, Beach Alignment, Site 1
• Inland Alignment	Sites 10, 2, and Inland Alignment

The EIR provides sufficient analysis of the project alternatives to determine which of the alternatives would meet the City's objectives while substantially avoiding or reducing significant environmental impacts. The Lead Agency is not required to select the environmentally superior alternative identified in this EIR but must provide findings of fact explaining its decision not to select this alternative.

3.1.2 No Project Alternative

Under this alternative, no new sewer force main would be constructed and the existing sewer system would continue to operate in its current configuration.

The No Project alternative could result in potentially significant adverse effects to the environment due to the lack of conveyance capacity of the existing 48-inch sewer force main downstream of the Venice Pumping Plant and the current inability to perform regularly scheduled maintenance on this pipeline. If inflows to the Venice Pumping Plant exceed the capacity of the force main leaving the plant, an overflow of untreated wastewater into the Ballona Lagoon and other areas in the vicinity of the Venice Pumping Plant Force Main corridor could result, causing significant harm to the environment.

3.2 SUMMARY ENVIRONMENTAL IMPACT ANALYSIS

3.2.1 Comparative Impact Analysis

The environmental impacts of each alternative project configuration are summarized in Table 3.3-1. The alternatives are listed in the row along the top of the table. The first column on the left hand side of the table identifies each impact category. A text summary of each alternative's environmental impacts follows the table.

Table 3.3-1. Environmental Impacts Summary Table

Impact	Cut-and-Cover		Small-Diameter Micro-Tunneling (Boring)			Large-Diameter Tunneling (Mined)		
	Pacific	Via Marina	Beach	Pacific	Via Marina	Beach	Beach w/ cut & cover ends	Pacific
Air Quality	Significant Short-term	Significant Short-term	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant
Biological Resources	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity; Temporary risk to Least Tern	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity	Secondary impact if construction causes turbidity
Parking	Temporary loss of 55 parking spaces	Temporary loss of 52 parking spaces	Temporary loss of 27 parking spaces	Temporary loss of 55 parking spaces	Temporary loss of 52 parking spaces	none	Temporary loss of 37 parking spaces	none
Circulation	Temporary impact to 4 street segments	Temporary impact to 3 street segments	none	Temporary impact to 4 street segments	Temporary impact to 3 street segments	Temporary impact to 1 street segment	Temporary impact to 2 intersections & 1 street segment	Temporary impact to 1 intersection
Cultural Resources	Not Significant with mitigation	Not Significant with mitigation	none	Not Significant with mitigation	Not Significant with mitigation	none	none	none
Paleontological Resources	Not Significant with mitigation	Not Significant with mitigation		Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation
Geology, Soils	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation	Not Significant with mitigation
Seismicity/liquifaction	Significant	Significant	Significant	Significant	Significant	Significant	Significant	Significant
Subsidence	Risk from dewatering	Risk from dewatering	If dewatering	If dewatering	If dewatering	If dewatering	If dewatering	If dewatering
Nearby Oil/Gas Wells	14 wells	12 wells	41 wells	14 wells	12 wells	41 wells	41 wells	14 wells
Nearby contamination	5 sites	2 sites	2 sites	5 sites	2 sites	2 sites	2 sites	5 sites
Hydrology, Water Quality / Stormwater Runoff	Dewatering Required	Dewatering Required	Dewatering not required	Dewatering not required	Dewatering not required	Dewatering not required	Dewatering not required	Dewatering not required
Land Use Plans	no effect	no effect	no effect	no effect	no effect	no effect	no effect	no effect
Noise And Vibration Disturbance Factor[6]	120	82	21	17	40	3	21	7
Public Facilities & Services	Temporary impacts to: Ballona Creek & Dockweiler Beach Bike Path, Del Rey Lagoon Park parking, Napoleon Street foot path	Temporary impacts to: Esplanade East access, parking at Marquesas Way and Via Marina, Via Marina scenic highway, Aubrey E. Austin Park, Marina Channel viewpoint, Parking, Ballona Creek & Dockweiler Beach Bike Path,	Temporary impacts to: Beach access & use, Napoleon Street foot path	Temporary impacts to: Ballona Creek & Dockweiler Beach Bike Path, Del Rey Lagoon Park parking, Napoleon Street foot path	Temporary impacts to: Esplanade East access, parking at Marquesas Way and Via Marina, Via Marina scenic highway, Aubrey E. Austin Park, Marina Channel viewpoint, Parking, Ballona Creek & Dockweiler Beach Bike Path,	Temporary impacts to: Napoleon Street foot path	Temporary impacts to: Beach access & use, Napoleon Street foot path	Temporary impacts to: Napoleon Street foot path

[6] Approximation of relative amount of disturbance to residents computed as the sum of the number of addresses within 200 feet of construction multiplied by the duration of the activity at that location.

Impact	Cut-and-Cover		Small-Diameter Micro-Tunneling (Boring)			Large-Diameter Tunneling (Mined)		
	Pacific	Via Marina	Beach	Pacific	Via Marina	Beach	Beach w/ cut & cover ends	Pacific
		Del Rey Lagoon Park parking, Napoleon Street foot path			Del Rey Lagoon Park parking, Napoleon Street foot path			
Degrade existing visual character	Significant but temporary from Construction activities	Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities	Significant but temporary from Construction activities	Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities	Significant but temporary from Construction activities	Significant but temporary from Construction activities
Impact scenic vista	Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities; Significant long term from loss of mature trees		Significant but temporary from Construction activities; Significant long term from loss of mature trees	Significant but temporary from Construction activities; Significant long term from loss of mature trees	none	Significant but temporary from Construction activities	none
Damage scenic resource	not significant	Significant long term from loss of mature trees		not significant	Significant but temporary from Construction activities; Significant long term from loss of mature trees	none	Significant but temporary from Construction activities	none
Add light or glare	none	none		none	none	none	none	none
Shade/shadow	none	none		none	none	none	none	none
Inconsistent with regulations	Significant temporary from construction in Scenic Hwy	Significant temporary from construction in Scenic Hwy		Significant temporary from construction in Scenic Hwy	Significant temporary from construction in Scenic Hwy	Significant temporary	Significant temporary	Significant temporary

MARQUESAS WAY/VIA MARINA WAY SEGMENT OF THE VIA MARINA ALIGNMENT

This alignment and the channel micro-tunnel launching and receptor shafts associated with it are subject to impacts associated with construction staging of equipment, parking and related traffic throughout the 18- to 24-month duration of construction along Hurricane Street, Marquesas Way and Via Marina Way respectively. This alternative is within a designated segment of a scenic highway requiring the preservation of scenic views, which would be infeasible resulting in a significant and unavoidable impact from construction activities during the tourist season. Unavoidable impacts to parking and pedestrian traffic would result from micro-tunnel activities on each side of the Grand Canal at the junction with Hurricane Street and in the empty lot between residential housing west of Marquesas Way and leading to the sidewalk next to the Grand Canal.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities, although this alignment is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

HURRICANE STREET/PACIFIC AVENUE SEGMENT OF THE PACIFIC AVENUE ALIGNMENT

Impacts from this alternative would result from construction-related activities associated with cut-and-cover construction along Hurricane Street and Pacific Avenue and at a micro-tunnel receptor shaft at Pacific Avenue near Via Marina Way, and at a launching shaft located on the south side of the channel on the east side of the Pacific Avenue pedestrian bridge. This alternative would cause significant unavoidable impacts to visual aesthetics of the vicinity and parking and traffic impacts to residents and tourists, who live and visit the area. Access to parks and parking facilities for Dockweiler Beach, the pedestrian bridge and public parking facilities at Pacific Avenue on the south side of the channel would be reduced as a result of construction-related staging, vehicles and mobile equipment for a period of 18 to 24 months. Noise impacts associated with the proximity of construction-related equipment to residents and visual impacts due to equipment staging are also anticipated.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This alternative is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

HURRICANE STREET/DOCKWEILER BEACH SEGMENT OF THE BEACH ALIGNMENT

The cut-and-cover method of construction for this beach alignment has been considered, but deemed not viable; however, deep mined-tunneling construction alternatives are also considered for the beachfront. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersection of Dockweiler Beach and Hurricane Street would result in noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Construction activities may result in temporary effects on least terns (see Appendix D, Biological Technical Report). Temporary impacts to water quality and marine resources could occur through the

unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. This alternative is not likely to result in a long-term reduction in water quality or the loss of individuals or habitat.

DOCKWEILER BEACH ALIGNMENT

This southern extension of Dockweiler Beach alternative is located along the beach of the south side of the Via Marina Channel. The cut-and-cover method of construction for this alignment has also been considered, but deemed not viable; however, deep-mined tunneling construction alternatives are also proposed for the beachfront and are described in Section 4.0. Impacts at the launching shaft in Vista Del Mar would mostly impact traffic, and the receptor shaft at the intersection of Dockweiler Beach and Hurricane Street would impose noise, surface vibration, and increased human disturbance, as well as potentially attracting predators to the least tern nesting site (i.e., crows) located on Dockweiler Beach just north of the channel entrance and the west end of Via Marina Way. Visual impacts associated with potential construction equipment and activities methane venting.

PACIFIC AVENUE/VISTA DEL MAR SEGMENT OF THE VIA MARINA AND PACIFIC AVENUE ALIGNMENTS

This is the southern extension of both the Pacific Avenue alternative and the Via Marina alternative, located on the south side of the Marina del Rey and Ballona Creek channels. Construction along Vista del Mar, a scenic highway, would have temporarily visual/aesthetic impacts. Monitoring during the course of construction would be required to mitigate the potential for impacts to historic/cultural/paleontological resources as described in the Cultural Resource section (Section 5.5) of this EIR. No permanent impacts on least tern foraging habitat (Marina Del Rey Channel, Ballona Creek, and Grand Canal) in the Project area are expected.

Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the channel as a result of micro-tunnel activities. Although this alternative is unlikely to result in a long-term reduction in water quality or the loss of individuals or habitat.

LARGE-DIAMETER (MINED) TUNNEL ALTERNATIVES

Each starter shaft and receptor shaft for the deep mined-tunnel construction alternatives have their own numeric identifier, shown on Figure ES-2. Construction impacts would be as described above and summarized in Table 3.3-1.

3.2.2 Growth-Inducing Impacts

Growth-inducing impacts are secondary, or indirect, impacts that could occur as a result of the project that are manifested as changes in land use patterns, population density and growth rates; and related effects on traffic, public services, air, water, biological and other environmental resources[7].

[7] Section 15126.2(d) of the CEQA Guidelines

The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. As summarized below and more fully discussed in Section 7.0 of the Draft EIR, no significant growth-inducing impacts are associated with the proposed Project. This section of the Executive Summary addresses the role that wastewater conveyance capacity plays in the growth of the region. The primary types of growth that occur in the City and vicinity are land use development and population. Because these types of growth are distinct, and interrelated, this section examines the relationship of sewer conveyance capacity with each type of growth.

LAND USE DEVELOPMENT AND WASTEWATER CONVEYANCE

The development of land in the City is governed by General Plan and Zoning land use designations of particular parcels. Zoning implements the land use policies contained in the General Plan and is consistent with the General Plan. Unless conditional use permits or density transfers are obtained from the Planning Department, development must conform to the use type and density designated for that parcel. The decision of a land owner to develop a single parcel or numerous parcels of land may be based on personal or economic reasons. Whether personal, economic, or both, the availability of wastewater conveyance capacity is not likely to be a consideration in the decision to develop. Once the decision to develop a parcel has been made, permission to connect to the wastewater collection system must be obtained as part of the building permit process. A sewer connection permit can only be obtained if adequate capacity to serve the proposed development is available. Sewer connection and other building permit fees are charged in proportion to the density of development proposed. The high sewer connection fees and other building permit fees associated with the most intensive levels of development increase the costs of developing land in the City and can be considered economic disincentives to development.

In a mature urbanized area such as Los Angeles with sufficient wastewater treatment capacity, the provision of wastewater conveyance capacity would not induce land development that would not otherwise occur.

POPULATION GROWTH AND WASTEWATER CAPACITY

Population within southern California and the City of Los Angeles is anticipated to grow significantly over the next 20 years and further into the future. The projected increase in population will come from two sources, natural increases and in-migration. SCAG predicts that approximately 60 percent of projected future population growth would occur from natural causes (births minus deaths) and 40 percent would come from the in-migration of people from other areas.

Wastewater conveyance capacity is required to accommodate the increases in wastewater flows associated with the population increases. The provision of wastewater conveyance capacity will not induce either natural population growth or in-migration. SCAG has established the policy that conveyance systems, including interceptors, are not subject to its air quality conformity procedures, because of the absence of effects on population growth.

GROWTH MANAGEMENT IN LOS ANGELES

The Southern California Association of Governments, which includes the City of Los Angeles among its member jurisdiction, has prepared the Regional Comprehensive Plan and Guide and the Growth

Management Plan. These plans address regional growth and related issues. In addition, the City of Los Angeles' General Plan governs land use development within its jurisdiction.

The Regional Comprehensive Plan and Guide (March 1996) serves as a comprehensive overview of the issues and opportunities facing the region. This plan consists of three sections, core chapters, ancillary chapters, and bridge chapters. Core chapters include plans such as the Growth Management Plan, the Regional Mobility Plan, Air Quality Plan, and other documents that SCAG is required to produce (by federal and/or state mandates). Ancillary chapters address such issues as the economy, housing, and reflect other plans but serve only an advisory purpose for member governments. Bridge chapters link the core and ancillary chapters for other areas of concern.

The Growth Management Plan presents forecasts and policies for anticipated growth to the year 2020. The Growth Management Plan is based upon the amount of growth that is likely to occur and recognizes that there are no viable ways in which to control total growth. The Plan, however, seeks to control the distribution of growth in order to improve the balance between jobs and housing by encouraging housing growth in job rich areas and vice-versa.

The City's General Plan (comprised of the 35 Community Plans) governs the location and density of land use in the City through the zoning process. The Los Angeles City Planning Department revised the General Plan and the new plan, termed the "General Plan Framework," is intended to balance land use development, transportation, projected future population and projected future employment within the City of Los Angeles. The General Plan Framework's options include areas of targeted growth with higher land use designations and densities around commuter rail stations and along transportation corridors.

The planned growth of population along corridors would result in higher demands on infrastructure. There would be a need to accommodate greater quantities of wastewater that would be generated. Consequently, new wastewater conveyance facilities must be constructed, or existing facilities must be improved or upgraded.

CONCLUSIONS REGARDING GROWTH INDUCEMENT

Wastewater conveyance capacity is an infrastructure component of the urban environment that is necessary to safely accommodate the needs of existing and projected future populations. The provision of wastewater conveyance capacity, in and of itself, will not induce population growth or land use development. Rather, wastewater conveyance capacity would allow population growth to occur within the General Plan Framework while minimizing sewage spills and the associated environmental, health and safety problems. Future land uses would generally not occur in densities higher than those allowed by the land use planning process. Any development projects beyond the scope of the City's General Plan would undergo individual environmental analysis (including impacts to the wastewater system) and would have to be approved by the City Council.

In wastewater planning, the sizing of collection and treatment facilities, as well as the overall system configuration, is dependent on the future system-wide flow and the distribution of that flow within the system. Since the timing of necessary improvements is partly a function of growth, a realistic estimate of the future population to be served is fundamental to effective wastewater system planning.

The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. No significant growth-inducing impacts are therefore associated with the project.

3.2.3 Cumulative Impact Analysis

Cumulative impacts refer to two or more individual effects, that when considered together, are considerable[8]. Cumulative impact assessment considers not only the impacts of the proposed Project, but also the impacts from other City and private projects, which would occur during the period of performance and geographic area of the proposed Project. There would likely be construction activities occurring in the vicinity of the VPP Dual Force Main Project as a result of other projects being built in the same general time frame. These related projects are listed in Table 1.7-1 above. The VPP Dual Force Main Project, along with other construction projects, could contribute to temporary cumulative noise and vibration effects. Construction activities may result in cumulative effects of the following nature:

Noise and Vibration – Local residents in the near vicinity of construction activities would be exposed to noise and possible vibration. The cumulative effects, both in terms of added noise and vibration at multiple VPP Dual Force Main construction sites, and in the context of other related projects, are not considered significant due to the temporary nature of noise increases and the recommended mitigation measures.

Air Quality – The VPP Dual Force Main Project will produce additional emissions of criteria pollutants and slightly elevated levels of carbon monoxide during construction. Emission of criteria pollutants resulting from the Project's construction would exceed the thresholds established by the SCAQMD, and therefore the Project, in conjunction with all other construction activity, would cumulatively contribute to the region's non-attainment status during the construction period. The SCAQMD prepared the Air Quality Management Plan (2003) to bring the region into compliance with the National Ambient Air Quality Standards as set by the EPA under the Clean Air Act Amendments (1990). The Air Quality Management Plan is essentially designed to address the cumulative air pollutants released into the South Coast Air Basin. Because these construction-related emissions are temporary (18-24 months, depending on the construction method) and because the Air Quality Management Plan addresses cumulative air pollution in the South Coast Air Basin, the Project would not result in long-term significant cumulative air quality impacts. In the short term, cumulative impacts could be significant if the combined emissions from the projects exceed the threshold criteria for the individual pollutants. Mitigation measures are in place to reduce impacts on air quality.

Transportation and Circulation – The VPP Dual Force Main Project would involve construction activities occurring simultaneously at a number of surface sites along the Project alignment. Construction of the VPP Dual Force Main Project may be occurring in the same general time and space as other related projects. In these instances, surface construction activities from both sets of Project could produce cumulative traffic effects which may be significant, depending upon a range of factors including the specific location involved and the precise nature of the conditions created by the dual construction activity (see Traffic-Related Project Construction Schedule in Table 4.2-1 of the EIR). Special

[8] Section 15355 of the CEQA Guidelines

coordination efforts may be necessary to reduce the combined effects to an acceptable level with the adoption of mitigation measures. Overall, with implementation of mitigation measures, significant cumulative impacts are not anticipated.

Public Services – The cumulative effects on public services in the VPP Dual Force Main study area would cause traffic and circulation inconveniences in some locations due to reduce parking, lane closures and potential schedule adjustments to public transportation as discussed in the EIR; however, these impacts would be temporary and would be limited to traffic inconveniences discussed above.

Aesthetics – Construction activities associated with other related projects may be ongoing in the vicinity of one or more VPP Dual Force Main construction sites. To the extent that combined construction activities do occur, there would be temporary adverse visual effects during construction in some locations. However, these impacts would be temporary.

Beneficial Effects – The VPP Dual Force Main Project would also have long-term beneficial cumulative effects with regards to improvements to the City of Los Angeles' wastewater collection system. The proposed Project would result in cumulative public health benefits by minimizing or eliminating the potential for the public to be exposed to wastewater that could overflow onto streets during rainy weather and flow into area channels and the Pacific Ocean. Public safety, in the short and long-term, would be improved by minimizing the potential for sewer and street collapses associated with deteriorated sewers.

3.3 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Following consideration of public comments on the Draft EIR, the analysis of the various construction and alignment alternatives was finalized and the environmentally superior alternative was identified (see Section 3.2).

Based upon the comparative impact analysis for this project and as shown in Table 3.3-1, it has been determined that the environmentally superior alternative is the large-diameter (mined) tunnel along the inland (Pacific Avenue) alignment from LAX to Venice Pumping Plant (identified as mined tunnel alternative 4 in the DEIR). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion, noise and vibration. The proposed alignment as shown on Figure 4.2-2, would begin at launch shaft #2 located in Vista Del Mar and run due north toward the pumping plant on Hurricane Street and tie in at the #10 receptor shaft. Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the City would provide community outreach to work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way.

3.4 MITIGATION MEASURES

The EIR describes mitigation measures which are expected to avoid or substantially reduce the significant environmental impacts of the proposed Project. Table 3.4-1 presents the impacts, recommended mitigation measures, and the level of significance after mitigation.

Table 3.4-1. Environmental Impacts and Mitigation Measures

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
		Air Quality	
AIR 1	NO_x emissions in construction areas.	Extend timeline for construction, thereby utilizing less equipment on a daily basis.	Less than Significant
		Utilize newer construction equipment that meet tier emissions standards	Less than Significant
		Use of alternative fuel such as biodiesel, liquid natural gas, and propane.	Less than Significant
		Adjust engine timing to reduce NO_x emissions.	Less than Significant
		Biological Resources	
BIO 1	If the Venice Beach/Dockweiler Beach alignment is selected and construction is to be aboveground, or if tunneling is used and the jacking and/or receiving pit is within 500 feet of the nesting site, and any construction activities are to occur during the least tern nesting season (April 1 through August 31)	A biological monitor with experience observing and documenting disturbance to least terns shall be present during all construction activities within 500 feet of the nesting site to ensure that construction activities do not adversely affect least terns using the nesting site. In addition, the monitors will ensure that work crews properly dispose of all garbage in covered containers.	Less than Significant
BIO 2	a: If any tunneling activities are to occur during the least tern nesting season (April 1 through August 31)	A water quality specialist or biological monitor shall conduct surveys at tunneling locations a minimum of once daily to ensure that tunneling does not increase water turbidity.	Less than Significant
	b: If any turbidity from the tunneling activities is discovered in least tern foraging areas	The tunneling activities shall cease until the leak from the tunnel that is resulting in turbidity is repaired or managed.	Less than Significant
BIO 3	a: Existing and potential values in environmentally sensitive habitat areas shall be protected, enhanced, and where feasible, restored. If any habitat is disturbed, restore to previous undisturbed condition.	Based on the City of Los Angeles LUP and LCP, restore to ESHAs to previous undisturbed condition.	Less than Significant
	b: Marine resources shall be maintained, enhanced, and where feasible, restored. If any habitat is disturbed, restore to previous undisturbed condition.	Based on the City of Los Angeles LUP and LCP, restore to previous undisturbed condition.	Less than Significant
		Circulation, Traffic and Parking	
TRA 1	To coordinate with the city to ensure adequate traffic signals and controls are in place prior to and during times of construction	For each construction site, a construction traffic management plan shall be prepared and submitted to the City for review and approval prior to the start of any construction work.	Less than significant
TRA 2	To adequately control traffic to ensure compliance with all local and state safety standards and specifications	A site-specific construction worksite traffic control plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas. Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
TRA 3	To reduce traffic congestion	Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on re-striped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when absolutely necessary.	Less than significant
TRA 4	To protect pedestrian and recreational traffic	Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.	Less than significant
TRA 5	To ensure ingress/egress to all properties adjacent to the project and surrounding areas	Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.	Less than significant
TRA 6	To avoid impacts to public transportation	Coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.	Less than significant
		Cultural Resources/ Paleontology	
CR 1	To avoid impacts to areas where cultural resources are known to exist	A qualified cultural monitor shall be on site in areas of known cultural finds where grading is to occur.	Less than significant
CR 2		When avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented;	Less than significant
CR 3	In the event of the discovery and subsequent recovery of fossil remains	A qualified monitor should halt construction temporarily while remains are analyzed prior to resuming construction.	Less than significant
CR 4	At CA-LAN –66 location	Monitor all construction in the vicinity of the CA-LAN-66 site located in Vista Del Mar by an Archaeologist qualified to recognize and assess both prehistoric and historical resources	Less than significant
CR 5	If new discovery is encountered	Develop a contingency plan for addressing unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings	Less than significant
CR 6	If significant cultural resources are found during construction	Those significant cultural resources found shall be recovered from the project site, curated by an archaeologist recommended by the city and offered to an area museum whose collection is available for the viewing by the public	Less than significant
PAL 1	The discovery of paleontology resources may be present in specific project areas where grading and other excavation activities are to occur	Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and LACMVP will be retained to implement the mitigation program during earth-moving activities at the project site.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
PAL 2		The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.	Less than significant
PAL 3		The paleontologist or monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary.	Less than significant
PAL 4		Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.	Less than significant
PAL 5		All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.	Less than significant
PAL 6		Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to commence.	Less than significant
Geology/Soils/Seismicity			

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
GEO 1	Project improvements would be subject to earthquake ground shaking	The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum.	Less than significant
GEO 2	Liquefaction and differential seismic settlement may occur on the project	Design and construction of the proposed project will include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline.	Less than significant
GEO 3	Subsidence may occur to the project area	Design and construction of the proposed project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or construction the pipeline in a "wet" excavation.	Less than significant
GEO 4	Methane gas may be detected along the project alignments	Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary.	Less than significant
GEO 5	Tsunami could strike the project area	To mitigate erosion of surficial soils covering the proposed pipeline in the event of a tsunami, proper design and construction of the project components could include erosion control measures or choosing an alternate alignment off of the beach.	Less than significant
		Hazardous Waste and Materials	
HAZ 1	Well abandonment may occur in the marina channel areas and in various alignment areas	For any wells that may need to be re-abandoned, well abandonment should be done in accordance with applicable regulations; other subsurface structures may be encountered during development work. The soils may contain methane or other gases from previous oil well field development. Site chemicals must be handled and disposed in accordance with applicable regulations. Hazardous materials would be used and waste generated during the construction and operation of the project.	Less than significant
HAZ 2	Employees may be exposed to hazardous materials during construction	Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.	Less than significant
HAZ 3	Storage of hazardous materials will occur on the project sites	As required in SWPPP and project specifications.	Less than significant
HAZ 4	Methane gas may be located in alignment areas where tunneling activity is to occur along the project alignment	A surface sweep is a method for measuring combustible vapors which may be emitted from the ground surface. When conducting the surface sweep, more attention can be taken in areas where underground gas would tend to exit the surface, such as at cracks in the ground.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
HAZ 5	Methane may be present along the project alignments	The City of Los Angeles Building Code requires that methane mitigation be implemented when construction occurs at these sites to ensure public safety. These measures include the installation of membrane barriers and vent piping as well as trench dams and electrical seal-offs for each of these properties.	Less than significant
		Hydrology/ Water Quality	
HYDRO/	Runoff may occur from the project site during construction activities	A SWPPP shall be submitted for review and approval. The SWPPP shall recommend interim and permanent improvements to existing drainage features to prevent uncontrolled runoff during construction and to accommodate any temporary increase in runoff associated with construction activities.	Less than Significant
WQ 1		Compliance with the SWPPP shall be demonstrated by obtaining a NPDES construction permit for all construction activities including clearing, grading, or excavation that result in the disturbance of at least 1-acre of total land area or activity which is part of a larger common plan of development of 1 acre or greater. Copies of said NPDES permit(s) and related SWPPP shall be available for inspection at the City and at the construction site prior to land disturbing activity. Total disturbance area includes the staging and material storage areas. Although this project may not total over one acre of actual disturbance area, because of the highly sensitive habitat areas within the project, a SWPPP should be a required mitigation element.	Less than Significant
HYDRO/ **WQ 2**	Dewatering discharge is expected to occur during the initial phase of pit construction	Hydraulic isolation of the pits can be accomplished by the contractor by various methods of his choice, including interlocking sheet pile walls, soil cement walls constructed with Deep Mixing Methods, or slurry diaphragm walls. Water removed from the pits will be discharged to the storm drain system after proper treatment in accordance with local regulations Solid particles will be removed by using sedimentation tanks and filtration. If petroleum contamination is encountered, free product, if any, will be skimmed off the surface and oil/water separators will be used to remove the remaining contamination. Granular activated carbon could be used to remove any dissolved organic or other contaminants. Alternatively, discharged water will be shipped to authorized vendors for treatment and disposal.	Less than Significant
		Noise and Vibration	
NOI 1	Construction noise levels that exceed city and county standards may be created during project construction activities.	All construction activities shall be limited to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday. No construction or construction-related activities shall take place on any Sunday or national holiday.	Less than significant
NOI 2		Heavy trucks engaged in the removal of muck from tunneling operations off site via heavy trucks shall be limited to major arterial streets and away from residential roadways, to the extent practicable.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
NOI 3		All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for such type of equipment.	Less than significant
NOI 4		All mobile or fixed noise-producing equipment used on the project, and that is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.	Less than significant
NOI 5		The erection of temporary soundwall barriers shall be considered where project activity is unavoidably close to noise-sensitive receptors.	Less than significant
NOI 6		Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.	Less than significant
NOI 7		Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.	Less than significant
NOI 8		Construction site and haul-road speed limits shall be established and enforced during the construction period.	Less than significant
NOI 9		The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.	Less than significant
NOI 10		No project-related public address or music system shall be audible at any adjacent receptor.	Less than significant
NOI 11		The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.	Less than significant
NOI 12		The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.	Less than significant
VIB 1	Vibration may occur in the project area during construction activities	Installation of instruments throughout a sensitive building, to be used in monitoring and recording building behavior (movements, vibrations) due to adjacent tunneling activities.	Less than significant
VIB 2		Any physical, chemical or biological method, or any combination of such methods, used to increase the bearing capacity or decrease the permeability of soils under the foundation of existing buildings.	Less than significant
VIB 3		A specialized form of grouting used to compensate for movements and settlements caused by tunneling adjacent to or beneath existing buildings.	Less than significant

Impact ID	Environmental Impact	Mitigation Measure	Post Mitigation Level of Impact
Recreational Resources and Facilities			
REC 1	Construction-related activities may impact areas and facilities used by the public for sporting events and recreational activities	Provide advanced notice to the public, businesses, sports/ recreation groups and property owners indicating time and duration of non-use or partial use of facilities/areas to be impacted by construction.	Less than Significant
Visual/Aesthetics			
AES 1	Where impacts may not be directly mitigated, they may be offset by actions taken elsewhere to compensate for the loss of visual quality. It would be speculative to definitively list specific offsetting actions at this time.	The city shall consider landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly. The city shall consider screening from public view existing features, which are incongruous with the character of their surroundings (such as the VPP). The city shall consider creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking.	Significant short term

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11.0 RESPONSES TO COMMENTS

This section of the Final EIR includes comments received by the City of Los Angeles on the Draft EIR, and responses to these comments. The comments include both written comments received by the City and oral comments presented to the City at a public hearing on the Draft EIR held on February 23, 2006. As required by the California Environmental Quality Act (CEQA), responses to comments are provided for the written and oral comments received by the City.

A complete list of commenting public agencies and private individuals is provided below. Written comment letters and comments made during the public comment meeting on the Draft EIR are provided in Sections 11.3 and 11.4 of this Chapter. Section 11.3 provides copies of all written letters submitted to the City, and Section 11.4 provides a complete transcript of the public hearing conducted by the City on the EIR. Written responses to the comments are provided in Section 11.5 of this Chapter (see page 11-100).

11.1 LIST OF PUBLIC AGENCIES AND INDIVIDUALS PROVIDING WRITTEN COMMENTS

STATE AGENCIES

Department of Transportation ..... Page 11-9
District 7, Regional Planning
IGR/CEQA Branch
Attn: Cheryl J. Powell
100 Main Street, MS #16
Los Angeles, CA 90012-3606
Letter dated: 02/22/06

California Coastal Commission ..... Page 11-10
South Coast Area Office
Attn: Pam Emerson
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302
Letter dated: 03/16/06

LOCAL AGENCIES

County of Los Angeles ..... Page 11-13
Department of Public Works
Attn: Ms. Clarice Nash
900 South Fremont Avenue
Alhambra, CA 91803-1331
www.ladpw.org
Letter dated: 03/15/06

PRIVATE INDIVIDUALS

Brett W. Hawkins, Jr. ..... Page 11-14
President & Founder
Global Gaming League
brett@ggl.com
Letter dated: 02/09/06

Carol Kapp ..... Page 11-15
127 Rees Street
Playa Del Rey, CA 90293
Letter dated: 02/20/06

Gene Haberman..... Page 11-19
genehabe@yahoo.com
Later dated: 03/04/06

John B. Kilroy ..... Page 11-20
5306 Pacific Ave.
Marina Del Rey, CA 90292
JBKMDR@AOL.COM
Letter submitted: 03/14/06

Attachment 1 to John B. Kilroy Letter ..... Page 11-23
Marina Peninsula Neighborhood Association
Attn: Lowell Safire
11 Mast Street
Marina Del Rey, CA 90292
Letter dated: 04/09/03

Attachment 2 to John B. Kilroy Letter ..... Page 11-26
John S. Perkins
5209 Ocean Front Walk #101
Marina Del Rey, CA 90292
Letter dated: 11/27/02

Don Hollands..... Page 11-29
6400 Pacific Ave., #304
Playa Del Rey, CA 90293
don-hol@comcast.net
Letter dated: 03/16/2006

Mark Van Gessel, P.E. ..... Page 11-31
vangessel@comcast.net
Letter dated: 03/16/06

COMMENT CARDS FROM PUBLIC MEETING
Madeline Dinonno ..... Page 11-49
Comment dated: 02/23/06

Susan Papadakis ..... Page 11-50
Grass Roots Venice Neighborhood Council
Los Angeles, CA 90291
Comment dated: 02/23/06

Phil Raider ..... Page 11-51
Grass Roots Venice Neighborhood Council
Comment dated: 02/23/06

FEBRUARY 23, 2006 PUBLIC MEETING TRANSCRIPT ..... Page 11-52

11.2 SUMMARY OF COMMENTS

Table 11-1, below, provides a summary of comments received from the public and private agencies on the adequacy of the EIR. Many of the comments relate to the same issue, although sometimes in different ways or with a slightly different emphasis. Nonetheless, there are redundancies or overlapping of the comments. In summary, the comments relate to forty-four (44) environmental issues described in Table 11-1. Responses to these comments are provided in section 11.5 and are presented and identified by the comment identification number shown in Table 11-1.

Table 11-2 notes the comment issue areas raised in the eleven (11) written responses received by the City from public agencies and the general public. Finally, Table 11-3 notes comment issue areas raised in the oral and written comments received by the City at the February 23, 2006 public hearing. Tables 11-2 and 11-3 show that many letters and oral comments addressed the same issue: for example, three written letters commented on construction-related parking impact, which is comment "CON-1"; this issue was also raised by two people at the public hearing.

Table 11-1: Comments on Draft EIR

Comment ID	Comment Name	Comment Description
ALGN-1	Preferred Alignment - Beach	The beach alignment of the project is preferred because it is the least disruptive to local residents.
ALGN-2	Preferred Alignment - Non-beach	The beach alignment of the project is not preferred because of potential environmental impacts to the coast.
ALT-1	Alternative - No Project Analysis	The no-project alternative is preferred because it would limit development and growth.
ALT-2	Alternative - New Alternative	The EIR should consider additional alternatives.
ALT-3	Alternative - Alternative Bias	The City has a bias for the Pacific Avenue alignment, and an independent review is necessary.
ALT-4	Alternative - New Beach "Cut and Cover"	Consider a new beach "cut and cover" alternative.
AQ-1	Air Quality - Odor	Will the project cause sewage odors?
BIO-1	Biology	What are the construction-related impacts to biological species such as the El Segundo Blue Butterfly, Least Tern, and California Brown Pelican?
CLI-1	Climate Change	Rising sea level and beach erosion need to be addressed.
CON-1	Construction - Parking	Where will construction equipment be parked during construction of the project?

Comment ID	Comment Name	Comment Description
CON-2	Construction - Schedule	Can the project construction schedule be met?
CON-3	Construction - Traffic	Which streets will be closed and how will traffic be impacted due to construction? Specifically, will the intersection of Pacific and Via Marina be closed during construction?
CON-4	Construction - Beach access	How will construction of the project impact beach access?
CON-5	Construction - Timing	What is the construction schedule and how much time will it take for project completion?
CON-6	Construction - Noise	What are the noise impacts due to construction?
CON-7	Construction-Management	How will construction practices and mitigation measures be enforced? Can financial penalties be imposed if the construction contractor fails to implement the mitigation measures?
CON-8	Construction - Vibration	What are the vibration impacts due to construction?
CON-9	Construction - Trench Covering	Add a “bullet item” requiring trench covering during construction of pipeline.
EIR-1	EIR - Recirculation	Recirculation of the EIR has been requested due to lack of sufficient analysis.
EIR-2	EIR - Extend Review Period	The review period for the EIR should be extended because of insufficient time to review the document.
EIR-3	EIR - Piecemeal CEQA Analysis	This is a piecemeal CEQA analysis of a larger project: 3-4 story development in Venice.
EIR-4	EIR - Mitigation Measures	Do not allow “or equivalent” mitigation measures.
EMG-1	Emergency Access	During construction of the project, how will emergency services be provided given street closures and construction on streets?
FLD-1	Flooding	How will the project handle storm water and other flooding events?
GEO-1	Geology - Settling/ Dewatering	Construction of the project may result in on- or off-site landslides.
GEO-2	Geology - Liquefaction	The project is being constructed in an area where liquefaction may occur.
GEO-3	Geology - Seismic	Seismic events may impact the project.
GRWTH-1	Growth Inducing Impacts	How will the project induce growth in the local area?

