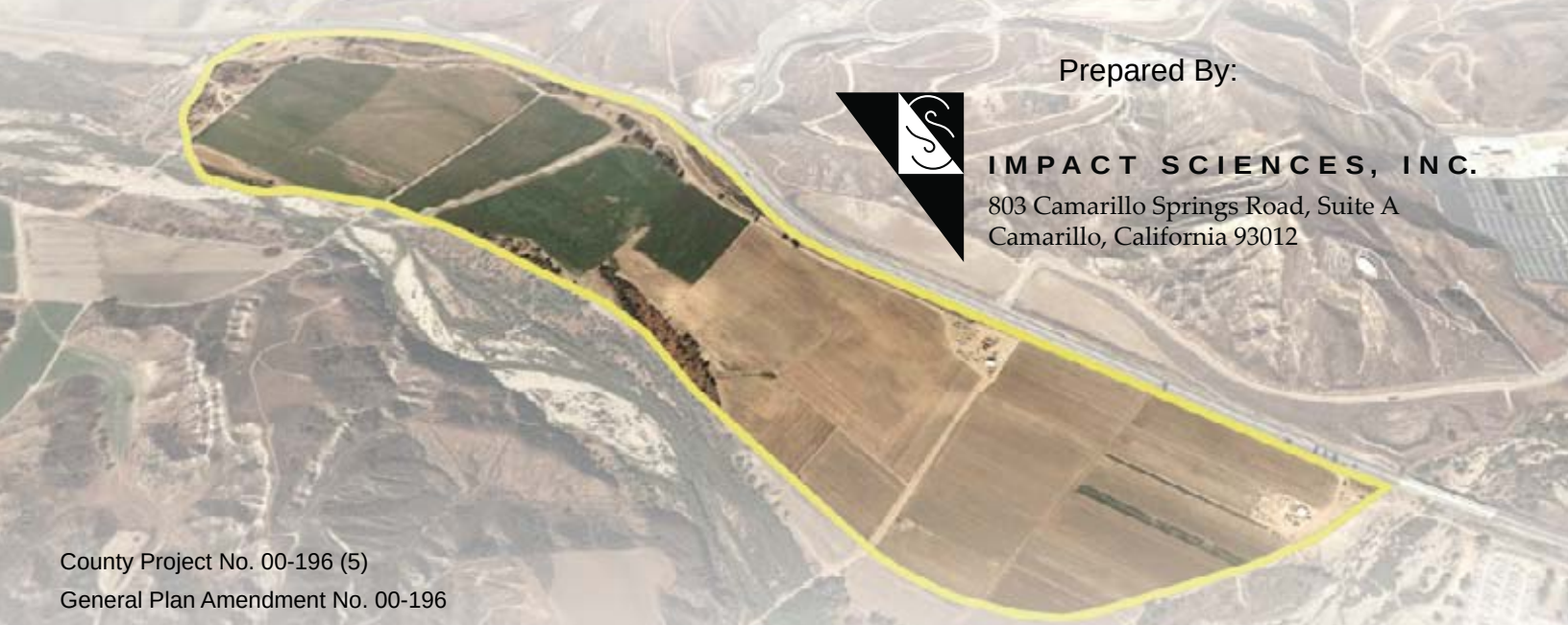
County of Los Angeles

Revised Final Environmental Impact Report

SCH No. 2004021002

Volume IV
Appendices F4.4 - F4.9

LANDMARK VILLAGE



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General Plan Amendment No. 00-196
Sub Plan Amendment No. 00-196
Specific Plan Amendment No. 00-196
Vesting Tentative Tract Map No. 53108
SEA Conditional Use Permit No. 200500112
Oak Tree Permit No. 00-196
Off-Site Materials Transport Approval No. CUP00-196
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NEWHALL RANCH
Newhall Ranch Company

September 2011

Landmark Village

Revised Final Environmental Impact Report

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Volume IV

Appendices F4.4 – F4.9

Prepared for:

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September 2011

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JURISDICTION DELINEATION
NEWHALL RANCH PROJECT

FOR A PORTION OF THE SANTA CLARA RIVER AND ITS TRIBUTARIES
LOS ANGELES COUNTY, CALIFORNIA

Prepared for:

U.S. Army Corps of Engineers
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December 2003

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This Jurisdiction Delineation Package (Package) has been prepared by URS Corporation (URS) for the Newhall Land and Farming Company (Newhall Land) in cooperation with agency representatives from the U.S. Army Corps of Engineers (Corps) and the California Department of Fish and Game (CDFG), in support of the Newhall Ranch project Corps 404 and CDFG 1603 permitting processes. The purpose of this package is to facilitate the two agencies' determination of jurisdiction boundaries of the portion of the Santa Clara River and its tributaries located within the Newhall Ranch project area. This Package will be formally submitted to both the Corps and CDFG with a request for a jurisdiction determination from each. This jurisdiction determination will be used for both federal and state environmental review and impact assessment under the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), respectively, for the Newhall Ranch project in Valencia, California.

This jurisdiction delineation for the Newhall Ranch project is organized as follows: Section 1.0 – Introduction and Background; Section 2.0 – Jurisdiction Delineation Methods; Section 3.0 – Project Area Characteristics, including the existing physical, hydrologic/hydraulic, and habitat characteristics of the five major jurisdictional watersheds found within the Newhall Ranch project boundary, along with other minor unnamed tributaries; Section 4.0 – Results of the Jurisdiction Delineation; and Section 5.0 – References.

1.1 PROJECT OVERVIEW

The proposed Newhall Ranch project activities that may affect jurisdictional areas are the construction and maintenance of flood control facilities, utility crossings, storm drains, bridges, roads, building pads, nature trails, and a water reclamation facility. These facilities would supply, in an economically practicable manner, a portion of the infrastructure required over the next 20 years to build out the approved Newhall Ranch Specific Plan area's (Figure 1-1) residential, commercial, industrial, mixed uses, and public facilities.

The various proposed projects would be constructed by Newhall Land or other private or public agencies. The proposed 404 permit and 1603 Master Agreement would also include routine maintenance activities to be carried out by the Los Angeles County Department of Public Works (LACDPW) using the 404 permit and 1603 Master Agreement issued to Newhall Land. Any party utilizing a 404 permit and 1603 Master Agreement issued to Newhall Land would be bound by the same conditions in the 404 permit and/or the 1603 Master Agreement.

By seeking a long-term, comprehensive 404 permit and 1603 Master Agreement, Newhall Land can facilitate a well planned and streamlined permit evaluation and decision process by the Corps and CDFG, and can provide an opportunity to design a long-term, regionally-based

planning and mitigation program for impacts to the affected riverine habitats. The 404 permit and 1603 Master Agreement would allow projects to be implemented under specific regional conditions, thereby avoiding the traditional project-by-project permitting process, expediting the permitting process for qualified projects, and ensuring consistent biological mitigation. In addition, the permits would provide a long-term, conditional authorization for ongoing and future maintenance activities by LACDPW.

The proposed federal action under consideration consists of the issuance of an individual permit under Section 404(b)(1) of the federal Clean Water Act (CWA) for those activities that would result in the discharge of fill or dredged material into "waters of the United States." Issuance of a 404(b)(1) permit also requires the Corps to complete an endangered species consultation (pursuant to Section 7 of the federal Endangered Species Act) with the U.S. Fish and Wildlife Service (USFWS). Consultation with the National Marine Fisheries Service (NMFS) may also be required.

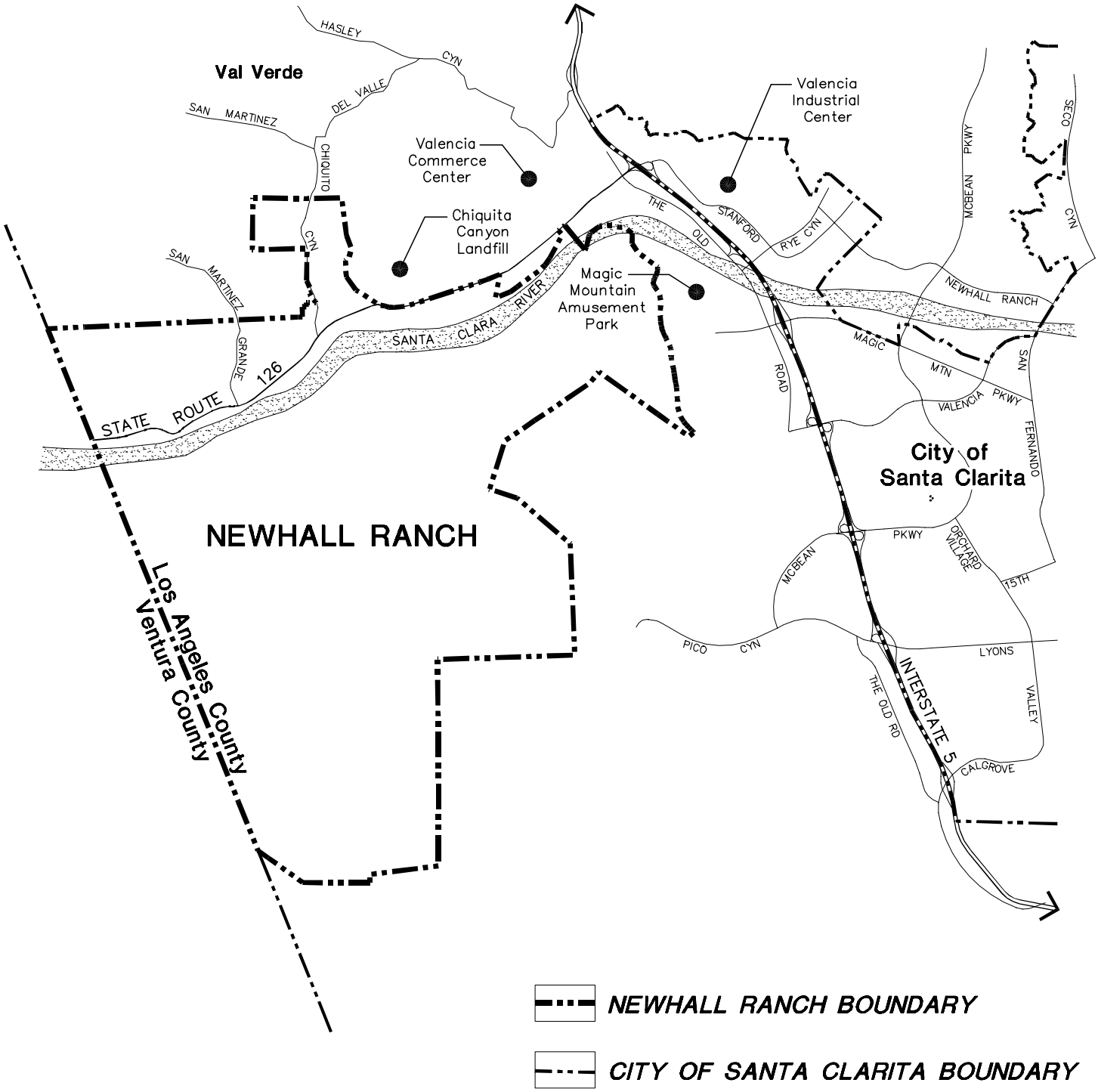
The proposed state action would be the execution of a Master Agreement Regarding Proposed Lake or Streambed Alteration (1603 Agreement) under Section 1603 of the California Fish and Game Code for the activities that would alter the "...natural flow or substantially change the bed, channel, or bank of any river, stream..." and may substantially adversely affect existing fish and wildlife resources. In addition to executing a 1603 Master Agreement, CDFG is required to issue a determination (pursuant to Fish and Game Code 2080.1) of whether the incidental take of species that are listed as threatened or endangered by both the state and federal governments has been authorized by USFWS, and is consistent with the California Endangered Species Act (CESA). Furthermore, CDFG must issue an incidental take permit for all state-only listed species pursuant to Fish and Game Code 2081.

1.2 CORPS AND CDFG JURISDICTION CRITERIA

Section 404 of the CWA requires authorization from the Corps for all discharges of dredged or fill material into waters of the U.S., including jurisdictional wetlands. Waters of the United States are defined in the Code of Federal Regulations (33 CFR 328.3), and include all rivers and streams, including ephemeral and intermittent streams. The extent of Corps jurisdiction over non-tidal waters in the absence of adjacent wetlands is defined by the "ordinary high water mark (OHWM)." In 33 CFR Part 329.1, the OHWM is defined as the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank; shelving; changes in the character of the soil; destruction of terrestrial vegetation; or the presence of litter and debris. In general, the OHWM for a stream is usually determined through an examination of the recent physical evidence of surface flow in the stream channel. This evidence may include, but is not limited to, a clear, natural scour line impressed on the bank; recent bank erosion; destruction of

native terrestrial vegetation; and the presence of litter and debris. For many small arid watersheds, the presence of continuous upland vegetation in the stream channel is a good indicator that it only conveys surface flow during extremely large storm events and, as a result, would not usually constitute a jurisdictional water of the U.S. However, the presence of native riparian species in a dry wash is usually a good indicator that the stream channel usually exhibits surface flow during both small and moderate storm events (Corps, 2001).

The CDFG has direct jurisdiction over any activity diverting or obstructing natural flow or modifying the bed, bank, or channel of any river, stream, or lake designated by CDFG in which there is an existing fish or wildlife resource that may be substantially adversely affected, or from which these resources derive benefit, under California Fish and Game Code 1601-1603. CDFG asserts jurisdiction over state water bodies and watercourses that exhibit a defined bed and bank. The upward limit of CDFG jurisdiction is generally the top of the bank, which often extends farther outward than does the Corps' CWA jurisdiction. CDFG 1601 and 1603 codes are similar to the federal CWA 404 permit, but the area of jurisdiction is often determined on a case-by-case basis for the location, nature, and extent of disturbance.



NEWHALL RANCH™
SPECIFIC PLAN

Prepared For: Newhall Ranch Company

FIGURE 1-1
SPECIFIC PLAN LOCATION AND BOUNDARIES

Computer Mapping by KRM Systems

SEPTEMBER 2003
vicmap2.dwg

The delineation of jurisdictional boundaries within the Newhall Ranch project area began in 1992 with the Corps' jurisdictional survey of Potrero Canyon (Figure 2-1). This survey determined the extent of a portion of the watershed that met the criteria for waters of the U.S. under Section 404 of the CWA. The Corps also conducted a survey of the main stem of the Santa Clara River in 1993 (Figure 2-2).

In April of 1994, CDFG prepared a Stream Alteration Agreement (No. 5-1001-94) for the portion of the Santa Clara River located within the Newhall Ranch project area (Figure 2-3).

Since 1994, Newhall Land staff has continued to work with the Corps and CDFG to define what the jurisdiction within the project area was per each agency's delineation criteria. However, in 2000 these activities ceased while additional environmental analysis was conducted for the Newhall Ranch Specific Plan.

The Los Angeles County Board of Supervisors' approval of the Newhall Ranch Specific Plan on May 27, 2003, triggered the need to resume jurisdiction delineation activities. Since then, Newhall Land and Farming and its consultants have met with agency representatives and conducted several day-long field visits in the project area to look at the tributary drainages to reach concurrence and build upon the previous work regarding their jurisdictional status. Additional meetings have been held with the agencies in an effort to complete this portion of the permitting process. This document contains the results of those activities and serves as a tool to complete the jurisdictional determination process.

2.1 METHODS

A variety of methods have been employed during this process to delineate the watersheds located within the Newhall Ranch project boundary, including analysis of historic data, incorporation of previous jurisdictional determinations by the Corps and CDFG, aerial photo interpretation in conjunction with topographic data, and geographic information systems (GIS) technology. Field assessments have also been carried out to verify the delineations completed using digital technology, and to gather additional locational data via the use of global positioning systems (GPS) equipment to further refine the jurisdictional area.

This delineation, as shown on Figures 3-1 and 3-2, reflects a concerted effort to provide a conservative assessment of the Newhall Ranch project area to include all drainages that meet the agencies' criteria for inclusion within their jurisdictional areas. This delineation has been prepared in consultation with agency representatives both in the field and via review of previously prepared delineations of the area.

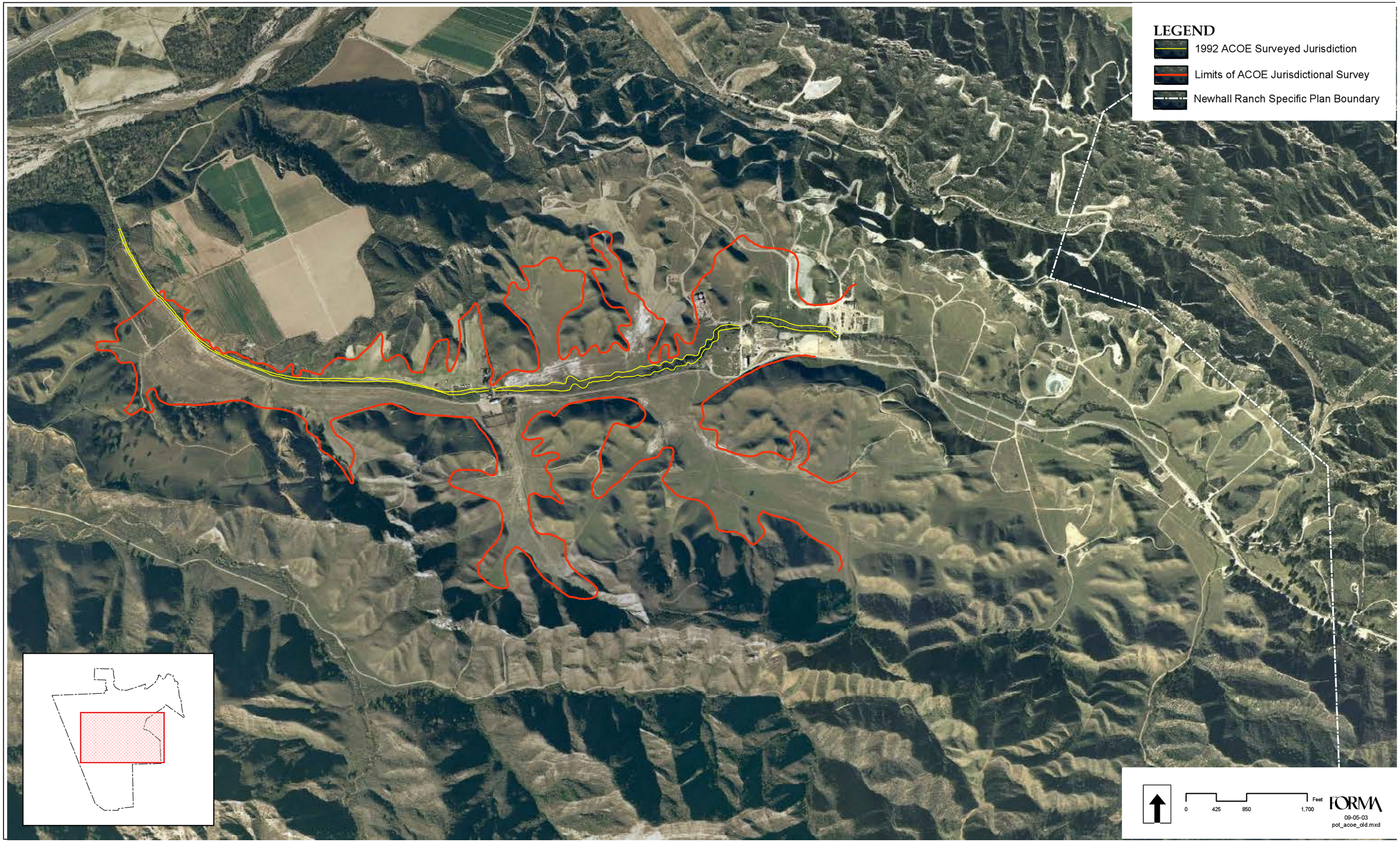


Figure 2-1
POTRERO CANYON
1992 ACOE JURISDICTIONAL SURVEY
NOVEMBER 12, 1992

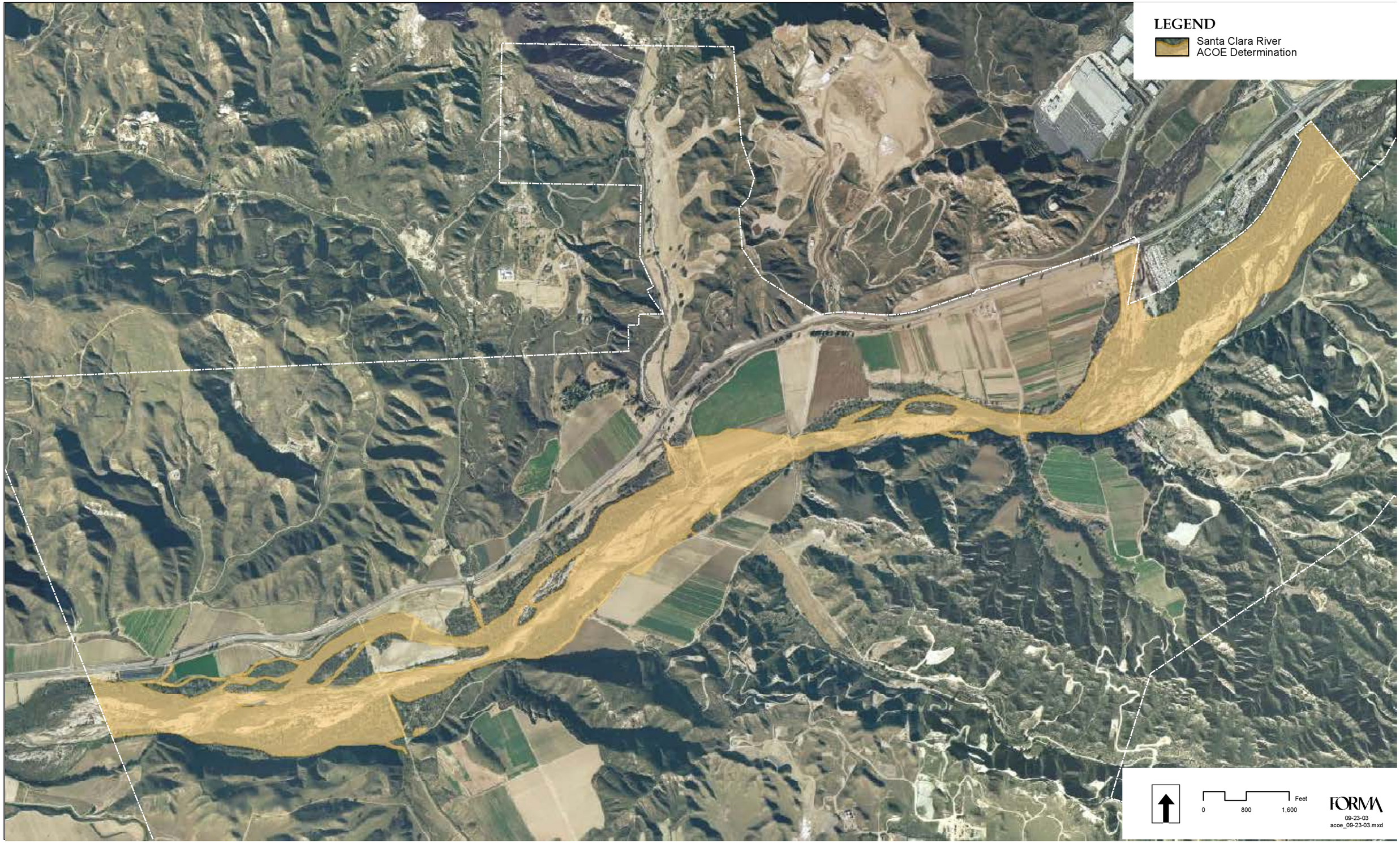


Figure 2-2

SANTA CLARA RIVER

1993 ACOE JURISDICTIONAL DETERMINATION

AUGUST 20, 1993

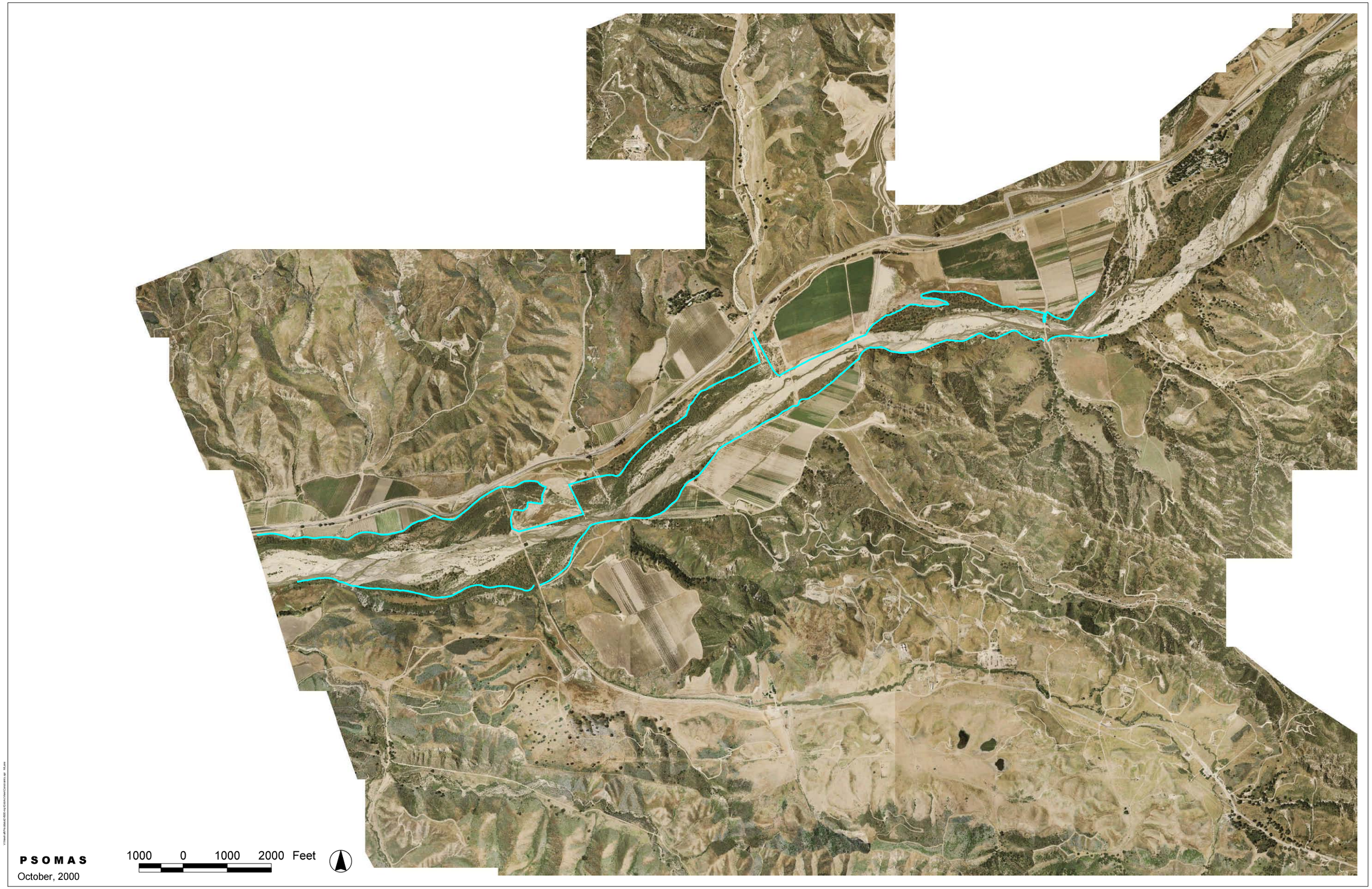


Figure 2-3
CALIFORNIA DEPARTMENT OF FISH AND GAME
JURISDICTION DELINEATION
APRIL 6, 1994

This section presents the existing physical, hydrologic/hydraulic, and habitat characteristics of the five major jurisdictional watersheds found within the Newhall Ranch project boundary, including Chiquito Canyon, Long Canyon, San Martinez Grande Canyon, Potrero Canyon, and the main stem of the Santa Clara River. Descriptions of the habitat types found in the other minor watersheds are also included. Figures 3-1 and 3-2 depict the jurisdiction delineation. The purpose of the discussion presented below is to provide the context in which the jurisdiction delineation has been formulated for the OHWM per the Corps' regulatory criteria, and bed and bank per CDFG's regulatory criteria, as described in Sections 1.2 and 2.0.

3.1 CHIQUITO CANYON EXISTING CHARACTERISTICS

3.1.1 Watershed Description and Characteristics

The 4.8-square mile (3,072-acre) Chiquito Canyon watershed is a tributary to the northern bank of the Santa Clara River within the Newhall Ranch project area (Figure 3-1). Approximately 2,300 acres of Chiquito Canyon, or almost 75 percent of the watershed area, is located upstream or offsite of the Newhall Ranch property boundary. The overall watershed drainage pattern creates a dogleg in which the headwaters flow in a general west to east direction, while the remaining lower portion of the creek flows in a north to south direction, joining the Santa Clara River Valley. The overall watershed boundary has a shape such that the larger portion of the drainage area is tributary in the upper watershed, with the width of the watershed narrowing downstream. The width of the watershed as measured between the watershed ridgelines ranges from approximately 7,000 feet in the upper watershed, to between 4,000 to 2,000 feet in the lower portion of the watershed. The shape of the watershed is important as it influences the time when runoff reaches the outlet or the response of the watershed to rainfall events. The distance from the upper headwaters to the canyon mouth is approximately 24,000 feet with an average overall slope of 0.054. The major natural main stem drainage course within the watershed has an average slope that varies in the upper watershed from 0.043 to approximately 0.029 in the lower reaches of the watershed through the Newhall Ranch property.

The majority of the Chiquito Canyon watershed is characterized by both rugged and steeply developed foothills that have numerous smaller tributary canyons that dissect the watershed, connecting to the narrow alluvial valley associated with the main stem creek. Approximately 90 percent or more of the watershed consists of this rugged foothill topography, with the remainder being the narrow, relatively flat valley floor. The topography for the watershed varies from a maximum elevation of 2,215 feet above mean sea level (amsl) in the headwaters, to a low elevation of 920 feet amsl near the mouth of the canyon in the Santa Clara River Valley.

Generally, the soils in the watershed are characterized as silty clay loams from both the Castaic and Saugus formations. Also, the soils within the Chiquito Canyon watershed can be predominately classified as being in hydrologic soil group C (higher runoff potential) with the exception of areas adjacent to the main stem creek that are Type A (lower runoff potential or higher infiltration rate) and Type B (moderate runoff potential) in the lower reaches. Existing urbanized areas within the watershed that would affect increased impervious areas affecting runoff include the community of Val Verde, which has a population of approximately 1,700 people and approximately 530 housing units covering 211 acres. There are no major flood control improvements or dams within the watershed other than several road culvert/bridge crossings such as that at State Route (SR) 126 that would influence the watershed response to rainfall events. Detailed hydrologic modeling has been performed to evaluate the existing baseline conditions, and the results of the estimated peak discharges for several storm return periods at the downstream canyon mouth are summarized in Table 3-1.

TABLE 3-1
CHIQUITO CANYON EXISTING WATERSHED
HYDROLOGY PEAK DISCHARGES

Return Period	Canyon Mouth Area = 4.8 sq. miles	Upstream Newhall Boundary Area = 3.6 sq. miles
2-year	216 cfs	180 cfs
5 – year	545 cfs	459 cfs
10-year	1,252 cfs	1,074 cfs
20-year	2,785 cfs	2,378 cfs
50-year	3,768 cfs	3,140 cfs
100-year	4,663 cfs	3,917 cfs

3.1.2 Stream Characteristics

The lower portion of Chiquito Canyon is generally located in the canyon floor and follows a mildly sinuous pattern with long linear meanders reflecting the influence of the physiographic features. The active creek is more deeply incised in the lower 2,500 feet of channel upstream from the SR 126 roadway crossing, while the remainder has developed a shallower active channel and wider drainage area. The hydraulics along this portion of the stream are also influenced by three different existing roadway crossing locations that include SR 126, a local access roadway arch crossing, and the Chiquito Canyon Road crossing. The average streambed slope of the channel indicated by the topographic data is relatively constant at approximately 0.029 along the 7,800-foot reach of the lower portion of the stream within the Newhall Ranch boundary (Figure 3-3). Representative cross sections illustrating the geometry of the drainage and the active channel are shown for the lower, middle, and upstream reaches for Chiquito Canyon in (Figures 3-4, 3-5, and 3-6). Detailed hydraulic

modeling of the existing drainage was performed, which indicated that this entire lower reach of Chiquito Canyon was hydraulically "steep," generating higher velocities than a "mild" channel. A brief description of the hydraulic operation for the drainage from the downstream canyon mouth to the upstream Newhall Ranch boundary includes the following:

Lower Reach

1. Flows exit the SR 126 multi-span culvert crossing, expanding to the downstream earthen channel system that joins the Santa Clara River. This results in lowered velocity downstream through the expansion area of the valley floor.

2. The arch roadway crossing upstream of SR 126 causes a hydraulic restriction that results in lower localized velocity immediately upstream of this location for medium to large storm events.

Middle Reach

3. The incised channel expands upstream of this location to the Chiquito Canyon Road crossing where the flows accelerate near the crossing location.

4. Upstream of this location, the drainage expands over a much wider area in the valley floor but never encompasses the entire valley floor. The average velocity through the middle reach is slightly lower, but still relatively high, ranging from 10 to 22 feet per second (fps).

Upper Reach

5. Two areas of natural constrictions influence the remaining upstream portion of the stream located within Newhall Ranch. These constrictions accelerate the flow. This is followed by a large expansion area at the very upstream end of the Newhall Ranch boundary that has very low velocities of approximately 5 fps, as indicated by the high concentration of vegetation within the active channel in this location.

The hydraulic characteristics of the 100-year storm event generated by the hydraulic modeling indicate that:

1. The average depth is approximately 3.8 feet, ranging from 9.5 feet to 1.6 feet

2. The average velocity is approximately 11.9 fps, ranging from 22 fps to 5 fps

3. The width of the stream water surface averages 195 feet, ranging from 285 feet to a minimum of 40 feet at the roadway crossing

Higher velocities generally occur within the contracted and incised portions of the drainage, and lower velocities occur within expansion areas and flatter longitudinal streambed slopes. Lower velocities occur along the fringes of the drainage, while higher velocities are in the deeper portions of a channel section. A comparison of the boundaries for different storm return periods indicates that the majority of the drainage is generally contained within the active channel for the 2-year storm event, which is consistent with the "dominant discharge" or channel-forming discharges found in southern California streams. Larger events expand into the overbank areas, particularly in the middle portion of this part of the stream, while the upper and lower portions are constricted and more incised. During the larger storm events, the wider overbank areas in the mid-portion of the stream encompass active agricultural fields.

3.1.3 Biological Characteristics

The area surrounding the channel in Chiquito Canyon within the Newhall Ranch project area is primarily comprised of agricultural land. However, the upstream areas of the watershed outside the project area are dominated by several habitat types including coastal sage scrub (CSS) with patches of chamise chaparral (CC), mixed chaparral (MC), and southern willow scrub (SWS). As noted in the description of the watershed, the upper portion of the drainage at the northern project boundary contains dense vegetation, indicating very low velocity flow during storm events. These habitat types are described as:

Coastal Sage Scrub (CSS): Coastal sage scrub habitat is characterized by a dominance of drought-deciduous plant species of the coastal hills. On the Newhall Ranch property, the dominant species that occur in this plant community include California sagebrush (*Artemisia californica*), purple sage (*Salvia leucophylla*), common encelia (*Encelia californica*), California buckwheat (*Eriogonum fasciculatum*), and California broom (*Lotus scoparius*). Coastal sage scrub habitat is distributed in Newhall Ranch on the drier south-facing slopes of the hilly lowlands, and on north-facing slopes and canyons of the Santa Susana Mountains.

Chamise Chaparral (CC): Chamise chaparral is characterized by relatively homogeneous stands of the shrub chamise (*Adenostoma fasciculatum*).

Mixed Chaparral (MC): The dominant plant species of mixed chaparral communities are comprised of a variety of shrubs at more or less equal densities. Shrub species present in this habitat type on the Newhall Ranch property include hoaryleaf ceanothus (*Ceanothus crassifolius*), coast blue lilac (*Ceanothus tomentosus*), lemonadeberry (*Rhus integrifolia*),

laurel sumac (*Malosma laurina*), toyon (*Heteromeles arbutifolia*), black sage (*Salvia mellifera*), white sage (*Salvia apiana*), and chamise. Understory components are poorly developed due to the dense vegetation cover.

Southern Willow Scrub (SWS): This riparian habitat community type is dominated by willow shrubs and small trees, such as arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and narrow-leaved willow. Mule fat shrubs are often co-dominant with the willows. These thickets often lack a well-developed understory. Southern willow scrub is found along the Santa Clara River along the banks of the low-flow channel where frequent flood disturbance prevents the community from developing into riparian woodland. The habitat is also found in the drainages within Chiquito Canyon, Potrero Canyon, and Salt Creek Canyon. This habitat type includes areas where grazing, clearing, or other factors have opened the willow scrub habitat, allowing either giant cane to invade or an herbaceous layer to develop in the openings.

Like many willow-dominated riparian habitats in California, southern willow scrub has been greatly reduced throughout its range, and provides valuable habitat for many special wildlife species, particularly songbirds.

In contrast to the vegetation found in the upper portion of Chiquito Canyon within the project area, the vegetation found in the downstream portion of the drainage within the project area is quite diverse, supporting scalebroom scrub (SS), coast live oak woodlands (LOW), and Great Basin scrub (GBS). These habitat types are described as:

Scalebroom Scrub (SS): Similar to alluvial scrub, scalebroom scrub (*Lepidospartum* scrub) is characterized by homogeneous stands of scalebroom that grow in arroyos and washes. Due to the sparse, nearly pure stands of scalebroom, wildlife use of this community type tends to be low, but similar to the other scrub habitat situated within drainages (i.e., alluvial scrub, Great Basin scrub).

Coast Live Oak Woodland (LOW): Coast live oak woodlands are typically located in riparian areas on the drier margins of the drainage where trees of coast live oak (*Quercus agrifolia*) dominate the community. Coast live oak woodlands in the study area occur on the outer, drier portions of the Santa Clara River drainage, especially on the south side of the river near the foothills and slopes of the surrounding hills. Isolated individuals of coast live oak occur on the terraces of drier sites.

Great Basin Scrub (GBS): Great basin scrub is characterized by an almost pure stand of big sagebrush (*Artemisia tridentata*). This habitat occurs on Newhall Ranch within the arroyos and on the upper terraces adjacent to the riparian areas along the major drainages.

3.2 LONG CANYON EXISTING CHARACTERISTICS

3.2.1 Watershed Description and Characteristics

The 1.53-square mile (981-acre) Long Canyon watershed is a tributary to the southern canyon side of the Santa Clara River within the Newhall Ranch project area (Figure 3-1). Approximately 390 acres of Long Canyon, or almost 40 percent of the watershed area, is located upstream and offsite of the Newhall Ranch property boundary. The major drainage course within the watershed flows generally in an easterly to westerly direction, joining the Santa Clara River Valley.

The overall watershed boundary, as defined by the topography and ridgelines, is very long and linear in shape, which influences the watershed response to rainfall. The width of the watershed boundary is fairly uniform with limited variation. The average width measured between ridgelines is approximately 3,000 feet and varies from 2,000 to 3,500 feet. The shape of the watershed has an important effect on the runoff response from the drainage area since it influences when runoff reaches the outlet. A linear watershed such as Long Canyon will distribute the runoff more uniformly over time, spreading the effect of the tributary drainage area and a flattening or spreading of the runoff hydrograph. Another indicator of the watershed shape is the length to width ratio, which has a value of approximately 6, and would describe a long watershed. The distance from the upper headwaters to the canyon mouth outlet is approximately 18,000 feet, with an average overall slope of 0.055. The major natural main stem drainage course within the watershed has an average slope that varies in the upper watershed from 0.039 to approximately 0.026 in the lower reaches of the watershed through the Newhall Ranch property.

The majority of the Long Canyon watershed is characterized by both rugged and steeply developed foothills that have numerous smaller linear tributary canyons that enter the watershed, connecting to the narrow alluvial valley associated with the main stem creek. Approximately 80 percent or more of the watershed consists of the rugged foothill topography, with the remainder being the narrow valley floor. The topography for the watershed varies from a maximum elevation of 1,918 feet amsl in the headwaters, to a low elevation of 934 feet amsl near the mouth of the canyon at the Santa Clara River Valley.

Generally, the soils in the watershed are characterized as silty clay loams from both the Castaic and Saugus formations. Also, the soils within the Long Canyon watershed can be predominately classified as being in hydrologic soil group C (higher runoff potential) with exception of areas adjacent to the main stem creek and canyon floor that are Type A (lower runoff potential) and Type B in the lower reaches. Detailed hydrologic modeling has been performed to evaluate the baseline existing watershed conditions, and the results of the

estimated peak discharges for several storm return periods at the downstream canyon mouth are summarized in the following table:

TABLE 3-2
LONG CANYON EXISTING WATERSHED
HYDROLOGY PEAK DISCHARGES

Return Period	Canyon Mouth	Upstream Newhall Boundary
	Area = 1.53 sq. miles	Area = 0.61 sq. miles
2-year	62 cfs	30 cfs
5 – year	159 cfs	75 cfs
10-year	367 cfs	175 cfs
20-year	862 cfs	395 cfs
50-year	1163 cfs	535 cfs
100-year	1455 cfs	663 cfs

3.2.2 Stream Characteristics

The lower Long Canyon drainage extends from the mouth of the canyon at the Santa Clara River to the Newhall Ranch boundary, approximately 8,600 feet upstream of the canyon mouth. The geomorphology of the active stream reflects a long and mildly sinuous alignment with long linear meanders reflecting the influence of the physiographic features. The meanders of the active channel tend to reflect off the canyon walls, and the meanders alternate from the sides of the canyon. The average streambed slope of the channel indicated by the topographic data varies with the upstream portion steeper, and the lower portion tending to flatten out proceeding downstream. The average slopes ranges from 0.039 in the upper reaches to 0.026, with the streambed indicating this average trend through the length of the drainage. There are minor variations in the streambed slope where minor depositional areas are encountered associated with contractions in the creek geometry (Figure 3-7).

The downstream 2,000 feet has a less defined active channel and a much wider canyon floor that reflects a classic alluvial canyon depositional form associated with the sediment delivered from the upper canyon. The canyon widens in this area to approximately 400 feet. The remaining portion of the creek is more incised and the canyon floor is much narrower, averaging 100 feet or less. Representative cross sections illustrating the geometry of the drainage and the active channel are shown for the lower, middle, and upstream reaches for Long Canyon (Figures 3-8, 3-9, and 3-10). There are no manmade structures along the drainage that influence the hydraulic operation.

Detailed hydraulic modeling of the existing drainage was performed and indicated that this entire lower reach of Long Canyon was hydraulically "steep" (Froude numbers greater than a value of 1.0), generating higher velocities than a "mild" channel.

A brief description of the hydraulic operation of this 8,600-foot-length drainage for Long Canyon from the downstream canyon mouth to the upstream Newhall Ranch boundary includes the following:

Lower Reach

1. The lower 2,000 feet of drainage near the canyon mouth to the Santa Clara River Valley is very wide, much larger than the upper portion of the drainage by a factor of five, because the channel is less defined and the slopes are flatter, which has resulted in deposits creating a wide valley floor.

2. The wide drainage in the lower reach also reflects much lower velocities across its entire width in the canyon floor.

Middle Reach

3. Immediately upstream of the wider valley floor, the channel becomes more incised and deeper.

4. This mid-portion of the stream follows an extremely linear alignment, and the width is very constant with very limited overbank flows.

Upper Reach

5. Continuing upstream in the upper portion of the stream are a series of contraction areas that results in larger drainage expansions resulting in some depositional areas.

6. The upper portion of the drainage generally extends across the entire canyon bottom, but the canyon is also narrower than farther downstream.

7. The upper canyon is slightly wider than the mid-portion because there are some overbank flows, and this portion is less deeply incised than the mid-portion of the canyon.

The hydraulic characteristics of the 100-year storm event generated by the hydraulic modeling indicates that:

1. The average depth is approximately 2.4 feet, ranging from 6.7 feet to 0.7 feet

2. The average velocity is approximately 7.8 fps, ranging form 17 fps to 3.5 fps

3. The width of the stream water surface averages 140 feet, ranging from 420 feet to 29 feet at a constriction in the mid-portion of the channel

Higher velocities generally occur within the contracted and incised portions of the drainage, with lower velocities in expansion areas and flatter longitudinal streambed slopes. The wider drainage areas near the mouth of the canyon reflect the sediment deposits that have occurred in the fan-type formation in the canyon floor. Lower velocities occur along the fringes of the drainage, while the higher velocities occur in the deeper portions of a channel section.

3.2.3 Biological Characteristics

Both sides of this watershed contain habitat types comprised primarily of coastal sage scrub (CSS), with small pockets of chamise chaparral (CC), and grassland (G) present. Within the stream channel, there is a mixture of grassland, elderberry scrub (ES), live oak woodland (LOW), alluvial scrub (AS), great basin scrub (GBS), mixed chaparral (MC), and alluvial scrub. Habitat types not described in Section 3.1.3 are described as:

Grassland (G): The grassland areas of the Newhall Ranch property are dominated by non-native grasses, such as ripgut grass, smooth brome, foxtail chess, and downy brome (*Bromus diandrus*, *B. hordaceous*, *B. madritensis* ssp. *rubens*, and *B. tectorum*, respectively); wild oats and slender wild oats (*Avena fatua* and *A. barbata*, respectively); hare barley (*Hordeum leporinum*); and rattail fescue (*Vulpia myorus* var. *hirsuta*). Some native and non-native herbaceous species that occur among the grasses are dove weed (*Eremocarpus setigerus*), common cryptantha (*Cryptantha intermedia*), purple owl's clover (*Castilleja exserta*), white-stemmed filaree (*Erodium cicutarium*), short-pod mustard (*Hirschfeldia incana*), radish (*Rhaphanus sativa*), cheeseweed (*Malva parviflora*), and London rocket (*Sisymbrium irio*).

Elderberry Scrub (ES): Thickets of blue elderberry (*Sambucus mexicana*) characterize this community type. It generally occurs on the Newhall Ranch property in association with riparian and scrub communities. Elderberry scrub is not a common vegetation type and has been greatly reduced throughout its range, particularly in southern California.

Alluvial Scrub (AS): Alluvial scrub habitat is characterized as a mixture of shrubs that colonize alluvial materials within intermittent creeks, arroyos, and the drier terraces within large washes. Alluvial scrub typically occurs adjacent to and intergrades with sage scrub communities on higher ground, and with riparian communities in the drainage. These sandy-

gravelly flood-deposited soils have a deeper permanent water table and flood infrequently; thus, they support a primarily upland plant association. Plant species observed in this habitat type on the ranch include big sagebrush, scalebroom (*Lepidospartum squamatum*), blue elderberry, big saltbush (*Atriplex lentiformis*), and squaw bush (*Rhus trilobata*), with some areas having high densities of big sagebrush. There are generally three phases of alluvial scrub growth, which are directly related to elapsed time since the last scouring flood event: pioneer, intermediate, and mature. Alluvial scrub is situated within the drier portions of the arroyos and washes.

3.3 SAN MARTINEZ GRANDE CANYON EXISTING CHARACTERISTICS

3.3.1 Watershed Description and Characteristics

The 3.3-square mile (2,111-acre) San Martinez Grande Canyon watershed is a tributary to the northern bank of the Santa Clara River within the Newhall Ranch project area (Figure 3-1). Approximately 200 acres of San Martinez Grande Canyon, or only 10 percent of the watershed area, is located within the Newhall Ranch property boundary, with the majority being upstream or offsite. The drainage in the headwaters flows generally west to east, while the remaining lower portion of the creek flows north to south, similar in alignment to Chiquito Canyon and joining the Santa Clara River Valley.

The shape of the overall watershed has a dogleg-type appearance similar to Chiquito Canyon, which is the adjacent watershed. The overall watershed boundary, based upon the topography and ridgelines, develops a shape such that a larger portion of the drainage area is tributary in the mid-portion of the watershed. The width of the watershed narrows in both the upstream and downstream tails of the watershed while the central portion of the watershed widens to approximately 6,800 feet in width. The shape of the watershed is important since it influences when runoff reaches the outlet. Although the watershed is relatively long, the large width in the central portion of the watershed will result in delivering more runoff in a shorter amount of time, and with less influence from the upper watershed drainage area.

The distance from the upper headwaters to the canyon mouth is approximately 20,000 feet with an average overall slope of 0.059. The major natural main stem drainage course within the watershed has an average slope in the lower reaches of the watershed through the Newhall Ranch property of approximately 0.022 (Figure 3-11).

The majority of the San Martinez Grande Canyon watershed is characterized by both rugged and steeply developed foothills that have numerous smaller tributary canyons that dissect the watershed, connecting to the narrow alluvial valley associated with the main stem creek. Approximately 90 percent or more of the watershed consists of the rugged foothill

topography with the remainder being the narrow valley floor. The topography for the watershed varies from a maximum elevation of 2,062 feet amsl in the headwaters, to a low elevation of 890 feet amsl near the mouth of the canyon at the Santa Clara River Valley.

Generally, the soils in the watershed are characterized as silty clay loams from both the Castaic and Saugus formations. Also, the soils within the San Martinez Grande Canyon watershed can be predominately classified as being in hydrologic soil group C (higher runoff potential) with exception of areas adjacent to the main stem creek that are Type A (lower runoff potential) and Type B in the lower reaches.

There are no major flood control improvements or dams within the watershed, other than several road culvert/bridge crossings such as the SR 126, which would influence the watershed response to rainfall events. Detailed hydrologic modeling has been performed to evaluate the baseline existing watershed conditions, and the results of the peak discharges for several storm return periods at the downstream canyon mouth are summarized in Table 3-3.

TABLE 3-3
SAN MARTINEZ GRANDE CANYON
EXISTING WATERSHED HYDROLOGY

Return Period	Canyon Mouth	Upstream Newhall Boundary
	Area = 3.3 sq. miles	Area = 2.9 sq. miles
2-year	116 cfs	105 cfs
5-year	304 cfs	276 cfs
10-year	719 cfs	655 cfs
20-year	1727 cfs	1564 cfs
50-year	2346 cfs	2152 cfs
100-year	2951 cfs	2653 cfs

3.3.2 Stream Characteristics

The lower San Martinez Grande Canyon Creek extends approximately 4,800 feet upstream from the canyon mouth at the Santa Clara River Valley to the Newhall Ranch boundary. The geomorphology of the active creek reflects a more highly variable and sinuous alignment that indicates the influence of the physical and topographic features. There is also a much greater variation of the active channel geometry (i.e. width and depth) along this relatively short reach of channel. Representative cross sections illustrating the geometry of the drainage and the active channel are shown for the lower, middle, and upstream reaches of San Martinez Grande Canyon (Figures 3-12, 3-13, and 3-14). The active portion of the creek is more deeply incised below the canyon valley floor. The drainage is generally entirely contained within the active creek banks, and there is little overbank flow. The changes in creek

geometry and form may indicate influences from the upper watershed that affect the sediment delivery.

The changes in channel geometry are also reflected in coincidental variations of the streambed slope. The slope variations are generally higher in the contractions of the channel geometry and flatter in the expansion areas, upstream and downstream. The average streambed slope of the channel indicated by the topographic data is approximately 0.022. The average slope ranges are from 0.08 in the contraction to 0.005 in the wider expansion zones located generally upstream of the contractions. The most upstream 500 feet near the Newhall Ranch project boundary has a less defined active channel and a much wider canyon floor, which reflects depositional area, and which contains increased riparian vegetation. The only manmade structure that influences the hydraulic operation is the roadway culvert crossing for SR 126, but this appears to have sufficient hydraulic capacity with minimal effects to the drainage.

Detailed hydraulic modeling of the existing drainage was performed and indicated that approximately 50 percent of the lower reach of the San Martinez Grande Canyon was hydraulically “steep” (Froude numbers greater than a value of 1.0), while the remainder of the canyon, primarily the upper portion near the Newhall Ranch boundary, was hydraulically a “mild” channel. The hydraulic analysis also indicated at several locations the influence of contractions in the channel geometry, which controlled the hydraulics upstream and downstream of these locations. A brief description of the hydraulic operation of this 4,800-foot length drainage for San Martinez Canyon from the downstream canyon mouth to the upstream Newhall Ranch boundary includes the following:

Lower Reach

1. The immediate downstream portion of the drainage near the canyon mouth to the Santa Clara River is associated with a more prismatic earthen section that connects to the SR 126 roadway crossing, and velocities downstream of the bridge increase from its influence.

2. Upstream of the bridge crossing, the channel significantly widens into a large incised erosional feature that reduces the velocities.

3. Continuing upstream into the canyon mouth, the creek geometry contracts and the velocities accelerate in this area along with the streambed slopes being steeper.

4. Continuing still through the topographic canyon mouth feature where the canyon narrows, the creek passes through several additional contractions and large expansion

zones, which is also indicated by the zones of riparian vegetation that occur in the expansion zones.

5. The velocities in the contractions can range from 12 fps to 16 fps, while the expansion areas are in the 6 fps range.

Middle Reach

6. Continuing through the mid-portion of the canyon, the channel is fairly incised with the velocities averaging from 9 fps to 12 fps and encountering some variation in the channel geometry.

Upper Reach

7. The upstream 500 to 800 feet of the drainage significantly widens, which reflects the limited channel depth or incision, and the wider alluvial deposits that appear to have occurred from a significant contraction in the channel geometry influencing the upstream hydraulic operation.

The hydraulic characteristics of the 100-year storm event generated by the hydraulic modeling indicates that:

1. The average depth is approximately 6.4 feet, ranging from 15 feet to 2.9 feet

2. The average velocity is approximately 8.9 fps, ranging form 19 fps to 2.2 fps

3. The width of the creek water surface averages 110 feet, ranging from 220 feet to 42 feet consistent with the various channel constrictions

Higher velocities generally occur within the contracted and incised portions of the drainage and lower velocities within expansion areas and flatter longitudinal streambed slopes. Lower velocities occur along the fringes of the drainage, while the higher velocities are in the deeper portions of a channel section.

3.3.3 Biological Characteristics

The San Martinez Grande watershed contains a diverse variety of habitats including Great Basin scrub (GBS), mule fat scrub (MFS), coastal sage scrub (CSS), and some grassland (G). Two small patches of elderberry scrub (ES) exist near the northern boundary of the project footprint. The area just upstream of the Santa Clara River confluence is dominated by arrow

weed scrub (AWS). San Fernando Valley spineflower was also found to be present within this watershed. Habitat types not previously described in Sections 3.1.3 or 3.2.3 include:

Mule Fat Scrub: Mule fat scrub is typically a mature riparian habitat dominated by mule fat shrubs (*Baccharis salicifolia*). Co-dominant plant species include narrow-leaved willow (*Salix exigua*), giant cane (*Arundo donax*), and some tamarisk (*Tamarix* sp.). This habitat type is found along the Santa Clara River on upper terraces and on some levees on the ranch property.

Arrow Weed Scrub (AWS): This shrub-dominated plant community is characterized by a nearly pure stand of arrow weed shrubs. Big saltbush (*Atriplex lentiformis*) and mule fat shrubs are often co-dominants in more open stands, especially along road cuts. Wet areas where this habitat has developed may also have some freshwater marsh species occurring with the arrow weed. On Newhall Ranch, this plant community is located on the upper Santa Clara River terraces at the edges of woodlands and along the manufactured slopes near SR-126.

A species of particular interest in this watershed is the San Fernando Valley Spineflower (*Chorizanthe parryi* var. *Fernandina*), which is a state-listed endangered species, a candidate for federal listing, and found on List 1B of the California Native Plant Society (CNPS) Inventory. This species was thought to be extinct until its rediscovery at Ahmanson Ranch in Ventura County in 1999. This species was previously thought to occur in sandy to gravelly soils of washes, riverbeds, and upland areas, primarily on the margins of the San Fernando Valley at the base of the Santa Susana Mountains, San Gabriel Mountains, and the Simi Hills. Subsequent to that 1999 rediscovery, this species has been identified at several locations within the Newhall Ranch project boundary, including the San Martinez Grande Canyon (Dudek, 2002).

The northern, upstream reaches of Mid Martinez Canyon drainage are dominated by coastal sage scrub (CSS) on the west bank, and by grassland (G) on the east. The channel then flows through areas of alluvial scrub and coastal sage scrub, and through agricultural fields (AG) to the Santa Clara River.

3.4 POTRERO CANYON

3.4.1 Watershed Description and Characteristics

The 4.59-square mile (2,936-acre) Potrero Canyon watershed is a tributary to the northern bank of the Santa Clara River within Newhall Ranch (Figure 3-2). The overall watershed drainage pattern is in an east to west direction to the river outlet. The watershed is long compared to the width of the watershed, and the average length-to-width ratio is approximately 3.8. The width of the watershed varies from 4,500 feet to 8,300 feet, as defined by the topographic ridgelines between the adjacent canyons. The larger width of the watershed and greater tributary area occurs in the upper watershed. The shape of the watershed is important since it influences when runoff reaches the outlet. This particular watershed configuration will dominate peak discharges through delaying the runoff but increasing the discharge at the end of the hydrograph. The distance from the upper headwaters to the canyon mouth is approximately 23,000 feet with an average overall slope of 0.045. The major natural main stem drainage course within the watershed has an average slope of approximately 0.02 (Figure 3-15).

The majority of the Potrero Canyon watershed is characterized by both rugged and steeply developed foothills that have numerous smaller tributary canyons that dissect the watershed, connecting to the narrow alluvial valley associated with the main stem creek. There are approximately seven of these smaller tributaries that contribute significant drainage area and function as separate watershed streams. Approximately 65 percent or more of the watershed consists of the rugged foothill topography, with the remainder being the wider valley floor. The topography for the watershed varies from a maximum elevation of 1916 feet amsl in the headwaters, to a low elevation of 866 feet amsl near the mouth of the canyon at the Santa Clara River valley.

Generally, the soils in the watershed are characterized as silty clay loams from both the Castiac and Saugus formations. Also, the soils within the Potrero Canyon watershed can be predominately classified as being in hydrologic soil group C (higher runoff potential) with exception of areas adjacent to the main stem creek that are Type A (lower runoff potential) and Type B in the lower reaches.

Detailed hydrologic modeling has been performed to evaluate the baseline existing watershed conditions, and the results the peak discharges for several storm return periods at the downstream canyon mouth are summarized in Table 3-4.

TABLE 3-4
POTRERO CANYON EXISTING WATERSHED HYDROLOGY

Return Period	Canyon Mouth	Upper Drainage
	Area = 4.59 sq. miles	Area = 1.07 sq. miles
2-year	133 cfs	70 cfs
5-year	337 cfs	183 cfs
10-year	774 cfs	400 cfs
20-year	1853 cfs	851 cfs
50-year	2619 cfs	1115 cfs
100-year	3309 cfs	1363 cfs

3.4.2 Stream Characteristics

The portion of Potrero Canyon Creek that was evaluated consisted of the lower 18,300 feet extending upstream from the canyon mouth at the Santa Clara River Valley. The lower 50 percent of Potrero Canyon has been influenced through manmade activities that had relocated the existing active creek into an engineered earthen channel along the northern side of the canyon. The remaining upper portion of the drainage does not reflect as much of this influence since there appeared to be less historical farming operations and impact to the natural active creek channel. However, the active channel has limited hydraulic capacity, particularly in the lower portion of the canyon, which results in overtopping and creation of a secondary sheet flow on the southern side of the canyon, consistent with the large meadow area. The engineered portions of the active channel follow a very linear alignment, and the channel is generally located adjacent to the roadway along the canyon floor. The canyon floor is characterized by a very large and flat width in the valley as compared to the other tributary canyon watersheds. The drainage characteristics and trends also reflect that of a wide, stable valley system, with little tendency to deeply incise beyond the minor active channel. Representative cross sections illustrating the geometry of the drainage and the active channel are shown for the lower, middle, and upstream reaches for Potrero Canyon (Figures 3-16, 3-17, and 3-18). The average streambed slope indicated by the topographic data is relatively constant along the majority of the streambed at approximately 0.020, while the downstream 3,000 feet through the canyon mouth increase to a slope of 0.038. This relatively constant slope is also reflected in the reduced drainage width near the canyon mouth, and in higher velocities.

Detailed hydraulic modeling of the existing creek was performed and indicated that this entire lower reach of Potrero Canyon was hydraulically “steep,” generating higher velocities than a “mild” channel. A brief description of the hydraulic operation of the drainage from the downstream canyon mouth to upstream along the 18,300 feet reach includes the following:

Lower Reach

1. The majority of the storm event flows through the lower 3,000 feet of the canyon to the Santa Clara River Valley are conveyed on the southerly side of the canyon and not in the active channel on the northern side because of its limited capacity.

2. The drainage significantly widens upstream of the steeper portion near the canyon mouth, but is still separated from the active channel on the opposite side.

3. The wide drainage area reflects low velocities in the overbank area of the valley floor.

Middle Reach

4. Continuing upstream, the canyon narrows slightly and reduces the width of the drainage, which increases the velocities and depths.

5. Within this lower mid portion of the drainage, the active channel and sheet flow area on the southerly side of the canyon rejoin.

6. The drainage then follows a rather linear alignment through the mid portion of the canyon with fairly constant widths.

Upper Reach

7. Through the oil field area, the drainage width varies with several contraction and large expansion areas, as indicated by historical deposition and by the variation in average velocity.

8. Continuing through the upper portion of the drainage, it becomes more incised and is generally fully contained in the active channel.

9. The last remaining 1,000 feet of the drainage widens significantly since the channel is not well defined or incised, which reduces the velocities.

The hydraulic characteristics of the 100-year storm event generated by the hydraulic modeling indicates that:

1. The average depth is approximately 2.9 feet, ranging from 6.5 feet to 0.5 feet

2. The average velocity is approximately 7.7 fps, ranging from 19.4 fps to 3.6 fps
3. The width of the creek water surface averages 300 feet, ranging from 840 feet to 35 feet at the roadway crossing

Higher velocities generally occur within the contracted and incised portions of the drainage, and lower velocities occur within expansion areas and flatter longitudinal streambed slopes. Along the fringes of the drainage, lower velocities occur while the higher velocities are in the deeper portions of a channel section.

3.4.3 Biological Characteristics

Habitat types in the Potrero Canyon drainage are comprised primarily of grassland (G) and coastal sage scrub (CSS), although a wide variety of habitat is represented. Live oak woodland (LOW), mule fat scrub (MFS), great basin scrub (GBS), mesic meadow (MM), elderberry scrub (ES), and valley oak woodland (VOW) are all present within the Potrero watershed, along with agricultural land (AG). The habitat type not previously described in Sections 3.1.3, 3.2.3, and 3.3.3 is:

Mesic Meadow: Mesic meadows form in grassland areas where seeps, springs, or groundwater surfaces are present. In these areas, soils remain saturated most of the year. Plant species found in mesic meadows can tolerate the moist conditions for prolonged periods. Herbaceous species present include yerba mansa (*Anemopsis californica*), curly dock (*Rumex crispus*), spike rush (*Eleocharis* sp.), annual beard grass (*Polypogon monspeliensis*), rush (*Juncus* sp.), and saltgrass (*Distichlis spicata*). Mesic meadows on the ranch are located within Potrero Creek, on an unnamed drainage at the east end of Middle Potrero Canyon, and in Via Canyon.

3.5 SALT CREEK

3.5.1 Watershed Description and Characteristics

The Salt Creek watershed encompasses approximately 5,816 acres (Figure 3-2). A steep ridgeline between Potrero Canyon and Salt Creek Canyon/Grave Canyon form the eastern limit of the Salt Creek watershed in Los Angeles County. The ridgeline of the Santa Susana Mountains (3,100 feet amsl) forms the southern limits of the Salt Creek watershed in both Los Angeles and Ventura Counties. The western limit of the Salt Creek watershed is in Ventura County, and is formed by a ridgeline that separates Tapo Canyon and Salt Creek Canyon. The Salt Creek watershed terminates to the north where Salt Creek Canyon merges with the Santa Clara River Valley in Ventura County (825 feet amsl).

3.5.2 Creek Characteristics

While the Salt Creek drainage is one of the largest found within the boundaries of the Newhall Ranch project area, it was not subjected to detailed hydrologic/hydraulic modeling because it is contained within the High Country set-aside where no development will occur. Any potential impacts would be limited in nature and related to access and recreational use of the High Country, and might include footbridges and maintenance of existing farm roads. Construction of a small visitors' center located outside the jurisdictional area would serve as the gateway into the High Country. Otherwise, this area will be maintained in its present state in perpetuity.

3.5.3 Biological Characteristics

The vast majority of this watershed is covered by coastal sage scrub (CSS). Agriculture (AG), great basin scrub (GBS), and grassland (G) habitat types comprise most of the remaining area, although valley oak woodland (VOW), mule fat scrub (MFS), alluvial scrub (AS), and live oak woodland (LOW) are present in small patches.

At the confluence of the middle and east forks of Salt Creek, wetland conditions are present and persist from approximately 750 feet upstream to 700 feet downstream of the confluence. The total area of this wetland is approximately 8.5 acres, and dominant flora include saltgrass (*Distichlis spicata*, 50-60 percent cover), mulefat (*Baccharis salcifolia*, 30-40 percent cover), Arroyo willow (*Salix lasiolepis*), and the sedge, *Scirpus americanus*. In the vicinity of the wetland area, the vast majority of the vegetation is native, and very few weeds are present. Occasional weeds located in the wet portion of the drainage included rabbit's foot grass (*Polypogon spp.*) and tamarisk (*Tamarix spp.*). Other weeds, including tree tobacco, yellowstar thistle, prickly wild lettuce, black mustard, white sweet clover, and fivehook bassia, are primarily located near the road, and cover less than 5 percent of the area sampled. As the Salt Creek drainage has been designated a permanent open space, no impacts to this wetland area are anticipated from the proposed project.

3.6 OTHER JURISDICTIONAL DRAINAGES

The Newhall Ranch project area contains several other smaller jurisdictional tributary watersheds comprised of small, ephemeral drainages. Habitat types found in each of these drainages are briefly described below (Figures 3-1 and 3-2).

Homestead Canyon: This watershed is dominated by coastal sage scrub (CSS), but also contains one thin strip of great basin scrub (GBS) lining the stream channel near the lower end, and patches of dispersed grassland (G).

Unnamed Drainage: This drainage is located to the west of Homestead Canyon and abutting the western project boundary north of SR 126 with only a very short segment of it found within the project footprint. The drainage itself runs through grassland (G) and great basin scrub (GBS), although the watershed is dominated by coastal sage scrub (CSS). The drainage also includes one small patch of agricultural land (AG) on the downstream end.

Off-Haul Canyon: The upper reaches of Off-Haul Canyon drainage contain a mixture of coastal sage scrub (CSS) and alluvial scrub (AS). Lower areas, in the vicinity of State Route 126, are dominated by agricultural land (AG).

Humble Canyon: The habitat types found in the upper reaches of the Humble Canyon watershed consist primarily of mixed chaparral (MC), grassland (G), and alluvial scrub (AS). The lower portions of the watershed contain a mixture of alluvial scrub, live oak woodland (LOW), coastal sage scrub (CSS) and, in the area directly adjacent to the Santa Clara River, Southern Willow Scrub (SWS). San Fernando Valley spineflower populations are also present within this watershed.

Unnamed Drainages (2): These two adjacent unnamed drainages are located between Long and Humble canyons. They are dominated by coastal sage scrub (CSS) with pockets of mixed chaparral (MC) sparsely interspersed. At the canyon mouths, along the south bank of the Santa Clara River, live oak woodland (LOW) and great basin scrub (GBS) are also present.

Ayres Canyon: This stream is lined with southern willow scrub (SWS) and alluvial scrub (AS), with some live oak woodland (LOW) present along the south bank. Habitat types within this watershed are dominated by coastal sage scrub (CSS) and grassland (G).

Lion Canyon: The upper reaches of the Lion Canyon watershed, which contains several branches, contains mostly mixed chaparral (MC) and coastal sage scrub (CSS). Along the channel, alluvial scrub (AS), live oak woodland (LOW), grassland (G), scalebroom scrub (SS), and chamise chaparral (CC) are present. The two easternmost branches of this drainage also contain great basin scrub (GBS), which is absent from the watershed of the western branch.

Middle Canyon: This watershed is dominated by coastal sage scrub (CSS), with small pockets of mixed chaparral (MC) and grassland (G). The stream channel flows through grassland, agricultural areas (AG), alluvial scrub (AS), and live oak woodland (LOW). A freshwater marsh is present at the Santa Clara River confluence. San Fernando Valley spineflower populations are also present within this watershed.

Exxon Canyon: This drainage is dominated by coastal sage scrub (CSS), live oak woodland (LOW), and mixed chaparral (MC). On both branches, alluvial scrub (AS) is also present along the stream channel.

Magic Mountain Canyon: The small segment of this stream that passes through the project area is surrounded by coastal sage scrub (CSS) and great basin scrub (GBS), with one pocket of mixed chaparral (MC) and one pocket of agricultural land (AG).

Dead-End Canyon: This watershed consists almost exclusively of coastal sage scrub (CSS), although isolated pockets of grassland (G), elderberry scrub (ES), mixed chaparral (MC), and live oak woodland (LOW) are present as well.

3.7 SANTA CLARA RIVER

This description of the hydrologic characteristics of the Santa Clara River is derived from the Draft Additional Analysis, Vol. 1, April 2001, Section 2.3-4, prepared for Los Angeles County Department of Regional Planning (Impact Sciences, 2002).

3.7.1 Watershed Description and Characteristics

The Santa Clara River (SCR) is the largest watercourse in the project area, and all other drainages within the project area are tributary to this river (Figure 3-1). The reach of the Santa Clara River within the Specific Plan area has year-round flows created by tertiary treated effluent discharges from two upstream water reclamation plants operated by the Sanitation Districts of Los Angeles County, rising ground water, and from storm water runoff. Storm flows that occur during winter months due to storm water runoff, and these flows fluctuate significantly from year to year. During the summer months, short-term releases from Castaic Lake reach the river via Castaic Creek, which joins the river upstream of the Newhall Ranch project area.

The average discharges for floods of different return events (2-year, 5-year, 10-year, 20-year, 50-year, and 100-year) at the upstream and downstream ends of the project area are given in Table 3-5.

TABLE 3-5
EXISTING CONDITIONS: DISCHARGES IN SCR AT NEWHALL RANCH PROJECT AREA

Return Period	Offsite, Between Newhall Ranch Project Area and Castaic Creek	Downstream End of Newhall Ranch Project Area at Los Angeles County Line
2-Year	2,527 cfs	2,600 cfs
5-Year	8,232 cfs	8,480 cfs
10-Year	14,942 cfs	15,400 cfs
20-Year	24,157 cfs	24,900 cfs
50-Year	41,141 cfs	42,400 cfs
100-Year	58,207 cfs	60,000 cfs

3.7.2 River Characteristics

The area of ground surface covered by water in the Newhall Ranch project area between the Commerce Center Drive bridge and a point 4 miles east of the County line during different return events is shown in Table 3-6. This area increases as the discharge and associated water level increase. The width of the active river channel (area inundated by a two-year storm event) within the Newhall Ranch project area varies from 200 to 800 feet. During a 100-year storm event, the maximum width of the inundated river channel is 2,200 feet.

The average width of the low-flow channel during summer months is approximately 50 to 100 feet, with an average depth of about 1 foot. The low flow channel through the project area has a low to moderate sinuosity. Approximately half of this reach is contained within a single channel, while the remainder consists of braided channels and broad, shallow flows.

3.7.2.1 Water Velocity and Depth

Water velocity and depth along the river also increase with higher discharges (i.e., flows). An example of this relationship is provided in Table 3-7 for a location along the river in the Newhall Ranch project area (Figure 3-19). These data indicate that velocities, measured in fps, more than double from the 2-year to the 100-year storm event, while water depth increases three-fold. In contrast, discharge increases thirty-fold from the 2-year to the 100-year storm event.

TABLE 3-6
SCR EXISTING CONDITIONS: FLOODED AREA DURING DIFFERENT RETURN EVENTS

Return Period	Newhall Ranch Project Area, Between Commerce Center Drive and LA County Line	From County Line to Point 4 Miles Downstream in Ventura County
2-Year	246 acres	86 acres
5-Year	309 acres	131 acres
10-Year	361 acres	160 acres
20-Year	482 acres	198.5 acres
50-Year	664 acres	257 acres
100-Year	766 acres	298 acres

Velocity and water depth increases do not correspond to the discharge increases because the wide river channel allows flow to spread out as discharge volumes increase.

TABLE 3-7
EXAMPLE OF INCREASING DEPTH AND VELOCITY WITH DISCHARGE – EXISTING CONDITIONS AT THE COUNTY LINE

Return Event (Years)	Discharge (cfs)	Average Water Depth (ft)	Average Water Velocity (fps)
2	2,000	2.34	5.32
5	8,480	3.38	7.09
10	15,400	4.13	8.97
20	24,900	5.08	10.40
50	42,400	6.47	11.71
100	60,000	7.45	12.53

3.7.2.2 River Conditions

The difference in elevation between the channel bottom and the adjacent jurisdictional margins of the river varies greatly within the Newhall Ranch project area. This difference ranges from 9 to 20 feet, and is dependent upon the width of the river channel. For example, in wider portions of the river channel where flows spread out with low velocities, there is only a small elevation difference between the channel bottom and the adjacent jurisdictional boundary. Representative cross sections of the active channel illustrate the geometry, and are provided for the lower, middle, and upstream reaches of the river (Figures 3-20, 3-21, and 3-22). In contrast, the channel is often deep where it is narrower, creating a large elevation difference between the channel bottom and the jurisdictional boundary.

The existing river channel contains a variety of vegetation types. The active river channel is mostly barren due to annual scouring. However, vegetation types on the adjacent terraces vary based on elevation relative to the active channel bottom and the frequency of storm events. The following series of vegetation types occur along a vertical gradient from the channel bottom to the highest river terrace: emergent herbaceous, woody shrubs, and trees.

The substrate of the river channel (i.e., top layer of the river bottom) is primarily sand, which is actively eroded and deposited in flood events. Previous studies by the Los Angeles County Flood Control District have demonstrated that sediment deposition and scouring along the upper Santa Clara River are generally in equilibrium, and that there are no major trends of channel degradation or aggradation. However, some localized areas may experience either greater scouring or sand deposition.

3.7.3 Biological Characteristics

3.7.3.1 Existing Aquatic, Wetland, and Riparian Habitats Along the River

The Santa Clara River corridor in the Newhall Ranch project area supports three general categories of habitat:

- Aquatic habitats, consisting of flowing or ponded water
- Wetland habitats, consisting of emergent herbs rooted in ponded water or saturated soils along the margins of the flowing water
- Riparian habitat, consisting of woody vegetation along the margins of the active channel and adjacent terraces

The key characteristics of the dominant aquatic, wetland, and riparian habitats in the Santa Clara River corridor in the Newhall Ranch project area (Commerce Center Drive bridge site to the County line) are summarized in Table 3-8. This table does not include upland habitats, or disturbed or cultivated habitats in the river corridor.

The density, biomass, and location of the vegetation in relation to the channel bottom are directly dependent upon the frequency of disturbance by flood flows. Successional mulefat scrub (SMFS) occupies the active channel and is disturbed annually by flows. This habitat also includes all aquatic features such as pools and flowing water, as well as most of the emergent wetlands in the river corridor because of the presence of water. In contrast, willow woodland and cottonwood-willow woodland is located above the active river channel and is

only flooded during infrequent storm events, which allows large trees to become established between events.

TABLE 3-8
SUMMARY OF DOMINANT WETLAND AND RIPARIAN HABITAT TYPES IN THE RIVER AT THE NEWHALL RANCH PROJECT AREA

Habitat	Dominant Species	Structure	Location in the River	Height Above Channel Bottom (ft)
Alluvial scrub	Sagebrush and scalebroom	Open, sparse mixture of shrubs	Upper dry terraces; old braided channels	8
Arrow weed scrub	Arrow weed	Dense monoculture	Upper terraces	8
Cottonwood willow forest	Fremont cottonwood and red willow	Mature woodland with large overstory trees and dense understory	Upper terraces, near or at upland boundary	9.5
Mulefat scrub; contains some wetland areas	Mulefat, giant reed, narrow-leaf willow	Moderately dense shrubs, 6 to 10 feet in height; patches of emergent wetlands	Terrace adjacent to active channel	5.5
Successional mule fat scrub (includes aquatic and wetland habitats)	Mulefat, giant reed, narrow-leaf willow	Mostly barren with scattered small shrubs; flowing water; pools; emergent wetlands	Active channel that is continually disturbed by flows	1.5
Willow woodland	Red and arroyo willow, Fremont cottonwood	Mature woodland with large overstory trees and dense understory	Upper terraces, near or at upland boundary	9
Willow scrub	Arroyo willow	Dense willow plants, 10 to 12 feet in height	Mid-level terraces	6.5

Mule Fat Scrub (MFS): Mule fat scrub (previously described) is typically a mature riparian habitat dominated by mule fat shrubs (*Baccharis salicifolia*). Co-dominant plant species include narrow-leaved willow (*Salix exigua*), giant cane (*Arundo donax*), and some tamarisk (*Tamarix* sp.). This habitat type is found along the Santa Clara River on upper portions of the terraces and on some levees on the ranch property.

Successional Mule Fat Scrub (SMFS): A subclass of mule fat scrub was used to denote the development of this plant community along the active channel of the Santa Clara River. Successional mule fat scrub (SMFS) denotes a young, successional community dominated by young saplings of predominantly mule fat and narrow-leaved willow. This subclass is found

within the low flow (active) channel of the Santa Clara River on sand bars where frequent scouring by floods prevents it from fully developing into mature mule fat scrub.

The Santa Clara River characteristics provide year-round and seasonal aquatic habitats, as described in Table 3-9. All aquatic habitats are subject to periodic disturbances from winter flood flows. These flows inundate areas that are dry most of the year. They also carry and deposit sediments, seeds, and organic debris (e.g., stems, downed trees).

New sandbars are formed and old ones are destroyed. Stands of vegetation are eroded by high flows, and new areas are created where vegetation becomes established by seeds or buried stems. Flows can change the alignment of the low flow channel, the number and location of pools, and the depth of pools. In years with low winter flows, there may be very little change in the aquatic habitats of the river. In such years, wetland vegetation along the margins of the low flow channel and pools would increase. In high flow years, this vegetation would be removed, but would become re-established during the spring and summer due to natural colonization processes. As can be seen, the aquatic habitats of the river are in a constant state of creation, development, disturbance, and destruction. The diversity of habitat conditions in the river at any one time supports a variety of aquatic invertebrates, aquatic plants, and fish.

The abundance and variety of riparian and wetland habitats in the river corridor that support sensitive habitats and species are due largely to the natural dynamic riverine processes that occur unimpeded in the project area. The continual creation and destruction of habitats due to flooding and drought periods provides a mosaic of different types and ages of habitats. This mosaic is a key element in sustaining the habitat of sensitive species.

TABLE 3-9
CHANNEL CHARACTERISTICS OF THE SANTA CLARA RIVER AT THE NEWHALL RANCH PROJECT AREA

Channel Feature	Description/Characteristics	Source of Water	Frequency of Disturbance
Low-flow channel	Highly variable depth, dimensions, and locations. Emergent wetlands form along edges each spring and summer. Mostly sandy substrate with unstable banks. Mostly exposed runs and scattered riffles. Shallow depth (<1 ft).	Year-round treated effluent and winter runoff.	Annual disturbance from flood-related flows. Daily changes in water depth and flow due to variable effluent flows.
On-channel pools	Small scattered pools (less than 20 ft long) that form in the main channel in response to debris dams or sandbars. Emergent wetlands and young woody willows along margins. Shallow depths (<1 ft).	Year-round treated effluent and winter runoff.	Annual disturbance from flood-related flows. Daily changes in water depth and flow due to variable effluent flows.
Off-channel pools	Highly variable size. Generally < 2 ft depth. Vegetation along the margin may be dense emergent or riparian shrubs, or are absent in some areas.	Groundwater seepage.	Inundation by flood flows every 1-2 years.
Road crossing ponds and plunge pools	Four at-grade river crossings create upstream ponds and downstream plunge pools with depths of 3 feet. Aquatic vegetation along the margins.	Year-round treated effluent and winter runoff.	Annual disturbance from flood-related flows. Crossings are re-built every year.
Winter secondary channels and overflow areas	Highly variable areas where winter flood flows occur when the low-flow channel is full. Ranging from discrete channels to sheet flow areas. Usually containing young mulefat scrub.	Winter flood related flows. Ephemeral aquatic features. May only persist for several days to weeks after a flood.	Inundation and scouring every 1-2 years.
Tributary channels	Highly variable channels that convey water from tributaries to the river channel. Usually small channels with ephemeral or slow moving water, except during the winter. Generally sparsely vegetated except for Potrero, San Martinez, and Salt Creek.	Winter flows, and occasional seepage flow from side canyons; ephemeral flows.	Disturbance each year from flood flows in the tributaries.

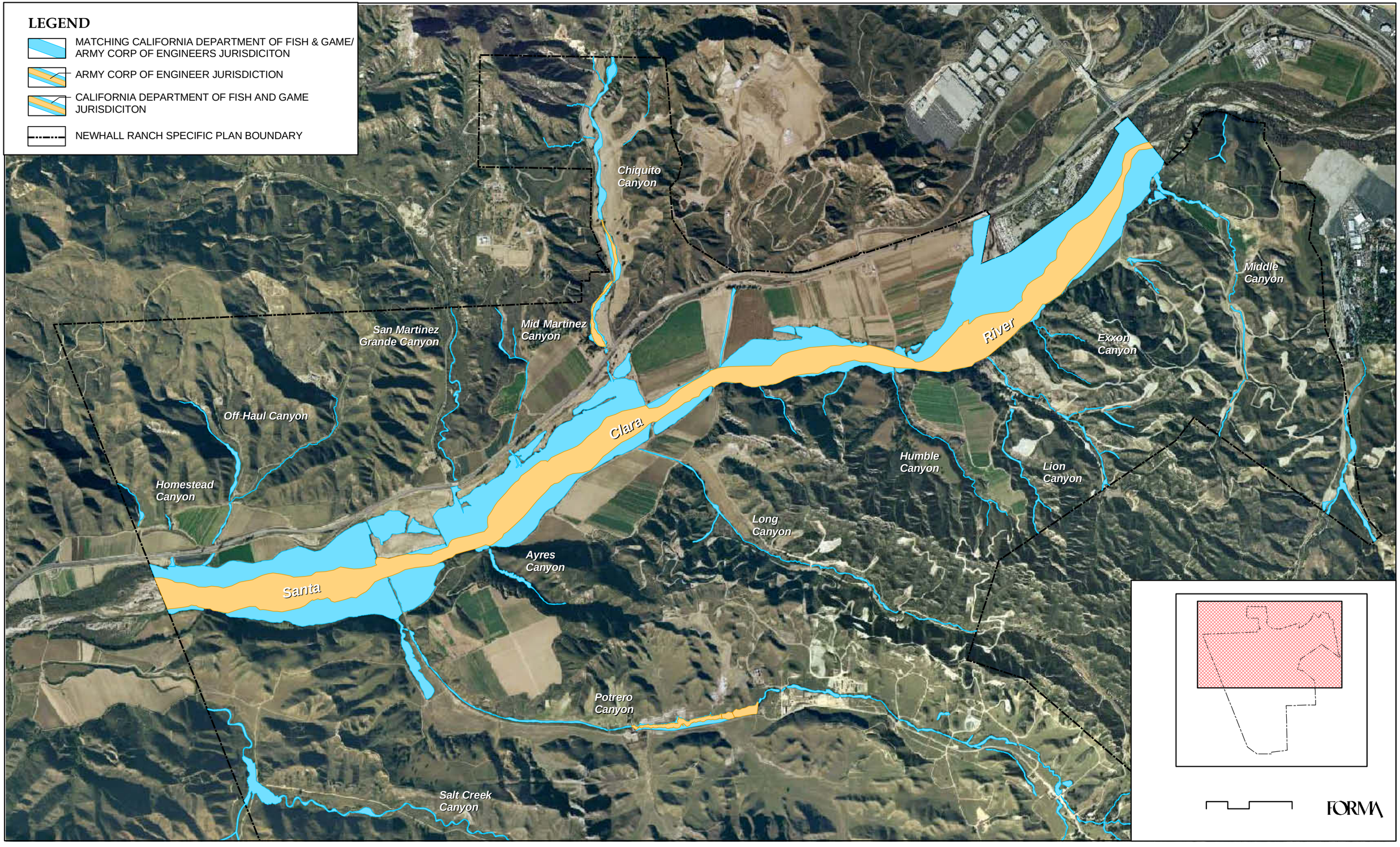


Figure 3-1 CALIFORNIA DEPARTMENT OF FISH AND GAME AND ARMY CORPS OF ENGINEERS JURISDICTION COMPARISON - EXTENT A

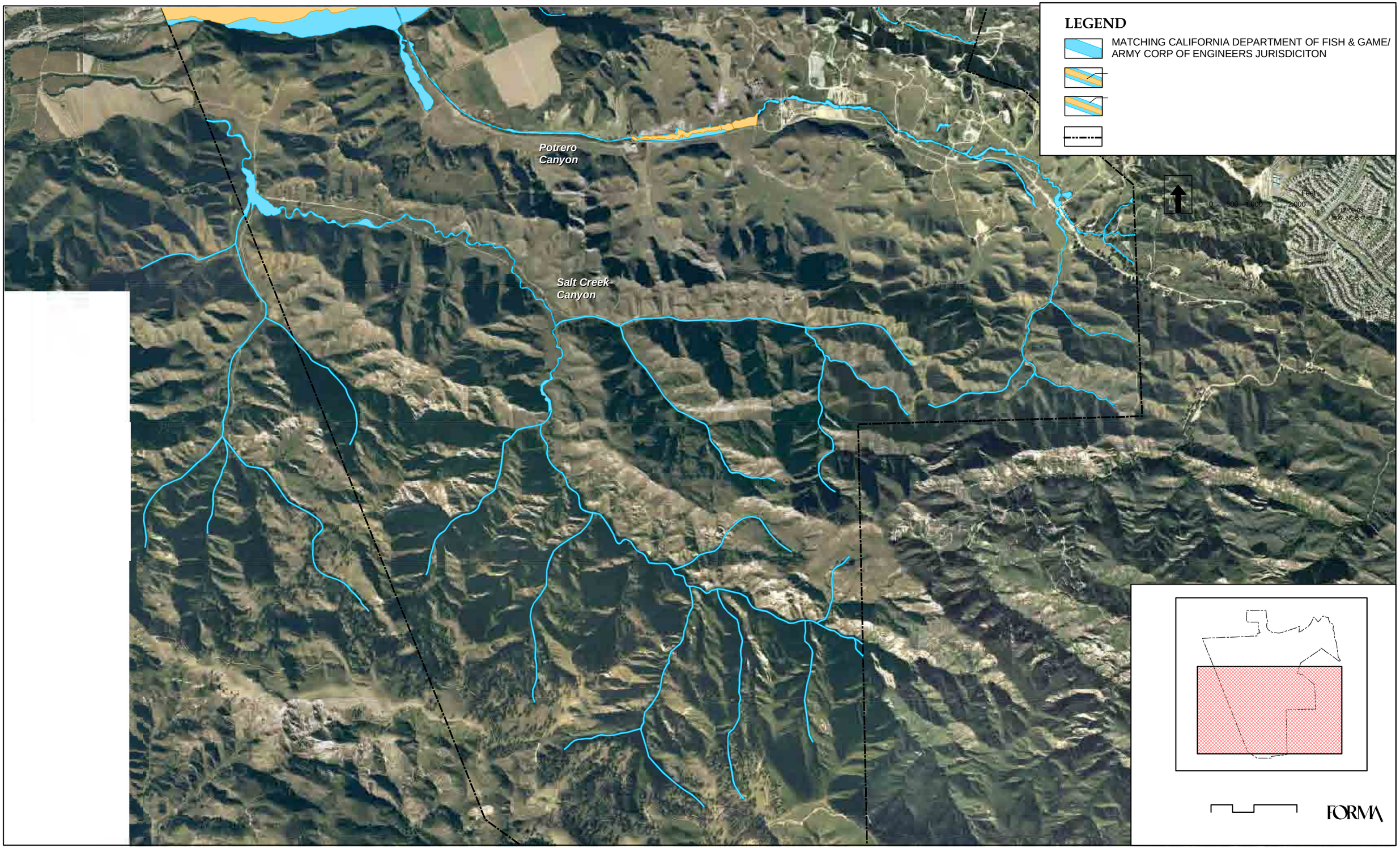


Figure 3-2 CALIFORNIA DEPARTMENT OF FISH AND GAME AND ARMY CORPS OF ENGINEERS JURISDICTION COMPARISON - EXTENT B

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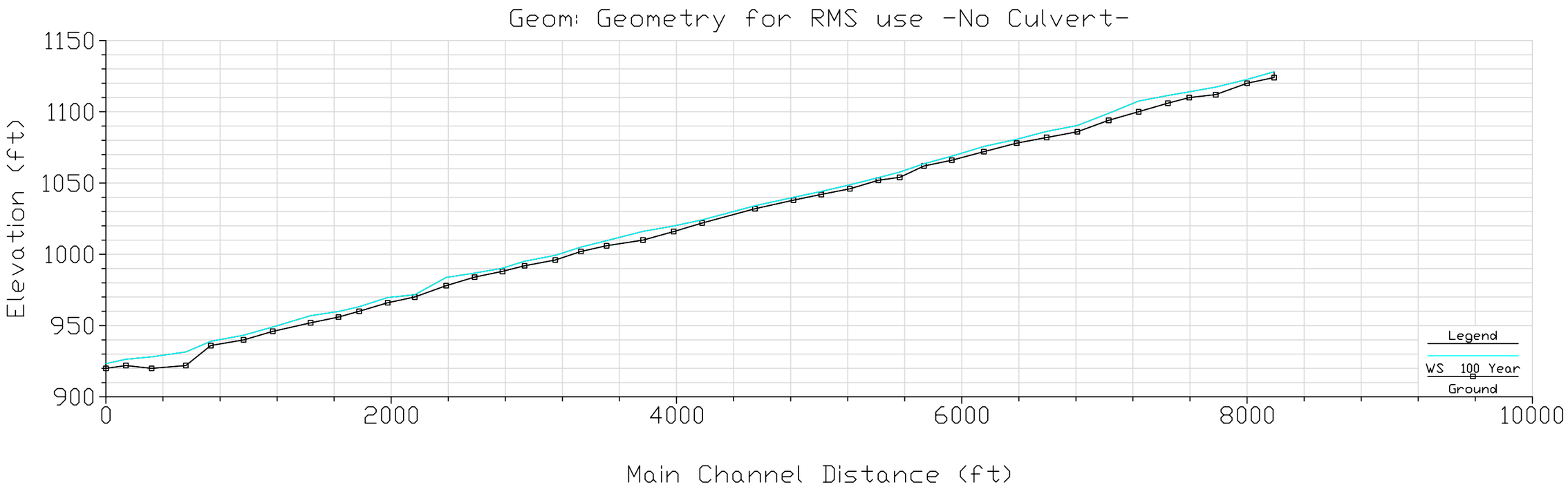

Figure 3-3

STREAM PROFILE SHOWING EXISTING CONDITIONS IN CHIQUITO CANYON

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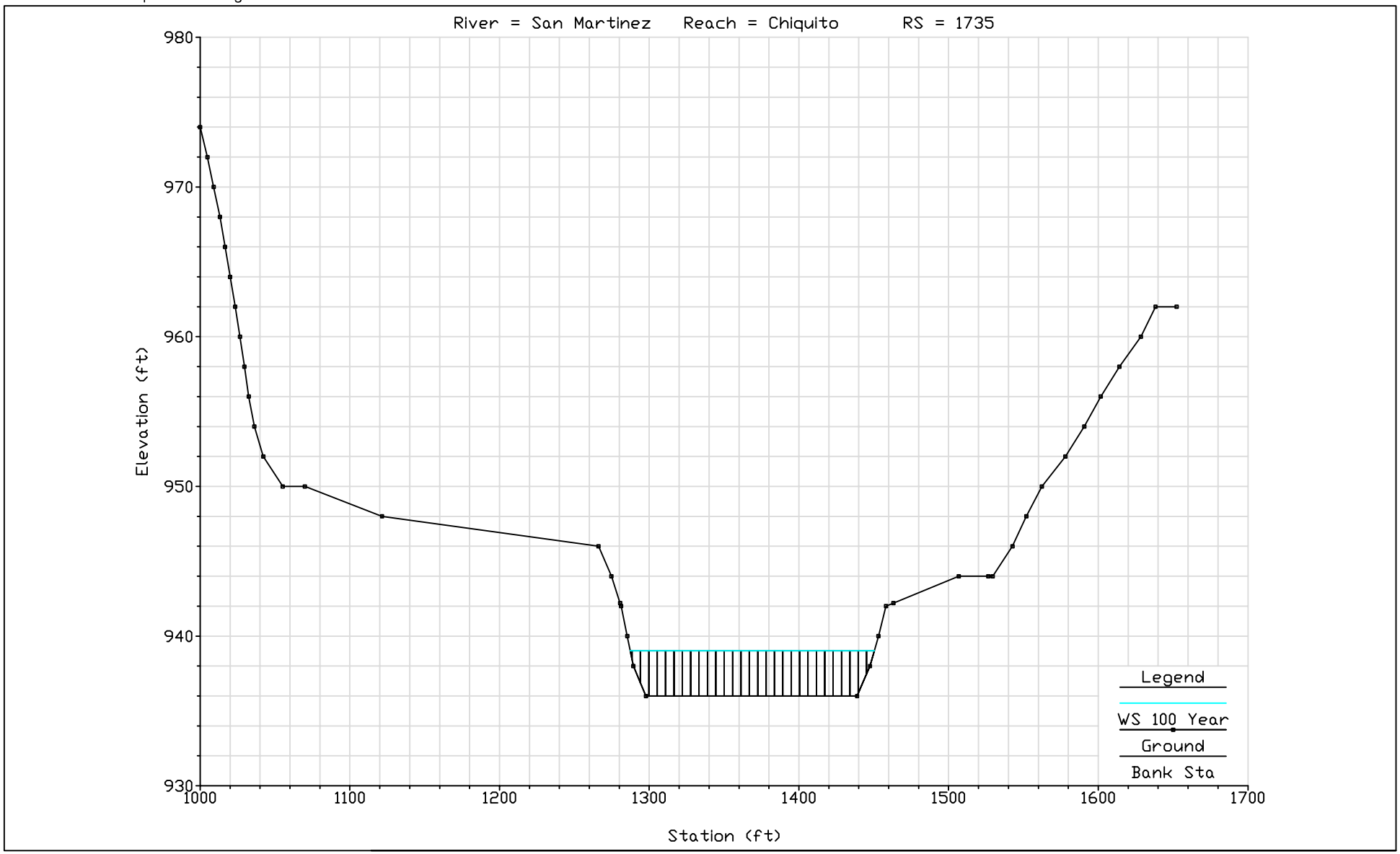

Figure 3-4

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN CHIQUITO CANYON DOWNSTREAM STATION

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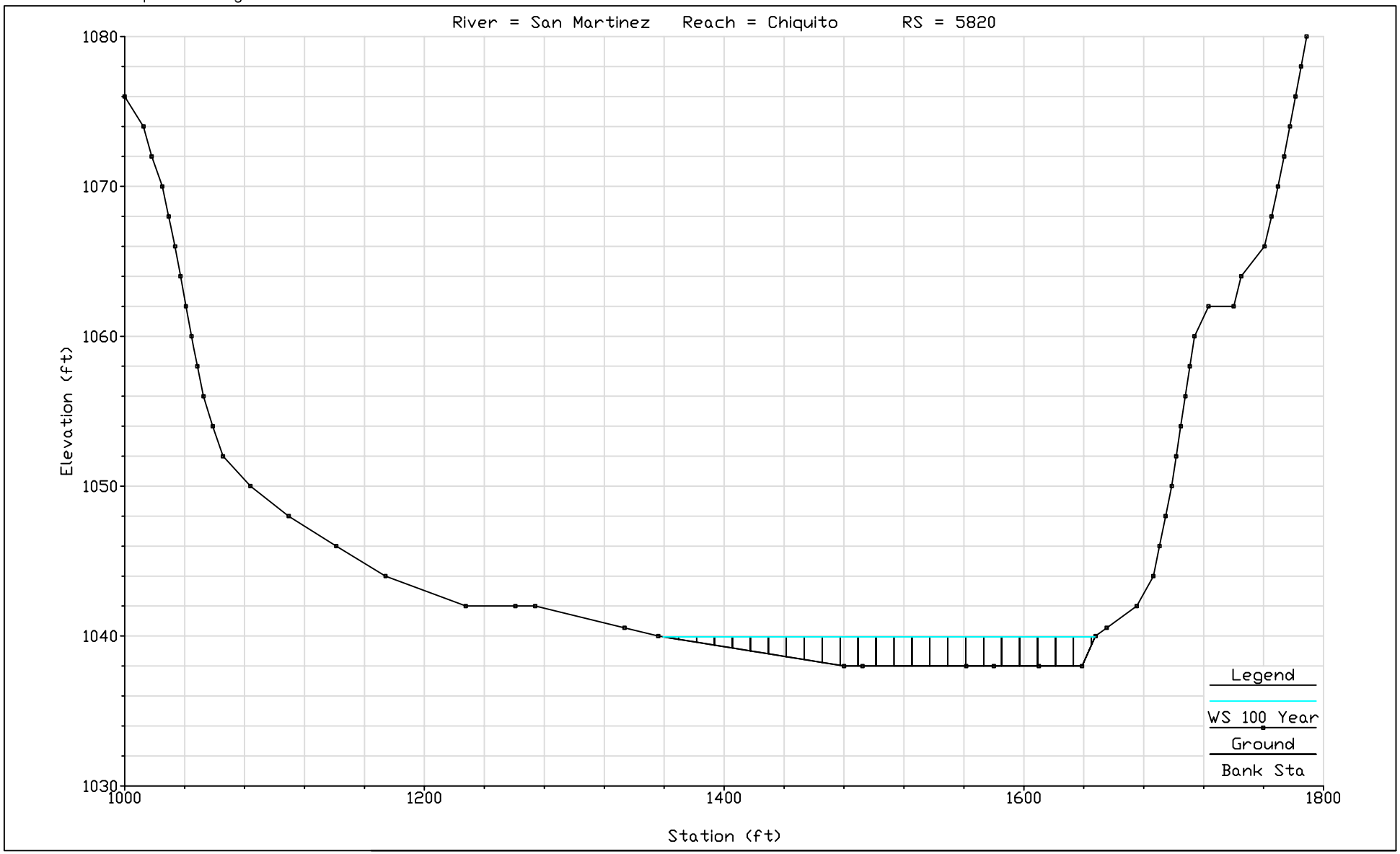

Figure 3-5

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN CHIQUITO CANYON MIDDLE STATION

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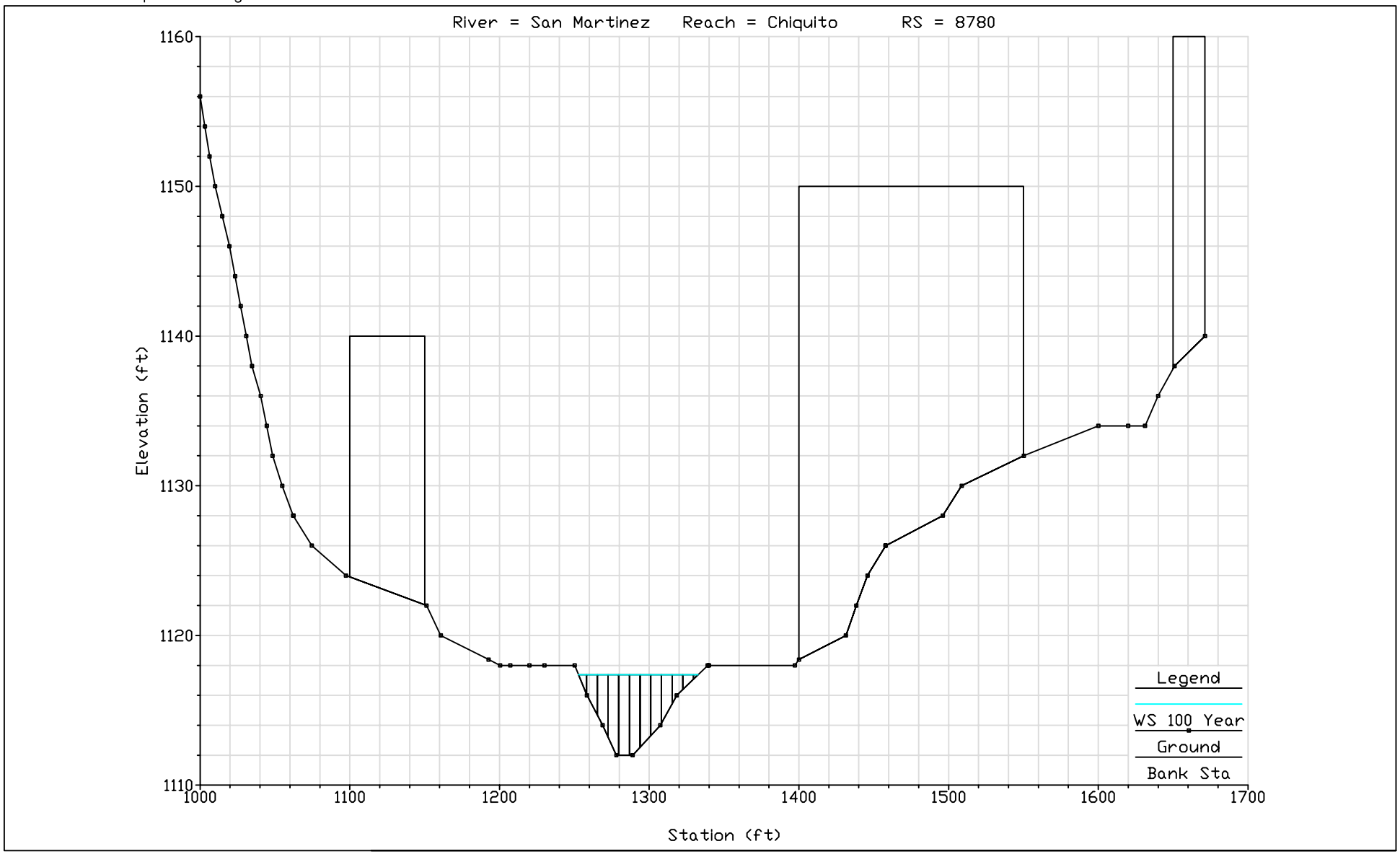

Figure 3-6

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN CHIQUITO CANYON UPSTREAM STATION

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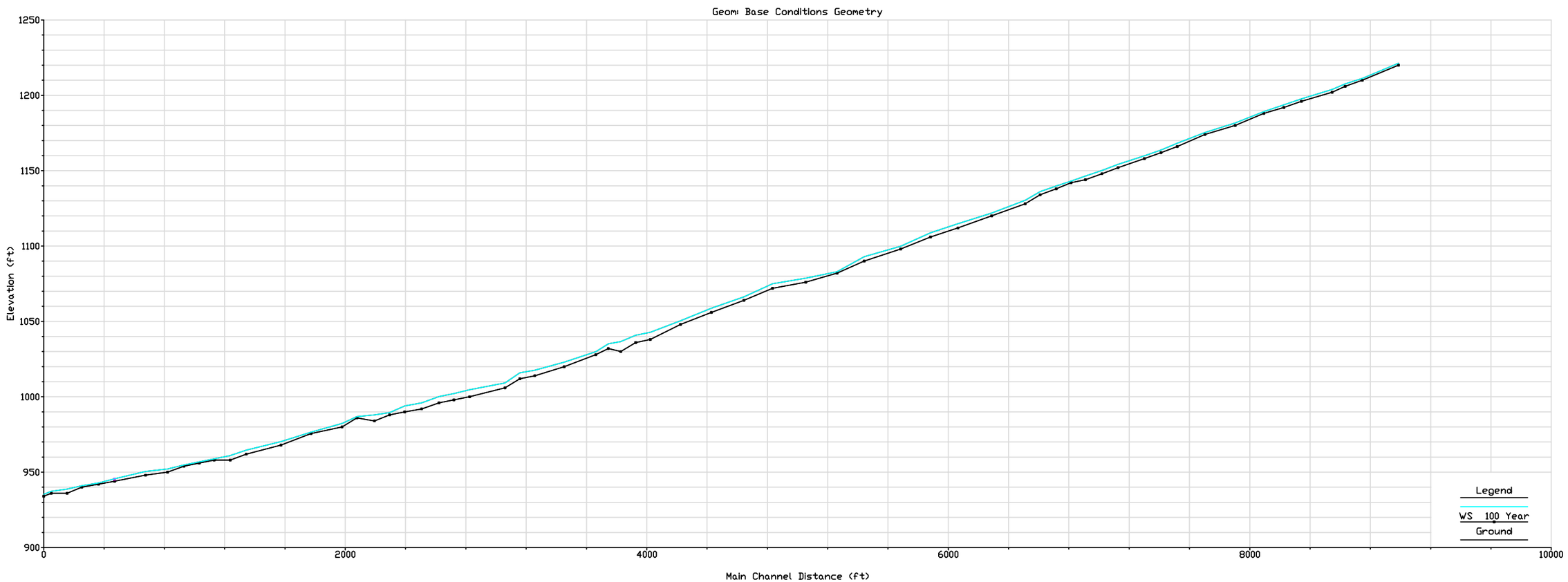

Figure 3-7

STREAM PROFILE SHOWING EXISTING CONDITIONS IN LONG CANYON

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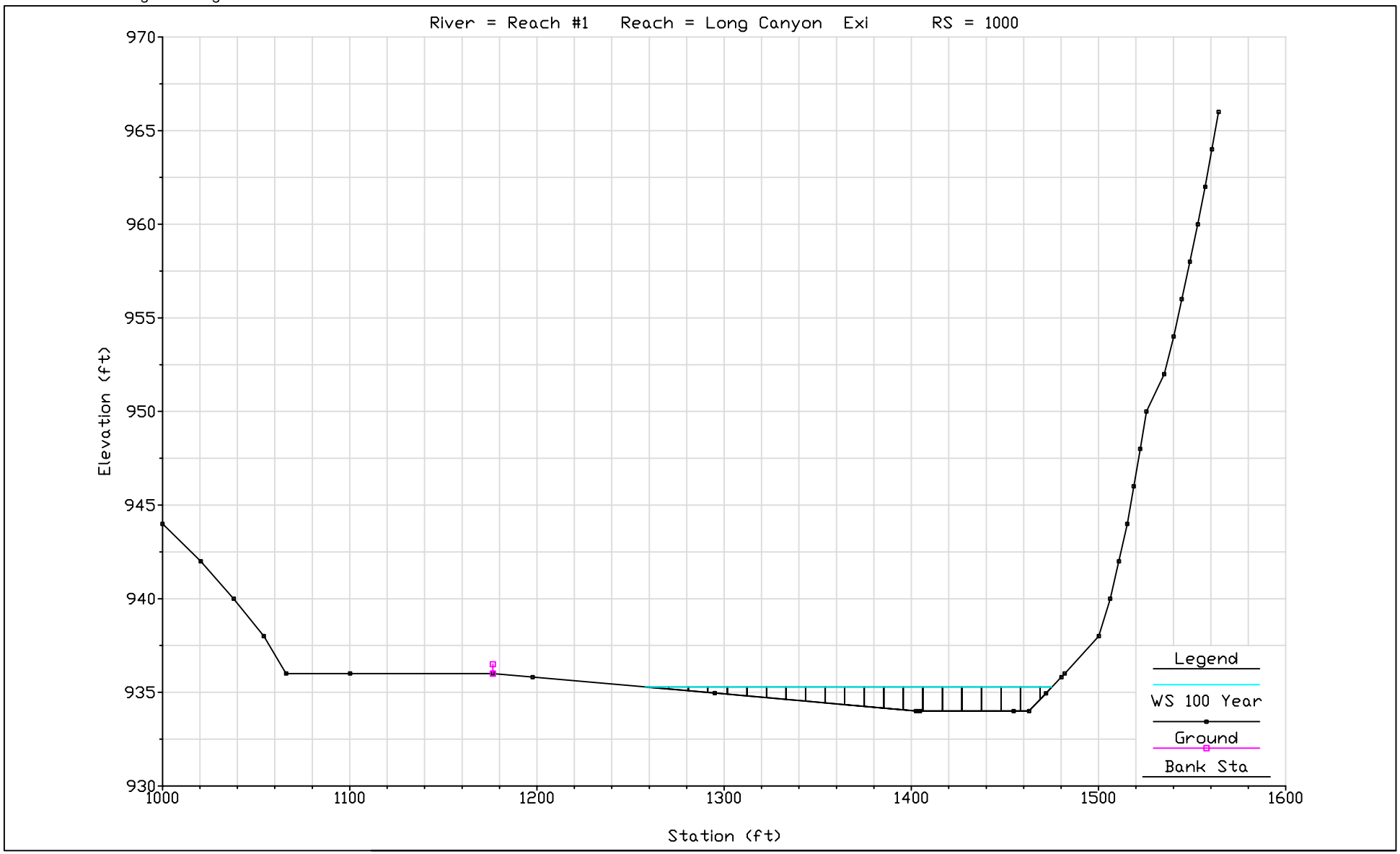


Figure 3-8

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN LONG CANYON DOWNSTREAM STATION

T:\Newhall\cad\Long 4600.dwg 12/12/03

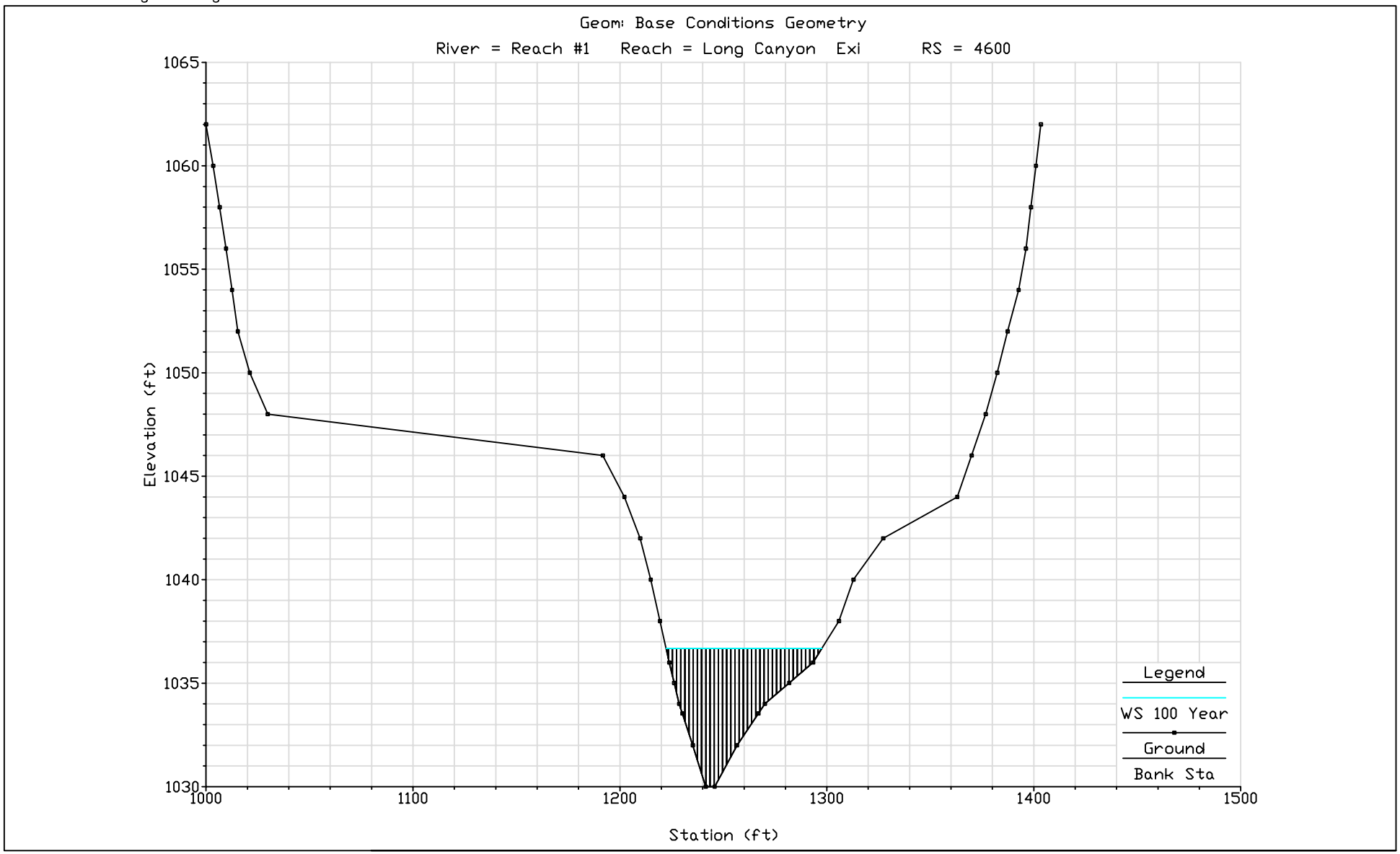


Figure 3-9

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN LONG CANYON MIDDLE STATION

T:\Newhall\cad\Long 9400.dwg 12/12/03

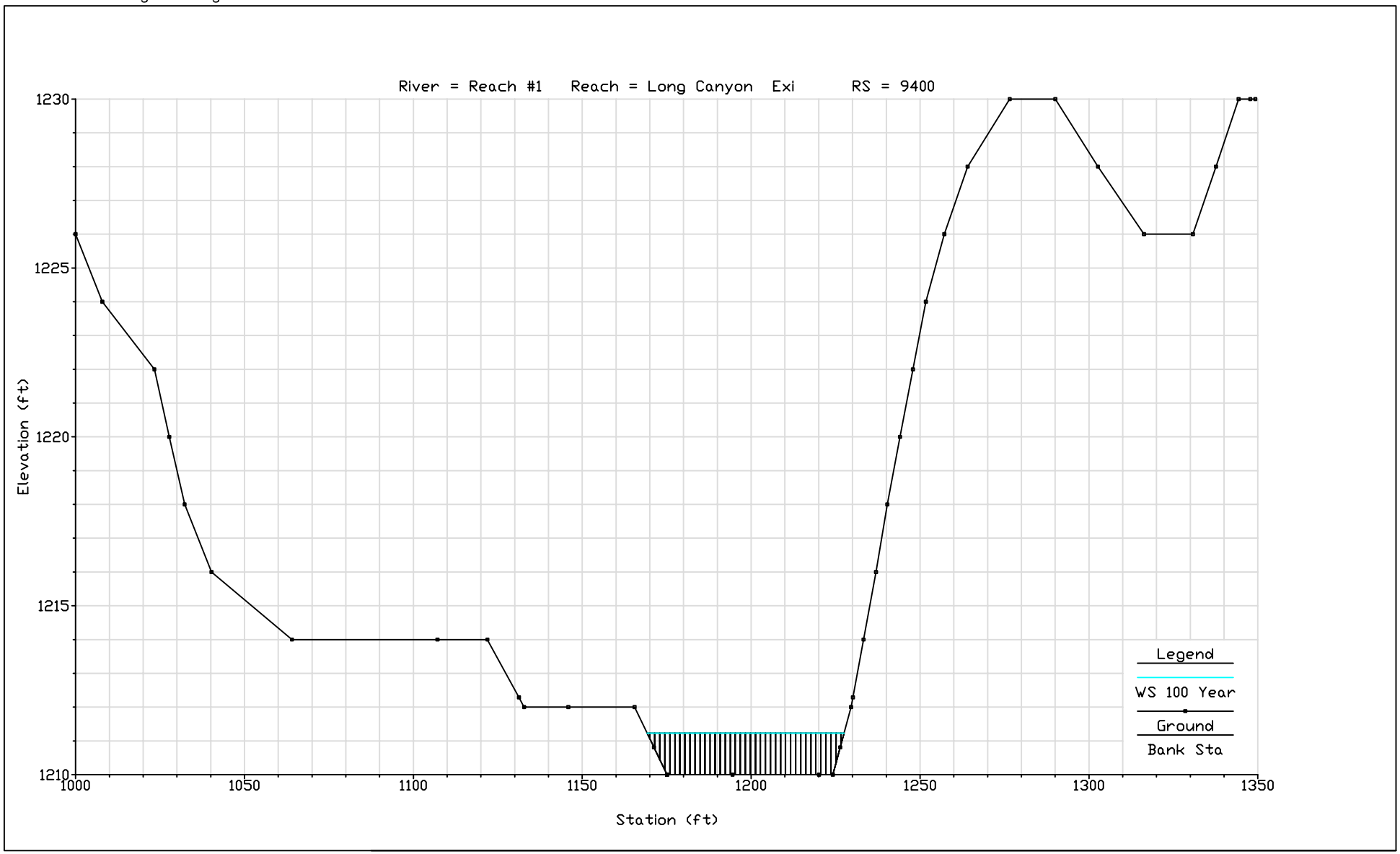


Figure 3-10

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC IN LONG CANYON UPSTREAM STATION

T:\Newhall\cad\Grande PF.dwg 12/12/03

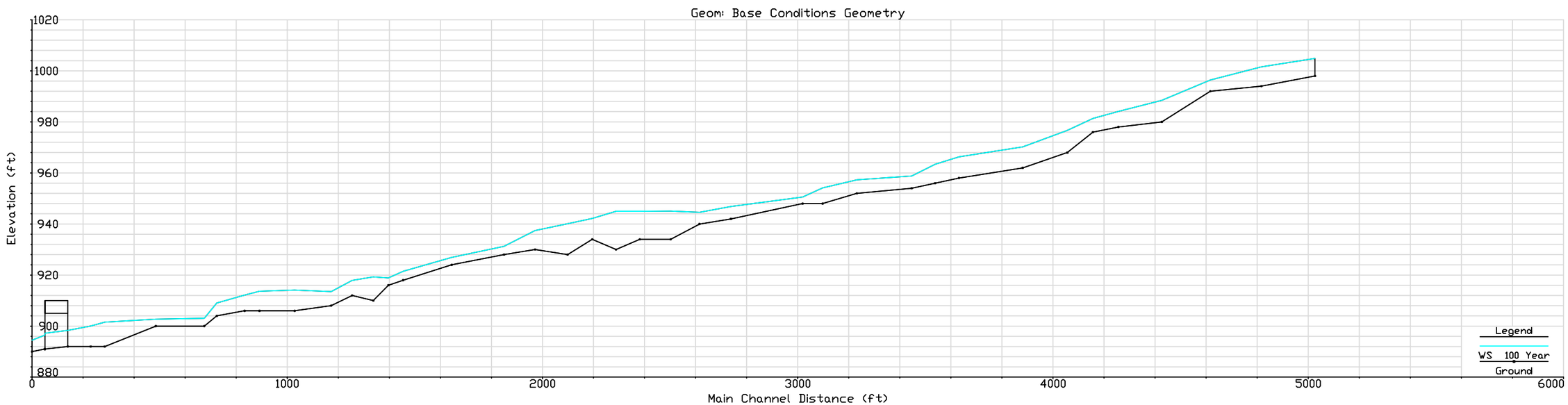


Figure 3-11

STREAM PROFILE SHOWING EXISTING CONDITIONS
IN SAN MARTINEZ GRANDE CANYON

T:\Newhall\cad\Grande 1485.dwg 12/12/03

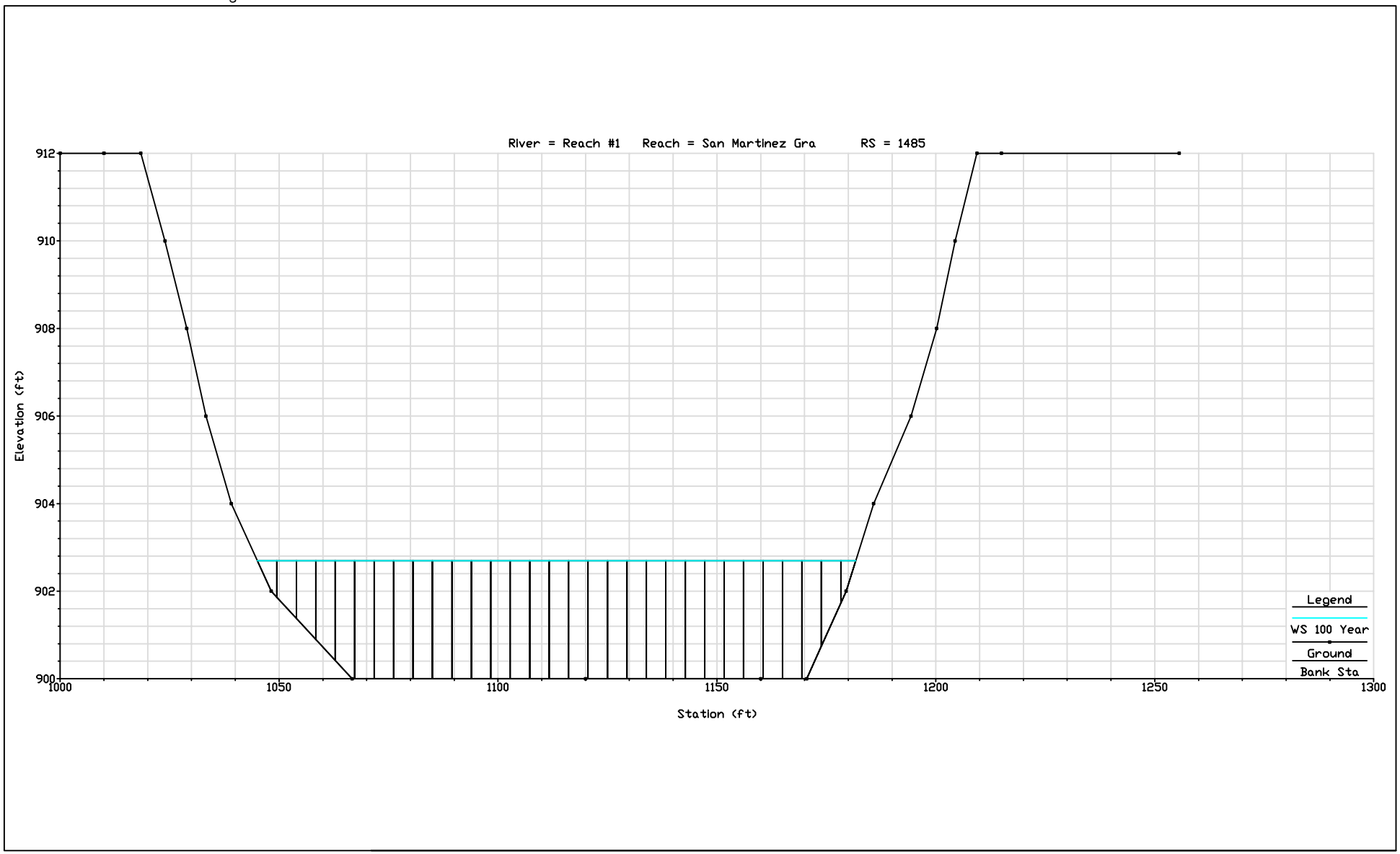


Figure 3-12

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN SAN MARTINEZ GRANDE CANYON DOWNSTREAM STATION

T:\Newhall\cad\Grande 2155.dwg 12/12/03

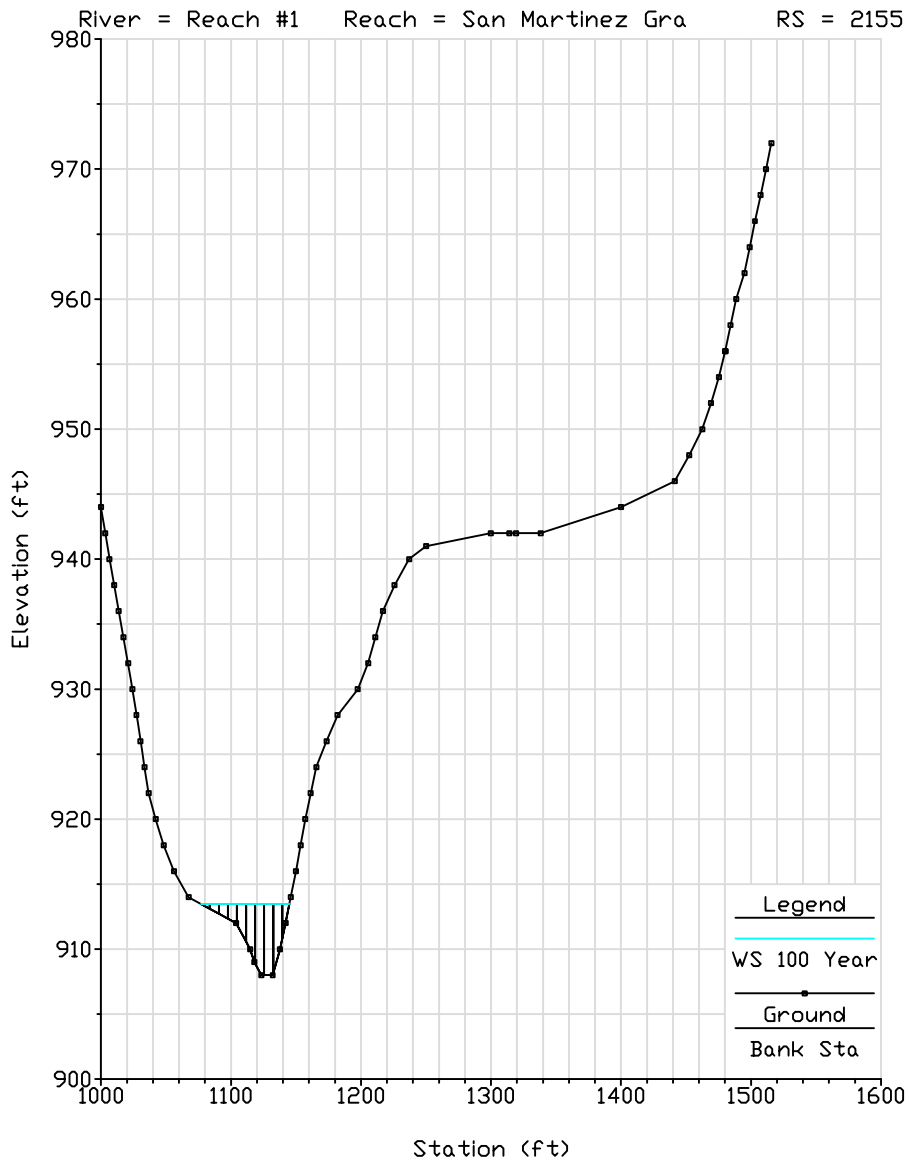


Figure 3-13

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN SAN MARTINEZ GRANDE CANYON MIDSTREAM STATION

T:\Newhall\cad\Grande 5850.dwg 12/12/03

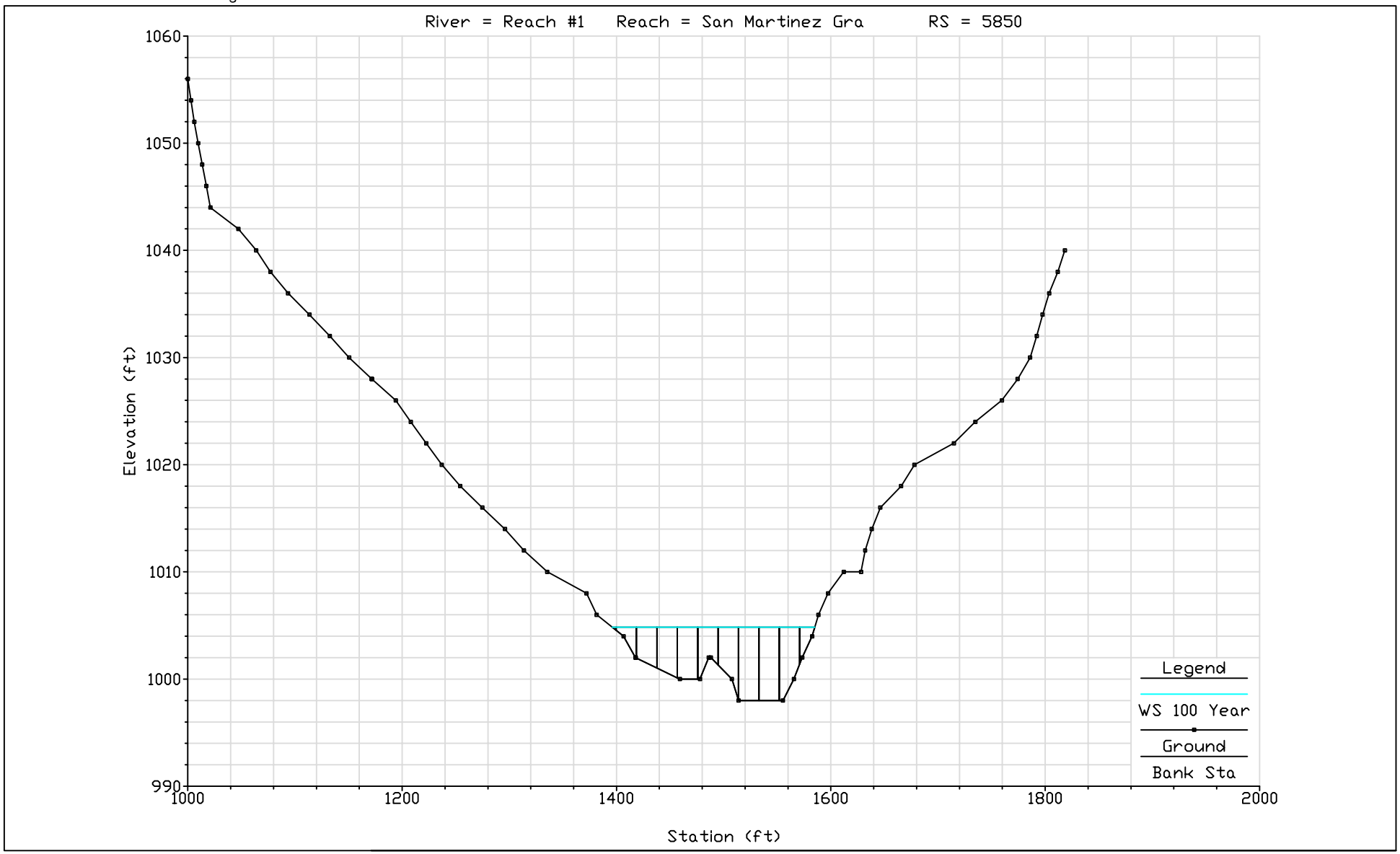


Figure 3-14

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN SAN MARTINEZ GRANDE CANYON UPSTREAM STATION

T:\Newhall\cad\Potrero PF.dwg 12/12/03

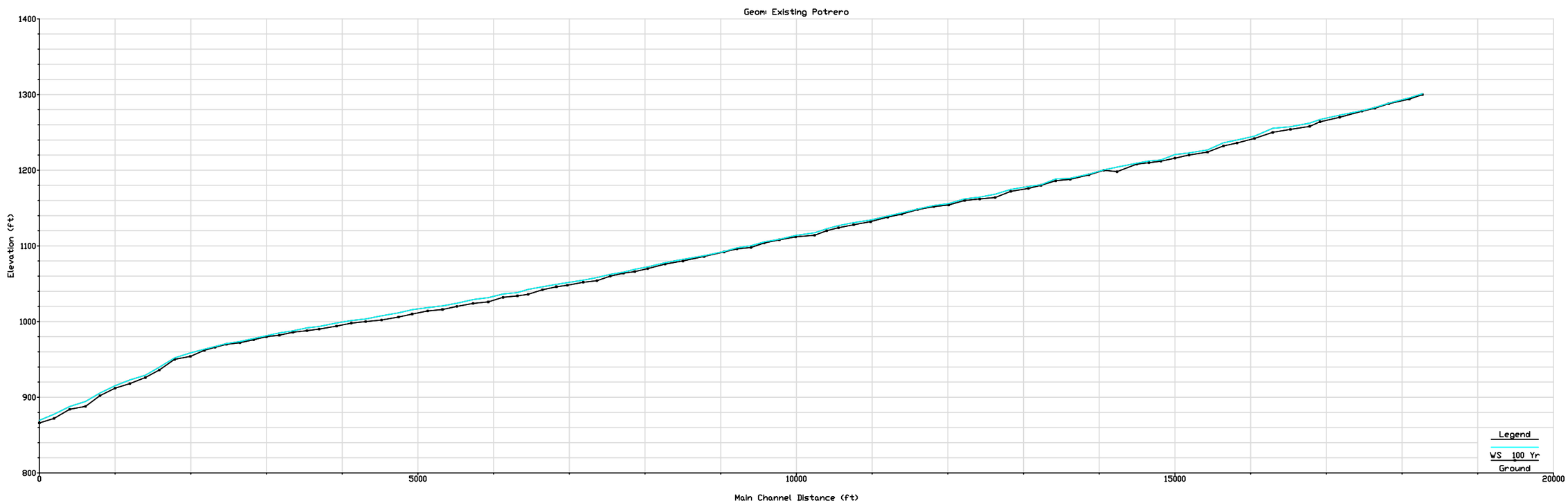


Figure 3-15

STREAM PROFILE SHOWING EXISTING CONDITIONS IN POTRERO CANYON

T:\Newhall\cad\Potrero 1800.dwg 12/12/03

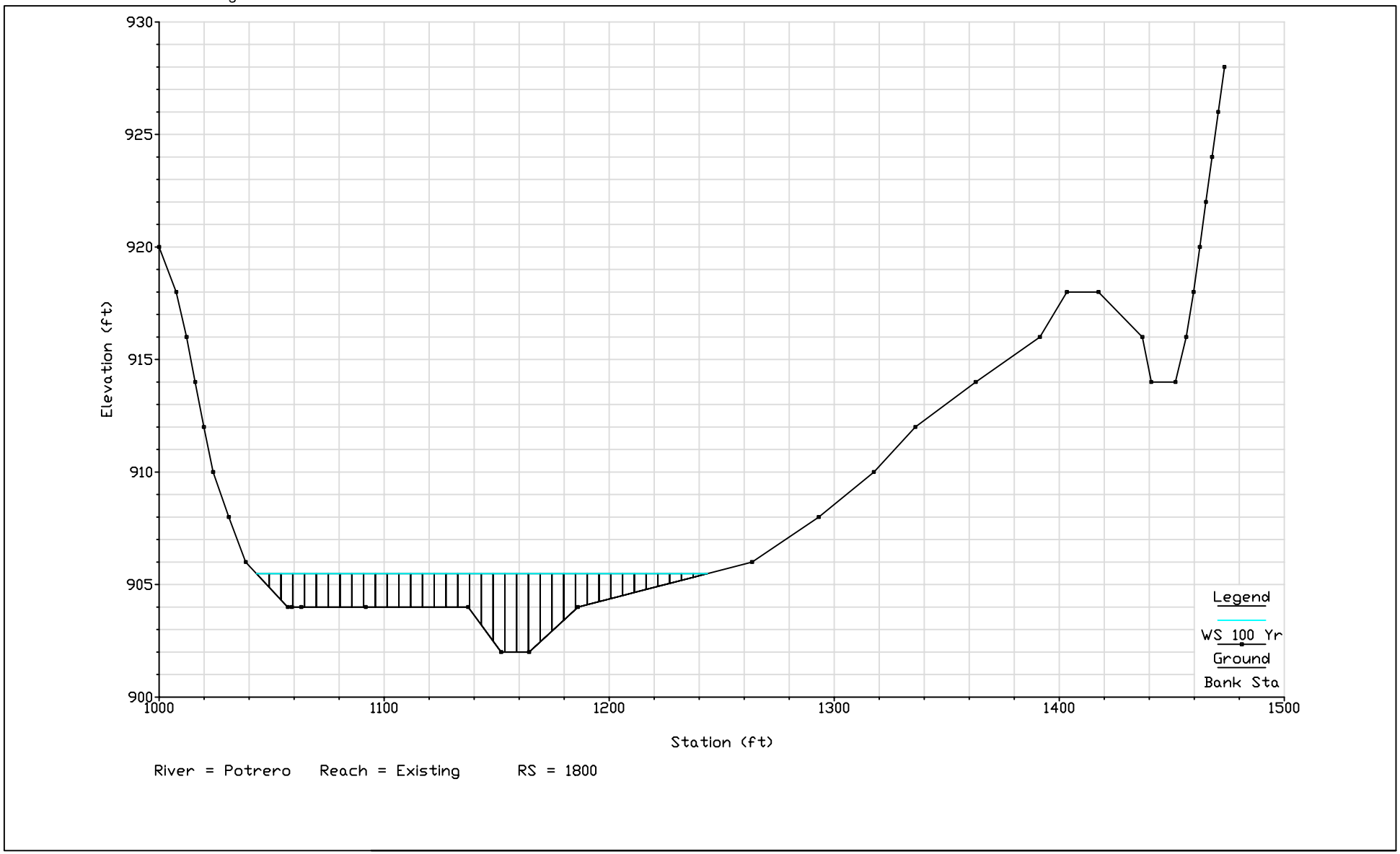


Figure 3-16

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN POTRERO CANYON DOWNSTREAM STATION