Comment ID	Comment Name	Comment Description
GRWTH-2	Growth Inducing Impacts - Hyperion Plant	Can the Hyperion Plant handle the increased flows of the sewer line in addition to the large expansive housing projects that the City continues to approve?
NOI-1	Noise - Noise Curtain	Provide more specificity concerning the noise curtain mitigation measure.
NOI-2	Noise - New Mitigation Measure	Suggest new Noise mitigation measure, NOI-10, for Pacific Avenue project alignment.
OS-1	Open Space – Mitigation	Dedicate City owned drill site for public open space.
PRMT-1	Permitting	Several permits are necessary to proceed with the Pacific Avenue alignment.
PROJ-1	Project Related - Project Life	What is the lifespan of the project, and when will renovation of the project be required?
PROJ-2	Project Related - Capacity of Force Main	Is the pipeline adequate to serve the projected population?
PROJ-3	Project Related - Sewage Spill Plans	Will the project include plans for shutdown and containment in the event of sewage spill?
PROJ-4	Project Related - Sewer Capacity	Will the project release untreated sewage into the ocean during heavy rain?
PROJ-5	Project Related - Project Updates	Regular community updates of the project status are requested.
PROJ-6	Project Related - Safety	Which project alternative is the safest over the long-term?
PROJ-7	Project Related - Project Cost	Request more detailed project and alternatives cost information.
PROJ-8	Project Related - Impact to County Facilities	The project has the potential to impact Los Angeles County facilities.
TAX-1	Tax Reduction	Request tax reduction for property owners who are affected by project.
TRA-1	Traffic Impacts	Construction of the proposed project will cause disruption to the traffic flow in the area.
WQ-1	Water Quality	Is the pumping plant sending untreated sewage into the ocean; and will the plant adversely affect groundwater supply?

Table 11-2: Comment Letters

	CA. Dept. of Transportation (2/22/06)	CA. Coastal Commission (3/16/06)	County of L.A. Dept. of Public Works (3/15/06)	Perkins, John (11/27/02)	Marina Peninsula Neighborhood Assn. (4/9/03)	Kapp, Carol (2/20/06)	Haberman, Gene (3/7/06)	Kilroy, John (3/14/06)	Hollands, Don (3/16/06)	Van Gessel, Mark (3/16/06)	Van Gessel, Mark (Report)
ALGN-1					●	●		●	●		●
ALGN-2		●									
ALT-1											
ALT-2				●	●					●	
ALT-3					●						
ALT-4											
AQ-1											
BIO-1		●									●
CLI-1		●									●
CON-1						●			●		
CON-2									●	●	
CON-3										●	
CON-4		●									
CON-5		●									
CON-6									●		●
CON-7								●	●		
CON-8										●	
CON-9										●	
EIR-1											
EIR-2										●	
EIR-3											
EIR-4											
EMG-1										●	
FLD-1											
GEO-1						●				●	●
GEO-2		●				●		●		●	●
GEO-3											●
GRWTH-1									●		
GRWTH-2									●		
NOI-1										●	
NOI-2										●	
OS-1											
PRMT-1	●										●
PROJ-1		●									
PROJ-2							●			●	
PROJ-3		●									
PROJ-4										●	
PROJ-5						●					
PROJ-6								●			
PROJ-7										●	
PROJ-8			●								
TAX-1											
TRA-1								●			
WQ-1		●									

Table 11-3: Public Meeting Comments

	Dinonno, Madeline (Written Comment)	Papadakis, Susan (Written Comment)	Raider, Phil (Written Comment)	Audet, DeDe (Oral Comment)	Hanscom, Marcia (Oral Comment)	Kapp, Carol (Oral Comment)	Krauch, Bob (Oral Comment)	Sharkey, Dan (Oral Comment)	Van de Hoek, Roy (Oral Comment)	Van Gessel, Mark (Oral Comment)
ALGN-1			●							●
ALGN-2										
ALT-1									●	
ALT-2									●	
ALT-3										
ALT-4						●				
AQ-1										●
BIO-1					●				●	
CLI-1										
CON-1	●					●		●		
CON-2										●
CON-3	●									
CON-4										
CON-5										●
CON-6								●		●
CON-7								●		●
CON-8										●
CON-9										●
EIR-1					●	●				
EIR-2										
EIR-3									●	
EIR-4										●
EMG-1										
FLD-1				●						
GEO-1						●				●
GEO-2					●					
GEO-3										
GRWTH-1					●				●	
GRWTH-2										
NOI-1										
NOI-2										
OS-1					●					
PRMT-1										
PROJ-1							●			
PROJ-2				●						
PROJ-3										
PROJ-4							●			
PROJ-5		●				●				
PROJ-6							●			
PROJ-7										
PROJ-8										
TAX-1						●				
TRA-1										
WQ-1										●

11.3 *Annotated Letters Received by the City on the Adequacy of the EIR*

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 7, REGIONAL PLANNING
IGR/CEQA BRANCH
100 MAIN STREET, MS # 16
LOS ANGELES, CA 90012-3606
PHONE: (213) 897-3747
FAX: (213) 897-1337

Flex your power!
Be energy efficient!

IGR/CEQA No. 060208AL, DEIR
IGR/CEQA No. 030308AL
Venice Pumping Plant Dual Force Main
Vic. LA-01 / PM 30.16
SCH#: 2003031001

February 22, 2006

Mr. James E. Doty
Los Angeles Bureau of Engineering
200 N. Spring Street, M165
Los Angeles, CA 90012

Dear Mr. Doty:

Thank you for including the California Department of Transportation (Caltrans) in the environmental review process for the above referenced project. This is a wastewater conveyance project to increase the capacity of the City's sanitary sewer system by placing a new sewage pipeline in parallel with the existing force main that conveys flow from the Venice Pumping Plant to the Hyperion Treatment Plant.

Storm water run-off is a sensitive issue for Los Angeles and Ventura counties. Please be mindful that projects need to be designed to discharge clean run-off water. WQ-1

Any transportation of heavy construction equipment and/or materials which requires the use of oversized-transport vehicles on State highways will require a Caltrans transportation permit. We recommend that large size truck trips be limited to off-peak commute periods. In addition, a truck/traffic construction management plan is needed for this project. Thank you for the opportunity to have reviewed this project. PRMT-1

If you have any questions, please feel free to contact me at (213) 897-3747 or Alan Lin the project coordinator at (213) 897-8391 and refer to IGR/CEQA No. 060208AL.

Sincerely,

Cheryl Powell

CHERYL J. POWELL
IGR/CEQA Branch Chief

cc: Scott Morgan, State Clearinghouse

"Caltrans improves mobility across California"

STATE OF CALIFORNIA - THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION

South Coast Area Office
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302
(562) 590-5071

March 16, 2006

Jim Doty
City of Los Angeles
Bureau of Engineering
Department of Public Works
650 South Spring St.
Suite 11000
Los Angeles, CA 90014-1918

Subject: Draft EIR, Venice Pumping Plant Dual Force Main Project 2003031001

Dear Mr. Doty,

Staff of the California Coastal Commission would like to provide the following initial comments on the Venice Pumping Plant Dual Force Main Project. The project would replace an existing sewer main that connects the existing Venice pumping plant at Hurricane Avenue and the Grand Canal with the Hyperion Treatment Plant. The City has provided three alternative routes and three alternative methods of construction. The staff provided comments on the initial study several years ago. We understand that the various routes could be combined if the City found a combination of two routes would have less environmental impact.

In general, the staff agrees with the City's assessment of the risks and potential impacts of the various routes, with one exception. Placement of a major sewer line on the beach raises significant issues because, in a situation of rising sea level and increased coastal erosion, the sewer line could, in a few years be attacked by waves and require a revetment or other coastal protection structure. Section 30253 of the Coastal Act requires that new development shall minimize risks to life and property in areas of high geologic, flood and fire risk. New projects must be able to demonstrate that they have minimized risks over the foreseeable life of the development, which, for public works projects can be at least 30 to 40 years. During the next 30 to 40 years a combination of beach erosion and rising sea levels could result in the proposed line being within the wave run up zone and at great risk from both flooding and erosion hazards. Also, the Commission has found it becomes more and more difficult to establish new utility corridors through upland areas. As a result, even though the proposed sewer line may have only a 30- to 40-year expected life, the corridor itself may have a much longer expected life. Use of the beach route now, without any future plans to develop safer routes in the future, may greatly reduce options for safe and efficient management of sewer service in the future. ALGN-2

The City's assessment of the various routes needs to consider the safety of the sewer line under the worst case conditions that can be foreseen for the proposed sewer line. For the beach route, that would be a 100-year storm event (similar to the 1982-83 storms, or the 1988 storms), occurring when the beach is eroded due to both seasonal beach loss and long-term erosion, and when the oceanic conditions are most conducive to wave impacts and scour (a combination of high tide, atmospheric forcing and long-term sea level rise). Since the long-term beach change has been influenced of historic beach nourishment, the beach conditions should be extrapolated for both conditions of continued beach CLI-1

Venice Pumping Plant Dual Force Main Project Draft EIR Comments
Page 2 of 3

nourishment and conditions of no additional nourishment. Key points of vulnerability to the line should be considered, such as the higher elevation portions of the line, the channel crossing and transitions to the crossing, and situations where the line may have little or no flow and thus could be excessively buoyant. Also, the sewer line is a critical facility and it should be examined for risk from some extreme events, such as a tsunami with drawdown that would likely be focused in the channel area. CLI-1

In addition to potential risks from beach erosion, staff would want the EIR to consider fully the following potential impacts that can result from construction, maintenance, or routine operation:

1) Impacts on beach access. The three proposed routes are along roads that are used for beach access or are located on the beach. Several staging areas are located on the sand or in the case the Marquesas/Via Marina route on a public parking lot. Methods of construction which require long term closing of beach access routes or occupancy of recreation areas will reduce the ability of the public to get to the beach. The beach and recreation areas in question are: CON-4

a) Dockweiler State Beach (both north and south of the Marina Entrance channel)
b) The County parking spaces adjacent to the Marina Entrance Channel at the southern ends of Pacific Avenue and Via Marina.
c) County Parking Lot 13 located on Via Marina.
d) Pacific Avenue in both Venice and Playa del Rey
e) Vista del Mar Boulevard, which provides principal access to Dockweiler State Beach.

2) Impacts on the Least Tern nesting colony. The staging area shown for the Venice Beach small diameter tunnel is located close to the Least Tern nesting area. We would be concerned about impacts of noise and foot traffic on this site. BIO-1

3) Visual and noise impacts during construction. While such impacts are temporary, the level of impact varies among the methods chosen for construction and the location of the route chosen. The Marquesas/Via Marina route would have little impact on beach views or on major public access routes. All of the alternatives in Playa del Rey would have impacts. The tunneling alternatives would seem from your analysis to have the least impact on beach access routes. CON-6 CON-7

4) Water quality impacts can potentially occur with any major construction project; it will be necessary to design and schedule the project to minimize potential water quality impacts, require the use of Best Management Practices as well as to impose strict mitigation measures. WQ-1

5) All three routes would traverse liquefiable soils. This geologic hazard needs to be considered in the analysis of all route and construction alternatives. GEO-2

Venice Pumping Plant Dual Force Main Project Draft EIR Comments
Page 3 of 3

6) Plans for shut-off and containment in the event of a sewerage spill should be provided for each proposed route. Special care should be taken for the channel crossing, areas less than 100 feet from Ballona and Del Rey Lagoons, and with the entire beach route. PROJ-3

7) There is some finite life to all sewer projects. There should be some consideration in the EIR as to the eventual disposal of the sewer line once it reaches the end of its economic line. While staff is not recommending the beach route alternative, should the City choose this alternative, there should be some identified triggers that would provide sufficient time to plan, finance and construct a replacement line before the beach line would be threatened. Triggers indicative of a future need to replace the line or to install shore protection to avoid damage from wave attack include beach width change, increased damage during storm conditions, or back beach elevation changes. PROJ-1

Some of the impacts may be mitigated either by locally imposed mitigation measures, or by special conditions imposed by local government or the Coastal Commission. However, coastal staff would urge the City to chose a route and a construction method that 1) avoids the beach, 2) minimizes disruption of public access to and use of the beach and other coastal recreation resources, 3) and does not disturb the Least Tern nesting area during nesting season (mid-March to late August). ALGN-2

When the final project is submitted to the Commission for a coastal development permit, the staff will undertake a more through analysis, and if necessary, impose special conditions to assure its consistency with the California Coastal Act. Thank you for allowing us the opportunity to comment on this project at the early stages of planning.

Sincerely

Pam Emerson
Los Angeles Area Supervisor

COUNTY OF LOS ANGELES

DEPARTMENT OF PUBLIC WORKS

"To Enrich Lives Through Effective and Caring Service"

DONALD L. WOLFE, Director

900 SOUTH FREMONT AVENUE
ALHAMBRA, CALIFORNIA 91803-1331
Telephone: (626) 458-5100
www.ladpw.org

ADDRESS ALL CORRESPONDENCE TO:
P.O. BOX 1460
ALHAMBRA, CALIFORNIA 91802-1460

March 15, 2006

IN REPLY PLEASE
REFER TO FILE: LD-0

Mr. James E. Doty
City of Los Angeles
Public Works Engineering
c/o Public Affairs Office
200 North Spring Street, Room M165
Los Angeles, CA 90012

Dear Mr. Doty:

REVIEW OF DRAFT ENVIRONMENTAL IMPACT REPORT
VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT
CITY OF LOS ANGELES

Thank you for the opportunity to review the Draft Environmental Impact Report (DEIR) for the Venice Pumping Plant Dual Force Main project. Based on the DEIR, this project has the potential to impact Los Angeles County facilities. Specifically, we are concerned that two of the proposed alignments could have significant construction related impacts to County residents, roadways, and facilities. Public Works recommends considering the Pacific Avenue alignment as the preferred alignment since it creates the least amount of impact to the County. PROJ-8

Also, it should be noted that any operational impacts to the County infrastructure will need to be reviewed and permitted by Public Works.

If you have any questions regarding these comments, please contact Ms. Clarice Nash at (626) 458-5910.

Very truly yours,

DONALD L. WOLFE
Director of Public Works

ROSSANA D'ANTONIO
Assistant Division Engineer
Land Development Division

CRN:jmwP:\CEQA\CLARICE\VENICEPPDEIR

From: Brett Hawkins <brett@ggl.com>
To: <environment@eng.lacity.org>
Date: Thu, Feb 9, 2006 11:36 AM
Subject: Venice Duel Force Main

I³m all for getting this overflow and repair problem fixed!

Thanks,

Brett W. Hawkins Jr.
President & Founder
Global Gaming League
+1 310 828 5252
²Stop Playing With Yourself!²
www.GGL.com

127 Rees Street
Playa del Rey, Ca. 90293
Feb. 20, 2006

Dear James Doty, Environmental Group
L A City Public Works

Re: Venice Pumping Plant Force Main Project EIR

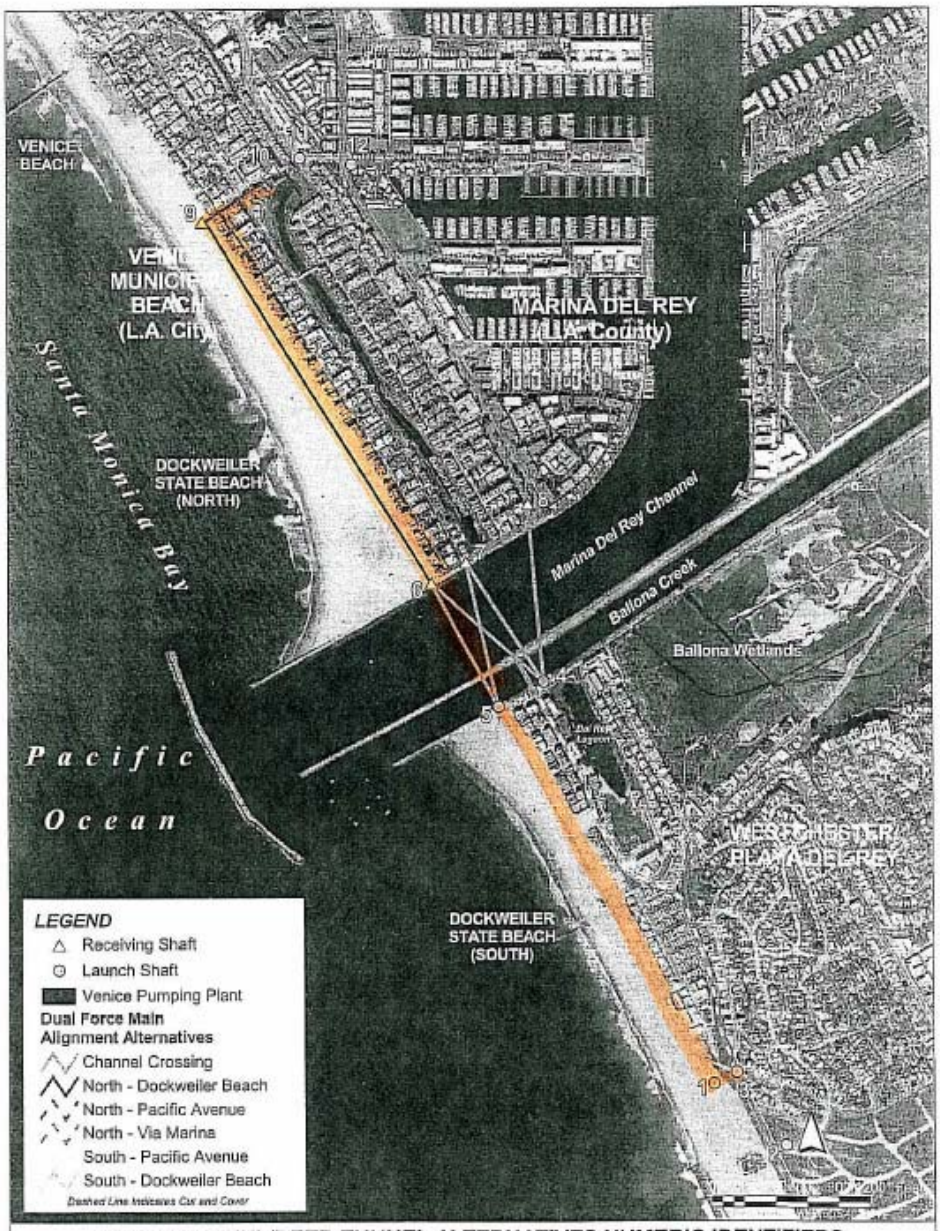
I want to compliment you and the staff. I have read the entire EIR . You were very thorough!!

I am supporting the route which I believe is described,in the EIR,but I feel that it should be put in writing so that there is no confusion. Using Fig. 6.3-1 I want to support the most straight forward way to complete the project. Begin at # 11 go west to #10, west to # 9 and south to #6 cross under Marina channel , under Ballona Creek to #5 continue on the beach tunneling to #1 east to #3 south to #2 and tie into Hyperion plant.

The route I support would use the Lay down areas to store equipment in the existing parking area adjacent 62nd Ave. and the parking east of Pacific in the Lagoon area.

The Lagoon and Jungle areas of Playa del Rey can not FUNCTION If the roads are reduced. Using the beach for tunneling will disrupt the least of local Residents. We all lived with the Thompson Pumping Plant Fiasco in 1998!!!! We can not and will not live with or through another Public Works Project that is not neighborhood friendly. We come before the Least Tern or any other bird or lower species!!! ALGN-1

The original 1958 pipe is laid in the beach. The new pipe can be laid next to or in close proximity employing tunneling or open trench method. Traffic disruption would be of a minimum. The Dockweiler(North and South) Alignment would eliminate traffic and parking issues as described for the "Pacific And Vista del Mar" Inland route. The residents should not have to live with the negative



MICRO-TUNNEL/DEEP-TUNNEL ALTERNATIVES NUMERIC IDENTIFIERS

URS | Project No.: 29870322 | Project: VENICE PUMPING PLANT DUAL FORCE MAIN EIR | Figure 6.3-1

impacts associated with a project of this magnitude. Please put the project on the beach for as much as is possible.

By using the beach route, the pipes can be tied together for future use. As the demand increases, both pipes can be used. If there is a big storm, the old pipe can be used so that "nasty" spillage does not wash down our beaches. ALGN-1

By using the beach route, the parking in the Lagoon would be preserved for those using the Park, Basketball courts or Grand Parents attending Little League games, and residents who do not have a garage. Parking is at a premium and must be maintained at the current level.

Please note that we recognize the need for the project. We want to maintain the current quality of life. The ingress and egress for residents, businesses and LAPD and LAFD, and Lifeguards' equipment during the short 18-24 month project.
The beach route would be further away from the bluffs along Vista del Mar. Vibrations from equipment could trigger land slides. The hill properties to the immediate east of Vista del Mar and those in the Jungle to the immediate west of Vista del Mar appear on the City Earthquake maps as being in a liquification zone. The project could potentially result in on or off site slides, lateral spreading, liquification or collapse. Good planning and engineering can not predict a land slide. The La Conchita, in Ventura, 2005 and The June, 2005, Blue Bird Canyon ,La Guna Beach Slides give us all reason to pause and Plan very carefully. Planning is the key. Does The City have enough Liability Insurance to cover similiar happenings??? The seismic shaking and vibrations would be greatly reduced if the Beach route were used. GEO-1 GEO-2

Throughout the EIR there were references to moving equipment and workers. Arrangements could be made with LA City for workers to park at empty areas along Pershing or open the section of Sandpiper that was shutoff after the 2001 Terrorists attacks. The Sand Piper area could be used for parking and a shuttle bus could run employees as needed. LA County operates parking on the west side of Vista del Mar slightly south of Waterview-Napoleon. There are CON-1

County lots inthe Marina that could be used for workers. The parking in Venice, Marina and Playa del Rey is precious. Careful Consideration should be given to ways to preserve parking in all areas affected!!!! CON-1

To make it very clear----The Jungle is a high density residential area. The parking area located westerly adjacent Vista del Mar, f rom Montreal South to Surf Alley can not be used in any manner at any time during this project. This area allows Beach access for visitors during the day and provides residential parking in the evening.

I would like to suggest that this Project have an ongoing update bi-weekly in The Argonaut Newspaper.
This is a local free paper that is widely read in the affected area. Additionally, Before the Project really starts, A community meeting should be held at the Council office at night and so that the last minute changes could be made public. The LAPD, LAFD, Lifeguards, and local hospital should be invited. PROJ-5

Representatives of West Beach Playa del Rey Property Owners Association will be available to meet with you at night with some notice.

Lastly, Contingency plans must be in place so that our Community does not live through a repeat of the Thompson Pumping Plant fiasco. The City owes this neighborhood a well planned project without any glitches.

Sincerely,
Carol Kapp

Carol Kapp Property Owner, Board of directors WB PdR POA

From: Gene Haberman <genehabe@yahoo.com>
To: <environment@eng.lacity.org>
Date: Tue, Mar 7, 2006 5:20 PM

Dear Mr. Doty,

I am a Marina del Rey resident involved in reviewing a Draft EIR on the Shores Project proposed to be built on Via Marina, North of Marquesas Way. Over 300 additional resideential units are being proposed. It is part of over 2000 residential units now being build or in the planning cycle on the west side of the Marina. Are these units served by the Venice Pumping Plant?

GRWTH-1

If they are served by the VPP is there enough capacity. The reason for my concern is the information you furnished regarding the proposed Venice Pumping Plant Dual Force Main Sewer appears to indicate that the sewer system is over capacilty during wet weather. Therefore you are proposing to add a sewer to ensure continuous safe flow during projected wet weather and to help prevent sewer spillage onto city streets and adjacent surface waters. Based on information from your office, the sewer would be completed in 2011. The Shores Project, if approved, would begin occupancy in 2008. Some of the other additional residential units are currrently under construction.

Please answer this inquiry at your earliest convenience. The Shores Project is in the Regional Planning Commission hearing process.

Thanks you.

Sincerely,

Eugene Haberman

Marina del Rey

JOHN B. KILROY

March 14, 2006

Attn: James E. Doty
City of Los Angeles
Department of Public Works Bureau of Engineering
c/o Public Affairs Office
200 N. Spring Street
Room M165
Los Angeles, CA 90012

Re: Draft EIR – Venice Pumping Plant Dual Force Main

The matter of this Dual Force Main has previously been discussed with the Department of Public Works in writing and verbally in the 2002 and 2003 period – during public hearings and private meetings.

We call to your attention such correspondence which should be on file with the City of Los Angeles Department of Public Works and also enclose letters from Marina Peninsula Neighborhood Association to the following dated April 9, 2003:

- Mr. Christopher Westhoff, City Attorney's Office, City of Los Angeles
- Councilwoman Cindy Miscikowski, City of Los Angeles, District 11
- Mr. Vitaly Troylan, City Engineer, City of Los Angeles
- Commissioner Ronald Low, Dept. of Public Works, City of Los Angles
- Russell Ruffing, Department of Public Works, City of Los Angeles

These letters and other letters from Marina Peninsula Neighborhood Association and the undersigned, John B. Kilroy, provided foundational documents, facts and objections to installation of such a Dual Force Main on Pacific Avenue.

5306 PACIFIC AVE.
MARINA DEL REY, CA 90292
JBKMDR@AOL.COM

A current review of Pacific Avenue shows the following additional facts which would have tremendous impact upon construction cost, construction time, traffic flow and the standard of living and convenience of all owners and renters within the area from the Canal to the Ocean Beach.

The count of driveways which enter off Pacific Avenue to single-family or multi-family residence totals 38.

The count of streets which enter Pacific Avenue between Galleon Street to Via Marina totals 18. These streets serve hundreds of more driveways which primarily are multi-family home driveways and the driveways on Pacific Avenue represent residences with underground sewer, water, gas, cable and other services, all of which interfere with rapid construction, substantially increasing cost of such a Dual Force Main.

Pacific Avenue is the primary access street to Speedway, which also serves hundreds of residences, garages and related parking with underground installation. ALGN-1 TRA-1

Pacific Avenue is a loop access road to Washington Boulevard and Via Marina for busses, school busses, trucks, service vessels and cars, heavily used during daylight hours.

A review and study of the impositions and traffic flow will significantly interrupt access and living conditions should construction be considered on Pacific Avenue, as well as substantially increasing cost and construction time.

Neither the Via Marina proposed site nor the proposed beach installation impose such adverse or costly installation upon the residents and upon the construction itself for such a lengthy time as Pacific Avenue.

There are virtually no obstructions to rapid and low-cost construction, nor is there such a serious potential and likely problem of liquefaction as there is on Pacific Avenue. GEO-2

Contrary to prior presentation by a consultant to the City, the width of the beach at this area for a sewer line has been accretive for many years since installation of the breakwater and erosion is highly unlikely. Environmentally, there should be only a temporary construction impact, much less than the Pacific Avenue site.

5306 PACIFIC AVE.
MARINA DEL REY, CA 90292
JBKMDR@AOL.COM

The Via Marina site is also a highly favorable site as compared to Pacific Avenue, a short tunnel under the canal, a short distance on Via Dolce, then along the south two-lane of a four-lane divided roadway with no driveways to multi-family dwellings, and little, if any, sewer connections, water lines, telephone, gas or other lines obstructing rapid and low-cost construction along the south side of Via Marina.

Traffic management on the Via Marina four-lane divided roadway is relatively easy, particularly in view of the lack of driveways, garages, and utilities obstructive to high speed construction.

It is simply illogical, structurally unsafe, with a high increase of cost in money and time to consider Pacific Avenue as a site for the Venice Plant Dual Force Main. PROJ-6

All of this is aside from the tremendous imposition upon living and environmental conditions during construction of Pacific Avenue if selected as the construction site. CON-7

Sincerely,

John B. (Jim) Kilroy

Encl.

cc: *Mark VanGessell*
Commissioner Ronald Low, Dept. of Public Works
Cindy Miscikowski, City of Los Angeles District 11
John S. Perkins
Russell Ruffing, Bureau of Engineering
Al Sackler
Lowell Safire, MPNA President
Vitaly Troyan, City Engineer
Christopher Westhoff, City Attorney

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Marina Peninsula Neighborhood Association

April 9, 2003

Mr. Vitaly Troyan, City Engineer
Lead City Agency
City of Los Angeles
Bureau of Engineering
650 S. Spring Street, Rm 574
Los Angeles, CA 90014
Attn: Russell Ruffing

Re: Venice Pumping Plant -Dual Force Main
1. CEQA – Notice of Preparation
2. Initial Study – Article IV Letter dated Feb. 25, 2003
3. Attachment – Issues: Pages 5 –17 inclusive

Dear Mr. Troyan:

We have received the attached documents and have studied the City's proposed responses to the Issues Section in detail.

Proposed Routes for EIR
To date, we are aware of five proposed locations for the construction of the Venice Pumping Plant Dual Force Main. These are listed below with the source of the information:

Community News Bulletin – October 2002

1. Pacific Avenue Alternative – Preferred by the City and apparently the subject of considerable effort by the Public Works Department having prepared detailed and possibly final plans for placement. Also, the route used as the basis of the Initial Study baseline dated 25 February, 2003.

2. Beach Alternative – Alignment near the existing Force Main on Venice Beach. Apparently rejected by the City due to some potential Coastal Commission requirements. This route is preferred and supported by numerous local residents.

Community Meeting at the Marriott Hotel – 15 October 2002

3. Alternative #1 – Presented in a vu-graph presentation as a route around the Marina staying completely on Los Angeles City right of way. Rejected by the Public Works Department as technically unsound due to pressure drops in the sewer line without the construction of additional pump stations.

4. Alternative #2 – Presented in a vu-graph presentation as a route second route around the Marina staying completely on Los Angeles City right of way. Rejected by the Public Works Department as technically unsound

11 Mast Street
Marina del Rey, CA 90292

Mr. Vitaly Troyan
Page 2 of 3

due to pressure drops in the sewer line without the construction of additional pump stations.

Letter to Commissioner Low from John Perkins – 27 November 2002

5. Via Marina Alternative – Proposed as a solution that would be less disruptive to Marina traffic, may be shorter in total length, would allow more rapid completion, and possibly less expensive.

We believe another location should also be considered. That the proposed force main be constructed by micro tunneling below the right of way of the Ballona Lagoon Canal. The canal is immediately adjacent to the pumping plant and extends to the Marina del Rey Channel.

We believe that either the beach location or the canal location provides the least disruptive location, the safest locations; and the most environmentally sound locations, and the lowest cost locations. Further, that the Via Marina location is the third most responsible location and the Pacific Avenue location is the most disruptive, the most costly, the worst environmentally, as well as exposing the City to the greatest potential for serious ongoing liability in connection with vibration damage to homes and other issues.

For the purpose of the Initial Study, we believe that the staff should be directed to prepare the study around four of the above named routes. These are:

1. Ballona Lagoon Micro Tunnel Alternative
2. Beach Alternative
3. Pacific Avenue Alternative
4. Via Marina Alternative

Impartial Objective Study

As we read the documents provided, it is obvious that the City has a strong bias toward the Pacific Avenue designed installation. It is also obvious that the answers provided are, in many cases, incorrect and misrepresented known facts.

The City has prepared final or near final plans for the Pacific Avenue Alternative. It is customary that the design team for such near final or final plans be restricted from involvement in the CEQA process due to the probability of bias towards their design.

We believe that such bias is clearly evident. We recommend a new team be assigned to complete the EIR.

We also recommend that a qualified independent Oversight Board be formed to assure that such bias does not continue.

Clarity of Initial Study Matrix/EIR Report

Further, it is impossible to set forth specifically related issues for each proposed location in the single format proposed by the City.

Mr. Vitaly Troyan
Page 3 of 3

A response by the City to specific issues for each of the four proposed locations should be provided. This is essential for an equitable determination of the respective benefits and liabilities for each location.
We have attached a marked up copy of the issues sections, which more clearly represents appropriate responses to the issues.

We again emphasize the importance of accuracy and facts and that a separate list of issues and responses should be prepared for each proposed location.

Recommendations
In summary, we request that you assure:

1. the routes to be studied are specifically identified
2. the assignment unbiased staff to prepare the EIR
3. Form an Independent Oversight Board to assure a bias free study
4. Prepare a specific issues study for each site

We look forward to your response. Thank you for your cooperation.

Sincerely,
Marina Peninsula Neighborhood Association

Lowell Safire, President

John B. Kilroy
5306 Pacific Ave.
MDR, CA 90292

Mark VanGessell

John S. Perkins

Al Sackler

cc: Cindy Miscikowski, City of Los Angeles District 11
Commissioner Ronald Low, Dept. of Public Works, City of Los Angeles
Russell Ruffing, Bureau of Engineering, Environmental Group, City of Los Angeles
Christopher Westhoff, City Attorney, City of Los Angeles

John S. Perkins

5209 Ocean Front Walk #101
Marina del Rey, CA 90292
(310) 301-8018

27 November 2002

Commissioner Ronald Low
City of Los Angeles
Board of Public Works
200 North Spring Street; Suite 361
Los Angeles, CA, 90012

RE: Venice Dual Force Main Project

Dear Commissioner Low:

The purpose of this letter is to make sure that you are aware that other reasonable alternatives exist for the Venice Dual Force Main Project other than those currently proposed and that the additional alternatives are explored prior to submission to the community for comment.

I am a Marina del Rey Peninsula community resident and attended the 15 October 2002 meeting held in the Marina del Rey Courtyard by Marriott Hotel. At the conclusion of that meeting I discussed another alternative with the City's Project Manager, Sean Zahed, in addition to the four alternatives he presented.

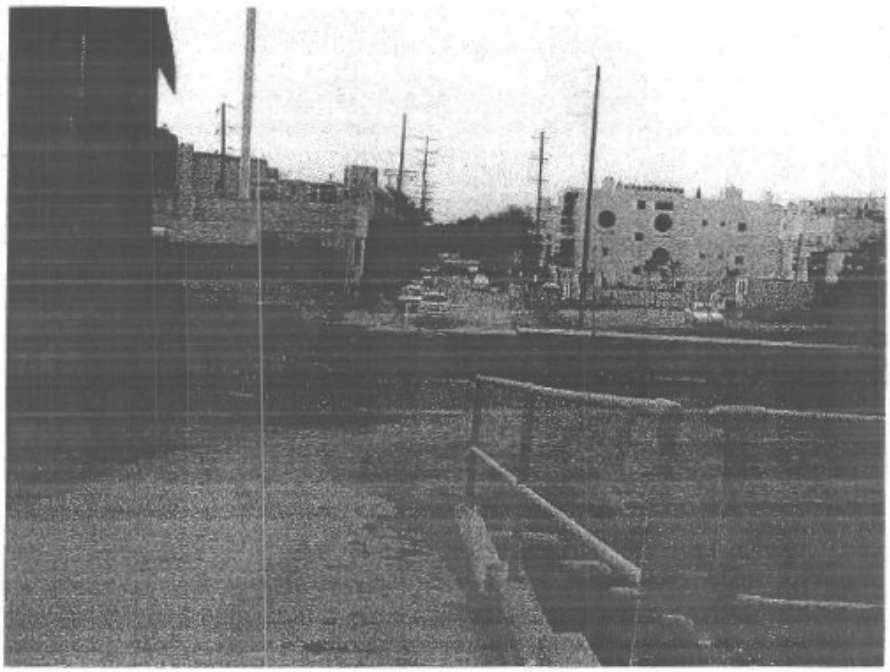
The Alternative (Reference Attachment 1)
Instead of exiting the existing pumping station and going west on Hurricane, I would suggest that the sewer line should go east, under the small canal and then cross Via Dolce and continue along Marquesas Way. It would then turn south and run under the west side of Via Marina to the channel. From there it could continue across and run on the east side of the currently developed area, or turn and follow either of the two plans presented for crossing the channel in this area.

While the construction along Via Marina would be on County right-of-way, instead of solely in the City, the County should be able to support this path since the sewer carries waste from the marina area (i.e. County property). Some of the benefits of this alternate route are:

- The disruption of traffic on the peninsula would be greatly reduced.
- Residences on the west side of Via Dolce do not front on the street. Access to the properties is from other streets, in contrast to the numerous residences on Hurricane and Pacific Avenue whose front doors and driveways are on the street.
- The divided roadway of Via Marina would allow the project to be accelerated while still allowing two way travel along the east side of the road while each of the four major sections of road were under construction. This area also affords alternative streets for residents to leave the area.

Attachment 2: View West across empty lot, small channel and down Hurricane. (Currently proposed route).

Venice Pump Station across channel on left.



Attachment 3: View East across Via Dolce down Marquesas Way.

From: "Don Hollands" <don-hol@comcast.net>
To: "Environment" <environment@eng.lacity.org>
Date: 3/16/2006 11:40:26 AM
Subject: Venice Dual Force Main

Venice Pumping Plant: Dual Force Main Project.

Observations:

The peak flows to the Venice Pumping Plant exceeding its capacity is a result of poor City planning; allowing large expansive housing developments prior to having the required infrastructure in-place.

All large expansive housing developments should be put on hold (stopped) until the infrastructure is in-place that can support the increased capacity they require. These large housing developers should provide significant funds with upfront payments to the City for expansion of existing infrastructure. Current tax-payers should only be responsible for repairing and maintaining original infrastructure. GRWTH-1 GRWTH-2

The proposed project for expanding the capacity of the pipeline will not resolve the larger problem; the Hyperion Sewerage Treatment Plant is currently unable to deal with the increasing capacity, which has already resulted in untreated waste being released into the sea in 'emergency situations'.

Comments:

1. Firstly, it is important to reconsider the benefits for existing residents and tax payers for a 'No Action Alternative'.

2. In the event that a second pipe line is installed; as a condominium homeowner, located on Pacific Ave., I favor the Dockweiler Beach alternative being used as the construction site for south of the Marina Inlet. This choice will reduce the impact and risks to both homeowners and properties. The Draft EIR understates the impact and the major risk to properties, which is the potential for damage to property foundations e.g. impacts, subsidence, and vibration. The Dockweiler Beach alternative reduces health hazards, dust, etc. and the potential interruption of utility services, which occurs when a channel, or tunnel construction is in the streets e.g. Pacific Ave. This alternative is far safer for the general public and will have the least negative affect for accessing the area, e.g. emergency services. ALGN-1

3. The Draft Report refers to potential impacts to recreational facilities and public events on the beachfront, however, the Dockweiler Beach alternative for south of Marina Inlet: ALGN-1

a) Only impacts a mile of beachfront and bike path - we have many, many more miles of beaches and bike paths available for our recreation.

b) Will allow normal use by the general public of the recreational facilities in the Playa Del Rey Lagoon Park (parks, barbeques, basketball court, baseball park, etc.). ALGN-1

c) This alternative has the least negative effect for residents and the general public with fewer street closures, lower noise, lower vibration and allows for better residential access and emergency access during the construction period.

4. RE: Operation of Construction equipment, Equipment laydown, Construction Workers parking, Dust containment, Safety.

a) Strong Contract terms should be used to control how the construction company operations are undertaken and managed, thereby to ensure the least amount of disturbance to local residents. Special Assessments (fines) should be applied for violations by the construction company, or its workers. CON-1 CON-2 CON-6 CON-7

b) Trucks carrying loose materials, sand, dirt, etc. should be required to use covers.

c) There are many unused roadways, near Sandpiper Street, which should be made available for construction workers parking, equipment laydown, etc. this will help avoid our local streets becoming choked by construction vehicles and equipment.

Thank you for your considerations,

Don Hollands: 310 306 8522. Organization - HOA - Laguna Del Mar Assn Inc.

6400 Pacific Ave. #304, Playa Del Rey, CA 90293.

From: "mark van gessel" <vangessel@comcast.net>
To: <environment@eng.lacity.org>, <carol.armstrong@lacity.org>, <jim.doty@lacity.org>
Date: 3/16/2006 8:56:08 PM
Subject: Venice Dual Force Main - Comments to the EIR

Attached are my comments on the Venice Dual Force Main project.

Sincerely

Mark Van Gessel

Mark Van Gessel's
Comments on Dual Force Main EIR Page 1 of 7

Comments to EIR

1. General Comment
   a. In the alignment for the North area (north of Marina channel to pumping plant) you are showing the following alignments
      i. Deep Tunnel Pacific
      ii. Deep Tunnel Beach
      iii. Cut and Cover Pacific
      iv. Cut and Cover Marquesas
   b. You should have a cut and Beach alignment
   c. Below is my opinion on alignments when considering all the factors (environment, money, impacts, time, feasibility) in order
      i. Cut and cover beach
      ii. Cut and cover Marquesas
      iii. Cut and cover Pacific
      iv. Deep tunnel beach
      v. Deep Tunnel pacific
2. The EIR is a very large document (with appendices) it is several 3 inch 3 ring binders. The law requires a minimum review period, which is what you are providing. It took the City over 1 year on a fulltime basis to write this document and the City is only providing a very short (minimum) review period. The City should not use the minimum duration for such a large project. EIR-2
   a. I request that the City extend the review period to allow enough time to review the entire package.
3. Add to list shown in 1.8
   - Impacts to structures and the permanent settlement of ground due to dewatering GEO-1
   - Access to homes if cut and cover is the chosen method of construction on the Venice peninsula CON-3
4. In 2.2 Please clarify that the VPP has never had a spill due to capacity issues.
5. In 2.2 please clarify that the VPP has been upgraded over the years so that the pumping capacity now exceeds the pipe capacity. PROJ-2
   a. As part of the EIR the EIR should provide a detailed analysis of the number of times that the VPP is anticipated to exceed the capacity of the pipe so that people can have a realistic understanding of the damage that can be done to the environment. PROJ-4
   b. It should also be made very clear that the plant was near (but never release wastewater) releasing wastewater in 1992 and 2004 that the wastewater was very diluted compared to normal wastewater.
   c. Please also clarify if other City sewage facilities released wastewater during these storms. This is critical in evaluating the no-build option. If the report shows that all that would happen is that the increased capacity would just pump most wastewater to a facility that than does not have the capacity all one has done is shift the problem and not really solved it. If anything one ahs created a large problem by concentrating and increasing the wastewater discharge. PROJ-2

Mark Van Gessel's
Comments on Dual Force Main EIR Page 2of 7

6. In 2.3 (Page 2-9) the cut and cover construction. The construction duration is to short for construction on Pacific the duration would be more in the range of 14 to 18 months. CON-2
    a. For a detailed discussion please see other sections of comments.
7. In 2.3 (page2-9) under starter tunnel
    a. Please revise the sentence regarding acoustic curtain. To read NOI-1
        i. "To minimize the transmission of noise, the contract will require the installation of an acoustical curtain that is at least 25 feet high and surrounds the entire site, and be closed when any construction activities occur."
8. In 2.3.1 Project alternatives:
    a. Why is the cut and cover not a feasible alternative for the beachfront areas and is a feasible alternative for the street alignment.
    b. By not including a cut and cover construction method for the beachfront alternative you are not providing an alternative that may be the least environmentally friendly and cost effective.
    c. If the initial construction used to build the 48" line was a cut and cover construction method what has changed to make that construction method not viable. ALT-2
    d. I also believe that when the project was first proposed (several years ago) the construction method for the beach alternative was a cut and cover. The City speaker at the time said that they were refusing to consider the beach alternative because they did not want to deal with the coastal commission.
    e. A cut and cover alternative on the beach would be a more environmentally friendly and cost effect solution than the street alternative for the Venice peninsula portion of the project.
    f. Please make a clear chart showing the options so they can easily be understood. Since to the chart shown in the presentation that showed all the 6 alternatives. This gets expanded since the cut and cover beach alterative should be included.
9. In 4.1.1 –
    a. The estimated durations are to short. After 80 feet of trench is opened the mud mat is placed. That has to cure (several days) than the gravel bedding is placed (this is at least a 2 day process. 1 day to place another day to set grade and compact. The backfill process again is several days (at least a week) especially since the there is no adjacent property to store any material and trucks have to work only from one end not along the side of the trench. There is no time for installing the shoring. There is no time for removing the shoring. You also have no inspection time by City inspection forces. City has to inspect bottom of trench (1Day) City has to inspect mud slab (1 day) City has to inspect gravel bed (1 day). Once the trench is backfilled you have to make sub-grade City has to inspect. City requires that back can only be in 8" lifts so that takes time. Then the AC has to be placed and the City has to inspect. You are requiring the street to be paved in very short sections and this is very time consuming. CON-2

b. The production rate should be in the range of 10 feet a day or less. That would equate to approximately 500 working days or 700 calendar days (1.92 years). I am civil engineer with over 10 years in pipeline design and construction and believe that my estimate is very accurate I could be considered and expert witness on the subject. I can go over your detailed work schedule if necessary. CON-2

c. The other street construction alignment Marquesas / Via Marina way I believe is longer than necessary. This area has a larger street and can allow construction access adjacent to the trench making construction quicker and easier and cheaper.

10. In section 4 page 4-5 you provide cost estimates. In order to have a public process on the cost estimates detailed information on how the costs were arrived at need to be included. Please provide a detailed cost estimate for each alignment so the costs can be publicly discussed.

a. More detailed costs analysis of all alignments are required as part of the EIR in order for the public to comment properly. Please provide.

b. You show the Marquess way/via marina way alignment having the same cost as the Pacific Avenue alignment. This is not correct. From a simple oversight review and a ROM estimate the Marquess way alignment is more expensive than the Pacific Alignment by at least 15%. Please provide the detailed backup data so that I can show where you are off in the estimate. PROJ-7

c. There is no cost estimate for a cut and cover alignment along the beach. In the revised document this needs to be include. From a ROM estimate the cut and beach alignment should be less expensive than the Pacific avenue alignment.

11. I believe that the Marina del Rey and also the beach alignment (cut and cover) would be less costly than the Pacific Avenue alignment.

12. In the cut and cover alignment along Pacific Avenue you should discuss that the pipeline would require the shutting down of the corner of Pacific and Via Marina. In a previous detailed review the plans that have been generated for this alignment I held a meeting and showed the City staff that this alignment would have to shut down the street in order for it to be completed. I can have a meeting to go over this. Also the Bus or large vehicle traffic (Moving van or other large trucks) will not be able to make the turn when the pipeline is constructed in this area. Fire trucks would also not be able to make the turn when the pipe is under construction at this location. It is anticipated that this construction would be for at least a 1 month if not longer. CON-3 EMG-1

a. I have not seen the fire department comment on this issue. The Fire Department should be contacted about this issue if this alignment is taken and have input on construction and access restrictions.

b. In the event that a fire occurs in the neighborhood and fire response is limited and extra damage occurs would the City pick up the additional cost?

c. The contractor should be required to post signs at specific locations coordinated with the communities that large vehicles can not exit and make the turn at Pacific and Via Marina

13. Previously mentioned in the past public hearing prior to the City realizing an EIR was required it was discussed that if the beach alignment was chosen additional costs and improvements to the area would have to be incurred driving up costs. Other City department should not impose additional un-necessary improvements to one alignment and not the others this appear to make the City look as if they are forcing one alignment to be chosen over another. If other city departments or agencies are requesting improvements for one alignment over another such improvements should be required for all alignments.

14. On page 4-6
    a. All construction durations appear short could the person have converted working days directly into calendar days. Meaning 5 working days = 1 calendar week. Unless the City plans on having this work be performed 7 days a week and that is not stated in the EIR.
    b. The duration of Hurricane to Pacific 3 weeks in short it should be at least 9 weeks.
    c. The length of the pacific alignment is approximately 5,000
    d. The duration for the pacific alignment is to short and should be 95 weeks based upon the restriction you state in the EIR

CON-2

15. On Page 4-6
    a. Please detail which are receiving pits and which are the tunneling shafts.

CON-2

16. In 5-1 (page 5-1) you state that there are no significant environmental impacts once this project is built. This needs to be revised.
    a. If you built the Pacific avenue alignment that alignment has numerous air vacuum valves. These valves will release tapped air from the system into the environment. The air from sewage has methane and hydrogen sulfide in it and also other gases with odors. The wind pattern will have these vapors go immediately into the air of the Ballona reserve. This could impact the wildlife. The air could also impact the residents in the area as smell and gas.
    b. Please revise the EIR to state that there permanent environmental impacts for the pacific avenue alignment.
    c. The Marquesas / Via Marina way alignment can be placed deeper and there are less pipes and other utilities to cross. The marquesas alignment may not require any air/vac valves but if it does they would be less and not impact the wildlife reserve.

AQ-1

17. On page 5-128 you provide clear mitigation measures.

Mark Van Gessel's
Comments on Dual Force Main EIR Page 5of 7

18. Please include similar bullets for other sections;
    a. Vibration
        i. Have a clear vibration specification similar to MTA's vibration specification. (see attached)
        ii. Have the Contractor assessed (see attached language) damages if he exceeds the vibration limits
        iii. For the Pacific alignment please have a detailed vibration limit. Se attached specification

CON-8

    b. For other areas such as dust and operation hours hove clear bullet points that he is required to meet
        i. Operation hours. As stated in the meeting for the Pacific avenue alignment:
            1. No excavation prior to 10:00 am
            2. No plate remove of open trenches prior to 10:00 am
            3. All trenches shall be plated at end of the shift and than open to evening and morning traffic
            4. All excavation shall stop by 3:00 pm.
        ii. These were verbal statements made during the presentation regarding the pacific avenue alignment Please incorporate these as bullet items in the EIR so that the community will be assured that if the pacific avenue alignment is chosen these are part of the contract.
        iii. Please include special assessment language(see attached) if the above items are not adhered to by the contractor.

CON-9

    c. There is no discussion on the dewatering and settlement of adjacent homes for the Pacific ave alignment. Please expand on this issue on the previous documents it stated that dewatering is required to build the pacific ave alignment and that settlement is likely with dewatering.

GEO-1

19. In the EIR for the Marquesas / Via Marina way alignment you require that a tunnel be required to cross the canal.
    a. In order to allow for easy of construction the EIR should allow this to be open cut with a requirement that the contractor should not impact the water flow. The contractor could construct an cut and cover and divert the water around the excavation. This would allow the construction contractor alternatives and help reduce costs.
20. I believe that the Venice coastal specific plan and/or the Venice Land use Plan shows the building at Ironside (building shaped like a ship. Is a historic building. The Pacific avenue alignment could damage that building. Nether the beach alignment or the Marquesas alignment would impact that building during construction.

Mark Van Gessel's
Comments on Dual Force Main EIR Page 6of 7

21. For the Pacific avenue alignment at Pacific and Via Marina (page 5-43) you assume that jacking will be the construction method used to avoid traffic.
    a. Jack is not feasible for this portion of the alignment. In pervious meeting (2002) on the pacific avenue alignment the city engineering group conceded that the corner area of pacific and via marina would have to be completely closed to make the pipe turn. This would have to be an open cut construction. This would greatly impact traffic and access.
    b. For a period of time (weeks) no access be allowed through pacific and via marina.
    c. Please revise and discuss in detail this impact.
        i. Please get specific input from fire department regarding this
        ii. Please get specific input from the police department regarding this
        iii. Please get specific input from the MTA regarding bus routes
        iv. Please get specific input from the City Transit system (Express service) regarding this.
    d. If your response is that this corner will not be closed a detailed meeting is required to explain what changed from 2002.
    e. If you hold that con be constructed without closing the corner, please make is a specific bullet item in the EIR and state that if a construction breaks such a rule they will get assessed damages for closing the corner.

CON-3

22. For the Pacific alignment please include in the EIR that you have resident parking only in the neighborhood during construction to make it possible for residents to park due to all the parking that is being removed during construction. Please see page 5-43 where you discuss all the parking you are temporarily removing to build this alignment.
    a. If the Beach or the Marquesas alignment is chosen this is not an issue, since those alignments do not impact parking.
23. On page 5-128:
    a. NOI-8 This is not adequate for any alignment. This should be revised to read:
        i. "The contract shall have detailed noise specification which will provide maximum noise levels (instantaneous and 8 hour averages) Violations of the contract shall result in monetary assessments to the Contractor."
    b. Add a NOI-10 for pacific avenue alignment
        i. "Truck hauling shall start no earlier than 9:00 am and end no later than 3:00 pm
        ii. Truck hauling shall be limited to Monday through Friday.
        iii. Truck staging shall no occur on the Marina peninsula
        iv. Only 2 truck may be permitted on the project site at on time. A in the operation of being filled or depositing material and a truck preparing for such operation.
        v. A contract clause shall be included in the construction contract that each item above that is not complied to, each time, shall be special assessment to the contractor.

NOI-2

Mark Van Gessel's
Comments on Dual Force Main EIR Page 7of 7

24. On page 5-129
    a. Add similar bullets for vibration like on the previous page
    b. For the Pacific avenue alignment please revise the EIR to allow the community to understand the vibration that they will expect and provide maximum vibration limits for this area. This alignment is different than any other alignment since the cut and cover alignment is going to be with 50 feet of residential homes. The EIR needs to revised and recirculated so the community can understand the vibration impacts that could occur if this alignment is chosen. CON-8
25. On page 5-72
    a. If the Pacific avenue alignment is chosen liquefaction is an issue for the pipeline. The pipe will sit immediate adjacent to a slope that can liquefy and undermine the pipe and cause it to break and spill waste into the wildlife reserve. No other alignment has such issues. A portion of the pacific avenue alignment has city owned property that will not be developed and as such the property will erode with time making erosion and liquefaction a major issue for the pacific avenue alignment. GEO-2
        i. If the City proposed to reinforce this section this will drive up costs and increase construction time. This makes the Marquesas alignment a better alternative.
26. I have attached a past report that discusses several items regarding the pacific avenue alignment. These issues do not appear to have been covered in the EIR. Please address.
    a. Page 5 of report on regarding seismic
    b. Page 5 of report on Liquefaction
    c. Page 6 of report on Groundwater and settlement
    d. Page 6 of report on Vibration and noise
    e. Page 7 of report on Receiving pit
    f. Page 8 of the report on the corner of Pacific and Via Marina
    g. Page 8 and 9 of the report on the construction along Pacific

REPORT ON THE PROPOSED SEWER PIPELINE IN THE VENICE PENINSULA

By
Mark Van Gessel, P.E. – Civil & Ocean Engineer

October 15, 2002

Report on Proposed Sewer Pipeline in the Venice Peninsula

By

Mark Van Gessel, P.E. – Civil & Ocean Engineer

EXECUTIVE SUMMARY

This report has been generated to discuss the different alignment options for a proposed 54 inch future sewer line. Presently only two alignments have been proposed: A Pacific Avenue alignment and a beach alignment adjacent to the existing sewer line.

After a detailed review of the available information (Moffatt & Nichol report and Dames & Moore Geotechnical report) this report provides conclusive evidence that a beach alignment is a preferable alignment.

A beach alignment is the preferred alignment when you compare the alignment options for the following issues: environmental protection, safety, effects to neighbors, cost, and time.

The City should consider revising their preferred alignment option to a beach alignment, which is environmentally better, cost effective and easier to construct and maintain.

AUTHOR'S BACKGROUND

Mark Van Gessel holds a Bachelors of Science in Ocean Engineering and is also a Licensed Civil Professional Engineer. He has worked in the field of pipeline/tunnel design and construction for over 18 years. He has worked on numerous projects with varying sizes of pipes from 4 inches to as large as 144 inch pipelines and numerous size tunnels and pipe-jacking projects up to 16 feet in diameter. This technical background and actual work experience allows him to provide an expert opinion on the proposed project.

COMMENTS ON THE MOFFATT & NICHOL REPORT

Below are general comments and concerns regarding the Moffatt & Nichol report prepared by Russell H Boudreau. A review of this report show that it contains fundamental errors as well as incorrect and incomplete information. I have cataloged the comments into groups; project location, permits, beach erosion, and sea level predictions. It is the author's opinion that the Moffatt & Nichol report contains so much incorrect and missing information that it needs to be completely rewritten and cannot be used to make any decision to eliminate a beach pipeline alignment option.

Project Location:

This report specifies the location as adjacent to the existing 48" sewer. The actual location of a future pipeline has not been finalized and a specific location should not be analyzed but a general alignment with possible locations should be discussed. While the alignment, adjacent to the 48" line, may have been dictated by others the author has the professional obligation to discuss the ability to shift the alignment if such a shift mitigates concerns.

2

The ability to locate the proposed pipeline is not limited to the stated alignment and can be located anywhere within the sand zone. By shifting the alignment East just 23 feet would remove the erosion concern (which is an incorrect concern). By shifting the pipeline location 100 feet (± 20 feet) East of the existing pipeline numerous issues outlined in the paper would be avoided. This shifting of the alignment would have far less impact to the beach and will provide better construction access making the project cheaper and quicker to build plus provide easier access for future service.

Permits:

Several very critical permits were not listed in the M&N report. It should be noted that this report makes it appear that only the beach alignment will require the permits discussed in the report. This is incorrect. All the permits that are listed in the report are required for any alignment.

There are several additional permits that are required for the Pacific Avenue Alignment that are not mentioned and are critical in evaluating the different alignments. Below are several permits that were missed and required for this project.

Permit	Agency	Issue
CEQA	City of LA	This project requires a full Environmental Impact Report (EIR) report to be prepared in order to proceed. It must be filed and also allow for public input and review. Any present meetings or discussion do not substitute for public review once the report has been prepared. Additionally all public comments must be addressed.
NEPA	Federal Government	This project shall require a federal clearance. Similar to the above report and can potentially be combined. But never the less a NEPA Clearance is required.
Police Noise Variance	City of LA	For the Pacific Avenue alignment the project will exceed the allowable noise levels and potentially the hours of construction and shall require a variance. * This permit is only required for the pacific avenue alignment.
Street Easement Permit	City of LA	A permit to work in the street is required. Additionally the City of Los Angeles has also added a special clause to require the City to be reimbursed for cutting and patching streets based upon damage done to the street. Based upon past experience the amount of pavement being removed in the Pacific Avenue alignment it is more economical to remove and replace the entire street, including subgrade, than to pay the fee associated with the cutting and patching. It has been stated, by the City, that other City agencies are not exempted from this requirement. * This permit is most likely only required for the pacific avenue alignment.

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Beach Erosion:

While the report discussed, in very generic terms, the concept of beach erosion it generalizes and claims that all beaches are sooner or later going to be eroded. This is incorrect.

The Army Corp of Engineers (Corps.) has performed a detailed report of this specific area and the associated beach as part of the Marina del Rey Dredging project. This report discusses the problem that is occurring along this stretch of beach, which is increased sediment, not beach erosion. If the author of the Moffatt & Nichol report had reviewed the Corps. report they would have been able to properly indicate that the beach for this proposed sewer project is actually growing and will continue to do so.

Where the report discusses other areas of Venice Beach that are eroding the report neglected to state the specific reasons why the erosion was occurring. All of the features that are causing the erosion elsewhere do not exist at the specific Marina del Rey site.

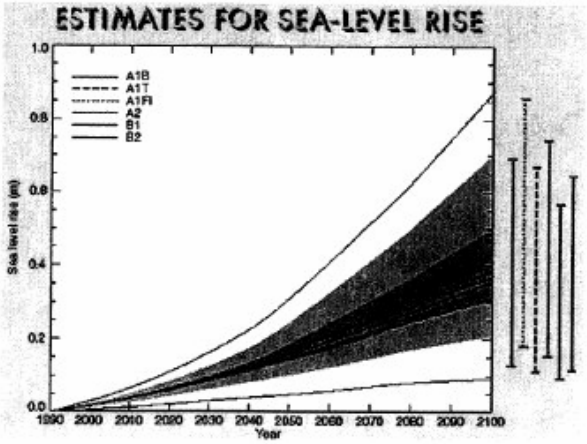
If the M&N author had used the bible in beach design; "The Shore Protection Manual" the beach area where this proposed project is located would be shown to be a stable or expanding beach rather than a contracting beach.

The report needs to be updated to properly reflect the state if this beach.

Sea Level Rising:

In the Moffatt & Nichol report several documents regarding sea level estimates were quoted. These documents are not current industry standard or what is presently being used in the professional environment to estimate future sea level elevations. The numbers provided and are based upon unrealistic variables.

Just recently, 2001, there was a conference on ocean issues where sea level predictions were presented. At that conference the numerous estimates were combined and the chart showing that information is presented below. As one can see the experts in the field all agree that the sea level elevation is increasing but no where near the erroneous levels stated in the Moffatt & Nichol report.



Estimates for sea-level increase from the IPCC Climate Change 2001

4

The Moffatt & Nichol report needs to be revised to accurately reflect what is being used in the professional industry for future sea level elevation increases.

A review of the worst-case scenario shown in the char is a sea level elevation increase of less than 0.9 meters (less than 3 feet). If the report used such proper information the stated beach alignment would be feasible.

If the report is correct, which in my professional opinion it is not, the proposed project could be moved just 23 feet East and avoid the erosion problem. It would also require the Sanitation District to perform some kind of relocation or protection project for the existing 48 inch line. The report also neglects to take into account the depth of the pipeline and the protection (concrete encased) being proposed for the pipeline, both of which would allow a beach pipeline alignment. Additionally the report fails to discuss the positive attributes of allowing for the rehabilitation of the existing sewer line.

The Moffatt & Nichol report needs to be revised to accurately reflect that the rise in the sea level elevation is not a concern for any proposed beach alignment.

COMMENTS ON THE DAMES & MOORE GEOTECHNICAL REPORT

The Dames & Moore geotechnical report provides even further evidence that a Pacific Avenue alignment is not a practical, cost effective, or realistic alignment. Within the report numerous items are discussed that are major concerns only to a Pacific Avenue alignment that are not a concern with a beach alignment.

Due to the seismic concerns, liquefaction, dewatering, settlement and vibration issues a Pacific Avenue alignment should be abandoned. The correct alignment based upon the Dames & Moore report should be a beach alignment.

Seismic issues:

The Dames & Moore report clearly states, in Section 8.1, that seismic activities are a concern to the structural integrity of the pipeline. In the event of a seismic event large enough to damage the pipeline so many negative effects to the environment and the community would occur with a Pacific Avenue that it should be not be considered. An actual pipe rupture would release raw sewage into the local community and also the Ballona Lagoon killing the wildlife and permanently contaminating the lagoon.

Depending upon where a rupture occurs along the Pacific Avenue alignment the ability to repair the pipeline would take longer to repair. This again is critical because while the pipeline is under repair raw sewage could be released from the pumping station. This means that a future pipeline needs to be easily accessible to repair in case of a rupture so as not to cause damage to the wildlife of the lagoon.

When considering seismic concerns a beach alignment is the preferable alignment.

Liquefaction:

The Dames & Moore report states in Section 8.2 that liquefaction is a major concern when designing and selecting the alignment for this pipeline. This report does not compare the two alignments but a review shows that a Pacific Avenue alignment has far more engineering problems in the event of a liquefaction event. Since the Pacific Avenue alignment is adjacent to the canal and lagoon a liquefaction event along has the potential to collapse a portion of the street and cause the pipeline to become exposed and rupture. The East side of the Pacific Avenue alignment has an exposed slope

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that would fail and provides no support in a liquefaction event. This potential does not exist for a beach alignment.

Recommended mitigation measures discussed in the report include compaction grouting. What is not discussed with compaction grouting is the environmental impact of grouting. Grout will migrate through the soil and will containment the groundwater and also flow into the lagoon contaminating the environment. Specialized grout such as ultrafine or polyurethane grout may be required to control liquefaction. Such specialized grouts have an even greater impact on the environment and needs to analyzed. Grouting should not be required for a beach alignment.

When considering liquefaction concerns a beach alignment is the preferable alignment.

Groundwater and Settlement:

The Dames and Moore report, Section 9, clearly states that a Pacific Avenue alignment has numerous problems when compared to a beach alignment.

Dewatering is required to be performed and the water is required to be treatment and disposal of. This is a major issue and has not been addressed. Proper treatment of groundwater and the installation of wells is not covered or discussed in any documents provided. The equipment necessary requires a large space and easy access, none of which is not available in a Pacific Avenue alignment but is available for a beach alignment.

The other major issue with dewatering is settlement. Section 9 states that settlement is usually associated with dewatering activities. In the soils located within this area major settlement should be expected. When the water is removed from the soils the material will consolidate and settle. It should be anticipated that effects from settlement would extend beyond the street too the adjacent properties on both sides of the street. This settlement issue is a major concern especially with properties adjacent to the Lagoon in that such settlement could cause the slopes to become unstable and collapse. A major slope failure could impact the street, the existing water line and the proposed sewer line, in addition to structures.

Settlement will occur with a Pacific Avenue alignment and the City needs to properly plan for settlement.

Groundwater and settlement is not an issue with a beach alignment.

When considering groundwater and settlement a beach alignment is the preferable alignment.

Vibration and noise due to construction activities:

In Section 9 of the Dames & Moores report it clearly states that the Pacific Avenue alignment construction will create noise and vibration that will impact the neighbors. What the report fails to discuss is the noise impact to the environment.

Due to the proximity of construction site to the lagoon the construction impacts of a Pacific Avenue alignment will require environment mitigation. Such restrictions are most likely going to be far more onerous than the environmental mitigation measures and restrictions associated with a beach alignment.

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The vibration will also impact the adjacent properties. Construction activates so close to properties have similar concerns as for settlement and seismic issues. Due to vibration the Pacific Avenue alignment has a high potential for slope failure, damage to adjacent building, and streets.

Such concerns do not exist for a beach alignment.

When considering vibration and noise the beach alignment is the preferable alignment.

COMMENTS ON THE PACIFIC AVENUE ALIGNMENT AND COMPARISON WITH BEACH ALIGNMENT

Based upon the information that has been provided to me I have enough information to provide expert opinion that the Pacific Avenue alignment as presently proposed is not a constructible project and is substantially more expense and time consuming than a beach alignment and impacts the environment far more than a beach alignment.

Receiving Pit:

The Pacific Avenue alignment presently shows a receiving pit for the tunneling operation under the marina channel. From the information provided, it is obvious that the person who proposed this pit has never constructed or worked on a tunneling project.

Pacific Avenue Pit:

- A receiving pit is rectangular, not a circular.
- The size of the pit is too small to allow for a tunnel machine to be retrieved. The pit must be twice that size. Based upon experience with similar projects a minimum of a 100-foot pit would be need.
- The location of the Pit is to close to the breakwater. An analyzes of the underlying material needs to be performed. From drawings of the breakwall design, that I have seen, there is a high likelihood that boulders will be present in this location. A pit can be located in such an area and needs to be moved further back to ensure that the break-wall is safe.
- Having two turns in the pipe at the pit is not constructible, practical or advisable. The pit would needs to extend even further back beyond the elbows, as a minimum, to allow for construction of the pipeline.
- A proper pit would require the entire corner area to be shut to through traffic.
- The drawing forgets to show where all the dewatering facilities will be located. They need to be located adjacent to the pit and require additional space that is not available.
- This location cannot be enlarged to allow for it to be a tunneling pit. There is just not enough room for a tunneling pit at this site. Tunneling from this side is not possible. This limits the construction options. This will lead to an oversized machine costing more money to construct.
- An analysis of the ability for Ductile Iron Pipe of this size to make all of the turns as shown and at the pressures proposed needs to be provided so that the community and the environment is protected from a breaking and leaking pipe.
- No details on the concrete encased for this portion a critical item.

Beach Pit:

- A receiving pit for a beach alignment can be located in the proper location to ensure that it avoids the boulders that make up the break-wall and also be located far enough back to provide proper safety to the break-wall.
- The open space allows for proper area to provide the necessary dewatering and water treatment facilities that are required for such a pit.
- The pit would only have a single angle pipe and not the double curve making the pit smaller and the construction easier.
- By having a pit on the beach the Contractor will not be forced to tunnel from only one direction and could have the option to tunnel from either side.

It should be noted that the location of the pit, either at Pacific or on the beach does not effect where the tunnel ends at the other side. The alignment can stay where the City believes is best on the South side of the Marina channel. Thus any costs south of the channel are equal.

Construction at the corner of Pacific and Via Marina:

Pacific Avenue Alignment

- You have not provided a detailed discussion of the construction sequencing at this corner.
- Based upon the alignment that that you propose the construction at this corner will require that entire street to be closed in order to complete. This construction cannot be accomplished without shutting down the intersection for some time. This is in contradiction with your statements on the project.
- It will be impossible to allow buses to travel past the construction site. This is in contradiction with your statements on this project.

Beach Alignment

- Not problems

Construction Along Pacific Alignment:

There are so many problems and difficulties that have not been addressed that make this alignment impractical compared to the beach alignment that it is impossible to justify a pacific avenue alignment over a beach alignment. Below are items that exist in the pacific alignment that are not present for the beach alignment.

- The Pacific Avenue site is requiring a concrete encasement as I would guess would a beach alignment. The big difference is that due to narrow trench for the Pacific Avenue alignment a grout mix would be required to ensure that the material could get underneath the pipe. This would not be required to a beach alignment because the trench width is not restricted. Grout is 3 times more expense than concrete. This cost is not reflected in the present design or cost analysis.
- Traffic issues are numerous compared to the beach alignment. There are so many that it would take several pages to list them all.
    - The biggest is that the based upon the drawings that you provided there is not enough room for buses to travel down the street.
    - You have not shown the dewatering equipment or the water treatment facility.
    - You have not provided enough trench width to place concrete around pipe nor build a proper and safe trench
    - You have not addressed existing utilities and how they are handled
    - You have not provided enough space for a crane that is capable of lifting and placing the pipes.

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- You have not provided enough width for the trucks that deliver the pipe pieces.
- You have not discussed the fact that the area slated as temporary parking is sand and sloped and unsuitable for parking and needs to be improved and such improvement will have effects on the Ballona Lagoon.
- The Section view is incorrect in that the pipe at Pacific and Via Marina is substantially deeper. This is especially important when you consider the impacts of a pit and the depth of a trench at the above corner.
- A profile of the pipeline is needed.
- The section does not show the concrete encased discussed in the drawings.
- The drawings do not show how the K rail impacts the traffic and makes the travel lane to narrow.
- You neglect to provide details of construction sequences between Topsail and Via Marina and how access to the East side property owners will be provided.
- You neglect to state how you are going to enforce residential parking only requirements a restriction that will not be possible to enforce.
- You neglected to discuss the impact to the birds and other wildlife in the ballona lagoon and potential construction restrictions due to migrating birds causing extended construction duration.
- Discussion of potentially contaminated soil under Pacific Avenue compared to the beach alignment. This area was a major oil construction site in its past and most likely contains contaminated soils whereas the beach alignment does not have such a problem.

- Existing material at both sites is exactly the same thus any solid stabilization requirements for the beach option would also be required to the Pacific avenue location. Any claims piles are required to the beach site but not required for the Pacific site are incorrect.

All of these are issues exist for a Pacific Avenue alignment and do not exist for a beach alignment. The beach alignment can be done with a cut and cover V trench construction method that is substantially less money.

BEACH ALIGNMENT ALONG THE VENICE PENINSULA

While issues exist for different alignments a proposed beach alignment has far fewer issues than any other alignment. Any concerns with an alignment along the Venice peninsula beach are all mitigatable whereas that is not the cause for a Pacific Avenue alignment. Based upon my expert opinion this alignment is also economically far less costly than compared to the pacific avenue alignment. A Pacific Avenue alignment would be at least twice as expensive as a beach alignment to construct.

This makes a beach alignment thorough in the Venice peninsula the preferred alignment.