T:\Newhall\cad\Potrero 9780.dwg 12/12/03

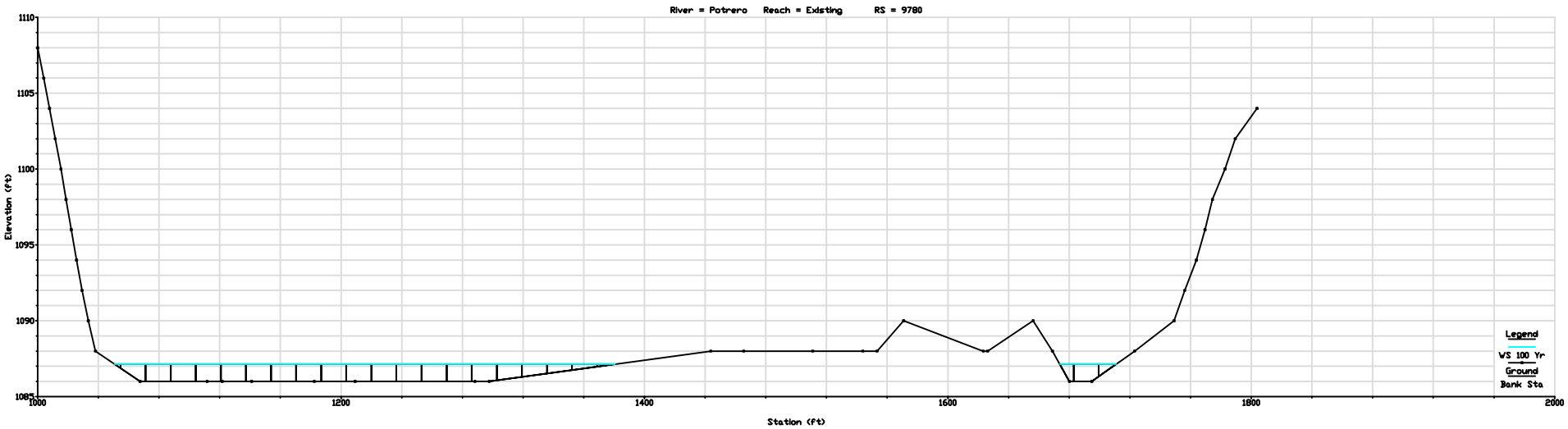


Figure 3-17

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN POTRERO CANYON MIDDLE STATION

T:\Newhall\cad\Potrero 17915.dwg 12/12/03

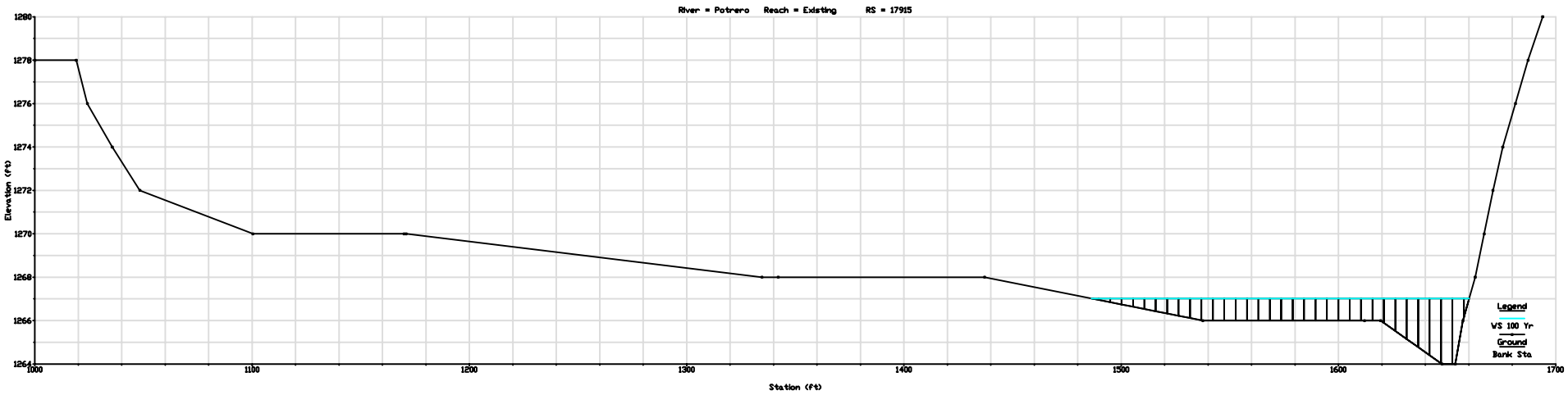


Figure 3-18

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN POTRERO CANYON UPSTREAM STATION

T:\Newhall\cad\Santa Clara River PF.dwg 12/12/03

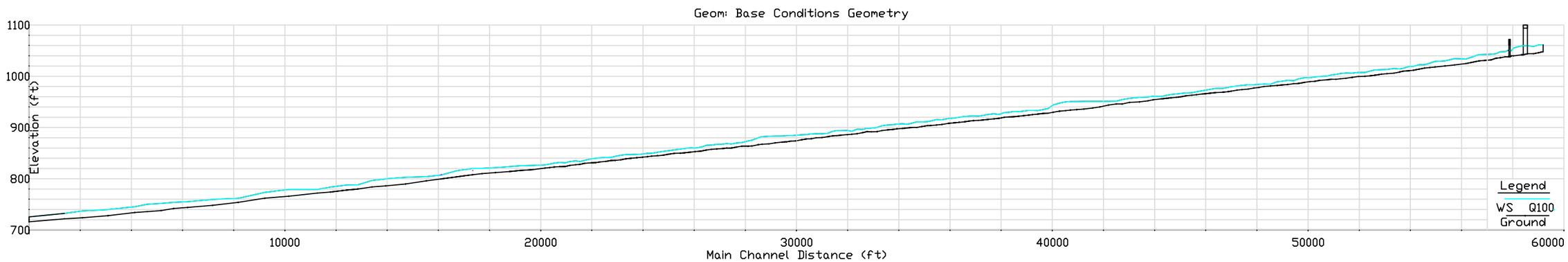


Figure 3-19

STREAM PROFILE SHOWING EXISTING CONDITIONS IN SANTA CLARA RIVER

T:\Newhall\cad\SCR 9220.dwg 12/12/03

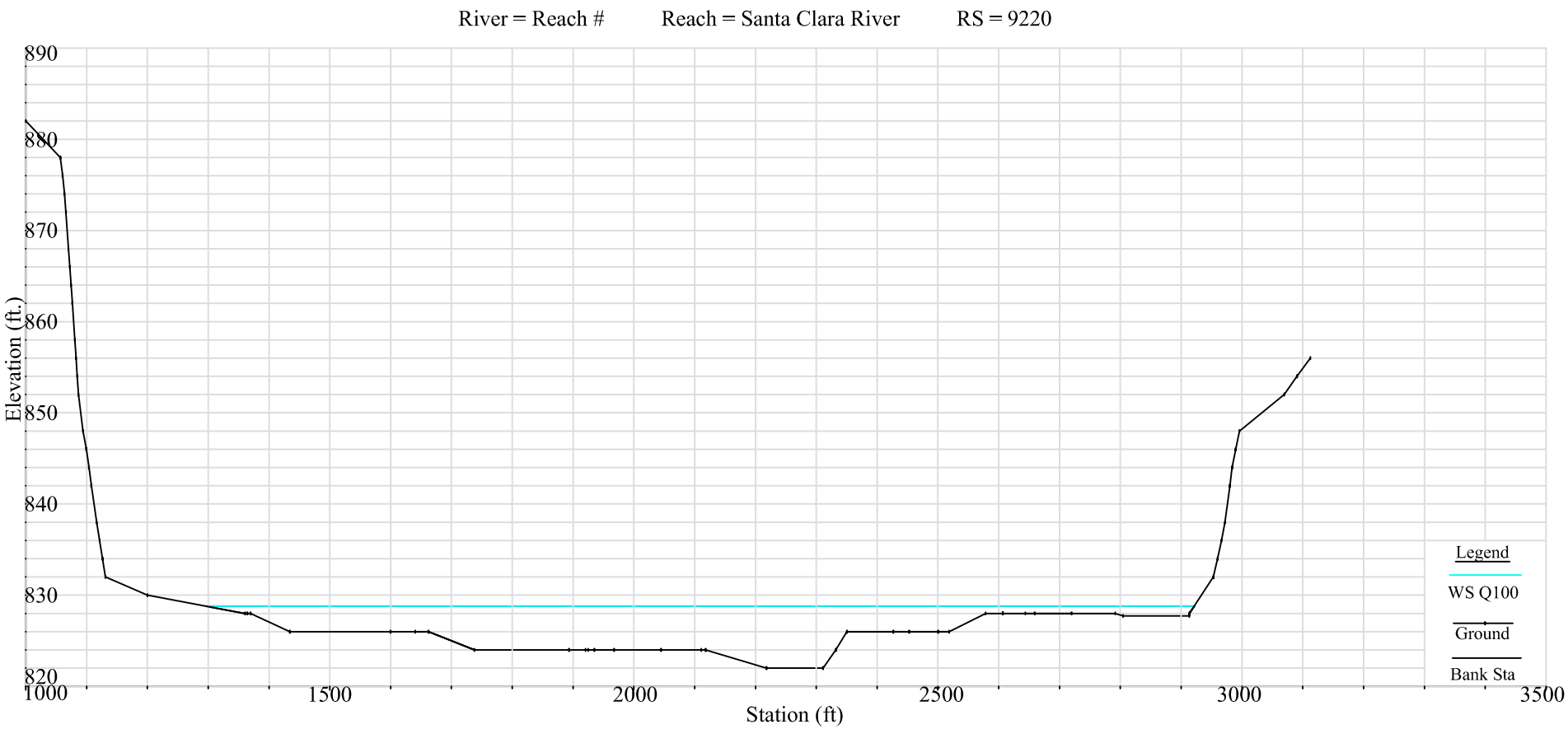


Figure 3-20

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN SANTA CLARA RIVER CANYON DOWNSTREAM STATION

T:\Newhall\cad\SCR 15335.dwg 12/12/03

River = Reach #1 Reach = Santa Clara River RS = 15335

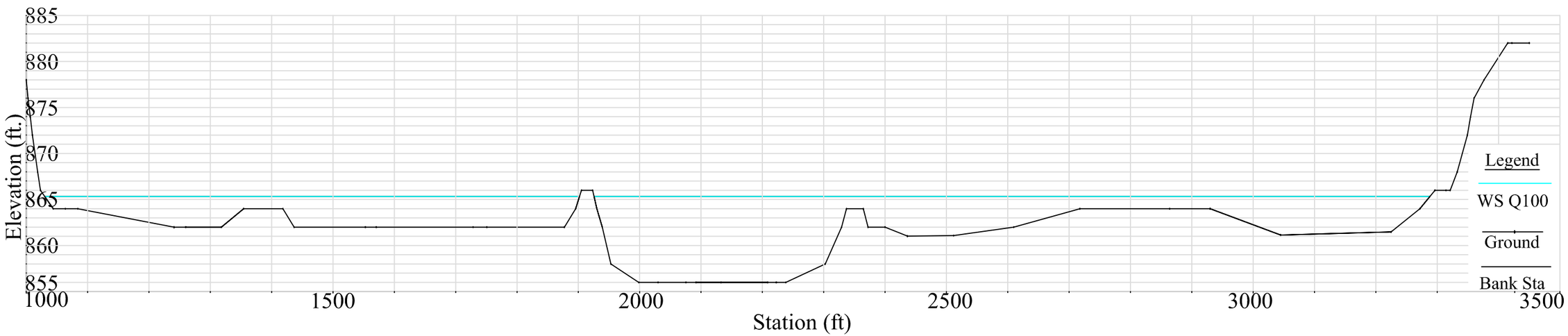


Figure 3-21

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN SANTA CLARA RIVER CANYON MIDDLE STATION

T:\Newhall\cad\SCR 45545.dwg 12/12/03

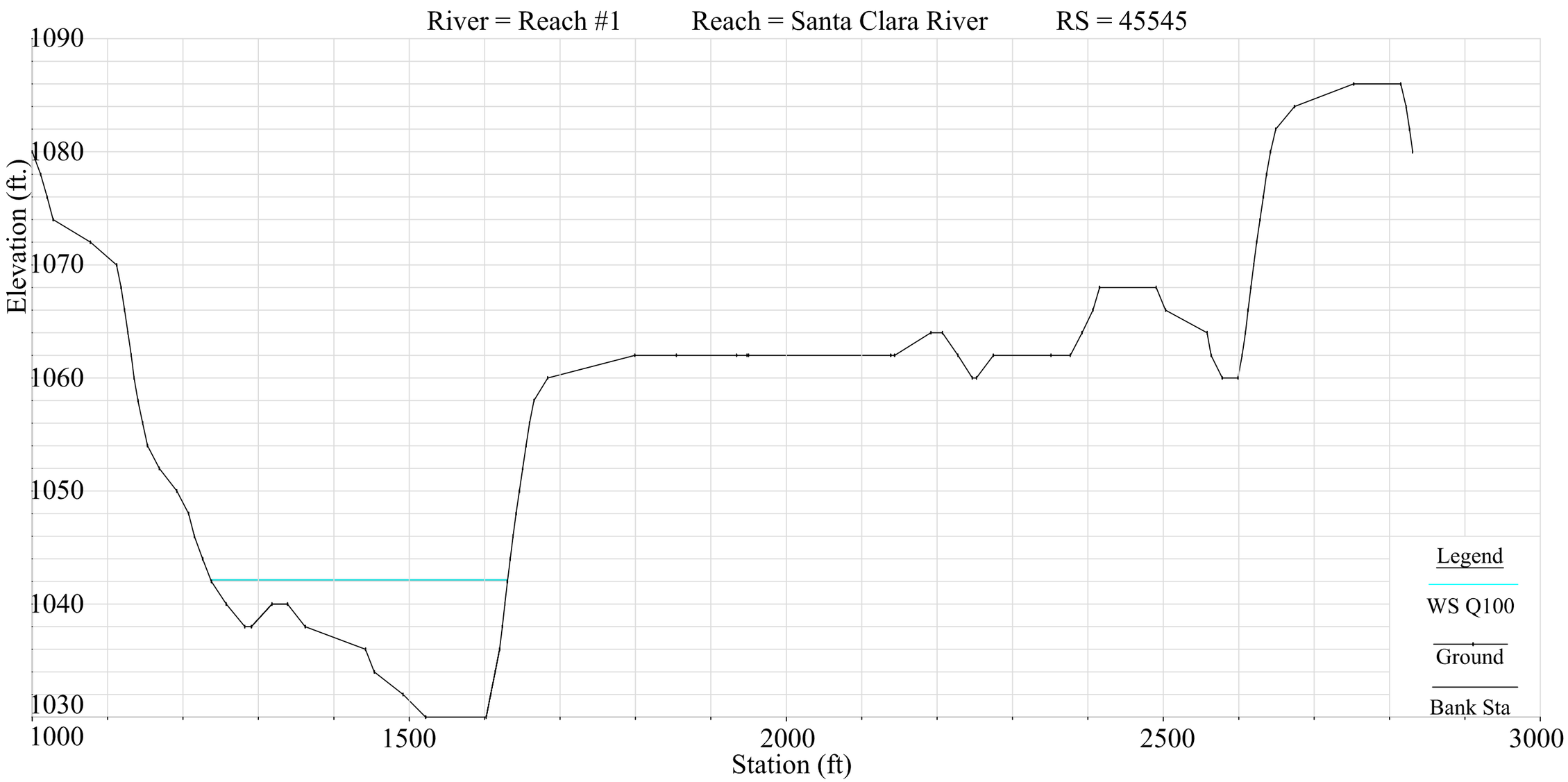


Figure 3-22

SPECIFIC CROSS SECTION SHOWING EXISTING GEOMORPHIC CONDITIONS IN SANTA CLARA RIVER CANYON UPSTREAM STATION

As stated earlier, this jurisdiction delineation has been derived from a process that included extensive coordination with representatives of the Corps, CDFG, USFWS, and other agencies through multiple field visits and planning meetings. Previous jurisdictional determinations by the Corps and CDFG formed the basis for the current delineation. Aerial photo interpretation used in conjunction with topographic data and GIS technology provided a means to update the delineation prior to field verification. The hydrologic/hydraulic modeling also provides the context for defining agency jurisdiction within each watershed evaluated.

Once the digital analysis was completed, field assessments were then used to verify the jurisdictional delineations derived from digital technology, and to gather additional locational data using GPS equipment. This allowed for further refinement of the jurisdictional areas under the purview of the Corps and CDFG. The Corps and CDFG jurisdictional areas by drainage are presented below in Tables 4-1 and 4-2.

As indicated on Figures 3-1 and 3-2, unless otherwise noted, Corps jurisdiction lies within the broader jurisdictional areas under CDFG purview. Hence, the total acreage that falls under Corps jurisdiction is less than that of CDFG. For the purposes of this delineation, it is assumed that on the small side drainages in each watershed evaluated, unless otherwise noted, the area contained within the jurisdictional area is the same for both agencies[1].

TABLE 4-1
CORPS OF ENGINEERS JURISDICTION BY DRAINAGE

Drainage	Total Jurisdictional Area
Chiquito Canyon	13.9 Acres
Long Canyon	5.7 Acres
San Martinez Grande Canyon	2.5 Acres
Potrero Canyon	36.7 Acres
Lion Canyon	6.8 Acres
Salt Creek	77.9 Acres
Santa Clara River	316.1 Acres
Other Drainages Within Project Area	33.3 Acres
Total	492.9 Acres

[1]Newhall Land's attorneys, Downey Brand LLP, believe that in some areas the CDFG asserts 1603 jurisdiction in areas beyond where the statute envisions jurisdiction, e.g., riparian areas contiguous to, but beyond, the bank and/or 100 year floodplain areas beyond the bank. This delineation broadly construed CDFG jurisdiction, and thus may, in the opinion of Newhall's attorneys, include some areas beyond the CDFG's jurisdiction.

TABLE 4-2
CALIFORNIA DEPARTMENT OF FISH AND GAME JURISDICTION BY DRAINAGE

Drainage	Total Jurisdictional Area
Chiquito Canyon	18.3 Acres
Long Canyon	5.7 Acres
San Martinez Grande Canyon	2.5 Acres
Potrero Canyon	41.8 Acres
Lion Canyon	6.8 Acres
Salt Creek	77.9 Acres
Santa Clara River	759.1 Acres
Other Drainages Within Project Area	33.3 Acres
Total	945.4 Acres

Dudek and Associates. 2002. 2002 Sensitive Plant Survey Results for Newhall Ranch Specific Plan Area. November 20, 2002.

Impact Sciences, Inc. 2002. Revised Draft Additional Analysis to the Newhall Ranch Specific Plan and Water Reclamation Plant Final Environmental Impact Report. November 2002.

U.S. Army Corps of Engineers (USACE). 2001. Final Summary Report: Guidelines for Jurisdictional Determinations for Waters of the United States in the Arid Southwest. June 2001.

The Newhall Land And Farming Company and U.S. Department of Defense, Army Corps of Engineers, "Correspondence Relating to Amendment to Jurisdiction Delineation Package, Newhall Ranch Project, for a Portion of the Santa Clara River and Its Tributaries, Los Angeles County, California"
(February and July 2004)

DEPARTMENT OF THE ARMY
LOS ANGELES DISTRICT, CORPS OF ENGINEERS
VENTURA FIELD OFFICE
2151 ALESSANDRO DRIVE, SUITE 110
VENTURA, CALIFORNIA 93001

REPLY TO
ATTENTION OF:

February 4, 2004

Office of the Chief
Regulatory Branch

Newhall Land and Farming Company
Attention: Mark Subbotin
23823 Valencia Boulevard
Valencia, California 91355-2103

Dear Mr. Subbotin:

Reference is made to your letter (No. 2003-01264-AOA) dated September 24, 2003 for a long-term Department of the Army Permit for proposed discharges of fill material in waters of the United States associated with the Newhall Ranch Specific Plan and associated facilities in the Santa Clara River and several side drainages, including Chiquito Canyon, Long Canyon, San Martinez Grande Canyon, Potrero Canyon and Lion Canyon, near the City of Santa Clarita, Los Angeles County, California.

On December 15, 2003, you submitted a Jurisdictional Delineation Package for the Newhall Ranch Specific Plan for our review and approval. The above information was modified several times based on observations made by the Corps during site visits on August 7, August 19, September 29 and October 27, 2003. Based on our review of the Jurisdictional Delineation Package dated December 15, 2003, the Corps hereby concurs that the project area supports a total of 493 acres of waters of the United States, including wetlands, consisting of 316.1 acres in the Santa Clara River, 13.9 acres in Chiquito Canyon, 5.7 acres in Long Canyon, 2.5 acres in San Martinez Grande Canyon, 36.7 acres in Potrero Canyon, 6.8 acres in Lion Canyon. 77.9 acres in Salt Creek and 33.3 acres in unnamed minor tributaries to the above waters of the United States.

Based on the information furnished in your letter and several site visits, we have determined that your proposed project does discharge dredged or fill material into a water of the United States. Therefore, the project is subject to our jurisdiction under Section 404 of the Clean Water Act and a Section 404 permit is required from our office.

Within the Santa Clara River, moderate to large storm flows can scour and deposit sediment, which can alter the extent and location of the braided stream channel from year to year. The extent of the morphological channel change is dependent on the magnitude of the peak storm flows. One would reasonably expect that storm flows greater than or equal to the 15-year event would have the ability to alter channel morphology and possibly change the ordinary high water mark within the Santa Clara River. Based on the above, if a 15-year or greater storm event occurs during the review of the proposed project, an updated jurisdictional

determination will be required for the Santa Clara River. The updated jurisdictional determination for the Santa Clara River must be reviewed and approved by the Corps of Engineers prior to any discharge of fill material in or adjacent to the Santa Clara River.

If you have any questions, please contact Dr. Aaron O. Allen of my staff at (805) 585-2148.

Sincerely,

David J. Castanon
Chief, North Coast Section
Regulatory Branch

NEWHALL LAND

A LENNAR/LNR COMPANY

July 7, 2004

Mr. Aaron Allen
U.S. Army Corps of Engineers Regulatory Branch
2151 Allessandro Drive, #110
Ventura, California 93001

Transmittal: Amendment to Jurisdiction Delineation Package, Newhall Ranch Project, for a Portion of the Santa Clara River and its Tributaries, Los Angeles County, California

Dear Mr. Allen:

On December 10, 2003, the Newhall Land and Farming Company (Newhall Land) provided a jurisdiction delineation associated with the proposed Newhall Ranch Habitat Management Plan, entitled "Jurisdiction Delineation, Newhall Ranch Project, for a Portion of the Santa Clara River and its Tributaries, Los Angeles County, California" to the Corps. In recent months, more precise field mapping on the site has revealed some minor modifications to the maps presented in that document. Enclosed please find Exhibits A and B, which show both the original mapping and revisions to the Corps' jurisdiction on the Newhall Ranch site.

Exhibit A shows the area immediately south of the confluence between Middle Canyon and the Santa Clara River. At the request of California Department of Fish and Game personnel, this area was resurveyed and a connection to the river was added to the jurisdiction. Exhibit B shows the eastern portion of Potrero Canyon, where the previous Jurisdiction Delineation had erroneously mapped the southernmost fork too far north.

Please provide a letter to Newhall Land indicating your concurrence with the enclosed revisions to the Corps jurisdictional boundaries as defined in the Jurisdiction Delineation. Should you have any questions or comments regarding this submittal, please call me at 661-255-4069.

Sincerely,

Mark Subbotin
Senior Vice President
Planning and Environmental Resources

Enclosure

THE NEWHALL LAND AND FARMING COMPANY
23823 VALENCIA BOULEVARD, VALENCIA, CALIFORNIA 91355-2194 • PHONE 661.255.4000 FAX 661.255.3960 WWW.NEWHALL.COM

cc: Morgan Wehtje
Terri Dickerson
Connie Farmer
Pat Mitchell

NEWHALL LAND

A LENNAR/LNR COMPANY

July 7, 2004

Ms. Morgan Wehtje
California Department of Fish and Game
2286 Barbara Drive
Camarillo, California 93012

Transmittal: Amendment to Jurisdiction Delineation Package, Newhall Ranch Project, for a Portion of the Santa Clara River and its Tributaries, Los Angeles County, California

Dear Morgan:

On December 10, 2003, the Newhall Land and Farming Company (Newhall Land) provided a jurisdiction delineation associated with the proposed Newhall Ranch Habitat Management Plan, entitled "Jurisdiction Delineation, Newhall Ranch Project, for a Portion of the Santa Clara River and its Tributaries, Los Angeles County, California" to CDFG. In recent months, more precise field mapping on the site has revealed some minor modifications to the maps presented in that document. Enclosed please find Exhibits A and B, which show both the original mapping and revisions to CDFG jurisdiction on the Newhall Ranch site.

Exhibit A shows the area immediately south of the confluence between Middle Canyon and the Santa Clara River. At the request of CDFG personnel, this area was resurveyed and a connection to the river was added to the jurisdiction. Exhibit B shows the eastern portion of Potrero Canyon, where the previous Jurisdiction Delineation had erroneously mapped the southernmost fork too far north.

Please provide a letter to Newhall Land indicating your concurrence with the enclosed revisions to CDFG jurisdictional boundaries as defined in the Jurisdiction Delineation by July 15, 2004. Should you have any questions or comments regarding this submittal, please call me at 661-255-4069.

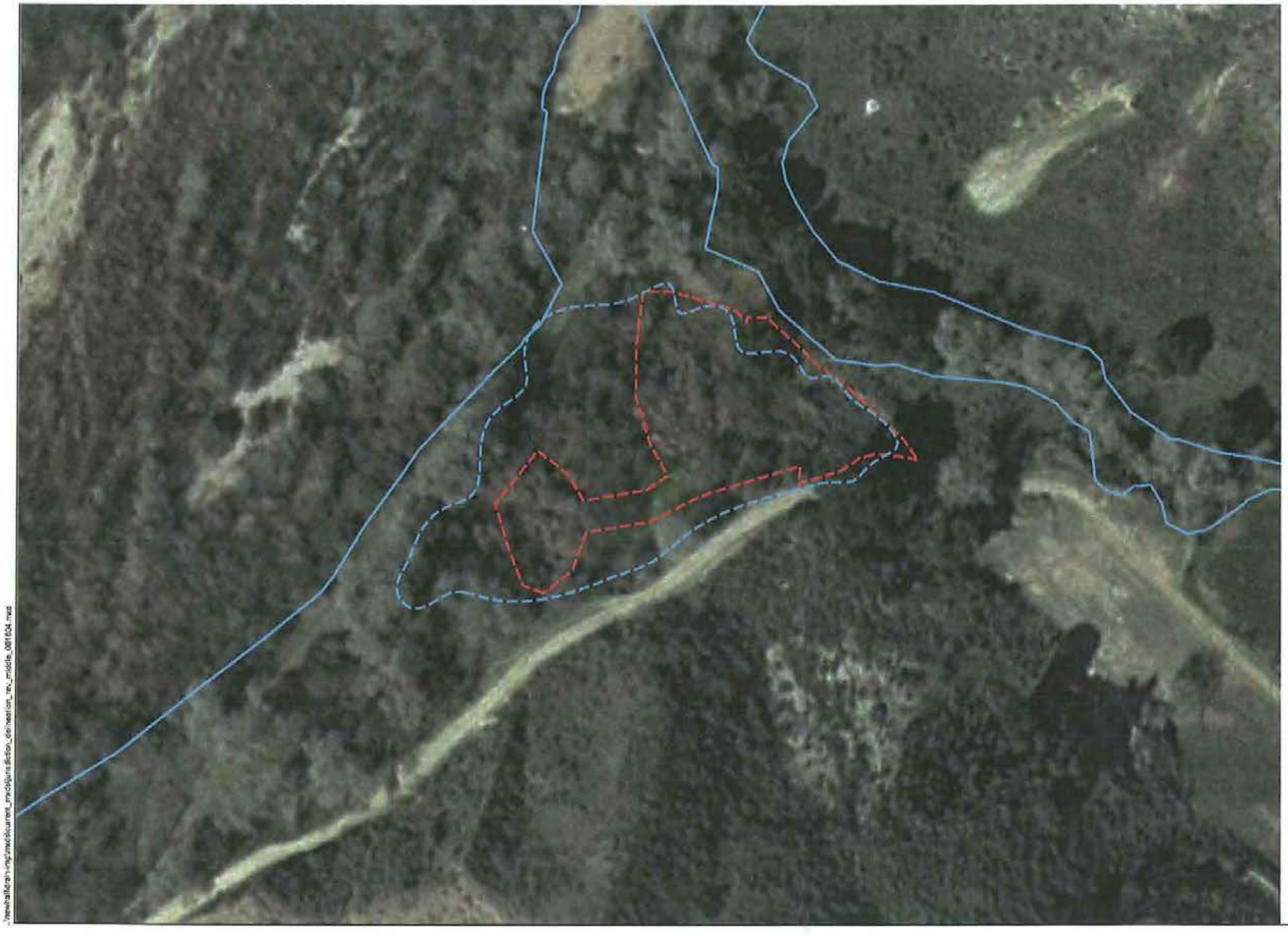
Sincerely,

Mark Subbotin
Senior Vice President
Planning and Environmental Resources

Enclosure

THE NEWHALL LAND AND FARMING COMPANY
23823 VALENCIA BOULEVARD, VALENCIA, CALIFORNIA 91355-2194 • PHONE 661.255.4000 FAX 661.255.3960 WWW.NEWHALL.COM

cc: Terri Dickerson-CDFG
Chuck Raysbrook-CDFG
Aaron Allen-ACOE
Connie Farmer-URS
Pat Mitchell-Downey Brand

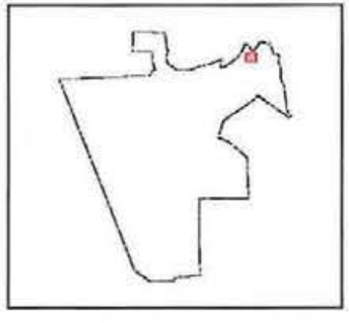


LEGEND

Previous Jurisdiction Delineation

Revised Jurisdiction Delineation

Existing Jurisdictional Delineation



0 25 50 100 Feet

FORMA

06-17-04

Exhibit A

NEWHALL RANCH SPECIFIC PLAN

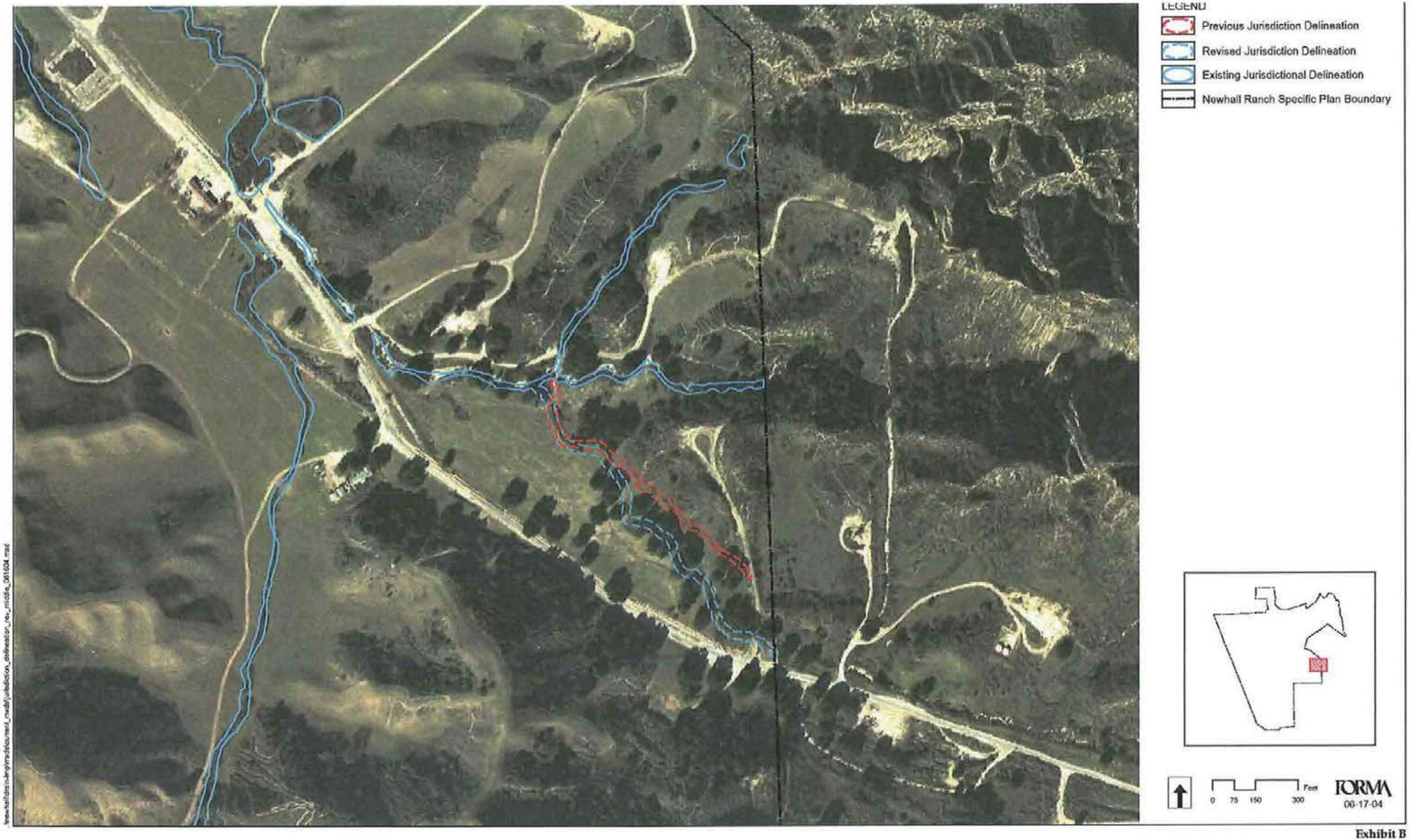


Exhibit B
NEWHALL RANCH SPECIFIC PLAN

Glenn Lukos Associates, "Jurisdictional Delineation for Entrada, An Approximately 850-Acre Property in Los Angeles County, California"
(as revised September 15, 2008)

GLENN LUKOS ASSOCIATES

Regulatory Services

October 18, 2006
[Revised February 9, 2007] [Second Revision September 15, 2008]

Alex Herrell
Newhall Land
23823 Valencia Boulevard
Valencia, California 91355

Los Angeles County, California

Dear Mr. Herrell:

This letter report summarizes our preliminary findings of U.S. Army Corps of Engineers (Corps) and California Department of Fish and Game (CDFG) jurisdiction for the above-referenced property.[1] The Entrada project site in Los Angeles County [Exhibits 1 & 2], comprises approximately 850 acres and contains two blue-line drainages as depicted on the U.S. Geological Survey (USGS) topographic map Newhall, California [dated 1995]) [Exhibit 2]. On August 28, 29 and September 6, 8 12, and 15, 2006, and September 12, 2008, regulatory specialists of Glenn Lukos Associates, Inc. (GLA) examined the project site to determine the limits of (1) Corps jurisdiction pursuant to Section 404 of the Clean Water Act, and (2) CDFG jurisdiction pursuant to Division 2, Chapter 6, Section 1600 of the Fish and Game Code. Enclosed is a map [Exhibit 3], which depicts the areas of Corps and CDFG jurisdiction. Photographs to document the topography, vegetative communities, and general widths of each of the waters are provided as Exhibit 4.

[1] This report presents our best effort at estimating the subject jurisdictional boundaries using the most up-to-date regulations and written policy and guidance from the regulatory agencies. Only the regulatory agencies can make a final determination of jurisdictional boundaries. If a final jurisdictional determination is required, GLA can assist in getting written confirmation of jurisdictional boundaries from the agencies.

Corps jurisdiction at the site totals approximately 4.50 acres, of which 0.15 acres consist of jurisdictional wetlands.

CDFG jurisdiction at the site totals approximately 7.98 acres of which approximately 0.48 acres consist of vegetated riparian habitat.

I. METHODOLOGY

Prior to beginning the field delineation a 200-scale aerial photograph, a 200-scale topographic base map of the property, and the previously cited USGS topographic map were examined to determine the locations of potential areas of Corps/CDFG jurisdiction. Suspected jurisdictional areas were field checked for the presence of definable channels and/or wetland vegetation, soils and hydrology. Suspected wetland habitats on the site were evaluated using the methodology set forth in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual[2] (Wetland Manual). While in the field the jurisdictional area was recorded onto a 200-scale base map using visible landmarks.

The Soil Conservation Service (SCS)[3] has mapped the following soil types as occurring in the general vicinity of the project site:

Castaic-Balcom Silty Clay Loams, 30 to 50 Percent Slopes (CmF)

The Castaic series consists of well-drained soils that formed in material from soft shale and sandstone. These soils are located within the upland areas on site. The upper nine inches consist of pale brown (10YR 6/3) silty clay loam when dry and dark brown (10YR 4/3) silty clay loam when moist. The Castaic soils are used for dryland small grains and pasture, for range, for watershed, and as wildlife habitat.

Hanford Sandy Loam, 2 to 9 Percent Slopes (HcC)

The Hanford series consists of well-drained or somewhat excessively drained soils on alluvial fans. These soils formed in granitic alluvium. The upper 8 inches consist of pale brown (10 YR

[2] Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

[3] SCS is now known as the National Resource Conservation Service or NRCS.

6/3) coarse sandy loam when dry and dark brown (10 YR 4/3) when moist. The Hanford soils are used for irrigated crops, for dryland small grains, for range, and as wildlife habitat.

Metz Loam, 2 to 5 Percent Slopes (MgB)

The Metz series consists of somewhat excessively drained soils on alluvial fans and floodplains. These soils formed in mixed alluvium. The upper 7 inches consist of brown (10YR 5/3) loamy sand when dry and dark brown (10YR 4/3) when moist. Metz soils are used for irrigated crops, for dryland farming, and as wildlife habitat.

Saugus Loam, 30 to 50 Percent Slopes (ScF)

The Saugus series consists of well-drained soils on uplands. These soils formed on weakly consolidated sediment that contained pebbles and cobblestones in some places. The upper 15 inches consist of grayish brown (10YR 5/2) loam when dry and dark grayish brown (10YR 4/2) loam when moist. The Saugus soils are used for range and homesites, as well as for wildlife and watershed purposes.

Yolo Loam, 2 to 9 Percent Slopes (YoC)

The Yolo series consists of well-drained soils on alluvial fans. These soils formed in sedimentary alluvium. The upper 6 inches consist of grayish-brown (10YR 5/2) loam when dry and very dark grayish brown (10YR 3/2) when moist. Yolo soils are used for irrigated cropes, for range, and for homesites.

None of these soil units are identified as hydric in the SCS's publication, Hydric Soils of the United States.

II. RESULTS

A. Corps Jurisdiction

The project site is located within the Santa Clara River watershed, an intrastate waterway that is tributary to the Pacific Ocean. The Corps retains jurisdiction of this watershed because its final destination (i.e. the Pacific Ocean) is a navigable water.

Corps jurisdiction at the project site totals 4.50 acres, of which 0.15 acre is jurisdictional wetland.

The boundaries of the waters of the United States are depicted on the enclosed map provided as Exhibit 3. Six drainages on site were identified that exhibit an OHWM. All of the onsite drainages are ephemeral and flow only during, and for a short duration after, precipitation events. Groundwater is not a source of water for ephemeral streams. Table 1 shows the total Corps jurisdictional acreages, and the acreages of associated jurisdictional wetlands for each drainage. This is followed by a description of the drainages.

Table 1: Corps Jurisdictional Acreage on Site

Drainage	Total Corps Jurisdiction (acres)	Total Wetlands (acres)	Drainage Length (ft)	Drainage Width (ft)
Drainage A	1.45	0.13	5,299	5 to 21
Drainage B	0.55	0	7,384	1 to 10
Drainage C	2.15	0	9,226	1 to 52
Drainage D	0.24	0.02	2,907	1 to 16
Drainage E	0.06	0	740	3
Drainage F	0.05	0	772	2 to 5
TOTAL	4.50	0.15	26,328	

1. Drainage A

Corps jurisdiction associated with Drainage A and its tributaries totals approximately 1.45 acres, of which 0.13 acre consists of wetlands. The channel is incised with a substrate of sand, silt, and cobble. Drainage A is an ephemeral drainage located in the southwest quadrant of the project and extends for approximately 5,299 feet to where it exits the site. The OHWM varies from five to 21 feet in width. The main stem of the drainage is interrupted in two places by artificial berms constructed to support a dirt road. A culvert in each berm allows discharges to pass through. The southern portion of the eastern tributary to Drainage A receives nuisance flows from nearby development, resulting in a small area of wetland.

Drainage A supports areas of upland vegetation including soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), great basin sage (*Artemisia tridentata*, UPL), tocalote (*Centaurea melitensis,* UPL), black

mustard (*Brassica nigra,* UPL), black sage (*Salvia mellifera*, UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), grassland goldenbush (*Ericameria palmeri var. pachylepis*, UPL), scrub oak (*Quercus berberidifolia*, UPL), desert scub oak (*Quercus cornelius-mulleri*, UPL), horseweed (*Conyza canadensis*, FAC). Wetland and riparian species include mulefat (*Baccharis salicifolia,* FACW), tall flatsedge (*Cyperus eragrostis*, FACW), rough cockleburr (*Xanthium strumarium*, FAC+), Bermuda grass (*Cynodon dactylon*, FAC), tree tobacco (*Nicotiana glauca*, FAC). Wetlands are limited to areas with standing water and/or saturation in the upper 12 inches. Hydric soils were indicated by the presence of sulfidic odor and/or low chroma matrix with redoxymorphic features.

2. Drainage B

Corps jurisdiction associated with Drainage B and its tributaries totals approximately 0.55 acre and is limited to the OHWM of the mainstem channel and its tributaries. Drainage B is an ephemeral drainage located in the southern portion of the project and extends approximately 7,384 feet to where it exits the site at the boundary with Magic Mountain. The channel bottom consists of silt and sand. The OHWM varies from one foot for the tributaries up to 10 feet for the mainstem channel. One tributary creates a one-foot braid running adjacent to the mainstem channel.

The drainage and its tributaries support soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), tocalote (*Centaurea melitensis,* UPL), black mustard (*Brassica nigra,* UPL), black sage (*Salvia mellifera*, UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), bull thistle (*Cirsium vulgare*, FACU), rough cockleburr (*Xanthium strumarium*, FAC+), purple sage (*Salvia leucophylla*, UPL), white sage (*Salvia apiana*, UPL), doveweed (*Eremocarpus setigerus,* UPL) , elderberry (*Sambucus mexicana*, FAC), scalebroom (*Lepidospartum squamatum*, UPL), coastal sagebrush (*Artemisia californica*, UPL), wild oats (*Avena fatua,* UPL), tree tobacco (*Nicotiana glauca*, FAC), and chamise (*Adenostoma fasciculatum*, UPL). No wetlands are associated with Drainage B.

3. Drainage C

Corps jurisdiction associated with Drainage C totals approximately 2.15 acres and is limited to the OHWM of the channel and its tributaries. The channel is incised with a substrate of sand, silt, and cobble. Drainage C is an ephemeral drainage located in the southeast quadrant of the project and extends for approximately 9,226 feet to where it exits the site through a culvert. The OHWM varies from one foot for the tributaries up to 52 feet for the mainstem channel. Located

adjacent to the mainstem channel is a large terrace that no longer receives flows and has revegetated with coastal sage scrub.

The drainage and its tributaries support soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), tocalote (*Centaurea melitensis,* UPL), black mustard (*Brassica nigra,* UPL), coastal sagebrush (*Artemisia californica*, UPL), scalebroom (*Lepidospartum squamatum*, UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), doveweed (*Eremocarpus setigerus,* UPL), Valley oak (*Quercus lobata*, FAC), California yerba santa (*Eriodictyon californicum*, UPL), and telegraph weed (*Heterotheca grandiflora*, UPL). Local areas of riparian habitat consist of mulefat (*Baccharis salicifolia,* FACW) and elderberry (*Sambucus mexicana*, FAC) however; the mulefat and elderberry were not predominant. The soils in this dry ephemeral drainage exhibit no hydric characteristics and no wetlands are associated with this drainage.

4. Drainage D

Corps jurisdiction associated with Drainage D totals approximately 0.26 acre, of which 0.02 acre consists of wetlands. The uppermost reach of the drainage is incised, however below this area, installation of a silt fence has captured sediment resulting in a widened floodplain with multiple braids. The lowest portion of the reach, immediately before discharging into a stormdrain inlet supports cattail-dominated wetland that is hydrologically supported by temporary irrigation that originates on the adjacent upland slope and is carried to the canyon bottom via concrete "V" ditches. The channel bottom is sand and silt over its entire length. Drainage D is largely ephemeral, with the exception of the wetland area that is fed by temporary irrigation and is located in the southeast quadrant of the project site. From where it originates, the drainage extends for approximately 2,907 feet to where it exits the site. The OHWM varies from one to 16 feet in width.

The majority of Drainage D supports areas of upland vegetation including soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), telegraph weed (*Heterotheca grandiflora*, UPL), tocalote (*Centaurea melitensis,* UPL), black mustard (*Brassica nigra,* UPL), ragweed (*Ambrosia ssp*., UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), doveweed (*Eremocarpus setigerus,* UPL), Valley oak (*Quercus lobata*, FAC), tree tobacco (*Nicotiana glauca*, FAC), lambsquarters (*Chenopodium album*, FAC), and horseweed (*Conyza canadensis*, FAC). The presence of wetlands in the lowest reach was indicated by a predominance of hydrophytes including rough cocklebur (*Xanthium strumarium*, FAC+) and southern cattail (*Typha domingensis*, OBL). Wetlands are limited to areas with standing water and/or saturation in the upper 12 inches that originates with

temporary irrigation water from the adjacent graded slopes. Hydric soils were indicated by the presence of sulfidic odor and/or low chroma matrix with redoximorphic features.

5. Drainage E

Corps jurisdiction associated with Drainage E totals approximately 0.06 acre and is limited to the OHWM of the channel. Drainage E is an ephemeral drainage located in the southeast quadrant of the project and extends for approximately 740 feet to where it exits the site. The OHWM for the portion on the project site maintains three feet and the channel bottom consists of silt and cobble. The offsite portion has been maintained with construction of a v-ditch.

Drainage E supports areas of upland vegetation including soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), black mustard (*Brassica nigra,* UPL), tocalote (*Centaurea melitensis,* UPL), and coastal sagebrush (*Artemisia californica*, UPL). A single Fremont cottonwood (*Populus fremontii*, FACW) is located in the drainage.

6. Drainage F

Corps jurisdiction associated with Drainage F totals approximately 0.05 acre and is limited to the OHWM of the channel. The channel bottom consists of silt and cobble. Drainage E is an ephemeral drainage located in the southeast quadrant of the project and extends for approximately 772 feet to where it exits the project site. The OHWM varies from two to five feet in width. The offsite portion has been maintained with construction of a v-ditch.

Drainage F supports areas of upland vegetation including soft chess (*Bromus hordeaceus*, FACU), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), black mustard (*Brassica nigra,* UPL), tocalote (*Centaurea melitensis,* UPL), and coastal sagebrush (*Artemisia californica*, UPL).

7. Additional Features

Additional features on the site appeared to exhibit potential for the presence of an OHWM based on site topogaphy, however, field examination showed no evidence of flow or OHWM. As such, Corps jurisdiction is not associated with these features [depicted as dashed lines on Exhibit 3].

B. CDFG Jurisdiction

CDFG jurisdiction at the project site totals 7.98 acres, of which approximately 0.48 acre consists of vegetated riparian habitat.

The boundaries of CDFG jurisdiction are depicted on the enclosed map provided as Exhibit 3. Six drainages on site were identified that exhibit a defined channel with bed and bank. All of the onsite drainages are ephemeral and flow only during, and for a short duration after, precipitation events. Table 2 shows the total CDFG jurisdictional acreages, and the acreages of associated riparian vegetation for each drainage. This is followed by a description the drainages.

Table 2: CDFG Jurisdictional Acreage on Site

Drainage	Total CDFG Jurisdiction (acres)	Total Riparian Vegetation (acres)	Drainage Length (ft)	Drainage Width (ft)
Drainage A	1.45	0.13	5,299	5 to 21
Drainage B	0.55	0	7,384	1 to 10
Drainage C	5.15	0.01	9,226	1 to 160
Drainage D	0.70	0.32	2,907	3 to 193
Drainage E	0.08	0.02	740	3
Drainage F	0.05	0	772	2 to 5
TOTAL	7.98	0.48	26,328	

1. Drainage A

CDFG jurisdiction associated with Drainage A and its tributaries totals approximately 1.45 acres, of which 0.13 acre consists of vegetated riparian habitat. Drainage A is ephemeral and is located in the southwest quadrant of the project and extends for approximately 5,299 feet to where it exits the site. The channel is incised with a substrate of sand, silt and cobble. The mainstem of the drainage is interrupted at two locations by road crossings. Each road crossing is culverted, allowing storm discharges to pass through. The southern portion of the eastern tributary to Drainage A receives nuisance flows from nearby development, resulting in a small area of in-channel wetland. This drainage averages five to 21 feet in width.

The banks and bed support upland vegetation including soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), great

basin sage (*Artemisia tridentata*, UPL), tocalote (*Centaurea melitensis,* UPL), black mustard (*Brassica nigra,* UPL), black sage (*Salvia mellifera*, UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), grassland goldenbush (*Ericameria palmeri var. pachylepis*, UPL), scrub oak (*Quercus berberidifolia*, UPL), desert scub oak (*Quercus cornelius-mulleri*, UPL), horseweed (*Conyza canadensis*, FAC). Wetland and riparian species include mulefat (*Baccharis salicifolia,* FACW), tall flatsedge (*Cyperus eragrostis*, FACW), rough cockleburr (*Xanthium strumarium*, FAC+), Bermuda grass (*Cynodon dactylon*, FAC), tree tobacco (*Nicotiana glauca*, FAC).

2. Drainage B

CDFG jurisdiction associated with Drainage B and its tributaries totals approximately 0.55 acre, none of which consists of vegetated riparian habitat. Drainage B is an ephemeral drainage located in the southern portion of the project and extends for approximately 7,384 feet to where it exits the site at the boundary with Magic Mountain. The channel bottom consists of silt and sand. The channel ranges from one foot for the tributaries up to ten feet for the mainstem channel. One tributary consists of a one-foot braid running parallel with the mainstem channel.

The bed and bank of the channel supports a mix of upland scrub, grasses and forbs and riparian/wetland species and includes soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), tocalote (*Centaurea melitensis,* UPL), black mustard (*Brassica nigra,* UPL), black sage (*Salvia mellifera*, UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), bull thistle (*Cirsium vulgare*, FACU), rough cockleburr (*Xanthium strumarium*, FAC+), purple sage (*Salvia leucophylla*, UPL), white sage (*Salvia apiana*, FACU-), doveweed (*Eremocarpus setigerus,* UPL), Mexican elderberry (*Sambucus mexicana*, FAC), scalebroom (*Lepidospartum squamatum*, UPL), coastal sagebrush (*Artemisia californica*, UPL), wild oats (*Avena fatua,* UPL), tree tobacco (*Nicotiana glauca*, FAC), and chamise (*Adenostoma fasciculatum*, UPL). No vegetated riparian habitat is associated with this drainage.

3. Drainage C

CDFG jurisdiction associated with Drainage C and its tributaries totals approximately 5.15 acres, of which 0.01 acre consists of vegetated riparian habitat. Drainage C is an ephemeral drainage located in the southern portion of the project and extends for approximately 9,226 feet to where it exits the site. The channel is incised with a substrate of sand, silt and cobble. The channel ranges from one foot for the tributaries up to 160 feet for the mainstem channel. Located adjacent to the mainstem channel is a large terrace that no longer receives flows and has revegetated with coastal sage scrub.

The drainage and its tributaries support soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), tocalote (*Centaurea melitensis,* UPL), black mustard (*Brassica nigra,* UPL), coastal sagebrush (*Artemisia californica*, UPL), scalebroom (*Lepidospartum squamatum*, UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), doveweed (*Eremocarpus setigerus,* UPL), Valley oak (*Quercus lobata*, FAC), California yerba santa (*Eriodictyon californicum*, UPL), and telegraph weed (*Heterotheca grandiflora*, UPL). Local areas of riparian habitat consist of mulefat (*Baccharis salicifolia,* FACW) and elderberry (*Sambucus mexicana*, FAC).

4. Drainage D

CDFG jurisdiction associated with Drainage D totals approximately 0.70 acre, of which 0.32 acre consists of vegetated riparian habitat. Drainage D is an ephemeral drainage located in the southern portion of the project and extends for approximately 2,907 feet to where it exits the site. This Drainage and associated riparian habitat varies from three to approximately 190 feet in width.

Drainage D supports areas of upland vegetation including soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), telegraph weed (*Heterotheca grandiflora*, UPL), tocalote (*Centaurea melitensis,* UPL), black mustard (*Brassica nigra,* UPL), ragweed (*Ambrosia ssp*., UPL), California buckwheat (*Eriogonum fasciculatum*, UPL), doveweed (*Eremocarpus setigerus,* UPL), Valley oak (*Quercus lobata*), tree tobacco (*Nicotiana glauca*, FAC), lambsquarters (*Chenopodium album*, FAC), and horseweed (*Conyza canadensis*, FAC). Wetland/riparian species include mulefat (*Baccharis salicifolia,* FACW), salt cedar (*Tamarisk ramosissima*, FAC), rough cocklebur (*Xanthium strumarium*, FAC+), red willow (*Salix laevigata*, FACW), sandbar willow (*Salix exigua*, OBL), rabbitfoot grass (*Polypogon monspeliensis*, FACW+), and southern cattail (*Typha domingensis*, OBL).

5. Drainage E

CDFG jurisdiction associated with Drainage E totals approximately 0.08 acre, of which 0.02 acre consists of vegetated riparian habitat. Drainage E is an ephemeral drainage located in the southeast quadrant of the property and extends for approximately 740 feet to where it exits the site. The width of the channel for the portion on the project site maintains three feet. Drainage E supports areas of upland vegetation including soft chess (*Bromus hordeaceus*, FACU-), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*,

UPL), black mustard (*Brassica nigra,* UPL), tocalote (*Centaurea melitensis,* UPL), and coastal sagebrush (*Artemisia californica*, UPL). A single Fremont Cottonwood (*Populus fremontii*, FACW) is located in the drainage.

6. Drainage F

CDFG jurisdiction associated with Drainage F totals approximately 0.05 acre, none of which consists of vegetated riparian habitat. Drainage F is ephemeral and is located in the southeast portion of the property and extends for approximately 772 feet to where it exits the site. This incised channel channel varies from two to five feet in width and is comprised of sand and cobble.

Drainage F supports areas of upland vegetation including soft chess (*Bromus hordeaceus*, FACU), red brome (*Bromus madritensis ssp. rubens*, NI), ripgut brome (*Bromus diandrus*, UPL), black mustard (*Brassica nigra,* UPL), tocalote (*Centaurea melitensis,* UPL), and coastal sagebrush (*Artemisia californica*, UPL). No vegetated riparian habitat is associated with this drainage.

7. Additional Features

Additional features on the site appeared to exhibit potential for the presence of a bed, bank, or channel based on site topogaphy, however, field examination showed no evidence of a bed, bank, or channel. As such, CDFG jurisdiction is not associated with these features [depicted as dashed lines on Exhibit 3].

If you have any questions about this letter report, please contact Tony Bomkamp at (949) 837-0404 ext 44.

Sincerely,

GLENN LUKOS ASSOCIATES, INC.

Alexis Kessans

Alexis Kessans
Regulatory Specialist

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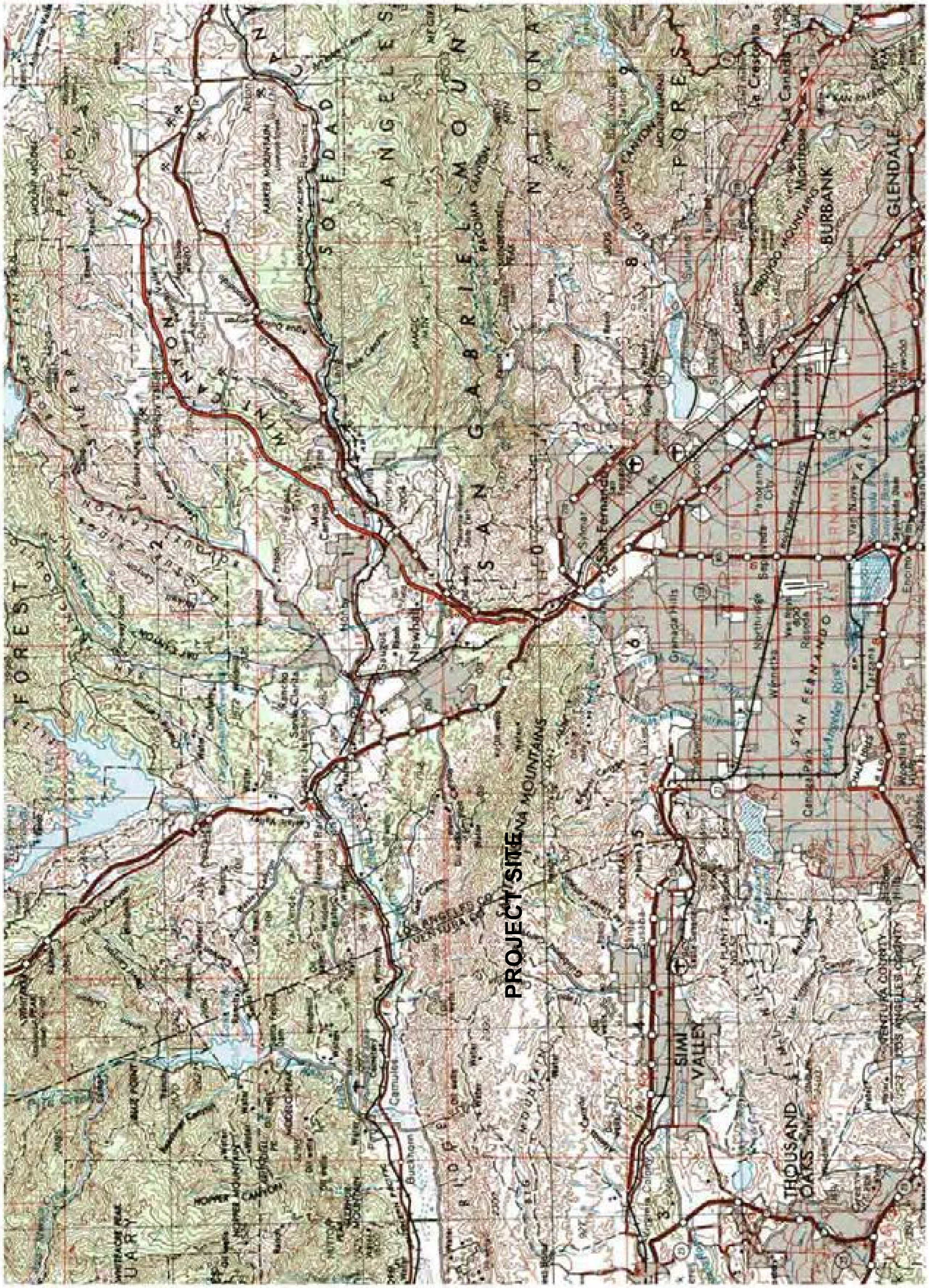
GLENN LUKOS ASSOCIATES

EXHIBIT 1



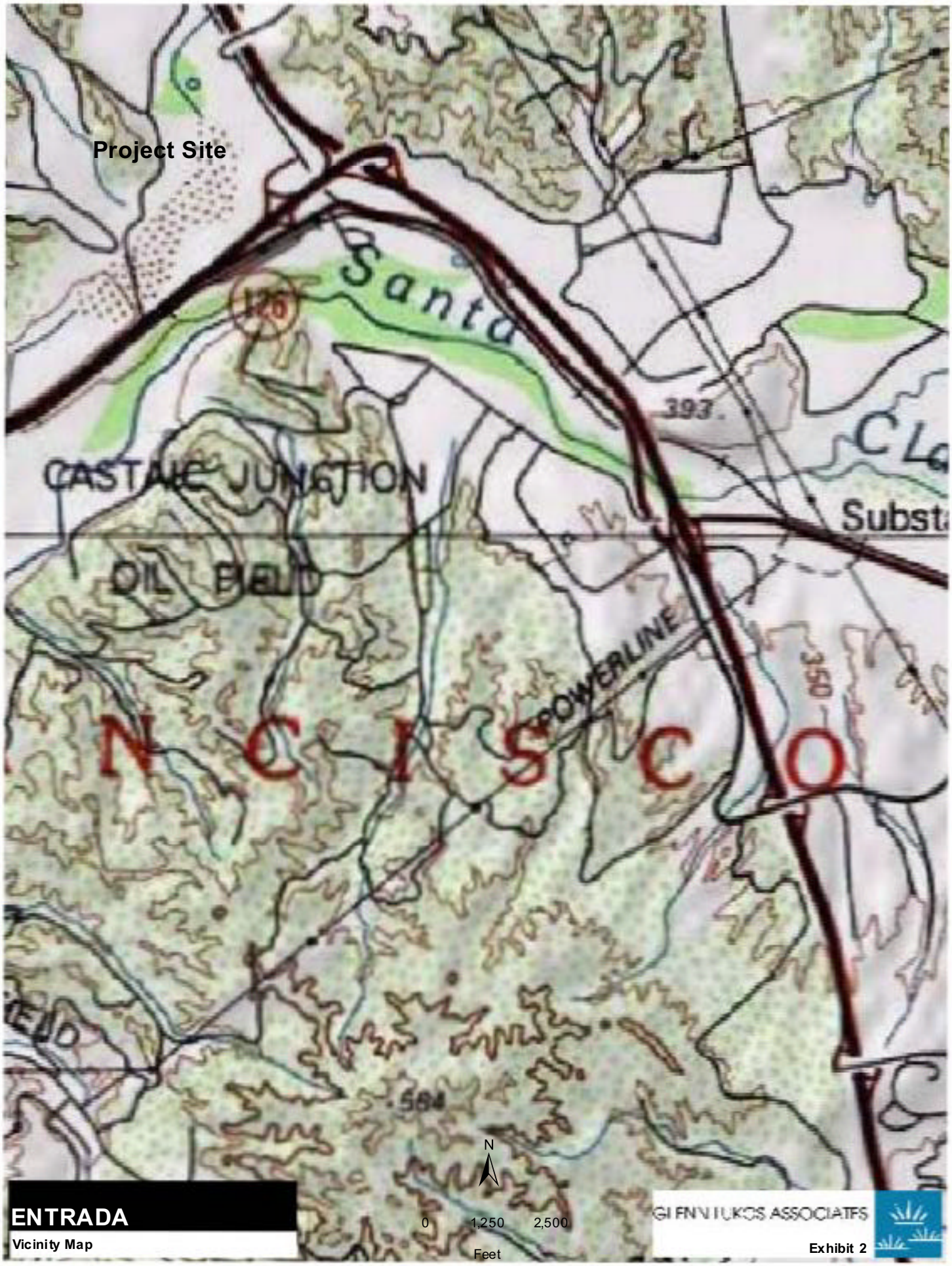
Regional Map

Adapted from USGS quadrangle Los Angeles

NORTH

0 2 4 6

MILES



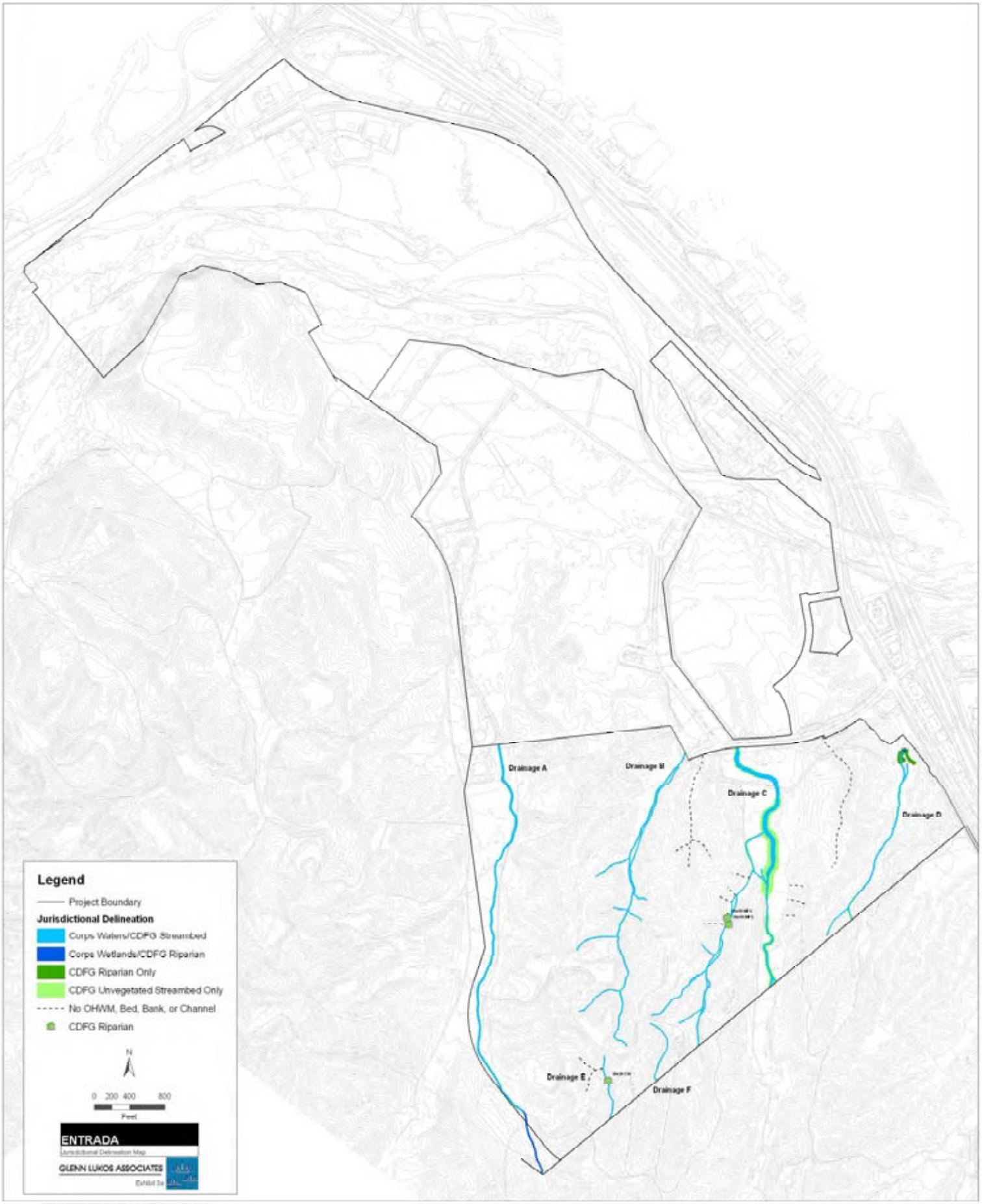
ENTRADA

Vicinity Map

GLENN LUKOS ASSOCIATES

Exhibit 2

X:\0363-THE REST\0540-05ENTR


Drainage A
Drainage B
Drainage C
Drainage D
Drainage E
Drainage F
Legend
Project Boundary
Jurisdictional Delineation
Corps Waters/CDFG Streambed
Corps Wetlands/CDFG Riparian
CDFG Riparian Only
CDFG Unvegetated Streambed Only
No OHWM, Bed, Bank, or Channel
CDFG Riparian
N
0 200 400 800
Feet
ENTRADA
Jurisdictional Delineation Map
GLENN LUKOS ASSOCIATES
Exhibit 3a

X:\0363-THE REST\0540-12ENT2\540-12.GIS\DelineationGIS\0540-12Delineation.mxd
September 16, 2008

PHOTOGRAPH 1 - View of unvegetated ephemeral Drainage C looking north.