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Constructability:

There are several construction methods that could be used depending upon the temporary and permanent easements that could be obtained. They could include a non-shored trench, partially shored trench or completely shored trench. Even with the most expense method of completely shored trench, it would far more economical that building a trench within the street right-of-way. Construction along the beach is better because; there are no existing utilizes to work with, no minimum open trench restrictions, easier construction if shoring is required.

Easement:

While an easement must be obtained, from my personal experience in obtaining easements for similar projects, an easement is obtainable and could easily be obtained to support any construction schedule. The easement that would be required could be started during the permitting process and be available immediately after the permitting process has been completed and thus would not impact any construction schedule.

From past experience the costs for such an easement are not nearly as expense as the City is stating. As a matter of fact, City and County agencies usually work together and only charge actual time incurred if they charge any costs.

Concerns about Least Tern Refuge:

While there is a concern about least tern, such a concern is easily mitigatable by putting construction restrictions on the contractor so that the contractor only constructs within a specified distance of the least tern refuge during non-mating season. Since the construction is far easier and quicker that in the pacific alignment this would not cause any real cost impact to the construction. Any reasonable contractor would not put any additional money for such a restriction but would just make sure to schedule the work correctly so construction would not occur in that area during that time. In today's modern construction industry this is a normal construction restriction. It would also be advisable to design the alignment outside of the actual fenced off area of the least turn refuge thus not disturbing the habitat.

Requiring an entire beach alignment if the Venice peninsula alignment in used:

This requirement is not a proper design nor should such a requirement be imposed. Any discussion of fixing an alignment or having a Venice peninsula beach alignment incur more costs for a southern portion are not correct need to be deleted.

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City of Los Angeles Department of Public Works

Venice Pumping Plant Dual Force Main Project

ENGINEERING

COMMENTS

Please use this page to submit your comments regarding the Draft Environmental Impact Report (EIR) for the Venice Pumping Plant Dual Force Main Project. You may comment on any aspect of the report. Your input will become part of the public record and will be responded to in the Final EIR, **if received by 5:00 p.m. on March 17, 2006** (the end of the public comment period).

When making your comments, please be as specific as possible:

- Where will the equipment be stored if the project begins at Hurricane + Pacific? CON -1
- Where will trash receptacles + port-a-potties be located?
- Will access to Pacific Ave (N + S of Hurricane be open - if only 1 way access? CON -3

(If necessary, please use the reverse side of the paper.)

Please complete the information below and print clearly to ensure that your comments are addressed in the Final EIR.

Name: Madeline DiNonno Phone: 310-305-1958

Organization (if any):

Address:

City: State: Zip:

You may drop your comments in the comment box at the Comments station or mail them to the following address. All comments must be received no later than 5:00 p.m. on March 17, 2006.

James E. Doty
City of Los Angeles
Department of Public Works Bureau of Engineering
C/o Public Affairs Office
200 N. Spring Street, Room M165
Los Angeles, CA 90012
environment@eng.lacity.org
Subject heading should read "Venice Dual Force Main".

As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities.

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City of Los Angeles Department of Public Works

Venice Pumping Plant Dual Force Main Project

ENGINEERING

COMMENTS

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When making your comments, please be as specific as possible:

Notify residents on a monthly basis of the construction schedule and street and alley closures

PROJ-5

(If necessary, please use the reverse side of the paper.)

Please complete the information below and print clearly to ensure that your comments are addressed in the Final EIR.

Name: Susan Papadakis Phone:

Organization (if any): GRUNC

Address: District 2

City: LA (Venice) State: Zip: 90291

You may drop your comments in the comment box at the Comments station or mail them to the following address. All comments must be received no later than 5:00 p.m. on March 17, 2006.

James E. Doty
City of Los Angeles
Department of Public Works Bureau of Engineering
C/o Public Affairs Office
200 N. Spring Street, Room M165
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Venice Pumping Plant Dual Force Main Project

ENGINEERING

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When making your comments, please be as specific as possible:

BEACH ROUTE!

ALGN-1

(If necessary, please use the reverse side of the paper.)

Please complete the information below and print clearly to ensure that your comments are addressed in the Final EIR.

Name: PHIL MAIDEN Phone: 310.399.4449

Organization (if any): GRVNC

Address:

City: State: Zip:

You may drop your comments in the comment box at the Comments station or mail them to the following address. All comments must be received no later than 5:00 p.m. on March 17, 2006.

James E. Doty
City of Los Angeles
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11.3. ANNOTATED TRANSCRIPT OF FEBRUARY 23, 2006 PUBLIC HEARING CONDUCTED BY THE CITY OF LOS ANGELES ON THE ADEQUACY OF THE EIR

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CITY OF LOS ANGELES -- DEPARTMENT OF PUBLIC WORKS

VENICE PUMPING PLANT DUAL FORCE MAIN PROJECT

PUBLIC HEARING

FEBRUARY 23, 2006 AT 6:00 P.M.

-oo0oo-

-ooOoo-

MS. DURRELL: Good evening. My name is Tonya Durrell. I'm with the Department of Public Works, Public Affairs. I am your official public hearing officer for the evening. I want to point out that you are here attending a public hearing for the Venice Dual Force Main Sewer Environmental Impact Report.

And please excuse my notes, but I want to be sure to cover everything this evening. I hope that everyone has had an opportunity to sign in tonight, and if you haven't, please be sure to do so at the table in the back.

Also, we have an agenda at the table. We will be making project team member introductions in just a few minutes. We also have speaker cards available if you wish to be heard tonight. And if you need one throughout the presentation, please just raise your hand and one of our representatives will be sure to get one to you.

You obviously can be heard tonight so that all of your comments are part of an official record that will be a part of the final EIR, and everything that is being said tonight will be recorded by our court reporter who is here with us

3

1 tonight.

2 I'd like to start, then, with our team

3 introductions. We'll start with Mr. Doty.

4 MR. DOTY: Welcome. I'm glad you took

5 time out of you regularly scheduled events to come

6 help us out on this project. It's very good to see

7 you here.

8 The project we're talking about tonight

9 is a project that's needed because we need

10 additional capacity for the Venice Pumping Plant.

11 MS. DURRELL: We're going to do other

12 instructions, and then we'll come back to you, Jim.

13 MR. DOTY: I'm Jim Doty. I am the

14 manager for the Environmental Impact Report that

15 we're discussing tonight.

16 MR. DELKHASTE: And I'm Jon Delkhaste,

17 and I'm the project engineer.

18 (Additional member

19 introductions.)

20 MS. DURRELL: As I said before, all of

21 the comments will be recorded tonight by a court

22 reporter and will be part of the final EIR. As

23 with any project of this magnitude, the Venice

24 Force Main Project must follow the California

25 Environmental Quality Act Guidelines, and as part

of that process, we obviously want to hear back from you, the community.

We want to share our expertise, disclose analysis, and we want to discover the public concerns and also solicit counter proposals. So, obviously, we welcome all of your comments. Just so you know, it is helpful when your comments suggest additional specific alternatives or mitigation measures. Be sure that your comments include your name, your organization, if you're representing an organization, and any other information including a phone number.

This public hearing is your opportunity to be heard. We are going to be listening tonight to your concerns. We will not be responding to any questions, but please be assured that all of your concerns will be on record, and we will be responding in writing to your questions and concerns.

And with that, I'd like to now introduce Jim Doty to begin tonight's presentation.

MR. DOTY: Okay. The reason that we called you out and the reason that we're doing this is that we need to provide additional capacity for the Venice Pumping Plant, and the project engineer

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will go into that in greater detail.

The plant is fine. It has plenty of capacity, but the line that leads from the plant down southward towards the Hyperion Treatment Plant does not have sufficient capacity. And also, we would like to provide redundancy for that line, because right now all of the sewage coming out of that plant goes through one single line. We cannot take it out of service to inspect it. And if something untoward should happen, we have no alternative way to handle the sewage.

The goals of CEQA are to make sure that when your decision makers make a decision whether to construct a project or how to construct a project, that they are informed of what the environmental consequences of that decision will be.

They also need to know what mitigation measures are available to reduce the effects of a project or what alternatives would have lesser effects than the originally proposed project. And all of that is so that we can maintain a quality environment for the people of California.

The reason we're coming to you is because we want to disclose to you what our analysis is,

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what we have found. We're hoping that if you have expertise, you will share that with us so that that can improve the quality of the work going into this project. We want you to check our work, make sure that it's accurate, make sure that it's complete. If there's something missing, let us know about it.

If you have a counter proposal, most importantly, we need to know what your concerns are. There is no way we can tell what your concerns are other than to come to you and ask you. You know your neighborhoods best, and we need to know what you know. So that's why we've asked you to come tonight.

What we've looked at so far and in a very large masterful work are three potential alignments connecting the dots between the Venice Treatment Plant and the southern connection point, where we need to go, and three different construction techniques. So the EIR is rather large because we have this matrix of possibilities that we have looked at.

With that, John.

MR. DELKHASTE: Thank you. Basically, what you see here is a map showing all the major sewers in the city. Here, what you see is a map of

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1 all the major sewers in the City of Los Angeles,
2 and here's the valley and here we are.
3 Now, all these sewers around the coast --
4 these are the sewers -- go here to Hyperion -- I
5 mean, to the Venice Pumping Plant at this point.
6 Because up to this point, it is a gravity flow. It
7 goes down to that point.
8 Now, to get it from here, from Venice to
9 Hyperion Treatment Plant before being discharged
10 into the ocean, we have a slope going up, and
11 that's why we need the Venice Pumping Plant, which
12 is the largest pumping plant in the City of
13 Los Angeles.
14 This is something you guys are all
15 familiar with -- Venice Pumping Plant. And as you
16 can see, one of the alternatives -- we are going to
17 be going over the alternatives later on, but this
18 is the area of one of the shafts. If you choose
19 one of the routes, that's where it's going to go.
20 And this is Hurricane Street as you all are
21 familiar.
22 To give you a very brief -- those people
23 who haven't been here -- briefly, in 1928 Venice
24 Force Main was built, and at that time it was a
25 36-inch line. Population increased, and the demand

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1 went up. Then in 1958, the Venice Force Main
2 was -- it went up to 48-inch line, and we added one
3 more pump to it. It was four pumps at the time.
4 And in 1987, again, due to population
5 increase and the need for more capacity, we have
6 another pump, which is the fifth pump we added.
7 However, at that time they didn't think there was a
8 need for extra capacity in terms of the pipe, so
9 they kept it as a 48-inch line.
10 Now, what happened is in 1995, due to
11 El Nino, we have heavy rain. And last year, again,
12 due to heavy rain, what we discovered was that the
13 amount of sewer that we were carrying, at the same
14 time the rain was infiltrating into our sewers,
15 which happens a lot of times during rain.
16 But this time, since it was heavy rain,
17 it increased it to the point that they had all the
18 five pumps working to push the sewer up the hill to
19 Hyperion, and what happened is they found out it
20 was like a bottleneck. The 48-inch line was not
21 capable to carry all that sewer, so it was carrying
22 maybe about 60 percent of it.
23 The rest of it started backing up into
24 our manholes, and we were really close to disaster.
25 We were really minutes away from the sewer

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1 overflowing and going to the Grand Canal and onto
2 the streets. So we were lucky then, and we were
3 lucky last year. That's the reason we really need
4 what we are proposing, a 54-inch sewer.
5 Now, this is going to give us -- the good
6 thing about having the sewer is going to give us
7 the capacity to be able -- during the wet season
8 that we had, as I mentioned, we are going to have
9 the capacity to have the sewer going to Hyperion
10 without fearing about the overflow.
11 And the other thing that we have to
12 remember is in 1958 -- that's when this was
13 built -- the sewers were -- the capacity wasn't
14 really -- it was great for the time, but it's been
15 1958 until now. It's, like, 48 years old, and
16 these are old. The pipe is old, and I don't know
17 how long it's going to last.
18 So we need to perform some maintenance
19 work maybe, but we need to do inspection first. In
20 order to find out if it really needs rehab or
21 not -- and we cannot perform any inspection as long
22 as the line is in operation.
23 So now, what we came up with so far,
24 before we get any comments from you -- so far what
25 we have is three alignments, and I'm sure all of

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you are with EIR, so you are very familiar with this. Here is Venice Pumping Plant. So from Hurricane Street, one is going to go on Via Marina and then going down here. From here we are going to have -- and then it goes under the channel, Pacific, and it's going to continue on Vista Del Mar.

Then we have alternate alignment going west on Hurricane Street, going south on Pacific, under the channel, and continuing to go to Vista Del Mar. And all of them end up the same place, which is the CIS. That's where they're all going to go.

And the third alternative that we have is going to go to the beach. From there, down the Dockweiler, under the channel, and continue. And eventually it's going to end up in the same place.

These are the three alignments that we have. To do this, we have three construction methodologies set which we are considering. And one of them is open cut.

As you can see, it's an open trench, and that's the easiest way for contractors to do the job. Normally, it is the least expensive way to do it. That's what it's going to kind of look like in

11

1 your neighborhood. And this is the construction
2 you're going to see from outside.
3 And here you can see the advantage and
4 disadvantage of this. Primarily, the shortest
5 construction time, and the cost is going to be the
6 cheapest -- the least expensive, I should say. And
7 another thing is, this open cut, it always moves.
8 It is in front of someone's home for a few days.
9 It can vary every week.
10 It can move about 200, 250 feet or more
11 depending on the conditions we are going to have,
12 which means they are going to be laying the pipes.
13 As they lay the pipe, they are going to come back,
14 fill it, and then they are going to put asphalt
15 right after that. So it's not going to be in front
16 of your house for more than only a few days. Now,
17 the thing is, your neighbor is going to have it,
18 but it's going to move on. So that's the good
19 thing about it.
20 Now, the problem with this is, I know
21 that if I'm living there, I don't want work in
22 front of my house. I don't care for it too much,
23 but most of the impact is going to be on the
24 surface street in terms of traffic and all the
25 other environmental issues that I don't need to go

12

over.

Now, this one is a small tunnel method. This one is going to have much less interruption on the surface street. Primarily what it does is we have pits here, and then we are going to have jacking and the pipes -- as you can see we have a machine that is digging under the surface street. And then as it is going, we have jacking that is going to be pushing the pipes in.

And as you can see, we are not going to be cutting the street here; however, if your house is here, this pit is going to be in front of your house for maybe a couple of months. But if your house is in between, that can be about 1,000 feet, so you are not going to have problems. So that's the good thing about this method.

The depths of it is going to vary; for example, in this case we are going to go -- on the street surface is going to be lower. When we get under the channel, we are going to be at least 25 feet below the channel. So what happens is this method -- the drawback of that is, we cannot keep going. We have to have 1,000 feet, and then you need another pit, so we are not going to be totally disrupting the traffic flow.

13

Now, the good thing about it, as I said, we are going to be avoiding a lot of surface impact. It's great for the intersection, and the minuses is duration of impact is longer at the pit locations.

Now, the last construction methodology that we are using is deep tunnel. And for deep tunnel, we have different alternatives; for example, this is under Pacific -- can go this route. Or from here, Venice Pumping Plant, we go down by the beach and from here going all the way down here.

Now, to explain to you a little bit about deep tunnel, basically, what deep tunnel is, is we're going to have a starting shaft at this point or maybe it is going to be farther here. We don't want to be close to the neighborhood because we are going to be there for a long time, actually, almost during the whole entire operation. We don't want to be close to the neighborhood, so right now it is here, but it is possible to push it a little farther back.

Now, this pit here, the shaft is going to take a few months to build. After they build it, the beauty of this is, then they can go all the way

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1 to this point, and from here, they can either go
2 large tunneling or small tunneling or they can have
3 open cuts and get to Venice Pumping Plant or they
4 can just go all the way to this point without
5 having any interruption on the surface street.
6 This is how it's going to look under the
7 ground. We are talking about activity 80 feet
8 under the ground, so you won't really feel
9 anything. But that's what the machine looks like.
10 And this is showing the location from outside.
11 This is how the operation is going to look from
12 outside.
13 The good thing is, this is the
14 construction site during the whole project. Now,
15 as I said, fewer construction sites. And then the
16 minuses of this are impacts at the insertion shaft
17 for entire duration of the construction,
18 rights-of-way, and the cost. Of course, the cost
19 is one of the factors, and duration of the
20 construction is the longest than the rest of the
21 projects.
22 Those are the alternative methods;
23 however, when we have the alternatives, I have to
24 add that you see three alignments, but we can have
25 different kinds of alternatives; for example,

15

1 tunneling can be combined with open cut or other
2 methods. So altogether, we can have seven or eight
3 kinds of alternatives.
4 Thank you very much. Jim?
5 MR. DOTY: Thank you. So here we are
6 back to that table we introduced at the beginning.
7 And just in gross math permutations, there would be
8 nine alternatives, but the EIR really concentrates
9 on six because the cut and cover construction
10 method down the beach alignment, we believe may be
11 infeasible for environmental reasons.
12 It's not something that we feel
13 comfortable coming out strongly for, but we have --
14 in during the public comment period, we have
15 received some public comment in favor of that
16 alignment.
17 The small tunnel method down Pacific
18 Avenue, because of the size of footprint needed for
19 the shaft site for driving those tunnels, we
20 believe may be infeasible for environmental
21 reasons. And we did not look into detail in a
22 large tunnel going under the Via Marina alignment
23 because it offered no advantages over the other
24 possible alignments for the large tunnel, so there
25 was no reason to go into that.

16

This is what the EIR finds in one page. First of all, no operational long-term impact. That's kind of a no-brainer. Once we finish the tunnel and restore the surface to its preexisting condition, we're out of there. There are construction impacts, and we've gone over them a couple of times already.

Normally, in a typical project, you usually find construction impacts -- short-term impacts as insignificant because they're short term in duration. Because of the magnitude of this project, short term is no longer a couple of weeks or something. It, although temporary, will be there for a while.

And because of the sensitivities of the project area, we are calling those temporary construction impacts significant. This project is not going to affect your land use or planning. We're not going to turn an environmentally sensitive area into a Wal-Mart or something.

A whole bunch of mitigated impacts that can be mitigated to an acceptable level. Air quality: Here we're talking mostly about the air emissions from construction vehicles and dust caused by handling the soils and so on.

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1 Cultural resources and paleontological
2 resources: We have done surveys of the area.
3 There are no known resources in the areas that
4 we're looking at, but you just never know because
5 they're under ground.
6 Geology and soils: As you know, there's
7 sand out there. There's oil wells. We know about
8 these things, and we can take care of it. We're
9 pretty experienced at that.
10 Since I've mentioned oil wells, we'll get
11 to hazards and hazardous materials. We know the
12 area is likely to be gassy, and we know there are
13 lots of abandoned oil wells. We know that there
14 are a few that are not on the map. We have
15 tunneled through such area before successfully --
16 knock, knock. We can mitigate that to an
17 acceptable level.
18 Biological resources: We know we're in a
19 sensitive area, and the EIR identifies measures to
20 avoid a biological impact, such as having
21 knowledgeable monitors checking to make sure that
22 sensitive species do not have an adverse response
23 to what we're doing.
24 And hydrology and water quality: There
25 are a whole lot of standard measures that we do in

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1 public works projects to address and avoid
2 pollution of surface waters. Even with that, there
3 are a few subject areas where we cannot avoid a
4 significant impact, and those are aesthetics.
5 Even though there are people that really
6 enjoy big machines doing big boy stuff and just
7 love to come down to our construction sites and
8 watch things happen, most people who are used to
9 looking out to the beach would probably think that
10 our construction sites are not a positive. So
11 we're calling that a significant impact. We will
12 be out of there when we're down.
13 Noise is another. We will reduce noise,
14 but, ultimately, we cannot eliminate noise. We put
15 up a noise wall to reduce noise; however, then you
16 run into the old aesthetics impact. People who
17 liked looking at the beach and the sailboats going
18 in and out of the marina channel are now looking at
19 what looks like a three-story tall building.
20 They can sleep at night, but they're not
21 getting to see the boats. Either way, those two
22 will run against each other and we'll have to do
23 what we can to mitigate them, but we can't promise
24 to make them go away.
25 Public services: Access to the beach,

19

1 public recreation events at the beaches and parks
2 and so on, there may be some access problems while
3 we're in the area. And that brings us right to
4 transportation and traffic.
5 Interestingly enough, most of the
6 alternatives we looked at will have a relatively
7 small impact on traffic and transportation -- much
8 less than what we anticipated when we developed the
9 scenario and then went to our experts and said,
10 "What do you think?" But, nonetheless, there will
11 be a significant impact on transportation and
12 traffic while we are constructing the project.
13 Back to our table. These flowers here
14 are just kind of a graphic way -- there is no way
15 in these environmental impacts that you can just
16 add up numbers and then come back and identify this
17 as your best alternative.
18 For instance, as we said before, if we
19 choose a tunneling method and you're in the middle
20 of the project and the tunnel is passing by you,
21 you know, 50 feet below ground, you love that
22 alternative. But if you're living next to the
23 tunnel driving shaft or the tunnel retrieving
24 shaft, you're not as happy with it. You just
25 can't -- it's not a mathematical thing.

20

So that's why we've just got spots here. We've got flowers. The more flowers, the more environmentally superior, the more environmentally friendly that particular alternative is. And the EIR identifies a large tunnel roughly along the Pacific Avenue alignment as the environmentally superior alternative, although the beach alignment would be a close second.

I want to take this opportunity to point out that this is identified as the environmentally superior alternative. It is not the recommended alternative. At this point we do not have a recommended alternative. There is no project that we're hiding in our pocket that we're going to come out with after we go through our show here and tell the council people, "Yeah, we told the public."

No. Really, we don't have a preferred alternative. We will have to develop one, but we need to hear from you first because the information we're going to get from you is important to developing the alternative that we're going to recommend. We do eventually have to build something, so we do have to come up with a recommendation.

Okay. Money: This is a subject that I

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have to admit I'm very uncomfortable with, because in environmental analysis, we don't like to get tied up with dollars. Tonight's meeting is about protecting the environment. There will be other meetings about protecting the bank account, but tonight's meeting is about protecting the environment.

But during the notice of preparation and the scoping phase of this EIR, we got several strong comments saying we want to know what the relative cost of your alternatives are. That's why we've got this in here, and you notice there are no hard numbers. There are some concept level numbers in the EIR, actual dollar amounts, but we stress these are concept level.

They are not based on a design. They will change. But their relative size should not change. In other words, the one we're identifying as cheapest in the EIR should not later turn out to be the most expensive. So there you are. One dollar sign means cheaper, and three dollar signs means a lot more expensive.

And then here's the summary of the period of time we would be out there. Notice that the first two construction methods, cut and cover and

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small tunnel -- small tunnel being either jacking or microtunnel or a combination -- both of those would involve small tunneling under the marina channel.

We are not proposing an open cut method across the marina channel. I have seen it done. You don't actually hold back the water, but you dig a trench in the bottom. But it's messy and not really worth it.

Cut and cover: Overall project, 12 months. It goes very fast. Up to five days passing any particular point along the route, like, your house. It can vary, because it depends on the precise conditions in that location. Cut and cover would mean, then, that we would have a small tunnel shaft on the one side of the marina entrance channel and a receiving pit on the other side of the channels.

Small tunnel would take longer, about 14 months with up to four months in a particular location. Again, if you're lucky enough to be away from that shaft, it's a good deal. If you're at that shaft -- and of course, we would try to pick shafts that are the most friendly -- but if you're the nearest one to that shaft, four months and

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you're really glad when we're out of there.

The large shaft takes a little longer -- 36 months. A large portion of that is actually setting up the construction as opposed to the actual process of driving the big steel digging worm through the soil. And we would be up to seven months at the receiving shaft, which would be up in the vicinity of the Venice Pumping Plant, so neighbors close by. The payback we get with a large tunnel is no surface presence in between the points.

So what do we do next? We're going to launch right into a period where we listen to your thoughts and comments, but you don't have to say it all tonight. Think about it. You can write to me by March 17th.

I'm giving my address as c/o Public Affairs Office. I'm not trying to dodge you. Our offices, including the design office -- we're busy in a move. We're moving out of our leased space downtown to a newly purchased building. The City bought one of those towers for the Department of Public Works. Today I spent getting all my stuff out of the boxes, but right now I don't have e-mail or anything, and I wanted to make sure that your

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comments got to the right place.

So send your comments c/o Public Affairs Office. If you'd like to e-mail, there's the e-mail address. And it would be helpful if you put in the subject line, Venice Dual Force Main, because we have a little sorting program that will look, and if it sees that, it will send it directly to me. It will get to me immediately.

Otherwise, every few days we go into that account and we manually look at that. But it will save a little time if you put that in there. It's not critical. You won't be sent to Mars or anything if you forget to do that.

So that's all. Thank you very much.

MS. DURRELL: Okay. Thank you, Jim. And as Jim stated, we are going to get started with our official public comment period. I did want to mention that we do, of course, have copies of the draft EIR at the table in the back. We also have a computer here, so if you'd like to submit your comments electronically, you can do that as well.

I just want to tell you about the ground rules. We're going to be working from speaker cards, and Julia will call out your name. You can come here to the microphone, and please speak

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clearly. Please state your name and any organization that you are representing.

Also, we have three minutes per speaker, so please try to adhere to that. So we'll get started with our public comment period and get the first person up here.

MS. BROWN: Carol Kapp, please.

MS. KAPP: Hi. I want to compliment Jim Doty and his team. I can tell from the EIR that some of our comments from the May 24th scoping meeting did show up in the EIR. That's probably one of the first times in the city that our thoughts actually made it to paper. So kudos to you on that.

I do want to say that my name is Carol Kapp. I live on Rees Street in Playa Del Rey, which is adjacent to Vista Del Mar. And because of that, I want to support the beach alignment all the way.

I also want to talk about the fact that the reason I'm in favor of the beach is because the part of Vista Del Mar that we live in has a palisade, and I certainly do not want to see a repeat performance of slides, such as La Conchita in Ventura or Blue Bird Canyon, which we all saw GEO-1

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how horrible that was. And I believe that the vibrations from this project could trigger those kind of lateral slides. GEO-1

There are references in the EIR to moving equipment and staff. I would like to tell you that there is a street called Sandpiper, and it has been closed since 2001 or a little thereafter because of the terrorist attacks. I think that this could be opened up. You can have your workers park there, and you could buy a second-hand shuttle bus and run them back and forth to wherever they're doing their work.

Also, Los Angeles County beaches and harbors have parking lots in the marina, and you could probably get parking permits from your staff there and, again, use some sort of a shuttle bus. So I think that might help with some of those concerns. Also, the county runs a parking lot on Vista Del Mar south of Napoleon Street, and that's another place to look for parking for your staffing. CON-1

I don't know what the time is looking like, so the last thing that I want to make a big emphasis on is that there is a parking strip adjacent to Vista Del Mar from Surf Alley north to

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Montreal. And that is used for beach access parking during the day and local residential parking at night.

There has been no discussion of using it. I just want to go on record and say there is no way you can look at that for equipment lay down or anything. So thank you very much.

MS. BROWN: Next we have Mark VanGessel.

MR. VANGESSEL: I think the community first really appreciates the fact that you actually did an EIR rather than try to push through a project previously in 2002.

Quick question that I think needs to be addressed to the public tonight is right now, [illegible] going to have comments. And it appears to me that it's not really complete and needs to be revised. Do we get another chance to review this, or is the City going to give us this one chance for us to review, then make a decision, say that they had public comment, and go forward? That way we do not know what your preferred alternative is. So we really need to understand that from the City tonight.

In looking at this, you claim that you have six different alternatives; I've read it in

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1 the summary. You really only discussed three. It
2 got pointed out a little later that there were six.
3 We'll all be realistic. You're saying that it's
4 $68 million to do a tunnel versus $45 million to do
5 cut and cover.
6 The City is under a budget crisis; we all
7 know that. The tunnel is not going to be a viable
8 option. Let's all realize that. So the City is
9 going to go with the cheaper method and do some
10 impacts.
11 Previously in 2002, the City had only two
12 alignments. One was a cut and cover along the
13 beach, and the second was going down Pacific Avenue
14 with cut and cover. In this EIR, for some reason
15 with no explanation at all, it just says the cut
16 and cover method along the beach is not viable.
17 That, to me, does not provide an explanation why in ALGN-1
18 2002, in 1957, and in 1938, cut and cover was the
19 way to go.
20 Now all of a sudden, it's no longer
21 allowed. To me, that makes no sense whatsoever.
22 Cut and cover along the beach is one of the
23 quickest ways possible.
24 I'd like to point out, I -- will run out
25 the time -- but the slices they showed you on the

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1 trenching are incorrect to go down Pacific. They
2 have slides there showing trucks going down the
3 side. That is not going to be possible for Pacific
4 and most likely for the Vista Del Mar area either.
5 Discuss overflow: This is an important
6 item. People should realize that right now during
7 the last heavy rain of last year, Hyperion had to
8 dump water, overflow, which means that right now,
9 this Venice plant did not. All it's doing is
10 literally dumping more of it into the ocean.
11 So while they're increasing capacity
12 here, the Hyperion plant still couldn't handle it WQ-1
13 anyway, and it would dump into the ocean anyway.
14 So the no-build alternative actually, to me, seems
15 like a potential viable solution until such time
16 that the location where you're going to send
17 everything can actually handle it. First, you
18 build a location, and then you do the upstreet
19 areas.
20 Next thing is, you say that there is no
21 environmental impact after the project is built.
22 For the Pacific Avenue alignment, cut and cover,
23 that is absolutely false.
24 People should realize who live in the
25 marina area, whether you live on the beach side or

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the canal side, after this project is built, they will have big air-vac valves once every three streets to go underneath utilities. Those air-vac valves will release hazardous gases into the environment. I hope Jim Doty will explain that. I can actually show you the drawings that show it will occur.

So the EIR is incorrect. Hazardous gases, smelly gases -- who's been by Hyperion? What does it smell like? We all know. What is this pipe pumping? That same material. The gases that get trapped in the pipe have to be released. They're going to blow right across the creek to all of the residents who live on the other side. And anybody who's living next it will actually smell it, too. AQ-1

A few days in front of the houses when they trench -- absolutely incorrect. I used to be construction manager in the valley. Putting 12-inch line in front of somebody's house took over a week. The City has to do inspection after inspection after inspection. A 12-foot deep trench will require at least -- at least two weeks for the City to physically inspect it. CON-5

And if we want, I could go through it,

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because the City has to inspect things. They have to inspect the concrete that goes down. That takes a day. They have to inspect the gravel road that goes down. That is what their own document says. CON-5

I'm a manager for MTA Construction. I've watched this. I know what the inspection does. It says when you backfill, for every 6-inches, it has to come up. So if this is in front of your house, you will be impacted especially along Pacific. If you go along Pacific and do a cut and cover, they will have to de-water that trench. So if you live adjacent to that, your house will settle. GEO-1

I will say that I most likely ran out of the three minutes, and I will let other people go, but I have numerous comments, and I will submit them in writing. And I just hope that the City will give us a second round to look at this and show us what the preferred alternative is.

MR. DELKHASTE: Just for the record, a lot of comments that you made, I totally disagree with you. I think a lot of them were inaccurate. It was an incorrect representation.

MS. BROWN: Bob Krauch.

MR. KRAUCH: I do defer my three minutes except for the underground large pipe or anything

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that goes deeper. Is that more difficult and as secure to get the material that's in there back up to level? That's my concern. PROJ-6

Which of the three methods is the longest range, safe way to do it? Is there any reference to that?

MS. BROWN: Your comment is going to be included in the final.

MR. KRAUCH: The infrastructure always wears out. You're talking about 48 years. Is there any method that is more long range that's proposed here than any of the others? PROJ-1

MS. BROWN: The next person is Dan Sharkey.

MR. SHARKEY: I'm Dan Sharkey. I live within maybe 200 meters of all of these people. I'd like to echo Carol Kapp's comment. Regardless of what happens, it's easy to make promises and it's sincere, but once you hire a contractor, we're the victims.

Let's talk about parking. We don't have it, and it doesn't help when the City drives a truck that says "contract administration" around every month. Whatever you decide, you need to stick with it. We don't have parking. We're a CON-1

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very tiny area. If you drop a pin on the beach, we have a 250-foot bluff that acts like nothing more than a large speaker and echo chamber. CON-6

We're a very unique geological neighborhood. And whatever you do, we just asking that you come up with the plan, stick with the plan, and more importantly, force your contractors to stick with the plan, and all those points about which Carol spoke. But primarily, it's parking. That's it. CON-7

MS. BROWN: Marcia Hanscom.

MS. HANSCOM: My name is Marcia Hanscom. I live in Playa Del Rey near the Del Ray Lagoon, and I'm also with the Wetlands Action Network and the Sierra Club Restoration Committee.

I have a few comments related to -- I haven't actually reviewed the draft EIR yet, but based on some of the things that were said, I have some concerns. One is related to whether or not we need this and it is sufficient capacity -- you're saying that Venice pumping station is already at sufficient capacity, but the line may not be in the future.

So the question I have is how does the EIR analyze whether this is a growth inducing plan GRWTH-1

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and if so, how much new development is going to be handled by this. And one of the reasons I have this concern is I know, like, the Grassroots Venice Neighborhood Council has made development requests to the councilman.

There's a lot of concern of over development on this side of town, and right now there's sort of an assumption that more development will happen. And all of that, of course, will affect the traffic and quality of life and, of course, the natural resources. GRWTH-1

And I would suggest that the city council needs to have a discussion and a conscious decision about that and a discussion about how much growth and development we do want in the future and how much we can really handle with public input, so it's not just saying that it's going to happen, but that we actually have a real conscious decision about how much and that stuff.

And if you don't do that, you're really eliminating your no-action alternative, which is required under the California Environmental Quality Act. Somebody said it is going to happen no matter what, but if you eliminate the no-action alternative, that's a violation of the law.

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1 Secondly, liquefaction is a concern. I'm GEO-2
2 wondering how the construction on this is going to
3 be impacted by that. Thirdly, it was talked about
4 on the south end that you might move the site
5 further into the El Segundo Dunes -- the
6 construction site, and I would want to make sure BIO-1
7 that the El Segundo Blue Butterfly habitat is not
8 being looked at. That is an endangered species,
9 and it's something that you have to look at in
10 terms of this.
11 I can tell you that the coastal
12 commission has been very concerned about that, and
13 they've required LAX to take out some palm trees
14 that were not allowed there. So the kind of
15 construction impacts you're talking about, they
16 might be very concerned about that.
17 On the north end, I think it's important
18 to note when you determine each of these
19 alternatives that you're going to have a preferred EIR-1
20 one. And I do agree that the draft EIR does have
21 to be recirculated to show which one of those is
22 preferred before you go to the final EIR.
23 On the north end, not only is the
24 California lease term of concern because it feeds BIO-1
25 right in that channel where you're talking about

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1 having the longer term impacts, right by the Venice
2 pumping station, but also the California brown
3 pelican, which is also an endangered species, feeds
4 in that channel. And that species, for some
5 reason, is never thought about or considered.
6 Please remember the pelicans as well.

BIO-1

7 So you asked for some specific
8 mitigations because obviously, no matter what thing
9 you choose -- if you do choose one of these and not
10 the no-action alternative -- you will have obvious
11 disruptions to the community and to the
12 environment, et cetera.
13 Some of the mitigations that I would
14 suggest need to be looked at is that extraction
15 shaft site on Hurricane. That is a city parcel of
16 land. If you do this project, and when you're
17 done, that parcel of land ought to be rezoned into
18 open space. Don't sell it for more development.
19 That area is highly overdeveloped
20 already. They need some open space, and the
21 habitat there at the lagoon needs open space around
22 it as well. There are two underdeveloped lots
23 which also could be likewise rezoned for open
24 space. They're also owned by the City.
25 And in the Playa Del Rey neighborhood,

OS-1

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you obviously are going to be causing some major disruptions. One of the biggest concerns we have there is Toes Beach Dunes, which is threatened by development, and the Patriot Homes Site. Perhaps the City could have some mitigation by helping put some money towards the purchase of those sites.

Thank you.

MS. BROWN: DeDe Audet.