PHOTOGRAPH 2 - View of unvegetated ephemeral Drainage C looking south.

GLENN LUKOS ASSOCIATES

EXHIBIT 4

Site Photographs

PHOTOGRAPH 3 - View of ephemeral Drainage B looking south. The drainage is largely populated with California buckwheat (Eriogonum fasciculatum, UPL).

PHOTOGRAPH 4 - View of unvegetated incised ephemeral Drainage D looking southwest.

GLENN LUKOS ASSOCIATES

EXHIBIT 4

Site Photographs

PHOTOGRAPH 5 - View of sparsely vegetated ephemeral Drainage D looking south. Notice the silt fence across the drainage in the background and the terrace in the foreground.

PHOTOGRAPH 6 - View facing northeast of storm drain inlet in lowest portion of Drainage D.

GLENN LUKOS ASSOCIATES

EXHIBIT 4

Site Photographs

URS, "Composite Wetland Delineation for the Newhall Ranch Resource Management and Development Plan Site and Entrada Planning Area" (2009)

COMPOSITE WETLAND DELINEATION

FOR THE

NEWHALL RANCH RESOURCE MANAGEMENT AND DEVELOPMENT PLAN SITE AND ENTRADA PLANNING AREA

Prepared for:

Newhall Land and Farming Company
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Prepared by:

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URS Project Number 28907071

April 2, 2009

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SECTION 1.0
INTRODUCTION

This composite wetland delineation has been prepared by URS Corporation (URS) on behalf of the Newhall Land and Farming Company (Newhall Land). The purpose of this document is to determine the location and extent of all lands within Newhall Land's Resource Management and Development Plan (RMDP) project site and the adjacent Entrada planning area (Figure 1) that would meet the federal definition of wetlands (see 33 CFR 328.3(b)) promulgated by the U.S. Army Corps of Engineers (Corps). The extent of wetlands presented in this document includes wetland boundaries delineated in previous studies, as well as boundaries delineated specifically for this report. The body of this report is organized in two parts: Part One describes the field study conducted specifically for this report, and Part Two integrates the results of that study with the results of previous investigations to create a comprehensive, composite wetland delineation for the entire project site.

1.1 BACKGROUND AND PURPOSE

In 2003, the Los Angeles County Board of Supervisors approved the Newhall Ranch Specific Plan (Specific Plan), which designated a portion of the currently undeveloped Newhall Ranch site near Valencia, California for residential and other urban uses. However, although approval from the County has been granted, build out of the Specific Plan development cannot proceed without compliance with federal and state statutes including the Clean Water Act and applicable sections of the California Fish and Game Code. Both of these statutes require project proponents to acquire authorizations prior to undertaking development activities that would affect waters and streambeds. To meet this need in a streamlined manner, Newhall Land has proposed the RMDP, a comprehensive, long-term permitting plan intended to obtain the required state and federal approvals to build out the site's infrastructure and urban land uses over the next 20 years as previously approved by Los Angeles County. Specifically, the RMDP would involve issuance of a long-term, Individual Section 404 Permit from the Corps and a Master Streambed Alteration Agreement from the California Department of Fish and Game (CDFG). For a more detailed description of the RMDP, please refer to Section 1.2 below, or to the RMDP technical document (Dudek 2006b).

As stated above, Newhall Land is currently in the process of obtaining the federal and state authorizations laid out in the RMDP. Because issuance of the requested permits could potentially result in significant effects on the environment, this process includes working with the Corps and CDFG to prepare a joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) as required by the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA). To assist preparation of the EIS/EIR, numerous jurisdictional delineations and studies have been conducted within the RMDP site

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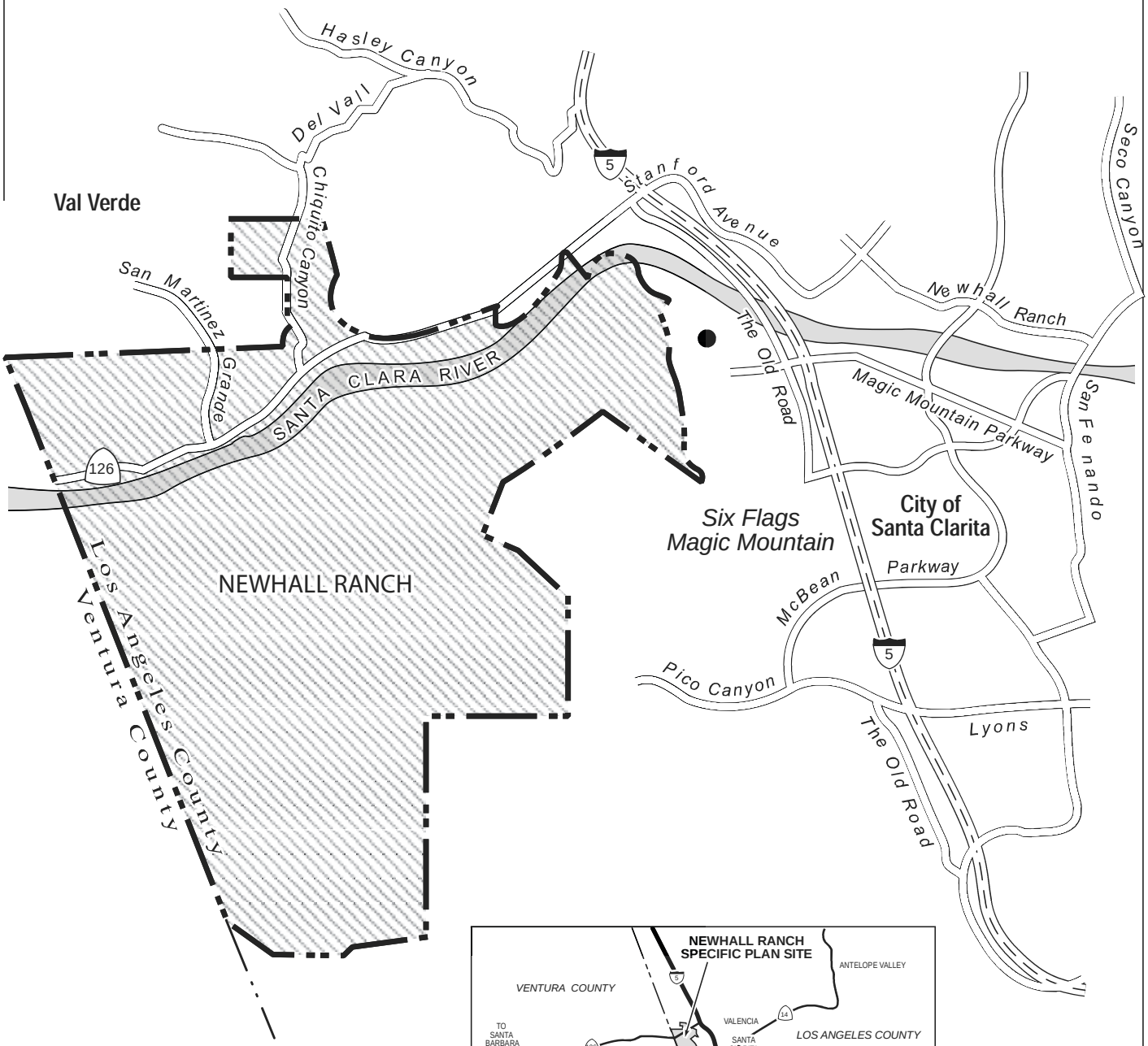

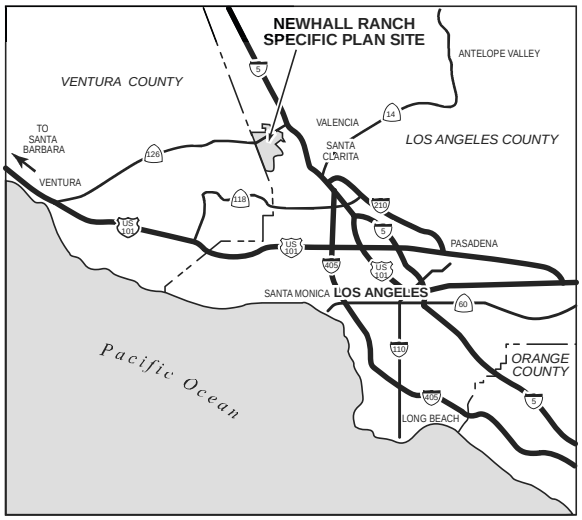

Legend

Newhall Ranch Boundary

Quadrangle Location

0 3500 7000

Feet

1 inch dquals 7,000 feet

Figure 1. Project Vicinity Map

NEWHALL RANCH

URS

Newhall Ranch Resource Management and Development Plan

over the last six years. However, not all of these studies addressed wetlands specifically, and some of the studies were limited to specific portions of the project area.

The most comprehensive jurisdictional delineation for the project was completed in 2004, when URS field mapped all jurisdictional rivers and streams within the RMDP project site. Concurrence with the mapped jurisdictional boundaries was received from the Corps and CDFG in 2004. However, while the 2004 delineation provided comprehensive coverage of the jurisdictional streams on-site, it did not address the presence of special aquatic sites, such as wetlands, within the project site. Because special aquatic sites are afforded additional legal protection beyond that extended to non-wetland waters of the U.S. under the Clean Water Act, it was determined that supplemental delineation work should be performed to identify the location and extent of federally protected wetlands on-site. The 2004 delineation was exhaustive in its treatment of CDFG jurisdictional streambeds on-site, and no additional delineation work is required with regard to those areas. Streambeds under the jurisdiction of CDFG are therefore not discussed further in this document. The wetland boundaries presented in this composite wetland delineation report are compiled from the following sources:

- The URS (2004) comprehensive delineation report, discussed above (Appendix D).
- A field delineation of wetlands within the Entrada portion of the project area conducted by Lukos and Associates in 2008 (Appendix E).
- Interpretation of high-resolution aerial photographs of the Santa Clara River within the RMDP site to obtain a planning-level delineation of wetlands, conducted jointly by URS and Dudek and Associates in 2006.
- A field delineation of on-site wetlands in certain portions of the project site where large-scale project facilities (i.e., bridges across the Santa Clara River mainstem) are proposed, conducted specifically for this composite wetland delineation report. For more information, please refer to Part Two of this document.

A report of the field delineations conducted specifically for this composite report in 2007 is presented in Part One, below. The results of that effort and the other surveys identified above are integrated into a single, project-wide plannning-level delineation in Part Two.

1.2 DESCRIPTION OF THE PROPOSED RMDP

The intent of the RMDP is to obtain comprehensive state and federal approvals to construct facilities needed to supply a portion of the infrastructure required to build out the Newhall Ranch Specific Plan site's urban land uses over the next 20 years as previously approved by Los Angeles County. The proposed RMDP project activities that may affect jurisdictional areas include construction and maintenance of bridges, bank stabilization, grade control structures, utility crossings, storm drains, building pads, debris and detention basins, and a

water reclamation plant outfall. Among the most prominent features proposed are three new roadway bridges across the Santa Clara River, and buried bank stabilization that would line a portion of the river and tributaries. A fully detailed description of the facilities proposed in the Newhall Ranch RMDP project can be found in the RMDP technical document (Dudek 2006b).

By seeking a long-term, comprehensive Section 404 permit and Master 1605 Agreement, Newhall Land can facilitate a well planned and streamlined environmental evaluation and decision process by the Corps and CDFG, and can provide an opportunity to design a long-term, regionally-based planning and mitigation program for impacts to the affected riparian habitats. The Section 404 permit and Master 1605 Agreement would allow project components to be implemented under a comprehensive set of specific conditions, thereby avoiding the traditional case-by-case permitting process, expediting the permitting process for qualified project components, and ensuring consistent mitigation.

The various components of the proposed RMDP would be constructed by Newhall Land or other private or public agencies. Third parties would be allowed to perform some of the activities (such as ongoing maintenance operations) authorized under the proposed Section 404 permit and Master 1605 Agreement issued to Newhall Land, but would be bound by the conditions in those permits.

SECTION 2.0
PART ONE: URS CORPORATION 2007 FIELD DELINEATION OF WETLANDS IN PROPOSED BRIDGE ALIGNMENT AREAS

This Part presents the methods and results of field investigations for wetlands conducted by URS staff in portions of the RMDP site where large-scale facilities, such as bridges across the Santa Clara River mainstem, are proposed that would potentially impact any wetlands present. Field investigations were conducted in August, 2007.

2.1 STUDY AREA

The study area assessed in the 2007 field delineation (Part One study area) consists of four discrete locations within the RMDP project site, including three proposed bridge locations and one area where proposed bank stabilization would impact existing riparian vegetation (Figure 2). From west to east, these locations include: the Potrero Canyon Road bridge alignment (actually two alternative alignments, but located in the same general area); the Onion Fields bank stablization area; the Long Canyon Road bridge alignment; and the southern abutment of the Commerce Center Drive bridge. All four of these locations that comprise the Part One study area are located immediately adjacent to the Santa Clara River mainstem within the RMDP site.

As shown on Figure 2, the Santa Clara River traverses the RMDP site from east to west and is the dominant hydrologic feature on the site. The current and historic river floodplain are evident from the the existing hydrology, sediment deposition, topographic gradients, and the residual disjunct riparian vegetation. Row-crop agricultural fields are situated on the historic floodplain and adjacent historic river terraces, especially on the north side of the river where the dominant topography is flat to slightly sloping. On the south side of the river, the presence of steeper canyons reduces the available agricultural land near the Santa Clara River. Oil production is the dominant land use in the southern hills, although some of the larger mesas are actively farmed.

Descriptions of the four locations that comprise the Part One study area are provided below. The study area boundary for each of the locations includes the disturbance footprint for the project component proposed at that location (bridge or bank stabilization) and a 100-foot buffer surrounding the footprint.

2.1.1 Potrero Canyon Road Bridge Alignment

The Potrero Canyon Road bridge alignment study location is located in the western portion of the RMDP site at the mouth of Potrero Canyon (Figure 2). This 7.97-acre study location contains the disturbance footprints (including buffers, as described above) of two alternative bridge alignments which will be evaluated in the joint EIS/EIR for the RMDP project. This

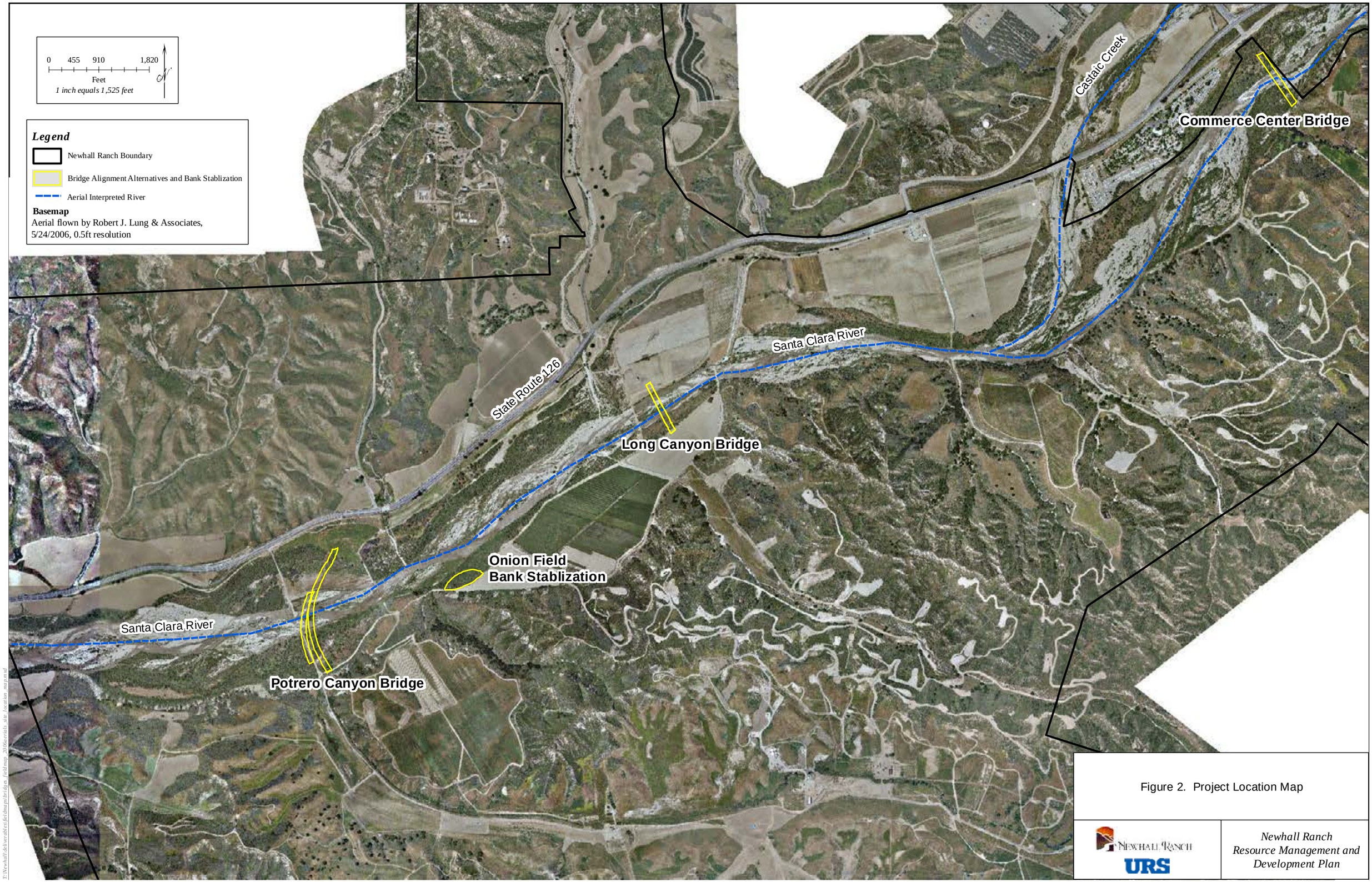

Figure 2. Project Location Map

NEWHALL RANCH
URS

Newhall Ranch Resource Management and Development Plan

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location includes a portion of the Santa Clara River, its floodplain, and riparian, agricultural, and upland sage scrub vegetation. Current land uses within the Potrero Canyon Road bridge study location include agriculture, grazing, and open space.

The majority of the Potrero Canyon Road bridge study location is composed of a flat to slightly sloping floodplain comprised of a main channel and several secondary channels separated by long, narrow sandbars. The study location spans the active channel, and extends into the adjacent uplands on the northern and southern banks. The dynamic nature of the river prevents vegetation within the channel from reaching maturity and limits the type of vegetation to riparian scrub communities, which occur on stable sandbars and terraces within the active channel. Along the banks of the river, mature vegetation communities including cottonwood/willow riparian forest are present. The area beyond the northern bank includes riparian scrub and riparian forest vegetation that are currently separated from the main channel by agricultural fields. The southern bank at this location contains a slightly sloping terrace that begins near a dry secondary channel along the edge of the River and continues south toward a ranch road. This area is within the Santa Clara River floodplain and is dominated by mature riparian forest. Additionally, riparian scrub vegetation occurs in a drainage ditch adjacent to a ranch road in the southernmost portion of the Potrero Canyon Road bridge study location.

2.1.2 Onion Fields Bank Stablization Site

The Onion Fields bank stabilization study location is located in the western portion of the RMDP site approximately 0.5 miles east of the proposed bridge across the river at Potrero Canyon Road and 30 feet south of the Santa Clara River (Figure 2). This 3.13 acre study location covers an oval shaped area between the river and an east-west trending ranch road. The study location is partly elevated above the Santa Clara River floodplain due to an upward-sloping bank. The majority of the study location is composed of a flat to moderately sloping river terrace containing mature riparian forest. The current land use within the Onion Fields study location is open space, although a dirt road and an irrigated agricultural field occur immediately adjacent to this location.

2.1.3 Long Canyon Road Bridge Alignment

The Long Canyon Road bridge alignment study location is situated in the middle portion of the project site, approximately 1.25 miles east of the proposed bridge across the river at Potrero Canyon Road (Figure 2). This 2.1 acre study area contains the proposed alignment for the Long Canyon Road bridge across the Santa Clara River, including a 100-foot buffer surrounding the proposed disturbance footprint. Within this area, ground covers include the active channel, riparian corridor, and floodplain of the Santa Clara River, and adjacent fallow agricultural fields. Current land uses within the Long Canyon Road bridge alignment study location include agriculture, cattle grazing, and open space.

The majority of this study location is composed of a flat to slightly sloping floodplain containing a primary channel and several secondary channels separated by sandbars. The floodplain is dominated by riparian scrub habitat. There is a river terrace approximately 12 feet high along the southern part of the study area that is situated above the current floodplain. This terrace is also dominated by riparian scrub vegetation. The northernmost and southernmost portions of the study location (ends of the proposed bridge) currently contain row-crop agricultural fields.

2.1.4 Southern Abutment of Commerce Center Drive Bridge

The Commerce Center Drive bridge alignment study location is located very close to the eastern boundary of the RMDP site (Figure 2.) The approximately 2.94 acre study area includes the disturbance footprint for the southern abutment of the Commerce Center Drive bridge across the river, including a 100-foot buffer (The study location was limited to the southern abutment because Newhall Land already holds a valid Section 404 Permit and Streambed Alteration Agreement for the remainder of the bridge, and only the southern abutment would require authorization under the proposed RMDP.). Land covers within the study location include the Santa Clara River, its floodplain, and riparian and sage scrub vegetation. Current land uses within the Commerce Center Drive bridge study location include agriculture and open space.

The majority of the Commerce Center Drive bridge study location is composed of a flat to slightly sloping floodplain dominated by riparian scrub vegetation. The southernmost portion of the study location includes part of a hill dominated by upland sage scrub vegetation.

Pursuant to Section 404 of the Clean Water Act (CWA), the Corps regulates the discharge of dredged and/or fill material into waters of the U.S., including navigable waterways and wetlands adjacent to navigable waterways; relatively permanent, non-navigable tributaries to navigable waterways; and wetlands adjacent to non-navigable waters that are contiguous with navigable waterways. The CWA states that the Corps may only issue a Section 404 Permit for the Least Environmentally Damaging Practicable Alternative (LEDPA), and the U.S. Environmental Protection Agency (EPA) has established guidelines [404(b)(1) Guidelines] enabling the Corps to compare alternatives to a proposed discharge and determine the LEDPA. Certain high-value aquatic resource areas, termed Special Aquatic Sites, are given additional protection by the 404(b)(1) Guidelines and avoidance is required if practicable. Special Aquatic Sites are defined to include wetlands, mudflats, vegetated shallows, riffle/pool complexes, coral reefs, and sanctuaries and refuges. Of these features, only wetlands occur within the RMDP project area.

2.1.5 Wetland Defined

Wetlands are defined by 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, and that under

normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (Environmental Laboratory 1987). In 1987, the Corps published the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987; Wetland Delineation Manual) to guide its field personnel in determining jurisdictional wetland boundaries. In 2006, the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2006; Arid West Regional Supplement) was published by the Corps for use in California (Region 0) as a complement to the Wetland Delineation Manual. Where differences occur within the two documents, the Arid West Regional Supplement takes precedence. The methodology set forth in the Wetland Delineation Manual and the Arid West Regional Supplement requires that to be considered a wetland, the vegetation, soils, and hydrology of an area must exhibit at least minimal hydric characteristics. While the Wetland Delineation Manual and Arid West Regional Supplement provide great detail concerning methodology and allow for varying special conditions, a wetland should normally meet each of the following three criteria: Hydrophytic Vegetation, Hydric Soils, and Wetland Hydrology. These wetland parameters are discussed in greater detail below.

2.1.5.1 Hydrophytic Vegetation

In order for a site to meet the CWA definition of a wetland, the site must exhibit a prevalence of hydrophytic vegetation. A site is usually considered to have a prevalence of hydrophytic vegetation when 50 percent or more of the dominant plant species of a specific community are classified as obligate, facultative-wetland, or facultative (excluding FAC-) according to the *National List of Plant Species That Occur in Wetlands* (Reed 1988). This list divides plants into five categories that reflect the range of estimated probabilities (expressed as a frequency of occurrence) of a species occurring in a wetland versus a non-wetland.

These categories are as follows:

- **Obligate Wetland (OBL)** – Occur almost always (estimated probability >99 percent) under natural conditions in wetlands.
- **Facultative Wetland (FACW)** – Usually occur in wetlands (estimated probability 67 percent to 99 percent), but occasionally found in non-wetlands.
- **Facultative (FAC)** – Equally likely to occur in wetlands or non-wetlands (estimated probability 34 percent to 66 percent).
- **Facultative Upland (FACU)** – Usually occur in non-wetlands (estimated probability 67 percent to 99 percent), but occasionally found in wetlands.
- **Obligate Upland (UPL)** – May occur in wetlands in another region, but occur almost always (estimated probability >99 percent) under natural conditions in non-wetlands in southern California.

A positive sign (+) or negative sign (-) can be used with the Facultative Wetland, Facultative, and Facultative Upland categories to more specifically define the likelihood of occurrence toward the higher or lower end of the category (positive sign indicates a higher probability that the species occurs in wetlands).

2.1.5.2 Hydric Soils

A hydric soil is defined by the National Technical Committee for Hydric Soils as a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (NRCS 1994). A hydric soil may be drained or undrained, and a drained hydric soil may not continue to support hydrophytic vegetation yet still retain the appearance of a hydric soil.

The following indicators are used as a guide to determine whether a given soil meets the criteria for hydric soils. These indicators are listed in decreasing order of importance and reliability. In most situations, only one of these indicators is required to make a positive determination.

- Presence of organic soils (Histosols) or soils that have more than 50 percent (by volume) of the upper 32 inches of soil is composed of organic soil materials
- Presence of histic epipedons (i.e., layers of organic matter in the upper soil) that are saturated for 30 days or more during the growing season
- Presence of sulfidic material or odors indicating anaerobic conditions
- Presence of an aquic or peraquic regime in which oxygen in the upper soil has been displaced by surface water or groundwater saturation that causes anaerobic conditions
- Evidence of chemically reducing conditions in the soil based on chemical tests
- Presence of gleyed soil conditions or soils with bright mottles and/or low matrix chroma
- Soils that occur on the National Technical Committee for Hydric Soils list of hydric soils
- Presence of manganese and iron concretions
- Presence of high amounts of organic matter in the upper soil and/or organic matter streaking (sandy soils only)

2.1.5.3 Wetland Hydrology

The term “wetland hydrology” indicates that the hydrology of an area is periodically inundated or that it has soils saturated to the surface at some time during the growing season. Wetlands are characterized by various hydrologic regimes that range from permanently inundated to irregularly inundated or saturated. In other words, some wetlands are always wet while other wetlands may contain water during only part of the year. The minimum threshold for wetland

hydrology under most circumstances is inundation or saturation within 12 inches of the surface for more than five percent of the growing season (Environmental Laboratory 1987). The growing season is defined as the duration between the last freeze of the spring and the first freeze of the fall.

A list of field indicators of wetland hydrology is presented below in decreasing order of importance and reliability:

- Recorded data on inundation or soil saturation from wells or gauges
- Visual observation of inundation or soil saturation within 12 inches of the surface
- Water marks on stems and fixed objects
- Drift lines consisting of debris and waterborne material
- Sediment deposition
- Visual evidence of surface flows and ponding

Secondary indicators, of which two or more are required in order to meet the hydrology criterion, include the following:

- Oxidized root channels in the upper 12 inches of the soil
- Water-stained leaves
- Local soil survey data
- Other site-dependant features based on the professional judgment of the delineator

According to the Wetland Delineation Manual, wetland hydrology can be inferred indirectly if *all* of the dominant plants in an area are obligate (OBL) species.

2.1.6 SWANCC Decision

Although not related to the three parameters discussed above, the Corps' jurisdiction over wetlands is also limited by legal interpretations of the CWA statute and associated regulations. In 2001, the United States Supreme Court stated in *Solid Waste Agency of Northern Cook Cty. v. Army Corps of Engineers* (531 U.S. 159, 168 (2001)), that the Corps' CWA jurisdiction does not extend to ponds that "are not adjacent to open water," and determined that the Corps exceeded its statutory authority by asserting CWA jurisdiction over "an abandoned sand and gravel pit in northern Illinois, which provides habitat for migratory birds." In reaching its decision, the Court concluded that the "Migratory Bird Rule," which served as the basis for the Corps' asserted jurisdiction, was not supported by the CWA. The Migratory Bird Rule extended CWA jurisdiction to intrastate waters "which are or would be used as habitat by birds protected by Migratory Bird Treaties or which are or

would be used as habitat by other migratory birds which cross state lines..." (Id. at p. 164). This decision stands for the proposition that non-navigable isolated, intrastate waters lacking interstate commerce connections other than potential to be used by migratory waterfowl are not waters of the United States and thus are not jurisdictional under the CWA.

2.1.7 Rapanos/Carabell Decision

In another example, in 2006 the United States Supreme Court decided Rapanos v. United States, 126 S.Ct. 2208 (2006) ("Rapanos"), consolidated cases regarding the extent of the Corps' jurisdiction over waters of the United States under the CWA. The court issued no majority opinion in Rapanos. Instead, the justices authored five separate opinions including the "plurality" opinion, authored by Justice Scalia (joined by three other justices), and a concurring opinion by Justice Kennedy. To guide implementation of the decision, the Corps issued a memorandum stating that "regulatory jurisdiction under the CWA exists over a water body if either the plurality's or Justice Kennedy's standard is satisfied" (Corps, CWA Jurisdiction Following the United States Supreme Court's Decision in Rapanos v. United States & Carabell v. United States, December 2, 2008, ["Rapanos Guidance Memorandum"]).

According to the plurality opinion in Rapanos, "'the waters of the United States' include only relatively permanent, standing or flowing bodies of water" and do not include "ordinarily dry channels through which water occasionally or intermittently flows" (Rapanos, 126 S. Ct. 2208, 2221). In addition, while all wetlands that meet the Corps' definition are considered adjacent wetlands, only those adjacent wetlands that have a continuous surface connection because they directly abut the tributary (e.g., they are not separated by uplands, a berm, dike, or similar feature) are considered jurisdictional under the plurality standard (Rapanos Guidance Memorandum, p. 7).

Under the Kennedy approach, "the Corps' jurisdiction over wetlands depends upon the existence of a significant nexus between the wetlands in question and navigable waters in the traditional sense" (Rapanos 126 S.Ct. 2208, 2248). "Wetlands possess the requisite nexus, and thus come within the statutory phrase 'navigable waters,' if the wetlands, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.' When, in contrast, wetlands' effects on water quality are speculative or insubstantial, they fall outside the zone fairly encompassed by the statutory term "navigable waters" (Ibid.). Justice Kennedy identified "pollutant trapping, flood control, and runoff storage" as some of the critical functions wetlands can perform relative to other waters (Id. at p. 2248). He concluded that, given wetlands' ecological role, "mere adjacency" to a non-navigable tributary was insufficient to establish CWA jurisdiction, and that "a more specific inquiry, based on the significant nexus standard, is therefore necessary" (Id. at pp. 2249-2252).

Interpreting these decisions, and according to the Rapanos Guidance Memorandum, the Corps and EPA will assert jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months)
- Wetlands that directly abut such tributaries

The Corps and EPA will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that does not directly abut a relatively permanent non-navigable tributary

Where a significant nexus analysis is required, the Corps and EPA will apply the significant nexus standard as follows:

- A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters.
- Significant nexus includes consideration of hydrologic and ecologic factors.

The Corps and EPA generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

A wetland delineation of potentially jurisdictional features was conducted in the study area in accordance with the procedures of the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), Department of the Army (DOA) *Clarification and Interpretation of the 1987 USACE Wetland Delineation Manual* (DOA 1992), and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid*

West Region (USACE 2006; Arid West Region Supplement). In addition, the United States Geologic Society (USGS) Val Verde, CA (1995) and Newhall, CA (1995) 7.5 minute topographical quadrangle maps, Soil Survey Geographic Database for the San Francis Area, CA (NRCS 2007), and a high quality aerial photograph of the RMDP project site and the surrounding area (Psomas 2003) were utilized in the delineation. Field surveys were conducted by URS staff on September 25, 26, and 28 and included senior biologists John Davis IV, Johanna Kisner, and Erik Larsen and staff biologists Julie Love, Laura Rizzo, and Wayne Vogler. As described above the study area included four discrete locations, each of which contained the disturbance footprint for a proposed project facility (bridge or bank stabilization) and a 100-foot buffer.

The delineation of wetlands within the study area was complicated because the majority of the study locations were located within the active and/or historic floodplain of the Santa Clara River. Sandy soils and current agricultural uses within the floodplain added to the complexity. To address the challenges presented by sandy soils, the wetland delineation included an evaluation of "problem areas" where appropriate. Areas containing high concentrations of sandy soil were analyzed conservatively for evidence of hydric conditions as specified in the Arid West Region Manual. Agricultural operations have greatly changed the vegetation, soil, and hydrology within the RMDP site. In many areas, agricultural fields are located within the historic river floodplain and often physically isolate on-site hydrophytic vegetation from the river's potential hydrologic influence. Although row-crop agricultural fields within the Santa Clara River floodplain have affected the extent to which flood flows can access floodplain areas beyond the active channel, the RMDP site has been an agricultural operation for many decades, and the existing condition represents "normal circumstances" on the site.

Data collected during the assessment of wetlands were recorded on Wetland Determination Data Forms – Arid West Region Supplement (Corps 2006). Sample point locations were selected for both potential wetland and upland areas to determine the wetland/upland boundary and characterize the vegetation, soils, and hydrology of the area. Soil pits were excavated in areas supporting hydrophytic vegetation to determine the extent of saturation and to examine the soil for positive indicators of hydric soils and wetland hydrology. Soil pits were also excavated in upland areas adjacent to wetlands to aid in delineating the extent of jurisdictional wetlands. At each sample point, plant species composition and indicators of hydric soil and wetland hydrology were recorded. Data forms completed for wetland analysis are included in Appendix A.

Thirty-six sampling points were analyzed to determine boundary between wetland and upland portions of the four study locations. Sample points PC-1 through PC-20 (20 sample points) characterize the Potrero Canyon Road bridge alignment study location; BS-1 (one sample point) characterizes the Onion Fields bank stabilization study location; LC-1 through LC-8 (eight sample points) characterize the Long Canyon Road bridge alignment study

location; and, CC-1 through CC-7 (seven sample points) characterize the study location at the southern abutment of the Commerce Center Drive bridge. To the maximum extent possible, paired upland and wetland sample points were taken. Sample point locations were captured in the field using a Trimble GeoExplorer Series 2003 GPS unit capable of sub-meter accuracy and were plotted on aerial photographs overlaid with the approximate bridge and bank stabilization footprints and study location boundaries. A sample point was considered to be within a wetland (an "in" point) if the area met all three wetland parameters: dominance by wetland plant species; positive wetland hydrology indicators; and hydric soil conditions. If one or more of these parameters was not met, the point was considered not to be within a wetland (an "out" point) and a line was drawn between the two sample points on the site specific aerial photograph.

2.2 METHODS

2.2.1 Vegetation

Prior to field investigations, URS staff obtained a vegetation map of the entire RMDP project area in GIS format prepared for Newhall Land by Dudek and Associates (2006). The classification system used for the vegetation map is a combination of the established Holland (1986) and Sawyer and Keeler-Wolf (1995) classification systems. This map was used in conjunction with high-resolution aerial photos of the site to predict areas likely to contain wetlands, and to ensure that areas containing riparian vegetation communities were thoroughly sampled during field investigations. At each sampling point, the dominant plant species within each stratum (tree, shrub, herb, woody vine) were determined using the 50/20 rule and were identified to the species level. The wetland status of dominant plant species present at each sampling point was determined using the *National List of Species That Occur in Wetlands: California (Region 0)* (Reed 1988). As defined in Section 2: Regulatory Setting, this list assigns each plant species an indicator status of OBL, FACW, FAC, FACU, or UPL. When more than 50 percent of the dominant plants consisted of species rated OBL, FACW, or FAC (excluding FAC-), the vegetation at the sampling location was classified as "hydrophytic vegetation" in accordance with the Wetland Delineation Manual and Arid West Regional Supplement.

2.2.2 Soils

At each sample point, a delineation shovel was used to dig a pit at least 12 inches in depth, and an intact soil sample allowing inspection of the soil profile was extracted where possible. The characteristics of on-site soils were compared to the literature results obtained from the *NRCS Soil Survey Geographic Database, San Francis Area, CA* (NRCS 2007) for the study area. The soil profiles were examined for indicators of hydric soils and to determine if the on-site soils were consistent with the USDA soils map of the area. Soil characteristics assessed were soil color, texture, and the presence of mottles, organic matter, and other

indicators of hydric soils as listed on the Corps' Wetland Determination Data Forms for the Arid West region. A Munsell® Soil Color Chart (Munsell Color 2000) was used in the field to identify the color of soil and to assist in soil type verification and the color of mottles, where present.

2.2.3 Hydrology

Each sample point was examined for positive field indicators of wetland hydrology. The soil pit was examined for standing water or saturation, and the surrounding area was investigated for hydrologic indicators as specified on the Wetland Delineation Data Forms, including water marks, sediment deposits, drift lines, and other primary and secondary indicators of wetland hydrology.

2.2.4 Classification of Wetlands

After Corps-jurisdictional wetlands were delineated in the field, URS staff classified the delineated areas into wetland classes using *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin *et al.* 1979). This classification system, used by the U.S. Fish and Wildlife Service (USFWS), classifies wetlands[1] into systems and subsystems based on the type of aquatic feature with which the wetland is associated (the five systems are marine, estuarine, lacustrine, riverine, and palustrine) and then further assigns classes subclasses, and dominance types to wetlands within each system and subsystem. As the study area does not include any marine, estuarine, or lacustrine (lake) environments, Corps-jurisdictional wetlands on-site are limited to the riverine and palustrine (vegetated fringe) systems. The palustrine system includes wetlands that are dominated by trees, shrubs, or persistent emergent vegetation, and includes classes such as aquatic bed, scrub-shrub wetland and forested wetland. Because the classification system is open-ended beyond the class level, site-specific subclasses were defined based on vegetation communities present within the study area. Wetlands delineated were classified into two classes and three subclasses, which are described below.

Class: Scrub-shrub Wetland. Scrub-shrub Wetlands include areas dominated by woody vegetation less than 6 meters (20 feet) tall, including both shrubs and young trees. Dominant species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. Scrub-shrub Wetlands may represent a successional stage leading to the Forested Wetland class, or they may be relatively stable communities. Scrub-Scrub Wetlands are one of the most widespread classes in the United States (Cowardin *et al.* 1979).

[1] It should be noted that, because the USFWS uses a different definition of wetlands than does the Corps, not all wetlands classified by the Cowardin *et al.* method meet the three-parameter regulatory definition of wetlands promulgated by the Corps and used by URS in this delineation of wetlands within the study area.

Subclass: Riparian Scrub. Within the study area, narrow-leaved deciduous scrub-shrub wetland plant communities dominated by mule fat (*Baccharis salicifolia*), narrowleaf willow (*Salix exigua*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), tamarisk (*Tamarix* spp.), giant reed (*Arundo donax*), white sweetclover (*Melilotus alba*), Fremont cottonwood (*Populus fremontii*), salt grass (*Distichlis spicata*), and cattail (*Typha* spp.) were classified as Riparian Scrub Wetland. Although the majority of these species are native to the area, white sweet clover, giant reed, and tamarisk are non-native. Giant reed and tamarisk are also considered to be invasive species by the California Invasive Plant Council (Cal-IPC 2007). The riparian scrub canopy within this community was partially open and dominated by shrubs and tree saplings with an herbaceous understory.

Subclass: Ruderal. Ruderal vegetation generally occurs in areas of past or chronic disturbance, and is characterized by the presence of species adapted to such conditions. Many of the plant species occurring in ruderal communities are non-native, and the habitat quality associated with this vegetation type is generally low. Although most ruderal plant communities occur in upland areas, portions of the study area contain ruderal vegetation dominated by hydrophytic species. The dominant vegetation included mule fat and Bermuda grass (*Cynodon dactylon*). Bermuda grass is an invasive species (Cal-IPC 2007). Many other non-native grasses were present, but in minor amounts. This vegetation may occur when contiguous areas of riparian vegetation are disrupted and fragmented by human alterations, facilitating invasion by non-native plants.

Class: Forested Wetland. The class Forested Wetland is characterized by woody vegetation that is six meters tall or taller. Forested Wetlands are most common in the eastern United States and in those sections of the West where moisture is relatively abundant, particularly along rivers and in the mountains. Forested Wetlands occur only in the palustrine and estuarine systems and normally possess an overstory of trees, an understory of young trees or shrubs, and a herbaceous layer (Cowardin *et al*. 1979).

Subclass: Riparian Forest. This subclass includes broad-leaved deciduous riparian forest vegetation, such as that observed on banks along the Santa Clara River within the study area. The dominant hydrophytic species within this wetland subclass on-site included Fremont cottonwood, mule fat, and an unidentified grass. The riparian forest vegetation contained a closed canopy that was dominated by mature trees and a thick ground cover consisting mostly of leaf litter and woody debris. Sporadic mulefat and California rose (*Rosa californica*) shrubs and grasses were also present in the open areas that received sufficient sunlight.

2.3 WETLAND DELINEATION RESULTS

A total of 9.06 acres of Corps jurisdictional wetlands were delineated in the four discrete study locations that comprise the Part One study area. Table 1 provides a summary of wetlands observed within each study location by wetland subclass.

TABLE 1
SUMMARY OF JURISDICTIONAL WETLANDS ACREAGE PER STUDY LOCATION AND VEGETATION TYPE

	USACE Jurisdictional Wetlands by Vegetation Type			
Study Areas	**Riparian Scrub**	**Riparian Forest**	**Ruderal**	**Total**
Potrero Canyon Road Bridge Alignment	3.82 acres	0.56 acre	0.51 acre	4.89 acres
Onion Field Bank Stabilization	--	--	--	0.00 acre
Long Canyon Road Bridge Alignment	1.33 acres	--	--	1.33 acres
Southern Abutment of Commerce Center Bridge	2.84 acres	--	--	2.84 acres
Total Wetland Acres				**9.06 acres**

An overview of conditions related to hydrology, vegetation, and soils within the study area is presented below, followed by a determination of the extent of jurisdictional wetlands at each study location. The study area overview is based on a combination of literature reviews and field verifications of vegetation, soils, and hydrology that occur within the boundaries of the study area. The determination of wetlands provides an assessment and reasoning for the delineation of jurisdictional areas. The determination is further supported by vegetation, soils, and wetland delineation maps.

2.3.1 Study Area Overview: Vegetation

The vegetation map of the RMDP site (Dudek 2006) shows eight vegetation/land cover occurring within the four locations that comprise the study area, including arrow weed scrub, mulefat scrub, cottonwood/willow riparian forest, herbaceous wetlands, riverwash, California sagebrush scrub, and agricultural and disturbed lands. These vegetation types can be generally divided into two main categories: riparian communities, which generally occur within and adjacent to areas of ponded or flowing water, and upland communities, which do not. Descriptions of these vegetation types, including mapped locations within the study area and dominant species present, are provided below. A list of all plant species observed in the four locations that comprise the Part One study area and their wetland indicator status is presented in Appendix B.

2.3.1.1 Riparian Communities

Based on the vegetation map of the RMDP site (Dudek 2006) five different riparian plant communities occur within the study area. Several of the sample points were located within these vegetation communities, and some of the areas sampled exhibited a predominance of hydrophytic vegetation. However, because not all of the areas within riparian communities were dominated by hydrophytic species, and because hydrophytic vegetation is only one of the three required wetland parameters, not all areas mapped as riparian vegetation are Corps-jurisdictional wetlands. The five riparian plant communities occurring within the study area are described below.

Arrow Weed Scrub. This vegetation type occurs in moderate to dense thickets along stream banks, and is dominated by arrow weed (*Pluchea sericea*). Arrow weed scrub is fairly common is southern California, occurring along sandy streambeds, ditches, and washes. In addition to arrow weed, species commonly found within this community include salt grass, narrow-leaved willow (*Salix exigua*), tamarisk (*Tamarix* spp.), rushes (*Juncus* spp.), and slender cattail (*Typha domingensis*) (Holland 1986). Within the study area, arrow weed scrub occurs in a depression between an agricultural road and a cottonwood/willow riparian forest community at the Potrero Canyon Road bridge alignment study location.

Mulefat Scrub. This relatively dense, shrubby riparian plant community occurs on river terraces, atop the banks of stream channels and in floodplain areas that are open or disturbed. It is dominated by mulefat (*Baccharis salicifolia*) although arroyo willow (*Salix lasiolepis*) individuals, upland shrubs, and facultative herbs are often present in limited numbers (Holland 1986). In areas of human disturbance, non-native annual grasses are frequently present as well. Frequent flooding and/or scouring often maintain this community in an early successional state, limiting the height of the shrubs. Within the study area, mulefat scrub occurs at the Potrero Canyon Road bridge alignment in a relict floodplain area; and at the Long Canyon Road bridge alignment adjacent to the active river channel.

Cottonwood/Willow Riparian Forest. This mature riparian community is a tall, open, broad-leafed winter-deciduous riparian forest dominated by Fremont cottonwood trees (*Populus fremontii)* and various species of willow (Holland 1986). It occurs commonly on stream banks and in floodplain areas where flooding occurs periodically but not so frequently as to preclude the development of mature trees. The understory within this community can be varied, containing riparian and upland shrub and herb species including Great Basin sagebrush (*Artemisia tridentata*), quail bush (*Atriplex lentiformis*), coyote brush (*Baccharis pilularis*), scale-broom (*Lepidospartum squamatum*), California mugwort (*Artemisia douglasiana*), wild cucumber (*Marah marcocarpus*), and many others. Within the study area, cottonwood/willow riparian forest occurs at all four study locations in portions of the Santa Clara River floodplain, and is the most abundant plant community at the Commerce Center Drive and Onion Fields study locations.

Herbaceous Wetland. This vegetation does not conform to a CDFG-defined vegetation community classification, and appears to be an early seral form of riparian vegetation that occurs in perennial stream channels where recent flooding has resulted in substantial scour or sediment deposition. Herbaceous wetlands commonly include thick stands of native seedlings and saplings, including Fremont cottonwood, willows, and mulefat; native herbaceous species, such as broad-leaved cattail (*Typha latifolia*), Hooker's evening primrose (*Oenothera elata*), and bulrushes (*Scirpus* ssp.); and non-native species, including water cress (*Rorippa nasturtium-aquaticum*), curly dock (*Rumex crispus*), and tamarisk (*Tamarix* spp.). Within the study area, herbaceous wetlands occur within the active channel of the Santa Clara River at the Potrero Canyon Road, Long Canyon Road, and Commerce Center Drive bridge locations, but are not present at the Onion Fields study location.

River Wash. This land cover does not conform to a CDFG-defined vegetation community classification, and is characterized by unvegetated or sparsely vegetated substrate within stream channels. Such areas may contain seedlings, sparse grasses, and forbs, which often begin colonize the channel after storm events, but mature vegetation is absent due to scouring by seasonal storm flows. River wash is a naturally dynamic habitat which may vary in location and extent depending on local hydrology and long-term and seasonal precipitation patterns. Within the study area, river wash is present within the active channel of the Santa Clara River at the Potrero Canyon Road, Long Canyon Road, and Commerce Center Drive bridge locations, but is absent at the Onion Fields study location.

2.3.1.2 Upland Communities

According to the vegetation map of the RMDP site (Dudek 2006), upland land covers within the study area consisted of California sagebrush scrub and agricultural/disturbed lands. These vegetation types are not typically associated with wetlands, and hydrophytic species are usually not present within these habitats.

California Sagebrush Scrub. This scrub community described by Sawyer and Keeler-Wolf (1995) is dominated California sagebrush (*Artemisia californica*). Other native shrub species present commonly include sages (*Salvia* spp.), California buckwheat (*Eriogonum fasciculatum*), and Mexican elderberry (*Sambucus mexicana*), and components occurring between and beneath these shrubs can include California wishbone-bush (*Mirabilis laevis* var. *crassifolia*), yellow pincushion (*Chaenactis glabriuscula*), lacy phacelia (*Phacelia tanacetifolia*), long-stem golden yarrow (*Eriophyllum confertiflorum*), common forget-me-not (*Cryptantha intermedia*), common owl's clover, deerweed (*Lotus scoparius*), and wild cucumber (*Marah macrocarpus*). Non-native species that commonly occur within California sagebrush scrub communities include red-stemmed filaree (*Erodium cicutarium*), short-podded mustard (*Hirschfeldia incana*), horehound (*Marrubium vulgare*), and tree tobacco (*Nicotiana glauca*). Within the study area, California sagebrush scrub occurs in the extreme southern portions of the Potrero Canyon and Commerce Center Drive study locations,

farthest from the river channel. None of the dominant species observed in this community were hydrophytic, and sampling points within sagebrush scrub were not found to exhibit a prevalence of hydrophytic vegetation.

Agricultural and Disturbed Lands. These land covers do not occur naturally, but are instead the result of farming, ranching, oil and gas production, and other human activities. Agricultural and disturbed lands within the study area are are typically either unvegetated, as is the case with fallow farm fields and operations areas, which are intentionally kept clear of vegetation; or are vegetated with row crops. However it is possible for non-agricultural species (both native and non-native) to colonize agricultural lands, especially when fields are fallow or not in service. Lands disturbed by non-agricultural activities, such as oil production, are often graded, compacted, and kept free of vegetation while operations are active. When oil activities cease, these areas often become invaded by ruderal vegetation such as bromes (*Bromus* spp.), wild oats (*Avena barbata*), and Russian thistle (*Salsola tragus*). Within the study area, areas mapped as agricultural and disturbed lands occur in association with farm fields and associated roads within the Potrero Canyon Road and Long Canyon Road bridge alignments, and at the Onion Fields bank stabilization location. This land cover was dominated by goose grass (*Eleusine indica*), bluegrass species (*Poa* spp.), and crowfoot grass (*Dactyloctenium aegyptium*) at the Potrero Canyon location, and by many unidentified annual grass species and tilled earth at the Long Canyon location.

2.3.2 Study Area Overview: Soils

According to the Soil Survey of San Francis Area, California (USDA 2007), a total of four soil mapping units were identified as occurring in the study area. Of the four, only Sorrento loam is considered to be a true soil type, or a land composition capable of supporting plant life. The other three (Riverwash, Sandy Alluvial Lands, and Terrace Escarpments) are considered land types rather than soils. Land types are defined as areas of frequent disturbance and/or areas harsh to plant life (ice fields, beach sands, riverbeds, etc.). All soils and land types mapped within the study area are described below.

2.3.2.1 <u>Sandy Alluvial Lands</u>

Sandy Alluvial Lands contain alluvial sand, gravel, and cobbles deposited in irregular layers, but do not flood during normal flow periods. Vegetation supported by this land type is sparse, and often consists of scattered sagebrush, small trees, and annual grasses and forbs. This land type is included on the National Hydric Soils List due to frequent flooding and ponding, and occurrence in areas with a high water table. The Sandy Alluvial Lands land type was the dominant “soil type” in the study area according to the County Soil Survey, and occurs throughout the Santa Clara River floodplain in the project region. Because this land type contains a high concentration of fine to coarse sand, hydric soil indicators are often challenging to observe while conducting field investigations in Sandy Alluvial Lands. Soils

in these areas were therefore treated as "Problem Areas," as specified in the Wetland Delineation Manual.

2.3.2.2 Riverwash

The Riverwash land type consists of sand, gravel, and cobblestones in active stream channels. Rocks and sand are constantly being removed and redeposited in the channel during periods of active flow. Riverwash typically supports very little vegetation due to the instability of the substrate; however, willows, sagebrush, and other plants may be found growing on this land type (SCS 1972). This land type is included on the National Hydric Soils List due to occurrence in areas of frequent flooding and high water table. According to the County Soil Survey, the Riverwash land type was the dominant "soil type" in the vicinity of the Long Canyon Road bridge alignment, occurring throughout the full extent of the Santa Clara River floodplain within that study location (approximately 75 percent of study location). The high concentration of sand present in Riverwash poses as problematic when assessing evidence of hydric characteristics. Hydric soil indicators are often challenging to observe while conducting field investigations in this land type.

2.3.2.3 Terrace Escarpments

Terrace Escarpments consist of steep slopes that result from continual erosion or faulting, and separates terraces from lower lying land. The resulting steep faces are influenced heavily by weather conditions and typically do not support diverse vegetation communities. The County Soil Survey showed this land type to be present in a small percentage in the southern portion of the Long Canyon Road bridge alignment area. Sparse vegetation was observed on the north-facing slopes. Terrace Escarpments are included on the National Hydric Soils List due to occurrence in areas of frequent flooding.

2.3.2.4 Sorrento Loam

Sorrento Loam consists of very deep, well-drained soils that formed in alluvium mostly from sedimentary rocks formations. This soil is similar to the Riverwash and Sandy Alluvial land types in that the original alluvium was deposited in layers; however, Sorrento Loam is less subject to flooding and subsequent reworking. Thus, Sorrento Loam had more time to develop the characteristics of a true soil. This soil is classified as a fluvent, which is a very young soil subject to periodic flooding and occurs on alluvial fans and in stabilized floodplains. Vegetation typically consists of irrigated agriculture or annual grasses and forbs within uncultivated areas. This soil is included on the National Hydric Soils List due to occurrence in areas of frequent flooding.

2.3.3 Study Area Overview: Hydrology

The Santa Clara River is the dominant hydrologic feature in the study area, and the active river channel flows through three of the four study locations (The Onion Fields bank stabilization site is located directly adjacent to the river, but outside of the channel). Within the study area, the river supports a complex mosaic of riparian plant communities along the channel margins, on alluvial terraces, and within the greater floodplain. Surface flows are perennial within this reach, supported in part by effluent discharges from two publicly owned treatment works upstream. For agricultural purposes, Newhall Land maintains a number of dry-season culvert road crossings over the Santa Clara River that are removed prior to high winter flows each year. A portion of one of these crossings is located within the Potrero Canyon Road bridge alignment study location, and another occurs approximately 300 feet downstream of the Long Canyon Road bridge alignment location.

The headwaters of the Santa Clara River are located in the San Gabriel Mountains in Los Angeles County, and the seasonal hydrology of the river is primarily dictated by patterns of precipitation in these mountains. Upstream of the study area, the watershed consists of approximately 680 square miles of mostly natural land with some areas developed for urban and agricultural uses. The total watershed area is approximately 1,600 square miles. The Santa Clara River is one of two rivers in the region that is not channelized and remains in a relatively natural state. Within the project vicinity, the river is a braided system with a primary active channel and several secondary channels, and its banks are constantly in flux due to erosion and sedimentation. According to a recent study by Balance Hydrologics (2005), the morphology of the channel is in a state of dynamic equilibrium, where the influence of large storm events dominates the form of the channel. Smaller-scale events can shape the channel in the short term, but the morphologic effect of these events is eliminated when larger storms “reset” the channel through large-scale erosional and depositional processes.

2.3.4 Determination of Wetlands within the Study Area

Through investigations for on-site indicators of wetland hydrology, hydrophytic vegetation and hydric soils, wetlands were identified and mapped within three of the four discrete locations that comprise the study area. The results and determining factors of the wetland delineation are discussed in this section and presented on location-specific figures.

2.3.4.1 <u>Potrero Canyon Road Bridge Alignment</u>

The Potrero Canyon Road bridge alignment study location is a long, narrow swath that spans the active channel of the Santa Clara River, and includes the wetted channel, riparian corridor, and upland agricultural areas on either bank. Within this study location, a total of 20 data points were investigated for evidence of wetland indicators (Appendix A: Wetland Delineation Forms PC-1 through PC-20). Data points were located in various floodplain

positions, including areas adjacent to the active channel, on alluvial terraces, and within the floodplain beyond the channel banks.

According to the vegetation map for the RMDP site (Dudek 2006), vegetation types within the Potrero Canyon Road study location include arrow weed scrub, cottonwood riparian forest, herbaceous wetlands, mulefat scrub, riverwash, big sagebrush scrub, and agriculture. For a description of these communities, please refer to Section 4.2, above. Of the 20 sampling points within the Potrero Canyon Road study location, three were located within areas mapped as arrow weed scrub, four were within cottonwood/willow riparian forest, two were within herbaceous wetlands, one was in mule fat scrub, seven were in riverwash, and the remaining three were within areas mapped as agricultural and disturbed lands (Figure 3).

All but one of these data points (data point PC-1, located in an agricultural field) showed a dominance of hydrophytic vegetation. Dominant hydrophytic plant species observed within this study location included red willow, narrow-leafed willow, Fremont cottonwood, mulefat, cattail, and white sweetclover. Although most of the hydrophytic vegetation within the study location was associated with the current channel of the Santa Clara River, hydrophytic vegetation was also observed in a strip of agricultural land in the northern portion of the study location. In this area, the historic floodplain of Santa Clara River was evident as riparian scrub and forest bordered the narrow swath of agriculture. The area to the south of this hydrophytic vegetation is occupied by a fallow agriculture field. Vegetation in the field consists of Bermuda grass (*Cynodon dactylon*), Mexican sprangletop (*Leptochloa uninervia*), white sweetclover, and mulefat. The locations of sampling points and presence/absence of hydrophytic vegetation are depicted graphically on Figure 3.

According to the Soil Survey of San Francis Area, California (USDA 2007), the Potrero Canyon Road bridge alignment study location contains three distinct mapped soil types: Riverwash, Sandy Alluvial Lands, and Terrace Escarpments. For a description of these soils, please refer to Section 4.3, above. Soils observed during field investigations within this study location consisted of coarse sand typical of the Sandy Alluvial Land and Riverwash soil mapping units (Figure 4). In areas that experienced recent river deposition, various sized gravels and small cobbles comprised a loose matrix with the coarse sand. The dynamic nature of the on-site river channel and the sandy soil composition posed difficulties in determining the presence of hydric indicators. However, hydric features observed included small reddish mottles often throughout the soil profile (Appendix A: Data Sample Points PC-2 through PC-4, PC-10, PC-11, and PC-17 through PC-20; and Appendix C: Photo 5) and organic material in the top portion of the profile (Sample Point PC-6 and Photo 4). In addition, Sandy Alluvial Land and Riverwash land types are listed by the USDA as hydric soils under flooded conditions, which was the condition of soils observed at several locations during the field survey. Of the 20 data points assessed in this study location, 18 exhibited hydric soil characteristics, while such characteristics were lacking in the remaining two (data points PC-1 and PC-12, located in areas mapped as Sandy Alluvial Lands and Terrace

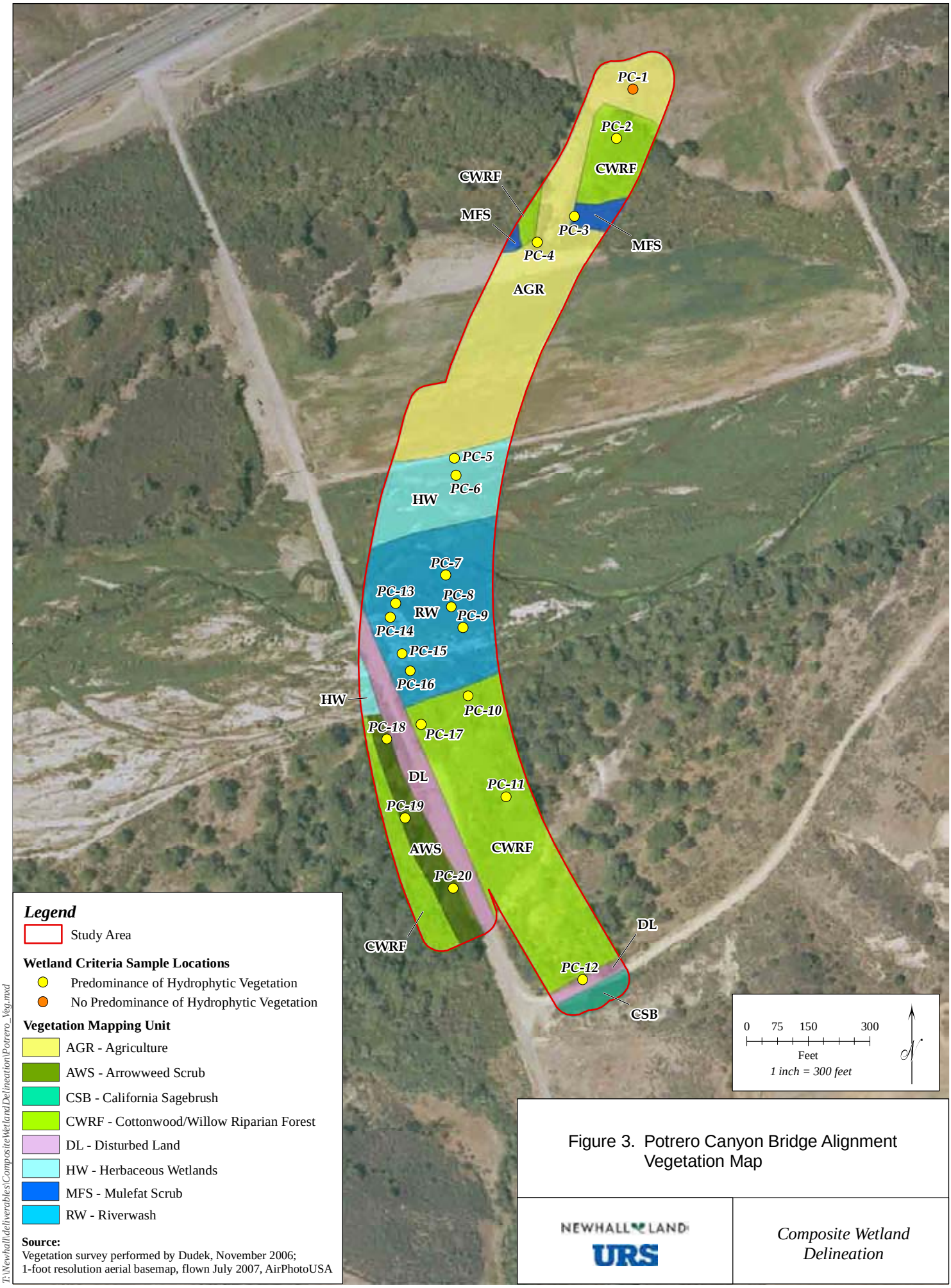

Figure 3. Potrero Canyon Bridge Alignment Vegetation Map

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Composite Wetland Delineation

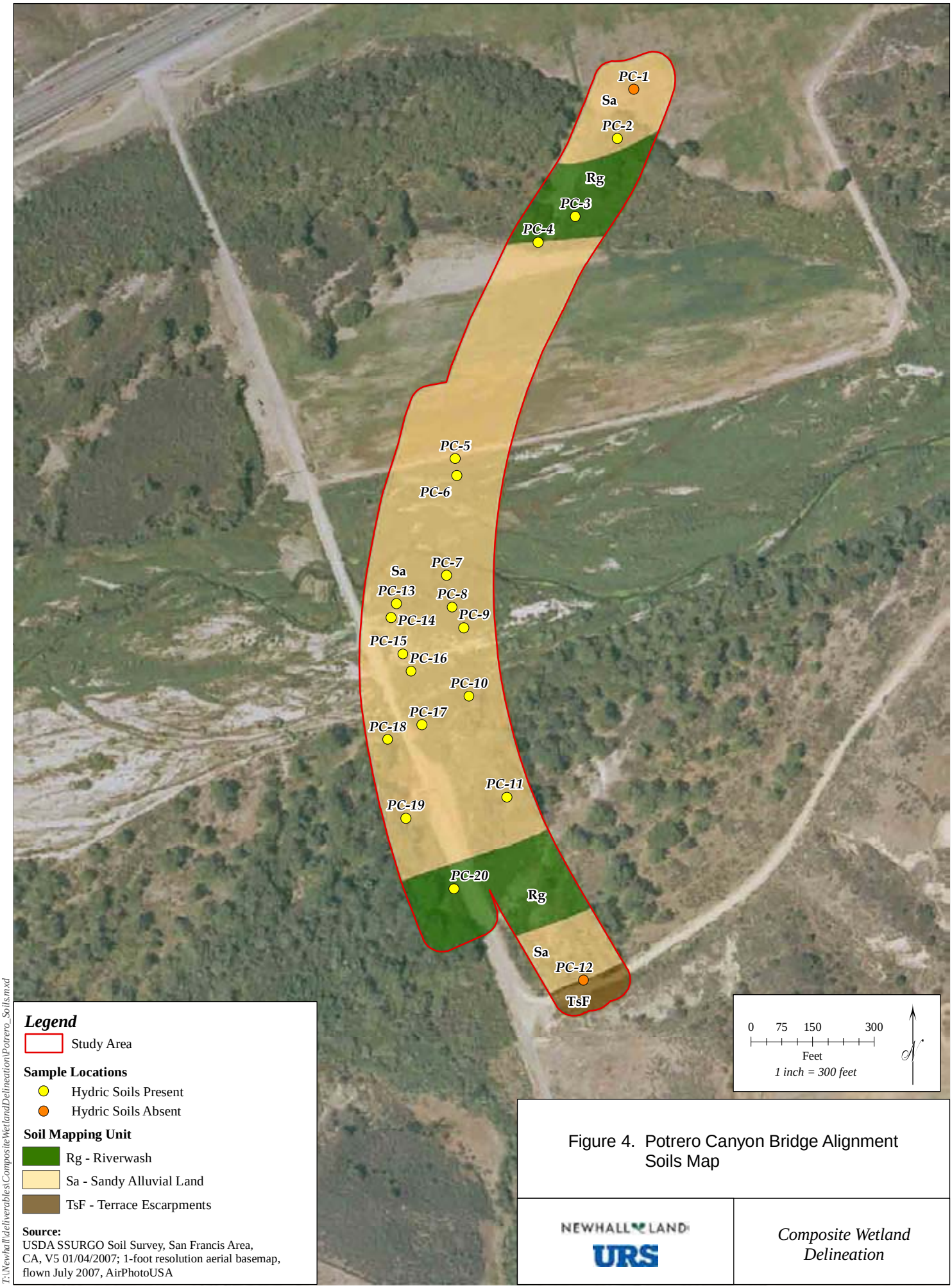

Figure 4. Potrero Canyon Bridge Alignment Soils Map

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Composite Wetland Delineation

Escarpments, respectively). The mapped soil types, along with locations of sampling points and presence/absence of hydric soil indicators, are depicted graphically on Figure 4.

Hydrology within the Potrero Canyon Road bridge alignment is dominated by the Santa Clara River mainstem, which flows through this study location. The river supports year-round surface flows at this location, and flows are supplemented by treated wastewater discharges from two treatment works upstream. The study location contains three basic hydrologic zones: the low-flow river channel, which is inundated year-round by surface flows; terraces and secondary channels, which are inundated periodically during periods of high flow but may be saturated at other times depending on the season, flow conditions, and location; and adjacent uplands, which are not regularly or periodically inundated by river flows. Although the boundaries between these zones are not always easily defined and change over time, the 20 sampling points assessed at the Potrero Canyon Road study location were situated to include all hydrologic zones. Wetland hydrology was evident at all data points located within the active river channel and terraces, but was generally absent at points farther removed from the river. However, three data points (PC-2, PC-3, and PC-4) located in a portion of the historic floodplain exhibited wetland hydrology, as did a point (PC-20) located between an artificial berm and a ranch road. Hydrology at these points is dictated by local relief, rather than Santa Clara River flows.

A total of 4.89 acres of wetlands were delineated within the Potrero Canyon Road study location (Figure 5 and Table 1). All of the jurisdictional wetlands identified as this location were within the Palustrine system as described by Cowardin (1979). Based on the vegetation communities present, the wetlands within this study location were classified as Riparian Scrub Wetlands (3.82 acres), Riparian Forest Wetlands (0.56 acres), and Ruderal Wetlands (0.51 acres). The determination of wetlands was difficult given the sandy soil types. In light of problematic sandy soils, the presence of redox mottles and organic matter at several sampling locations provided evidence of hydric soils. Due to the wide distribution of riparian vegetation and problematic sandy soils, the presence of saturated soils, high water table, oxidized roots, and other hydrologic indicators were also used in mapping the wetlands within this study location. Wetlands were mostly located within the active channel of the Santa Clara River, but also occurred in the northern portion of the study area associated with the disjunct historic floodplain and in a small area in the southwest of the study area associated with a small drainage (Figure 5).

2.3.4.2 Onion Fields Bank Stabilization Site

The Onion Fields study location is on the southern bank of the Santa Clara River, on a slope between the river channel and an adjacent agricultural field. Only one data point was assessed in this study location, situated at the bottom of the bank slope (Appendix A: Wetland Delineation Forms BS-1).

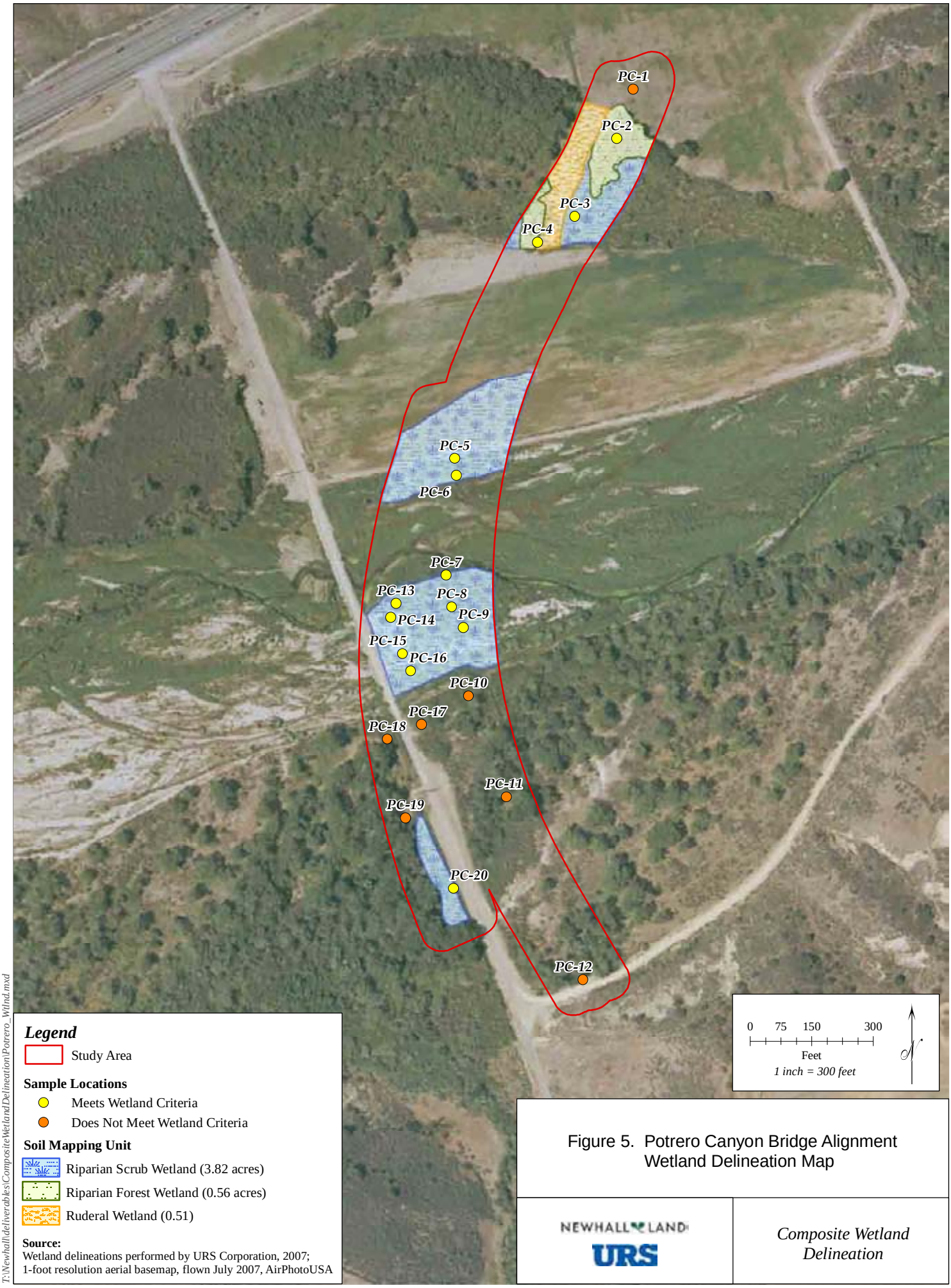

Figure 5. Potrero Canyon Bridge Alignment Wetland Delineation Map

According to the vegetation map for the RMDP site (Dudek 2006), the Onion Fields study location is comprised almost exclusively of cottonwood/willow riparian forest, with small patches of disturbed land present along the agricultural road at the southern boundary. For a description of these communities, please refer to Section 4.2, above. The data point assessed at this location was within the cottonwood/willow riparian forest, and exhibited a dominance of hydrophytic vegetation (Figure 6). Dominant hydrophytic plant species within this study location included Freemont cottonwood and red willow trees, confirming the mapped vegetation type. Understory plants included California rose (*Rosa californica*), stinging nettle (*Urtica dioica*) and mugwort (*Artemisia douglasiana*). The riparian canopy was dense with an open to closed shrub layer. In open areas, thick leaf litter covered the majority of the ground.

According to the Soil Survey of San Francis Area, California (USDA 2007), the entire Onion Fields study location is mapped as Sandy Alluvial Lands (Figure 7). For a description of this land cover, please refer to Section 4.3, above. Soils assessed at the sampling point consisted of sandy loam typical of the Sandy Alluvial Lands soil mapping unit. Typical conditions were present during the delineation, and the soils were not determined to be problematic due to the presence of well-established vegetation. No redox features or other hydric soil indicators were observed at the sampling point.

Although the Onion Fields study location is within the Santa Clara River floodplain, it is located on a slope between the river channel and an adjacent agricultural field. The data point assessed at this study location was located at the bottom end of this slope, closest to the river channel (Figure 8). Due to the age and structure of the riparian forest, it is apparent that this location is seldom affected by high flows in the river, and that regular inundation or saturation does not occur. The sampling point was thoroughly examined for evidence of wetland hydrology, but no primary or secondary indicators were present.

No jurisdictional wetlands were found to occur within the Onion Fields Bank Stabilization study location (Table 1). Although hydrophytic vegetation was present, the area lacked hydric soils and wetland hydrology.

2.3.4.3 Long Canyon Road Bridge Alignment

The Long Canyon Road bridge alignment study location is a long, narrow swath that spans the active channel of the Santa Clara River, and includes the wetted channel, riparian corridor, transitional vegetation, and upland agricultural areas on either bank. Within this study location, a total of eight data points were investigated for evidence of wetland indicators (Appendix A: Wetland Delineation Forms LC-1 through LC-8). Data points were located in various floodplain positions, including areas adjacent to the active channel, on alluvial terraces, and within the floodplain beyond the channel banks. Within this study location, the active river channel is in the northern portion of the floodplain.

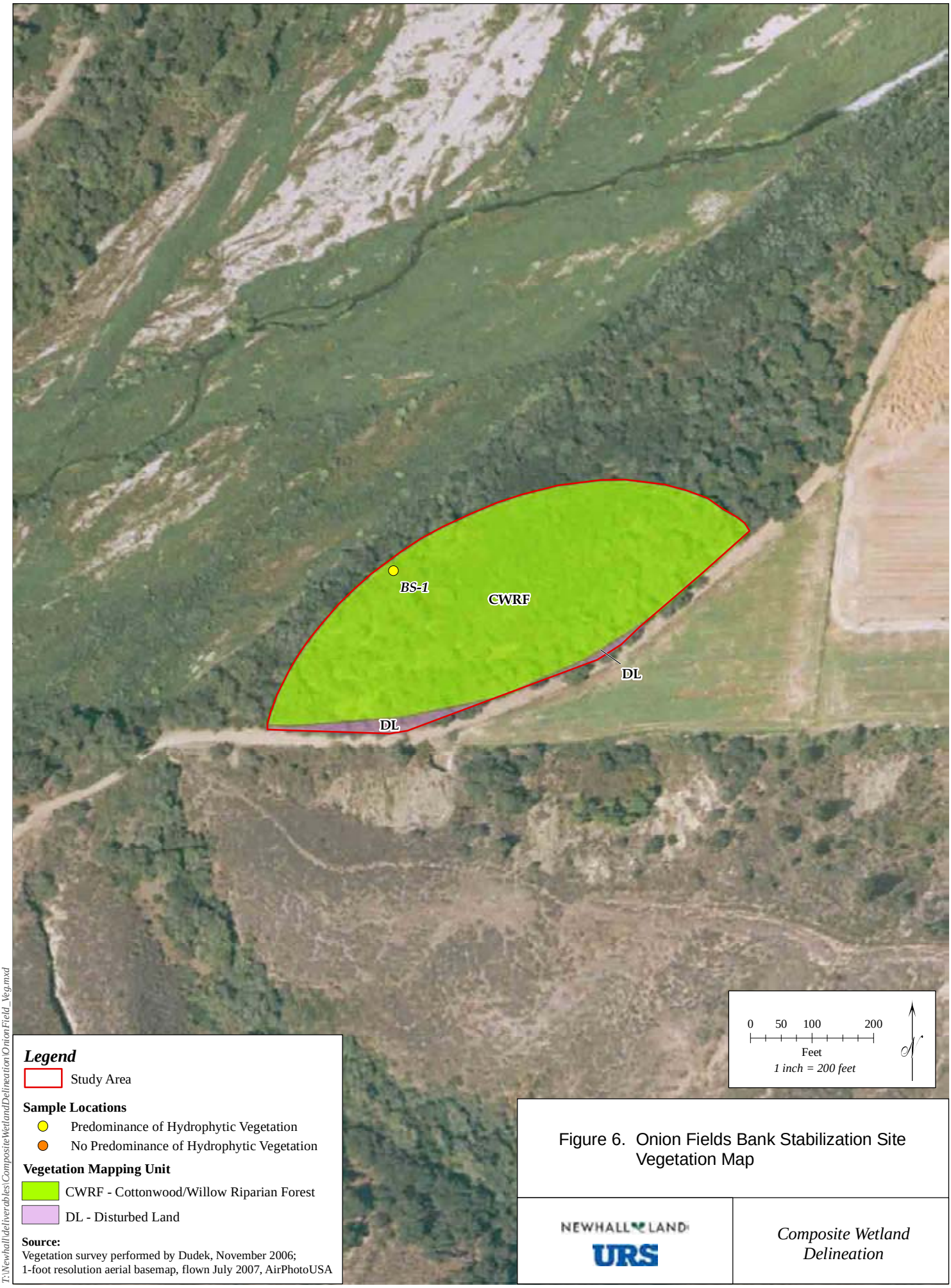

Figure 6. Onion Fields Bank Stabilization Site Vegetation Map

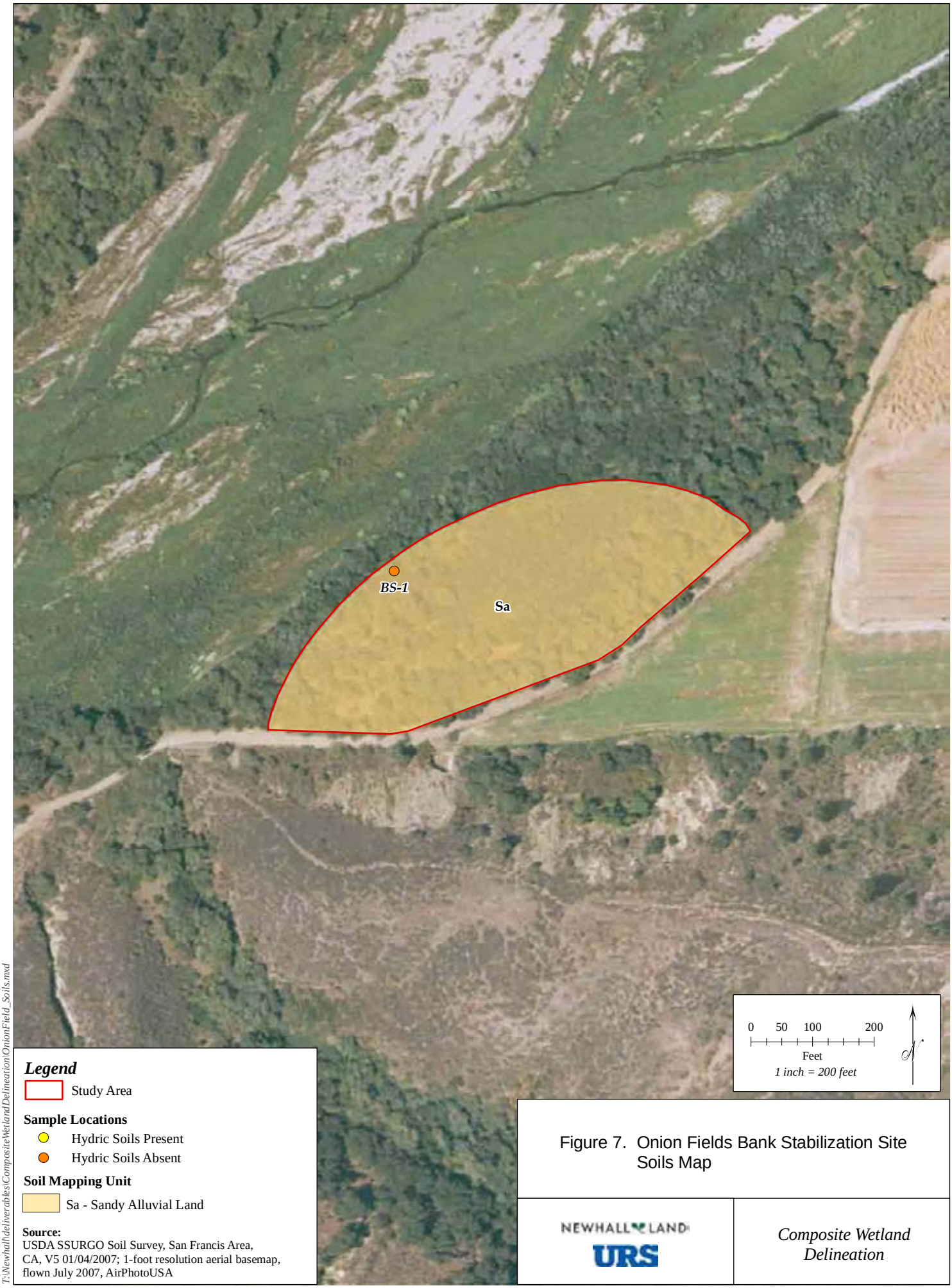

Figure 7. Onion Fields Bank Stabilization Site Soils Map

Composite Wetland Delineation

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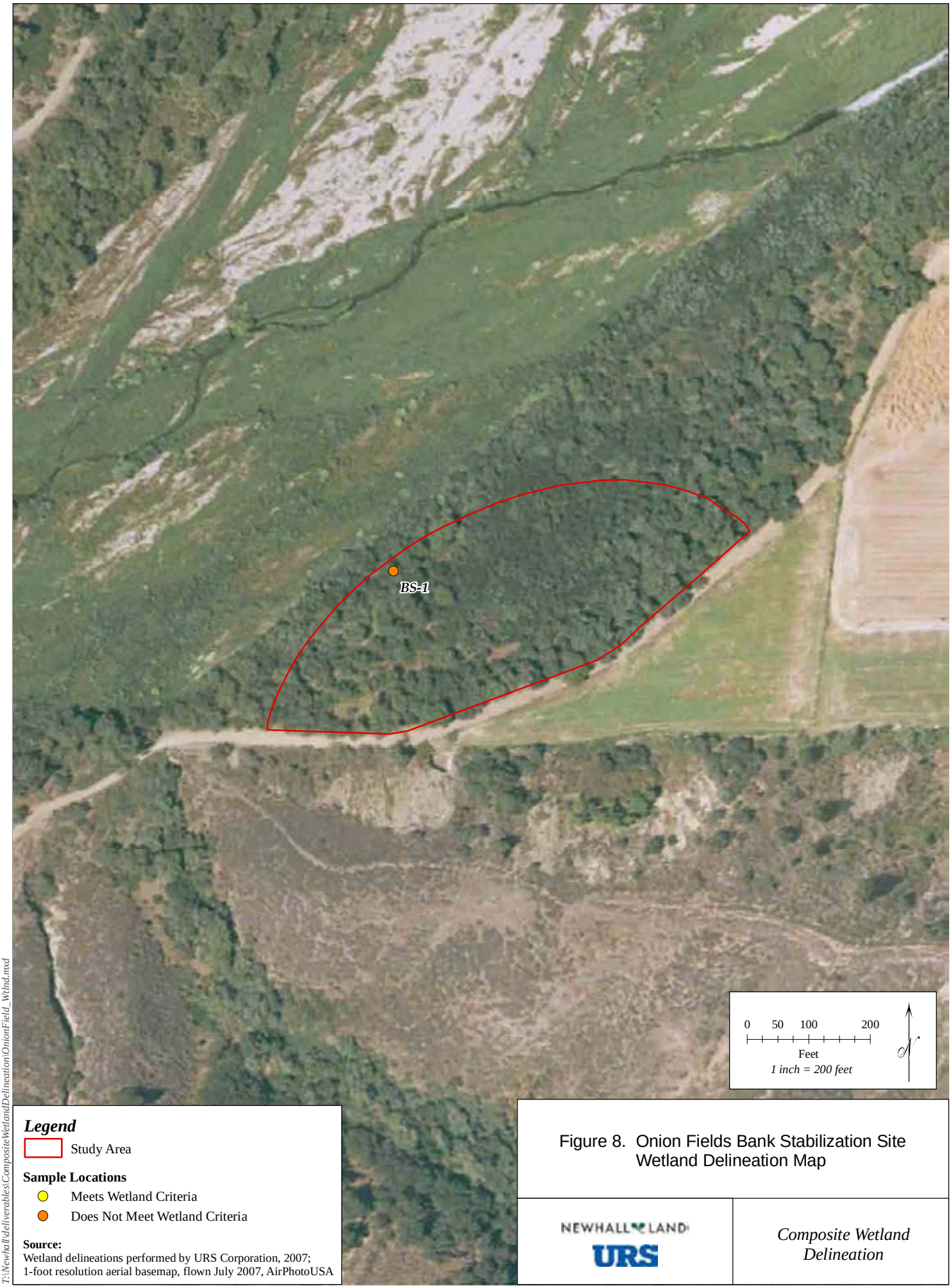

Figure 8. Onion Fields Bank Stabilization Site Wetland Delineation Map

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The vegetation map for the RMDP site (Dudek 2006) shows several vegetation types within the Long Canyon Road study location, including cottonwood/willow riparian forest, herbaceous wetlands, mulefat scrub, riverwash, disturbed land, and agriculture. For a description of these communities, please refer to Section 4.2, above. Of the eight sampling points assessed within the Long Canyon Road bridge alignment study location, one was located within an area mapped as cottonwood/willow riparian forest, one was within mule fat scrub, three were in riverwash, and the remaining three were in areas mapped as agricultural or disturbed land (Figure 9). All but two of these data points (Points LC-1 and LC-8, located in agricultural fields) showed a dominance of hydrophytic vegetation. Dominant hydrophytic plant species within this study location included mulefat, tamarisk, arundo, South American horseweed (*Conyza bonariensis*), red willow, narrow-leaf willow, and willow weed (*Polygonum lapathifolium*). All of the hydrophytic vegetation within this study location was associated with the active channel and riparian corridor of the Santa Clara River. In the southern portion of the Long Canyon Road study location, a terrace at the edge of the riparian corridor contained several hydrophytic vegetation species including mulefat and narrow-leaf willow. Lands within the study location beyond the riparian corridor, at the extreme northern and southern ends of the study location, contained agricultural fields and did not exhibit a dominance of hydrophytic vegetation; these areas were dominated by annual grasses. The locations of sampling points and presence/absence of hydrophytic vegetation are depicted graphically on Figure 9.

According to the Soil Survey of San Francis Area, California (USDA 2007), the Long Canyon Road bridge alignment study location is underlain primarily by Riverwash, but also includes Sandy Alluvial Lands and Sorrento Loam at the northern and southern ends, respectively. For a description of these soils, please refer to Section 4.3, above. Soils observed during field investigations within this study location consisted of coarse sand typical of the Sandy Alluvial Land and Riverwash land types; and loamy sand, sandy loam, and clay loam typical of the Sorrento Loam soil type (Figure 10). Riverwash was found throughout the majority of the study area (Appendix A: LC-2 through LC-5). In areas that experienced recent river deposition, various sized gravels and small cobbles comprised a loose matrix with the coarse sand. The only hydric soil indicator observed within this study location was depleted matrix (data point LC-3); no sandy redox or other hydric soil indicators were evident during examination of soil profiles. However, the dynamic nature of the on-site river channel and the sandy soil composition posed difficulties in determining the presence of hydric soil indicators. Because the Sandy Alluvial Land and Riverwash land types are listed by the USDA as hydric soils under flooded and/or saturated conditions, these soil types were counted as hydric even in the absence of other indicators when flooding and/or saturation were observed (data point LC-5). The mapped soil types, along with locations of sampling points and presence/absence of hydric soil indicators, are depicted graphically on Figure 10.

Hydrology within the Long Canyon Road bridge alignment is dominated by the Santa Clara River mainstem, which flows through this study location. The river supports year-round

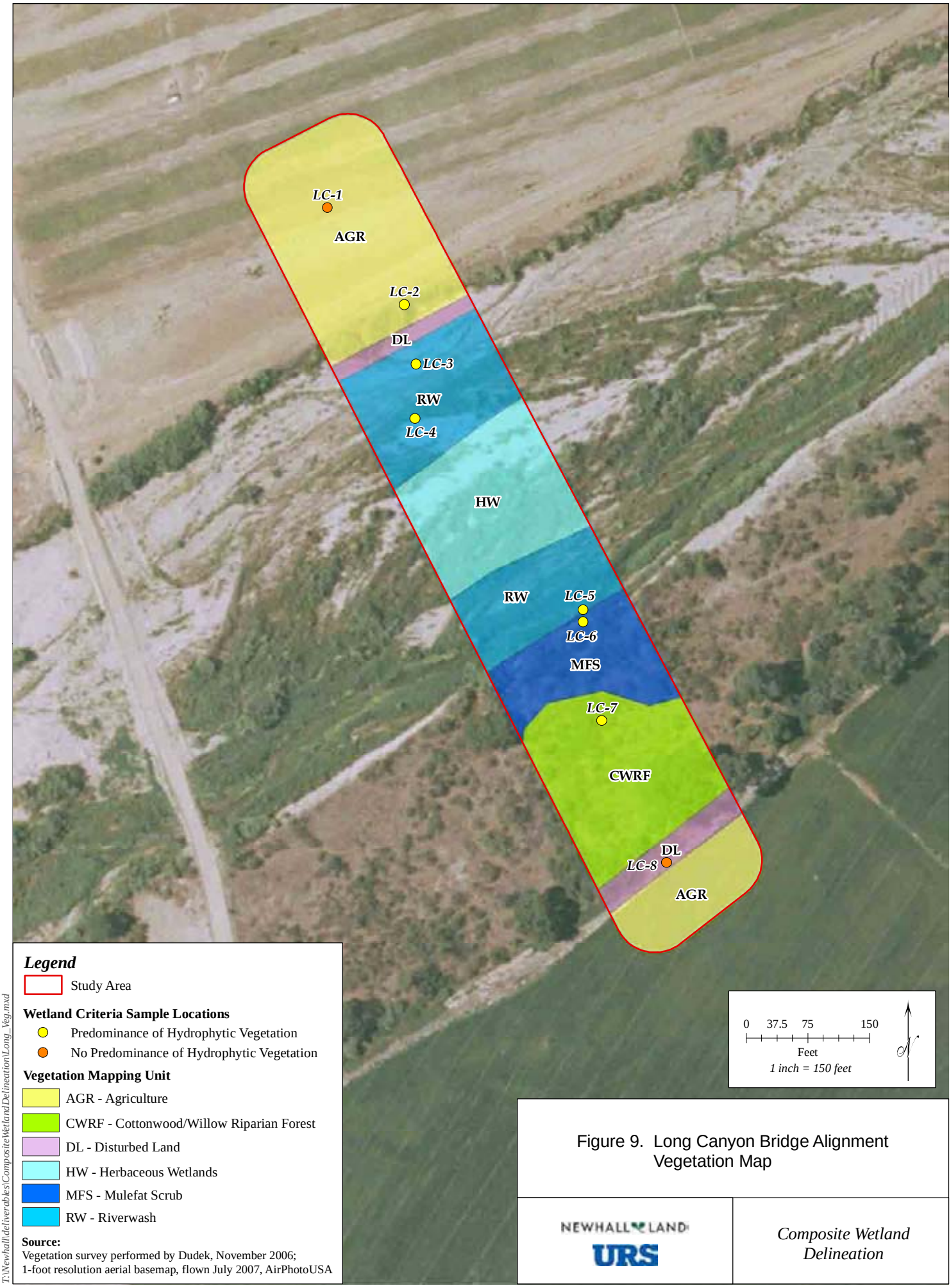

Figure 9. Long Canyon Bridge Alignment Vegetation Map

Figure 10. Long Canyon Bridge Alignment Soils Map

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Composite Wetland Delineation

surface flows at this location, which are supplemented by treated wastewater discharges from two treatment works upstream. The study location contains three basic hydrologic zones: the low-flow river channel, which is inundated year-round by surface flows; terraces and secondary channels, which are inundated periodically during periods of high flow but may be saturated at other times depending on the season, flow conditions, and location; and adjacent uplands, which are not regularly or periodically inundated by river flows. Although the boundaries between these zones are not always easily defined and change over time, the eight sampling points assessed at the Long Canyon Road study location were situated to include all hydrologic zones. Wetland hydrology was evident at all data points located within the active river channel and terraces, but was absent at points farther removed from the river. A total of 1.34 acres of wetlands were delineated within the Long Canyon Road study location (Figure 11 and Table 1). The determination of wetlands was difficult given the problematic, sandy soil types within the study location. Due to the presence of problematic soils, the mapped soil types and position in the riverbed was used as evidence of hydric soils in some areas. Wetlands were present on both banks of the Santa Clara River, within and adjacent to the active channel. All of the jurisdictional wetlands identified as this location were within the Palustrine system as described by Cowardin (1979). Based on the vegetation communities present, the wetlands within this study location were classified as Riparian Scrub Wetlands. The most appropriate National Wetland Inventory (NWI) classification for this community is PSS6.

2.3.4.4 Southern Abutment of Commerce Center Drive Bridge

The study location at the southern abutment of the Commerce Center Drive bridge is a narrow swath that extends southward from the active channel of the Santa Clara River into the uplands on the southern bank. Within this study location, a total of seven data points were investigated for evidence of wetland indicators (Appendix A: Wetland Delineation Forms CC-1 through CC-7). Data points were located in various floodplain positions, including areas adjacent to the active channel, on alluvial terraces, and beyond the southern bank. At the time of the investigation, the active river channel was within the northernmost portion of the study location.

The vegetation map for the RMDP site (Dudek 2006) shows four vegetation types within the Commerce Center Drive study location, including riverwash, herbaceous wetlands, cottonwood/willow riparian forest, and California sagebrush scrub. For a description of these communities, please refer to Section 4.2, above. Of the eight sampling points assessed within this study location, one was located within an area mapped as riverwash, one was in herbaceous wetlands, three were within cottonwood/willow riparian forest, and the remaining two were mapped as California sagebrush scrub (Figure 12). All of the sampling points assessed exhibited a dominance of hydrophytic vegetation. Dominant hydrophytic plant species within the Commerce Center Drive study location included red willow, sandbar willow, Fremont cottonwood, mulefat, cattails (*Typha* spp.), and giant reed. All of the

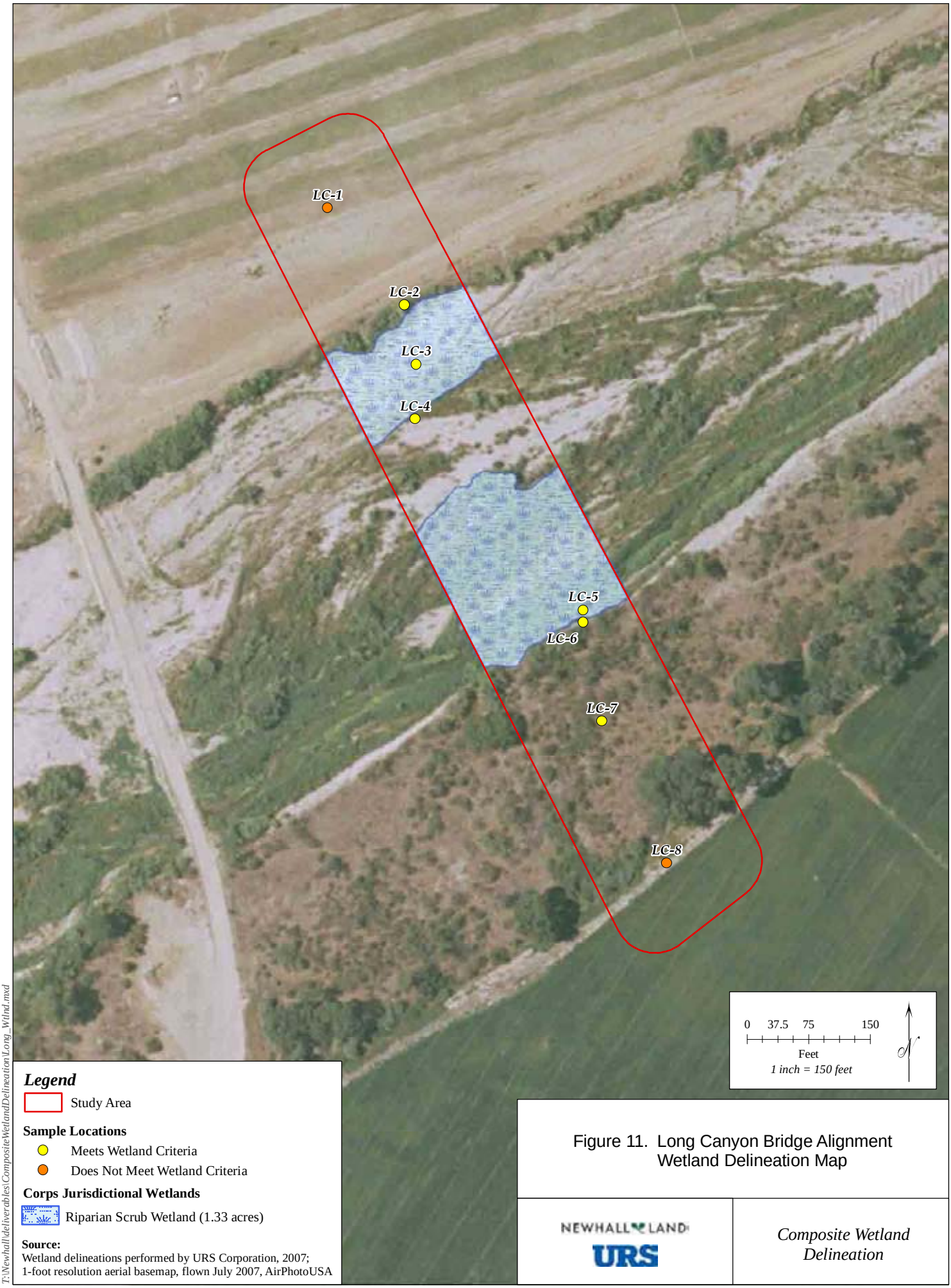

Figure 11. Long Canyon Bridge Alignment Wetland Delineation Map

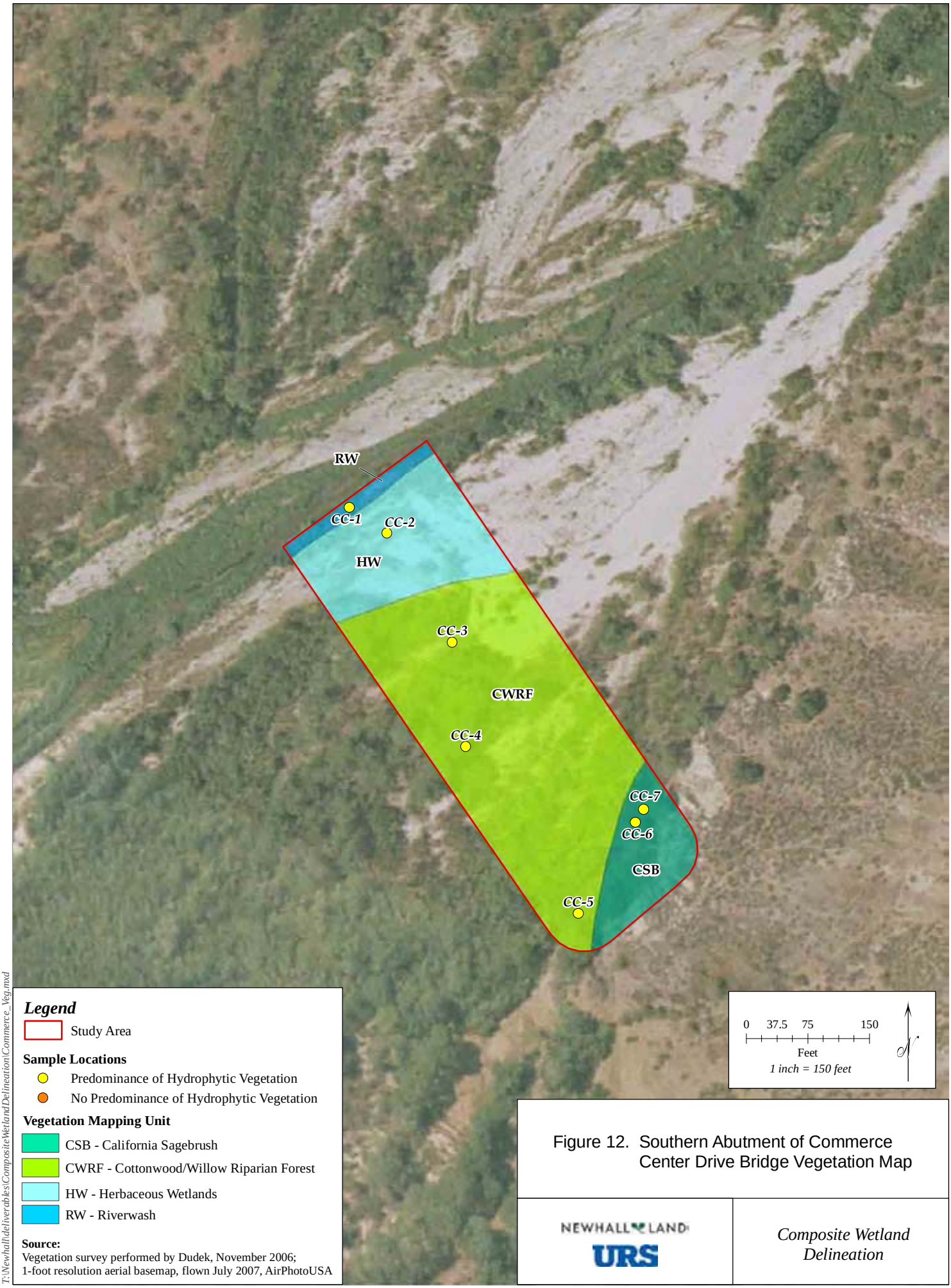

Figure 12. Southern Abutment of Commerce Center Drive Bridge Vegetation Map

hydrophytic vegetation within this study location was associated with the active channel and riparian corridor of the Santa Clara River. The locations of sampling points and presence/absence of hydrophytic vegetation are depicted graphically on Figure 12.

According to the Soil Survey of San Francis Area, California (USDA 2007), the Commerce Center Drive study location is underlain primarily by Sandy Alluvial Lands, but also includes Terrace Escarpments in the southeastern corner. For a description of these soils, please refer to Section 4.3, above. Soils observed during field investigations within this study location consisted of coarse sand, consistent with the Sandy Alluvial Land and Terrace Escarpments mapping units (Figure 13). In areas that experienced recent river deposition, various sized gravels and small cobbles comprised a loose matrix with the coarse sand. Hydric soil indicators observed within this study location included small reddish mottles, often throughout the soil profile (Appendix A: Data Sample Points CC 1-6 and Appendix B: Photo 4), and organic material in the top portion of the profile. However, the dynamic nature of the on-site river channel and the sandy soil composition posed difficulties in determining the presence of hydric soil indicators. In addition, the Terrace Escarpment land type is especially problematic due to its steep faces and continuing erosional processes. Because Sandy Alluvial Land is listed by the USDA as a hydric soil under flooded and/or saturated conditions, this soil type was counted as hydric even in the absence of other indicators when flooding and/or saturation were observed (data points CC-1, CC-2, and CC-5). The mapped soil types, along with locations of sampling points and presence/absence of hydric soil indicators, are depicted graphically on Figure 13.

Hydrology within the Commerce Center Drive study location is dominated by the Santa Clara River, which flows through the southern end of this study location. The river supports year-round surface flows at this location, which are supplemented by treated wastewater discharges from two treatment works upstream. The study location is sloped, with higher elevation area occurring on the southern river bank and lower elevations at the river channel, in the northern portion of the study location. The sloping topography results in a gradation of hydrologic zones, ranging from the low-flow river channel, which is inundated year-round by surface flows, to upland areas on the southern bank, which are not regularly affected by the river hydrology. The seven sampling points assessed at the Commerce Center Drive study location were situated at various locations throughout the study location, and included all hydrologic zones present. Wetland hydrology was evident at all data points located within the active river channel and terraces, but was absent at points farther removed from the river. Indicators of wetland hydrology included water marks, sediment deposits, and drainage patterns.

A total of 2.84 acres of wetlands were delineated within the Commerce Center Drive study location (Figure 14 and Table 1). The determination of wetlands was difficult given the presence of sandy and eroding soil types, and the mapped soil types and observed inundation/saturation were used as evidence of hydric soils in some areas. Wetlands were

Figure 13. Southern Abutment of Commerce Center Drive Bridge Soils Map

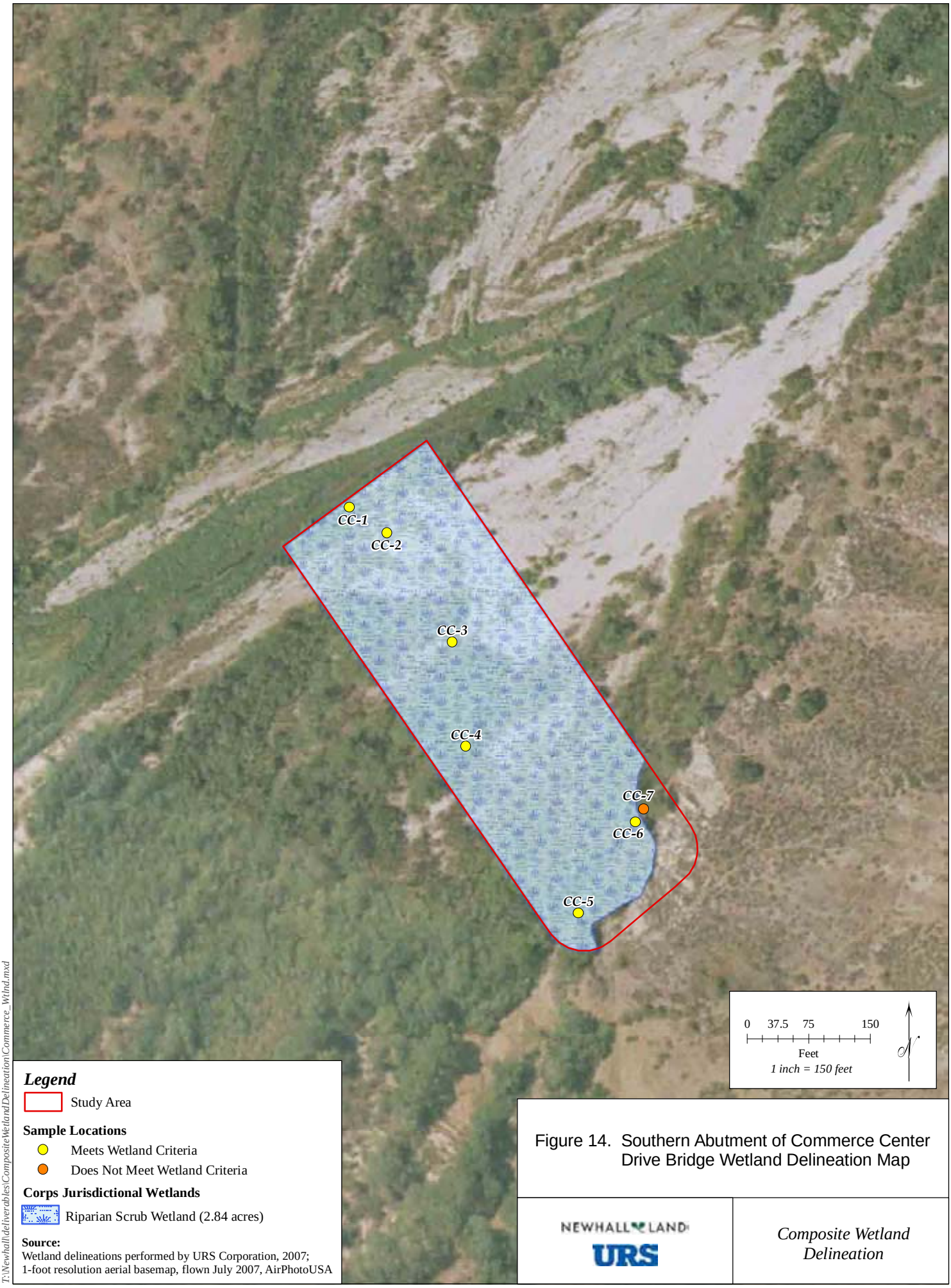

Figure 14. Southern Abutment of Commerce Center Drive Bridge Wetland Delineation Map

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present throughout the study location, with the exception of the southeastern corner which lacked hydric soils and wetland hydrology. All of the jurisdictional wetlands identified as this location were within the Palustrine system as described by Cowardin (1979). Based on the vegetation communities present, the wetlands within this study location were classified as Riparian Scrub Wetlands.

As shown in Table 1, URS Corporation has delineated approximately 9.06 acres of jurisdictional wetlands within four discrete locations on the RMDP site that comprise the Part One study area. The study locations within the bridge alignments at Potrero Canyon Road, Long Canyon Road, and Commerce Center Drive contained 4.89 acres, 2.10 acres, and 2.94 acres of jurisdictional wetlands, respectively. No wetlands were identified at the Onion Fields bank stabilization study location. Because the study area included a 100-foot buffer surrounding the proposed bridge alignments and bank stabilization, construction of these facilities would likely not impact the entire wetland acreage delineated within each study location. The locations of jurisdictional wetlands within the Part One study area are displayed on Figures 5, 11, and 14, and acreages are summarized in Table 1. The use of three field indicators for the three defined parameters: hydrophytic vegetation, hydric soils, and wetland hydrology, as well as the application of the routine and problematic methodologies were used to determine the location and extent of wetlands subject to Corps jurisdiction.

SECTION 3.0
PART TWO: COMPOSITE DELINEATION OF WETLANDS WITHIN THE RMDP SITE AND THE ADJACENT ENTRADA PLANNING AREA

As stated previously, the field delineation of wetlands undertaken by URS in 2007 and presented in Part One of this document only addressed areas of the RMDP site that are within and adjacent to the disturbance footprints of major project components, such as roadway bridges across the Santa Clara River. Part Two of this study presents a composite wetland delineation, which combines the findings of Part One with the results of previous studies to yield a comprehensive, planning-level delineation of Corps-jurisdictional wetlands within the entire RMDP site.

3.1 STUDY AREA

The study area for this composite wetland delineation includes the entire RMDP site, as well as the adjacent Entrada planning area (Figure 15). The total acreage within the study area is approximately 14,042 acres: 13,651 within the RMDP site and 391 within Entrada. The study area is largely undeveloped, although Newhall Land has historically leased portions of the site for agricultural, grazing, oil and gas production, and filmmaking purposes. Geographically, the study area is bounded by the crest of the Santa Susana Mountains to the south, urban development in the City of Santa Clarita to the east, by the Chiquita Canyon Landfill and the community of Val Verde to the north, and by agricultural lands and open space in Ventura County to the west.

Hydrology within the study area is dominated by the Santa Clara River, which flows through the study area in an east-west direction, and a by a large number of tributary drainages which flow from the mountains on either side of the Santa Clarita Valley to join the river. The river mainstem exhibits perennial flow within the boundaries of the study area, supported in part by treated effluent discharges from two wastewater treatment works located a short distance upstream. This river reach supports substantial habitat for aquatic and riparian plants and wildlife. The majority of the on-site tributaries to the river are ephemeral, first- and second-order streams that exhibit surface flows only immediately following storm events and do not support aquatic life or riparian vegetation. However, the RMDP site does contain seven larger tributaries, some of which exhibit intermittent and perennial flow regimes in some reaches. These larger tributaries convey flows from natural lands outside the study area through the RMDP site and into the Santa Clara River.

The study area contains varied topography due to the presence of low-lying riverbed areas and higher-elevation mountains within the site. At higher elevations within the study area, steep slopes and rugged mountains and foothills dominate the landscape. Vegetation in these

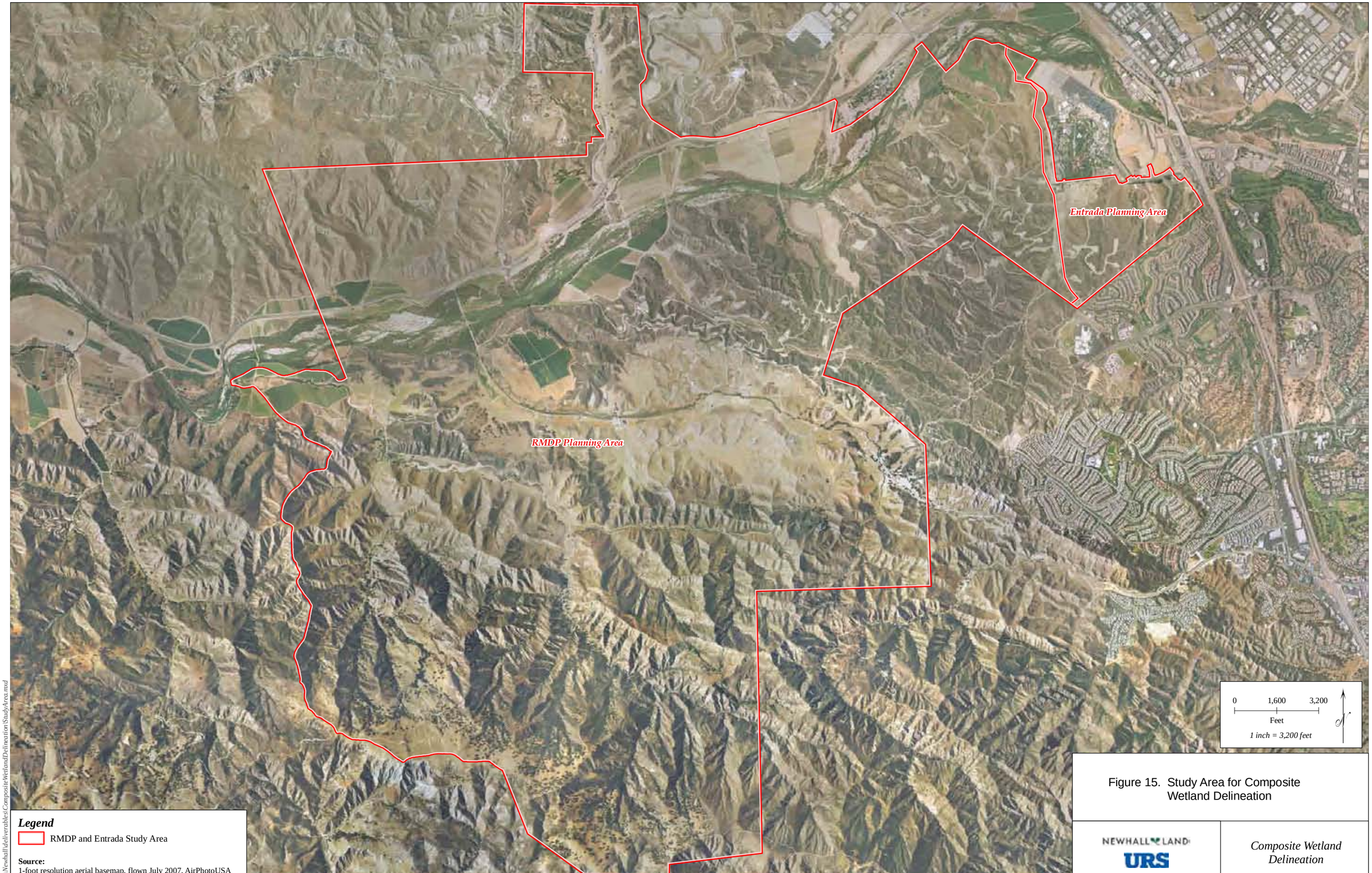

Figure 15. Study Area for Composite Wetland Delineation

Composite Wetland Delineation

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areas consists primarily of shrub-dominated upland habitats, such as California sagebrush scrub and chaparral, although oak woodlands and occasional riparian areas are also present.

Although the site's higher elevations are subject to cattle grazing, human activities within these areas are otherwise minimal. The lower-elevation portions of the study area within the larger tributary valleys and river floodplain, by contrast, have been more heavily impacted by human activities including commercial farming and oil production. These areas have much gentler slopes than the site's mountainous regions, and support habitats including cottonwood/willow riparian forest and riparian scrub habitats along drainages, annual grassland and various scrub communities in the uplands, and ruderal vegetation and bare ground in disturbed areas.

3.2 METHODS AND SOURCE MATERIALS

This composite wetland delineation presents a single map of jurisidictional wetlands within the study area that has been compiled from several technical documents produced between 2004 and 2009. Because all of the source materials utilized in this study included map data in Geographic Information Systems (GIS) format, GIS software was used to compile and combine the source data.

Each data source contained one or more shape files that spatially defined the location and extent of areas mapped as wetlands by that particular investigation. The wetland areas were mapped in the source material as enclosed shapes, or polygons, and were distinguished from other, non-wetland polygons by attribute information in the data set. The areas evaluated in the four data sources were mutually exhaustive, meaning that there was no portion of the study area that was not covered in one or more of the source materials. However, the areas evaluated were not mutually exclusive, so certain portions of the study area were covered by more than one data source.

In portions of the study area where only one data source provided wetland delineation information, such as the Entrada planning area and portions of the RMDP site that were not within the Santa Clara River corridor, the wetland polygons from that data source were copied into the composite wetland delineation. In portions of the study area where more than one data source provided wetland information, the union of all wetland polygons from those sources was copied into the composite wetland delineation. This is a more conservative approach than choosing to adopt one set of wetland boundaries over another, as it assigns wetland status to a polygon if any one of the data sources evaluated identified the polygon as a wetland.

It should be noted that the composite wetland delineation is a "planning-level" delineation, as it relies on mutliple data sources, dating from different years and using different investigation methods. While data sources based on field investigations are available for some portions of the study area, other areas were delineated through analysis of aerial photographs. The four

sources from which spatial wetland data was compiled for the composite wetland delineation are described below.

3.2.1 URS Corporation (2004) Delineation Report for the RMDP Site

In the winter of 2003, URS staff conducted a delineation of all waters exhibiting an ordinary high water mark and all CDFG-jurisdictional streambeds present within the RMDP site; a technical report was completed in early 2004. The Santa Clara River, Salt Creek, and portions of the Potrero Canyon drainage were found to be the only perennial streams on-site; many jurisdictional intermittent and ephemeral streams also were present. The 2004 delineation was conducted by walking the jurisdictional boundaries using sub-meter accurate GPS units capable of mapping polygons in the field; these data were then transferred into a GIS database. Although the 2004 delineation did not evaluate wetland areas specifically, four of the CDFG-jurisdictional streambed areas identified in this report were determined to meet wetland criteria due to the obvious and continuous presence of hydrophytic vegetation, saturated soils, and wetland hydrology. Two of these areas are cismontane alkali marshes within the Potrero Canyon drainage: one is located adjacent to the low-flow stream channel near the canyon mouth and the other is within the low-flow channel approximately one mile upstream. A third wetland area was identified at a confluence of two branches in the Salt Creek drainage, where perennial flows spread out across a flat floodplain area. The fourth jurisdictional wetland within the RMDP site is a spring complex within the river corridor near the mouth of Middle Canyon, where perennial flows down a slope from a spring support extensive, dense riparian vegetation and continuous soil saturation. Because this delineation report did not specifically investigate wetlands, the report does not provide acreage estimates for these sites. However, acreages have been calculated based on the GIS data, and are presented in Section 3.4 Results, below. The URS Corporation 2004 jurisdictional delineation of the RMDP site is included as Appendix D of this composite wetland delineation.

3.2.2 Lukos and Associates (2008) Delineation Report for the Entrada Planning Area

A study conducted by Lukos and Associates in 2008 delineated the limits of waters of the United States, Corps jurisdictional wetlands, and CDFG jurisdictional streams within the Entrada planning area. Methods utilized included field surveys in accordance with the Corps' Wetland Delineation Manual (Environmental Laboratory 1987), mapping of jurisdictional areas on maps and aerial photographs in the field, and digitizing this information to create a GIS layer. This study identified four jurisdictional drainage systems within the Entrada planning area, one of which was the Magic Mountain Canyon drainage previously delineated by URS during the 2004 delineation of the RMDP site (The drainage generally follows the boundary between the RMDP study area and the Entrada planning area, and portions of the drainage are within each area. However, for simplicity of analysis, the Magic Mountain Canyon drainage is considered to be within the RMDP study area). The study identified

jurisdictional wetlands within two of the drainages within the Entrada planning area, and reported the total acreage of these areas to be 0.15 acres. The 2008 Lukos and Associates delineation report for the Entrada planning area is included as Appendix E to this composite wetland delineation.

3.2.3 URS Corporation/Dudek and Associates (2006) Planning-level Delineation of Wetlands in the Santa Clara River through Interpretation of Aerial Photography

In 2006, biologists from URS Corporation and Dudek and Associates jointly undertook a planning-level delineation of Corps-jurisdictional wetlands within the reach of the Santa Clara River corridor in the RMDP site. The extent of wetlands within this reach was determined through an analysis of high-resolution (6 inch pixels) aerial photographs flown by Robert J. Lung and Associates on May 24, 2006. Although hydrologic and soils maps were reviewed during this effort, it was determined that the available maps lacked the resolution necessary to be useful in delineating wetland boundaries at the desired scale (For example, the Soil Survey of San Francis Area, California [USDA 2007] maps nearly the entire riverbed within this reach as Sandy Alluvial Land, a problematic soil type). Because the extent of hydric soils within the study reach was not discernible from either the aerial photographs or the soils map, soils were not used as a criterion in the delineation. Instead, to be conservative, all areas where wetland hydrology and hydrophytic vegetation were evident were mapped as wetlands, regardless of soil conditions.

Evidence of wetland hydrology was determined though evaluation of the aerial photographs for evidence of scour, and through inspection of the field-delineated ordinary high water mark boundaries presented in the URS 2004 jurisdiction delineation of the RMDP site. All areas within or adjacent to the mapped river channel that showed signs of recent scour on the aerial photos were considered to exhibit wetland hydrology.

Dominance of hydrophytic vegetation was determined through evaluation of the RMDP site vegetation map prepared by Dudek and Associates in 2006 in conjunction with the aerial photographs. Where riparian vegetation communities were identified on the vegetation map, the air photo was examined, and all areas within or adjacent to mapped riparian vegetation that appeared vegetated were considered to exhibit a predominance of hydrophytic vegetation, except when the vegetation map indicated that a different, non-hydrophytic vegetation type was present.

No technical report or other written document was produced from this study; the tangible result of the planning-level delineation of wetlands within the river corridor was a GIS shape file documenting the location and extent of wetlands delineated. Acreages have been calculated based on this GIS data, and are presented in Section 3.4 Results, below.

3.2.4 URS Corporation (2007) Field Delineation of Wetlands in Proposed Bridge Alignment Areas

In 2007, URS Corporation conducted a wetland delineation of potentially jurisdictional features in portions of the RMDP site where major infrastructure improvements, such as roadway bridges across the Santa Clara River, are proposed. This field investigation was performed in accordance with the procedures set forth in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), Department of the Army (DOA) *Clarification and Interpretation of the 1987 USACE Wetland Delineation Manual* (DOA 1992), and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE 2006; Arid West Region Supplement). Data collected during the assessment of wetlands were recorded on Wetland Determination Data Forms – Arid West Region Supplement (Corps 2006). A total of 36 sample point locations were selected in both potential wetland and upland areas to determine the wetland/upland boundary and characterize the vegetation, soils, and hydrology of the area. Soil pits were excavated in areas supporting hydrophytic vegetation to determine the extent of saturation and to examine the soil for positive indicators of hydric soils and wetland hydrology. Soil pits were also excavated in upland areas adjacent to wetlands to aid in delineating the extent of jurisdictional wetlands. At each sample point, plant species composition and indicators of hydric soil and wetland hydrology were recorded. Sample point locations were recorded in the field using a Trimble GeoExplorer Series 2003 GPS unit capable of sub-meter accuracy and were plotted on aerial photographs overlaid with the approximate bridge and bank stabilization footprints and study location boundaries. A sample point was considered to be within a wetland (an "in" point) if the area met all three wetland parameters: dominance by hydrophytic plant species; positive wetland hydrology indicators; and hydric soil conditions. If one or more of these parameters was not met, the point was considered not to be within a wetland (an "out" point) and a line was drawn between the two sample points on the site specific aerial photograph.

The URS 2007 field investigation identified a total of 9.06 acres of Corps-jurisdictional wetlands within the four discrete parts of the RMDP site evaluated. The technical report from this investigation comprises Part One of this composite wetland delineation, and is presented above.

3.3 RESULTS

Based on the four data sources identified above, the study area contains wetlands within the Santa Clara River mainstem and the Potrero Canyon and Salt Creek tributaries within the RMDP site and within two unnamed drainages in the Entrada planning area. Of the acreage delineated within the river corridor, 2.51 acres are attributable to a spring complex near the mouth of Middle Canyon, rather than to the hydrologic influence of the river itself. Table 2 presents the acreages of wetlands delineated, as presented in the source technical reports and

TABLE 2
CORPS JURISDICTIONAL WETLANDS WITHIN THE RMDP SITE AND ENTRADA PLANNING AREA (ACRES)

Drainage	Wetland Acreage from URS 2004 Streambed Delineation (from GIS)	Wetland Acreage from Lukos 2008 Entrada Delineation (Reported)	Wetland Acreage from URS/Dudek 2006 Planning-Level Delineation of River Corridor (from GIS)	Wetland Acreage from URS 2007 Delineation of Bridge Alignment Areas (Reported)	Total Wetland Acreage within the RMDP Site and Entrada Planning Area
Santa Clara River	Not Analyzed	Not Analyzed	228	9.06	**237.06**
Salt Creek	5.67	Not Analyzed	Not Analyzed	Not Analyzed	**5.67**
Potrero Canyon	6.52	Not Analyzed	Not Analyzed	Not Analyzed	**6.52**
Spring Complex	2.14	Not Analyzed	Not Analyzed	Not Analyzed	**2.14**
Subtotal RMDP Site	**14.33**	**Not Analyzed**	**228**	**9.06**	**251.39**
Entrada Unnamed Drainages	Not Analyzed	**0.15**	Not Analyzed	Not Analyzed	**0.15**
Subtotal Entrada Planning Area	Not Analyzed	**0.15**	Not Analyzed	Not Analyzed	**0.15**
Grand Total	**14.33**	**0.15**	**228**	**9.06**	**251.54**

calculated from the source GIS layers. These wetlands are depicted graphically on Figure 16. The four assessments delineated a total of 251.39 acres of jurisdictional wetlands within the RMDP site and an additional 0.15 acres of wetlands within the Entrada planning area, for a grand total of 251.54 acres of jurisdictional wetlands within the study area.

3.4 CONCLUSION AND RECOMMENDATIONS

The composite wetland delineation identified a total of 251.54 acres of jurisdictional wetlands within the study area, most of which occur within the Santa Clara River mainstem. It is important to note that the vast majority of the wetland area delineated in the source studies (228 acres) was identified through the planning-level delineation of the river corridor. While it is almost certainly true that the planning-level delineation methods employed by the biologists at URS Corporation and Dudek and Associates in 2006 determine wetland boundaries with lesser accuracy than the intensive field methods set forth in the Wetland Delineation Manual (Environmental Laboratory 1987), it is important to remember that the Santa Clara River mainstem is a highly dynamic system, and that the proposed RMDP is a long-term project. Even if the extent of wetlands within the river corridor were delineated with the utmost precision today, natural forces such as lateral channel migration, growth and scouring of vegetation, and sediment dynamics would render the delineation progressively less accurate with each passing storm season. The planning-level delineation provides a reasonable estimate (really a conservative estimate, due to the methods employed) of the wetland acreage that occurred within the river corridor in 2006, and the field based source documents provide somewhat more accurate estimates of the location and extent of wetlands in the years when those assessments were conducted. Over the 30-year life of the proposed RMDP project it is not likely that any single delineation of wetlands within the river corridor, regardless of the method employed, would remain accurate.

Despite this reduction in accuracy over time, considerable knowledge can be gained from the results of this composite wetland delineation. Outside the river mainstem, in wetland areas such as Potrero Canyon, Salt Creek, and the unnamed drainages in the Entrada planning area, changes occur much more slowly due to the relative infrequency of extreme flow events in these small watersheds. Wetlands in these areas were delineated using highly accurate field methods, and the delineations should provide useful, accurate information for substantially longer than delineations conducted within the river corridor. In addition, the compilation of many source delineations into a single layer allows an assessment of the proposed RMDP's impacts on wetlands that would not otherwise be possible. Combining the various spatial data sets serves to eliminate the data gaps that would exist if only one of the assessments were used (since no single assessment delineated wetlands within the entire study area) while also eliminating the overlap in the individual GIS layers that prevents an analyst from mathematically combining data from each layer to get a combined wetland impact total.

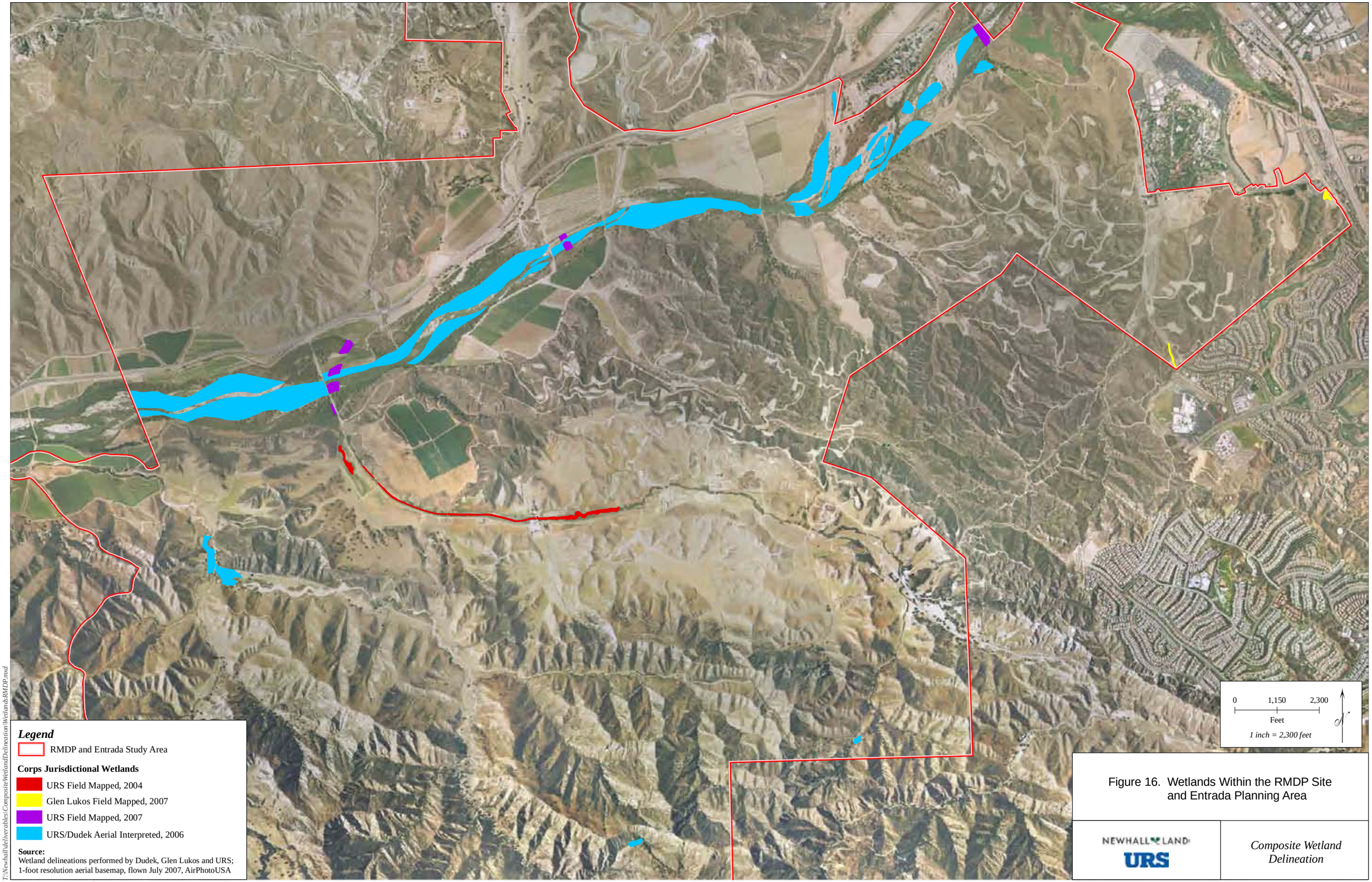

Figure 16. Wetlands Within the RMDP Site and Entrada Planning Area

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Based on the information above, URS recommends that this composite wetland delineation be supplemented by smaller-scale, field-based delineations prior to construction of individual RMDP project components. The RMDP technical document (Dudek 2006b) identifies the types and locations of facilities proposed, but is intended to provide sufficient flexibility for future RMDP components to meet changing demands while avoiding impacts to the aquatic environment to the maximum extent practicable. To this end, the delineations should ideally be conducted close enough to the time of construction to minimize the effects of natural river dynamics, but far enough in advance to allow consideration of design changes that could avoid or minimize impacts to special aquatic sites.