MS. AUDET: Thank you. My name is DeDe Audet, and I live in Venice, California. I think what has been mentioned by Marcia and alluded to by Mark, we need to know in considering environmental impacts exactly what density the current pipe size and pumping is designed for and what density the items you are proposing will provide for. PROJ-2

I think it's very important information in order for people to make decisions. If we're going to open up streets or the beach or whatever it is, let's make sure we're doing it right, and we don't have to come back in 20 years and open it up again. So let's try to look ahead and give these people that information so that they know, because they're the ones that are going to have to pay for it. And let them know exactly what they're going

to get.

And on the issue of flooding, I don't know how long you fellas have been around here, but I can tell you I have seen rowboats on Washington Street. We get some pretty darn good floods. And there's some very important people living down there off of the speedway on both sides of the channel, and I'm sure that I will hear from them at the Grassroots Venice Neighborhood Council. FLD-1

So please, try to get comprehensive information. That's what we need. Comprehensive. Because I just don't see how people can understand the environmental impact without knowing what you intend to serve. Thank you.

MS. BROWN: Roy Van de Hoek.

MR. VAN DE HOEK: I support what she just said and your other speakers who all seem to have an opinion of being generally opposed to the project. My name is Roy Van de Hoek for the record. I'm a citizen and resident on Vista Del Rey Avenue and will be very close to the routes. I'm also a biologist and EIR expert-in-process.

I would like to see you do no-action alternative that is twice as long -- written twice as many words, twice as much text as your preferred ALT-1

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1 alternative. And what I want you to focus on in
2 your no-action alternative is how doing no changing
3 of the pipes will have to cause politicians to
4 address no growth, more density of population of
5 people.
6 Doing a no-action alternative that shows
7 the limit of how much sewage can go, will show that
8 you can't go anymore to three-story, four-story,
9 five-story buildings anymore around the marina;
10 that you can't think about 20 years from now
11 doubling the population or tripling the population
12 on the west side, because that's what this is
13 facilitating by having such a large sewage line
14 there.

ALT-1
GRWTH-1

15 It's a piecemealing. And to define what
16 "piecemealing" is, when we first sent troops in the
17 '50s with Eisenhower to Vietnam, that was just a
18 few advisors. Then Kennedy sent more; that was the
19 second piecemealing. Then Johnson expanded; that
20 was piecemealing. Now we have 100,000-plus troops
21 and 70,000 killed. That's all part of
22 piecemealing.
23 And what you're doing here is earlier on
24 before you started approving the towers in the
25 marina and started approving more and more

EIR-3

1 high-rises all over, that's causing you now to want
2 to do this project. You should have done this at
3 the time when you were approving that. And that's
4 how you piecemealed it, and now you have a mess.
5 And now you're going to have an even bigger mess.
6 If you do this, the only route I see
7 feasible for travel and other reasons is to go down
8 Via Marina, get rid of that city tree of
9 Los Angeles in that median and that grassy lawn,
10 and run it right down the middle of that. Do a cut
11 and fill, cheaper route, and you won't affect
12 traffic. The cars will still be able to go back
13 and forth.
14 If you have to go down to one lane each
15 way, it needs to have an impact on traffic. If you
16 try to go down Pacific, you're only going to have
17 the width of one lane and cars won't be able to go.
18 Once your route hits the marina, it should go at
19 whatever angle is required and then hit the beach.
20 But that doesn't mean I'm advocating that
21 as a preferred alternative. I think the no-action
22 alternative is my opinion. I think there will be
23 an abundance of biological impacts, and I think you
24 haven't anticipated all of them.
25 There is going to be a lot of other

EIR-3

ALT-2

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1 federal listed, state listed, state sensitive,
2 federal sensitive, other animals and plants that
3 are proposed for listing in the future. And I'll
4 give you more written comments later.
5 MR. DELKHASTE: Thank you very much.
6 MS. DURRELL: Thank you all. Do we have
7 any more comment cards?
8 MR. VANGESSEL: If you do a cut and cover
9 method, they said they could do 50 feet a day
10 excavation. I did the calculations for you, and I
11 can run them through. That's 22 construction
12 trucks that they have to get in between 9:00 a.m.
13 and 3:30. Can't be possible.
14 So they're saying they can do 50 feet of
15 excavation a day with cut and cover. Technically,
16 physically, that's not possible, at least along
17 Pacific. The alternative along Via Marina, it's CON-2
18 absolutely possible because there is a lot more
19 room. So I could, again, explain in detail.
20 So one of the other comments that I'd
21 like to point out is you have the Via Marina and
22 Pacific Avenue cut and cover at the same exact
23 costs. Well, I don't know anything that costs
24 exactly the same out there. Via Marina is
25 definitely a cheaper method to go.

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You have it required to do boring underneath Hurricane to get across the street -- the channel. Why you can't do a cut and cover to make that less expensive, unknown to me. You can cut off that canal, have it float around, cut the other half. We do it all the time in construction. CON-7

Couple items: If you do cut and cover, couple of things that should be required. As a minimum, cover all vehicles after they're filled with dirt. They're driving through this neighborhood. Right now that is not a requirement.

Once you go, they use this document to write the technical specs. So we want that, and we don't want it -- as it says here, "or do something else." We want it standard. No "or" allowed. EIR-4

You have on page 5-128 a whole bunch of line items. We should make these very clear so the people that write the technical specs, they should do this. Everyday the trenches have to be covered. CON-9 Right now that is not in there as a requirement. Everyday, have your trucking operation, as you mention and discuss, in your construction method. Make it a requirement.

Make it a bullet item, like you said -- like you said in your construction thing. 9:00 to

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1 3:30 so it will not impact the residents in the
2 neighborhood. That's what you discussed that you'd
3 like to see happen, but you don't make it a CON-9
4 requirement by making it a bullet item. Make it a
5 bullet item. We all know in the EIR, it becomes a
6 requirement.
7 The City does and different organizations
8 have such things as special assessments so that if
9 a contractor breaks any of these rules, he gets
10 fined. If you want to make sure, put it in here as
11 a requirement in the EIR that you will have special CON-7
12 assessment language put into the contract so that
13 if the contractor breaks any of these rules --
14 doesn't have his truck covered, works outside the
15 proper hours, doesn't park in the right location --
16 he gets a fine.
17 Another one is similar things for such
18 things as noise and vibration to disturb the
19 residents. The City may argue that such things
20 have never been done. I can guarantee you -- I
21 work for MTA. We put it in our jobs because we CON-8 CON-8
22 want to make sure when we build things that the
23 resident is happy. We did this on the project to
24 build the orange line. We had assessments of over
25 $200,000 to our contractor when he was annoying the

neighbors. I hope the City does the same thing.

MS. DURRELL: Thank you. We are going to conclude our public comment period. I'm sorry that I strayed away from the rules.

MR. VAN DE HOEK: You allowed him to speak, and he got the longest amount of time. I appreciate that you were nice to do that.

MS. DURRELL: I did lay out the ground rules at the beginning that you had to fill out the comment card, and you had that opportunity. We are taking comments through March 17th.

MR. VAN DE HOEK: I don't believe this is fair. This process needs to start all over again. If you're going to allow one person to have a second comment, I deserve and earn a second comment.

To add and supplement to doing a negative or no-action alternative and making it twice as long, I want you to, in that twice as long, have ten pages about how our piece of mind will be heightened by not doing the project; that we will enjoy no new noise. ALT-1

We will -- all these positive things that will happen under no-action that none of the other alternatives can compare to -- how it will be

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1 quiet, how we will be able to continue our lives
2 the way they are right now, that we won't have to
3 think about more people coming, that we'll have
4 nature and the sunrises and dusk, that everything
5 will be so much more beautiful and just give it -- ALT-1
6 you call it the no-action alternative, which makes
7 it sound negative, but the no-action alternative
8 needs to be written maybe five times longer than
9 all the other alternatives together.
10 And just talk about how beautiful it's
11 going to be if this project doesn't happen. We now
12 have the highest number of pelicans anywhere in
13 California, from the Mexican border to San Luis
14 Obispo -- 2,200 pelicans. We have -- you add up
15 all the other pelicans in Southern California, and
16 for six months of the year, Playa Del Rey and
17 Marina Del Rey have the highest number of pelicans BIO-1
18 anywhere on the west coast. And that might be
19 harmed.
20 So please do 30 pages of the brown
21 pelicans ecology. And have a team of five brown
22 pelican experts who aren't paid by you, but
23 volunteer to step forward and write independent
24 reports from the Federal government to say that it
25 would be better not to have the project and how

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good it would be for nature and for all of us.

MR. DELKHASTE: Thank you.

MS. DURRELL: Anyone else have comments?

MS. KAPP: My name is Carol Kapp. I would like to ask about cut and cover being used along the beach. Then I would like to make a couple of housekeeping suggestions, because I know that something is going to happen. ALT-3

I like Mark's idea and Mr. Van de Hoek's about maybe nothing, but I believe that the Argonaut newspaper serves our community quite well. And I believe that the staff from this project should have to make, at the minimum, a bi-weekly report to the community about what's going on, about what the contractor did or did not do, and how contractual issues are being resolved, and just really keep us up to date. I think that would be really good. PROJ-5

I also think that we need to have another community meeting in this room at night so that whatever the last-minute changes are -- unless we get a whole nother EIR -- could be made public. And also, that the LAPD, the LAFD, life guards, and hospital should be invited so that all these safety providing people know what they're going to need to EIR-1

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1 possibly come up with at any time during the three EIR-1
2 to five-year program that's going to be going on.
3 And then I would also like to ask that if
4 this does go by people's homes, that these people
5 have a tax break. Yes, I think that they should TAX-1
6 not have to pay taxes, at least prorated for the
7 months that they're put through whatever hell is
8 going on. And I am being very serious about it.
9 Thank you.
10 MS. DURRELL: Okay. I think everyone has
11 had a second opportunity to be heard. We
12 appreciate that. Again, this -- I'm sorry. You're
13 going to make a statement?
14 MR. KRAUCH: I'd like to take my three
15 minutes that I earlier relinquished. Carol Kapp
16 mentioned the Argonaut. Twice in the last 25
17 years, the Argonaut, because of excessive rains, I
18 have read this. And I want somebody up here, maybe
19 Doty, to verify this.
20 At Farragut Avenue in Culver City,
21 legally, when it's raining excessively, there's a
22 legal right for the sewer system, which comes from PROJ-4
23 the valley through the Hollywood tunnel -- they put
24 that in in the '50s. They can release anything.
25 If the Hyperion reaches an over-capacity

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of so much, they open that up, and all the sewage from the valley comes right down. Is that true? Can you explain what is true on that subject? PROJ-4

MS. DURRELL: Okay. We will be on hand. Again, we have an EIR copy here if you'd like to review it. We have all kinds of handouts for you.

Again, the deadline for your comments and writing would be March 17th by the close of business. We appreciate you coming out. We know how important this is to you, and we appreciate your feedback. Thank you very much.

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11.5 RESPONSES TO COMMENTS

Responses were developed by the Lead Agency (City of Los Angeles) in accordance with Section 15088 of the CEQA Guidelines. They address environmental issues in the comments and follow the comment identification convention found in Table 11-1.

Response to Comment ALGN-1: Preferred Alignment - Beach

Several residents in the area of the proposed project indicate their support for the beach alternative as the environmentally superior alternative.

As required by CEQA, the EIR identifies an environmentally superior alternative (see Section 6.0, page 6-3 of the Draft EIR). The Draft EIR concludes that:

> "Based upon the outcome of the impact analysis for this project, it has been determined that the environmentally superior alternative is the mined tunnel Alternative #4 (Inland Alignment). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion and noise and vibration. The proposed alignment, as shown on Figure 4.3-10, would begin at launch shaft #2 located in Vista Del Mar and run due north toward the pumping plant on Hurricane Street and tie in at the #10 receptor shaft. Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the City would work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way."

This conclusion is based on an objective analysis based on the documentation and analysis provided in the EIR and does not support a preference for the beach alignment.

CEQA does not require decision-makers to approve the environmentally superior alternative identified in the EIR, but does require the decision-maker to determine findings that support any decision not to approve the environmentally superior alternative identified in the EIR. As noted in the EIR, the City's Department of Public Works has not identified a preferred alignment; rather, the Department is relying on the Draft and Final EIR, including public comments on these documents, to provide the City's decision makers (the Board of Public Works and the City Council) with information sufficient to weigh the effects of each alternative alignment prior to making a final decision on the project alignment.

In conclusion, the analysis provided in the EIR provides a detailed description of the impacts of alternatives, including the beach alignment. No additional analysis or research is necessary regarding impacts due to the beach alignment to the project area.

Response to Comment ALGN-2: Preferred Alignment – Non-beach

The California Coastal Commission stated that its concern with the beach alignment is due to the potential for erosion caused by a rising sea level over the life of the project. As noted more specifically in response to comment CLI-1, Climate Change, the EIR analyzes the potential impacts caused by beach erosion and the potential risk to the force main if it is constructed along the beach. The EIR evaluates the potential alignments without a recommendation for the selection of one alignment over another. Specifically, section 2.3.1 (page 2-10 of the EIR) notes that:

> "A preferred alternative for the project has not been determined at this time. Equal analysis has been given to each alternative associated with the Project, allowing for a decision to be made in accordance with CEQA Guidelines, which states that sufficient information must be provided to allow meaningful evaluation, analysis, and comparison of the proposed Project."

However, as required by CEQA, the EIR identifies an environmentally superior alternative, which is not the beach alignment, but the mined tunnel Alternative #4 (Inland Alignment); see Section 6.2, page 6-3 in the Draft EIR which states:

> "This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion and noise and vibration. . . . Although the deep mined tunnel would run directly under existing dwellings and facilities in some locations, great care would be taken to insure that wherever possible, the alignment would follow existing rights of way. For those portions of the alignment that would require tunneling under existing dwellings and/or facilities, the city would work with those who are within the proposed alignment to fully understand the construction methodology, to secure proper right of way access, and to provide compensation for the right of way."

The concerns of the Coastal Commission are reasonable and consistent with the impact analysis provided in the EIR. The City's decision-makers, the Public Works Commission and the City Council, will consider the EIR and weigh the comments of the Coastal Commission, the public and other agencies in selecting which alternative alignment to approve.

In conclusion, the analysis provided in the EIR provides a detailed description of potential impacts from all alternatives, including non-beach alignments. No additional analysis or research is necessary regarding impacts of this alternative to the project.

Response to Comment ALT-1: Alternative – No Project Analysis

The comment asserts that the No Project Alternative would limit future development and growth in the area served by the Venice Pumping Plant Dual Force Main Project (VPP).

Under the No Project Alternative, no new pipelines would be installed and the sewer system would continue to operate in the current manner. Neither the No Project Alternative nor the other alternatives under consideration and evaluated in the EIR would either induce or limit growth. As noted in the EIR, analysis of the No Project Alternative (see Section 6.2 of the Draft EIR), the No Project Alternative could result in potentially significant adverse effects to the environment due to the existing sewer force main's current lack of conveyance capacity and inability to perform regularly scheduled maintenance on the existing force main. In addition, an overflow of untreated wastewater into the Ballona Lagoon and areas surrounding the project could result from the No Project Alternative because of the age and condition of the existing main from the VPP which, in turn, could cause substantial harm to the environment. The proposed new force main is not designed to accommodate increased development in the areas served by the VPP, beyond that contained in approved land use plans; the objective of the proposed new force main is to ensure that the outflow from the VPP can be safely conveyed to the City's Hyperion Treatment Plan by having a new force main that is less likely to leak and/or break which would result in untreated sewage in the area's underground environment and, perhaps, the local ocean waterfront and creeks, lagoons, and other surface waterways. Finally, the amount of sewage that would flow in the proposed new force main would be largely determined by the capacity of the VPP. There are no plans to increase the capacity of the VPP and therefore, the potential growth-inducing impacts of the project are limited.

In conclusion, the analysis provided in the EIR provides a detailed description of a range of project alternatives and notes existing conditions, conditions during construction of each alternative, and conditions following project completion. No additional analysis or research is necessary regarding impacts to the project area from project alternatives.

Response to Comment ALT-2: Alternative – New Alternative

Three comments were received requesting consideration of additional alternatives.

The Department of Public Works has considered and compared a reasonable range of alternatives in the EIR. The Department did conduct a preliminary analysis of a larger number of alternatives that were screened prior to selection of alternatives for detailed analysis in the EIR. These additional alternatives were rejected for various reasons including: substantial increased construction costs; non-availability of right-of-way for construction; and the need to acquire additional land. The preliminary analysis prepared by the City for the project, as presented in the Initial Study, (and provided as Appendix A to the Draft EIR), focused on and was limited to feasible alternatives in terms of cost, right-of-way, and technical or engineering characteristics. The EIR evaluates and compares the alternatives identified in the Initial Study and the EIR scoping process. The alternatives analysis in the EIR allows for a decision to be made in accordance with CEQA Guidelines, which states that sufficient information must be provided to allow meaningful evaluation, analysis, and comparison of alternatives to the proposed project. Based upon the analysis conducted of the alternatives identified in the EIR, the cut-and-cover method of construction for two of the proposed alignments was deemed not viable; therefore, a detailed impacts analysis is not provided for them. The environmentally

superior alternative is identified as required by CEQA. A matrix displaying the major characteristics and significant environmental effects of each alternative is provided in Section 8.0 of the Draft EIR, which may be used by the public and decision-makers to make comparisons prior to selecting the preferred alternative alignment for the VPP dual force main sewer.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, conditions during construction of the project alternatives, and impacts following project completion. No additional analysis or research is necessary regarding impacts from project alternatives, and an additional alternative is not required.

Response to Comment ALT-3: Alternatives – Alternatives Bias

The Department of Public Works has no bias for one alternative over another. As stated in the Draft EIR, there is no preferred alternative at the present time. The purpose of the alternatives analysis provided in the EIR is to analyze the impacts of alternatives to provide a basis by which the public and decision-makers can compare feasible project alternatives that would achieve the project objectives described in the EIR; (see Section 2.2, page 2-1, of the Draft EIR). The process prescribed by CEQA for the preparation of a Draft EIR, and ultimately the Final EIR, provides for review by objective experts within local, regional, state, and federal agencies and the public to ensure that the Draft EIR and Final EIR provide accurate, current, and applicable data, as well as ensure that the impact analysis is accurate and consistent with state-of-the-art environmental analysis methodologies. As noted in other written comments received by the City in response to the Draft EIR, these agencies did not find any bias in the analysis, nor did they negatively comment on the conclusions reached in the EIR's impact analysis. Finally, as prescribed by CEQA, the Initial Study, Draft EIR, and Final EIR are subject to public review and comment. The purpose of this public review is to ensure that the documents provide answers to substantive comments by the public and that issues of concern to the public are not overlooked and are given due consideration. As noted in several public comments, the Department of Public Works' EIR process provides an opportunity for the public to offer their comments and raise questions. The Department of Public Works has seriously considered the comments made during the EIR scoping process and the comments made on the Draft EIR. Public concerns have been seriously considered both in the preparation of the Draft EIR as well as in the preparation of these responses to comments.

Responses to Comment ALT-4: Alternative – New Beach "Cut and Cover" Alternative

An additional alternative is requested – specifically, the use of the cut-and-cover construction method for the beach alignment of the new force main. As noted in the Draft EIR (see Section 4.1.1 and Alternatives, Section 6.0), cut-and-cover construction is a very common method of linear pipeline construction and replacement. However, with the cut-and-cover approach, major construction activities could be limited to within relatively short segments of about 1,000 feet at any given time (see Figure 4.1-1, Cut-and-Cover Construction). This alternative was determined to be not viable for the

Dockweiler Beach Alignment because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes. This alternative, therefore, is not addressed in the EIR and its inclusion would not result in a reduction of project-related impacts.

In conclusion, the analysis provided in the EIR provides a detailed description of alternatives to the project. No additional analysis or research is necessary regarding impacts to the environment in the project area.

Response to Comment AQ-1: Air Quality – Odor

Based on the operational characteristics, the proposed project is not likely to impede the progress of the SCAQMD in complying with federal and state ambient air quality standards, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors. A significant air quality impact is not expected due to air releases from force main valves because they are expected to be rare, involve only small quantities of trapped air, and would dissipate quickly. The existing force main in Dockweiler Beach, which has been in continuous operation since it was built in 1960, has two air release valves (one opposite Culver Boulevard and another opposite Yawl Street). These have not caused any significant air quality impact. As noted in Section 5.2.3.2 of the Draft EIR (Air Quality Operational Impacts), the proposed project is anticipated to emit minimal odors. Once operational, the proposed project would operate with minimal need for on-site maintenance under normal conditions. The total amounts of emissions from maintenance worker vehicle exhaust are considered negligible and would not have a significant impact on air quality.

In conclusion, the analysis provided in the Draft EIR provides a detailed description of current conditions and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding project-related air quality impacts in the project area.

Response to Comment BIO-1: Biology

Section 5.3.3 (see pages 5-20 through 5-25 of the Draft EIR) provides substantial discussion of the plant and animal communities in the project area, including an analysis of the habitat for both the least tern and the El Segundo Blue butterfly. The identification and analysis of potential impacts describes the proximity of their habitat to the construction areas of each alternative (including alternative alignments and alternative construction methods). Recognizing potential environmental impacts during construction of these habitats, a series of mitigation measures are identified to reduce the impacts to a less than significant level (see Section 5.3.5 which states that if the mitigation measures are implemented successfully, “no unavoidable adverse impacts on biological resources are expected as a result of the proposed project.”). The City’s mitigation monitoring program, as a requirement of CEQA, would provide the means to ensure the implementation of mitigation measures.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding impacts to biological resources in the project area.

Response to CLI-1: Climate Change – Rising Sea Level

The Coastal Commission expressed concern that "in a situation of rising sea level and increased coastal erosion, the sewer line could, in a few years, be attacked by waves and require a revetment or other coastal protection structure." The City acknowledges this possible impact to the beach and the potential impact on both the existing force main and the potential alignment of the new force main on the beach. Such beach erosion would be comparable to that resulting from a tsunami. The Draft EIR (page 5-74) notes the potential beach erosion could result from a tsunami:

> "It is well known that a tsunami can cause substantial erosion and scour on the shore. For example the 1960 Chilean tsunami scoured out the port entrance by more than 30 feet at Kesen-numa Port in Japan. Although the pipeline would be buried at depths no shallower than 10 feet below the surface, the possibility of damage to the proposed pipeline cannot be disregarded. A catastrophic tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment alternative."

The potential short-term impact to the beach from a tsunami would be comparable to the potential long-term effects from a rise in sea level. The existing line has been in use for nearly 50 years (since 1958) and the proposed new force main is expected to have a comparable life-span. If sea levels do rise in the next 30 to 50 years, the City would take necessary steps to develop a new route for the force main. The Coastal Commission's concerns are addressed in the Tsunami Analysis in the EIR. As noted in the Draft EIR (see Section 5.6.4, page 5-77), the potential damage to the proposed force main cannot be disregarded and mitigation measure GEO-5 is recommended:

> "**GEO-5 Tsunami –**A tsunami could result in erosion of the surficial soils covering the proposed pipeline, primarily along the proposed Dockweiler Beach Alignment. Proper design and construction of the Project components, including erosion control measures or choosing an alternate alignment off of the beach, would reduce impacts from a tsunami to less than significant levels."

In addition, consideration of potential beach erosion contributes to the conclusion in the EIR that the Beach Alignment Alternative is not the environmentally superior alternative. In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding impacts from beach erosion in the project area.

Response to Comments CON-1: Construction – Parking

The EIR includes an analysis of construction-phase parking impacts for each alternative alignment. For example, on page 5-43 of the Draft EIR the analysis states that "During construction, two-way traffic could be maintained along Hurricane Street by displacing parking along Hurricane Street (approximately 17 spaces on the north side and 10 spaces on the south side) and northbound traffic would be detoured to Speedway Avenue where necessary. One-way traffic would be maintained along the west side of Pacific Avenue (southbound movement). Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue."

The identified impacts would be mitigated to less than significant levels by the measures identified in the Draft EIR (see page 5-52). The mitigation measures relating to the identified potential parking impacts include:

> **"TRA-1**: For each construction site, a construction traffic management plan shall be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work. This plan shall include such elements as the designation of haul routes for construction-related trucks, the location of access to the construction site, any driveway turning movement restrictions, temporary traffic control devices or flagmen, travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways, **and designated staging and parking areas for workers and equipment** (emphasis added). Where construction would occur within a public street ROW, including during the open-trench construction activities for all six combinations of Marina Del Rey and Playa Del Rey alignment alternatives and at the short cut-and-cover portion on both ends of the two full-length tunnel alternatives (Dockweiler Beach alignment and Dockweiler Beach to LAX Shaft alignment), the following mitigation measures would also apply:"

With the implementation of these mitigation measures, the parking-related impacts of the project's construction would be reduced to less than significant levels.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, future conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related parking impacts.

Response to Comment CON-2: Construction – Schedule

The construction schedule (again, as provided in the Draft EIR in Table 4.2-1) has been developed by the City's Department of Public Works and reflects the complexity of the project. The schedule is a realistic projection of the time to complete each phase of construction. Specifically, as noted in the Draft EIR (see page 4-6), "In an effort to provide accurate information regarding the length of time associated with these impacts, Table 4.2-1 outlines the estimated duration of time it would take to install the sewer for each of the proposed alignment alternatives.

As presented in the Draft EIR (page 7-4), the "VPP Dual Force Main Project would involve construction activities occurring simultaneously at a number of surface sites along the Project alignment. Construction of the VPP Dual Force Main Project may be occurring in the same general time and space as other projects in the area. In these instances, surface construction activities from both sets of projects could produce cumulative traffic effects which may be significant, depending upon a range of factors including the specific location involved and the precise nature of the conditions created by the dual construction activity (see Traffic-Related Project Construction Schedule in Table 4.2-1). Special coordination efforts may be necessary to reduce the combined effects to an acceptable level. Overall, significant cumulative impacts are not anticipated."

In conclusion, the analysis provided in the EIR provides a detailed description of construction schedules under for the proposed project and no additional analysis is necessary regarding construction schedules.

Response to Comment CON-3: Construction - Traffic

The information requested in this comment is provided in the Draft EIR. Regarding Pacific Avenue, the Draft EIR notes that "construction of the proposed (3,000-foot-long) Pacific Avenue alignment would involve both open-trench construction and tunnel-boring. As noted in the Draft EIR (see Section 5.4.3.3, page 5-43), the temporary localized impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity. The open-trench construction method would be performed to construct the Pacific Avenue alignment, including the intersection of Pacific Avenue and Via Marina. As further described in the EIR, during construction one-way traffic would be maintained along the west side of Pacific Avenue (southbound movement). Temporary closure of the northbound lane on Pacific Avenue would require northbound traffic to use Outrigger Street or another parallel east-west roadway to reach Speedway Avenue.

The City's Initial Study, provided as Appendix A to the Draft EIR, identified impacts related to street closure for construction of the new force main, regardless of alignment; such impacts include short-term rerouting of traffic around construction sites. Specifically, as noted in the Draft EIR (see Section 5.4.3.3, Project Impacts) "the construction-period impacts for each of the build alternatives are assessed in this section. This analysis includes general traffic impacts caused by construction traffic and reduction of roadway segment capacities, if any, and localized impacts related to access, pedestrian movement, bus routes and stops, and on- and off-street parking in the vicinity of each of the construction sites." The identification and analysis of impacts included evaluation of impacts related to alternative force main alignments and alternative construction methods.

The following summarizes the impact analysis provided in the Draft EIR for each alignment and for each construction method; see Section 5.4.3 for the full text of the impact analysis:

Marquesas Way/Via Marina Alternative Alignment: It was assumed that the entire Marquesas Way/Via Marina alignment would be performed simultaneously by two teams of construction workers (for trench and tunneling) as the worst-case scenario, resulting in peak trip generation estimates of 45 worker trips and no construction truck trips during the morning and afternoon peak hour. The projected incremental change in V/C ratio during construction of the Marquesas/Via Marina alignment for the nine analyzed intersections and 23 analyzed roadway segments are identified in Appendix E of the Draft EIR. Project trips generated by the construction of the entire Marquesas Way/Via Marina alignment in combination with either of the two Playa Del Rey alignments would not result in an adverse impact at any of the four study intersections north of the Marina Del Rey Channel in Marina Del Rey, but adverse impact could occur at Via Marina south of Tahiti Way (one of the 23 analyzed roadway segments) in Marina Del Rey with a southbound lane closure.

Pacific Avenue Alternative Alignment: Similar to the development of project trip generation estimates for the other two alternative Marina Del Rey alignments, the projected incremental change in V/C ratio during construction of the beach alignment for the nine analyzed intersections and the 23 analyzed roadway segments would not result in adverse construction-period impacts at any of the analyzed study intersections or roadway segments north of the Marina Del Rey Channel in Marina Del Rey.

Channel Segment: The Marina Del Rey and Ballona Creek channels would be crossed using the tunnel-boring method. For any combination of north and south alignments, the launching shaft would be on the southern shore of the channel, while the receiving shaft would be located on the northern shore. Depending on which combination of north and south alignments is selected, the channel crossing would be about 1,300-1,900 feet long. As the tunnel-boring would occur at the same time as the open-trench construction, a discussion of the project impacts for the channel segments is included in the discussion above and in the Draft EIR's discussion of the two project alignment alternatives in the Playa Del Rey segment.

Regarding the traffic impacts associated with the alternative construction methods, the analysis provided in the Draft EIR, beginning on page 5-49, addresses each alternative and concludes the following:

(1) Cut-and-Cover Construction – A discussion of the project impacts due to the cut-and-cover construction method is included in the Draft EIR for each of the three project alignment alternatives in the Marina Del Rey area and for each of the two Project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the tunnel-boring method in several project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(2) Tunnel-boring – A discussion of the project impacts due to the tunnel-boring construction method is included in the EIR for each of the three project alignment alternatives in the Marina Del Rey area and for each of the two project alignment alternatives in the Playa Del Rey area. This method would be used in conjunction with the cut-and-cover method in several project alternatives and would result in greater circulation impacts than the large-diameter tunneling alternatives.

(3) Large-Diameter Tunneling – A discussion of the project impacts due to the use of large-diameter tunneling is included in the alternatives in the EIR for each of the four proposed larger tunnel alignment alternatives. These alternatives would result in fewer circulation impacts than those employing cut-and cover and tunnel-boring methods. Based on this analysis, the project alternatives are not expected to result in significant impacts to the transportation system upon completion of the proposed sewer facilities. The construction of the sewer facilities, however, could result in temporary adverse impacts on traffic and parking, the introduction of temporary bicycle, pedestrian, or vehicular safety hazards, and the temporary relocation of access points to public transit. During the various construction phases of each project alignment, travel by construction workers and truck hauling of supplies and disposal would generate trips on the regional and local transportation system surrounding each construction shaft site or zone. These trips would represent a temporary increase during defined phases of construction and, upon completion of construction, would cease. Adverse short-term impacts could result, but because they would be of limited duration, they are not considered to be significant. In addition, temporary lane closure due to open-trench construction activities for the six project combinations of Marina Del Rey and Playa Del Rey alignment alternatives and the short open-and-cut section for the Dockweiler Beach full-length tunnel alternative and the Dockweiler Beach-LAX Shaft full-length alternative would result in adverse impacts on up to four streets. Surface construction, however, would result in only temporary transportation disruption, which while adverse, would not be considered significant. Similarly, during the construction period at locations where construction activity would occur within public street Right of Way (ROW) or in areas accessible to the public (i.e., locations other than within the site of the VPP), increased safety risks to vehicles, bicyclists and pedestrians could result from open-trench construction activities within or adjacent to affected sites due to narrowed lanes, altered travel patterns, and temporarily obstructed sidewalks. Adverse short-term impacts could result, but because they would be of limited duration, they are not considered to be significant for any of the 10 project alignment alternatives. Finally, construction of 8 of the 10 proposed alignment alternatives involving the open-trench method and tunnel-boring method would result in temporary loss of parking spaces either at the public parking lot adjacent to the channel or at on-street locations. This would be considered adverse, but not significant because of the temporary nature of the impact.

As shown above, the EIR presents a detailed analysis of traffic impacts of the proposed project. For each of the impacts identified in the analysis, the mitigation measures

provided in Section 5.4.4 would reduce potential significant impacts to less than significant levels. Key mitigation measures to reduce impacts to less than significant levels are summarized as follows (the full text of the mitigation measures is provided in the Draft EIR, page 5-50):

TRA-1 For each construction site, a construction traffic management plan shall be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work. This plan shall include such elements as:

- the designation of haul routes for construction-related trucks;
- the location of access to the construction site;
- any driveway turning movement restrictions, temporary traffic control devices or flagmen;
- travel time restrictions for construction-related traffic to avoid peak travel periods on selected roadways; and
- designated staging and parking areas for workers and equipment.

Where construction would occur within a public street ROW, including during the open-trench construction activities for all six combinations of Marina Del Rey and Playa Del Rey alignment alternatives, and at the short cut-and-cover portion on both ends of the two full-length tunnel alternatives (Dockweiler Beach alignment and Dockweiler Beach to LAX Shaft alignment), the following mitigation measures would also apply:

TRA-2 A site-specific construction work site traffic control plan shall be prepared for each construction site and submitted to the LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as:

- the location of any lane closures;
- restricted hours during which lane closures would not be allowed;
- local traffic detours;
- protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs); and
- access to abutting properties, and provisions to maintain emergency access through construction work areas.

TRA-3 Fully utilize available street space to minimize lane reductions on affected streets, including elimination of on-street parking where necessary. Implement left-turn restrictions as appropriate on restriped street segments to facilitate the movement of through traffic. Eliminate travel lanes only when absolutely necessary.

TRA-4 Provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.

TRA-5 Provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site, and, where existing property access will be reduced, identify alternative means of access.

TRA-6 Coordinate with emergency service providers, (police, fire, ambulance and paramedic services), to provide advance notice of any lane closures, construction hours and changes to local access, and to identify alternative routes where appropriate.

TRA-7 Coordinate with pubic transit providers to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions and conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related traffic impacts.

Response to Comment CON-4: Construction – Beach Access

The beach is a valuable asset in the Venice community. The EIR addresses the short-term impacts to beach access as well as impacts to views of the beach during project construction. The analysis and documentation in the Draft EIR (Section 5.11.3, page 5-132) notes that "although the proposed Project would not involve permanent adverse impacts to recreational facilities and public resources, site-specific adverse impacts may occur during the construction period. Beach access at Hurricane Street would be affected by the extraction shaft, and cut-and-cover-construction along Hurricane Street. This area is used for passive recreation and volleyball."

The EIR evaluates the short-term construction impacts and notes that "a public beach access path starts near the construction/laydown site and runs along the east side of Ballona Lagoon to the south. From the beginning of this path, the construction/laydown site would be within the foreground. The push site shaft would be in a vacant lot. The construction activities here would be in the foreground of residences along the northeast side of Via Dolce at its intersection with Marquesas Way."

Public access to the beach would be directed around any construction sit, and therefore beach access would not be interrupted, limited or made impossible during the construction phase of the project. No additional analysis or mitigation is necessary as the impact of construction on beach access would be less than significant.

Response to Comment CON-5: Construction – Timing

See response to Comment CON-2, Construction Schedule, regarding the schedule for the phases of project construction. The Draft EIR (Table 4.2-1) provides detailed information regarding the time of each phase and the relationship between the schedules

for each phase. No additional information is necessary to describe the planned schedule for the project. The schedule would be used by the Department of Public Works and the contractor(s) selected by the City to construct the new force main to monitor the progress of the project.

In conclusion, the analysis provided in the EIR provides a detailed description of the timing of phases of construction. No additional analysis is necessary regarding construction timing.

Response to Comment CON-6: Construction - Noise

The EIR provides a detailed analysis of the existing noise environment in the area of VPP and each of proposed alignments and construction methods being considered by the City for the new force main (Section 5-10 of the Draft EIR). A part of the analysis, the criteria to determine a construction-related noise impact is presented, noting the following:

- Depending upon the method of construction chosen, short-term increases in noise from construction would result from the operation of heavy equipment needed to construct the tunnels or cut, dig and re-fill the trenches and insert the pipeline for the Project. The City of Los Angeles regulates noise from construction, and the contractor would be required to adhere to these regulations.