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APPENDIX A
WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-1

Investigator(s): J. Kisner, J. Love, W. Vogler, E. Larsen Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358923.7936400 Long: 1971818.2330300 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP PC-1 characterizes an agricultural field with mixed grasses approximately 850 feet North of the Santa Clara River.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
Total Cover:			
Herb Stratum			
1. *Eleusine indica*	25	Y	FACU
2. *Poa* sp.	25	Y	
3. *Dactyloctenium aegyptium*	25	Y	NI
4. *Ambrosia acanthicarpa*	3	N	NI
5. *Brassica nigra*	3	N	NI
6. *Trifolium* sp.	1	N	
7. *Leptochloa uninervia*	1	N	FACW
8. *Polygonum arenastrum*	1	N	FAC
9. *Rumex* sp.	1	N	
10. *Sonchus* sp.	1	N	
11. *Xanthium strumarium*	1	N	FAC+
Total Cover:	87		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 13 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

Reed 1988 was used to determine the wetland indicator status of plants unless otherwise noted.

SOIL

Sampling Point: PC-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/3						sandy coarse	
6-16	10YR4/3						coarse sand w/ gravel (riverwash)	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-2

Investigator(s): E. Larsen, J. Kisner, W. Vogler, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358883.5776700 Long: 1971698.1401700 Datum: NAD83

Soil Map Unit Name: Sany Alluvial Land NWI classification: PFO6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-2 characterizes riparian forest North of Santa Clara River. Currently, fragmented from riparian habitat near river due to agricultural use in the area.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	95	Y	FACW
2.			
3.			
4.			
Total Cover:	95		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	5	Y	FACW[a]
2. *Salix exigua*	2	N	OBL
3. *Tamarix* sp.	2	N	FAC[b]
4.			
5.			
Total Cover:	9		
Herb Stratum			
1. grass	25	Y	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	25		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 75 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	2	x 1 = 2
FACW species	100	x 2 = 200
FAC species	2	x 3 = 6
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	104 (A)	208 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-2 most closely corresponds to Cowardin's (1979) riparian forest.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all Tamarix species that were not identified to species. Tamarix species found in California have indicators of at least FAC.

SOIL

Sampling Point: PC-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/3						silty loam	
2-3	10YR4/3						sand	
3-16	10YR4/2	80	5YR4/6	20	C	M,RC,PL	silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Shovel refusal was experienced due to difficulty getting through the thick layer of grass.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-3

Investigator(s): J. Kisner, J. Love, W. Vogler, E. Larsen Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358781.7248300 Long: 1971508.0936000 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-3 characterizes riparian habitat north of the Santa Clara River. Currently, fragmented from riparian habitat near river due to agricultural use in the area.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	70	Y	FACW[a]
2. *Salix exigua*	15	N	OBL
3. *Salix lasiolepis*	5	N	FACW
4. *Tamarix* sp.	2	N	FAC[b]
5.			
Total Cover:	92		
Herb Stratum			
1. *Distichlis spicata*	85	Y	FACW
2. *Ambrosia psilostachya* var. *californica*	5	N	NI
3. *Cynodon dactylon*	1	N	FAC
4. *Melilotus alba*	1	N	FACU+
5.			
6.			
7.			
8.			
Total Cover:	92		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	15	x 1 = 15
FACW species	160	x 2 = 320
FAC species	8	x 3 = 24
FACU species	1	x 4 = 4
UPL species	0	x 5 = 0
Column Totals:	184 (A)	363 (B)

Prevalence Index = B/A = 1.97

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-3 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: PC-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR4/3		none				silt loam	
2-16	10YR4/2	95	5YR4/6	5	C	RC,M	silty clay	small amount of root channels w/ mottles

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Small mottling was found scattered through the soil profile. Oxidation was also observed from 2-16 inches around the roots.

Due to the "neutral" characteristics of sandy soils, riverwash is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Soil damp throughout soil pit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-4

Investigator(s): J. Kisner, J. Love, W. Vogler, E. Larsen Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358690.6215500 Long: 1971446.0286400 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land/Riverwash NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☒ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-4 characterizes riparian habitat North of the Santa Clara River. Currently, fragmented from riparian habitat near river due to agricultural use in the area.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			
Sapling/Shrub Stratum			
1. Baccharis salicifolia	10	Y	FACW[a]
Total Cover:	10		
Herb Stratum			
1. *Cynodon dactylon*	40	Y	FAC
2. *Leptochloa uninervia*	5	N	FACW
3. *Melilotus alba*	5	N	FACU+
4. *Echinochloa crus-galli*	2	N	FACW
5. *Polypogon monspeliensis*	2	N	FACW+
6. *Chenopodium album*	1	N	FAC
7. *Cyperus erythrorhizos*	1	N	OBL
8. *Eleusine indica*	1	N	FACU
9. *Malvella leprosa*	1	N	FAC*
10. *Phalaris aquatica*	1	N	FAC+
11. *Poa* sp.	1	N	
12. *Sonchus asper*	1	N	FAC
13. *Typha domingensis*	1	N	OBL
14. *Xanthium strumarium*	1	N	FAC+
Total Cover:	63		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	2	x 1 = 2
FACW species	19	x 2 = 38
FAC species	45	x 3 = 135
FACU species	6	x 4 = 24
UPL species	0	x 5 = 0
Column Totals:	72 (A)	199 (B)

Prevalence Index = B/A = 2.76

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-4 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

* = A tentative assignment to that indicator status by Reed, 1988

SOIL

Sampling Point: PC-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR4/3	98	5YR4/6	2	C	RC,M	silty clay mixed w/ silty loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-5

Investigator(s): J. Kisner, W. Vogler Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Channel Bank Local relief (concave, convex, none): none Slope (%): flat

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358488.6477700 Long: 1970918.1258500 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-5 characterizes the floodplain North of the Santa Clara River. Sandy soils present.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	12	Y	FACW[a]
2. *Populus fremontii*	3	N	FACW
3. *Tamarix* sp.	3	N	FAC[b]
4. *Salix exigua*	2	N	OBL
5. *Salix laevigata*	2	N	FACW+[a]
Total Cover:	22		
Herb Stratum			
1. *Melilotus alba*	50	Y	FACU+
2. *Bassia hyssopifolia*	10	N	FAC
3. *Ambrosia acanthicarpa*	2	N	NI
4. *Aster subulatus* var. *ligulatus*	2	N	FACW
5. *Brassica nigra*	2	N	NI
6. *Leptochloa uninervia*	1	N	FACW
7. unknown grass	1	N	
8.			
Total Cover:	68		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	2	x 1 = 2
FACW species	20	x 2 = 40
FAC species	13	x 3 = 39
FACU species	50	x 4 = 200
UPL species	4	x 5 = 20
Column Totals:	89 (A)	301 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Although the dominance test equals 50% and the Prevalence Test was greater than 3.0, the invasive nature and annual/biannual life cycle of *Melilotus alba* has skewed the results. Most plants are hydrophytic.

The vegetation of SP PC-5 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: PC-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR6/2		n/a				coarse sand w/ cobbles	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Soil pit 3 feet from the bank to the road.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): 0

Water Table Present? Yes ☒ No ☐ Depth (inches): 15

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 8-15

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A high water table and saturated soils provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-6

Investigator(s): E. Larsen, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Channel Bank Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358492.1903900 Long: 1970877.0632800 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-6 characterizes the floodplain North of Santa Clara River and its water's edge. Sandy soils present.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Populus fremontii*	10	Y	FACW
2. *Salix laevigata*	10	Y	FACW+[a]
3. *Salix exigua*	10	Y	OBL
4. *Tamarix sp.*	10	Y	FAC[b]
Total Cover:	40		
Herb Stratum			
1. *Agrostis viridis*	20	Y	OBL
2. *Typha domingensis*	20	Y	OBL
3. *Eleocharis macrostachya*	10	Y	OBL
4. *Juncus torreyi*	10	Y	FACW+
5. *Tamarix sp.*	10	Y	FAC
6. *Arundo donax*	5	N	FACW
7. *Cyperus erythrorhizos*	5	N	OBL
8. *Cyperus involucratus*	5	N	OBL
9. *Epilobium ciliatum*	5	N	FACW
10. *Juncus xiphodes*	5	N	OBL
11. *Melilotus alba*	5	N	FACU+
Total Cover:	100		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 8 (A)

Total Number of Dominant Species Across All Strata 8 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	75	x 1 = 75
FACW species	40	x 2 = 80
FAC species	20	x 3 = 60
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	140 (A)	375 (B)

Prevalence Index = B/A = 2.68

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-6 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: PC-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16			n/a				coarse sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.
Note: Water at 2 inches.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☒ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☒ Dry-Season Water Table (C2)
- ☒ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 2-16

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

High water table provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-7

Investigator(s): J. Davis, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Channel Bank Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358467.0973400 Long: 1970634.2451100 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-7 Characterizes the southern bank of the Santa Clara River.

The 2006-2007 rainy season received an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Salix exigua*	90	Y	OBL
2. *Populus fremontii*	5	N	FACW
3.			
4.			
5.			
Total Cover:	95		
Herb Stratum			
1. *Typha* Sp.	15	Y	OBL[c]
3. *Salix laevigata*	10	Y	FACW+[a]
2. *Melilotus alba*	5	N	FACU+
4.			
5.			
6.			
7.			
Total Cover:	30		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 1 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	105	x 1 = 105
FACW species	15	x 2 = 30
FAC species	0	x 3 = 0
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	125 (A)	155 (B)

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-7 most closely corresponds to Cowardin's (1979) riparian scrub.

[c] Wetland indicator status was assumed OBL for all Typha species that were not identified to species. Typha species found in California have indicators of at least OBL

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: PC-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 4/2		N/A				Silty clay loam	
5-16	N/A						Coarse sand riverwash	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Organic material visible from the surface down through the top 5 inches of the rhizosphere/soil profile. With the exception of organic material, there was no additional hydric soil indicators. Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

High water table provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-8

Investigator(s): J. Davis, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Channel Bank Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358481.1919400 Long: 1970556.5810700 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-8 characterizes the northern portion of southern abutment within the Santa Clara floodplain. A 2003 aerial review determined a side channel of the river was present at this location. No vegetation existed at that time. Vegetation is immature and tree species are young saplings.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Salix exigua*	40	Y	OBL
2. *Populus fremontii*	5	N	FACW
3.			
4.			
5.			
Total Cover:	45		
Herb Stratum			
3. *Typha* Sp.	25	Y	OBL[c]
2. *Baccharis salicifolia*	15	Y	FACW[a]
3. *Arundo donax*	5	N	FACW
4. *Salix laevigata*	5	N	FACW+[a]
5. *Tamarix* sp.	2	N	FAC[b]
6. *Artemisia douglasiana*	1	N	FACW
7. *Urtica dioica*	1	N	FACW
8. *Xanthium strumarium*	1	N	FAC+
Total Cover:	55		
Woody Vine Stratum			
1.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	65	x 1 = 65
FACW species	32	x 2 = 64
FAC species	3	x 3 = 9
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	100 (A)	138 (B)

Prevalence Index = B/A = 1.38

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-8 most closely corresponds to Cowardin's (1979) riparian scrub.

A lot of Freemont cottonwood leaf litter.

[c] Wetland indicator status was assumed OBL for all Typha species that were not identified to species. Typha species found in California have indicators of at least OBL

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: PC-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 2.5/1		N/A				coarse sandy loam	
4-5	2.5 YR 5-4/2							Organic layer
5-7/8	10YR 4/2							Depositional layer
10-16	N/A							oxidized roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Some mottling visible in depositional layer.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): >16

Water Table Present? Yes ☒ No ☐ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water and a high water table provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-9

Investigator(s): J. Davis, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Channel Bank Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358508.9742200 Long: 6358508.9742200 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-9 characterizes the southern embankment of the Santa Clara River within relict alluvial channel.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Populus fremontii*	1	Y	FACW
2. *Tamarix* Sp.	1	Y	FAC[b]
3.			
4.			
5.			
Total Cover:	2		
Herb Stratum			
1. *Melilotus alba*	60	Y	FACU+
2. *Baccharis salicifolia*	30	Y	FACW[a]
3.			
4.			
5.			
6.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 8 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	0	x 1 = 0
FACW species	31	x 2 = 62
FAC species	1	x 3 = 3
FACU species	60	x 4 = 240
UPL species	0	x 5 = 0
Column Totals:	92 (A)	305 (B)

Prevalence Index = B/A = 3.31

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-9 most closely corresponds to Cowardin's (1979) riparian scrub.

Tree species are young saplings.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: PC-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	N/A		N/A				Medium gravel w/ coarse sand (riverwash)	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

No signs of oxidation or organic material.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

High water table provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-10

Investigator(s): J. Davis, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358522.2620200 Long: 1970339.6556000 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP PC-10 characterizes change in soil type and a slight elevation change. SP PC-10 is South of the channel with mature trees.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	80	Y	FACW
2.			
3.			
4.			
Total Cover:	80		
Sapling/Shrub Stratum			
1. *Salix exigua*	80	Y	OBL
2.			
3.			
4.			
5.			
Total Cover:	80		
Herb Stratum			
3. *Leymus triticoides*	35	Y	FAC+
2. *Baccharis salicifolia*	10	Y	FACW[a]
3.			
4.			
5.			
6.			
Total Cover:	45		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-10 most closely corresponds to Cowardin's (1979) riparian scrub.

A lot of Freemont cottonwood leaf litter.

[a] Kartesz, J\.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: PC-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3		N/A				sandy	
8-16	10YR 4/2						silty clay	Oxidation around roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Small mottling was found scattered through the soil profile. Oxidation was also observed from 8-16 inches around the roots.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed within one meter of sampling point.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-11

Investigator(s): J. Davis, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): flat

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358614.5033300 Long: 1970093.7130200 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **Yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP PC-11 characterizes mature riparian forest approximately 100 feet away from the southern bank of the Santa Clara River.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	70	Y	FACW
2.			
Total Cover:	70		
Sapling/Shrub Stratum			
1. *Salix laevigata*	15	Y	FACW+[a]
2. *Salix* sp.	10	Y	FACW[d]
3. *Sambucus mexicana*	10	Y	FAC
Total Cover:	35		
Herb Stratum			
1. *Salix* sp.	10	Y	FACW[d]
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	10		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 90 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-11 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[d] Wetland indicator status was assumed FACW for all *Salix* species not identified to species at this SP. All unidentified *Salix* sp. were either *S. lasiolepis* (FACW) or *S. laevigata* (FACW+), which in some cases were difficult to distinguish during the field survey. FACW is the lower wetland indicator between these two species and therefore was chosen.

SOIL

Sampling Point: PC-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3		N/A				sandy	
8-16	10YR 4/2		N/A				silty clay	Oxidation around roots

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Small mottling was found scattered through the soil profile. Oxidation was also observed from 8-16 inches around the roots.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-12

Investigator(s): J. Davis, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358800.8811600 Long: 1969648.3912600 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP PC-12 characterizes the edge of a ranch road. Recent vegetation removal was evident in the area. Riparian forest surrounds and overhangs this SP.

The 2006-2007 rainy season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	30	Y	FACW+[a]
2.			
3.			
Total Cover:	30		
Sapling/Shrub Stratum			
1. *Arundo donax*	10	Y	FACW
2.			
3.			
4.			
Total Cover:	10		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
Total Cover:			

% Bare Ground in Herb Stratum 80 % Cover of Biotic Crust 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-12 most closely corresponds to Cowardin's (1979) riparian scrub.

Ruderal with elements of riparian forest.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: PC-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
No Soil Pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

No soil pit was excavated due to lack of vegetation and observable hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-13

Investigator(s): J. Love, L. Rizzo, J. Davis, J. Kisner Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): River Channel Bank Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358344.9185400 Long: 1970565.1804200 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:
SP PC-13 characterizes the southern edge of a vegetated channel south of the Santa Clara River.
The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Salix exigua*	20	Y	OBL
2. *Salix laevigata*	20	Y	FACW+[a]
3. *Baccharis salicifolia*	10	N	FACW[a]
4. *Populus fremontii*	10	N	FACW
5. *Tamarix* sp.	5	N	FAC[b]
Total Cover:	65		
Herb Stratum			
1. *Melilotus alba*	20	Y	FACU+
2. *Typha* sp.	15	Y	OBL[c]
3. *Arundo donax*	5	Y	FACW
4. *Epilobium ciliatum*	5	Y	FACW
5. *Euthamia occidentalis*	5	Y	OBL
6. *Aster subulatus* var. *ligulatus*	2	N	FAC
7. *Cyperus eragrostis*	2	N	FACW
8. *Polygonum lapathifolium*	2	N	OBL
9. *Xanthium strumarium*	2	N	FAC+
Total Cover:	58		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 3 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	42	x 1 = 42
FACW species	52	x 2 = 104
FAC species	9	x 3 = 24
FACU species	20	x 4 = 80
UPL species	0	x 5 = 0
Column Totals:	123 (A)	250 (B)

Prevalence Index = B/A = 2.03

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:
The vegetation of SP PC-13 most closely corresponds to Cowardin's (1979) riparian scrub. Height of vegetation ranged from 10'-15'.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

[c] Wetland indicator status was assumed OBL for all *Typha* species that were not identified to species. *Typha* species found in California have indicators of at least OBL

SOIL

Sampling Point: PC-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
16	n/a		n/a				coarse sandy	No gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Small organic layer indicates young hydric soils layer (1/8") thick.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 2-3

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0-2

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Surface water present adjacent to soil pit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-14

Investigator(s): J. Love, L. Rizzo, J. Davis, J. Kisner Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): River Channel Bank Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358332.4042200 Long: 1970531.6653300 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-14 characterizes a man-created depression within the Santa Clara River floodplain. Vegetation appears to be 2-3 years old.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
Total Cover:			
Herb Stratum			
1. *Melilotus alba*	60	Y	FACU+
2. *Typha* sp.	15	N	OBL[c]
3. *Epilobium ciliatum*	5	N	FACW
4. *Leptochloa uninervia*	5	N	FACW
5. *Cyperus erythrorhizos*	3	N	OBL
6. *Polygonum lapathifolium*	3	N	OBL
7. *Baccharis salicifolia*	1	N	FACW[a]
8. *Cyperus involucratus*	1	N	OBL
9. *Xanthium strumarium*	1	N	FAC+
Total Cover:	94		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 6 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	22	x 1 = 22
FACW species	11	x 2 = 22
FAC species	1	x 3 = 3
FACU species	60	x 4 = 240
UPL species	0	x 5 = 0
Column Totals:	94 (A)	287 (B)

Prevalence Index = B/A = 3.05

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Although the dominance test equals 0% and the Prevalence Test was greater than 3.0, the invasive nature and annual/biannual life cycle of *Melilotus alba* has skewed the results. Most plants are hydrophytic.

The vegetation of SP PC-14 most closely corresponds to Cowardin's (1979) riparian scrub.

[c] Wetland indicator status was assumed OBL for all *Typha* species that were not identified to species. *Typha* species found in California have indicators of at least OBL.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: PC-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-10	n/a						coarse gravel	soil consists of riverwash within Santa Clara River flood plain

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Soil consisted of primarily 80% small gravel, 5% small gravel, balance 15% sand.

Due to the "neutral" characteristic of sandy soils they are problematic in observing hydric characteristics. Although no sandy redox was at this location, sandy alluvial land is often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ☒	No ☐	Depth (inches): 0
Water Table Present?	Yes ☐	No ☐	Depth (inches):
Saturation Present? (includes capillary fringe)	Yes ☒	No ☐	Depth (inches): 0-1

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent rains may have contributed to surface water and moist conditions. Water table is high because the SP is within the Santa Clara River floodplain.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-15

Investigator(s): J. Kisner, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Channel Bank Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358361.4192300 Long: 1970442.1226700 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-15 characterizes the center portion of a side channel, located to the South of the Santa Clara River. Recently received rainfall.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	30	Y	FACW[a]
2. *Populus fremontii*	10	N	FACW
3. *Salix exigua*	5	N	OBL
4. *Salix laevigata*	5	N	FACW+[a]
5. *Tamarix* sp.	5	N	FAC[b]
Total Cover:	55		
Herb Stratum			
1. *Melilotus alba*	20	Y	FACU+
2. *Ambrosia acanthicarpa*	4	N	NI
3. *Conyza canadensis*	3	N	FAC
4. *Brassica* sp.	2	N	NI
5. *Artemisia douglasiana*	1	N	FACW
6. *Aster subulatus* var. *ligulatus*	1	N	FACW
7. *Heterotheca grandiflora*	1	N	NI
8. *Oenothera elata*	1	N	FACW
Total Cover:	33		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 67 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	5	x 1 = 5
FACW species	48	x 2 = 96
FAC species	8	x 3 = 24
FACU species	20	x 4 = 80
UPL species	7	x 5 = 35
Column Totals:	88 (A)	365 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks: Although the dominance test equals 50% and the Prevalence Test was greater than 3.0, the invasive nature and annual/biannual life cycle of *Melilotus alba* has skewed the results. Most plants are hydrophytic.

Willow height between 10'-15'. The vegetation of SP PC-15 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: PC-15

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	n/a		n/a				coarse sandy w/ cobbles	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Thin layer of silty crust on top which is dark in color.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 18

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A high water table and saturated soils provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-16

Investigator(s): J. Kisner, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Channel Bank Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358381.0721700 Long: 1970400.9710500 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-16 characterizes previous channel of the Santa Clara River according to aerial field maps (Psomas, 2003)..

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Populus fremontii*	30	Y	FACW
2. *Baccharis salicifolia*	25	Y	FACW[a]
3. *Salix exigua*	25	Y	OBL
4. *Salix laevigata*	8	N	FACW+[a]
5. *Tamarix* sp.	5	N	FAC[b]
Total Cover:	93		
Herb Stratum			
1. *Melilotus alba*	3	Y	FACU+
2. *Arundo donax*	2	Y	FACW
3. *Brassica* sp.	2	Y	NI
4.			
5.			
6.			
7.			
8.			
Total Cover:	7		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 7 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	25	x 1 = 25
FACW species	65	x 2 = 130
FAC species	5	x 3 = 15
FACU species	3	x 4 = 12
UPL species	2	x 5 = 10
Column Totals:	100 (A)	192 (B)

Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-16 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: PC-16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-13	n/a		n/a				coarse sandy w/ cobbles	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Very thin silty surface layer crust; dark in color.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 13

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 0-13

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Slight bank on south side, approximately 6 inches in height.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/25/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-17

Investigator(s): J. Kisner, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Flat Upland Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358407.4331100 Long: 1970270.4295400 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP PC-17 characterizes a flat upland area south of the Santa Clara River channel.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix lasiolepis*	20	Y	FACW
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Salix exigua*	45	Y	OBL
2. *Baccharis salicifolia*	5	N	FACW[a]
3.			
4.			
5.			
Total Cover:	50		
Herb Stratum			
1. *Ambrosia psilostachya* var. *californica*	25	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	25		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-17 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: PC-17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR4/2	85	5YR4/6	15	RM	M	Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Recent rains may have caused soil to be moist down through the bottom of pit, but no hydrology indicators were present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-18

Investigator(s): J. Kisner, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Flat Upland Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358324.0847400 Long: 1970234.5389700 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP PC-18 characterizes the boundary between vegetation types; riparian scrub and riparian forest. This SP focuses on the scrub habitat to the East. The Western area includes riparian forest with few small shrubs.

The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Salix lasiolepis*	30	Y	FACW
2. *Salix exigua*	20	Y	OBL
3. *Baccharis* sp.	5	N	
4. *Baccharis salicifolia*	2	N	FACW[a]
5. *Populus fremontii*	2	N	FACW
6. *Salix laevigata*	2	N	FACW+[a]
7. *Baccharis pilularis*	1	N	NI
Total Cover:	62		
Herb Stratum			
1. *Ambrosia psilostachya* var. *californica*	15	Y	FAC
2. *Leymus triticoides*	5	N	FAC+
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-18 most closely corresponds to Cowardin's (1979) riparian scrub and Cowardin's (1979) riparian forest.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: PC-18

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	n/a		5YR4/6	55	RM	M	fine sand	moist for first 6"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Small chucks of clay deposits present in soil sample.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-19

Investigator(s): J. Love, J. Kisner, W. Vogler, E. Larsen Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358368.3670400 Long: 1970042.3134900 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **No**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP PC-19 characterizes flat floodplain area to the south of the Santa Clara River.

The 2006-2007 rainy season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Pluchea sericea*	75	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-19 most closely corresponds to Cowardin's (1979) riparian scrub.

SOIL

Sampling Point: PC-19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10 YR 3/2	99	5YR 4/6	<1	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Evidence that this SP is within floodplain due to large sediment deposits.

Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Potrero Canyon City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: PC-20

Investigator(s): J. Love, J. Kisner, W. Vogler, E. Larsen Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6358485.2757400 Long: 1969870.9522100 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **NO**, Soil **Yes**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP PC-20 is located in a small side drainage adjacent to a small berm along a ranch road. This SP is at the southernmost part of the entire PC site. The 2006-2007 rainy season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Pluchea sericea*	95	Y	FACW
2.			
3.			
4.			
5.			
Total Cover:	95		
Herb Stratum			
1. *Arundo donax*	5	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP PC-20 most closely corresponds to Cowardin's (1979) riparian scrub.

SOIL

Sampling Point: PC-20

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR3/2	98	5YR4/6	2	C	M	silty clay mixed with fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☒ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Due to the "neutral" characteristics of sandy soils, riverwash is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☒ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Anthropogenic created berms visible. Possibly created from soil being pushed up along the sides of the nearby road during soil removal activities after high flood events.

APPENDIX A USACE WETLAND DETERMINATION DATA FORMS

Onion Field Bank Stabilization

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Onion Field Bank Stabilization City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: BS-1

Investigator(s): J. Davis, J. Love, W, Vogler, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): River Bank Slope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6361064.5315100 Long: 1971370.3761600 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PFO6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **Yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

SP BS-1 characterizes the northern portion of the bank stabilization site. This SP is located approximately 60 feet to the south of the Santa Clara River and is representative of the riparian forest on the south bank.

The 2006-2007 rainy season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix laevigata*	60	Y	FACW+[a]
2. *Populus fremontii*	30	Y	FACW
3. *Tamarix* Sp.	10	N	FAC[b]
Total Cover:	100		
Sapling/Shrub Stratum			
1. *Rosa californica*	40	Y	FAC+
2. *Urtica dioica*	25	Y	FACW
3. *Arundo donax*	10	N	FACW
Total Cover:	75		
Herb Stratum			
1. *Artemisia douglasiana*	5	Y	FACW
2. *Conium maculatum*	1	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	6		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 94 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is ≤3.0[1]
- ☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Vegetation is representative of a riparian forest habitat (Cowardin 1979) with red willow and Freemont cottonwood comprising the dominant canopy layer. Vegetation is open to dense with a high leaf/branch litter content.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: BS-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	100	None OBS				Sandy loam	Soil texture & color consistent throughout

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

APPENDIX A USACE WETLAND DETERMINATION DATA FORMS

Long Canyon Bridge

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-1

Investigator(s): W. Vogler, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Upland/Agriculture Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364608.8561600 Long: 1974793.5144700 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP LC-1 characterizes the upland/agricultural area north of the Santa Clara River. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. annual grasses	70	Y	
2. *Conyza canadensis*	8	N	FAC
3. *Zea mays*	7	N	NI
4. *Spergularia* sp.	5	N	
5. *Ambrosia acanthicarpa*	2	N	NI
6. *Polygonum arenastrum*	1	N	FAC
7.			
8.			
Total Cover:	93		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 20 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SP LC-1 does not have any natural vegetation communities; the site is characterized by ruderal vegetation and graded conditions.

SOIL

Sampling Point: LC-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR4/3						loamy sand	
12-16	10YR5/3						sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Hydric soil indicators are absent due to sandy soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-2

Investigator(s): J. Davis, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364702.4617800 Long: 1974675.5218600 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

SP LC-2 characterizes the floodplain of the northern side of the Santa Clara River. The "main channel" was recently located adjacent to this point according to aerial field maps (Psomas, 2003). Vegetation is young in age. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Nicotiana glauca*	20	Y	FAC
2.			
3.			
Total Cover:	20		
Sapling/Shrub Stratum			
1. *Arundo donax*	50	Y	FACW
2. *Populus fremontii*	20	Y	FACW
3. *Baccharis salicifolia*	10	N	FACW[a]
4. *Tamarix* sp.	10	N	FAC[b]
5. *Salix exigua*	5	N	OBL
6. *Typha latifolia* (?)	5	N	OBL
Total Cover:	100		
Herb Stratum			
1. *Brassica* sp.	5	Y	NI
2. *Heliotropium curassavicum*	5	Y	OBL
3. *Melilotus alba*	5	Y	FACU+
4.			
5.			
6.			
7.			
8.			
Total Cover:	15		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP LC-2 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: LC-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-12	n/a	100	n/a				coarse sand	with small gravel in matrix; oxidation on roots
12-16	10YR3/3	80	n/a				coarse sand/sandy loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Soil primarily consisted of riverwash or recently deposited sediment (coarse sand/small gravel). Soil became apparent in low stratum where sandy loam was present. No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☒ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☒ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 12-16

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Primary indicators, secondary indicators, and water table presence provided evidence of hydrology. Inundation visible on aerial from 2003 (Psomas, 2003). Site is within OHWM, therefore site is considered Waters of the U.S.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-3

Investigator(s): W. Vogler, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Riverbed Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364716.8658200 Long: 1974603.2893700 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

SP LC-3 characterized the floodplain on the northern side of the Santa Clara River. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Tamarix* sp.	35	Y	FAC[b]
2. *Baccharis salicifolia*	10	Y	FACW[a]
3. *Melilotus alba*	2	N	FACU+
4. *Salix exigua*	2	N	OBL
5. *Salix laevigata*	1	N	FACW+[a]
Total Cover:	50		
Herb Stratum			
1. *Arundo donax*	2	Y	FACW
2. *Conyza bonariensis*	1	Y	NI
3. *Populus fremontii*	<1	N	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	3		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	0	x 1 = 0
FACW species	12	x 2 = 24
FAC species	35	x 3 = 105
FACU species	0	x 4 = 0
UPL species	1	x 5 = 5
Column Totals:	48 (A)	134 (B)

Prevalence Index = B/A = 2.79

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

The vegetation of SP LC-3 most closely corresponds to Cowardin's (1979) riparian scrub.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: LC-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR5/2						coarse sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Riverwash depositional fill in one of the primary channels. Due to the "neutral" characteristics of sandy soils, riverwash is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☒ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): surface

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Primary indicators, secondary indicators, and water table and saturation presence provided evidence of hydrology. Inundation visible on aerial from 2003 (Psomas, 2003).

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/18/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-4

Investigator(s): J. Davis, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Riverbed Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364715.6990700 Long: 1974536.6755100 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

SP LC-4 characterized a stable sandbar in the Santa Clara River. The SP was located on the southern bank of a main channel of the river. Elevation is approximately 18" above the channel. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	70	Y	FACW[a]
2. *Tamarix* sp.	10	N	FAC[b]
3. unknown plant	10	N	
4. *Populus fremontii*	5	N	FACW
5.			
Total Cover:	95		
Herb Stratum			
1. *Melilotus alba*	5	Y	FACU+
2.			
3.			
4.			
5.			
6.			
7.			
Total Cover:	5		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP LC-4 most closely corresponds to Cowardin's (1979) riparian scrub. Vegetation was observed primarily on the bank's edge above channel. To the north was an existing sparsely vegetated wash. Dense vegetation is approximately 12 ft wide at this location.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.
[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: LC-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	n/a		n/a				coarse sand	small to large gravel, no saturation

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Substrate mainly consists of river sediment deposit with small cobbles, no saturation present. No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sandbar area of the greater Santa Clara River. Sediment deposits are evident on the sandbar; however no other indicators of hydrology were observed. Waters of the U.S. – OHWM.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-5

Investigator(s): J. Davis, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Riverbed Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364920.5617900 Long: 1974303.83132 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

SP LC-5 characterizes the main summer channel of the Santa Clara River that was present during the 2007 site visit. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Salix exigua*	35	Y	OBL
2. *Salix laevigata*	30	Y	FACW+[a]
3. *Arundo donax*	15	N	FACW
4. *Typha latifolia*	10	N	OBL
5. *Populus fremontii*	5	N	FACW
Total Cover:	95		
Herb Stratum			
1. *Polygonum lapathifolium*	55	Y	OBL
2. unknown grass	15	N	
3. *Urtica dioica*	5	N	FACW
4. *Xanthium strumarium*	5	N	FAC+
5.			
6.			
7.			
8.			
Total Cover:	80		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	100	x 1 = 100
FACW species	55	x 2 = 110
FAC species	5	x 3 = 15
FACU species	0	x 4 =
UPL species	0	x 5 =
Column Totals:	160 (A)	225 (B)

Prevalence Index = B/A = 1.41

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

The vegetation of SP LC-5 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: LC-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
No soil pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Site was inaccessible. Soil was assumed hydric due to its vegetation and position in the main channel. Due to the "neutral" characteristics of sandy soils, riverwash is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☐ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Primary indicators, secondary indicators, and saturation presence provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-6

Investigator(s): J. Davis, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Upland terrace/Bank slope Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364920.4195000 Long: 1974289.0605600 Datum: NAD83

Soil Map Unit Name: Riverwash NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

SP LC-6 characterizes the southern bank edge of the Santa Clara River. The river is approximately 12 ft below the edge of the terrace. This SP is within riparian scrub habitat directly south of the OHWM. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	75	Y	FACW[a]
2.			
3.			
4.			
5.			
Total Cover:	75		
Herb Stratum			
1. unknown grass (dry)	85	Y	
2. *Brassica* spp.	10	N	NI
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	95		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

Riparian vegetation primarily consists of mule fat with grass understory. The vegetation of SP LC-6 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: LC-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	n/a		n/a				coarse sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:

The soil consists of old riverwash and alluvial material. Hydric soil indicators are likely absent due to sandy soils.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-7

Investigator(s): W. Vogler, J. Love Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Upland terrace Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364943.0013000 Long: 1974168.5593200 Datum: NAD 1983

Soil Map Unit Name: Riverwash NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☐	No ☒
Wetland Hydrology Present?	Yes ☐	No ☒

Is the Sampled Area within a Wetland? **Yes** ☐ **No** ☒

Remarks:

SP LC-7 characterizes the upland terrace south of the Santa Clara River. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	60	Y	FACW[a]
2. *Salix exigua*	10	N	OBL
3.			
4.			
5.			
Total Cover:	70		
Herb Stratum			
1. *Bromus diandrus* (dead)	80	Y	NI
2. *Bromus diandrus* (live)	1	N	NI
3. *Leymus triticoides* (?)	1	N	FAC+
4.			
5.			
6.			
7.			
8.			
Total Cover:	82		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 3 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP LC-7 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: LC-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR4/3	100					clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Long Canyon Bridge City/County: Los Angeles County Sampling Date: 9/28/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: LC-8

Investigator(s): J. Davis, J. Love, W. Vogler, L. Rizzo Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Upland terrace/Agriculture Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364920.4195000 Long: 1974289.0605600 Datum: NAD83

Soil Map Unit Name: Sorrento loam NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **no**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☐	No ☒	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

SP LC-8 characterizes upland habitat consisting of a recently tilled agricultural field. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☐ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☐ **No** ☒

Remarks:

SP LC-8 does not have any natural vegetation communities; the site is characterized by ruderal vegetation and graded conditions.

SOIL

Sampling Point: LC-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
No Soil Pit								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

No soil pit was excavated due to lack of vegetation and observable hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☐ Depth (inches): _____

Water Table Present? Yes ☐ No ☐ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☐ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

APPENDIX A USACE WETLAND DETERMINATION DATA FORMS

Commerce Center Bridge

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Commerce Center Bridge City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: CC-1

Investigator(s): J. Kisner, W. Vogler, J. Love, E. Larsen Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Riverbed Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6375973.9068700 Long: 1980360.7805500 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

SP CC-1 characterizes the floodplain on the southern side of the Santa Clara River. This SP is immediately adjacent to the water's edge and incorporates a portion of a sandbar, a portion of a side channel, and a portion of the adjacent floodplain. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Sapling/Shrub Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Baccharis salicifolia*	20	Y	FACW[a]
2. *Salix exigua*	20	Y	OBL
3. *Salix laevigata*	10	N	FACW+[a]
4. *Tamarix* sp.	8	N	FAC[b]
5. *Populus fremontii*	5	N	FACW
Total Cover:	63		
Herb Stratum			
1. *Melilotus alba*	40	Y	FACU+
2. *Polygonum lapathifolium*	10	Y	OBL
3. *Veronica anagallis-aquatica*	10	Y	OBL
4. *Leptochloa uninervia*	5	N	FACW
5. *Typha anqustifolia*	5	N	OBL
6. *Aster subulatus* var. *ligulatus*	3	N	FACW
7. *Cyperus erythrorhizos*	2	N	OBL
8. *Agrostis viridis*	1	N	OBL
9. *Ambrosia acanthicarpa*	1	N	NI
10. *Apium graveolens*	1	N	FACW
11. *Epilobium ciliatum*	1	N	FACW
12. *Heterotheca grandiflora*	1	N	NI
13. *Ludwigia peploides*	1	N	OBL
14. *Rumex* sp.	1	N	
15. *Urtica dioica*	1	N	FACW
16. *Xanthium strumarium*	1	N	FAC+
Total Cover:	84		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	40	x 1 = 40
FACW species	20	x 2 = 40
FAC species	0	x 3 = 0
FACU species	40	x 4 = 160
UPL species	0	x 5 = 0
Column Totals:	100 (A)	240 (B)

Prevalence Index = B/A = 2.4

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

Reed 1988 was used to determine the wetland indicator status of plants unless otherwise noted.

The vegetation of SP CC-1 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

[b] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

SOIL

Sampling Point: CC-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16							coarse sand riverwash	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Small organic layer on top. With the exception of organic material, there were no additional hydric soil indicators. Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☒ No ☐ Depth (inches): 9

Saturation Present? (includes capillary fringe) Yes ☒ No ☐ Depth (inches): 6

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water table and saturation provided evidence of hydrology. No primary or secondary indicators were present.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Commerce Center Bridge City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: CC-2

Investigator(s): E. Larsen, W. Vogler Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6376020.0814000 Long: 1980329.5854800 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP CC-2 characterizes the floodplain on the southern side of the Santa Clara River. This SP is approximately 15m from the low flow channel of the Santa Clara River. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	30	Y	FACW[a]
2. *Salix exigua*	30	Y	OBL
3. *Populus fremontii*	20	Y	FACW
4. *Tamarix aphylla*	20	Y	FAC
5.			
Total Cover:	100		
Herb Stratum			
1. *Arundo donax*	5	Y	FACW
2. *Cyperus involucratus*	5	Y	OBL
3. *Ambrosia acanthicarpa*	1	N	NI
4. *Washingtonia robusta*	1	N	NI
5.			
6.			
7.			
8.			
Total Cover:	12		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 50 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	35	x 1 = 35
FACW species	55	x 2 = 110
FAC species	20	x 3 = 60
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	110 (A)	205 (B)

Prevalence Index = B/A = 1.86

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP CC-2 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: CC-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6							sand	moist; dark layers 1 cm intervals
6-16							sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Sand has black, organic layering (1cm). Soil is characterized as riverwash. Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary indicators provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Commerce Center Bridge City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: CC-3

Investigator(s): J. Love, J. Kisner Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6376099.4530800 Long: 1980196.6727200 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS1

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes ☒ No ☐**
Hydric Soil Present?	Yes ☒	No ☐	
Wetland Hydrology Present?	Yes ☒	No ☐	

Remarks:

SP CC-3 characterizes the floodplain on the southern side of the Santa Clara River. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	20	Y	FACW
2. *Salix lasiolepis*	15	Y	FACW
3. *Salix laevigata*	5	N	FACW+[a]
Total Cover:	40		
Sapling/Shrub Stratum			
1. *Populus fremontii*	20	Y	FACW
2. *Salix lasiolepis*	10	Y	FACW
3. *Baccharis salicifolia*	5	N	FACW[a]
4. *Salix exigua*	5	N	OBL
5. *Artemisia tridentata*	1	N	NI
6. *Salvia mellifera*	1	N	NI
Total Cover:	42		
Herb Stratum			
1. *Arundo donax*	50	Y	FACW
2. *Ambrosia acanthicarpa*	1	N	NI
3. *Distichlis spicata*	1	N	FACW
4.			
5.			
6.			
7.			
8.			
Total Cover:	52		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	5	x 1 = 5
FACW species	126	x 2 = 252
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	3	x 5 = 15
Column Totals:	134 (A)	272 (B)

Prevalence Index = B/A = 2.03

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes ☒ No ☐**

Remarks:

SP is located in small depression/drainage. The vegetation of SP CC-3 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: CC-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/2	80	5YR4/6	20	C	M	silt loam	
6-16							fine sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soils are present due to presence of redox concentrations or iron mottles. Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary indicators provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Commerce Center Bridge City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: CC-4

Investigator(s): E. Larsen, W. Vogler Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6376115.9530100 Long: 1980069.5899200 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP CC-4 characterizes the floodplain on the southern side of the Santa Clara River. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	10	Y	FACW
2.			
3.			
4.			
Total Cover:	10		
Sapling/Shrub Stratum			
1. *Arundo donax*	60	Y	FACW
2. *Salix exigua*	40	Y	OBL
3.			
4.			
5.			
Total Cover:	100		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	40	x 1 = 40
FACW species	70	x 2 = 140
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	110 (A)	180 (B)

Prevalence Index = B/A = 1.64

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP CC-4 most closely corresponds to Cowardin's (1979) riparian scrub. The ground was 100 percent covered, consisting of mostly leaf litter with some woody debris.

SOIL

Sampling Point: CC-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR4/3	95+	5YR5/4	<5	C	M	silt/loam	organic flakes 25%
6-20	10YR5/4		n/a	n/a	n/a	n/a	sand/loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks:

Hydric soils are present due to the presence of redox concentrations or iron mottles. Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☒ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary indicators provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Commerce Center Bridge City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: CC-5

Investigator(s): J. Love, J. Kisner Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6376253.1696300 Long: 1979866.4310200 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP CC-5 characterizes the floodplain on the southern side of the Santa Clara River. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	70	Y	FACW
2.			
3.			
4.			
Total Cover:	70		
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. *Arundo donax*	90	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	0	x 1 = 0
FACW species	160	x 2 = 320
FAC species	0	x 3 = 0
FACU species	0	x 4 = 0
UPL species	0	x 5 = 0
Column Totals:	160 (A)	320 (B)

Prevalence Index = B/A = 2

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP CC-4 most closely corresponds to Cowardin's (1979) riparian scrub.

SOIL

Sampling Point: CC-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR3/2	98					silt loam	
0-4			5YR4/6	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Hydric soils are present due the presence of redox concentrations or iron mottles. Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☒ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary indicators provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Commerce Center Bridge City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: CC-6

Investigator(s): E. Larsen, W. Vogler Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 5

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6376322.4256200 Long: 1979977.4281500 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: PSS6

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐
Hydric Soil Present?	Yes ☒	No ☐
Wetland Hydrology Present?	Yes ☒	No ☐

Is the Sampled Area within a Wetland? **Yes** ☒ **No** ☐

Remarks:

SP CC-6 characterizes the floodplain on the southern side of the Santa Clara River. Similar to sampling point CC-7 in vegetation and CC-5 in soils. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	20	Y	FACW
2.			
3.			
4.			
Total Cover:	20		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	20	Y	FACW[a]
2. *Artemisia californica*	10	Y	NI
3. *Nicotiana glauca*	5	N	FAC
4. *Eriodictyon crassifolium*	5	N	NI
5.			
Total Cover:	40		
Herb Stratum			
1. *Arundo donax*	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species	0	x 1 = 0
FACW species	60	x 2 = 120
FAC species	5	x 3 = 15
FACU species	0	x 4 = 0
UPL species	15	x 5 = 75
Column Totals:	80 (A)	210 (B)

Prevalence Index = B/A = 2.6

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP CC-6 most closely corresponds to Cowardin's (1979) riparian scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: CC-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR3/2	98					silt loam	
6-20			5YR4/6	2	C	M		

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☒ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☒ **No** ☐

Remarks:

Hydric soils are present due to the presence of redox concentrations or iron mottles. Due to the "neutral" characteristics of sandy soils, sandy alluvial land is problematic and often considered to be hydric under flooded conditions.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☒ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☒ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☒ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☒ **No** ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Secondary indicators provided evidence of hydrology.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Newhall Ranch/Commerce Center Bridge City/County: Los Angeles County Sampling Date: 9/26/07

Applicant/Owner: Newhall Land and Farming Company State: CA Sampling Point: CC-7

Investigator(s): E. Larsen, W. Vogler Section, Township, Range: San Francis Land Grant

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): convex Slope (%): 45

Subregion (LRR): Mediterranean California (LRR-C) Lat: 6364920.4195000 Long: 1974289.06056 Datum: NAD83

Soil Map Unit Name: Sandy Alluvial Land NWI classification: N/A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)

Are Vegetation **no**, Soil **no**, or Hydrology **no** significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

Are Vegetation **no**, Soil **yes**, or Hydrology **no** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ☒	No ☐	**Is the Sampled Area within a Wetland?** **Yes** ☐ **No** ☒
Hydric Soil Present?	Yes ☐	No ☒	
Wetland Hydrology Present?	Yes ☐	No ☒	

Remarks:

SP CC-7 characterizes the beginning of the upland area on the southern side of the Santa Clara River. Similar in vegetation to SP CC-6. The 2006-2007 rain season had an abnormally low amount of precipitation.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus fremontii*	20	Y	FACW
2.			
3.			
4.			
Total Cover:	20		
Sapling/Shrub Stratum			
1. *Baccharis salicifolia*	20	Y	FACW[a]
2. *Artemisia californica*	10	Y	NI
3. *Nicotiana glauca*	5	N	FAC
4. *Eriodictyon crassifolium*	5	N	NI
5.			
Total Cover:	40		
Herb Stratum			
1. *Arundo donax*	20	Y	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	20		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by
OBL species		x 1 =
FACW species		x 2 =
FAC species		x 3 =
FACU species		x 4 =
UPL species		x 5 =
Column Totals:	(A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☐ Prevalence Index is ≤3.0[1]

☐ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes** ☒ **No** ☐

Remarks:

The vegetation of SP CC-7 most closely corresponds to Cowardin's (1979) riparian scrub; however this SP was at the bottom edge of a hill dominated by coastal sage scrub.

[a] Kartesz, J.T. 1996. National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Survey.

SOIL

Sampling Point: CC-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR5/4	97	5YR5/6	3			silt loam	
6-20							silt loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (**LRR C**)
- ☐ 1 cm Muck (A9) (**LRR D**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ☐ **No** ☒

Remarks:

No hydric soil indicators were present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): _____

Wetland Hydrology Present? **Yes** ☐ **No** ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No evidence of hydrology was observed.

APPENDIX B
LIST OF ON-SITE PLANT SPECIES AND THEIR WETLAND INDICATOR STATUS

LIST OF PLANT SPECIES THAT WERE OBSERVED WITHIN THE STUDY AREAS AND THEIR WETLAND INDICATOR STATUS

Scientific Name	Common Name	Wetland Indicator Status[3]
Agrostis viridis[#]	Water Bent Grass	OBL
Ambrosia acanthicarpa	Annual Burweed	NI
Ambrosia psilostachya var. *californica*	Western Ragweed	FAC
Apium graveolens[#]	Wild Celery	FACW*
Artemisia californica	California Sagebrush	NI
Artemisia douglasiana	Mugwort	FACW
Artemisia tridentata	Big Sagebrush	NI
Arundo donax[#,1]	Giant Reed	FACW
Aster subulatus var. *ligulatus*	Slender Aster	FACW
Baccharis pilularis	Coyote Brush	NI
Baccharis salicifolia	Mulefat	FACW[4]
Bassia hyssopifolia[#,1]	Five-hook Bassia	FAC
Brassica nigra[#,1]	Black Mustard	NI
Brassica spp.[#,1]	Mustard	NI
Bromus diandrus[#,1]	Ripgut Brome	NI
Chenopodium album[#]	White Goosefoot	FAC
Conium maculatum[#,1]	Poison Hemlock	FACW
Conyza bonariensis[#]	South American Horseweed	NI
Conyza canadensis	Horseweed	FAC
Cynodon dactylon[#,1]	Bermuda Grass	FAC
Cyperus eragrostis	Flatsedge	FACW
Cyperus erythrorhizos	Redroot Flatsedge	OBL
Cyperus involucratus[#]	Umbrella Plant	OBL
Dactyloctenium aegyptium[#]	Crowfoot Grass	NI
Distichlis spicata	Saltgrass	FACW
Echinochloa crus-galli[#]	Barnyard Grass	FACW
Eleocharis macrostachya	Common Spikerush	OBL
Eleusine indica[#]	Goose Grass	FACU
Epilobium ciliatum	Willow Herb	FACW
Eriodictyon crassifolium	Yerba Santa	NI
Euthamia occidentalis	Western Goldenrod	OBL
Heliotropium curassavicum	Alkali Heliotrope	OBL
Heterotheca grandiflora	Telegraph Weed	NI
Juncus torreyi	Torrey's Rush	FACW+

LIST OF PLANT SPECIES THAT WERE OBSERVED WITHIN THE STUDY AREAS AND THEIR WETLAND INDICATOR STATUS (CONTINUED)

Scientific Name	Common Name	Wetland Indicator Status[3]
Juncus xiphioides	Iris-leaved Rush	OBL
Leptochloa uninervia	Mexican Sprangletop	FACW
Leymus triticoides	Alkali Ryegrass	FAC+
Ludwigia peploides	Floating Water Primrose	OBL
Malvella leprosa	Alkali Mallow	FAC*
Melilotus alba[#]	White Sweetclover	FACU+
Nicotiana glauca[#,1]	Tree Tobacco	FAC
Oenothera elata	Hooker's Evening Primrose	FACW
Phalaris aquatica[#,1]	Harding Grass	FAC+
Pluchea sericea	Arrowweed	FACW
Poa annua[#]	Annual Bluegrass	FACW-
Poa spp.	Bluegrass	
Polygonum arenastrum[#]	Common Knotweed	FAC
Polygonum lapathifolium	Willow Weed	OBL
Polypogon monspeliensis[#,1]	Rabbitsfoot Grass	FACW+
Populus fremontii	Fremont Cottonwood	FACW
Rosa californica	California Rose	FAC+
Rumex spp.[#]	Dock	
Salix exigua	Narrowleaf Willow	OBL
Salix laevigata	Red Willow	FACW+[4]
Salix lasiolepis	Arroyo Willow	FACW
Salvia mellifera	Black Sage	NI
Sambucus mexicana	Blue Elderberry	FAC
Sonchus asper[#,1]	Prickly Sow-thistle	FAC
Sonchus spp.[#]	Sow-thistle	
Spergularia spp.	Sandspurry	
Tamarix aphylla[#,1]	Athel Tamarisk	FACW-
Tamarix spp.[#,1]	Tamarisk	FAC[5]
Trifolium spp.[#]	Clover	
Typha angustifolia	Narrowleaf Cattail	OBL
Typha domingensis	Southern Cattail	OBL
Typha latifolia	Cattail	OBL
Typha spp.	Cattail	OBL[6]

LIST OF PLANT SPECIES THAT WERE OBSERVED WITHIN THE STUDY AREAS AND THEIR WETLAND INDICATOR STATUS (CONTINUED)

Scientific Name	Common Name	Wetland Indicator Status[3]
Urtica dioica	Stinging Nettle	FACW
Veronica anagallis-aquatica[#]	Water Speedwell	OBL
Washingtonia robusta[2,1]	Fan Palm	NI
Xanthium strumarium	Cocklebur	FAC+
Zea mays[2]	Corn	NI

Notes:

[#] Non-native (Hickman 1993)

[1] Invasive (California Invasive Plant Council 2007)

[2] Non-native (Calflora 2007)

[3] As described in Reed, 1988 unless otherwise noted

[4] Kartesz 1996

[5] Wetland indicator status was assumed FAC for all *Tamarix* species that were not identified to species. *Tamarix* species found in California have indicators of at least FAC.

[6] Wetland indicator status was assumed OBL for all *Typha* species that were not identified to species. *Typha* species found in California have indicators of at least OBL.

Wetland Indicator Status Key

OBL = Obligate wetland species, occur almost always in wetlands (>99% probability).
FACW = Facultative Wetland species, usually occur in wetlands (67 to 99% probability), but occasionally found in non-wetlands.
FAC = Facultative species, equally likely to occur in wetlands or non-wetlands (34 to 66% probability).
FACU = Facultative Upland, usually occur in non-wetlands (67% to 99%), but occasionally found in wetlands.
UPL = Obligate Upland species, occur almost always in non-wetlands (>99% probability).
NI = Non Indicator, not present on list.
+ = Modifier that indicates a frequency toward the higher end of the category (more frequently found in wetlands).
- = Modifier that indicates a frequency toward the lower end of the category (less frequently found in wetlands).
* = A tentative assignment to that indicator status by Reed, 1988.

APPENDIX C
PHOTO DOCUMENTATION

Photo 1. Viewing west along the Santa Clara River, featuring the main channel and riparian scrub vegetation. Wetlands occur adjacent to the river and riparian scrub vegetation is visible in the background. This photo was taken on September 26, 2007 (CC-1).

Photo 2. A mix of hydrophytic vegetation is displayed consisting of narrowleaf willow, red willow, western goldenrod, and cattail. This vegetation arrangement is representative of the on-site riparian scrub wetlands. This photo was taken on September 25, 2007 (PC-13).

Photo 3. A view of a representative on-site mature riparian forest. This photo was taken on September 26, 2007 (PC-2).

Photo 4. A view of redox features that occurred in sandy soils in a riverwash land form adjacent to the Santa Clara River. This photo was taken on September 26, 2007 (CC-3).

Photo 5. A view of a depleted matrix that occurred in a sandy alluvial land form within a mature riparian forest wetland. This photo was taken on September 26, 2007 (PC-2).

Photo 6. A view of a high water table present within sandy soils. This photo was taken on September 26, 2007 (PC-6).

Photo 7. A view of a soil pit in a typical upland habitat. Hydric soils and hydrology indicators were absent. This photo was taken on September 28, 2007 (LC-7).

Photo 8. A view of wetland hydrology indicators including soil cracking, crust, and sediment deposits. This photo was taken on September 25, 2007 (PC-15).

APPENDIX D
URS CORPORATION (2004) JURISDICTION DELINEATION FOR THE RMDP SITE

Under separate cover.

APPENDIX E
LUKOS AND ASSOCIATES (2008) JURISDICTION DELINEATION FOR THE ENTRADA PLANNING AREA

Under separate cover.

URS, "Preliminary Jurisdictional Determination for the Newhall Ranch Resource Management and Development Plan Site and Entrada Planning Area, Los Angeles County, California" (2009)

April 8, 2009

Dr. Aaron Allen, SPL
U.S. Army Corps of Engineers
2151 Alessandro Dr. #110
Ventura, California 93001

Re: Preliminary Jurisdictional Determination for the Newhall Ranch Resource Management and Development Plan Site and Entrada Planning Area, Los Angeles County, California

Dear Dr. Allen:

Please accept this letter as our preliminary Jurisdictional Determination (JD) for the Newhall Ranch Resource Management and Development Plan (RMDP) site. The Newhall Land and Farming Company (Newhall Land) has submitted an Individual 404 Permit application (File No. 2003- 01264- AOA) for Department of the Army authorization of impacts under the RMDP, including approximately 80 acres of permanent impacts to waters of the United States for the construction of roads, flood control structures and associated infrastructure for the Newhall Ranch Specific Plan in the Santa Clara River and several tributaries near Santa Clarita in Los Angeles County, California. The Corps is currently preparing an Environmental Impact Statement (EIS) prior to making a permit decision (a joint EIS/EIR is being prepared in consult with the California Department of Fish and Game, which also discloses impacts of the RMDP pursuant to CEQA requirements). As detailed below, multiple delineation efforts have been completed on the site in support of the EIS/EIR process between 2004 and 2009.

The RMDP project is a multi-phased development proposed to occur over an extended period of time (approximately 20 years). Accordingly, impacts to waters of the U.S. will also occur over an extended period. Due to the long-term nature of the proposed Individual Permit, Newhall Land is proceeding under a preliminary JD for planning purposes, and will seek approved JDs prior to construction of project components requiring Section 404 authorization. This approach allows for consideration of any changes in the exact location or extent of waters of the U.S. onsite, as well as other changes, that may occur over the 20-year implementation period of the proposed RMDP.

1.0 INTRODUCTION AND BACKGROUND

Newhall Land owns the Newhall Ranch RMDP site, a 13,651-acre property located in the Santa Clarita Valley in northern Los Angeles County. The Santa Clara River traverses the RMDP site in an east-west direction, and a substantial number of tributary drainages run north-south conveying flows from upland areas to the river. The Newhall Land and Farming Company has submitted an application (File No. 2003-01264-AOA) for Department of the Army authorization to permanently impact approximately 80 acres of waters of the United States for the construction of roads, flood control structures and associated infrastructure for the Newhall Ranch Specific Plan in the Santa Clara River and several tributaries near Santa Clarita. Project implementation is expected to occur over a 20 year period. The Corps determined that issuance of such a permit would require environmental analysis under the National Environmental Policy Act (NEPA), and issued a Notice of Intent to prepare an EIS in early 2004. Since that time, collection of data and completion of required evaluation of the proposed permit's effect on the environment has been ongoing.

In 2003, URS Corporation completed field investigations delineating all areas within the RMDP site that exhibited an ordinary high-water mark; a delineation report was prepared in early 2004. The report was submitted to the Corps (see Attachment B), and the Corps responded with a letter approving the jurisdictional boundaries as delineated, but stipulating that their approval would remain valid only for a five-year term. During that term, large storm events in the 2004-2005 season scoured and reshaped the channel, altering the width and location of the active river channel within the floodplain. Further, the scope of the EIS/EIR necessitated additional delineation work, including a delineation of waters within the Entrada planning area (adjacent to the RMDP site, see Attachment C) and a delineation of wetlands within the RMDP site (see Attachment D). These additional delineation reports have not previously been submitted to the Corps. A preliminary jurisdictional delineation approach to the long-term permit is justified due to the geomorphologic and hydrodynamic processes apparent in the Santa Clara River. Large storm events, termed "reset" events, can completely reconfigure the channel, altering channel width and the location of the active channel within the floodplain. The channel then remains in this altered configuration, enduring minor changes due to smaller storm events and other perturbations, until the next reset event occurs, reconfiguring the floodplain once again. In 2007, Balance Hydrologics conducted a study evaluating the extent to which various factors influence the morphology of the Santa Clara River channel. The need for this study arose from concerns regarding the potential hydrologic and hydraulic effects of bridges, bank stabilization, and increased impervious surfaces within the RMDP site on river channel morphology within and downstream of the site. The study used historic aerial photographs to describe changes to the

river channel and floodplain that occurred due to major perturbations (extreme wet and dry weather cycles, dam construction at Castaic Lake, dam failure at St. Francis Dam, urbanization in the watershed, and waste water treatment works discharging to the river) over the last century. The study observed that some perturbations, such as construction of Castaic Dam and an increase in dry-season flows due to treatment plant discharge, appear to have had only minor effects on channel morphology, and that these effects are masked by the much larger morphological changes that occur in response to large storm events.

The results of the Balance Hydrologics study are important, because the proposed Individual Section 404 Permit desired by Newhall Land would authorize the construction of various facilities within the river over a 20-year period, with maintenance occurring under the permit for a total of 50 years. Due to this long project timeframe, it is possible that a reset event could occur between the time jurisdictional areas are delineated and the time the impact actually occurs. However, to allow an accurate evaluation of project impacts and to ensure appropriate mitigation, a delineation of jurisdictional areas is needed where intervening changes in channel configuration have not occurred. To address this need, the proposed permit would involve individual, site-specific JDs to be conducted prior to construction of any project element, and submitted to the Corps for approval as a component of a pre-construction notification under the Individual 404 Permit. The acreage of mitigation required would be based on the approved JD rather than on the preliminary JD presented below. Thus, this preliminary JD is intended primarily for planning purposes and to provide a basis for evaluating impacts of the RMDP on waters of the U.S. under current conditions.

2.0 JURISDICTIONAL DETERMINATION METHODS

The jurisdictional boundaries presented in this preliminary JD were mapped during three separate field investigations that were conducted on the RMDP site between 2003 and 2007. The formal reports from these investigations are included as Attachments B through D, and the investigations are described briefly below:

- **URS Corporation, 2004: Jurisdiction Delineation Package.** This investigation field mapped all areas within the RMDP site that exhibited an ordinary high-water mark during the summer and fall of 2003. Mapping was conducted using sub-meter accurate GPS units, and a GIS layer was constructed from the resulting polygons. The Santa Clara River and all tributaries within the RMDP site were mapped, including both banks where feasible. In smaller drainages where the accuracy of the GPS units was insufficient to allow separate mapping of both banks, the centerline of the stream was mapped and a fixed measured width was then applied to the center line in GIS to create a polygon. This study did not take into consideration the presence of wetlands, and no wetland delineation

forms were completed. It is therefore possible that wetlands could exist both within and beyond the ordinary high-water mark boundaries mapped, and this investigation therefore does not represent a complete delineation of all waters of the U.S. within the RMDP site. The ordinary high-water mark boundaries mapped in this study were approved by the Corps in 2004.

- **Lukos and Associates, 2008: Jurisdictional Delineation for Entrada, an Approximately 850-Acre Property in Los Angeles County, California.** This investigation mapped six drainage segments within the Entrada planning area, a parcel owned by Newhall Land and located immediately adjacent to the RMDP site. Although the proposed Section 404 Permit would not authorize any discharge of fill material within the Entrada planning area, waters within that area were delineated because Entrada falls within the geographic scope of Newhall Land's Spineflower Conservation Plan, a related, non-federal project that would facilitate an urban development on Entrada that could potentially affect jurisdictional waters. This investigation delineated all waters of the U.S. within the Entrada planning area, including both wetlands and non-wetland waters, mapping the features on a 200-scale basemap using visible landmarks. The mapped polygons were digitized into a GIS layer, in which wetland polygons were distinguishable from non-wetland waters.

- **URS Corporation, 2009: Newhall Ranch RMDP Composite Wetland Delineation.** This investigation's geographic scope encompassed the entire RMDP site, and the study was focused on Corps-jurisdictional wetlands, as these were not considered in the URS 2004 delineation. Due to the large size of the RMDP site, combined with the inherent morphological dynamism of the Santa Clara River documented in the 2007 Balance Hydrologics study, field delineation of all wetlands within the RMDP site was not performed. Rather, field delineations in this study were limited to wetland areas within tributary drainages, which are less morphologically dynamic than the river, and wetland areas along the river in areas where major project components, such as roadway bridges across the river, are proposed. For the remainder of the river corridor, this study incorporated the results of a planning-level delineation effort undertaken by URS Corporation and Dudek and Associates in 2006, which mapped wetlands based on topographic and vegetation maps and high-resolution (six-inch pixels) aerial photography. Areas within and adjacent to the active channel of the river where riparian vegetation was evident on aerial photos were mapped as wetlands. The study notes that this is a conservative approach that may actually overstate the extent of wetlands onsite, because wetlands were delineated based on vegetation and hydrology, but not soils. For areas where wetlands were mapped in the field, the report includes the associated data forms. The study compiled both types of wetland data (field delineated and planning-

level, aerial photo delineated) into a GIS layer showing the full extent of wetlands within the RMDP site.

The GIS data produced from the three studies described above were compiled to create a consolidated layer showing the full extent of waters of the U.S., including wetlands, within the RMDP site and the adjacent Entrada planning area. This data layer will be used for planning purposes, including identification and evaluation of project alternatives and environmental analysis under NEPA and CEQA, but will be superseded by refined, site-specific, approved JDs to be conducted prior to construction. These approved JDs will be the basis for determining the exact extent of impacts and mitigation required.

3.0 RESULTS: WATERS OF THE UNITED STATES WITHIN THE RMDP SITE AND ENTRADA PLANNING AREA

As stated previously, the delineated boundaries presented in this preliminary JD are taken from three field studies conducted between 2003 and 2007. This section presents a brief description of the aquatic resources within the RMDP site, and quantitatively presents the current acreages of all waters of the U.S. (both wetland and non-wetland) as mapped in the source studies.

The RMDP site contains a diverse array of jurisdictional drainages, which vary in size from small, first and second order headwater streams to a reach of the much larger Santa Clara River. The river traverses the site flowing in a westward direction, and the onsite tributary drainages generally run perpendicular, conveying flows southward and northward into the river from the mountains and foothills on either side (See Figure 1). The small tributaries, large tributaries, and river mainstem onsite differ in their physical and biological characteristics, but all three of these drainage types provide important physical and biological functions.

3.1 RMDP Site: Small Tributaries

The smallest tributary streams onsite are ephemeral drainages, which support surface flows for only a short duration following rain events. With the exception of Magic Mountain canyon, which receives flows from areas south of the RMDP site boundary, the ephemeral drainages onsite have their watersheds almost completely contained within the RMDP site. The ephemeral streams onsite lack riparian vegetation, and are covered instead with a combination of upland vegetation types and river wash (unvegetated channel). The canyon mouths of these drainages can provide limited refuge habitat for aquatic species during periods of high river flow, although the lack of relatively permanent flow in ephemeral

streams generally precludes their use by aquatic species. In addition, the large number and varied location of these tributaries (of the 22 tributary drainages onsite, 15 are ephemeral) provides opportunities for wildlife to use the ephemeral tributary drainages as movement corridors between the Santa Clara River and upland portions of the project site.

Although ephemeral tributaries constitute the majority of streams within the RMDP site, the acreage they encompass is relatively minor because these channels are much narrower than the channels of the larger tributaries onsite. The 22 ephemeral tributary drainages within the RMDP site currently contain a combined total of 30.3 acres of non-wetland waters of the U.S. (see Table 1). The ephemeral drainages onsite do not support any jurisdictional wetlands.

3.2 RMDP Site: Large Tributaries

In addition to the small ephemeral streams identified above, the RMDP site also contains seven tributaries that support surface flows at least intermittently in some reaches. Two of these seven (Potrero Canyon and Salt Creek) have reaches that support perennial flows during most years. The intermittent streams onsite are substantially longer than the ephemeral tributaries, and originate in the Santa Susana Mountains (south side of the river) and the lower reaches of the San Gabriel Mountains (north side of the river), outside the RMDP site boundary. (The only exception to this is Salt Creek, which is entirely within the RMDP site by definition because the Salt Creek watershed boundary forms the southern boundary of the site.) The site's intermittent tributaries support riparian vegetation in many reaches; this vegetation consists primarily of southern willow scrub and mule fat scrub.

In total, the seven larger, intermittent and perennial tributaries within the RMDP site contain approximately 140 acres of non-wetland waters of the U.S. and an additional 12.2 acres of jurisdictional wetlands, (see Table 1). Currently, the total Corps jurisdiction within these tributaries is therefore approximately 152 acres. Of this total, more than half (85.4 total acres of waters of the U.S.) are within the Salt Creek watershed.

3.3 RMDP Site: Santa Clara River Mainstem

The river main stem is the receiving water for all of the tributary drainages within the RMDP site, as well as 644 square miles of mainstem and tributary watersheds upstream of the project reach. The mainstem has a much lower gradient compared to the tributaries, and supports a substantial floodplain with an extensive mosaic of braids, bars and terraces. Within the RMDP site, the river mainstem exhibits year round surface flows (supported in part by effluent discharges from upstream treatment works). These flows are adequate to

support resident populations of many fishes and aquatic reptiles and amphibians. The river mainstem supports an extensive riparian community comprised of mature cottonwood forests beyond the ordinary high water mark, successional riparian communities on bars and terraces, and emergent wetlands near the active channel. These vegetation types provide suitable breeding and foraging habitat for many wildlife species. The river mainstem also serves as an east-west wildlife corridor through the project area, and connects natural open spaces along its length.

Within the RMDP site, the Santa Clara River mainstem currently supports approximately 215 acres of non-wetland waters of the U.S., and an additional approximately 237 acres of adjacent wetlands. The river mainstem within the RMDP site therefore contains a total of approximately 452 acres of waters of the U.S.

3.4 RMDP Site: Spring Complex

In addition to the river and streams described above, the RMDP site also contains the Middle Canyon spring, a slope wetland located on an upper terrace along the southern bank of the Santa Clara River just downstream from the confluence with Middle Canyon (one of the site's ephemeral drainages). The spring complex is a unique aquatic resource in the RMDP site supporting snail and sunflower species that are taxonomically undescribed and may only occur in this location regionally. The spring is fed perennially by flows from the shallow alluvial groundwater system in lower Middle Canyon, which is connected to the spring through permeable beds directing groundwater flow to the spring (see Figure 1).