- The City of Los Angeles Noise Ordinance (L.A.M.C. Section 112.03) regulates construction noise by referencing Section 41.40 of the Los Angeles Municipal Code. Section 41.40(a) prohibits use of any noise-producing device or powered equipment for construction or repair work on any building or structure between the hours of 9:00 p.m. and 7:00 a.m. on weekdays. Section 41.40(c) prohibits non-emergency grading or construction, other than by an individual homeowner on his/her own single-family residence, on or within 500 feet of residential land before 8:00 a.m. and after 6:00 p.m. on Saturdays and national holidays, and at any time on Sundays. These sections also prohibit operation, repair, or servicing of construction equipment and job-site delivering of construction materials during those hours.

- The County of Los Angeles addresses noise from construction activities in Section 12.08.440. The operation of any tools used for construction or related activities such that a noise disturbance is created at a residential or commercial land use is prohibited on weekdays between 7:00 p.m. and 7:00 a.m. or at any time on Sundays or holidays. The noise standards listed in Table 5.10-5 are applicable to construction activities conducted within the unincorporated County.

In addition to the analysis of construction-related noise impacts, the Draft EIR also identifies and evaluates impacts relating to operations and construction vibration; (Section 5.10.2, page 5-119). The City of Los Angeles does not have a quantified standard or threshold for vibration that is applicable to the construction or operations phase of this Project. The County of Los Angeles addresses vibration in Section 12.08.560 of the County Code. Any device is prohibited that creates vibration above the

threshold of perception at a distance of 150 feet from the source if the source is on a public space or public ROW. The threshold of perception is defined as 0.01 inch per second over the range of 1 to 100 Hertz.

To reduce construction-related noise impacts and post-construction noise impacts to less than significant levels, the EIR states that "potential construction noise mitigation measures may include limiting the hours of noisy construction activities to daytime hours near residences and other sensitive receptors. Other measures could include limiting the number of construction equipment operating at any one time." Following are the specific project-related construction noise mitigation measures (page 5-128 of the Draft EIR) that should be followed, to the extent feasible:

- **NOI-1** Trucks shall be limited to designated truck routes and shall avoid residential streets to the extent practicable.

- **NOI-2** Temporary soundwall barriers shall be erected for launch and receiving pits and large-diameter tunnel shaft work areas. Such soundwall barriers shall be of a sufficient height, length, and configuration so as to provide substantial noise reduction and effectively block the line-of-sight between nearby noise sensitive receivers and the work zone.

- **NOI-3** Electrically powered equipment shall be used instead of pneumatic, or internal combustion powered equipment where feasible.

- **NOI-4** Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

- **NOI-5** Construction site and haul-road speed limits shall be established and enforced during the construction period.

- **NOI-6** The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.

- **NOI-7** No project-related public address or music system shall be audible at any adjacent receptor.

- **NOI-8** The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the Bureau of Engineering shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

- **NOI-9** The contractor shall develop a project noise control plan, which shall have been approved by the owner or designated noise control professional and implemented prior to commencement of any construction activity.

Since no vibration impacts are predicted for operation of the pipeline, no mitigation measures are recommended or necessary for the operational phase of the project.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions, future conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related noise impacts.

Response to Comment CON-7: Construction – Management

The City's future contractor for the construction of the proposed new force main would prepare a construction management program that would, among other requirements of the City, identify a project manager and support staff to direct all phases of construction. The City would approve the contractor's project management staff based on the construction manager's experience, qualifications and commitment to the assignment. The construction management program would also identify the communications between the City and the contractor during all phases of project construction to ensure that the City is kept informed of construction activities, any problems or delays encountered by the contractor, and adherence and compliance with the agreed-upon schedule for completion of the project. In effect, the construction management plan is an assurance to the City, its residents, and in particular to those who live and work in proximity to the project area that the project is proceeding as planned and that City-imposed mitigation measures are implemented at appropriate phases of construction.

Response to Comment CON-8: Construction – Vibration

As noted in more detail in response to comment NOI-1, the EIR includes an extensive analysis of potential vibration impacts due to project construction; see the noise and vibration analysis is provided in Section 5.10.3 beginning on page 5-119 of the Draft EIR. To address these impacts, several mitigation measures are recommended (see Draft EIR, page 5-128). With the implementation of these mitigation measures, noise and vibration impacts will be reduced to a less than significant level. No additional analysis or research is necessary to identify measures to reduce construction noise-related impacts to less than significant levels.

Response to Comment CON-9: Construction – Trench Covering

The description of trench covering for the various alignments under consideration is provided in the Draft EIR; for example, in page 5-43 it is noted that the Pacific Avenue alignment would involve both the open-trench construction and tunnel-boring. The EIR further notes that the "temporary localized impacts on the transportation system would occur due to the combined effects of additional construction traffic and closure of travel lanes on roadways, leading to reductions in roadway capacity." The analysis provided in the EIR notes that the "open-trench method would be performed to construct the Pacific Avenue alignment in Marina Del Rey, beginning at the VPP on Hurricane Street, proceeding west to Pacific Avenue, and turning south and proceeding along Pacific

Avenue and ending at the receiving shaft for the tunnel-boring construction at the southern end of Pacific Avenue on vacant land west of the Los Angeles County parking lot."

The potential construction-related impacts to local streets and circulation due to the cut-and-cover construction method can be reduced to less than significant levels by the implementation of mitigation measures identified in the EIR, including TRA-1, TRA-2 and TRA-3. The combined effects of these three mitigation measures would reduce potential significant impacts to a less than significant level by requiring that the City prepare for each construction site a construction traffic management plan, and that the plan be prepared and submitted to the City Department of Transportation for review and approval prior to the start of any construction work.

In conclusion, the EIR addresses the issue of construction impacts, including trench covering methods, providing an analysis and documentation of the impact and identified mitigation measures so that the potential impact is reduced to a less than significant level.

Response to Comment EIR-1: Recirculation of EIR

CEQA requires the recirculation of a EIR in cases in which the EIR needs to be revised extensively to address substantial new information that may require additional analysis, to provide additional analysis of issues not addressed in the EIR, when there are substantial changes in the project description, and when there have been errors in the noticing and distribution of the EIR for public review. None of these reasons for recirculation of the EIR are relevant to this EIR. As shown in the comments on the adequacy of the EIR and in these responses to comments, no additional analysis is required to respond to comments; these responses to comments on the EIR result in clarification of information already contained in the EIR and do not require any substantive change in the project description or the analysis of issues addressed in the EIR.

Response to Comment EIR-2: Extend Review Period of EIR

CEQA specifies a minimum review period of 30 days for a Draft EIR. For this project, and as permitted by CEQA, the City provided a longer review period of 45 days. In addition, the public review and the opportunity to provide comments to the City on the adequacy of the Draft EIR also included the public hearing on the Draft EIR, which was held on February 23, 2006. In essence, the public was provided ample opportunities to review and comment on the Draft EIR. In addition, and again consistent with CEQA, the City would hold public hearings on this Final EIR. This process provides additional time for public review and comments on the EIR, and proposed Responses to Comments well beyond the 45-day review period for the EIR.

Response to Comment EIR-3: Piecemeal CEQA Analysis

The EIR has been prepared consistent with the state's CEQA Guidelines that ensure that impact analysis in not piecemeal, but is comprehensive in both the description of the

proposed project and the analysis of impacts. Specifically, the City prepared an Initial Study to identify potential environmental impacts; this analysis provided the basis for the City to identify potentially significant impacts and also provided a basis for the Notice of Preparation (NOP) of the EIR. The Initial Study was also used by the City in the public scoping meetings for preparation of the EIR. Both the NOP and the public scoping meeting provided opportunities for public comment on the range of environmental issues to be analyzed in the EIR. The EIR provides analysis of all issues identified in the Initial Study as well issues identified by public agencies in response to the NOP and issues identified by the public at the public scoping meeting. For example, at the scoping meeting the public requested that the EIR address the issue of risk to pedestrians and bicyclists during the cut-and-cover phase of project construction. This issue is evaluated in the EIR. The impact analysis is not piecemeal nor is it selective. The project description provides a substantial description of the project's objectives, needs and purpose, an identification of alternatives to achieve the objectives and analysis of the alternatives, and all other requirements of CEQA. Based on the project description, no analysis has been deferred.

One commentor has suggested that the proposed project is part of a larger project, the continued development of 3-4 story residential development in Venice. This new development is consistent with the General Plan for the area. The General Plan has been subject to previous environmental review, prior to its adoption. The environmental effects of the 3-4 story residential development now occurring in the Venice area were analyzed the General Plan EIR. Thus, the Venice Force Main Project does not represent piecemeal CEQA analysis of the larger General Plan build-out.

Response to Comment EIR-4: Mitigation Measures

The state's CEQA Guidelines allow lead agencies to substitute mitigation measures during project's development. In brief, a lead agency, such as the City of Los Angeles, may substitute one mitigation measure for another if: (a) the new measure is equivalent or more effective; (b) the City considers the matter at a public hearings; and (c) the City adopts a written finding that the new measure is equivalent or more effective, and that the new mitigation measure would not cause a significant effect. At this time no substitution is proposed or is being considered. The mitigation measures provided in the EIR are the measures that the City proposes to implement to reduce project-related impacts to less than significant levels.

Response to Comment EMG-1: Emergency Access

At the public workshop conducted by the City during the scoping period for the EIR the issue of emergency access during construction was raised by several people. The EIR acknowledges that during construction roadways may be narrowed to accommodate construction equipment and that lanes may be closed on a temporary basis. To address this, the EIR includes a mitigation measure to ensure that emergency access is not interrupted during project construction; specifically, mitigation measure TRA-2 provides that:

> "A site-specific construction work site traffic control plan shall be prepared for each construction site and submitted to the LADOT for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas."

With this measure, potential adverse impacts would be reduced to a less than significant level and no further analysis or mitigation is necessary. No additional analysis is necessary to describe the potential impacts of the project on emergency access.

Response to Comment FLD-1: Flooding

Flooding is a potential event throughout the City during major storms. Low-lying coastal areas and communities, such as Venice, are especially subject to flooding. The proposed project would not affect existing areas subject to flooding, nor increase the amount of water that would aggravate or increase flooding risks, frequency or areas subject to flooding by contributing to surface water sources. The project would not increase the impervious ground coverage in the area which could contribute to flooding. The existing force main and the proposed new force main are underground utilities and the proposed project would be protected from the effects of surface flooding. In extreme and unusual circumstances, the VPP may be shut-down in major flooding events. Therefore, the risks to the project from flooding, and the risks to the community of an increased flooding risk due to the project, would be less than significant.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions and conditions during construction of the project and following project completion. No additional analysis or research is necessary regarding flooding impacts in the project area.

Response to Comment GEO-1: Geology – Settling and Dewatering

Page 5-75 of the Draft EIR provide a description of the potential for settling/landslides in the area and potential effects on the proposed project. As noted in the Draft EIR the:

> "The potential for landslides induced by seismic shaking is not anticipated to pose a significant seismic hazard to the proposed Project. The proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. In addition, the Potential Liquefaction Hazard Zone map for the Venice quadrangle, referenced as Figure 5.6-4, indicates that the Project elements do not lie within areas designated as having the potential for earthquake-induced land sliding (CDMG, 1999). These are areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement during a

seismic event. Landslides from other mechanisms are discussed further in this section."

To reduce the risk of landslides related to the project; the following mitigation measures have been identified in the Draft EIR (page 5-76) with emphasis added to note the specific relationship to landslides and settling:

> **"GEO-2 Liquefaction and Differential Seismic Settlement –** Mitigation measures with respect to liquefaction and **differential seismic settlement hazards** are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on these potential hazards will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as flexible connections that can accommodate **differential settlement**, compaction grouting to densify the soils, or structural anchors to secure the pipeline. The mitigation measures will reduce impacts from liquefaction and **differential seismic settlement** to less than significant."

Regarding dewatering, the Draft EIR's analysis (see pages 5-74 and 5-75) notes that:

> **"…** dewatering of the excavations made during construction of the proposed Project could result in potentially damaging subsidence adjacent to the construction area. The Project area is in proximity of the Playa Del Rey oil field, which is used by the Southern California Gas Company as a natural gas storage facility. Although a detailed study has not been performed for this report, it is anticipated that the continued operations at the natural gas storage facility would not result in measurable subsidence in the Project area, barring such extraction in the future. Because of the potential for subsidence to occur as a result of construction dewatering, subsidence is considered a potential geologic hazard to the proposed Project."

The mitigation measure relating specifically to subsidence and dewatering-related impacts is as follows:

> **"GEO-3 Subsidence –** Mitigation measures with respect to subsidence as a result of construction dewatering are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on this potential hazard will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or constructing the pipeline in a "wet" excavation. The mitigation measures will reduce impacts from subsidence to less than significant."

In conclusion, the EIR addresses the issues of settling and landslides, providing documentation and analysis of the potential risk, and identifying mitigation measures so that the potential impact is reduced to a less than significant level.

Response to Comment GEO-2: Geology - Liquefaction

The identification of liquefaction as a project-related risk was identified by the City in the proposed project's Initial Study. The City's Venice Community Plan identified liquefaction as a risk to persons and property, including the proposed project and similar utilities, The EIR provides and extensive discussion of liquefaction potential in the Venice community and the potential effect of liquefaction on the proposed project.

The description of the liquefaction risk in the Draft EIR (page 5-74) provides a clear analysis for the public and decision-makers of the potential risk. As noted in the Draft EIR:

> "Liquefaction is defined as significant and relatively sudden reduction in stiffness and shear strength of saturated sandy soils caused by a seismically induced increase in pore water pressures. Recent geotechnical studies performed for the proposed project encountered saturated sandy soils at relatively shallow depths along most of the Pacific Avenue alignment (URS, 2000a; 2000b). Standard Penetration Test (SPT) blow counts indicate the consistency of some of these sandy soils is relatively loose and therefore prone to liquefaction.
>
> "The California Geological Survey has identified the project area as being in a potential liquefaction hazard zone (CDMG, 1999). Because of the combination of sands and shallow groundwater in the project area, liquefaction is considered a significant potential seismic hazard along all of the alternative alignments for the Project."

In addition, the EIR (page 5-74) notes that:

> "The potential for landslides induced by seismic shaking is not anticipated to pose a significant seismic hazard to the proposed Project. The proposed Project lies in a relatively flat-lying area where landslides would not be expected to occur. In addition, the Potential Liquefaction Hazard Zone map for the Venice quadrangle, referenced as Figure 5.6-4, indicates that the Project elements do not lie within areas designated as having the potential for earthquake-induced land sliding (CDMG, 1999). These are areas where previous occurrence of landslide movement, or local topographic, geologic, geotechnical and subsurface water conditions indicate a potential for permanent ground displacement during a seismic event."

The Draft EIR (page 5-76) identifies two mitigation measures that address the potential significant impact of liquefaction on the proposed project:

> **"GEO-2 Liquefaction and Differential Seismic Settlement –**Mitigation measures with respect to liquefaction and differential seismic settlement hazards are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on these potential hazards would be performed as part of the design studies. Design and construction of the proposed

Project would include mitigation measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline. The mitigation measures would reduce impacts from liquefaction and differential seismic settlement to less than significant.

"GEO-3 Subsidence –Mitigation measures with respect to subsidence as a result of construction dewatering are considered necessary for the proposed Project. Site-specific geotechnical and geological investigations that focus on this potential hazard will be performed as part of the design studies. Design and construction of the proposed Project will include mitigation measures, such as a watertight excavation support system to minimize groundwater pumping or constructing the pipeline in a "wet" excavation. The mitigation measures will reduce impacts from subsidence to less than significant."

With the implementation of proper engineering practices and mitigation measures prior to and during construction, no unavoidable or adverse impacts on the geologic footprint of this area from the project are expected. In addition, cumulative impacts on the geologic footprint of this area are not expected from the project with the implementation of proper engineering practices and mitigation measure prior to and during construction. No additional analysis is necessary to address the potential impact, nor are additional mitigation measures necessary to reduce the potential liquefaction impacts to less than significant levels.

In conclusion, the analysis provided in the EIR provides a detailed description of current conditions and conditions during construction and following project completion. No additional analysis or research is necessary regarding liquefaction, seismic settlement and subsidence impacts in the project area.

Response to Comment GEO-3: Geology - Seismic

As with the analysis provided in the EIR of liquefaction risk (see previous response to Comment GEO-2), the EIR provides extensive analysis and documentation of seismic risks to the project and the surrounding area. The EIR documents that the potential seismic risks are potentially significant and require mitigation measures. The following measure is proposed to mitigate potentially significant geologic hazards to less than significant levels for the project components. No unavoidable adverse impacts that cannot be mitigated have been identified for any of the project components. The mitigation measure is more accurately described as a project design feature and is presented in the Draft EIR (page 5-75), and are repeated again below for clarity:

"GEO-1 Earthquake Ground Shaking –The proposed Project and associated facilities will likely be subjected to moderate or strong earthquake motions in their lifetime. The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum. Proper design and construction of the

Project components will reduce impacts from ground shaking to less than significant."

Response to Comment GRWTH-1: Growth-inducing Impacts

As required by CEQA, the EIR provides an analysis of the potential for the project to induce growth in the area. In simple terms, a project would induce growth if an obstacle or barrier to future growth is removed. That is not the case with the proposed new force main from the VPP. As noted in the Draft EIR discussion of growth-inducing impacts (Section, 7.1 Growth-Inducing Impacts), Section 15126.2(d) of the CEQA Guidelines requires a discussion of the growth-inducing impacts of the proposed project. Growth-inducing impacts are secondary, or indirect, impacts that could occur as a result of the project that are manifested as changes in land use patterns, population density and growth rates, as well as related effects on traffic, public services, air, water, biological and other environmental resources. Over the past several decades, the Bureau of Engineering has designed and constructed numerous wastewater conveyance system projects. The issue of potential growth inducement resulting from an increase in sewer conveyance capacity has been raised in the past by various individuals and organizations. The primary issue is whether the provision of sewer capacity induces growth, which would otherwise not occur.

The proposed project would not change permitted land use in the community and surrounding areas; the project is the construction of new force main from the VPP to the Hyperion Treatment Plant. The size of the proposed force main is based on the existing and projected flow of sewage from the VPP and is not based on achieving an increase in capacity to address future growth that is not consistent with the City of Los Angeles' land use plans for the area. The development of land in the City is governed by the land use and zoning designations of particular parcels. Unless conditional use permits, density transfers or variances are obtained from the Planning Department, development must conform to the type and density designated for that parcel. Zoning reflects the land use policies contained in the General Plan. Again, no change in the permitted land uses, or density of development, is part of the proposed project.

As noted in the Draft EIR (see Section 7.1, page 7-1), the decision of a land owner to develop a single parcel or numerous parcels of land may be based on personal or economic reasons. Whether personal, economic or both, the availability of wastewater conveyance capacity is not likely to be a consideration in the decision to develop. Once the decision to develop a parcel has been made, permission to connect to the wastewater collection system must be obtained as part of the building permit process. A sewer connection permit can only be obtained if adequate capacity to serve the proposed development is available. Sewer connection and other building permit fees are charged in proportion to the density of development proposed. The high sewer connection fees and other building permit fees associated with the most intensive levels of development increase the costs of developing land in the City and can be considered economic disincentives to development. In a mature, urbanized area such as Los Angeles which is

adequately served by sewage treatment facilities, the provision of wastewater conveyance capacity would not induce land development that would not otherwise occur.

Wastewater conveyance capacity is required to accommodate the increases in wastewater flows associated with the population increases. The provision of wastewater conveyance capacity would neither induce natural population growth nor in-migration. The Southern California Association of Governments (SCAG), the regional planning agency, has established the policy that conveyance systems, including interceptors, are not subject to its air quality conformity procedures, because of the absence of their effects on population growth.

SCAG, which includes the City of Los Angeles among its member jurisdictions, has prepared the Regional Comprehensive Plan and Guide and the Growth Management Plan. These plans address regional growth and related issues. In addition, the City of Los Angeles' General Plan governs land use development within its jurisdiction.

The Los Angeles City Planning Department revised the General Plan and the new plan, termed the "General Plan Framework," is intended to balance land use development, transportation, projected future population and projected future employment within the City of Los Angeles. Wastewater conveyance capacity is an infrastructure component of the urban environment that is necessary to safely accommodate the needs of existing and future populations.

In conclusion, the analysis provided in the EIR provides a detailed description of current water quality conditions, future conditions during construction of the project and following project completion and no additional analysis is necessary regarding construction-related wastewater related growth inducing impacts.

Response to Comment GRWTH-2: Hyperion Plant

The commentor asks if the Hyperion Plant can handle the increased flows of the sewer line in the context of the large expansive housing projects that the City continues to approve. As noted in response to comment GRWTH-1, above, and in the EIR the provision of wastewater conveyance capacity, in and of itself, would not induce population growth or land use development. Rather, wastewater conveyance capacity would allow population growth to occur consistent with the City's adopted General Plan Framework while minimizing sewage spills and the associated environmental and health and safety problems. Future land uses would be at densities consistent with the Framework and generally not occur in densities higher than those allowed by the City's land use planning process. Any development projects beyond the scope of the City's General Plan would undergo subsequent environmental analysis (including analysis of impacts to the wastewater system) and would have to be approved by the City Council. In wastewater planning, the sizing of collection and treatment facilities, as well as the system's overall configuration, is dependent on the future system-wide flow and the distribution of that flow within the system. The VPP Dual Force Main Project would not induce growth in population or changes in land use which would not otherwise occur. No

significant growth-inducing impacts are, therefore, associated with the project and no additional research or analysis is necessary to address this issue.

Response to Comment NOI-1: Noise – Noise Curtain Mitigation Measures

The Draft EIR analyzes the noise and vibration impacts that would result from project construction (see Section 5.10.3 beginning on page 5-119). The construction phase would produce significant noise impacts on sensitive receptors in the vicinity of construction. To address these impacts, several mitigation measures are recommended (see Draft EIR, page 5-128). With the implementation of these mitigation measures, noise and vibration impacts would be reduced to a less than significant level. Other mitigation measures, such as the noise curtain recommended in this comment, are not necessary to mitigate impacts that would otherwise be mitigated by less costly and even more effective measures. Therefore, no additional research or analysis is necessary to identify measures to reduce construction noise-related impacts to less than significant levels.

Response to Comment NOI-2: Noise – Pacific Avenue Noise Mitigation Measures

Potential project-related noise impacts are analyzed in detail in the EIR. The Draft EIR (page 5-118) notes that existing City noise requirements and standards would be met during the project's construction.

> "If any Project alignment alternative exceeded the relevant noise criteria for impact, then noise abatement actions would be considered. Noise from any Project alignment alternative, that is predicted to exceed the criteria for impact under CEQA, would result in a significant adverse effect. In such a case, feasible/effective noise mitigation measures would need to be considered. If feasible/effective mitigation actions were not available, then unavoidable adverse impacts would occur if the particular alternative were to be selected."

To ensure that the City's noise standards are met during project construction, mitigation measures are provided in the EIR that are applicable to all project alternatives, including both alternative alignments and alternative construction methods. The Pacific Avenue alignment alternative, if selected by the City, would be subject to noise mitigation measures NOI-1 to NOI-9. These measures would reduce potential significant impacts to less than significant levels. No additional analysis is necessary to identify, analyze and mitigate noise impacts from the proposed project.

Response to Comment OS-1: Open Space – Mitigation

Section 5.9.1 of the Draft EIR describes existing land uses in the project area, clearly describing the open space resources present (such as the beach, the lagoon, and other water ways). Specifically, the Draft EIR notes that: "Existing land uses within the Venice area, extending north from Via Marina Way on the south, consist of six major land-use designations: single- and multi-family residential, commercial, industrial, open space, and public utilities. The proposed alignments north of the Marina Del Rey Channel

and on the southeast side of the Ballona Lagoon are in areas zoned single and multi-family residential. Areas to the west are zoned open space along the Ballona Lagoon and low to medium residential. The area surrounding the VPP is primarily zoned multi-family residential to the north, and open space on the south along the Ballona Lagoon. Along the alternative alignments south of the channel, and under consideration by the City, the zoning is also primarily residential and light commercial."

The analysis presented in Section 5.9.3 notes that "Because this is a municipal project providing improvements to public facilities through the City of Los Angeles Department of Public Works, this Project would adhere to all local and regional regulatory requirements necessary for the construction of the sewer." The impact analysis further notes that the "Project is not a land use, nor does it require a change/variance in land use; therefore, there are no impacts to land uses within the Project areas." The analysis concludes that the "Project could impose temporary construction impacts in the Coastal Transportation Corridor Specific Plan area due to construction-related transport to and from construction areas north of the Marina Del Rey/Ballona Lagoon channels."

In conclusion, there would be no loss of open space during project construction and no mitigation measures are, therefore, proposed or required.

Response to Comment PRMT-1: Permitting

Section 1.6 of the Draft EIR provides an extensive list of permits for the proposed project in Table 1.6-1. The list of permits includes permits that are necessary for all alignments and construction alternatives evaluated in the EIR, including permits necessary for the Pacific Avenue alignment.

Response to Comment PROJ-1: Project Related – Project Life

The existing force main is nearly 50 years old. One objective of the proposed project is to supplement that existing force main with a new line that has more carrying capacity but which would also be more reliable in handling maximum flows without leaking or breaking which would result in significant contamination of the area's groundwater and surface water resources. The Department of Public Works anticipates the new force main would have a life-span greater than 50 years. Following development of the new force main the Department would be able to inspect the existing line to determine what repairs can be made to extend its life further. With the proposed project, adequate carrying capacity would be provided for more than 50 years. There is little likelihood that additional construction to the force mains would be necessary for at least 50 years. Therefore, the impacts identified and analyzed in the EIR are the only impacts that can be reasonably foreseen at this time.

Response to Comment PROJ-2: Project Related – Capacity of Force Main

The EIR provides detailed information regarding the capacity of the existing force main, the capacity of the proposed new force main and the reasons why the City has proposed

the use of a tandem system of forces mains from the Venice Pumping Plan. As noted on page 2-1 and page 2-5 of the Draft EIR:

> "The VPP is the largest pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City through an existing 48-inch pipeline and transports it to the Hyperion Treatment Plant in Playa Del Rey (see Figure 2.2-1). Over the years, the existing pipeline that conveys sewage to the treatment plant has gradually approached maximum capacity placing substantial strain on the system forcing the water level in the wet-well of the VPP basement to rise.
>
> "The City of Los Angeles first identified the need for additional sewer capacity during the heavy storms of 1995 when sewage and infiltrated storm water in the sewage system exceeded the capacity of the existing 48-inch line, creating a potentially serious human and environmental health risk. Although the pumping plant had all five pumps running during peak rainfall, the existing downstream sewer force main that runs along the beach could only handle approximately 60 percent of the flows that would otherwise run through the pumps - serving as a bottleneck in the system. The amount of sewage and infiltrated storm water in the sewage system exceeded its capacity, forcing the water level in the wet-well of the VPP to rise. In an effort to prevent potential sewage spillage as a result of an overload situation, the City proposes to install an additional 54-inch pipeline to convey the flows."

Based on these events that clearly indicate the need for the City to address the capacity of the existing force main, the City proposes the Venice Force Main project. As further noted on page 2-5 of the Draft EIR:

> "In addition to the need to provide pipeline capacity to manage peak flows, the new 54-inch force main would be used in tandem with the existing force main; together, the two force mains would provide the necessary capacity to meet current and future peak wet weather flow demands. The project's intent is to construct a second force main to be used in tandem with the existing force main for the purpose of fulfilling two objectives: expand the capacity of the Coastal Interceptor Sewer's force main segment from the VPP to a connection in Playa Del Rey in the vicinity of Waterview Street, such that all projected wet weather flows can be safely conveyed without future threats of spilling onto city streets and adjacent surface waters; and to provide force main redundancy to allow for maintenance and rehabilitation of the existing force main and future reciprocal cleaning of each force main during dry weather periods."

In addition, a critical consideration by the Department of Public Works is the recognition that "the existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. The installation of the proposed 54-inch force main would provide bypassing capability allowing repair and maintenance of the existing pipeline, which is currently not possible" (page 2.5 of the Draft EIR).

In conclusion, the information provided in the EIR clearly describes the reasons why the City is proposing to increase the capacity of force mains from the VPP. No additional analysis is necessary to describe the purpose of the project, its benefits and its characteristics.

Response to Comment PROJ-3: Project Related: Sewage Spill Plans

The proposed project seeks to reduce the existing risk of sewage spills (discharge) that may result from the existing force main. First, as noted in the Draft EIR (see Section 7.1, page 7-3) "it is technically infeasible that completion of the proposed Project, within any of the proposed three alternative locations, would cause any unwarranted discharge that would affect the current surface water quality condition. Unless there is a catastrophic event (e.g., high magnitude earthquake) the proposed Project is designed to provide additional mitigation of possible sewage spills from the existing pumping station/sewer main system. Additional wastewater conveyance capacity would allow population growth to occur within the General Plan Framework while minimizing sewage spills and the associated environmental, health and safety problems.

Second, the Department of Public Works requires that all construction projects include requirements that the contractor meet all applicable, local, state and federal requirements to reduce the risk of spills and/or discharge during project construction. This is a contract provision that is supervised by the City on all construction contractors. No additional information or analysis is necessary to illustrate or demonstrate how the City would impose conditions to ensure that sewage spills and/or discharge related impacts would not occur during project construction.

Response to Comment PROJ-4: Project Related: Sewer Capacity

See previous responses to comments PROJ-2 regarding the need to ensure adequate capacity of the force mains from the VPP. In addition, the project is limited to construction and operation of an additional force main from the VPP. The project does not provide for additional sewer capacity in the project area nor is the project proposing increasing the capacity of the City's wastewater treatment system, specifically the Hyperion Treatment Plant.

Response to Comment PROJ-5: Project Related – Project Updates

The comments relate to the public's interest in being kept informed of the status of the project's planning, design and construction. Although not a CEQA-related requirement nor necessary to reduce or otherwise mitigate environmental impacts, the City would make available to the public brief summaries of project status and periodic mitigating monitoring reports completed by City staff that would indicate status of the project's progress, the status of the mitigation measures as they are implemented, and the remaining work to be completed by the City and/or its construction contractor.

Response to Comment PROJ-6: Project Related – Safety Concerns

The EIR addresses a wide variety of issues identified through the City's preparation of the Initial Study (provided in full in Appendix A to the Draft EIR) and issues raised by the public at the scoping sessions/workshops prior to the preparation of the EIR. There are a variety of safety concerns; for example, in a broad sense, the protection of the area's biological communities and habitat is a safety concern. Specific mitigation measures have been identified to reduce those impacts to less than significant levels. Further safety concerns relate to seismic risks and these too have been analyzed in the EIR and mitigation measures have been identified to reduce or mitigate these impacts to less than significant levels. The EIR also describes construction activities, such as exposed trenches and the presence of construction equipment in the project area. Again, mitigation measures have been identified to reduce safety-related issues to less than significant levels. As a result, the issue of public safety has been addressed among the full spectrum of environmental issues and mitigation measures have been identified to reduce safety-related risks to less than significant levels. No additional research or analysis is necessary to address this issue.

Response to Comment PROJ-7: Project Related – Project/Alternatives Cost Information

The purpose of an environmental impact report is to identify and evaluate the environmental effects of the propose project, to identify means to mitigate those impacts, to address alternatives which would meet most of the project objectives and would reduce environmental effects, and above all else, to provide the public and decision-makers with information about the project and project impacts. An environmental impact report is not a cost-benefit study, nor is it intended to provide a detailed cost analysis of the project and project alternatives. Specifically, the effects analyzed under CEQA must be related to a physical change in the environment. Economic and social effects, including costs associated with the proposed project and its alternatives, are not considered environmental effects under CEQA (CEQA Guidelines Section 15064, 15131, et al.). These effects need to be considered in EIRs only if they would lead to an environmental effect. The order of magnitude cost estimates provided in the EIR are intended to give the public and decision-makers information on the comparative feasibility of the alternatives. The EIR, therefore, does not provide information beyond that required by CEQA and no additional information is provided in the Final EIR.

Response to Comment PROJ-8: County Facilities

The proposed project would not require modification to County facilities or operations in the area, such as the in the unincorporated Marina Del Rey area. The County would be informed as the project construction progresses and would be notified of any change that could affect County facilities. Permits to construct and operate the new force main are included in the EIR and, as required for the permits, the County would be notified.

Response to Comment TAX-1: Property Tax Relief

The costs to plan, design, engineer and construct the proposed new force main would be born entirely by the City of Los Angeles' Department of Public Works. It has long been

the policy of the City not to provide tax relief to businesses, neighbors, residents and property owners in proximity to a public works projects in the form of property tax relief or other monetary compensation for environmental effects of City projects. Rather, as identified in the EIR, it is the City's responsibility to pay for the implementation of the mitigation measures to reduce adverse impacts to less than significant levels where feasible. The implementation of the mitigation measures would reduce impacts to acceptable levels. As a result, there would be no impacts anticipated from the proposed project that would create financial hardship on the area's businesses, residents and property owners and no property tax relieve is proposed.

Response to Comment TRA-1: Traffic

The comments raise questions regarding the breadth of the traffic impact analysis provided in the EIR and if the analysis accounts for the specific characteristics of the local street system. As described in the Draft EIR (see Circulation, Traffic and Transportation, Section 5.4.1, Environmental Setting), the analysis is based on the existing street network in the area, the current traffic conditions (volume and capacity), and proposed improvements to the street system. The issues raised in this comment are addressed in this section of the EIR. Based on the existing street network, the impacts of the proposed project — particularly the short-term construction impacts of the alternative non-beach alignments — are addressed in detail, including description of potential street and/or lane closures during construction on vehicles, bicyclists and pedestrians. The potentially significant short-term construction-related traffic impacts can be reduced to a less than significant level by the circulation and traffic mitigation measures in the Draft EIR (see Section 5.4.4, beginning on page 5-50). In conclusion, the concerns raised in the comments are consistent with the impacts identified and analyzed in the EIR and these impacts can be mitigated to less than significant levels.

Response to Comment WQ-1: Water Quality

One of the objectives of the proposed project is to reduce the potential contamination of the local surface and subsurface water resources that may occur from sewage spills, leaks and, in an extreme case, a break in the existing main leading from the VPP to the Hyperion Treatment Plant. The existing main from the VPP is old and may collapse or rupture creating substantial contamination of the local ground and/or surface water.

As noted in the EIR, all proposed alternatives would cause similar construction and operations impact to the project boundary and adjacent area. The completed project would be in compliance with the NPDES Municipal Separate Storm Sewer System (MS4) Permit and meet the necessary sanitary sewer service standards. Without the installment of the new sanitary sewer main, the current sanitary system would continue to deteriorate and run a high risk of overflowing the system, causing a potential break in the system, and causing a potential health risk to the local waterways. From a hydrology and water quality perspective, all alternatives cause a similar temporary disturbance to the current site conditions. All three proposed alignments cross under the Marina Del Rey Channel and Ballona Creek via tunneling, and the Marquesas Way alignment crosses

under the Grand Canal via tunneling. Tunneling would occur below the bottom of these waterways, and have no effect on the waterways.

The following mitigation measure to the project contained in the EIR would minimize the proposed Project's impacts on water quality and hydrologic conditions.

- **H/WQ-1** Appropriate Best Management Practices (BMP) measures (sandbags, plastic lining covering storm water inlets, temporary detentions basins, etc.) would be implemented during the construction period to retain excavated soil material on site and minimize the potential risk of contaminated soil being removed off site. Also, monitoring activities would be conducted during the installation of the BMP measures and throughout the construction period.