The spring complex does not contain any non-wetland waters of the U.S., but supports approximately 2.14 acres of jurisdictional wetlands (see Table 1).

3.5 Entrada Planning Area: Small Drainages

The Entrada planning area contains six distinct drainage segments comprising three drainages. All three of Entrada's drainages are ephemeral, and are similar in many ways to the ephemeral drainages within the RMDP site. The channels are vegetated primarily with upland plant communities, and contain areas where the channel is unvegetated. Flows from ephemeral streams within the Entrada planning area flow to the north, and leave the site at the boundary with the Magic Mountain theme park. One of the drainages within the Entrada planning area contains a jurisdictional wetland are supported by nuisance flows from a storm drain outlet.

One of Entrada's drainages (identified in the Lukos 2008 report as Drainage A) is contained mostly within the RMDP site and was delineated in the URS 2004 JD. The acreage of this drainage has been deducted from the Entrada total to prevent double-counting this drainage. The ephemeral drainages within Entrada (excluding Drainage A) contain a current total of 3.05 acres of non-wetland waters and 0.17 acres of wetlands, for a total of 3.22 acres of waters of the U.S.

The acreages of waters of the U.S. within the RMDP site and Entrada planning area are presented in Table 1, below. The locations of waters of the U.S. on the site are also depicted graphically on Figure 1.

TABLE 1
WATERS OF THE UNTIED STATES, INCLUDING WETLANDS, WITHIN THE RMDP SITE AND ENTRADA PLANNING AREA

Drainage	Non-Wetland Waters of the United States (Acres)	Corps Adjacent Wetlands (Acres)	Total Waters of the United States (Acres)
Santa Clara River	215.00	237.00	452.00
Salt Creek	79.70	5.67	85.40
Potrero Canyon	31.40	6.52	37.90
San Martinez Grande Canyon	2.55	0.00	2.55
Chiquito Canyon	12.20	0.00	12.20
Long Canyon	5.70	0.00	5.70
Lion Canyon	6.86	0.00	6.86
Humble Canyon	1.91	0.00	1.91
Minor Ephemeral Drainages Within RMDP Study Area	30.30	0.00	30.30
Spring Complex	0.00	2.14	2.14
Subtotal RMDP Site	**386**	**251**	**637**
Entrada Unnamed Drainages	3.05	**0.17**	3.22
Subtotal Entrada Planning Area	**3.05**	**0.15**	**3.20**
Grand Total	**389**	**251**	**639**

We look forward to continuing work with your agency on this project, and wish to ensure that this preliminary JD submittal meets all applicable requirements. Should you have any questions regarding this submittal, please contact Christopher Julian of URS Corporation at (805) 964-6010.

Sincerely,
URS Corporation

Christopher Julian
Project Biologist/Regulatory Specialist

List of Attachments

Attachment A	Preliminary Jurisdictional Determination Form
Attachment B	URS Corporation 2004 Jurisdictional Delineation
Attachment C	Lukos and Associates 2008 Entrada Delineation Report
Attachment D	URS Corporation 2009 Composite Wetlands Delineation Report

DRAFT

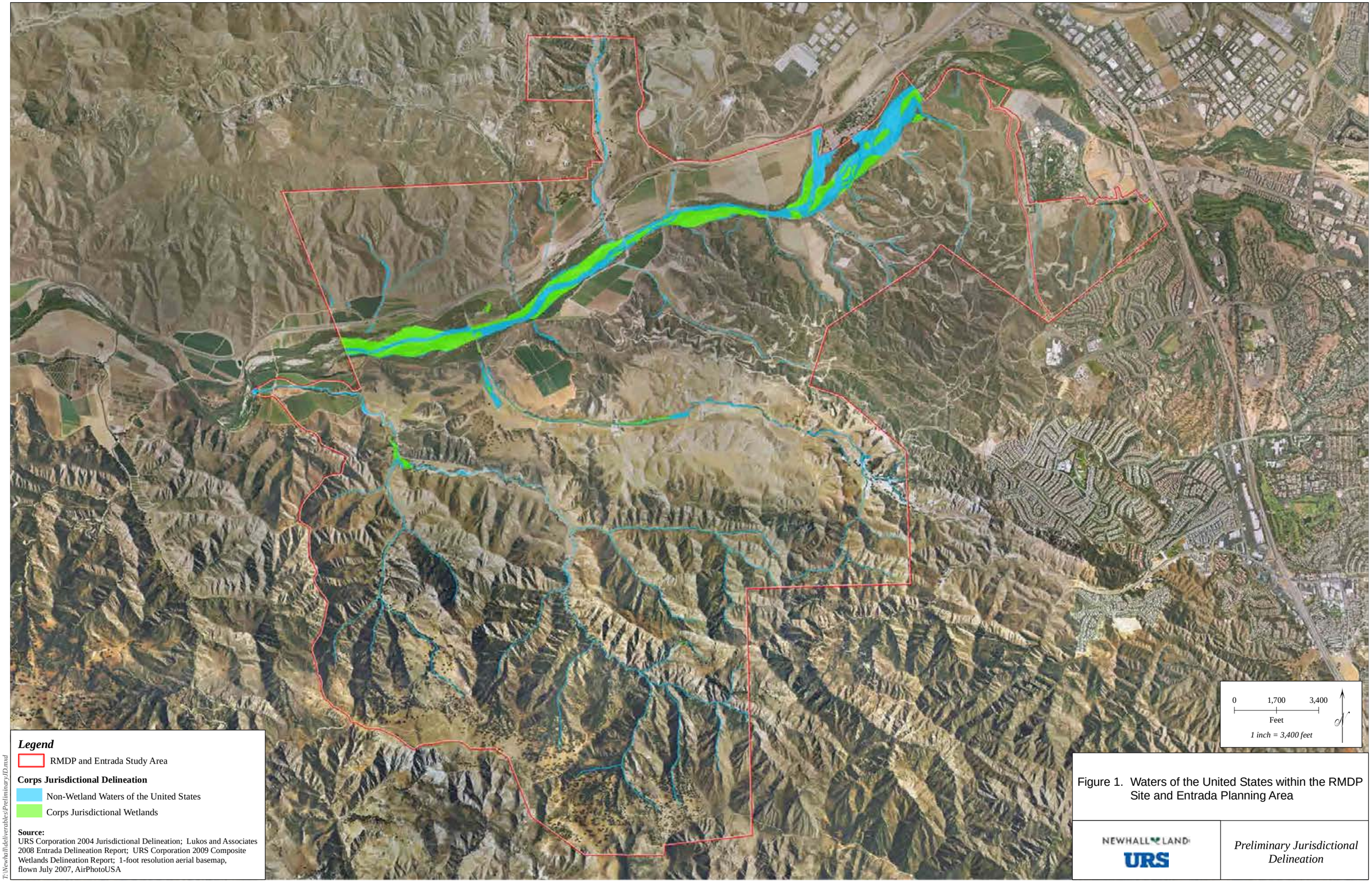

Figure 1. Waters of the United States within the RMDP Site and Entrada Planning Area

Preliminary Jurisdictional Delineation

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there *"may be"* waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

District Office: LOS ANGELES | File/ORM #: 2003-01264-AOA | PJD Date: Apr 7, 2009

State: CA | City/County: Los Angeles County

Nearest Waterbody: Santa Clara River

Location: TRS, LatLong or UTM: Approximate site center at 347752.848962, 3807607.71454 (UTM NAD83, Meters).

Name/ Address of Person Requesting PJD: Newhall Land and Farming Company, 23823 Valencia Blvd., Valencia, CA 91355

Identify (Estimate) Amount of Waters in the Review Area:

Non-Wetland Waters: ~220k linear ft | var. width | 389 acres | Stream Flow: N/A

Wetlands: 251 acre(s) | Cowardin Class: Palustrine, scrub-shrub

Name of Any Water Bodies on the Site Identified as Section 10 Waters: Tidal: None | Non-Tidal: None

☑ Office (Desk) Determination
☑ Field Determination: | Date of Field Trip: Several, see reports

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: See accompanying survey reports
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite quad name: Val Verde, Newhall, Santa Susana Mtns, Oat Mtn.
- ☑ USDA Natural Resources Conservation Service Soil Survey. Citation: USDA Soil Survey of San Francis Area, California
- ☐ National wetlands inventory map(s). Cite name:
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☑ 100-year Floodplain Elevation is: 865 ft. amsl
- ☑ Photographs: ☑ Aerial (Name & Date): Robert J. Lung & Associates, 2008; Pecnan, 2008
  - ☐ Other (Name & Date):
- ☑ Previous determination(s). File no. and date of response letter: File 2003-01264-AOA; response date 2/4/2004
- ☑ Other information (please specify): See accompanying survey reports

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

URS Corporation, 2009, Revised Preliminary Jurisdictional Determination

June 7, 2010

Dr. Aaron Allen, SPL
U.S. Army Corps of Engineers
2151 Alessandro Dr. #110
Ventura, California 93001

Re: Preliminary Jurisdictional Determination for the Newhall Ranch Resource Management and Development Plan Site and Entrada Planning Area, Los Angeles County, California

Dear Dr. Allen:

On behalf of the Newhall Land and Farming Company (Newhall Land), please accept the attached materials containing revisions to our previously submitted preliminary Jurisdictional Determination (JD) dated April 20, 2009, for the Newhall Ranch Resource Management and Development Plan (RMDP) site (File No. 2003-01264-AOA). Per your request, URS Corporation (URS) staff have conducted additional wetland delineation field work in the portion of the RMDP site north of the Santa Clara River near the proposed Potrero Canyon Road bridge, an area which had been previously surveyed for wetlands only by interpreting aerial photographs. In addition, the boundaries of waters of the United States and wetlands at some other locations have been refined to reflect the most recent data available (generally, 2006 data replacing 2004 data). These revisions to the 2009 Preliminary JD are described and quantified below.

Santa Clara River Mainstem near Potrero Canyon Road Bridge

In the 2009 Preliminary JD, the boundaries of a wetland at this location had been based on field investigations only within the construction disturbance zone of the Potrero Canyon Road bridge, and had been based on interpretation of aerial photographs outside this disturbance zone. In response to comments received from the public on the Draft EIS/EIR, field mapping techniques were employed throughout this area to determine the wetland boundary with greater precision. The wetland delineation field work was conducted by URS biologists Christopher Julian and Julie Love on December 21, 2009 and January 6, 2010, and was performed in accordance with the methods set forth in the Corps' Wetland Delineation Manual and the Arid West Regional Supplement to that manual. A total of 32 new data points were evaluated for wetland characteristics. The field investigations identified an additional 15.5 acres of wetland waters of the United States adjacent to the Santa Clara River mainstem.

Margins of the Santa Clara River, Potrero Canyon, and Salt Creek

Upon more detailed inspection of the jurisdictional boundaries and data sources used in the 2009 Preliminary JD, it was observed that the results of a field mapping exercise conducted by Dudek and Associates in 2006 had not been incorporated into the results, and that older boundaries, mapped by URS Corporation in 2004, had been used instead. Although the difference between these data sources is not great, the 2004 boundaries have been replaced with 2006 boundaries where applicable, to ensure that the JD contains the most current information available. Incorporating this change yielded an increase of 21.9 acres of waters of the United States, including 10.4 acres of wetlands (in addition to the 15.5 acres of Santa Clara River wetlands identified above).

In addition to the mapping revisions identified above, the GIS database for the project has also been updated to include some tributary confluence areas that were properly identified as waters of the United States on the graphics in the 2009 Preliminary JD, but were inadvertently excluded from the database. Addition of these areas to the GIS database yielded an additional 1.8 acres of non-wetland waters of the United States along the Santa Clara River mainstem.

Incorporation of the revisions described above yielded an updated total of 660.1 acres of waters of the United States within the site, of which 276.9 acres are jurisdictional wetlands. Updated acreages of jurisdictional waters, including wetlands, are included on the attached preliminary JD form, and the additional wetland area is depicted graphically on the attached site map. Other information presented in the previous preliminary JD, including the overview of the RMDP project, survey methods, and general descriptions of the aquatic resources on-site, would not change as a result of these updates, and are not restated here. Revised acreages of waters of the United States within the project area, including wetlands, are presented in Table 1, below.

We look forward to continuing work with your agency on this project. Should you have any questions regarding this submittal, please contact Christopher Julian of URS Corporation at (805) 964-6010.

Sincerely,
URS Corporation

Christopher Julian
Project Biologist/Regulatory Specialist

TABLE 1
WATERS OF THE UNITED STATES, INCLUDING WETLANDS, WITHIN THE RMDP SITE AND ENTRADA PLANNING AREA

Drainage	Non-wetland Waters of the United States (Acres)	Corps Adjacent Wetlands (Acres)	Total Waters of the United States (Acres)
Santa Clara River	212.5	258.8	471.2
Salt Creek	79.7	8.7	88.5
Potrero Canyon	31.4	7.3	38.7
San Martinez Grande Canyon	2.55	0.00	2.55
Chiquito Canyon	12.21	0.00	12.21
Long Canyon	5.70	0.00	5.70
Lion Canyon	6.86	0.00	6.86
Minor Ephemeral Drainages within RMDP Study Area	32.25	0.00	32.25
Spring Complex	0.00	2.13	2.13
Subtotal RMDP Site	**383.2**	**276.9**	**660.1**
Entrada Unnamed Drainages	2.4	**0.55**	2.95
Subtotal Entrada Planning Area	**2.4**	**0.55**	**2.95**
Grand Total	**385.6**	**277.5**	**663.1**

List of Attachments

Attachment A Preliminary Jurisdictional Determination Form
Attachment B Map of Waters of the United States within the Project Site

cc: Matt Carpenter, Newhall Land and Farming Company

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there "*may be*" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

District Office: Los Angeles | File/ORM #: 2003-01264-AOA | PJD Date: May 6, 2010

State: CA | City/County: Los Angeles County

Nearest Waterbody: Santa Clara River

Location: TRS, LatLong or UTM: Approximate site center at 347752.848962, 3807607.71454 (UTM NAD 83, Meters).

Name/ Address of Person Requesting PJD: Mr. Matt Carpenter
Newhall Land and Farming Company
25124 Springfield Court, 3rd Floor
Valencia, California 91355-1088

Identify (Estimate) Amount of Waters in the Review Area:

Non-Wetland Waters: ~220k linear ft | var. width | 660.1 acres | Stream Flow: N/A

Wetlands: 276.1 acre(s) | Cowardin Class: Palustrine, scrub-shrub

Name of Any Water Bodies on the Site Identified as Section 10 Waters: Tidal: None | Non-Tidal: None

☑ Office (Desk) Determination
☑ Field Determination: | Date of Field Trip: Several, see reports.

SUPPORTING DATA: Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- ☑ Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: See reports.
- ☑ Data sheets prepared/submitted by or on behalf of the applicant/consultant.
  - ☐ Office concurs with data sheets/delineation report.
  - ☐ Office does not concur with data sheets/delineation report.
- ☐ Data sheets prepared by the Corps
- ☐ Corps navigable waters' study:
- ☐ U.S. Geological Survey Hydrologic Atlas:
  - ☐ USGS NHD data.
  - ☐ USGS 8 and 12 digit HUC maps.
- ☑ U.S. Geological Survey map(s). Cite quad name: Val Verde, Newhall, Santa Susana Mtns, Oat Mtn
- ☑ USDA Natural Resources Conservation Service Soil Survey. Citation: USDA Soil Survey of San Francis Area, California
- ☐ National wetlands inventory map(s). Cite name:
- ☐ State/Local wetland inventory map(s):
- ☐ FEMA/FIRM maps:
- ☑ 100-year Floodplain Elevation is: 865 ft. amsl
- ☑ Photographs: ☑ Aerial (Name & Date): Robert J. Lung & Associates 2006, Psomas 2008
  - ☐ Other (Name & Date):
- ☑ Previous determination(s). File no. and date of response letter: File 2003-01264-AOA; response date 2/4/2004
- ☑ Other information (please specify): See reports.

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

Signature and Date of Regulatory Project Manager (REQUIRED)

Signature and Date of Person Requesting Preliminary JD (REQUIRED, unless obtaining the signature is impracticable)

EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "preconstruction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.

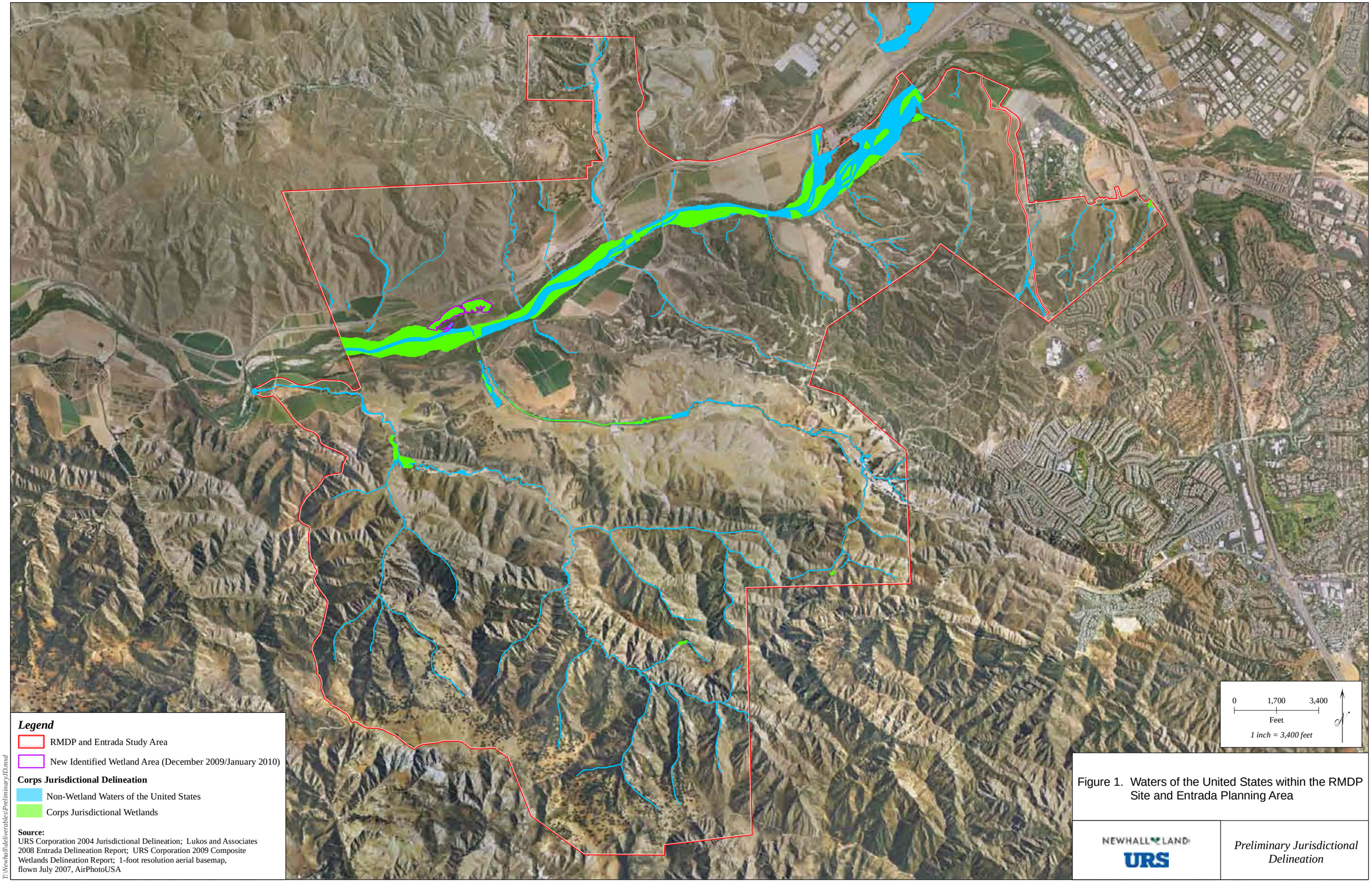

Figure 1. Waters of the United States within the RMDP Site and Entrada Planning Area

Preliminary Jurisdictional Delineation

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
81440-2009-F-0197

June 7, 2011

Aaron O. Allen, Chief
Regulatory Division
U.S. Army Corps of Engineers
2151 Alessandro Drive, Suite 110
Ventura, California 93001

Subject: Biological Opinion for the Newhall Ranch Resource Management and Development Plan, Santa Clarita, Los Angeles County, California (File Number 2003-01264-AOA) (8-8-09-F-44)

Dear Dr. Allen:

This document transmits the U.S. Fish and Wildlife Service's (Service) biological opinion on the U.S. Army Corps of Engineers' (Corps) proposed authorization of Newhall Land and Farming (Newhall) to permanently impact approximately 92.3 acres of Waters of the U.S. for the construction of roads, flood control structures, and associated infrastructure for the Newhall Ranch Resource Management and Development Plan (RMDP) in the Santa Clara River and several other tributaries near Santa Clarita, Los Angeles County. At issue are the effects of this action on the federally endangered least Bell's vireo (*Vireo bellii pusillus*) and its critical habitat, southwestern willow flycatcher (*Empidonax traillii extimus*), California condor (*Gymnogyps californianus*), arroyo toad (*Anaxyrus californicus*) and its critical habitat, and unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), and the federally threatened coastal California gnatcatcher (*Polioptila californica californica*), in accordance with section 7 of the Endangered Species Act of 1973, as amended (Act) (16 U.S.C. 1531 *et seq.*). Your June 10, 2009, request for the initiation of formal consultation was received on June 11, 2009.

You have determined that the California red-legged frog may be adversely affected as a result of habitat loss and RMDP activities. No documented occurrences of California red-legged frog have been recorded within the RMDP area, despite numerous surveys for special status aquatic species conducted during a period of time from 1999 to 2010. Given the intensity of the aquatic survey efforts for the proposed project, California red-legged frog would likely have been detected if they occurred within the RMDP area. Lastly, because of the overwhelming presence of non-native species (e.g., African clawed frogs (*Xenopus laevis*), bullfrogs (*Rana catesbeiana*), bass species, etc.) within the action area, we believe the California red-legged frog to be

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precluded from the site due to predation. Consequently, we believe the proposed RMDP activities would not adversely affect the California red-legged frog and it will not be discussed further in this document.

This biological opinion is based on information that accompanied your request for consultation, including the biological assessment (URS 2010), Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan, Final Joint Environmental Impact Statement and Environmental Impact Report (Corps and California Department of Fish and Game (CDFG) 2010) and information in our files. A complete record of this consultation can be made available at the Ventura Fish and Wildlife Office.

CONSULTATION HISTORY

On October 13, 2009, the Service proposed critical habitat for the arroyo toad (74 Federal Register (FR) 52612). Proposed RMDP activities located within the Santa Clara River fall within what was proposed critical habitat Unit 6 for the arroyo toad. During a meeting on November 6, 2009, with Mark Subbotin and Matt Carpenter of Newhall Land and Farming, Chris Dellith of the Service recommended that because the critical habitat could become final during the proposed RMDP activities, the Corps should request a conference opinion regarding the project effects on the proposed critical habitat for the arroyo toad. We received an electronic mail correspondence (e-mail) of your request for a conference opinion on November 10, 2009.

Subsequently, due to the complexity of this consultation and the time it took to complete, the critical habitat designation became final on February 9, 2011 (76 Federal Register (FR) 7246). We incorporated the revised final critical habitat for the arroyo toad into this document and have made it a biological opinion rather than a conference opinion. This obviates the need to convert any conference opinion into a biological opinion.

BIOLOGICAL OPINION

The Corps' request for consultation indicates that the projected buildout of the RMDP requiring a permit from them will take 25 years. The Corps' permit and its discretionary authority will be in effect for those 25 years. Consequently, the duration of this biological opinion will also be 25 years, coinciding with the date of issuance of the Corps' permit and its termination. Any take that occurs outside of the Corps' discretionary authority or beyond the duration of its permit and this biological opinion would not be exempt from the prohibitions provided for in section 9 of the Act. In the absence of a further federal nexus, the applicant should apply for an incidental take permit pursuant to section 10(a)(1)(B) of the Act for take that is not exempted from the section 9 prohibitions, especially at the end of the 25-year period.

DESCRIPTION OF THE PROPOSED ACTION

The Corps proposes to issue a long-term Individual Permit under Section 404 of the Clean Water Act authorizing those components of the RMDP that would require the placement of fill material within waters of the U.S. The activities to be authorized by the Corps include: temporary haul routes; nature viewing platforms; wastewater reclamation plant outfall; storm drain outlets; modified tributary drainages; bank stabilization; grade control structures; bridges and road crossings; engineered natural channels; trail crossings and building pads; debris and detention basins; and powerlines, towers, and utility crossings.

The RMDP is a comprehensive plan of development and conservation in an area located in northern Los Angeles and eastern Ventura counties. The RMDP area encompasses approximately 13,651 acres and includes the Newhall Ranch Specific Plan (Specific Plan). The Specific Plan was approved by the County of Los Angeles on March 27, 2003, and establishes the general plan and zoning designations necessary to develop the Specific Plan area with residential, commercial, and mixed uses over the next 20 to 30 years (County of Los Angeles 2003). At build-out per the Specific Plan, the proposed Newhall Ranch development would result in approximately 2,550 acres of residential uses (9,081 single-family homes on 1,559 acres, and 11,804 multi-family homes on 991 acres), 5.5 million square feet of commercial uses on 258 acres; and the development of approximately 643 acres devoted to public facilities such as community parks, neighborhood parks, golf course, community lake, new elementary, junior high and high schools, library, electrical substation, fire stations, and a 6.8 million gallon per day water reclamation plant. Open space would be provided on approximately 8,683 acres within the Specific Plan area, and an additional 1,517 acres of open space in the Salt Creek area adjacent to the Specific Plan area for a total of approximately 10,200 acres of open space within the RMDP. The open space would also include land dedicated to the preservation of the state-listed endangered San Fernando Valley spineflower (*Chorizanthe parryi var. fernandina*).

Newhall Ranch Resource Management and Development Plan Components

Bridges and Road-Crossing Culverts

Two river bridges and three tributary bridges, and 13 new road-crossing culverts would be installed to serve the Specific Plan development, and to accommodate future traffic associated with development of the Specific Plan and the region. Two bridges, Long Canyon Road Bridge and Commerce Center Drive Bridge[1], would be installed over the main stem of the Santa Clara River. Three bridges would cross tributary drainages (one each at Chiquito, San Martinez Grande, and Potrero drainages). The bridges are proposed to be constructed of conventional concrete girders placed over concrete-filled piers. Twelve of the 13 new road-crossing culverts

[1] The Commerce Center Drive bridge was addressed in previous consultations with the Corps (1-8-98-F/C-61 and 1-8-02-F-4R). We are addressing it in this biological opinion because sufficient time has passed and the final arroyo toad critical habitat designation warrants reinitiation of consultation for this feature as part of the larger RMDP project. The findings of this biological opinion supersede those made in the previous consultations for the Commerce Center Drive bridge within the RMDP area.

would cross five tributaries to the Santa Clara River. A thirteenth road-crossing culvert would cross Ayers Canyon, near Potrero Mesa. The road crossings are proposed to be constructed of earthen fill and pre-fabricated arched culverts.

Bank Stabilization
Bank stabilization would be installed along portions of the Santa Clara River and its tributary drainages within the RMDP area. Bank stabilization would include buried soil cement, grouted and ungrouted rock riprap, turf reinforcement mats, and limited gunite slope lining in and around bridge abutments and other areas where other methods are not technically feasible. Approximately 105,207 linear feet of buried bank stabilization would be placed along the River Corridor and tributaries within the Specific Plan portion of the RMDP area. Raising of the ground surface for building pads would occur in areas along the Santa Clara River and major tributary drainages to protect land uses from flooding.

Drainage Facilities
Drainage facilities would be installed and include open and closed drainage systems, inlets, outlets, bank stabilization, and National Pollutant Discharge Elimination System (NPDES) water quality basins. The proposed drainage structures focus on minimizing the amount of debris that would enter the drainage system, and maintaining the quality of water within the system.

Water Quality Control Facilities
Pursuant to NPDES requirements, Best Management Practices (BMPs) would be implemented, including the following water quality control facilities: 1) water quality basins; 2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds (Debris Retaining Inlets [DRI]); 3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); 4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; 5) bioretention, such as vegetated, grassy swales, that provide water quality benefits and convey stormwater runoff; and 6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber.

Tributary Drainages
<u>Modified Tributary Drainages – Existing Channels Stabilized.</u> Some of the existing major tributary drainages within the RMDP area (e.g., Chiquito Canyon and San Martinez Grande Canyon and portions of Lion, Long and Potrero canyons) would remain intact, but would sustain permanent and temporary impacts from construction of stabilization elements, including buried bank stabilization and grade stabilization structures. Areas subject to temporary impacts would be appropriately planted with native vegetation following construction activities.

<u>Modified Tributary Drainages – Regraded Channels.</u> Portions of some existing drainages in the RMDP area (e.g., portions of Long, Lion, and Potrero canyons), would be graded, and a new

drainage would be constructed in the same or similar location. The new drainages would be designed to incorporate buried bank stabilization and grade stabilization, and would have sufficient hydrologic capacity to pass the Los Angeles County Capital Flood without the need for clearing vegetation from the channels. The new channel banks would be appropriately planted with native vegetation following construction.

Unmodified (Preserved) Drainages. Among the minor tributary drainages within the RMDP area, some are located in areas where no impacts are proposed, and are distant enough from surrounding development that bank stabilization or any routine maintenance would not be required. These drainages would remain in their existing condition; although portions of these drainages may be suitable for restoration where channel morphology and habitat have been degraded, the RMDP does not propose to impact or enhance these drainages at this time. In most situations, unmodified drainages would be located within future open space areas and maintain their current hydrologic functions, as well as providing linkages for wildlife movement to and from the Santa Clara River.

Drainages Converted to Buried Storm Drains. Some of the drainages within the RMDP area, including many of the smallest, ephemeral streams, would be graded. Development flows in these drainages meet the Los Angeles County flood criteria (less than 2,000 cubic feet per second (cfs)) to be conveyed by storm drain. Because of the small, ephemeral nature of these drainages, under the RMDP, Newhall does not propose to create new drainage channels to replace these impacted drainages. Rather, these areas would be graded with the development activities and new buried storm drain systems would be installed pursuant to the development plans. Wet-weather flows from these areas occupy the drainages that would be routed into the development's storm drain system, and would be discharged to the Santa Clara River via the proposed storm drain outlets and BMPs, as applicable.

Grade Stabilization Structures. Grade stabilization structures would be installed on five existing tributaries (Chiquito Canyon, Long Canyon, Potrero Canyon, San Martinez Grande Canyon, and Lion Canyon) to the main stem of the Santa Clara River. The grade stabilization structures are designed to contain the hydraulic "jump" that occurs when there is a significant drop in streambed elevation, so that higher velocities are dissipated within the area. The structures would help control erosion and changes to channel morphology. Such structures would be constructed of soil cement, sheet piles, or reinforced concrete.

Utility Corridors. Various electrical, sewer, water, gas, and communications lines would be installed parallel to the right-of-way of SR-126 to bring utilities to various planning areas and the WRP. These utilities would require some bank stabilization along the Santa Clara River and cross various drainages (Castaic Creek, Chiquito Canyon, San Martinez Grande, and other minor drainages) either buried beneath the creekbed, suspended from bridges, or located in the road bed at culverted crossings.

Utility Crossings. Various electrical, sewer, water, gas, and communications lines would be installed across the Santa Clara River, Chiquito Canyon, San Martinez Grande Canyon, Potrero Canyon, and Long Canyon to serve the Specific Plan. Typically, the utility lines would be installed in rights-of-way adjacent to bridges where access for installation and maintenance can be easily accommodated. Smaller utility lines serving local planning areas may cross beneath the bed of stabilized, regraded, or preserved channels and drainages.

Temporary Haul Routes for Grading Equipment. Temporary haul routes across the Santa Clara River would be used during construction to move equipment and excavated soil to locations in the RMDP area where fill is needed.

Wastewater Reclamation Outfall Construction Activities. An effluent outfall pipeline would be constructed from the Newhall Ranch WRP through the bank stabilization to the bed of the Santa Clara River. An earthen channel and adjacent walkway also would be constructed to reach the confluence of the outfall and actual flow path of the River.

Roadway Improvements to SR – 126. Various roadway improvements to SR-126 would made within the vicinity of the RMDP area, including new bridges or culvert crossings and outlets at Castaic Creek, Chiquito Canyon, San Martinez Canyon, and other minor drainages.

Roadway Improvements to Magic Mountain Parkway. To realize the Specific Plan approved traffic circulation plan, Magic Mountain Parkway would be widened and extended from its current limits into Newhall Ranch.

Maintenance Activities. The Los Angeles County Department of Public Works (DPW) or other management entity would conduct regular and ongoing maintenance of flood, drainage, and water quality protection facilities in the RMDP area. Such activities would include periodic inspection of structures and monitoring of vegetation growth and sediment buildup to ensure that the integrity of the structures is maintained and that planned conveyance capacity is present. Maintenance may also include repairs and maintenance of bridges and bank stabilization, repair to buried, suspended, and overhead utilities, and/or emergency maintenance activities. The RMDP Maintenance Manual in Appendix A of the RMDP, incorporated here by reference, specifies the anticipated maintenance practices and restrictions for each facility type described above and includes general restrictions for all maintenance (Dudek 2010).

Recreation Facilities. The Specific Plan Master Trails Plan describes a comprehensive system of bicycle, pedestrian, and equestrian trails. Implementation of the RMDP would include construction of these features, including several new trail bridges at various large and small tributaries and construction of up to eight nature viewing platforms that would be located in or adjacent to jurisdictional areas along the Santa Clara River.

Geotechnical Investigations. Geotechnical investigations may occur throughout the RMDP area. Equipment would access investigation sites along a 10- to 20-foot-wide access route and would

utilize access ramps of similar width, as necessary. Investigation sites typically require a cleared area for safe access. Test Pit excavations would be up to 20 feet deep, 36 inches wide, and 200 feet long, with the excavated soils temporarily piled adjacent to the excavation and then placed back into the excavated area. Activities are generally within areas that would be impacted by future RMDP development components.

Habitat Enhancement and Restoration Activities. The RMDP incorporates a variety of design features intended to minimize impacts to riparian and upland resources along and within the Santa Clara River and its tributary drainages, including avoidance, minimization, restoration, and enhancement activities. In addition, the RMDP would include features, such as removal of grazing to enhance riparian habitat, and rehabilitating native habitat areas that have been disturbed by past activities or invaded by non-native plant species. These activities would primarily occur in the following areas: River Corridor SMA, Salt Creek Corridor, and High Country SMA. Other open space, Open Area, Manufactured Open Area, and other suitable locations may be proposed to CDFG and the Corps in the future for additional enhancement and restoration activities.

Newhall would construct most of the above facilities; however, other entities could construct some of these facilities on behalf of the applicant using the Section 404 permit issued to Newhall by the Corps. The Section 404 permit would also include routine maintenance activities to be carried out DPW (or other entities). Any party working under the Section 404 permit on behalf of Newhall would be bound by the same conditions in the Section 404 permit. Under the proposed long-term permit, subsequent maintenance or construction activities for a given portion of the RMDP area could also be transferred to another entity. Therefore, if Newhall wants to transfer construction or maintenance of flood control or other facilities within the RMDP area, Newhall and the potential transferee would be required to submit a joint written notice to the Corps for the proposed transfer of authorization, subject to the Corps' approval.

Santa Clara River Development Components

Under the RMDP, Newhall proposes bank stabilization, two bridges (one previously authorized), the Newhall Ranch WRP outfall, bank stabilization along the utility corridor, temporary haul routes, water quality control facilities (including outlet structures/energy dissipaters), viewing platform locations, and habitat enhancement activities.

Bank Stabilization – Santa Clara River

Under the RMDP, Newhall proposes buried bank stabilization where necessary to protect against flooding and erosion pursuant to Federal Emergency Management Administration (FEMA) and Los Angeles County Department of Public Works' requirements. The bank stabilization is designed and would be constructed to retain the Santa Clara River's significant riparian habitat, and to allow the river to continue to provide flood protection pursuant to Los Angeles County standards.

Buried bank stabilization would extend along the north and south banks of the Santa Clara River. In total, the Newhall proposes installation of approximately 26,539 linear feet of bank stabilization along the north and south banks of the Santa Clara River to facilitate build-out of the Specific Plan area. Approximately 24,639 linear feet of buried bank stabilization (93 percent) would be installed in non-jurisdictional areas adjacent to the river. Such installation would result in newly created river channel and jurisdictional areas (approximately 94 acres), as well as upland habitat.

The RMDP incorporates the following types of bank stabilization: 1) buried soil cement; 2) ungrouted rock riprap; 3) gunite slope lining; and 4) turf reinforcement mats (TRMs). These types of bank stabilization can be divided into two different categories, flexible and rigid revetments. Ungrouted rock riprap and TRMs are flexible revetment systems that would be used as exposed bank stabilization in areas that do not have earthen cover and where stream velocities are low enough to ensure that the stabilization can resist erosive hydraulic forces. Generally, this would be a maximum stream velocity of 12 to 14 feet per second. Rigid revetments are able to resist much higher velocities or erosive forces; however, they do not adjust or move like flexible systems. Rigid revetments can resist velocities in excess of 20 feet per second.

Maintenance of buried soil cement and TRMs would be minimal. The use of buried soil cement, and other buried bank stabilization, eliminates the need to maintain a clear zone at base of the bank. In general, no maintenance is required unless there is evidence of bank failure, in which case temporary impacts to resources remaining on and around the failed structure may be necessary to repair the failure. Ungrouted rock riprap and gunite slope lining would require removal of trash and debris, replacement of riprap, and removal of trees and other vegetation possibly impeding access or threatening the structural integrity of the levees. If access to the bottom of the river is required, in general, the work area would be an approximately 30-foot-wide zone extending outward from the levee at the invert and 15 feet upstream and downstream on either side of the material to be removed.

These bank areas would require clear access for inspection and potential maintenance for structural repairs, graffiti removal, etc. A mow-strip area approximately 15 feet wide, parallel to the gunite lining, would be routinely cleared of woody vegetation to allow for visual inspections. Repairs may require a work area that is the same size as the original work area used for construction of the structure under repair (Matt Carpenter, Newhall, pers. comm., 2010).

Bridges/Road Crossings – Santa Clara River

Under the RMDP, Newhall proposes construction of two bridges across the Santa Clara River: one at Commerce Center Drive (previously authorized under Corps Permit No. 94-00504-BAH and Lake/Streambed Alteration Agreement No. 5-502-97 and identified here for information purposes only) and one at Long Canyon Road. Structural repairs may be necessary to bridge supports or bridge decks that can only be completed from within the riverbed. In addition, subsequent to major storm seasons or events, accumulated debris and vegetation may create hazardous conditions to bridge supports. This includes growth of large woody vegetation along

the length of the bridge, which may reduce the flood flow capacity during such major storm events and provide locations for debris to accumulate. Depending on scope of repairs or debris and vegetation to be removed, it may be necessary for heavy equipment to be operated within the channel. Whenever practical, repairs or maintenance to bridges would be made from the bridge deck, although if this is not practical, encroachment upstream and/or downstream of the bridge may be necessary. The maintenance work area for structural repairs would be limited to the area necessary to complete the work and for access, generally 30 feet on either side of the bridge and under the bridge itself. Access ramps, as necessary, would be located as close to the repair site as feasible, with preference given to locations with minimal mature vegetation, lacking flowing water, and requiring minimal bank disturbance.

Temporary Haul Routes-Santa Clara River
During construction, three temporary haul routes would cross the Santa Clara River, for moving excavated soil and to provide general construction access to locations within the RMDP area where fill is needed. The proposed crossings would be two-way with 60 feet of travel surface width. In locations where the riverbank is steep and ramping is required, fill would be placed in the River to create a safe slope ratio for passage of heavy equipment. Extra width for the side slopes of such crossings would be required. Passage of river flows would be maintained for all periods when the temporary haul routes are in use, and may include culverts or simple span bridge crossing of flowing water. Crossings may be removed as necessary to pass larger winter flows.

These temporary haul route locations would be used during construction of all four planning areas: Mission Village, Landmark Village, Homestead Village, and Potrero Village. Between periods of use, the haul routes would either: 1) revert back to general ranch use (oil and gas and agricultural); 2) be rendered inoperable by removal of portion crossing flowing water; or 3) if no longer needed for ranch operations, the approaches to the river crossings would be gated, or otherwise controlled, to prevent unauthorized access to the river corridor until such time that they are put into service for grading or permanently closed and restored to appropriate native habitats. As they are not permanent features, temporary haul routes would not require maintenance.

Viewing Platforms-Santa Clara River
Under the RMDP, Newhall proposes to construct five nature viewing platforms that would be located in or adjacent to jurisdictional areas along the Santa Clara River corridor. General maintenance of viewing platforms would include repair, painting, or coating of structures or trimming of native growth encroaching on the pathways.

Wastewater Reclamation Plant Outfall-Santa Clara River
An effluent outfall pipeline, approximately 30 inches in diameter, would be constructed from the Newhall Ranch WRP through the bank stabilization to an energy dissipater and pilot channel out to the bed of the Santa Clara River. The approved Newhall Ranch WRP is to be located on the

south side of State Route (SR)-126, adjacent to the Santa Clara River and near the Los Angeles County/Ventura County jurisdiction line.

The outfall pipe would terminate on the side of the bank stabilization, similar to a typical storm drain outfall where an energy dissipater would be located. A pilot channel and adjacent walkway would be constructed and maintained to reach the actual flow path of the River. The walkway would be used to obtain water samples, which would be required under the National Pollutant Discharge Elimination System (NPDES) permit for the Newhall Ranch WRP. The channel would be excavated with equipment and lined with concrete, gunite, turf reinforcement mat (TRM), rock, or if velocities are low enough, simply compacted soil. The channel and walkway would be maintained periodically to restore functions lost due to storm damage, vegetative growth, or soil erosion from plant discharge. Maintenance would be limited to hand cutting vegetation along the path, maintaining the outlet and energy dissipater and restoration of the functions of the pilot channel.

Storm Drain Outlets-Santa Clara River
Under the RMDP, Newhall proposes installation of 25 storm drain outlets along the Santa Clara River. Installation of storm drain outlets would require a 20-foot-wide excavation/construction zone. All of the storm drain outlets would eventually drain to jurisdictional areas of the Corps and CDFG. Maintenance of storm drain outlets would include clearing vegetation and removal of accumulated sediment. In situations where drain outlets are not draining sufficiently, pilot channels up to 75 feet long by 10 feet wide may be created to facilitate the conveyance of storm flows.

Tributary Drainages
Within the tributary drainages in the RMDP area, certain drainages would not be graded and would remain undisturbed, while other drainage areas would be graded, reconstructed to a soft-bottom drainage channel with buried bank stabilization along each side of the drainage, or converted to buried storm drain. Reconstructed drainage areas would integrate flood control and grade stabilizing measures (i.e., a combination of drop structures/grade stabilizers and bank stabilization) to maintain sediment equilibrium and protect the channel bed and banks from hydro-modification impacts. This design methodology is intended to create stable drainage channels that would support in-channel native habitats following RMDP implementation. The approach focuses on developing channel width, depth, slope, and other parameters based on the future flow and sediment regime of each drainage, using an integrated approach that predicts stable characteristics, and that uses structures and other measures only in those drainage locations where erosional forces would exceed the natural stability of the drainage channel. All such structures (bank and channel bed stabilization) are designed to mimic natural features and use a combination of structural and vegetative methods to provide drainage channels that are stable, visually aesthetic, and provide for the desired habitat (i.e., riparian, wetland, and upland) with minimal maintenance required after RMDP implementation. Road-crossing culverts and bridges would cross various drainages, but only where necessary to accommodate the approved Specific Plan circulation system. Modified drainage/jurisdiction includes stabilized and

engineered tributary drainages that are renegotiated and where new drainage/jurisdiction is being created.

Grade Stabilizing Design Measures and Bank Stabilization
The five modified drainages (Chiquito Canyon, Lion Canyon, Long Canyon, Potrero Canyon, and San Martinez Grande Canyon) would contain structures (bank and channel-bed stabilization) designed to mimic natural features, and use a combination of structural and vegetative methods to provide drainages that are stable, visually aesthetic, and support the desired habitat following RMDP implementation. Described below are drop structures/grade stabilizers and bank stabilization techniques that would be used in the design of the modified drainages within the RMDP boundary.

Grade Stabilization Structures. On-site soils would be combined with cement and water to form a higher strength soil-cement mixture that would mimic the appearance of soils in the drainage area. Riprap would be placed in and along the structure and downstream, and would be planted with native vegetation. Soil cement would be mixed on site, placed, compacted, finished, and cured, resulting in a durable and erosion-resistant material.

Grouted Sloping Boulder Drops. Boulders, typically with a 24-inch minimum diameter, would be placed in a step-like fashion, creating a condition similar to that in a natural riffle or small cascade. Boulders would be placed to minimize channel erosion at the downstream end of the boulder drop. Grout would be placed at the bottom one-third to one-half of the depth of the boulders to lock them together. In some cases, where the stream discharge and gradient are not excessive, grouting of the boulders would not be necessary, and non-grouted, placed boulders could be installed. Riprap would be placed along the approach, in the upper voids of the boulders, along the upper banks, and downstream of the stilling basin, and would be planted with native vegetation.

Non-grouted Boulders and Step-pools. Boulders, composed of various sizes between 24-inch and 36-inch minimum diameter, would be placed to form a step-pool complex, which would prevent excessive scour, while maintaining a functional drainage system. Boulders would be placed on the face of the step-pool structure, the crest, the lower part of the side slopes, and pool. The sub-base of the structure would be adequately designed using a mixture of compacted soil and riprap. The boulders would be individually placed and chinked to lock them together. Native plants would be established to help prevent boulders from dislodging. The non-grouted boulder step-pool would be designed for less than Q_{cap} (capital flood standard) and have typical dimensions of roughly 50 feet by 50 feet. Riprap would be placed along the approach, in the upper voids of the boulders, along the upper banks, and downstream of the pool, and would also be planted with native vegetation.

Sculpted Concrete Drop Structures. Poured and shaped concrete would be molded to form an aesthetic modification to the grouted sloping boulder style drop structure. Design of these drop structures would be conducted individually but similarly to the grouted sloping boulder drop

design. The finished product would be analogous to a natural streambed in a bedrock-dominated system, with alternating fast, narrow segments and broader, deeper pools. Construction typically would be conducted with a single monolithic full-depth pour or using a two-pour system over steel reinforcement, then contoured and textured to finish. Planting wells would be considered to help revegetate and conceal the structure.

Grade control and drop-pool structures are designed to be primarily self-cleaning with limited need for sediment removal or vegetation control. In the event vegetative growth threatens the integrity of the crest, chute, or splash pool, such vegetation may be hand-cut and removed. Sediment is to be removed when sedimentation occurs to the point that the structure does not function or causes nuisance conditions. These features would likely be within reasonable distance of a service road, therefore, access would be limited to short-distance travel over open scrub habitat. General vegetation clearing would not be required within the banks of the tributaries. Invasive species may require control. Clearing of excess sedimentation to enable proper flow characteristics, or to abate nuisance ponding conditions, may be required.

Bridges/Culvert Road Crossings—Tributaries/SR-126
In addition to the proposed and previously approved bridges over the Santa Clara River, the RMDP addresses three proposed widened bridges/culvert road crossings at SR-126. There are two proposed widened bridges at SR-126, the first is at Castaic Creek (six lanes expanded to eight) and the second is at San Martinez Grande Canyon (four lanes expanded to six). There is also one proposed culvert extension at SR-126 and Chiquito Canyon (four lanes expanded to six) (depending on Caltrans final design decision on the SR-126/Chiquito Canyon interchange, the culvert depicted may in actuality include three independent bridge decks and a separate trail bridge). The proposed widened bridges/culvert road crossings are part of the Caltrans widening project for SR-126, and they are proposed by Caltrans to accommodate increased traffic flow along SR-126.

A previously approved project processed by the applicant allowed for expansion of the SR-126/Castaic Creek Bridge from four to six lanes, which widened the bridge by an additional 50 feet. The proposed RMDP would widen this previously approved bridge from six to eight lanes. An additional 50 feet of width, plus a separate 10-foot-wide pedestrian/bike lane, would be located on the south side of the bridge, with utility crossings located on both the north and south sides of the bridge in a 100-foot-wide disturbance zone.

Structural repairs may be necessary to bridge supports or bridge decks that can only be completed from within the riverbed. In addition, subsequent to major storm seasons or events, accumulated debris and vegetation may create hazardous conditions to bridge supports. This includes growth of large woody vegetation along the length of the bridge, which may reduce the flood flow capacity during such major storm events and provide locations for debris to accumulate. Depending on scope of repairs or debris and vegetation to be removed, it may be necessary for heavy equipment to be operated within the channel. Whenever practical, repairs or maintenance to bridges would be made from the bridge deck, although if this is not practical,

encroachment upstream and/or downstream of the bridge may be necessary. The maintenance work area for structural repairs would be limited to the area necessary to complete the work and for access, generally 30 feet on either side of the bridge and under the bridge itself. Access ramps, as necessary, would be located as close to the repair site as feasible, with preference given to locations with minimal mature vegetation, lacking flowing water, and requiring minimal bank disturbance.

Magic Mountain Parkway Extension
The approved Specific Plan includes an extension of Magic Mountain Parkway to the west into the RMDP area. The purpose of this roadway extension is to accommodate future traffic associated with the continued development of the approved Specific Plan and surrounding region. This roadway extension would extend existing culvert road crossings at Unnamed Canyon 1 and Unnamed Canyon 2 over drainages, both tributaries of the Santa Clara River. Construction of this road results in a permanent impact to the drainages for extending existing culverts and construction of debris retaining inlets.

Temporary impacts would include areas necessary for construction of the debris retaining inlets. Following completion of construction activities, the temporary impact zone would be restored to the original channel grade and revegetated with native riparian and upland species as appropriate.

Utility Crossings
Primary electrical, sewer, water, gas, and communications lines would be installed across the Santa Clara River at two locations, Chiquito Canyon, and San Martinez Canyon to serve the approved Specific Plan (County of Los Angeles 2003). Other locally serving utilities would be installed across other tributaries and drainages described in the RMDP.

On the River, utility lines would be installed in rights-of-way adjacent to, within, or hanging from bridges where access for installation and repair could be readily accommodated. To the extent feasible, utility lines would be located within the elevated bridge deck. Depending on the timing of bridge construction and subsequent installation of utilities, access to the riverbed and/or creekbed may be necessary to facilitate placement or hanging of pipes and conduits. Access activities would result in temporary impacts to riverbed vegetation. For installation of buried utilities, directional drilling techniques would be used, where feasible, to avoid the environmental impacts associated with trenching across the Santa Clara River. In the Chiquito Canyon and San Martinez Grande Canyon tributaries, where trenching is likely to be used, installation of buried lines would require a 30- to 50-foot-wide construction zone. In other tributaries and drainages, trenching is also likely to be used with similar construction zones. Buried lines across watercourses would be located below scour depth and weighted or cemented in place, where appropriate, or collocated with bed stabilization features that provide scour protection. Following completion of construction activities, the temporary impact zone would be restored to the original channel grade and revegetated with native riparian and upland species, as appropriate. Permanent access for maintenance of utilities would be located outside the Corps and CDFG jurisdictional limits of the streambed and associated wetlands.

Water Quality Treatment Basins and Debris Basins
Under the RMDP, Newhall proposes to implement a sub-regional stormwater mitigation plan to address the Specific Plan's construction, municipal, and industrial stormwater discharges under the NPDES program. This program requires that all flood control facilities comply with the General Permit for Los Angeles County or conditions placed upon individual NPDES permits. As build-out of the Specific Plan occurs, individual tract maps would comply with those NPDES requirements in effect at the time the proposed water quality features are designed. The drainage concept for the Specific Plan was developed to respond to the NPDES program. Project-specific drainage concept reports are to be prepared with each tract map. The drainage plans would include implementation of BMPs to document compliance with the Los Angeles County Standard Urban Stormwater Mitigation Plan (SUSMP) requirements.

Each of these water quality control facilities requires maintenance, and may or may not be located within the Corps' and CDFG's jurisdictional areas. Because of their function as water conveyance from development areas, unwanted vegetation may develop, reducing the conveyance capacity for certain features. The RMDP Maintenance Manual in Appendix A of the RMDP, incorporated here by reference, specifies the anticipated maintenance practices and restrictions for each facility type and includes general restrictions for all maintenance (Dudek 2010). In general, each facility type would require periodic removal of vegetation, sediment, and debris; although some facility types would require planting and maintenance of specific plant species to maintain function. Access ramps to the facilities would be maintained clear to allow access. Respecting the fact that natural habitats may form in these man-made features, the maintenance practices and mitigation measures are to be implemented in these types of facilities regardless of Corps and CDFG jurisdictional location to avoid and/or minimize effects on species.

Under the RMDP, Newhall proposes NPDES water quality treatment/detention basins throughout the RMDP area. Water quality treatment/detention basins are typically sized to capture the predicted runoff (first flush) volume and retain the design volume for a period typically between 24 and 48 hours. Detention basins would be designed with multiple stages to provide both flood control and water quality benefits. The upper stage is designed to store a large volume of runoff to reduce flood peaks. The lower, smaller volume stage provides slower drainage times (longer detention) to promote water quality by settling of particulates and removal of nutrients, heavy metals, and other pollutants potentially present in the sediment.

Debris Basins
Throughout the RMDP area, various open channel, buried storm drain, and natural drainage areas would be fed by overland flow from the upstream watersheds. These systems eventually drain into the Santa Clara River. To ensure the proper function of the engineered portions of the storm drainage system, in certain areas debris retaining inlets are proposed at the interface between development and undeveloped areas upstream. The precise locations of the basins and access to the basins would be defined by subsequent tract maps that implement the Specific Plan.

Geotechnical Investigations
Geotechnical investigations are conducted to give a better understanding of subsurface geologic and hydrogeologic conditions to engineers, planners, and reviewing agencies when determining design feasibility of flood protection structures. On occasion they are also used to determine the depth of alluvial deposits that may coincide with jurisdictional areas. Investigations, and associated access into jurisdictional areas if necessary, would occur in advance of development mass grading. The activities are typical of short duration, 1 to 3 days, and may be extended based on the complexity of the site and investigative methods.

Investigation activities have similar impacts as typical construction activities, primarily related to creating access areas, although on a much reduced scale. Equipment used during these activities may include drill rigs, van-truck mounted drill rigs (CPT), backhoes and excavators (for digging test pits), dozers and rubber tire loaders (to dig trenches), and various support vehicles (pickups, tool-trucks). Equipment would access investigation sites along a 10- to 20-foot-wide access route, avoiding species and habitats to the extent possible. Where necessary, an access ramp would be cut into the river or creek bank to reach the lower terrace and bed locations. At the completion of activities, the bank would be returned to its original configuration. Vegetation in the access route and at the drill site would be cut a few inches above the ground surface to allow for re-vegetation. At a drilling site, an area 20 feet by 50 feet would be cleared of vegetation for personnel and fire safety.

At test pit excavations, a trench up to 20 feet deep, 36 inches wide, and 200 feet long may be opened, with the excavated soils temporarily piled adjacent to the excavation. At completion of the trench, it would be backfilled and stabilized with native vegetation. Trench excavations may be much wider and longer than test pits and generally are deeper, possibly involving dozers.

Maintenance Activities
DPW, or other responsible management entity, would maintain flood, drainage, and water quality protection facilities located within the RMDP area. In general, maintenance activities would involve the periodic inspection of the structures to ensure that the structures are intact, and to monitor any flow capacity restrictions due to vegetation growth and sediment buildup at or near the structures. Maintenance activities would be initiated if the integrity of the structures is compromised or if conveyance capacity is inadequate.

In addition, DPW, or other responsible management entity, would conduct regular maintenance to ensure that all flood control structures operate at their design standards. For example, DPW requires that open channels, closed conduits, bridges, dams, and debris basins (not under State of California jurisdiction, i.e., dam safety) accommodate flows resulting from a Capital Flood. Other facilities in developed areas must be designed to accommodate the "Urban Flood," which is the amount of runoff resulting from a 25-year frequency storm falling on a saturated watershed. In the RMDP area, maintenance may include activities such as:

- Periodic removal of woody vegetation from riprap to protect its structural integrity;
- Periodic clearing of storm drain outlets to ensure proper drainage;
- Periodic removal of ponded water that causes odor and/or mosquito problems;
- As-needed repairs and routine maintenance of bridges, decks, piers, abutments, and associated facilities (e.g., utilities, clearing of trapped debris and vegetation);
- As-needed repairs of bank stabilization;
- As-needed vegetation, debris, and sediment deposit removal at detention and debris basins;
- Periodic inspection, vegetation removal, and repair to creek-bed stabilization structures;
- Periodic vegetation removal and sediment removal at road-crossing culverts;
- Vegetation control and repair to viewing platforms and trails (including associated fencing);
- Exotic and invasive plant and animal species control efforts; and
- Emergency repair activities.

Routine maintenance of drainage facilities may require the use of a backhoe, excavator, loader or other similar construction equipment to excavate accumulated sediment and other debris and hand tools for cutting of vegetation. The excavated soil material would be placed into off- and/or on-highway trucks for removal from the site and transportation to an approved reuse or disposal site. To the extent feasible, cut native materials would be mulched and beneficially reused on or off site, and any invasive species would be directed to proper disposal. Maintenance activities in the RMDP area could be conducted by any responsible management entity pursuant to the RMDP agency permits and agreements.

The RMDP Maintenance Manual for use within the RMDP area and incorporated here by reference, identifies the extent and frequency of various maintenance activities that may occur on site and describes standard mitigation, monitoring, notification, and reporting conditions applicable to all types of maintenance activities (Dudek 2010).

Environmental Protection During DPW Maintenance Activities
Appendix A of the RMDP (the Maintenance Manual), incorporated here by reference, describes minor and major maintenance procedures designed to avoid impacts to endangered species and minimize impacts to other riparian resources (see Sections 2.1 and 2.2 of the manual) (Dudek 2010). Some of the design features that accomplish this are:

- The use of buried soil cement, and other buried bank stabilization, which eliminates the need to clear a zone at the base of the riverbank or creek-bank where buried bank stabilization is located;

- Grade control and drop structures designed to be primarily self-cleaning with limited need for sediment removal or vegetation control; and

- Allowing large trees to grow in the upland or transitional habitat zones (typically consisting of upland scrub and grassland mitigation areas constructed along the margins of stream courses), at or near buried soil cement and other bank stabilization.

Specific procedures to limit the impact of maintenance activities, incorporated here by reference, are detailed in the RMDP Maintenance Manual (Dudek 2010). Procedures relating to access, work-zone restrictions, and monitoring outline the avoidance of riparian vegetation and streams, the passive restoration of areas temporarily disturbed, the installation of silt-settling basins for the maintenance activities, the location of staging and storing areas outside the streambed, and other actions.

Procedures relating to avoidance and mitigation of impacts of maintenance on sensitive species of fish and amphibians include surveys for sensitive species prior to initiation of maintenance activities, the removal and relocation of sensitive species by a qualified biologist, and various measures relating to the diversion of stream flow in the event that maintenance work in the stream is unavoidable. A qualified biologist would be present when any stream diversion takes place. Procedures relating to avoiding or mitigating impacts of maintenance on sensitive bird species include weekly surveys for nesting native birds, the postponement of maintenance activities within 300 feet of active nests (500 feet for raptors), and specific procedures to avoid impacts to special-status species using upland habitats.

Procedures relating to the avoidance and mitigation of impacts of maintenance on sensitive mammal and reptile species outline the species surveyed for prior to maintenance activities, based on the habitat types in which these activities would take place. Maintenance activities within the RMDP area would be conducted in adherence to the procedures identified in the RMDP maintenance manual, incorporated here by reference (Dudek 2010).

Agency Notification of DPW Maintenance Activities
The owner/operator or DPW would notify the Corps, CDFG, Los Angeles Regional Water Quality Control Board (Board), and Service at least 30 calendar days in advance of any planned maintenance activities. The Corps and CDFG would respond within the 30 day period, either notifying DPW that: 1) the maintenance activities can proceed as planned because they are consistent with the RMDP, EIS/EIR, and conditions of the agency Permits, or 2) the activities cannot proceed as planned. In the latter circumstance, the agencies would provide written reason for denial and suggest how the notification may be revised or corrected. The agencies would also make staff available to discuss inconsistencies or problems. The agencies have the discretion to add conditions to the authorization for any maintenance activities if needed to ensure compliance with applicable state and federal laws, regulations, and codes. Results of any surveys and relocation efforts for aquatic, reptile, and mammalian species would be provided to CDFG in the Annual Mitigation Status Report.

Catastrophic Failures
Events related to full or partial failure of a structure would require, in some instances, immediate response and repair, sometimes during storm flow conditions. In the event of a catastrophic failure the following responses may occur:

- Emergency work would follow the notification procedures of the agency permits;
- Significant damage may require reconstruction or repair to creek bank stabilization (soil cement, gunite, grouted and ungrouted riprap, and other erosion control systems);
- Significant erosion may require filling and regrading the damaged areas;
- Geotechnical instrument installation and monitoring may be required to investigate and control unstable subsurface geologic conditions;
- If a Geological Hazard Abatement District (GHAD) is created, it would have a site specific monitoring program, including specific activities to be conducted to ensure safe geologic conditions within the RMDP area;
- Major landslides may require filling, regrading, stabilization, and significant debris removal from the tributaries and other stormwater control system features;
- Open space maintenance may be required after a significant flooding or fire event to protect property and human health;
- Revegetation efforts may be implemented for public safety, restoration, or aesthetic reasons;
- Slope stabilization beyond what was initially installed may be required, and if impacts to jurisdictional areas are to occur above what was originally described in the sub-notification, then a new sub-notification shall be filed;
- Sub-drain outfall maintenance may require that new sub-drains be excavated and installed, and existing sub-drains be exposed and repaired to alleviate unstable subsurface conditions related to excessive pore pressure; and
- Concrete V-ditches may need to be replaced when damaged. V-ditches are likely to be outside of jurisdictional areas, but in some cases may be integral to the jurisdictional feature, functioning as low flow or nuisance water management systems to alleviate surface soil saturation issues or to minimize vegetative growth where it is not wanted.

Storm Drain Outlets along SR-126

The Specific Plan calls for improvements to several existing roadways, including SR-126, Magic Mountain Parkway, Potrero Valley Road, Commerce Center Drive, Chiquito Canyon Road, San Martinez Grande Road, and Pico Canyon Road. Several storm drain outlets would be extended as a function of the SR-126 widening and/or utility corridor construction, which would impact RMDP jurisdiction areas. A 10-foot-wide by 75-foot-long pilot channel may be graded from the end of each of the outlet riprap aprons towards the riverbed to promote positive drainage.

Recreational Facilities

The Specific Plan Master Trails Plan (Plan) encompasses a comprehensive system of bicycle, pedestrian, and equestrian trails that would facilitate movement throughout the RMDP area. The Plan also provides potential connections to regional trail systems within the Santa Clarita Valley. Trails are a key component of the recreation element of the approved Specific Plan and provide public access to open space within the Specific Plan area. Approximately 20 trail crossings and 8 viewing platforms are included in or adjacent to the Santa Clara River and its drainages within the RMDP area, many of them unimproved within the channel bed. The precise location of trails and proposed trail crossings would be defined by final tract maps that implement the Specific Plan. As previously discussed, trails may also include separate bridge structures adjacent to

SR-126 crossings of San Martinez Canyon, Chiquito Canyon, and Castaic Creek, as well as north-south equestrian trails at Chiquito Canyon and Castaic Creek Bridges. Other trail crossings would be seasonal (i.e., no structural stream crossing) with appropriate signage to address public safety.

Trail facilities typically require as-needed maintenance in the form of vegetation removal on and adjacent to trails and platforms, removal of debris, and resurfacing and replacement of structures (e.g., fences, signs, kiosks, wooden structures).

Environmental Protection Design Features
The RMDP incorporates a variety of design features that minimize impacts to riparian resources. These features include avoidance, minimization, and restoration of riparian habitat, and enhancement activities.

Restoration Design Features
Riparian resources along the Santa Clara River that are impacted by the RMDP would require restoration. The primary objective of restoration efforts would be to enhance habitat quality and values within the RMDP area. Habitat restoration activities that would be implemented in conjunction with the RMDP include revegetation of native plant communities on candidate sites contiguous to existing riparian habitats. Site restoration also would include the maintenance of revegetation sites, including the control of non-native plants and irrigation system maintenance. Site restoration may include the use of herbicides.

Monitoring of the restoration sites would be conducted to evaluate the success of revegetation efforts. Contingency plans and appropriate remedial measures to be implemented should habitat restoration objectives not be achieved would also be included in proposed habitat restoration plans.

Revegetation plans would be developed and submitted to Corps and CDFG in accordance with the section 404 Permit and Master Lake/Streambed Alteration Agreement. In accordance with the Corps Mitigation and Monitoring Plan, the Comprehensive Mitigation Implementation Plan (CMIP), and the mitigation feasibility study the revegetation plan would provide details on where restoration sites are located and the appropriate restoration methods to be used at each location.

Enhancement Design Features
Habitat enhancement associated with the RMDP includes rehabilitation of areas of native habitat that have been disturbed by past activities (e.g., grazing, roads, oil and natural gas operations, etc.), or impacted by non-native plant species such as giant reed (*Arundo donax*) and tamarisk (*Tamarix* spp.).

Not all enhancement areas would necessarily require supplemental plantings of native species. Some areas may support conditions conducive for rapid natural re-establishment of native

species. The revegetation plans may incorporate means of enhancement to areas by reconditioning compacted soils, amending poor soil fertility, removing trash or flood debris, and by removing any unneeded ranch roads as a way of increasing habitat values. Removal of non-native species such as giant reed, tamarisk, tree tobacco (*Nicotiana glauca*), and castor bean (*Ricinus communis*) to mitigate impacts would be subject to the management requirements described in the Specific Plan, Corps section 404 Permit, the CDFG Master Lake/Streambed Alteration Agreement, and the RMDP.

Building Pads and Buried Storm Drains

The RMDP proposes that 18 drainages within the RMDP area be graded to accommodate pads for residential and commercial buildings and that these flows be conveyed by buried storm drains varying in diameter from 30 to 144 inches. In total, approximately 60,010 linear feet of existing drainage channel would be converted to buried storm drains. Drainages converted to storm drains would occur in Homestead Canyon, Off-Haul Canyon, Chiquito Canyon (tributaries to Chiquito Canyon mainstem), Mid-Martinez Canyon, Humble Canyon (tributary to Humble Canyon mainstem), Lion Canyon (portions of the mainstem, east, and west forks), Exxon Canyon, Agricultural Ditch, Unnamed B, Unnamed C, Unnamed D, Dead-End Canyon, Magic Mountain Canyon, Middle Canyon, Long Canyon (upstream portion of the mainstem) and the upstream, intermittent portion of the Potrero Canyon. Drainages proposed for conversion to buried storm drains are described in greater detail and depicted graphically in Section 3.4.3 of the RMDP-SCP EIS/EIR, incorporated here by reference, and included as Appendix A of the biological assessment (URS 2010).

Background on High Country Special Management Area **and Salt Creek Reserve Area Dedication**

The RMDP outlines special conservation provisions for the California condor within the over 5,700-acre High Country Special Management Area (SMA) and Salt Creek open space areas (the Reserve). The Reserve would be dedicated in fee to the Newhall Ranch High Country Recreation and Conservation Authority, a joint powers authority (JPA) comprised of the County of Los Angeles, the Santa Monica Mountains Conservancy, and the City of Santa Clarita. The phasing of dedication to the JPA would take place with the issuance of the 2,000th, 6,000th, and 11,000th residential building permits during the build-out of Newhall Ranch; however, resource management within the Reserve would be initiated when the first residential building permit is issued by the County to begin construction. The resource management activities outlined in the RDMP would be funded through a non-wasting endowment by the Newhall to the Natural Lands Management Organization (NLMO) for implementation. The NLMO would appoint a Reserve Manager, who would be responsible for implementing all of the measures outlined in the RMDP. Also, the NLMO Reserve Manager would be an official member of the JPA to provide input on resource management within the Reserve. The CDFG would have input on the management of the reserve and approval over any management plans. Because the conservation goals of the CDFG are similar to those of the Service, we believe its approval of management plans would be sufficient for our purposes.