Provided that all federal, state, and local regulations pertaining to project activities are followed accordingly and storm water prevention plans are implemented and monitored, then the potential for significant or long-term adverse impacts would be avoidable.
In conclusion, the analysis provided in the EIR provides a detailed description of current water quality conditions, future conditions during construction of the project and following project completion. No additional analysis is necessary regarding construction-related water quality issues or impacts. Moreover, as noted in the EIR, the project area is not within a sensitive environmental setting. Change to the existing site conditions would be temporary and the site would be restored back to a similar pre-construction condition. Pre- and post-construction hydrologic conditions would be similar and any change in condition would be minimal. All proposed alternatives have similar construction applications and procedures. Therefore, there are no foreseen hydrologic or water quality cumulative or secondary impacts.

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12.0 CLARIFICATIONS AND REVISIONS

This section of the Final EIR is intended to clarify certain elements of the Draft EIR and to identify revisions made after circulation of the draft.

12.1 CLARIFICATIONS

The Environmental Impacts Summary Table presented in the Executive Summary (Table 3.3-1) is intended to provide a simpler and clearer summary than provided in the Impact Analysis Table published in the Draft EIR (Table 6.3-1).

12.2 REVISIONS

During internal review, we discovered that some pages were omitted from Appendix A (Notice of Preparation), C (Air Quality Analysis) and D (Biological Resources), which were published in Appendices Volume I. Therefore, Appendices Volume I has been corrected and reissued with a cover date of December 2007. This correction does not introduce new information, since the information in the appendices was presented in the Draft EIR volume itself. In fact, we received no comments from reviewers expressing concern about the missing pages.

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MITIGATION MONITORING PROGRAM

FOR

Venice Pumping Plant Dual Force Main

W.O. SZC11631 (formerly W.O. E1700500)

SCH #2003031001

Prepared By

CITY OF LOS ANGELES
BUREAU OF ENGINEERING

December 2007

Introduction

The California Environmental Quality Act (CEQA) requires public agencies to adopt a reporting or monitoring program for the changes to the project that have been adopted to mitigate or avoid significant effects on the environment. The program must be adopted by the public agency at the time findings are made regarding the project (Public Resources Code Section 21081.6). The State CEQA Guidelines allow public agencies to choose whether its program will monitor mitigation, report on mitigation, or both (California Code of Regulations Title 14, Chapter 3, Section 15097(c)). This mitigation monitoring program contains the elements required by CEQA for the Venice Pumping Plant Dual Force Main Sewer Project.

Project Description

The Venice Pumping Plant Dual Force Main Project for which this mitigation monitoring program has been developed consists of the design, construction and operation of a new force main sewer, 54 inches in diameter and extending about two miles from the existing VPP at 140 Hurricane Street in the community of Venice to a junction structure on the Coastal Interceptor Sewer in the community of Playa Del Rey on Vista Del Mar near Waterview Street. The new force main sewer would be used in tandem with the existing force main sewer for the purpose of fulfilling the City's objectives, purposes and needs for sewage conveyance capacity, pipeline redundancy, and maintenance.

From the existing VPP on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina and portions of the county parking lot, then under the Marina Del Rey entrance and Ballona Creek channels to a point on the south side of Ballona Creek at Pacific Avenue. From there, the alignment continues south along Pacific Avenue and Vista Del Mar to the connection in Vista Del Mar near Waterview Street.

Construction would be by a combination of boring and cut-and-cover construction methods. Surface construction activities (construction management offices, materials staging, boring, etc.) would occur on or near the following sites:

- Venice Pumping Plant (140 Hurricane Street) and vicinity, which may include Hurricane Street between Canal Court and Grand Canal, the city-owned lots at 139 Hurricane Street and the county-owned lot at 3821 South Via Dolce.

- An insertion shaft in the intersection of Marquesas Way and Via Marina.

- A receiving shaft in the south-bound side of Via Marina about 500 feet south of Marquesas Way.

- An insertion shaft in the south-bound side of Via Marina north of Bora Bora Way.

- A receiving shaft in the north-bound side of Via Marina about 300 feet north of the entrance to Los Angeles County Marina del Rey Parking Lot 13 (4601 Via Marina).

- An insertion shaft in the south end of Los Angeles County Marina del Rey Parking Lot 13 (4601 Via Marina)

- A receiving shaft in Pacific Avenue at 62nd Avenue and vicinity, which may include adjacent portions of 62nd Avenue, Los Angeles County 62nd Avenue Parking Lot, the access road along the south side of Ballona Creek channel, and 650 E 62nd Avenue.

- An insertion shaft in Pacific Avenue at 66th Avenue.

- A receiving shaft in Pacifica Avenue about 50 feet south of Convoy Street.

- An insertion shaft in Vista Del Mar at Montreal Street.

- A receiving shaft in Vista Del Mar at Sunridge St.

- Cut and cover in Vista Del Mar from Sunridge Street to about 150 south of Waterview Street. Construction activities may include adjacent portions of Dockweiler Beach, and minor portions of the "LAX Dunes" property (such as the area recently used for the North Outfall Sewer rehabilitation project).

Unless otherwise stated, the project will be designed, constructed and operated following all applicable laws, regulations, ordinances and formally adopted City standards (e.g., *Los Angeles Municipal Code* and Bureau of Engineering *Standard Plans*). Also, the analysis in this document assumes that construction will follow the uniform practices established by the Southern California Chapter of the American Public Works Association (e.g., *Standard Specifications for Public Works Construction* and the *Work Area Traffic Control Handbook*) as specifically adapted by the City of Los Angeles (e.g., The City of Los Angeles Department of Public Works *Additions and Amendments to the Standard Specifications For Public Works Construction* (AKA "The Brown Book," formerly Standard Plan S-610)).

Mitigation Measures

The mitigation measures described in the following pages are taken from the Draft Environmental Impact Report (December 20, 2005) and related documents. The measures listed according to the stages of the project at which each mitigation measure must be implemented: design, construction, and operation.

Within each project phase, the following are identified for each mitigation measure:

(1) An "identifier" providing a nexus between the listed mitigation measure and the source document. The source document should be consulted whenever there is any question regarding the intent or implementation of the mitigation measure. In this case the source document is the Draft Environmental Impact Report dated December 20, 2005.
(2) description of the mitigation measure,
(3) the party who is responsible for the necessary implementing actions,
(4) the necessary implementing vehicle,
(5) the party who is responsible for verifying that the necessary implementing action is taken, and

(6) the primary record documenting the necessary implementing action.

The mechanisms for verifying that mitigation measures have been implemented include design drawings, construction documents intended for use by construction contractors and construction managers, field inspections, field reports, and other periodic or special reports. All records pertaining to this mitigation program will be maintained and made available for inspection by the public in accordance with the City's records management systems and policies.

DESIGN PHASE

Identifier	Mitigation Measures	Implementation Responsibility	Implementation Vehicle	Enforcement Responsibility	Record of Implementation
Air Quality					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications
Biological Resources					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications
Circulation, Traffic and Parking					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications
Cultural and Paleontological Resources					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications
Geology, Soils and Seismicity					
GEO 1	Project improvements would be subject to earthquake ground shaking. The components of the proposed project will be designed and constructed to the seismic design requirements for ground shaking specified in the UBC for Seismic Zone 4 at a minimum.	Project Engineer	Plans & Specifications	Project Manager	Plans & Specifications
GEO 2	Liquefaction and differential seismic settlement may occur on the project. Design and construction of the proposed project will include appropriate measures, such as flexible connections that can accommodate differential settlement, compaction grouting to densify the soils, or structural anchors to secure the pipeline.	Project Engineer	Plans & Specifications	Project Manager	Plans & Specifications
GEO 4	Methane gas may be detected along the project alignments. Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary.	Project Engineer	Plans & Specifications	Project Manager	Plans & Specifications
Hazards and Hazardous Materials					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications
Hydrology and Water Quality					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications

CCC = California Coastal Commission; DFG = California Dept. of Fish and Game; LADOT = City of Los Angeles Department of Transportation; LARWQCB = California Regional Water Quality Control Board Los Angeles Region; PW-Eng = Dept. of Public Works Bureau of Engineering ; PW-San = Dept. of Public Works Bureau of Sanitation; RAP-Op.s = Dept. of Recreation & Parks Operations; SCAQMD = South Coast Air Quality Management District;

DESIGN PHASE

Identifier	Mitigation Measures	Implementation Responsibility	Implementation Vehicle	Enforcement Responsibility	Record of Implementation
Noise and Vibration					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications
Recreational Resources and Facilities					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications
Aesthetics					
	Incorporate all Construction Phase mitigation measures into the project plans and specifications	Project Engineer	Plans and Specifications	Project Manager	Plans and Specifications

CONSTRUCTION PHASE

Identifier	Mitigation Measures	Implementation Responsibility	Implementation Vehicle	Enforcement Responsibility	Record of Implementation
Air Quality					
AQ1	To minimize NOx emissions, strategize and plan ahead to minimize the transporting of construction equipment and excessive material to and from work area.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ2	To minimize NOx emissions, optimize construction crew size and select equipment to reduce any unnecessary emissions.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ3	To minimize NOx emissions, adjust the electronic timing on the construction equipment when feasible.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ4	To minimize NOx emissions, use newer construction equipment such as equipment meeting Tier 2 emission standards when feasible.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ5	To minimize NOx emissions, minimize idling emissions from construction equipment and haul trucks by turning them off when not in use or during potential long delays (i.e., over 5 minutes).	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ6	To minimize NOx emissions, optimize the muck removal schedule	Constructor	Project Plans &	Construction	Project

CCC = California Coastal Commission; DFG = California Dept. of Fish and Game; LADOT = City of Los Angeles Department of Transportation; LARWQCB = California Regional Water Quality Control Board Los Angeles Region; PW-Eng = Dept. of Public Works Bureau of Engineering ; PW-San = Dept. of Public Works Bureau of Sanitation; RAP-Op.s = Dept. of Recreation & Parks Operations; SCAQMD = South Coast Air Quality Management District;

CONSTRUCTION PHASE

Identifier	Mitigation Measures	Implementation Responsibility	Implementation Vehicle	Enforcement Responsibility	Record of Implementation
	to reduce emissions from haul trucks.		Specifications	Inspector	Acceptance or Closeout Report
AQ7	To minimize NOx emissions, use alternative fuel such as biodiesel, liquid natural gas, and propane when feasible.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ8	To minimize fugitive dust emissions, disturbed land and open storage piles that will be left inactive for several days, shall be stabilized by one, or a combination, of the following methods: (a) applying a chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of 6 months, (b) covering, or (c) watering three times per day.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ9	Soil exposed by construction activities shall be revegetated or otherwise covered so as to prevent the generation of wind-borne dust as soon as possible.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ10	To minimize fugitive dust emissions, all active unpaved demolition and construction areas shall be wetted at least three times daily during excavation and construction. The construction area shall be sufficiently dampened to control dust caused by construction and hauling and at all times provide reasonable control of dust by wind.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ11	To minimize fugitive dust emissions, during periods of high winds (i.e., greater than 15 mph) either (a) cease all clearing, earth moving and excavation activities or (b) apply water to soil not more than 15 minutes prior to moving the soil.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AQ12	To minimize fugitive dust emissions, all truck loads of imported or exported soil or debris shall be either (a) securely covered or (b) comply with vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads and be sufficiently watered to prevent excessive amount of dust.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
Biological Resources					
BIO 2	To protect foraging of the least tern when tunneling activities are to occur during the least tern nesting season (April 1 through August 31), a water quality specialist or biological monitor shall conduct surveys at tunneling locations a minimum of once daily to ensure that tunneling does not increase water turbidity. If any turbidity from the tunneling activities is discovered in least tern foraging areas, the tunneling activities shall cease until corrective measures are taken to prevent tunneling activities from causing increased turbidity.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report

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CONSTRUCTION PHASE

Identifier	Mitigation Measures	Implementation Responsibility	Implementation Vehicle	Enforcement Responsibility	Record of Implementation
BIO 3	Environmentally sensitive habitat areas shall be protected, and where feasible, enhanced. If any environmentally sensitive habitat area is disturbed, the area shall be restored to its previous condition in accordance with the applicable Land Use Plan and Local Coastal Program. Marine resources shall be maintained, enhanced, and where feasible, restored. If any marine resources are disturbed, the resources shall be restored to its previous condition in accordance with the applicable Land Use Plan and Local Coastal Program.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
Circulation, Traffic and Parking					
TRA 1	To coordinate with the city to ensure adequate traffic signals and controls are in place prior to and during times of construction, a construction traffic management plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
TRA 2	To adequately control traffic to ensure compliance with all local and state safety standards and specifications, a site-specific construction worksite traffic control plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas. Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
TRA 3	To reduce traffic congestion, fully utilize available street space to minimize lane reductions on affected streets, including elimination of onstreet parking where necessary. Implement left-turn restrictions as appropriate on re-striped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report

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	absolutely necessary.				
TRA 4	To protect pedestrian and recreational traffic, provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
TRA 5	To ensure ingress/egress to all properties adjacent to the project and surrounding areas, provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
TRA 6	To avoid impacts to public transportation, coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
Cultural and Paleontological Resources					
CR 1	To avoid impacts to areas where cultural resources are known to exist, an archaeologist qualified to recognize and assess both prehistoric and historical resources shall monitor all excavation.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
CR 2	To avoid impacts to areas where cultural resources are known to exist, when avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
CR 3	In the event of the discovery and subsequent recovery of fossil remains, the engineer shall halt construction temporarily while remains are analyzed prior to resuming construction.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
CR 4	An archaeologist qualified to recognize and assess both prehistoric and historical resources shall monitor all excavation in the vicinity of the CA-LAN-66 site located in Vista Del Mar.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
CR 5	If new discovery is encountered Develop a contingency plan for addressing unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
CR 6	If significant cultural resources are found during construction, those significant cultural resources found shall be recovered from the project site, curated by an archaeologist recommended by the city and offered to an area museum whose collection is available for the viewing by the public.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report

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PAL 1	Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and Los Angeles County Museum of Natural History will be retained to implement the mitigation program during earth-moving activities at the project site.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
PAL 2	The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
PAL 3	The paleontologist or monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
PAL 4	Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report

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	suspended in that area.				
PAL 5	All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
PAL 6	The discovery of paleontologic resources may be present in specific project areas where grading and other excavation activities are to occur Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to commence.	Constructor	Project Plans & Specifications	Project Manager	Project Acceptance or Closeout Report
Geology, Soils and Seismicity					
GEO 2	Liquefaction and differential seismic settlement may occur on the project. Design and construction of the proposed project will include appropriate measures.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
GEO 3	Subsidence may occur to the project area. Design and construction of the proposed project will include appropriate measures, such as a watertight excavation support system to minimize groundwater pumping or construction the pipeline in a “wet” excavation.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
GEO 4	Methane gas may be detected along the project alignments. Design	Constructor	Project Plans &	Construction	Project

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	and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary.		Specifications	Inspector	Acceptance or Closeout Report
Hazards and Hazardous Materials					
HAZ 1	Abandoned wells and other subsurface structures may be encountered during construction. Any wells that must be re-abandoned, will be re-abandoned in accordance with applicable regulations.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
HAZ 2	Employees may be exposed to hazardous materials during construction. Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
HAZ 3	Hazardous materials may be temporarily stored and used on the project site and waste generated during the construction and operation of the project. All hazardous materials shall be handled and disposed in accordance with applicable regulations.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
HAZ 4	The soils may contain methane or other gases from previous oil well field development. Safety equipment, material, and assistance shall be provided to City personnel to properly inspect all phases of the work, including final inspection. Such equipment, material and assistance shall include, but not be limited to testing for the presence of explosive or toxic gases and oxygen deficiency in confined spaces, blowers, ventilators, first aid supplies and equipment, ladders, scaffolds, shoring, and personnel for standby assistance as required. Personal safety devices such as harnesses, lanyards, and self-contained breathing apparatus will be provided. When the Work requires specialized safety equipment, new sets of such equipment, training, and maintenance of such equipment shall be provided.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
HAZ 5	To ensure public safety where methane may be present along the project alignments, the City of Los Angeles Building Code requires that methane mitigation be implemented when construction occurs at these sites to ensure public safety. These measures include the installation of membrane barriers and vent piping as well as trench dams and electrical seal-offs for each of these properties.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
Hydrology and Water Quality					

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WQ 1	Runoff may occur from the project site during construction activities. Even if not otherwise required, a stormwater pollution prevention plan (SWPPP) shall be submitted for review and approval because of the highly sensitive habitat areas within the project. The SWPPP shall recommend interim and permanent improvements to existing drainage features to prevent uncontrolled runoff during construction and to accommodate any temporary increase in runoff associated with construction activities. Copies of said NPDES permit(s) and related SWPPP shall be available for inspection at the City and at the construction site prior to land disturbing activity.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
WQ 2	Dewatering discharge is expected to occur during the initial phase of pit construction, hydraulic isolation of the pits can be accomplished by the contractor by various methods of his choice, including interlocking sheet pile walls, soil cement walls constructed with Deep Mixing Methods, or slurry diaphragm walls. Water removed from the pits will be discharged to the storm drain system after proper treatment in accordance with local regulations. Solid particles will be removed by using sedimentation tanks and filtration. If petroleum contamination is encountered, free product, if any, will be skimmed off the surface and oil/water separators will be used to remove the remaining contamination. Granular activated carbon could be used to remove any dissolved organic or other contaminants. Alternatively, discharged water will be shipped to authorized vendors for treatment and disposal.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
Noise and Vibration					
NOI 1	Construction activities shall be limited to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday, and shall avoid Sundays and national holidays to the greatest extent feasible. Construction activities beyond the afore-stated limits shall only occur if allowed by the regulating agency (e.g., the Los Angeles Police Commission in the City of Los Angeles) and required to avoid greater environmental risk.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 2	Heavy trucks associated with project construction shall be limited to major arterial streets, and away from residential roadways, to the extent practicable.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 3	All noise-producing project equipment and vehicles using internal	Constructor	Project Plans &	Construction	Project

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	combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for such type of equipment.		Specifications	Inspector	Acceptance or Closeout Report
NOI 4	All mobile or fixed noise-producing equipment used on the project, and that is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 5	Temporary soundwall barriers shall be erected for launch and receiving pits. Such soundwall barriers shall be of a sufficient height, length and configuration so as to provide substantial noise reduction and effectively block the line-of-sight between nearby noise-sensitive receivers and the work zone	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 6	Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 7	Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 8	Construction site and haul-road speed limits shall be established and enforced during the construction period.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 9	The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 10	No project-related public address or music system shall be audible at any adjacent receptor.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 11	The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
NOI 12	The contractor shall develop and implement a project noise control	Constructor	Project Plans &	Construction	Project

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	plan, which shall have been approved by the city.		Specifications	Inspector	Acceptance or Closeout Report
VIB 1	"Press-in" or drilling pile drives shall be utilized rather than impact or vibratory pile-drivers, if feasible.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
Recreational Resources and Facilities					
REC1	In order to minimize competition between construction-related equipment and activities and Dockweiler State Beach users for parking space at Vista Del Mar and the resulting temporary impacts to recreation, special parking arrangements will be made for construction workers.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
REC2	In order to minimize recreational access and use issues during the course of construction, additional consultation and coordination with key stakeholders, local residents, members of the general public and City/County planners will occur to balance the needs of the recreational users and construction related activities.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
REC3	The City will coordinate with the sponsors of local and major regional, national and international beach events to schedule the events and/or construction activities to minimize conflicts.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
REC4	The City will coordinate all construction scheduling and activities with the Los Angeles County Department of Public Works for the purpose of eliminating or reducing construction-related impacts.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
Aesthetics					
AES1	Mature street trees along Via Marina shall be protected in place.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AES2	Public access along Via Marina, Marquesas Way, Via Dolce, Aubrey E. Austin Park and the North Jetty Promenade shall be maintained.	Constructor	Project Plans & Specifications	Construction Inspector	Project Acceptance or Closeout Report
AES3	The city shall consider landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly.				
AES4	The city shall consider screening from public view existing features that are incongruous with the character of their surroundings (such as the Venice Pumping Plant).				
AES5	The city shall consider creating public access to currently				

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	unavailable scenic vistas (new beach access routes, paths, bikeways, public parking).				

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OPERATION PHASE

Identifier	Mitigation Measures	Implementation Responsibility	Implementation Vehicle	Enforcement Responsibility	Record of Implementation
	There are no mitigation measures to be implemented during operation.				

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FINDINGS AND STATEMENT OF OVERRIDING CONSIDERATIONS

FOR

Venice Pumping Plant Dual Force Main

W.O. SZC11631 (formerly W.O. E1700500)

SCH #2003031001

Prepared by

CITY OF LOS ANGELES
BUREAU OF ENGINEERING

December 2007

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VENICE PUMPING PLANT

DUAL FORCE MAIN PROJECT

FINDINGS AND STATEMENT OF OVERRIDING CONSIDERATIONS

1.0 INTRODUCTION

Section 21081 of the California Public Resources Code and Section 15091 of the California Environmental Quality Act (CEQA) Guidelines requires a public agency, prior to approving a project, to identify significant impacts of the project and make one or more written findings for each such impact. The findings reported in the following pages summarize the discussions and conclusions regarding the significant or potentially significant environmental impacts of the Venice Pumping Plant Dual Force Main project, as presented in the Environmental Impact Report (EIR) for the project.

This Findings and Statement of Overriding Considerations document is divided into five major sections. The Introduction provides background information regarding the purpose of the document. The Project Description describes the City's objectives and the proposed project. The Findings Regarding Environmental Effects section presents the effects associated with the proposed project. The Alternatives Considered section describes alternatives developed and considered for the Venice Pumping Plant Dual Force Main project, the reasons for selection of the preferred alternative and the reasons for rejection of the remaining alternatives. Finally, the Statement Of Overriding Considerations section is provided for those adverse effects that cannot be avoided, even with proposed mitigation measures.

The Findings Regarding Environmental Effects section discusses the following for each significant or potentially significant impact associated with the project:

1) Descriptions of the Significant or Potentially Significant Effects - Specific descriptions of the environmental effects (Significant, Potentially Significant, and Not Significant) are identified in the EIR.

2) Mitigation Measures - Potential mitigation measures for the identified significant or potentially significant impacts.

3) Findings - The findings made are those allowed by Section 21081 of the Public Resources Code. One of three findings is made for each significant or potentially significant impact, following Section 15091 of the CEQA Guidelines:

i. Changes or alterations have been required in, or incorporated into, the project which avoid or substantially lessen the significant environmental effect as identified in the Final EIR.

ii. Such changes or alterations are within the responsibility and jurisdiction of another public agency and not the agency making the finding. Such changes have been adopted by such other agency or can and should be adopted by such other agency.

iii. Specific economic, legal, social, technological, or other considerations, including provision of employment opportunities for highly trained workers, make infeasible the mitigation measures or project alternatives identified in the Final EIR.

A judgment is then provided regarding the significance of the environmental impacts after mitigation.

4) References - A notation on the specific section in the EIR which supports the findings.

This Findings and Statement of Overriding Considerations document describes only those impacts anticipated to be significant or potentially significant. For information regarding the impacts that were determined not to be significant, please see the Final EIR for the Venice Pumping Plant Dual Force Main project.

The mitigation measures identified in the Mitigation Monitoring and Reporting Program for the Venice Pumping Plant Dual Force Main project, which is provided under separate cover, are those identified within this Findings and Statement of Overriding Considerations document.

The documents and other materials that constitute the record of proceedings upon which the decision of the Los Angeles City Council is based are located in the Office of the City Clerk, and in the Department of Public Works Bureau of Engineering in the custody of the City Engineer at 1149 S. Broadway, 7th Floor, Los Angeles, California.

2.0 PROJECT DESCRIPTION

2.1 Objectives, Purposes and Needs

The City of Los Angeles is proposing to construct and operate a new force main sewer, 54 inches in diameter and extending about two miles from the existing VPP at 140 Hurricane Street in the community of Venice to a junction structure on the Coastal Interceptor Sewer in the community of Playa Del Rey on Vista Del Mar near Waterview Street. The new force main sewer would be used in tandem with the existing force main sewer for the purpose of fulfilling the City's objectives, purposes and needs for sewage conveyance capacity, pipeline redundancy, and maintenance.

2.1.1 Sewage Conveyance Capacity

The VPP is the largest wastewater pumping plant in the City of Los Angeles. It collects sewage from the coastal areas of the City and pumps it to the Hyperion Treatment Plant in Playa Del Rey. The VPP's existing 48-inch-diameter force main sewer, built in 1958, can handle only about 60 percent of the flows that could otherwise run through the VPP when all five of its pumps are running at full capacity. When flows into the VPP exceed flows out of the plant, wastewater will overflow directly into Ballona Lagoon. During heavy storms, such as those that occurred during the winters of 1994-95 and 2004-05, the excess wastewater at the plant came within minutes of overflowing into Ballona Lagoon. Additional conveyance capacity from VPP is needed to manage peak flows.

2.1.2 Pipeline Redundancy

The existing pipeline is a critical link in the City's wastewater conveyance system. A second, tandem line is needed to provide additional protection against the risk of system failure.

2.1.3 Maintenance

The existing 48-inch pipeline was built in 1958 and has been in continuous operation since then. The existing pipeline is the only feasible way to convey sewage flows from the VPP to the Hyperion Treatment Plant and therefore must be operated continuously. A second, tandem line is needed to allow the existing line to be bypassed, allowing repair and maintenance of the existing pipeline, which is currently not possible.

2.2 The Proposed Project

The City proposes to construct and operate the Venice Dual Force Main along the Via Marina/Pacific Avenue alignment described in the EIR and hereinafter referred to as the "preferred alternative." From the existing VPP on Hurricane Street, the alignment would proceed east under the Grand Canal and along Marquesas Way, then southeasterly on Via Marina and portions of the county parking lot, then under the Marina Del Rey entrance and Ballona Creek channels

to a point on the south side of Ballona Creek at Pacific Avenue. From there, the alignment continues south along Pacific Avenue and Vista Del Mar to the connection in Vista Del Mar near Waterview Street.

Construction would be by a combination of boring and cut-and-cover construction methods. Surface construction activities (construction management offices, materials staging, boring, etc.) would occur on or near the following sites:

- Venice Pumping Plant (140 Hurricane Street) and vicinity, which may include Hurricane Street between Canal Court and Grand Canal, the city-owned lots at 139 Hurricane Street and the county-owned lot at 3821 South Via Dolce.

- An insertion shaft in the intersection of Marquesas Way and Via Marina.

- A receiving shaft in the south-bound side of Via Marina about 500 feet south of Marquesas Way.

- An insertion shaft in the south-bound side of Via Marina north of Bora Bora Way.

- A receiving shaft in the north-bound side of Via Marina about 300 feet north of the entrance to Los Angeles County Marina del Rey Parking Lot 13 (4601 Via Marina).

- An insertion shaft in the south end of Los Angeles County Marina del Rey Parking Lot 13 (4601 Via Marina)

- A receiving shaft in Pacific Avenue at 62nd Avenue and vicinity, which may include adjacent portions of 62nd Avenue, Los Angeles County 62nd Avenue Parking Lot, the access road along the south side of Ballona Creek channel, and 650 E 62nd Avenue.

- An insertion shaft in Pacific Avenue at 66th Avenue.

- A receiving shaft in Pacifica Avenue about 50 feet south of Convoy Street.

- An insertion shaft in Vista Del Mar at Montreal Street.

- A receiving shaft in Vista Del Mar at Sunridge St.

- Cut and cover in Vista Del Mar from Sunridge Street to about 150 south of Waterview Street. Construction activities may include adjacent portions of Dockweiler Beach, and minor portions of the "LAX Dunes" property (such as the area recently used for the North Outfall Sewer rehabilitation project).

Field offices for construction management and staging of equipment and materials may also occur at nearby city properties such as 311 Thatcher Avenue ("Thatcher Yard") and 3507 Via Dulce in addition to the foregoing areas.

This alternative route has an estimated construction cost of $48 million. The cost estimates herein are order-of-magnitude estimates intended to provide a measure of comparative feasibility. A more precise cost estimate can't be made until a project is selected and designed.

3.0 FINDINGS REGARDING ENVIRONMENTAL EFFECTS

This section discusses impacts and mitigation measures identified for the preferred alternative, and makes findings for all impact areas. Significant or potentially significant impacts prior to the application of mitigation measures have been identified for the proposed project in the following areas: air quality; biological resources; circulation, traffic and transportation; cultural/paleontological resources; geology, soils and seismicity; hazardous waste and materials; hydrology, water quality/stormwater runoff; noise and vibration; public facilities and services; and visual and aesthetic resources. All of these impacts would be confined to the project's construction period. The preferred alternative would not have significant or potentially significant operational impacts.

3.1 Air Quality

This section discusses the significant or potentially significant air quality impacts related to the construction and operation of the preferred alternative.

3.1.1 Description of Potential Effects

NO_x in exhaust emissions generated by construction equipment is expected to exceed SCAQMD threshold values and cause a significant impact on basin-wide air quality unless mitigation measures for NO_x are implemented.

Once completed, operation of the proposed force main sewer is expected to have a negligible net effect on air quality because there would be a negligible increase in operating equipment, such as pumps, and in maintenance activity. Based on the above operational characteristics, the proposed Project is not likely to impede the progress of the South Coast Air Basin in complying with federal or state ambient air quality standards, expose sensitive receptors to substantial pollutant concentrations, or create objectionable odors.

3.1.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts. To minimize

NO_x emissions, the City will implement the following mitigation measures whenever feasible:

AQ1 Strategize and plan ahead to minimize the transporting of construction equipment and excessive material to and from work area.

AQ2 Optimize construction crew size and select equipment to reduce any unnecessary emissions.

AQ3 Adjust the electronic timing on the construction equipment when feasible.

AQ4 Use newer construction equipment such as equipment meeting Tier 2 emission standards when feasible.

AQ5 Minimize idling emissions from construction equipment and haul trucks by turning them off when not in use or during potential long delays (i.e., over 5 minutes).

AQ6 Optimize the muck removal schedule to reduce emissions from haul trucks.

AQ7 Use alternative fuel such as biodiesel, liquid natural gas, and propane when feasible.

To minimize PM_{10} emissions, the City will implement the following mitigation measures whenever feasible:

AQ8 Disturbed land and open storage piles that will be left inactive for several days, shall be stabilized by one, or a combination, of the following methods: (a) applying a chemical stabilizer diluted to not less than 1/20 of the concentration required to maintain a stabilized surface for a period of 6 months, (b) covering, or (c) watering three times per day.

AQ9 Soil exposed by construction activities shall be revegetated or otherwise covered so as to prevent the generation of wind-borne dust as soon as possible.

AQ10 All active unpaved demolition and construction areas shall be wetted at least three times daily during excavation and construction. The construction area shall be sufficiently dampened to control dust caused by construction and hauling and at all times provide reasonable control of dust by wind.

AQ11 During periods of high winds (i.e., greater than 15 mph) either (a) cease all clearing, earth moving and excavation activities or (b) apply water to soil not more than 15 minutes prior to moving the soil.

AQ12 All truck loads of imported or exported soil or debris shall be either (a) securely covered or (b) comply with vehicle freeboard requirements of Section 23114 of the California Vehicle Code for both public and private roads and be sufficiently watered to prevent excessive amount of dust.

3.1.3 Findings

Mitigation measure AQ9 has been re-worded from that stated in the EIR. The City finds that the measure as it is now stated is equivalent or more effective than the measure stated in the EIR.

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on air quality as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts from NO_X emissions related to the project are found to be **significant.**

3.1.4 References

Section 5.2 and Appendix C of the Draft EIR and the Final EIR discuss the project's air quality impacts and mitigation measures.

3.2 Biological Resources

This section discusses the significant or potentially significant impacts to biological resources that may be caused by the construction and operation of the preferred alternative.

3.2.1 Description of Potential Effects

Biological resources within the proposed Project areas have been studied and analyzed for the purpose of determining any impacts to the environment resulting from the construction of the proposed sewer main. The findings and conclusions are contained Section 5.3 and Appendix D to the EIR.

California Least Tern

Noise and other activities associated with project construction would not affect least tern nesting because construction activities will be 1,000 linear feet or further from the least tern nesting area. Least tern foraging could be impacted in the unlikely event that the project causes increased turbidity in adjacent waters and thereby either reduces local prey availability and/or compromises visibility of prey. However, mitigation measures have been identified that will prevent any permanent or temporary effects on the California least tern.

Temporary Impacts
Temporary impacts associated with construction include physical disturbance, noise and releases of excavated sediments and water into the local environment. No physical disturbance of local resources is anticipated. Noise is most likely to impact bird use in the construction areas. Bird use in the project area is greatest at Ballona Lagoon where construction will be several hundred feet from the lagoon and separated by a residential area. Noise impact areas are expected to be minimal. Temporary impacts to water quality and marine resources could occur through the unintentional release of excavated sediments and water into the local environment. However, mitigation measures have been identified for all construction phases to minimize impacts.

Long Term Impacts
While temporary impacts associated with all three construction methods are possible, the proposed project is not likely to result in a long-term reduction in water quality, reduction in the numbers of individuals or species or loss of habitat in the area. No permanent impact to the water quality or marine resources in the project area are anticipated.

Unavoidable Adverse Impacts
If management practices to control the unintentional release of excavated sediments and water into the local environment are successful, no unavoidable adverse impacts are expected.

Cumulative Impacts
No significant cumulative impacts have been identified to biota or habitats in the project area. There are no other known projects in the vicinity of the proposed project that, when considered together, would result in significant adverse impacts to the wildlife and habitats in the Marina del Rey area.

3.2.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

BIO 2 To protect foraging of the least tern when tunneling activities are to occur during the least tern nesting season (April 1 through August 31), a water quality specialist or biological monitor shall conduct surveys at tunneling locations a minimum of once daily to ensure that tunneling does not increase water turbidity.

If any turbidity from the tunneling activities is discovered in least tern foraging areas, the tunneling activities shall cease until corrective measures are taken to prevent tunneling activities from causing increased turbidity.

BIO 3 Environmentally sensitive habitat areas shall be protected, and where

feasible, enhanced. If any environmentally sensitive habitat area is disturbed, the area shall be restored to its previous condition in accordance with the applicable Land Use Plan and Local Coastal Program.

Marine resources shall be maintained, enhanced, and where feasible, restored. If any marine resources are disturbed, the resources shall be restored to its previous condition in accordance with the applicable Land Use Plan and Local Coastal Program.

3.2.3 Findings

Mitigation measure BIO2 has been re-worded from that stated in the EIR. The City finds that the measure as it is now stated is equivalent or more effective than the measure stated in the EIR.

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on biological resources as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts are found to be **not significant.**

3.2.4 References

Section 5.3 and Appendix D of the Draft EIR and the Final EIR discuss the project's biological resource impacts and mitigation measures.

3.3 Circulation, Traffic and Transportation

This section discusses the significant or potentially significant circulation, traffic and transportation impacts related to the construction and operation of the preferred alternative.

3.3.1 Description of Potential Effects

Construction activities, including trenches, pits and lay-down areas, will produce temporary localized impacts on the transportation system from the combined effects of additional construction traffic and closure of travel lanes on certain roadways leading to reductions in roadway capacity and temporary loss of parking.

Construction activities could affect the transit system by requiring the temporary relocation of transit bus stops on Via Marina southbound at Marquesas Way, Tahiti Way, and Captain's Row Drive for MTA Lines 108 and 358 and LADOT Commuter Express Line 437.

Construction activities could result in a temporary impact on traffic on two roadways in the Playa Del Rey area:

- Pacific Avenue from 63rd Avenue to 64th Avenue,
- Vista Del Mar from Pacific Avenue to Surf Street; and
- Vista Del Mar from Sunridge Street to Napoleon Street

Construction activities will temporarily affect the parking supply at the following locations:

- Venice Pumping Plant
- Via Dolce near Marquesas Way
- Marquesas Way from Via Dolce to Via Marina
- Los Angeles County Marina del Rey Parking Lot 13 (4601 Via Marina)
- Via Marina east of Pacific Avenue
- Los Angeles County's 62nd Avenue Parking Lot
- Pacific Avenue south of 62nd Avenue
- Del Rey Lagoon off-street parking lot
- Vista del Mar south of Napoleon Street

3.3.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

TRA 1 To coordinate with the City to ensure adequate traffic signals and controls are in place prior to and during times of construction, a construction traffic management plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work.

TRA 2 To adequately control traffic to ensure compliance with all local and state safety standards and specifications, a site-specific construction worksite traffic control plan shall be prepared for each construction site and submitted to the City for review and approval prior to the start of any construction work. This plan shall include such elements as the location of any lane closures, restricted hours during which lane closures would not be allowed, local traffic detours, protective devices and traffic controls (such as barricades, cones, flagmen, lights, warning beacons, temporary traffic signals, warning signs), access to abutting properties, and provisions to maintain emergency access through construction work areas.

Coordinate with emergency service providers (police, fire, ambulance and paramedic services) to provide advance notice of any lane closures, construction hours and changes to local access and to identify alternative routes where appropriate.

TRA 3 To reduce traffic congestion, fully utilize available street space to minimize lane reductions on affected streets, including elimination of onstreet parking where necessary. Implement left-turn restrictions as appropriate on re-striped street segments to facilitate the movement of through traffic. Only eliminate travel lanes when absolutely necessary.

TRA 4 To protect pedestrian and recreational traffic, provide signage indicating alternative pedestrian and bicycle access routes where existing facilities would be affected.

TRA 5 To ensure ingress/egress to all properties adjacent to the project and surrounding areas, provide advance notice to any affected residents, businesses and property owners in the vicinity of each construction site and, where existing property access will be reduced, identify alternative means of access.

TRA 6 To avoid impacts to public transportation, coordinate with pubic transit providers (MTA, LADOT Commuter Express, Culver City Bus) to provide advance notice of any lane closures, construction hours and, where necessary, to identify sites for temporary bus stops within a reasonable walking distance of any displaced bus stops.

3.3.3 Findings

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on circulation, traffic and transportation as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts are found to be **not significant.**

3.3.4 References

Section 5.4 and Appendix E of the Draft EIR and the Final EIR.

3.4 Cultural and Paleontologic Resources

This section discusses the significant or potentially significant cultural/paleontologic resource impacts related to the construction and operation of the preferred alternative.

3.4.1 Description of Potential Effects

CULTURAL RESOURCES

Direct impacts are those that may result from the immediate disturbance of resources, whether from removal of vegetation, demolition of structures, earth-moving activities or excavation. Since the proposed Project will entail surface and

subsurface disturbance of the ground, the proposed Project has the potential to cause a significant impact on unknown cultural resources.

One archaeological site is recorded in the vicinity of the Vista Del Mar alignment area. The area has been repeatedly impacted by development. It is possible that if the location retains any integrity, remnants may be present under the pavement of the Vista Del Mar alignment area; however, it is the Archaeologists' opinion that there is insufficient evidence that a cultural resource is present. Therefore, direct and cumulative impacts to archaeological resources are not expected.

PALEONTOLOGIC RESOURCES

A literature review, an archival search and a field survey were conducted and no fossil has been found at the project site. However, fossils have been found at other sites underlain by the geologic units that occur under or near the project site, which suggests that significant fossils may be encountered by the proposed Project.

Coastal Deposits –The coastal deposits have yielded fossil remains at numerous previously recorded fossil sites near the Project site. Any adverse environmental impact on the paleontologic resources of the coastal deposits that would result from earth-moving activities at and near the surface probably would be considered to be of low significance because the coastal deposits at and near the surface probably are too young.

Playa Del Rey –Although no previously recorded fossil site is reported as occurring in the coastal deposits at the Project site, fossilized shells of marine mollusks were encountered below the water table at depths of 2 to 31 feet below grade in 28 borings made immediately east of the Project alignment in Playa Vista, and fossilized wood was encountered in one of the borings at a depth nearly 70 feet below grade.

Direct impacts would result mostly from earth-moving activities (primarily trenching and boring for pipeline) in previously undisturbed strata. Although earth-moving activities would be comparatively short term, the possible accompanying loss of some fossil remains, unrecorded fossil sites, associated specimen data and corresponding geologic and geographic site data, and the fossil-bearing strata is a potentially significant long-term adverse environmental impact.

The Palos Verdes Sand has yielded abundant fossil remains at several previously recorded fossil sites near the Project area. For this reason, adverse environmental impacts on the paleontologic resources of the Palos Verdes Sand that would result from earth-moving activities at the Project site would be considered to be of high paleontologic significance because there probably is a high potential for the loss of scientifically important fossil remains, unrecorded

fossil sites, and associated specimen data and corresponding geologic and geographic site data as a result of these activities.

There would be no impact on paleontologic resources during the operational phase of the Project.

3.4.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

CR 1 To avoid impacts to areas where cultural resources are known to exist, an archaeologist qualified to recognize and assess both prehistoric and historical resources shall monitor all excavation.

CR 2 To avoid impacts to areas where cultural resources are known to exist, when avoidance cannot be achieved, alternate measures such as surface collection and/or subsurface data recovery of significant sites must be implemented.

CR 3 In the event of the discovery and subsequent recovery of fossil remains, the engineer shall halt construction temporarily while remains are analyzed prior to resuming construction.

CR 4 An archaeologist qualified to recognize and assess both prehistoric and historical resources shall monitor all excavation in the vicinity of the CA-LAN-66 site located in Vista Del Mar.

CR 5 If new discovery is encountered Develop a contingency plan for addressing unanticipated new discoveries of cultural resources in the project area, evaluate and report any findings.

CR 6 If significant cultural resources are found during construction, those significant cultural resources found shall be recovered from the project site, curated by an archaeologist recommended by the City and offered to an area museum whose collection is available for the viewing by the public.

PAL 1 Prior to construction, the services of a qualified vertebrate paleontologist approved by the City of Los Angeles and Los Angeles County Museum of Natural History will be retained to implement the mitigation program during earth-moving activities at the project site.

PAL 2 The paleontologist will develop a formal agreement with a recognized museum repository, such as the LACMVP or LACMIP, regarding the final disposition and permanent storage and maintenance of any fossil remains and the archiving of associated specimen data and corresponding

geologic and geographic site data that might be recovered as a result of the mitigation program, and the level of treatment (preparation, identification, curation, cataloguing) of the remains that would be required before the entire mitigation program fossil collection would be accepted by the repository for storage.

PAL 3 The paleontology monitor will coordinate with the appropriate construction contractor personnel to provide information regarding lead agency requirements for the protection of paleontologic resources. Contractor personnel also will be briefed on procedures to be followed in the event that a fossil site or remains are encountered by earth-moving activities, particularly when the monitor is not on site. The briefing will be presented to new contractor personnel as necessary. Names and telephone numbers of the monitor and other appropriate mitigation program personnel will be provided to the appropriate contractor personnel.

PAL 4 Earth-moving activities will be monitored by the monitor only in those areas of the project site where these activities will disturb previously undisturbed strata. Monitoring will be conducted on a full-time basis in areas underlain by the Palos Verdes Sand and, once the activities have reached a depth 5 feet below grade, on a full-time basis in areas underlain by the coastal deposits and on a half-time basis in areas underlain by the dune sand. If fossil remains are encountered by these activities, monitoring will be increased to full time, if appropriate, at least in the vicinity of the fossil site where the area is underlain by the fossil-bearing rock unit. If no fossil remains are found once 50 percent of earth-moving activities have been completed in an area underlain by a particular rock unit, with City of Los Angeles approval, monitoring can be reduced or suspended in that area.

PAL 5 All fossil specimens recovered from the project site as a result of the mitigation program, including those recovered as the result of processing fossiliferous rock samples, will be treated (prepared, identified, curated, catalogued) in accordance with designated museum repository requirements. Small rock samples from the Palos Verdes Sand, dune sand, and coastal deposits will be submitted to commercial laboratories for microfossil, pollen, or radiometric (carbon-14) dating analysis.

PAL 6 The discovery of paleontologic resources may be present in specific project areas where grading and other excavation activities are to occur. Monitoring will consist of visually inspecting debris piles and freshly exposed strata for larger fossil remains, and periodically dry test screening sediment, rock, and debris for smaller fossil remains. As soon as practicable, the monitor will recover all vertebrate fossil specimens, a representative sample of invertebrate or plant fossils, or any fossiliferous rock sample that can be recovered easily. If recovery of a large or

unusually productive fossil occurrence is warranted, earth-moving activities will be diverted temporarily around the fossil site and a recovery crew will be mobilized as necessary to remove the occurrence as quickly as possible. If not on site when a fossil occurrence is uncovered by these activities, the activities will be diverted temporarily around the fossil site and the monitor called to the site to evaluate and, if warranted, recover the occurrence. If the fossil site is determined too unproductive or the fossil remains not worthy of recovery, no further action will be taken to preserve the fossil site or remains, and earth-moving activities will be allowed to commence.

3.4.3 Findings

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on cultural and paleontologic resources as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts on historic resources are found to be **not significant**. However, with mitigation, the potential impacts to archaeological or paleontologic resources encountered during tunneling under the channels are found to be potentially **significant**.

3.4.4 References

Section 5.5 and Appendix F of the Draft EIR and the Final EIR discuss the project's cultural/paleontologic resource impacts and mitigation measures.

3.5 Geology, Soils and Seismicity

This section discusses the significant or potentially significant geology, soil and seismicity impacts related to the construction and operation of the preferred alternative.

3.5.1 Description of Potentially Significant Effects

Seismic hazards associated with seismic activity are described as follows:

Ground Shaking – The proposed Project will be subjected to periodic seismic shaking, perhaps of considerable intensity. All of the alternative alignments of the proposed project would be equally impacted by strong ground shaking.

Liquefaction – Because of the combination of sands and shallow groundwater in the project area, liquefaction is considered a significant potential seismic hazard along all of the alternative alignments for the Project.

Differential Seismic Settlement – The components of the project are situated entirely upon saturated soils, which would be prone to differential settlement, primarily if liquefaction occurred. Differential settlement represents a potential seismic hazard along all of the alternative alignments for the Project.

Surface Fault Rupture – No known active or potentially active fault traces cross the proposed Project area. The potential for surface fault rupture is not significant.

Tsunami –The elevation of the Project site [approximately 10 feet mean sea level (MSL), or 6 meters] stands below the highest potential tsunami event. Although the pipeline would be buried at depths no shallower than 10 feet below the surface, the possibility of damage to the proposed pipeline cannot be disregarded. A catastrophic tsunami could result in erosion of the surficial soils covering the proposed pipeline. However, this risk is very low when compared to the risk to existing surface structures in the project area from a tsunami.

Seiche – The nearby semi-enclosed Marina Del Ray harbor could be subject to seiche during a seismic event. However, because the proposed Project components will be buried in the subsurface, it is unlikely that impacts from seiche, if any, would affect the project. Therefore, seiches are not considered a significant seismic hazard for the proposed Project.

Seismically Induced Landslides – The potential for landslides induced by seismic shaking is not anticipated to pose a significant seismic hazard to the proposed Project.

Subsidence – The need for construction dewatering and the associated risk of subsidence will be minimized because the majority of the pipe will be installed by boring. However, subsidence is considered a potential impact of the proposed Project.

Expansive Soils – Expansive soils are not anticipated to pose a significant hazard to any of the alternative alignments of the proposed Project.

Collapsible Soils – Collapsible soils are not likely to affect any of the alternative alignments of the proposed Project.

Landslides – The potential for landslides induced by mechanisms other than seismic shaking is not anticipated to pose a significant hazard to the proposed Project. It is not anticipated that the Project would cause any slope instability to the adjacent Del Rey Bluffs.

Methane – Methane gas is considered a potential hazard to the proposed Project, primarily during construction, or at permanent structures, such as vaults, where gas could accumulate.

Mineral Resources – No effect on mineral resources is expected from construction or operation of the proposed project.

3.5.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

GEO2 Liquefaction and differential seismic settlement may occur on the project. Design and construction of the proposed project will include appropriate measures.

GEO3 Subsidence may occur to the project area. Design and construction of the proposed project will include appropriate measures, such as a watertight excavation support system to minimize groundwater pumping or construction the pipeline in a "wet" excavation.

GEO4 Methane gas may be detected along the project alignments. Design and construction of the proposed project will include active or passive mitigation systems for methane gas hazards, if necessary.

3.5.3 Findings

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on geology, soils and seismicity as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts are found to be **not significant**.

3.5.4 References

Section 5.6 of the Draft EIR and the Final EIR discuss the project's geology and soils impacts and mitigation measures.

3.6 Hazardous Waste and Materials

This section discusses the significant or potentially significant risks of encountering or accidentally releasing hazardous waste or hazardous materials related to the construction and operation of the preferred project.

3.6.1 Description of Potential Effects

Oilwell Field Hazards -- The proposed Project is within an area of oil well field development known as the Playa Del Rey Field. There are several abandoned oil wells along the proposed alignment. Hazardous and toxic materials

associated with past well field development may be encountered during construction.

Migration Pathways -- Natural gas can migrate through the soil both vertically and laterally via manmade structures. The construction of the proposed Project will incrementally add to the potential migration pathways currently provided by existing infrastructure.

Risk of Explosion -- Explosive gases may exist in the soil in the Project area. In addition, releases of gas from the abandoned wells may occur if construction activities accidentally puncture the casing of an abandoned well, leading to a possible explosion.

Potential Spills Or Releases -- Construction of the Project will involve the use of hazardous materials and generation of hazardous waste that could be accidentally spilled or released. If a spill were to occur, emergency response procedures would be implemented to contain and clean up the spill. There are regulations in place regarding such procedures, and provisions would be in place from the onset of Project activities in order to eliminate, or at least minimize, potential spills and releases that might create a hazard to the public or the environment, or result in contamination of soil or groundwater. Therefore, impacts would be less than significant.

Exposure To Contamination -- During construction, there is the potential for the disturbance of contaminated soils and groundwater that could pose a risk of exposure to construction workers, the public, and the environment.

In addition, emissions of diesel particulate matter from the construction equipment would result in increased exposure near the construction activities. However, these emissions would be temporary and would not contribute significantly to chronic long-term exposure. Ongoing compliance with regulatory requirements under any alternative would provide an environment in which construction workers, the public, and the environment in, and near, the Project site would be protected.

Hazardous Waste Generation -- Hazardous wastes generated during construction activities for each of the alignments would include miscellaneous motor vehicle fluids, potentially contaminated soil, and spent materials used during construction; such as fuels, lubricants, paints, and solvents.

3.6.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

HAZ1 Abandoned wells and other subsurface structures may be encountered during construction. Any wells that must be re-abandoned, will be re-abandoned in accordance with applicable regulations.

HAZ2 Employees may be exposed to hazardous materials during construction. Exposure of construction workers to contaminated materials can be minimized by implementing the measures required by federal, state, and local laws and regulations. As such, potential impacts associated with the excavation of contaminated materials would be less than significant.

HAZ3 Hazardous materials may be temporarily stored and used on the project site and waste generated during the construction and operation of the project. All hazardous materials shall be handled and disposed in accordance with applicable regulations.

HAZ4 The soils may contain methane or other gases from previous oil well field development. Safety equipment, material, and assistance shall be provided to City personnel to properly inspect all phases of the work, including final inspection. Such equipment, material and assistance shall include, but not be limited to testing for the presence of explosive or toxic gases and oxygen deficiency in confined spaces, blowers, ventilators, first aid supplies and equipment, ladders, scaffolds, shoring, and personnel for standby assistance as required. Personal safety devices such as harnesses, lanyards, and self-contained breathing apparatus will be provided. When the Work requires specialized safety equipment, new sets of such equipment, training, and maintenance of such equipment shall be provided.

3.6.3 Findings

Mitigation measure HAZ5 has been merged into measure HAZ4, which has been re-worded from that stated in the EIR. As originally worded, HAZ5 would have related only to new structures intended for human entry. Such structures are not proposed. The City finds that measure HAZ4 as it is now stated is equivalent or more effective than measures HAZ4 and HAZ5 as they were stated in the EIR.

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effects from hazardous waste and materials as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts are found to be **not significant**.

3.6.4 References

Section 5.8 and Appendix G of the Draft EIR and the Final EIR discuss the project's hydrology and water quality impacts and mitigation measures.

3.7 Hydrology, Water Quality and Stormwater Runoff

This section discusses the significant or potentially significant hydrology, water quality and stormwater runoff impacts related to the construction and operation of the preferred project.

3.7.1 Description of Potential Effects

SURFACE WATER QUALITY

Unless mitigated, construction of the Project could affect surface water quality due to accidental spills, dewatering, construction maintenance and storage, equipment parking, spoil and debris stockpiling and miscellaneous nuisance water flows.

GROUNDWATER CONDITIONS

The proposed Project will be located within saturated subgrade soils and perched groundwater may be encountered during construction. Dewatering during construction will be minimized by using the boring construction method. The proposed Project is not expected to affect the severity, extent or movement of any existing groundwater contamination.

NO AQUIFER AFFECTED

Neither construction nor operation would affect a potable water source. The Ballona Aquifer is estimated to be 40 to 60 feet below the ground surface in the Project area and is estimated to vary in depth from 10 to 30 feet. The Silverado Aquifer, a main groundwater producing unit in the Santa Monica Sub-basin, is merged with the Ballona Aquifer within the Project vicinity. Activities less than about 40 feet below the ground surface will not affect these aquifers because they are separated from the surface by the Bellflower Aquiclude. Dewatering will not be required below the Bellflower Aquiclude.

3.7.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

WQ1 Runoff may occur from the project site during construction activities. Even if not otherwise required, a stormwater pollution prevention plan (SWPPP) shall be submitted for review and approval because of the highly sensitive habitat areas within the project. The SWPPP shall recommend interim and permanent improvements to existing drainage features to prevent uncontrolled runoff during construction and to accommodate any temporary increase in runoff associated with construction activities.

Copies of said NPDES permit(s) and related SWPPP shall be available for inspection at the City and at the construction site prior to land disturbing activity.

WQ2 Dewatering discharge is expected to occur during the initial phase of pit construction, hydraulic isolation of the pits can be accomplished by the contractor by various methods of his choice, including interlocking sheet pile walls, soil cement walls constructed with Deep Mixing Methods, or slurry diaphragm walls. Water removed from the pits will be discharged to the storm drain system after proper treatment in accordance with local regulations. Solid particles will be removed by using sedimentation tanks and filtration. If petroleum contamination is encountered, free product, if any, will be skimmed off the surface and oil/water separators will be used to remove the remaining contamination. Granular activated carbon could be used to remove any dissolved organic or other contaminants. Alternatively, discharged water will be shipped to authorized vendors for treatment and disposal.

3.7.3 Findings

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on water resources as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts are found to be **not significant**.

3.7.4 References

Section 5.8 of the Draft EIR and the Final EIR discuss the project's hydrology and water quality impacts and mitigation measures.

3.8 Noise and Vibration

This section discusses the significant or potentially significant noise and vibration impacts related to the construction and operation of the preferred project.

3.8.1 Description of Potential Effects

Construction Noise and Vibration

Noise and Vibration from construction activities will have a short-term but significant impact to sensitive land uses such as residences along the project alignment unless mitigation measures are implemented. This is especially true of noise from construction activities associated with boring under the Marina Del Rey and Ballona Creek Channels which may extend beyond normal working hours.

Operational
No additional powered, noise-producing machinery, such as pumps, compressors, motors, etc., will be permanently installed as part of this Project. The physical elements of the Project would consist of underground sewer pipe, which under normal operation would not produce audible or measurable noise at nearby noise sensitive land uses. No significant noise or vibration is anticipated from operation of this project.

3.8.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

NOI 1 Construction activities shall be limited to the hours of 7:00 a.m. to 9:00 p.m. Monday through Friday, and 8:00 a.m. to 6:00 p.m. on Saturday, and shall avoid Sundays and national holidays to the greatest extent feasible. Construction activities beyond the afore-stated limits shall only occur if allowed by the regulating agency (e.g., the Los Angeles Police Commission in the City of Los Angeles) and required to avoid greater environmental risk.

NOI 2 Heavy trucks associated with project construction shall be limited to major arterial streets, and away from residential roadways, to the extent practicable.

NOI 3 All noise-producing project equipment and vehicles using internal combustion engines shall be equipped with mufflers, air-inlet silencers where appropriate, and any other shrouds, shields, or other noise-reducing features in good operating condition that meet or exceed original factory specification. Mobile or fixed "package" equipment (e.g., arc-welders, air compressors) shall be equipped with shrouds and noise control features that are readily available for such type of equipment.

NOI 4 All mobile or fixed noise-producing equipment used on the project, and that is regulated for noise output by a local, state, or federal agency, shall comply with such regulation while in the course of project activity.

NOI 5 Temporary soundwall barriers shall be erected for launch and receiving pits. Such soundwall barriers shall be of a sufficient height, length and configuration so as to provide substantial noise reduction and effectively block the line-of-sight between nearby noise-sensitive receivers and the work zone.

NOI 6 Electrically powered equipment shall be used instead of pneumatic or internal combustion powered equipment where feasible.

NOI 7 Material stockpiles and mobile equipment staging, parking, and maintenance areas shall be located as far as practicable from noise-sensitive receptors.

NOI 8 Construction site and haul-road speed limits shall be established and enforced during the construction period.

NOI 9 The use of noise-producing signals, including horns, whistles, alarms, and bells shall be for safety warning purposes only.

NOI10 No project-related public address or music system shall be audible at any adjacent receptor.

NOI11 The on-site construction supervisor shall have the responsibility and authority to receive and resolve noise complaints. A clear appeal process to the owner shall be established prior to construction commencement that will allow for resolution of noise problems that cannot be immediately solved by the site supervisor.

NOI12 The contractor shall develop and implement a project noise control plan, which shall have been approved by the City.

VIB1 "Press-in" or drilling pile drives shall be utilized rather than impact or vibratory pile-drivers, where feasible.

3.8.3 Findings

Mitigation measure NOI 1 has been re-worded from that stated in the EIR to allow construction activity beyond normal working hours and on Sundays and national holidays if permitted to avoid greater environmental risk. For example, under some construction scenarios it may be necessary to install the sewer pipe under the Marina Del Rey and Ballona Creek Channels in a 24-hour, non-stop operation to avoid the risk of the drilled material settling in the bore or the carrier pipe becoming stuck. The City finds that the measure as it is now stated is equivalent or more effective than the measure stated in the EIR.

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect of project related noise and vibration as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. Even with these changes or alterations, the above potential impacts related to the Project are found to be **Potentially Significant**.

3.8.4 References

Section 5.10 and Appendix H of the Draft EIR and the Final EIR discuss the project's noise and vibration impacts and mitigation measures.

3.9 Public Facilities and Services

This section discusses the significant or potentially significant impacts to public facilities and services due to the construction and operation of the preferred project.

3.9.1 Description of Potential Effects

SHORT-TERM CONSTRUCTION IMPACTS

Construction activities for the Project could have short-term impacts on public facilities and services. The previously described impacts to circulation, traffic and transportation will impact access to public facilities and services and could interfere with scheduled recreational events such as beach volleyball tournaments. In addition, site-specific short-term adverse impacts to public facilities and services will occur during the construction period. Construction activities could affect: sightseeing from Via Marina (a scenic highway/drive); access to and use of Del Rey Lagoon Park; use of the bike path at Pacific Avenue bridge; and use of the Napoleon Street residential foot path.

Although there would be impacts of existing recreational activities and use of public recreational resources during Project construction, the construction activities and related adverse impacts are considered short term and not significant. No permanent substantial physical deterioration of recreational facilities or public recreational resources would occur or be accelerated. Therefore, no significant impacts to recreation are anticipated.

OPERATIONAL IMPACTS

The improved reliability of the sewer lines and the reduction in the potential for overflow into the adjacent waterways and the ocean would ensure the availability of existing recreational resources for residents and domestic and international tourists. A beneficial long-term impact on existing recreational resources is anticipated. There would be no long-term adverse impacts that require mitigation measures to the study areas affected.

3.9.2 Mitigation Measures

Although no significant impacts to recreation are anticipated, the following mitigation measures have been adopted and will minimize adverse short-term construction related impacts in the Project area.

REC1 In order to minimize competition between construction-related equipment and activities and Dockweiler State Beach users for parking space at Vista Del Mar and the resulting temporary impacts to recreation, special parking arrangements will be made for construction workers.

REC2 In order to minimize recreational access and use issues during the course of construction, additional consultation and coordination with key stakeholders, local residents, members of the general public and City/County planners will occur to balance the needs of the recreational users and construction related activities.

REC3 The City will coordinate with the sponsors of local and major regional, national and international beach events to schedule the events and/or construction activities to minimize conflicts.

REC4 The City will coordinate all construction scheduling and activities with the Los Angeles County Department of Public Works for the purpose of eliminating or reducing construction-related impacts.

3.9.3 Findings

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on public facilities and services as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts related to the Project are found to be **not significant**.

3.9.4 References

Section 5.11 of the Draft EIR and the Final EIR discuss the project's public facilities and service impacts and mitigation measures.

3.10 Visual and Aesthetic Resources

This section discusses the significant or potentially significant visual and aesthetic resource impacts due to the construction and operation of the preferred project.

3.10.1 Description of Potential Effects

The proposed Project would cause a substantial degradation of existing visual character or quality of a site and its surroundings. The proposed Project could require the removal of one or more mature street trees, which contribute substantially to the value of the scenic highway/drive status of Via Marina. In addition, construction sites and activities would contrast significantly with the valued aesthetic image of the area as interpreted by existing features.

Construction activities and construction sites associated with the proposed Project would cause substantial, adverse effects on scenic vistas by partially

obstructing recognized and valued views currently available from public areas (Via Marina, Marquesas Way, Via Dolce, Aubrey E. Austin Park and the North Jetty Promenade). The impact would be short-term but significant.

The proposed Project could cause substantial damage to scenic resources within view from a scenic highway. The scenic resources that could be damaged by the proposed Project are (1) mature street trees along Via Marina, which is designated a scenic highway by the County of Los Angeles, and (2) one mature tree at the intersection of Via Dolce and Marquesas Way. Removal of mature trees, unless replaced with mature trees of similar size, would be significant and long term.

The proposed Project could result in visual impacts inconsistent with applicable plans or policies. The Los Angeles County Local Coastal Program for Marina Del Rey designates Via Marina as a scenic drive, and the Scenic Highway Element of the County General Plan identifies Via Marina as a scenic highway. Construction activities associated with the Project will reduce access to and enjoyment of Via Marina by the public and adversely affect views from this road. The impact would be temporary.

3.10.2 Mitigation Measures

The following mitigation measures have been adopted and are expected to reduce the proposed Project's potential significant adverse impacts:

AES1 Mature street trees along Via Marina shall be protected in place.

AES2 Public access along Via Marina, Marquesas Way, Via Dolce, Aubrey E. Austin Park and the North Jetty Promenade shall be maintained.

AES3 The City shall consider landscaping public areas within affected neighborhoods where open space is currently degraded and unsightly.

AES4 The City shall consider screening from public view existing features that are incongruous with the character of their surroundings (such as the Venice Pumping Plant).

AES5 The City shall consider creating public access to currently unavailable scenic vistas (new beach access routes, paths, bikeways, public parking).

3.10.3 Findings

The City finds that changes or alterations have been required in, or incorporated into, the project which substantially lessen the significant environmental effect on visual and aesthetic resources as identified in the Final EIR. These changes or alterations are within the responsibility of the City. However, portions of the project, such as the portion in Via Marina, are outside of the City's jurisdiction. To the extent that these changes or alterations are also within the responsibility

and jurisdiction of another public agency, such changes can and should be adopted by such other agency. With these changes or alterations, the above potential impacts are found to be short term but **significant**.

3.10.4 References

Section 5.12 and Appendix I of the Draft EIR and the Final EIR discuss the project's visual/aesthetic impacts and mitigation measures.

3.11 Cumulative Effects

The City has considered the potential for significant or potentially significant cumulative impacts due to the construction and operation of the proposed Project. The City finds that operation of the proposed Project, as mitigated by the changes or alterations identified in the foregoing, will not have any cumulatively significant impact for the reasons stated in the EIR. Also for the reasons stated in the EIR, the City finds that construction activities related to the proposed Project will not have any cumulatively significant impact on:

- Biological Resources
- Circulation, Traffic and Transportation
- Cultural Resources
- Geology, Soils and Seismicity
- Hazardous Waste and Materials
- Hydrology, Water Quality / Stormwater Runoff
- Land Use Plans
- Noise and Vibration
- Public Facilities and Services
- Visual and Aesthetic Resources

Finally, the City finds that the proposed Project and other development projects in the general vicinity of the Project area may have the following cumulatively significant impacts if they are simultaneously under construction.

CONSTRUCTION AIR EMISSIONS

Fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants, which would contribute to short-term cumulative air quality impacts.

PALEONTOLOGIC RESOURCES

Development of the Project, in combination with other projects in the region where a project site is underlain by the Palos Verdes Sand might lead to the progressive loss of fossil-bearing strata in these rock units that could be prospected for fossil remains and unrecorded fossil sites. The loss of these additional paleontologic resources is a potentially significant cumulative impact.

3.11.1 Mitigation Measures

There are no additional feasible and available mitigation measures that would reduce the proposed Project's potentially significant cumulative impacts on air quality or paleontologic resources.

3.11.2 Findings

The City finds that the proposed project has specific economic, legal, social, technological, or other benefits that outweigh the proposed project's unavoidable cumulative adverse environmental effects. Those benefits are identified in Section 5 of this document.

3.11.3 References

The project's cumulative impacts are discussed in each issue section of Chapter 5 of the Draft EIR, in Chapter 7 of the Draft EIR, and in the relevant appendices.

4.0 ALTERNATIVES CONSIDERED

In all, the City evaluated three alternative alignments and three alternative construction methods. Detailed descriptions of the alternatives are contained in the EIR. The City's reasons for not selecting the alternatives to the Preferred Alternative are described below. The cost estimates herein are order-of-magnitude estimates intended to provide a measure of comparative feasibility. A more precise cost estimate can't be made until a project is selected and designed.

4.1 No Project Alternative

Under this alternative, no new sewer force main would be constructed and the existing sewer system would continue to operate in its current configuration. The No Project alternative could result in potentially significant adverse effects to the environment due to the lack of conveyance capacity of the existing 48-inch sewer force main downstream of the Venice Pumping Plant and the current inability to perform regularly scheduled maintenance on this pipeline. If inflows to the Venice Pumping Plant exceed the capacity of the force main leaving the plant, an overflow of untreated wastewater into the Ballona Lagoon and other areas in the vicinity of the Venice Pumping Plant Force Main corridor could result, causing significant harm to the environment.

4.2 Cut and Cover Along Preferred Alignment

Although construction via cut and cover is normally the fastest way to construct a pipeline, this alternative was not selected because shallow groundwater in the area would necessitate extensive dewatering. The selected construction method, boring, greatly reduces the need for dewatering and therefore avoids the risks associated with dewatering (such as subsidence or altering the extent of any groundwater contamination). In addition, this alternative would have greater

air quality, noise and vibration impacts to adjacent residents when compared with the selected project.

4.3 Pacific Avenue Alignment

This alignment is about 10,100 feet long. From the pumping plant on Hurricane Street, the alignment would proceed westerly in Hurricane Street to Pacific Avenue, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along Pacific Avenue and Vista Del Mar to the junction structure in Vista Del Mar near Waterview Street. Three alternative methods of constructing the force main sewer along Pacific Avenue were evaluated: cut and cover, boring and mining.

Construction via cut and cover would take about 7 months and cost about $37 million. While this alternative would be the quickest and least expensive to construct it was not selected because, compared with the selected project, this alternative would have greater impacts to air quality, parking, circulation, risks arising from dewatering, greater risk due to proximity of gas wells and contaminated sites and potential noise and vibration impacts to adjacent residents.

Construction via boring would take about 15 months and cost about $47 million. This alternative was not selected because, compared with the selected project, this alternative would have greater impacts to parking, circulation, greater risk due to proximity of gas wells and contaminated sites.

Construction via mining would take about 28 months and cost about $68 million. Although this alternative is the environmental superior alternative, it was not selected because of its significantly greater cost ($68 million) and construction time (28 months).

4.4 Dockweiler Beach Alignment

This alignment is about 10,300 feet long. From the pumping plant on Hurricane Street, the alignment would proceed westerly to the existing 20-foot wide sewer easement in Venice Municipal Beach and Dockweiler State Beach, then turn southeast and cross under the Marina Del Rey and Ballona Creek channels, and continue south along the Dockweiler Beachfront to a point west of the junction structure in Vista Del Mar near Waterview Street. From this point, the line runs easterly to the junction structure under Vista Del Mar near Waterview Street. If the mined large-diameter tunnel construction method is used, the construction shaft and staging area could be on the Los Angeles Airport property (LAX) slightly further to the southeast. Two alternative methods of constructing the force main sewer along the beach were evaluated: boring and mining.

Construction via boring would take about 15 months and cost about $54 million. This alternative was not selected because, compared with the selected project,

this alternative is more expensive, risks impacts to the rare and endangered California Least Tern and would have greater risk due to proximity of gas wells and contaminated sites.

Construction via mining would take about 27-28 months and cost about $65-68 million (depending on the construction method used for the connections at the north and south ends). This alternative was not selected because of its significantly greater cost and construction time.

4.5 Environmentally Superior Alternative

The environmentally superior alternative is to mine a large-diameter tunnel along the Pacific Avenue alignment from the LAX Dunes to Venice Pumping Plant (identified as mined tunnel alternative 4 in the DEIR). This alternative would impose the least number of impacts to environmental resources, and would significantly reduce construction related impacts such as traffic and parking congestion, noise and vibration. This alternative was not selected because of its significantly greater cost ($68 million) and construction time (28 months).

4.6 Other Alternatives

Combined alignments, such as an alignment along Dockweiler Beach north of the channel and along Pacific Avenue south of the channel, were also considered, but were not analyzed in detail, because they were not environmentally superior when considered in the whole and did not have any other significant benefit, such as substantially lower cost.

The environmental impacts of two combinations of construction method and alignment were not analyzed in detail. Mining a large-diameter tunnel along the eastern alignment was not considered, because it would be longer than the other alignments (and therefore require more time and money to construct) while not offering any advantages over the other alignments. Cut and cover along the beach was not considered because the method would result in a relatively shallow sewer, which could be vulnerable to damage from future coastal erosion processes.

5.0 STATEMENT OF OVERRIDING CONSIDERATIONS

The proposed Via Marina/Pacific Avenue cut and cover alternative would result in the following unavoidable significant adverse impacts after mitigation:

1. In spite of the application of mitigation measures, oxides of nitrogen (NO_X) produced during construction would exceed the standards established by the SCAQMD for significance.

2. Tunneling, needed to construct the sewer under water bodies, could damage or destroy archaeological or paleontologic resources.

3. Construction activities could cause noise impacts to sensitive receptors, such as residences, in the vicinity of construction sites.

4. Construction activities will have a short-term but significant adverse effect on visual and aesthetic resources.

The City finds that the proposed Project has specific economic, legal, social, technological, or other benefits that outweigh the proposed project's unavoidable adverse environmental effects. The project's benefits include:

1. The proposed Project will provide additional conveyance capacity from VPP needed to manage peak flows. The potential adverse public health and environmental consequences of overflows clearly outweigh the adverse impacts associated with construction and operation of the project.

2. The proposed Project will provide additional protection against the risk of system failure in a critical link in the city's wastewater conveyance system. The potential adverse consequences on potential public health and the environment of system failure clearly outweigh the adverse impacts associated with construction and operation of the project.

3. The proposed Project will allow the existing force main sewer to be bypassed for inspection, maintenance and repair.

4. The proposed Project will maintain the City's compliance with the National Pollution Discharge Elimination System, which requires that the City maintain its current sanitary sewer systems in order to prevent accidental discharges. Without the proposed Project, the existing sanitary sewer system cannot be adequately maintained without disrupting service to the public.

The City finds that the Project's unavoidable and potentially unavoidable adverse impacts are acceptable because they are outweighed by the project's benefits. The City reached this decision after having done all of the following:

1. adopted all feasible mitigation measures,

2. rejected other project alternatives with significant impacts,

3. recognized all significant and potentially significant impacts associated with the preferred alternative, and

4. balanced the benefits of the project against its significant and potentially significant impacts after mitigation.