Condor Mitigation and Management Activities
As part of implementing the RMDP under the Newhall Ranch Specific Plan, mitigation measures to enhance the natural habitat in the Reserve (e.g. oak woodlands, savannahs, grasslands, etc.) would be undertaken to improve the overall productivity (e.g., more habitat for deer, improvements to increase populations of other native plants and wildlife, etc.). The Reserve Manager would coordinate all cattle/livestock management activities with the Service to ensure consistency with the Condor Recovery Team's ongoing condor management program. In conjunction with the Reserve Manager's coordination with the Service, the Condor Recovery Team would be provided with access to the Reserve areas to conduct scientific research and to implement necessary condor-specific management and monitoring activities to support overall condor productivity.

The Final Joint Environmental Impact Statement and Environmental Impact Report (Corps and CDFG 2010) includes mitigation measures that would reduce the RMDP's impacts on biological resources, including 80 measures previously adopted by the County of Los Angeles during the Specific Plan approval process and an additional 89 measures proposed by the Corps and CDFG. The 80 mitigation measures identified in the Newhall Ranch Specific Plan Program Environmental Impact Report for biological resources (measures SP-4.6-1 through SP-4.6-80) are included below in Appendix B of the biological assessment (URS 2010). The 89 additional mitigation measures (BIO-1 through BIO-89) developed for the Final Joint Environmental Impact Statement and Environmental Impact Report (Corps and CDFG 2010) are also included in Appendix B of the biological assessment (URS 2010). These additional measures are consistent with and supplement those mitigation measures listed in the previously certified Newhall Ranch Specific Plan Program Environmental Impact Report. The mitigation measures described in Appendix B of the RMDP biological assessment are incorporated here by reference (URS 2010).

ANALYTICAL FRAMEWORK FOR JEOPARDY AND ADVERSE MODIFICATION DETERMINATIONS

Jeopardy Determination

The jeopardy analysis in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the range-wide conditions of the least Bell's vireo, southwestern willow flycatcher, California condor, coastal California gnatcatcher, arroyo toad, and unarmored threespine stickleback, the factors responsible for those conditions, and their survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the conditions of the least Bell's vireo, southwestern willow flycatcher, California condor, coastal California gnatcatcher, arroyo toad, and unarmored threespine stickleback in the action area, the factors responsible for those conditions, and the relationship of the action area to the survival and recovery of these species; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the least Bell's vireo, southwestern willow flycatcher, California condor, coastal California

gnatcatcher, arroyo toad, and unarmored threespine stickleback; and (4) the *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the least Bell's vireo, southwestern willow flycatcher, California condor, coastal California gnatcatcher, arroyo toad, and unarmored threespine stickleback,.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed federal action in the context of the current status of the least Bell's vireo, southwestern willow flycatcher, California condor, coastal California gnatcatcher, arroyo toad, and unarmored threespine stickleback, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of the survival and the recovery of the least Bell's vireo, southwestern willow flycatcher, California condor, coastal California gnatcatcher, arroyo toad, and unarmored threespine stickleback in the wild.

Adverse Modification Determination

This biological opinion does not rely on the regulatory definition of "destruction or adverse modification" of critical habitat at 50 CFR 402.02. Instead, we have relied on the statutory provisions of the Act to complete the following analysis with respect to critical habitat.

In accordance with policy and regulation, the adverse modification analysis in this biological opinion relies on four components: (1) the *Status of Critical Habitat*, which evaluates the range-wide condition of designated critical habitat for the least Bell's vireo and arroyo toad in terms of primary constituent elements (PCEs), the factors responsible for that condition, and the intended recovery function of the critical habitat overall; (2) the Environmental Baseline, which evaluates the condition of the critical habitat in the action area, the factors responsible for that condition, and the recovery role of the critical habitat in the action area; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated and interdependent activities on the PCEs and how that would influence the recovery role of the affected critical habitat units; and (4) *Cumulative Effects*, which evaluates the effects of future non-Federal activities in the action area on the PCEs and how that would influence the recovery role of affected critical habitat units.

For purposes of the adverse modification determination, the effects of the proposed federal action on the critical habitat of the least Bell's vireo and arroyo toad are evaluated in the context of the range-wide condition of the critical habitat, taking into account any cumulative effects, to determine if the critical habitat (both by unit and range-wide) would remain functional (or would retain the current ability for the PCEs to be functionally established in areas of currently unsuitable but capable habitat) to serve its intended recovery role for the least Bell's vireo and arroyo toad.

STATUS OF THE SPECIES

Least Bell's Vireo

The least Bell's vireo was federally listed as endangered on May 2, 1986 (51 FR 16474) and critical habitat was designated for the subspecies on February 2, 1994 (59 FR 4845). A draft recovery plan was completed in 1998 (Service 1998); no final plan has been published. The Service completed a 5-year review for the least Bell's vireo in September 2006 in which we indicated that, due to new information on the species and an improved understanding of ongoing recovery actions to reduce threats, the recovery goals and strategies should be modified and refined. In addition, we recommended that the least Bell's vireo should be downlisted from endangered status to threatened status because of a 10-fold increase in population size since its listing in 1986, expansion of locations with breeding least Bell's vireo throughout southern California, and conservation and management of suitable breeding habitat throughout its range (Service 2006). Additional information on the least Bell's vireo may be found in Wilbur (1980), Garrett and Dunn (1981), Zembal et al. (1985), Miner (1989), Pike and Hays (1992), and Service (1998).

The least Bell's vireo is a small, migratory songbird that nests and forages almost exclusively in riparian woodland habitats. The least Bell's vireo is in the family Vireonidae and is one of four subspecies of Bell's vireo (*Vireo bellii*) that have been recognized (American Ornithological Union (AOU) 1998), with each subspecies isolated from one another throughout the year (Hamilton 1962; Service 1998). They are site-tenacious across breeding seasons, highly territorial, and almost exclusively insectivorous. Least Bell's vireos are obligate riparian breeders, typically inhabiting structurally diverse woodlands along watercourses that feature dense cover within 3 to 6 feet of the ground and a dense, stratified canopy (Goldwasser 1981; Salata 1983; Gray and Greaves 1984; Service 1998). The understory within this riparian habitat is typically dominated by mulefat (*Baccharis salicifolia*), California wild rose (*Rosa californica*), poison oak (*Toxicodendron diversiloba*), sandbar willow (*Salix hindsiana*), young individuals of other willow species, and several perennial species (Service 1998). Important canopy species include mature arroyo willows (*S. lasiolepis*) and black willows (*S. gooddingii*), and occasional cottonwoods (*Populus* spp.), western sycamore (*Platanus racemosa*), or coast live oak (*Quercus agrifolia*). Least Bell's vireos primarily forage and nest in riparian habitat, but they may also use adjoining upland scrub habitat (Salata 1983; Kus and Miner 1989).

Least Bell's vireos primarily feed on invertebrates, especially lepidopteran larvae, within willow stands or associated riparian vegetation (Miner 1989; Brown 1993). Least Bell's vireos occasionally forage in nonriparian vegetation such as coastal sage scrub, chaparral, and oak woodlands, although foraging in these other habitats usually occurs within 100 feet of the edge of riparian vegetation (Salata 1983; Gray and Greaves 1984; Kus and Miner 1989). Least Bell's vireo feeding behavior largely consists of gleaning prey from leaves or woody surfaces while perched or hovering, and less frequently by capturing prey by aerial pursuit (Salata 1983; Miner 1989). Least Bell's vireos concentrate most of their foraging between 0 to 20 feet above ground level (Salata 1983; Miner 1989).

Least Bell's vireos generally arrive in southern California breeding areas by mid-March to early April, with males arriving before females and older birds arriving before first-year breeders (Service 1998). Least Bell's vireos generally remain on the breeding grounds until late September, although some post-breeding migration may begin as early as late July (Service 1998). Male least Bell's vireos establish and defend breeding territories through singing and physically chasing intruders (Barlow 1962; Beck 1996; Service 1998). Although territories typically range in size from 0.5 to 7.5 acres (Service 1998), no relationship appears to exist between territory size and various measures of territory quality (Newman 1992).

Nest building commences a few days after pair formation, with the female selecting a nest-site location and both sexes constructing the nest (Pitelka and Koestner 1942; Barlow 1962; Service 1998). Nests are typically suspended in forked branches within 3 feet above the ground with no clear preference for any particular plant species as the nest host (Nolan 1960; Barlow 1962; Gray and Greaves 1984; Service 1998). Typically 3 or 4 eggs are laid on successive days shortly after nest construction (Service 1998). The eggs are incubated by both parents for about 14 days with the young remaining in the nest for another 10 to 12 days (Pitelka and Koestner 1942; Nolan 1960; Barlow 1962). Each nest appears to be used only once with new nests constructed for each nesting attempt (Greaves 1987). Least Bell's vireos may attempt up to five nests within a breeding season, but they are typically limited to one or two successful nests within a given breeding season (Service 1998).

Multiple long-term monitoring studies indicate that approximately 59 percent of nests successfully produce fledglings, although on average only 1.8 chicks fledge per nest (Service 1998). Although least Bell's vireo nests appear to be more accessible to terrestrial predators because of their relatively low placement (Franzreb 1989), western scrub-jays (*Aphelocoma californica*) have been documented to account for the majority of documented depredation events (Peterson 2002; Peterson et al. 2004); depredation by jays and other avian predators may have selected for relatively low nest placement (Ferree 2002). Predation rates can exceed 60 percent of the least Bell's vireo nests in a given area within a year (Kus 1999), but typical nest predation rates average around 30 percent (Franzreb 1989), which is comparable to predation rates for other North American passerines (Martin and Clobert 1996; Grishaver et al. 1998; Ferree 2002).

Nest parasitism by cowbirds is another major source of failure for least Bell's vireo nests (Franzreb 1989; Service 1998; Kus 1999, 2002; Griffith and Griffith 2000; Sharp 2002); nests that are parasitized are either abandoned or fledge cowbird chicks rather than least Bell's vireos. It is believed that cowbirds did not historically occur within the least Bell's vireo's range, and therefore least Bell's vireos have not evolved adequate defenses to avoid loss of productivity due to parasitism (Franzreb 1989; Kus 2002). Parasitism of least Bell's vireo nests may exceed 42 percent in some locations (Kus 1999), but extensive cowbird trapping and focused nest monitoring can substantially reduce parasitism or its effects (Franzreb 1989; Service 1998; Griffith and Griffith 2000; Kus 2002).

Fledgling least Bell's vireos expand their dispersal distances from about 35 feet the first day to about 200 feet several weeks after fledging (Hensley 1950; Nolan 1960). This distance has been shown to increase to at least 1 mile prior to their first fall migration (Gray and Greaves 1984). Banding records indicate that while most first-year breeding least Bell's vireos return to their natal drainage after winter migration, some disperse considerable distances to other breeding locations (Greaves and Labinger 1997; Service 1998; Kus and Beck 1998). Movement by least Bell's vireos between drainages within San Diego County is not uncommon (Kus and Beck 1998). Additionally, several least Bell's vireos banded as nestlings in San Diego County have been resighted as breeding adults in Ventura County, and the opposite movement from Ventura to San Diego has also been observed (Greaves and Labinger 1997). The maximum dispersal distance currently documented is approximately 130 miles (Service 1998), but this is probably an underestimate due to the limited number of least Bell's vireos that are banded and insufficient re-sighting efforts. Although movement between sites by older birds may occur, site fidelity by least Bell's vireos after the first breeding season is generally high, and most dispersal between sites occurs between the time that least Bell's vireos fledge from their nest and their first breeding season (Service 1998).

The least Bell's vireo historically occupied willow riparian habitats from Tehama County, in northern California, southward to northwestern Baja California, Mexico, and as far east as Owens Valley, Death Valley, and the Mojave River (Grinnell and Miller 1944; Service 1998). Although originally considered to be abundant locally, regional declines of this subspecies were noticeable by the 1940s (Grinnell and Miller 1944), and the least Bell's vireo was believed to have been extirpated from California's Central Valley by the early 1980s (Franzreb 1989). Except for a few outlying pairs, the least Bell's vireo is currently restricted to southern California south of the Tehachapi Mountains and northwestern Baja California (Wilbur 1980; Garrett and Dunn 1981; Franzreb 1989; U.S. Geological Survey (USGS) 2002). The largest current concentrations of least Bell's vireos are in San Diego County along the Santa Margarita River on Camp Pendleton and in Riverside County at the Prado flood control basin (Service 2006).

Historically, the San Joaquin and Sacramento Valleys were considered to be the center of the least Bell's vireo's breeding range (60 to 80 percent of the historic population; 51 FR 16474), but the least Bell's vireo has not yet meaningfully re-colonized those areas. In 2005 and 2006, the first breeding pair of least Bell's vireos detected in the San Joaquin Valley since the listing of the this species successfully bred at the San Joaquin National Wildlife Refuge in Stanislaus County (Service 2006). There have been no sightings of least Bell's vireos in the Sacramento Valley since prior to the listing, and it is unlikely that any breeding least Bell's vireos have occurred within recent years in the Sacramento Valley (Service 2006).

Greater than 99 percent of the remaining least Bell's vireos were concentrated in southern California (Santa Barbara County and southward) at the time of the listing in 1986 (51 FR 16474), with San Diego County containing 77 percent of the population. Greater than 99 percent still remain in southern California, although the populations are now more evenly distributed in southern California with 54 percent of the total population occurring in San Diego County and

30 percent of the population occurring in Riverside County (Service 2006); however, there has been only a slight shift northward in the species' overall distribution. Thus, despite a significant increase in overall population numbers, the population remains restricted to the southern portion of its historic range (Service 2006).

Causes for decline of the least Bell's vireo included destruction or degradation of habitat, river channelization, water diversions, lowered water tables, gravel mining, agricultural development, and cowbird parasitism (Service 1986, 1994, 1998). Habitat losses had fragmented most remaining populations into small, disjunct, widely dispersed subpopulations (Franzreb 1989). Habitat fragmentation negatively affects abundance and distribution of neotropical migratory songbirds, in part by increasing incidence of nest predation and parasitism (Whitcomb et al. 1981; Small and Hunter 1988; Yahner and DeLong 1992; Sharp 2002; Peterson 2002). Least Bell's vireos nesting in areas containing a high proportion of degraded habitat have lower productivity (e.g., hatching success) than those in areas of high quality riparian woodland (Pike and Hays 1992).

The least Bell's vireo population in the U.S. has increased 10-fold since its listing in 1986, from 291 to 2,968 known territories (Service 2006). The population has grown during each 5-year period since the original listing, although the rate of increase has slowed over the last 10 years. Population growth has been greatest in San Diego County and Riverside County, with lesser but significant increases in Orange County, Ventura County, San Bernardino County, and Los Angeles County. The population in Santa Barbara County has declined since the listing in 1986, although it is uncertain whether this population was historically significant. Kern, Monterey, San Benito, and Stanislaus counties have had a few isolated individuals and/or breeding pairs since the original listing, but these counties have not supported any sustained populations (Service 2006).

At the time of the listing, loss of habitat due to agricultural practices, urbanization, and exotic plant invasion was identified as a major threat to least Bell's vireo populations. Since the listing of the least Bell's vireo, destruction and modification of riparian habitat within its current range has been curtailed significantly, primarily as a consequence of protections provided by the original listing in 1986 (51 FR 16474), the subsequent designation of critical habitat in 1994 (59 FR 4845), and other Federal and State regulatory processes. Other efforts not driven by regulatory processes have also promoted increased conservation and restoration of riparian habitat since the listing of the least Bell's vireo in 1986 (Service 2006).

Agriculture and grazing continue to threaten riparian habitat within the larger historic range, particularly the Salinas, San Joaquin, and Sacramento valleys (Service 1998). Urbanization appears to have displaced former agriculture and grazing operations in many areas within southern California, thereby indirectly reducing riparian habitat degradation caused by these activities. On the other hand, occupied least Bell's vireo habitat that is adjacent to highly urbanized areas or within major river systems continues to be impacted by flood control and

water impoundment projects and may be subject to ongoing and future habitat loss or degradation (Service 2006).

Several large, regional Habitat Conservation Plans in southern California have addressed the effects of urban development on this species. These plans are expected to provide long-term protection of core occurrences of least Bell's vireos in western Riverside, Orange, and San Diego counties. Compliance-driven and voluntary riparian restoration activities throughout the historic range may have contributed to an increase in riparian habitat since the listing of the least Bell's vireo (Service 2006), although this cannot be established without a thorough evaluation of riparian habitat within California. Starting in 2007, the Riparian Habitat Joint Venture ("RHJV"; a cooperative association of Federal, State, and private organizations) began systematically mapping existing riparian habitat in California starting (RHJV 2006), which should provide a more objective measure of ongoing changes to riparian habitat in California.

Giant reed removal has also been initiated within several watersheds within southern California (Natural Resources Conservation Service (NRCS) 2006; Service 2006). In general, giant reed removal has been effective but will require continued annual efforts to achieve local eradications and address new invasions. Although control of giant reed has made great progress since the original listing of the least Bell's vireo, invasions by other exotic plants (e.g., Tamarix species, perennial pepperweed (*Lepidium latifolium*)) continue to degrade existing riparian habitat (Kus and Beck 1998; Hoffman and Zembal 2006).

The 1986 listing rule identified brood parasitism by cowbirds as a substantial threat to the least Bell's vireo, and it remains the most significant threat to the recovery of the least Bell's vireo (Service 2006). Cowbird trapping has proven a successful tool to halt least Bell's vireo population declines over the short term within a limited area, but Kus and Whitfield (2005) have argued that trapping may not be the best method for long-term recovery of the least Bell's vireo because maintaining cowbird populations at low levels may not allow the least Bell's vireo to evolve resistance to cowbird parasitism. The issue of cowbird trapping remains unclear as to the best way to manage this threat over the long term, and additional research is needed to determine whether there are any alternatives to the intensive cowbird trapping programs currently being implemented (Service 2006).

Critical Habitat for the Least Bell's Vireo

Critical habitat for the least Bell's vireo encompasses about 38,000 acres at 10 locations in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego counties. Primary constituent elements that support feeding, nesting, and sheltering are essential to the conservation of the least Bell's vireo and include riparian woodland vegetation that generally contains both canopy and shrub layers and some associated upland habitats (59 FR 4845). The 1994 critical habitat rule for least Bell's vireo states that the goal of the designation is the conservation of known populations of least Bell's vireo. This was to be accomplished through designation of critical habitat encompassing approximately 75 percent of the nesting least Bell's vireo locations

known at the time of listing, and the review of impacts to critical habitat through the section 7 process.

Draft Recovery Plan for the Least Bell's vireo
The 1998 draft recovery plan for the least Bell's vireo states that the goal of recovery efforts is the reclassification of the subspecies from endangered to threatened and, ultimately, delisting of the subspecies. The draft plan states that reclassification to threatened status may be considered when there are stable or increasing population/metapopulations of least Bell's vireos for a period of 5 consecutive years, each consisting of several hundred or more breeding pairs at the following sites: Tijuana River, Dalzura/Jamul Creek/Otay River, Sweetwater River, San Diego River, San Luis Rey River, Camp Pendleton/Santa Margarita River, Santa Ana River, an Orange County/Los Angeles County metapopulation, Santa River, Santa Ynez River, and an Anza Borrego Desert metapopulation. The draft plan states that each of these populations and metapopulations should be protected and managed.

The draft plan states that delisting of the least Bell's vireo may be considered when the subspecies meets the criterion for downlisting and there are stable or increasing least Bell's vireo population/metapopulations for a period of 5 consecutive years established at the following currently unoccupied areas of the species' historical range: Salinas River, a San Joaquin Valley metapopulation, and a Sacramento Valley metapopulation. The draft plan states that each of these populations and metapopulations should be protected and managed.

Lastly, the draft plan states that threats to the least Bell's vireo at the aforementioned sites should be reduced or eliminated so that these populations/metapopulations are capable of persisting without significant human intervention, or perpetual endowments are secured for cowbird trapping and exotic plant control in riparian habitat occupied by the least Bell's vireos.

The draft recovery plan describes a strategy for reclassification, recovery, and delisting. Instrumental to this strategy is securing and managing riparian habitat within the historical breeding range of the least Bell's vireo, annual monitoring and rangewide surveys, and research activities necessary to monitor and guide the recovery effort.

Relationship of Recovery Units, Critical Habitat Units, and Other Conservation Measures
The 10 least Bell's vireo critical habitat units have defined boundaries and cover specific areas that overlap with 10 of the 14 population/metapopulation (recovery) units identified in the draft recovery plan. Table 1 depicts the relationship among the 14 recovery units and the critical habitat units for least Bell's vireo.

Table 1.

Recovery Units	Critical Habitat Units	County	Size of Critical Habitat Unit (acres)[1]
Tijuana River	Tijuana River	San Diego	880
Dulzura Creek/Jamul Creek/Otay River	Jamul-Dulzura Creeks	San Diego	642
Sweetwater River	Sweetwater River	San Diego	771
San Diego River	San Diego River	San Diego	929
San Luis Rey River	San Luis Rey River	San Diego	7,286
Camp Pendleton/Santa Margarita River	Santa Margarita River	San Diego	2,278
Santa Ana River	Santa Ana River	San Bernardino and Riverside	9,900
An Orange County/Los Angeles County metapopulation	----------	----------	
Santa Clara River	Santa Clara River	Los Angeles and Ventura	4,411
Santa Ynez River	Santa Ynez River	Santa Barbara	9,247
Anza Borrego Desert metapopulation	Coyote Creek	San Diego	630
Salinas Valley	----------	----------	
A San Joaquin Valley metapopulation	----------	----------	
A Sacramento Valley metapopulation.	----------	----------	
Total			36,974

[1] Values in table do not sum to the 38,000 acres estimated in the critical habitat designation, but are based on the critical habitat GIS coverage created by the Service for the units identified in the critical habitat designation.

The draft recovery plan also describes other conservation efforts for the least Bell's vireo (Service 1998). The Santa Clara River Enhancement and Management Plan is a joint effort of the Service, the State Coastal Conservancy, and Ventura and Los Angeles counties to develop a long-range conservation plan for the Santa Clara River that includes recovery actions for the least Bell's vireo. Other conservation efforts include brown-head cowbird control programs being funded by the Service, Caltrans, the Corps, the International Boundary and Water Commission, and the Marine Corps Base, Camp Pendleton. Nest monitoring and research is also being conducted in conjunction with the cowbird controls, which is important for evaluating the effectiveness of cowbird trapping and removal and providing guidance for their improvement. Nest monitoring also provides valuable long-term reproductive data and facilitates banding of juveniles and adults for ongoing studies of demography, dispersal, and wintering site selection. Finally, habitat creation and restoration efforts implemented to offset loss and degradation of riparian efforts are being undertaken and monitored.

Southwestern Willow Flycatcher

The southwestern willow flycatcher was federally listed as endangered on February 27, 1995 (60 FR 10694) and critical habitat was designated for the subspecies on October 19, 2005 (70 FR 60886). Critical habitat in California is designated in Kern, Santa Barbara, San Bernardino, and San Diego counties; critical habitat is not designated in the action area and it will not be discussed further in this biological opinion. The final recovery plan for the subspecies was completed in August 2002 (Service 2002). The action area is located within the Coastal

California Recovery Unit of the final recovery plan, and establishment of new territories is part of the recovery criteria for the subspecies. Within the Santa Clara River, the reach from Bouquet Canyon Road to the Pacific Ocean, which crosses through the action area, has been identified in the recovery plan as a Management Unit where recovery actions should be focused (Service 2002).

The southwestern willow flycatcher breeds in southern California (north to the Santa Ynez River, Kern River, and Independence on the Owens River), southern Nevada, southern Utah, Arizona, New Mexico, and extreme western Texas. All subspecies of the willow flycatcher are completely migratory. The species as a whole winters from southern Mexico south through Central America to Panama and western Venezuela. Subspecies *extimus* has been collected in winter in Guatemala, El Salvador, Honduras, and Costa Rica (Unitt 1987).

Unitt (1987) concluded that the southwestern willow flycatcher was once fairly common in the Los Angeles Basin, where habitat is virtually absent now. Approximately 616 acres of riparian habitat has regenerated along the South Fork Kern River since the early 1980s, but fluctuations in number of territories in this area has made it difficult to determine a trend in the population for this area (Whitfield et al. 1999). Downstream from the South Fork Kern River, willow flycatchers (unknown subspecies) were common breeders in the early 1900s, but today virtually no riparian habitat remains. Outside of the Kern River, southwestern willow flycatcher populations are present along the Owens, San Luis Rey, and Santa Margarita (Camp Pendleton) Rivers. Changes in land use along the San Luis Rey River have improved habitat quality and extent, which has resulted in an increase in the number of territorial southwestern willow flycatcher males from 12 in the late 1980s (Unitt 1987) to more than 40 in 1999 (Kus et al. 1999). In contrast, the populations on Camp Pendleton have remained fairly constant for the past two decades despite apparently suitable habitat to support population expansion. The remaining southwestern willow flycatcher populations in southern California, most of which number fewer than five territories, occur at scattered sites along drainages that have changed little in the past 15 years.

The southwestern willow flycatcher breeds only in riparian woodland, typically adjacent to or over water. Surface water or saturated soil is usually present in or adjacent to nesting sites during at least the initial portion of the nesting period (Muiznieks et al. 1994, Tibbits et al. 1994). Riparian woodland used by willow flycatchers typically has a canopy and an understory of shrubs or saplings. Native willows dominate the habitat commonly represented in current and historical records.

Southwestern willow flycatchers do nest in some riparian habitats containing and even dominated by tamarisk (McKernan and Braden 1999, Paradzick et al. 2000). In terms of southwestern willow flycatcher productivity, the suitability of tamarisk dominated habitats is not known. Southwestern willow flycatcher productivity in some sites dominated by non-native vegetation is lower than in some native-dominated habitats (Sferra et al. 1997, Sogge et al. 1997). The reverse is also true, however, within some tamarisk-dominated habitats where

southwestern willow flycatcher productivity is similar or higher than nearby native-dominated sites (McKernan and Braden 1999, Paradzick et al. 1999).

The southwestern willow flycatcher is a diurnal insectivore, catching its prey on the wing usually in the middle story of riparian woodland. Males maintain and advertise a territory by singing to attract females. There is little information on the factors a southwestern willow flycatcher female uses to select a mate, though it may be related to some factor of habitat quality or potential quality of the male (Service 2002). Territorial defense begins immediately after spring arrival. Females occasionally sing, apparently when stimulated by territorial disputes (Sogge et al. 1997). Male southwestern willow flycatchers sing most persistently early in the breeding season, but song rate declines as the season progresses, particularly once the male finds a mate and nesting efforts begin (Finch et al. 2000). Their response to taped playback of songs during surveys has also been known to decrease as the nesting season progresses. Mapped breeding territory sizes are 0.15 to 0.5 acre on the Colorado River (Sogge et al. 1997), 0.5 to 1.25 acres along the Verde River, Arizona (Sogge 1995), and 0.35 to 5.7 acres along the Kern River, California (Whitfield and Enos 1996).

Nests are initiated usually within one week of pair formation, 10 to 14 days after spring arrival. Building nests takes 3 to 8 days. In historical egg collections from southern California, 86 percent of nests were in *Salix* spp. (willow), 4 percent in *Urtica dioica* (stinging nettles), and 10 percent in other plants (Unitt 1987). Females typically lay one egg per day, until the nest contains three to four eggs. Incubation begins after the last egg is laid, and lasts 12 to 13 days (Service 2002). For the southwestern willow flycatcher, incubation generally lasts 12 to 15 days from the date that the last egg was laid. During incubation, females spend approximately 50 percent of the day attending (incubating or shading) the eggs and incubate throughout the night. Incubation and shading bouts can last from less than 1 to more than 60 minutes (Finch et al. 2000).

Southwestern willow flycatcher young usually leave the nest 12 to 15 days after hatching. During the brooding period, the young are cared for by both the male and female. Feeding trips during the peak of this period can reach 30 trips per hour during days 5 to 10 (Finch et al. 2000). Fledglings stay close to the nest and each other for 3 to 5 days, and may repeatedly return to and leave the nest during this period (Spencer et al. 1996).

Southwestern willow flycatchers typically arrive on breeding grounds from late April to early June (Maynard 1995, Skaggs 1996, Sferra et al. 1997). Evidence gathered during multi-year studies of color-banded populations show that although most southwestern willow flycatchers return to former breeding areas, they regularly move among sites within and between years (Netter et al. 1998). From 1997 to 2000, 66 to 78 percent of southwestern willow flycatchers returned to the same breeding site (Luff et al. 2000). Within drainage movements are more common than between drainage movements.

The decline of the southwestern willow flycatcher is attributed to numerous factors, including nest depredation and brood parasitism by the brown-headed cowbird. However, large scale loss of southwestern wetlands, particularly cottonwood-willow riparian habitat, is the principal reason for the southwestern willow flycatcher's current status. Habitat loss is a result of urban and agricultural development, water diversion and impoundment, livestock grazing, and hydrological changes attributable to these and other land uses (60 FR 10694). In some cases, willow flycatchers are faced with situations that force movement, such as when catastrophic habitat loss occurs from fire or flood. Several such cases have been documented, with some of the resident willow flycatchers moving to remaining habitat within the breeding site, some moving to other sites 1.2 to 16.8 miles away (Paxton et al. 1997, Owen and Sogge 1997), and others disappearing without being seen again. For a discussion on the status of riparian habitat, see the status of the least Bell's vireo above.

Recovery Plan for the Southwestern Willow Flycatcher
The 2002 final recovery plan for the southwestern willow flycatcher states that the goal of recovery efforts is the reclassification of the subspecies from endangered to threatened and, ultimately, delisting of the subspecies. The plan states that reclassification to threatened status may be considered when either of the following criteria have been met:

Criterion A: Increase the total known population to a minimum of 1,950 territories (equating to approximately 3,900 individuals), geographically distributed to allow proper functioning as metapopulations, so that the southwestern willow flycatcher is no longer in danger of extinction. For reclassification to threatened status, these prescribed numbers and distributions must be reached as minimum, and maintained over a 5 year period.

Criterion B: Increase the total known populations to a minimum of 1,500 territories (equating to approximately 3,000 individuals), geographically distributed among Management Units and Recovery Units, so that the southwestern willow flycatcher is no longer in danger of extinction. Recovery Units are large watershed or hydrologic areas, while Management Units are a subset of the Recovery units and encompass local drainages and distinct geographic features. For reclassification to threatened status, these prescribed numbers and distributions must be reached as a minimum, and maintained over a 3 year period, and the habitats supporting this subspecies must be protected from threats and loss.

The plan states that the southwestern willow flycatcher may be removed from the list of threatened and endangered species when both of the following criteria have been met:

Criterion 1: Meet and maintain, at a minimum, the population levels and geographic distribution specified under reclassification to threatened Criterion A.

Criterion 2: Provide protection from threats and create/secure sufficient habitat to assure maintenance of these populations and/or habitat over time. The sites containing southwestern willow flycatcher breeding groups, in sufficient number and distribution to warrant downlisting,

must be protected into foreseeable future through development and implementation of conservation management agreements (e.g., public land management planning process for Federal lands, habitat conservation plans (under Section 10 of the Act), conservation easements, and land acquisition agreements for private lands, and intergovernmental conservation agreements with Tribes). Prior to delisting, the Service must confirm that the agreements have been created and executed in such a way as to achieve their role in southwestern willow flycatcher recovery, and individual agreements for all areas within all Management Units (public, private, and Tribal) that are critical to metapopulation stability (including suitable, unoccupied habitat) must have demonstrated their effectiveness for a period of at least 5 years.

The recovery plan categorizes recovery actions into nine types: (1) increase and improve occupied, suitable, and potential breeding habitat; (2) increase metapopulation stability; (3) improve demographic parameters; (4) minimize threats to wintering and migration habitat; (5) survey and monitor; (6) conduct research; (7) provide public education and outreach; (8) assure implementation of laws, policies, and agreements that benefit the southwestern willow flycatcher; and (9) track recovery progress.

California Condor

The California condor was listed as endangered on March 11, 1967 (32 FR 4001), and state listed as endangered on June 27, 1971. Critical habitat for the California condor was designated 9 years later on September 24, 1976 (41 FR 187), and consists of nine critical habitat units scattered throughout the California condor range in California totaling approximately 570,400 acres. The RMDP area is not within any of the designated critical habitat units; therefore, critical habitat will not be discussed further in this biological opinion, An experimental population listed as threatened under section 10(j) of the Act was introduced in Arizona in 1996. The California condor is a fully protected species under California law (see California Fish and Game Code, Section 5515 (b)(9)).

The California condor is a member of the family Cathartidae or New World vultures, a family of seven species, including the closely related Andean condor (*Vultur gryphus*) and the sympatric turkey vulture (*Cathartes aura*). Although the family has traditionally been placed in the Order Falconiformes, most contemporary taxonomists believe that New World vultures are more closely related to storks (Ligon 1967, Rea 1983, Sibley and Ahlquist 1990). California condors are among the largest flying birds in the world. Adults weigh approximately 17 to 22 pounds and have a wing span up to 9.5 feet. They are generally black, with prominent white underwing linings, with naked skin on the head and neck that ranges from gray to shades of yellow, red, and orange. Males and females cannot be distinguished by size or plumage characteristics.

California condors nest in various types of rock formations including crevices, overhung ledges, and potholes, and, more rarely, in cavities in giant sequoia trees (*Sequoiadendron giganteum giganteus*) (Snyder et al. 1986) and giant coast redwoods (*Sequoia sempervirens*) with cavities or broken out tops. California condor nest sites share the following characteristics: nest cavity ceiling height of at least 15 inches at the egg position; fairly level floors with some loose surface

substrate; unobstructed area around the nest for incubating adults; and short distance to an accessible landing point (Snyder et al. 1986).

All but one of the nest sites used between 1979 to 1986 were in a narrow belt of chaparral and coniferous forested mountains from central Santa Barbara County across northern and central Ventura County to northwestern Los Angeles County. The sites were located within a total area approximately 56 miles from west to east and only about 15 miles from north to south. The only nest outside this area was located in a giant sequoia in Tulare County in 1984. In 2006, released condors in the Big Sur area used a cavity in a giant coastal redwood, and since that time three additional nests have been located in cavities in coastal redwoods.

All recent California condor nest sites have been located on public lands within the Los Padres, Angeles, and Sequoia National Forests.

California condors are opportunistic scavengers, feeding only on the carcasses of dead animals. Typical foraging behavior includes long-distance reconnaissance flights, lengthy circling flights over a carcass, and occasionally hours of waiting at a roost or on the ground near a carcass. Prior to the arrival of Europeans, California condor food items within interior California probably included mule deer (*Odocoileus hemionus*), tule elk (*Cervus elaphus nannoides*), pronghorn antelope (*Antilocapra americana*), and smaller mammals. Along the Pacific shore the diet of the California condor has included whales, sea lions, and other marine species (Koford 1953, Emslie 1987, Service 1996). Koford (1953) estimated that 95 percent of the California condor diet after the arrival of European settlers consisted of cattle, domestic sheep, ground squirrels (*Spermophilus beecheyi*), mule deer, and horses.

Most California condor foraging occurs in open terrain of foothill grassland and oak savannah habitats because that is where the preferred food items may be located. While it has often been portrayed that California condors need wide open spaces in which to feed, they have been observed feeding under vegetation, including canyon bottoms where open areas for take-off and landing are easily accessible. The principal foraging regions used by California condors from the late 1970s to 1987 were the foothills bordering the southern San Joaquin Valley and axillary valleys in San Luis Obispo, Santa Barbara, Kern, and Tulare counties. After 1982, most observations of feeding by the small remaining wild population of California condors occurred in the Elkhorn Hills-Cuyama Valley-Carrizo Plain complex, and in the foothills of the southern San Joaquin Valley, extending north into Tulare County (Meretsky and Snyder 1992). The majority of important foraging areas were on private cattle-grazing lands.

Currently free-ranging California condors forage throughout the birds' present range, which extends from San Benito and Monterey counties in the north, south through Santa Barbara, Ventura, Kern, and Los Angeles counties, feeding naturally on cattle, sheep, pigs, and deer. Supplemental feeding is provided in specific locations to help facilitate the transition of newly released birds from captivity to the wild, to reduce the potential for birds coming into contact

with contaminated food in the form of lead bullet fragments, and to bait birds into trapping sites for lead testing and health checks.

Depending upon weather conditions and the hunger of the bird, a California condor may spend most of its time perched at a roost. California condors often use traditional roosting sites near important foraging grounds (Service 1996). Although California condors usually remain at roosts until mid-morning, and generally return in mid- to late afternoon, it is not unusual for a bird to stay perched throughout the day. While at a roost, California condors devote considerable time to preening and other maintenance activities. Roosting sites and nesting sites are susceptible to similar disturbance threats, and their preservation requires isolation from human intrusion. Cliffs and tall conifers, including snags, are generally utilized as roost sites in nesting areas. Although most roost sites are near nesting or foraging areas, scattered roost sites are located throughout the range.

California condors use topography and associated thermal weather patterns for flight. This is best illustrated by observations indicating that almost all flights by California condors, whether covering long distances or not, followed routes over the foothills and mountains bordering the southern San Joaquin Valley. Rarely do California condors pass directly over the flat, highly agricultural floor of the San Joaquin Valley and no California condors have ever been witnessed actually crossing over this Valley. Where flat, agricultural regions are much less extensive, such as the Cuyama Valley in Santa Barbara and San Luis Obispo counties, California, this species freely passed high above en route to foraging grounds. California condors are highly dependent on topography, which dictates prevailing wind patterns (Service 1996). The species is totally dependent on favorable wind conditions to move throughout its range, and long periods of inclement weather will keep birds immobile.

As mentioned above, climatic conditions change throughout the year across the landscape in southern California. Because the California condor is totally dependent on wind conditions for survival, favorable wind conditions that allow the bird to forage for food over a broad area are necessary. When wind conditions may not be favorable elsewhere, in the foothills of the San Joaquin Valley for example, they may be favorable over the Santa Susana Mountains. Therefore, California condor movements are, in part, dictated by favorable wind patterns.

During the Pleistocene era (10,000 to 100,000 years ago) the California condor ranged from British Columbia, Canada, to Baja California, Mexico, and through the southwest to Florida and north to New York State (one record). With the extinction of the large Pleistocene Era mammals, condors declined in range and numbers. Another large decline occurred when European settlers arrived on the West Coast, and accelerated during the gold rush of 1849. Condors were wantonly shot and poisoned, and eggs and adults were collected. By 1940, the condors' range was reduced to a horseshoe-shaped area in southern California that included the coastal mountain ranges of San Luis Obispo, Santa Barbara and Ventura counties; a portion of the Transverse Range in Kern and Los Angeles counties; and the Southern Sierras in Tulare County.

The California condor remains one of the world's rarest and most imperiled vertebrate species. The California condor declined over the past century to such a low level that only 22 individuals existed in 1982. The last free-flying California condors were captured by 1987 and brought into a captive breeding program.

The central purposes of the Endangered Species Act for the California condor, as for any listed species, are to provide for the survival and recovery of the condor in the wild and to conserve the ecosystem on which the condor depends. The most important recovery milestone for the California condor is to have wild adults fledging chicks into the wild. Recovery of the condor cannot rely upon captive-rearing because the goal is to have self-sustaining populations in the wild. Following several years of increasingly successful captive breeding, captive-produced California condors were first released back to the wild in southern California in early 1992. Additional releases have been made in the Ventana Wilderness area along California's central coast, Pinnacles National Monument, and in Baja California, Mexico. Under section 10(j) of the Act, an experimental population was also begun with releases in Arizona in 1996.

As of October 6, 2010, 100 California condors were free-flying in California, 20 in Baja California, and 75 in Arizona and Utah, with 26 awaiting release for all sites. Another 160 are in captivity. The first nesting activity by California condors released back into the wild occurred in 2001 in Lion Canyon above the Cuyama Valley in the Sierra Madre Mountains. Although this nesting attempt was ultimately unsuccessful, it marked the beginning of an increasingly successful pattern of reproduction in the wild by California condors (California condors also attempted to nest in Arizona in 2001). In 2002, three condor chicks were produced in the wild in California by re-introduced birds. Unfortunately, these three chicks perished prior to fledging. Two died due to ingestion of foreign materials (e.g., glass, bottle caps, etc.); the cause of death of the other chick is unknown, but the ingestion of foreign material cannot be ruled out. Another chick was produced in the wild in California in 2003, but again died before fledging due to the ingestion of foreign objects. Three chicks were produced in the wild in California in 2004. One died partly due to the ingestion of foreign objects, one was taken into captivity for rehabilitation after it broke a wing (and was released in the fall of 2007), and the third fledged successfully. Nesting activity has also been occurring in the Arizona population. The first California condor chick to successfully fledge in the wild since the 1980s occurred in the Grand Canyon in 2003. Eight chicks have survived to fledging since 2003 in Arizona.

In California, two chicks were produced in 2005. One was taken captive after it was revealed that the bird contained a large amount of micro-trash in its digestive tract and exhibited retarded feather growth (this bird was subsequently released into the wild in the fall of 2007), and the second chick died of a combination of West Nile Virus and micro-trash impaction. Additionally, a third egg was laid in the wild but was destroyed by predators before hatching. In 2006 four pairs attempted to breed. One chick fledged successfully, but only after being removed from the nest, flown to Los Angeles Zoo for emergency surgery to remove trash from an impacted ventriculus, and returned to the nest the following day. One chick died of unknown causes, and two eggs were lost during incubation to unknown causes. In 2007, field biologists set a goal for

100 percent fledging success in California, putting all available resources into the effort. Six pairs of condors produced eggs in 2007. Every nest was monitored intensively, and nest visits were made to each nest once a month during the nestling stage to monitor the health of the chick, inoculate chicks against West Nile Virus, and remove micro-trash from nests. Fertility of eggs was also checked. Two nests that contained infertile eggs were given fertile eggs from the captive breeding program so all pairs would have the opportunity to fledge chicks into the wild. The results for 2007 were six chicks fledged successfully. One subsequently died in the Ranch Fire of October when the fire raged through the Hopper Mountain National Wildlife Refuge and up Hopper Canyon, and one bird, in the Big Sur area, disappeared in early December. From 2008 through 2010 there have been 25 nesting attempts in California, which produced 15 chicks that have become integrated into the wild population.

Currently the most serious sources of human-related condor mortality are lead poisoning, shooting, collision with power lines, and the ingestion of small pieces of trash which, in combination with hair and other natural items, become compacted in the birds' digestive tract. In addition, two California condors have been shot and killed since 1999. One person was arrested in July 1992 for shooting at a California condor and another condor was shot and killed in Arizona in 1999. The second death, in California, occurred in 2003. This particular bird, AC-8, was the last wild female captured in 1986 and the first of the original wild birds to be released in 2000 back into the wild. She had spent 14 years in captivity as part of the captive breeding program. The bird was shot by a hunter in February 2003 (M. Hall, Refuge Manager, Hopper Mountain National Wildlife Refuge, pers. comm. 2004) on Tejon Ranch in the Tehachapi Mountains.

Post-mortem examinations performed on four wild dead California condors found between 1983 and 1986, indicated that three of the birds died from the effects of lead poisoning (Janssen et al. 1986, Wiemeyer et al. (1988) and one died of cyanide poisoning when a California condor triggered an M-44 cyanide gun set out for coyotes (Wiemeyer et al. 1988). High lead levels in the blood, resulting from the ingestion of fragments of lead bullets in shot mammal carcasses, may be a pervasive problem throughout the historical foraging range of the California condor. Wiemeyer et al. (1988) concluded that lead exposure was the major factor having an adverse impact on the wild California condor population from 1982 to 1986.

With the passage of AB 821, the Ridley-Tree Condor Preservation Act, signed by Governor Arnold Schwarzenegger in August 2007, lead ammunition was regulated within the present and historical range of the California condor. Theoretically, this should remove one of the major causes of mortality to California condors; ingestion of lead bullet fragments from large game carcasses. Additional rulings by the California Fish and Game Department expand the calibers of ammunition covered under the new regulation. Two federal installations, Fort Hunter Liggett and Camp Roberts in central California instituted non-lead ammunition hunting requirements in July of 2007, and the 275,000-acre private Tejon Ranch required non-lead ammunition in all of its hunting programs beginning on January 1, 2008.

Eleven of the California condors released since 1992 were killed in collisions with power lines. At least two deaths from collisions with manmade objects, including power lines, were known historically (Koford 1953). Condors are given power pole aversion training prior to release, which may deter birds from sitting on power poles, but it may have little effect on actual collisions with powerlines. Condors have not evolved to be looking directly ahead for small thin nearly invisible wires stretched across their flight path. Thus powerlines, particularly small distribution lines, have been a serious source of mortality for free-flying condors.

In an attempt to open up other foraging areas to the north to compensate for lost foraging habitat within the species' recent historic foraging range in the south, the Service put effort into attempting to move all California condor feeding activity 45 miles to the northwest of the Hopper Mountain National Wildlife Refuge, to Bittercreek National Wildlife Refuge. In July of 2007, all feeding sites at Hopper Mountain National Wildlife Refuge were shut down and food was only provided at the Bittercreek site. All California condors in the southern California population now must fly 45 miles from the Hopper Mountain Refuge to Bittercreek to obtain food, thus lessening their presence in the Hopper/Sespe area during the summer and fall months and opening up potential foraging areas to the north/northwest. Additional feeding sites have been established on Wind Wolves Preserve in the San Joaquin Valley foothills, west of Interstate 5, also to the north of Hopper Refuge, and within historic foraging habitat. California condors are now also taking advantage of naturally occurring food in the form of dead cattle, deer and pigs.

The major threat to condor recovery still remains lead poisoning. Collisions with powerlines and ingestion of micro-trash seem to have been significantly reduced. Other threats include the cumulative impacts of habitat loss, the continued possibilities of birds being shot, and other possible contaminants in their food supply.

Recovery Plan for the California Condor

The 1996 final recovery plan for the California condor states that the goal of recovery efforts is the reclassification of the species from endangered to threatened. Removing the California condor from the list of threatened and endangered species has been deferred to a future recovery plan. The recovery plan states that reclassification to threatened status may be considered when, at a minimum, there are at least two non-captive populations that do not require maintenance and one captive population. These populations (1) must each number at least 150 individuals, (2) must each contain at least 15 breeding pairs and (3) be reproductively self-sustaining and have a positive rate of population growth. In addition, the non-captive populations (4) must be spatially disjunct and non-interacting, and (5) must contain individuals descended from each of the 14 founders.

The recovery plan describes a strategy for reclassification, which includes the following actions: (1) establish a captive breeding program to preserve the gene pool; (2) reintroduce California condors to the wild; (3) minimize mortality factors in the natural environment; (4) maintain habitat for condor recovery; and (5) implement condor information and education programs.

Arroyo Toad

The arroyo toad was listed as endangered on December 16, 1994 (59 FR 64589). Critical habitat for the arroyo toad was designated on April 13, 2005 (70 FR 19562). The critical habitat designation did not include the action area. On July 20, 2007, the Service announced it would review the critical habitat designation after questions were raised about the integrity of scientific information used and whether the decision made was consistent with appropriate legal standards. Based on this review of the final critical habitat designation, the Service determined it was necessary to revise critical habitat. On October 13, 2009, the Service proposed revised critical habitat for the arroyo toad (74 FR 52612), and it became final on February 9, 2011 (76 FR 7246). The newly designated critical habitat includes lands within the action area. The final recovery plan for the arroyo toad was published in 1999 (Service 1999). In addition to the final recovery plan, important sources for information on the biology of the arroyo toad include: Campbell et al. (1996), Griffin and Case (2001), Griffin et al. (1998), Holland and Sisk (2001), Ramirez (2002a, 2002b, 2002c, 2003), and Sweet (1992, 1993).

The arroyo toad is a light-olive green or gray to tan, dark-spotted toad with a distinctive light-colored, V-shaped stripe across the head and the eyelids. The species is endemic to the coastal plain and mountains of central and southern California and northwestern Baja California from near sea level to about 8,000 feet in elevation. Within these areas, arroyo toads are found in both perennial and intermittent rivers and streams that have shallow, sandy to gravelly pools adjacent to sand or fine gravel terraces. Breeding habitat requirements are highly specialized; specifically, arroyo toads require shallow, slow-moving streams, and riparian habitats that are disturbed on a regular basis, primarily by flooding. High stream order (i.e., 3rd to 6th order), low elevation (particularly below 3,000 feet), and wide flood plains seem to be positively correlated with arroyo toad population size. However, small arroyo toad populations are found along 1st and 2nd order streams at elevations up to 4,200 feet in southern California. The arroyo toad evolved in a system that is inherently dynamic, with marked seasonal and annual fluctuations in rainfall and flooding.

Arroyo toad juveniles and adults use upland areas adjacent to breeding habitat for foraging and wintering. They are known to use a variety of upland habitats including, but not limited to, sycamore-cottonwood woodlands, oak woodlands, coastal sage scrub, chaparral, and grassland (Holland and Goodman 1998, Griffin and Case 2001, Holland and Sisk 2001), but grasslands are perhaps less suitable and may primarily be used to travel through (U.S. Geological Survey (USGS) 2003). Griffin *et al.* (1999) found arroyo toads spent most of their time during the breeding season within the stream channel or on adjacent sandy terraces, but they also used upland areas such as campgrounds and even agricultural fields. Additionally, they found that arroyo toads seemed to select habitat more according to vegetation structure than vegetation type; dense and tall vegetative structure was preferred least of all.

In a radio telemetry study conducted during the arroyo toad breeding season, Griffin *et al.* (1999) found that adult female arroyo toads moved up to 443 feet from water, on average, while males moved up to 302 feet from water, on average, in streams with broad, coastal floodplains. In a

study using pitfall traps, Holland and Sisk (2001) captured arroyo toads primarily within the stream channel and riparian habitats, but approximately 18 percent of the adult and subadult captures averaged across all 3 years of the study were in upland habitats (11 percent at one site and 24 percent at the other). These upland captures averaged more than 1,640 feet and 820 feet from the riparian/upland ecotone in two separate coastal streams; one arroyo toad was even captured 3,740 feet beyond the edge of the riparian habitat bordering the stream. However, radio telemetry and pitfall trap studies from a variety of inland streams often bordered by steep, dry terrain show arroyo toad activity typically closer to the active stream channel. Four separate studies of inland populations by Ramirez (2002a, 2002b, 2002c, 2003) showed that arroyo toads burrowed no farther than 121 to 1,062 feet from the edge of a stream, with an overall average of approximately 52 feet between a toad's burrow and the edge of the stream. Griffin *et al.* (1999) also found male arroyo toads no further than 75 feet, on average, from a steep-sided stream near the coast. The extent of arroyo toad movement away from the stream channel is influenced by climatic conditions, availability of surface water, floodplain width, vegetative cover, and topography (Griffin *et al.* 1999; Ramirez 2002a). Moderate, stable temperatures and high humidity facilitate longer-distance movements into upland habitats (Service 1999).

Arroyo toads typically breed sometime between March and early June, although the breeding season may occur earlier or later, depending on weather conditions, elevation, and latitude. Males may breed with several females in a season; however, female arroyo toads release their entire clutch of eggs as a single breeding effort and probably do not produce a second clutch during the mating season. Eggs are deposited and larvae (tadpoles) develop in shallow pools with minimal current, little or no emergent vegetation and sand or pea gravel substrate. Embryos usually hatch in 4 to 6 days; the larval period lasts approximately 65 to 85 days. Metamorphosis from tadpole to juvenile toad typically occurs in June or July. The juveniles remain on gravel bars bordering the stream until the pool dries up. They reach sexual maturity in 1 to 2 years, and arroyo toads may live for as few as 5 years (Sweet 1993). Much less is known about movements or behavior in the late summer and winter months.

Larvae feed by inserting their heads into the substrate and ingesting loose organic material such as detritus, interstitial algae, bacteria, and diatoms. Juveniles and adults forage for insects, especially ants and small beetles, on sandy stream terraces. Juveniles spend more time exposed on terraces during the daytime than do adults, and are thus vulnerable to diurnal predators. Once juveniles are of sufficient size to dig burrows and bury themselves in the sand, they become nocturnal. All age classes of post-metamorphic arroyo toads tend to be active on rainy nights with moderate temperatures (above 45 degrees Fahrenheit). Adults excavate shallow burrows for shelter during the day when the surface is damp or during longer intervals in the dry season.

Arroyo toads have disappeared from approximately 75 percent of the previously occupied habitat in California. Historically, they were recorded in coastal drainages in southern California from Monterey County to San Diego County and in Baja California, Mexico. Today, the species occurs in Orange and San Diego Counties, and on the desert slopes of both the San Gabriel Mountains (in Little Rock Creek in Los Angeles County) and the San Bernardino Mountains (in

the Mojave River and in its tributaries, Little Horsethief and Deep Creeks, in San Bernardino County).

Extensive habitat degradation has led to the decline and isolation of the remaining populations of arroyo toads. This habitat loss is due primarily to urbanization, agriculture, dam construction, water manipulation (e.g., diversion, drawdown, changed hydroperiod), mining, livestock grazing, and recreational activities in riparian areas. The introduction of bullfrogs and exotic fish have negatively affected arroyo toad populations due to predation. Exotic plant species degrade arroyo toad habitat, and may cause changes in the invertebrate fauna upon which the arroyo toad feeds. The spread of chytrid fungus (*Batrachochytrium dendrobatidis*) may have also played a role in the loss of some populations. Changes in hydrologic regimes and loss of overwintering habitat as streamside areas are developed are probably the most important factors in the decline of arroyo toads.

Critical Habitat for the Arroyo Toad

The designated critical habitat for the arroyo toad includes 98,366 acres of federal, state, local, and private land in Santa Barbara, Ventura, Los Angeles, Riverside, San Bernardino, Orange, and San Diego counties. Primary constituent elements for the arroyo toad are identified as:

1. Rivers or streams with hydrologic regimes that supply water to provide space, food, and cover needed to sustain eggs, tadpoles, metamorphosing juveniles, and adult breeding toads. Breeding pools must persist a minimum of 2 months for the completion of larval development. However, due to the dynamic nature of southern California riparian systems and flood regimes, the location of suitable breeding pools may vary from year to year. Specifically, the conditions necessary to allow for successful reproduction of arroyo toads are:
   - Breeding pools that are less than 6 in. (15 cm) deep;
   - Areas of flowing water with current velocities less than 1.3 ft per second (40 cm per second); and
   - Surface water that lasts for a minimum of 2 months during the breeding season (a sufficient wet period in the spring months to allow arroyo toad larvae to hatch, mature, and metamorphose).
2. Riparian and adjacent upland habitats, particularly low-gradient (typically less than 6 percent) stream segments and alluvial streamside terraces with sandy or fine gravel substrates that support the formation of shallow pools and sparsely vegetated sand and gravel bars for breeding and rearing of tadpoles and juveniles; and adjacent valley bottomlands, that include areas of loose soil where toads can burrow underground, to provide foraging and living areas for juvenile and adult arroyo toads.

3. A natural flooding regime, or one sufficiently corresponding to natural, that: A) is characterized by intermittent or near-perennial flow that contributes to the persistence of shallow pools into at least mid-summer; B), maintains areas of open, sparsely vegetated, sandy stream channels and terraces by periodically scouring riparian vegetation; and C)

also modifies stream channels and terraces and redistributes sand and sediment, such that breeding pools and terrace habitats with scattered vegetation are maintained.

4. Stream channels and adjacent upland habitats that allow for movement to breeding pools, foraging areas, overwintering sites, upstream and downstream dispersal, and connectivity to areas that contain suitable habitat.

The goal of the critical habitat designation is the protection and management of breeding and non-breeding habitat on a watershed basis for the conservation of the species.

Recovery Plan for the Arroyo Toad

The 1999 final recovery plan for the arroyo toad states that the goal of recovery efforts is the reclassification of the species from endangered to threatened status and, ultimately, delisting of the species. The plan states that reclassification to threatened status may be considered when management plans have been approved and implemented on federally managed lands to provide for conserving, maintaining, and restoring the riparian and upland habitats used by arroyo toads for breeding, foraging, and wintering habitat. In addition, at least 20 self-sustaining metapopulations or subpopulations of arroyo toads must be maintained at the following locations (minimum number of populations for each agency and targeted river basins is indicated in parentheses): Fort Hunter Liggett Army Reserve Training Center (1: San Antonio River basin); Marine Corps Base Camp Pendleton (2: San Mateo/San Onofre Creek basins, Santa Margarita River basin); Los Padres National Forest (3: Castaic Creek basin, Los Angeles River basin [including Big Tujunga and Alder Creeks], Little Rock Creek basin); San Bernardino National Forest (1: Mojave River basin [including West Fork of the Mojave River, Little Horsethief Canyon, and Deep Creek]); Cleveland National Forest (8: San Juan Creek basin, San Mateo Creek basin, Upper Santa Margarita River basin, Sweetwater River basin, Tijuana River basin); and the Jacumba (In-Ko-Pah Mountains) Wilderness Study Area (1: Pinot Wash basin) managed by the Bureau of Land Management. Self-sustaining populations or metapopulations are those documented as having successful recruitment (i.e., inclusion of newly matured individuals into the breeding adult cohort in 7 of 10 years of average to above average rainfall amounts with normal rainfall patterns). Self-sustaining populations or metapopulations require little or no direct human assistance such as captive breeding or rearing, or translocation of arroyo toads between sites.

The plan states that delisting of the arroyo toad may be considered when genetic and phenotypic variation of the arroyo toad, throughout its range in California, is secured by maintaining 15 additional self-sustaining subpopulations or metapopulations of the arroyo toads on the coastal plain, coastal slope, desert slope, and desert lands, including known subpopulations and metapopulations outside of Federal jurisdiction in the Mojave River basin (San Bernardino County); the Whitewater River basin (Riverside County); the San Juan Creek basin (Orange and Riverside counties); Santa Margarita River basin (Sa Diego and Riverside counties); and the San Luis Rey River, San Dieguito River/Santa Ysabel Creek, San Diego River, Sweetwater, Otay River/Dulzura Creek, and Tijuana River basins (in San Diego County).

The recovery plan describes a strategy for reclassification, which includes the following actions: (1) stabilize and maintain populations throughout the range of the arroyo toad in California by protecting sufficient breeding and nonbreeding habitat; (2) monitor the status of existing populations to ensure recovery actions are successful; (3) identify and secure additional suitable arroyo toad habitat and populations; (4) conduct research to obtain data to guide management efforts and determine the best methods for reducing threats; and (5) develop and implement an outreach program.

Relationship of Recovery Units and Critical Habitat Units

Based in part on the recovery plan for the arroyo toad, the Service proposed revised critical habitat units throughout the range of the arroyo toad (74 FR 52612). When the critical habitat became final, some of the critical habitat areas were removed or reduced in size. The critical habitat units designated have defined boundaries and cover specific areas throughout the three recovery units identified in the recovery plan. Table 2 depicts the relationship among the three recovery units and critical habitat units throughout the range of the arroyo toad.

Table 2.

Northern Recovery Unit			
Unit	**Critical Habitat Units and Subunits**	**County**	**Size of Critical Habitat Unit (acres)[1]**
1	San Antonio River - exempt	Monterey	0
2	Sisquoc River	Santa Barbara	3,775
3	Upper Santa Ynez River	Santa Barbara	3,032
4	Sespe Creek	Ventura	2,760
5	Piru Creek	Ventura	2,507
5a	.....	.....	1,358
5b	.....	.....	1,149
6	Upper Santa Clara River	Los Angeles	2,802
6a	.....	.....	520
6b	.....	.....	1,003
6c	.....	.....	1,279
7	Upper Los Angeles River Basin	Los Angeles	1,190
Subtotal			16,066

Table 2. (continued)

Southern Recovery Unit			
Unit	Critical Habitat Units and Subunits	County	Size of Critical Habitat Unit (acres)[1]
8	Lower Santa Ana River Basin	Orange	737
9	San Jacinto River Basin	Riverside	2,391
9a	.....	.....	1,226
9b	.....	.....	1,165
10	San Juan Creek Basin	Orange, Riverside	3,496
10a	.....	.....	3,097
10b	.....	.....	399
11	San Mateo Basin	Orange, San Diego	1,820
11a	.....	.....	975
11b	.....	.....	845
12	Lower Santa Margarita Basin	San Diego	1,009
12a	.....	.....	394
12b	.....	.....	615
13	Upper Santa Margarita Basin	Riverside, San Diego	7,863
13a	.....	.....	1,155
13b	.....	.....	4,731
13c	.....	.....	1,977
14	Lower and Middle San Luis Rey Basin	San Diego	10,115
15	Upper San Luis Rey Basin	San Diego	8,368
16	Santa Ysabel Creek	San Diego	15,370
16a	.....	.....	13,866
16d	.....	.....	1,504
17	San Diego River Basin	San Diego	4,171
17a	.....	.....	1,149
17b	.....	.....	1,865
17d	.....	.....	1,157
18	Sweetwater River Basin	San Diego	4,625
18a	.....	.....	4,155
18c	.....	.....	470
19	Cottonwood Creek Basin	San Diego	14,345
19a	.....	.....	5816
19b	.....	.....	5,130
19c	.....	.....	1,512
19d	.....	.....	938
19e	.....	.....	950
Subtotal			74,310

Table 2. (continued)

Desert Recovery Unit			
Unit	Critical Habitat Units and Subunits	County	Size of Critical Habitat Unit (acres)[1]
20	Upper Santa Ana River Basin/Cajon Wash	San Bernardino	1,775
21	Little Rock Creek Basin	Los Angeles	612
22	Upper Mojave River Basin	San Bernardino	5,602
22a	.....	.....	5,684
22c	.....	.....	0
23	Whitewater River Basin	Riverside	0
Subtotal			7,989
Total			98,366

Source: Service 2009
[1] Values in table may not sum due to rounding

Unarmored Threespine Stickleback

The unarmored threespine stickleback was federally listed as endangered in 1970 primarily due to competition with and predation by non-native fish, loss of habitat through urbanization and channelization, and introgression with other subspecies of sticklebacks (35 FR 16047). The unarmored threespine stickleback is a fully protected species under California law (see California Fish and Game Code, Section 5515 (b)(9)). The recovery plan for the unarmored threespine stickleback (Service 1985) provides additional information on the biology of the species, reasons for its decline, areas of essential habitat, and the actions needed for recovery of the species.

On November 17, 1980, the Service proposed designating approximately 31.7 miles of streams in Los Angeles and Santa Barbara counties as critical habitat for the unarmored threespine stickleback (45 FR 76012). The proposed critical habitat included three stream zones of the upper Santa Clara River, including the Del Valle zone, the San Francisquito zone, and the Soledad Canyon zone. The Del Valle zone includes the action area and runs from the confluence with San Martinez Grande Canyon upstream to the I-5 Bridge. On September 17, 2002, the Service determined that a designation of critical habitat for unarmored threespine stickleback should not be made because the initial federal listing was in 1970 under the Endangered Species Conservation Act of 1969, the predecessor of the Act (67 FR 58850). The Endangered Species Conservation Act did not have a critical habitat designation requirement. A lawsuit brought by the Center for Biological Diversity resulted in a decision by the Ninth Circuit Court of Appeals in 2006 upholding the Service decision to not designate critical habitat for unarmored threespine stickleback. Therefore, critical habitat for the unarmored threespine stickleback will not be discussed further in this biological opinion.

Unarmored threespine sticklebacks are small fish (up to 2.36 inches) inhabiting slow moving reaches or quiet water microhabitats of streams and rivers. Favorable habitats usually are shaded by dense and abundant vegetation. In more open reaches, algal mats or barriers may provide refuge for the species. Unarmored threespine sticklebacks feed primarily on benthic insects, small crustaceans, and snails, and to a lesser degree, on flat worms, nematodes, and terrestrial

insects. Unarmored threespine sticklebacks reproduce throughout the year with a minimum of breeding activity occurring from October to January. Reproduction occurs in areas with adequate aquatic vegetation and gentle flow of water where males establish and vigorously defend territories. The male builds a nest of fine plant debris and algal strands and courts all females that enter his territory; a single nest may contain the eggs of several females. Following spawning, the males defend the nests and the newly hatched fry, which hatch after approximately 6 days. Unarmored threespine sticklebacks are believed to live for only 1 year (Service 1985).

Unarmored threespine sticklebacks historically were distributed throughout southern California but are now restricted to the upper Santa Clara River and its tributaries in Los Angeles County, San Antonio Creek on Vandenberg Air Force Base (VAFB) in Santa Barbara County, Shay Creek (tributary to Baldwin Lake) in San Bernardino County, and San Felipe Creek in San Diego County. A population was transplanted into San Felipe Creek in the Salton Sea drainage and into Cañada Honda Creek on VAFB. Transplanted populations tend not to persist (Moyle 2002). In fact, no individuals have been observed in Cañada Honda Creek in 13 years (R. Evans, VAFB Natural Resource Manager, pers. comm., 2008).

Habitat degradation in the form of flood control and channelization are the primary threats to the survival of the unarmored threespine stickleback. Other forms of habitat degradation can occur when people or livestock trample stream banks, causing increased soil erosion and sedimentation in streams and breeding pools and reducing the availability of plants and insects that serve as habitat and food for the species. Damage to, or destruction of, the emergent vegetation along the stream banks also degrades the shallow, weedy nursery areas that provide abundant food and shelter for unarmored threespine stickleback.

Other threats to unarmored threespine stickleback often occur in popular riparian areas near campgrounds where humans dam pools for wading and inadvertently trample adjacent sand or gravel bars during streamside recreational activities. These activities force the unarmored threespine stickleback to constantly move away from human traffic or be driven into areas where they are more susceptible to injury or mortality due to predation or recreational activities.

Exotic predators such as African clawed frogs, bullfrogs, mosquitofish (*Gambusia affinis*), red swamp crayfish (*Procambarus clarkii*), and green sunfish (*Lepomis cyanellus*), prey on or compete for resources with unarmored threespine sticklebacks. In addition, certain non-native species may serve as vectors for the Ich parasite (*Ichthyopthirius multifilis*) that could infect populations of unarmored threespine stickleback. Populations of unarmored threespine stickleback in the Angeles National Forest were severely affected by the introduction of Ich in 1995 (U.S. Forest Service (USFS) 2000). Introduced goldfish (*Carasius auratus*) were suspected to be the source of the Ich infestation.

Recovery Plan for the Unarmored Threespine Stickleback

The 1985 final recovery plan for the unarmored threespine stickleback states that the species could be considered recovered when: (1) habitat conditions for each of the known remnant

populations have been stabilized at or near historical carrying capacities; (2) the other known threats have been addressed in a manner that assures the continued existence of these populations; and (3) at least five self-sustaining populations have been maintained within the historical range of unarmored threespine stickleback for a period of 5 consecutive years without significant threats to their continued existence.

The plan states that to reach the point of recovery, the known extant populations must be preserved and protected, additional populations will need to be successfully reintroduced into historical habitats, the spread of exotic organisms will need to be controlled, and degraded habitats will need to be restored and maintained. In order to do this, adequate instream flows must be maintained in all essential habitats, land uses must be regulated to maintain good water quality, the introduction of additional exotic organisms must be prevented, the spread of established populations of exotic organisms controlled, suitable reintroduction sites within the historical range must be found, and habitat conditions must be monitored to ensure that satisfactory conditions for unarmored threespine stickleback are being maintained.

The recovery strategy for the unarmored threespine stickleback, as defined in the recovery plan, includes the following actions: (1) close regulation of removal (take) of the species; (2) monitoring and appropriate management of habitat conditions; (3) implementation of contingency plans to protect the species from natural or man-made disasters; and (4) establishment of additional populations in suitable reintroduction sites as needed.

Coastal California Gnatcatcher

The coastal California gnatcatcher was federally listed as threatened on March 30, 1993 (58 FR 16742). Revised critical habitat for the coastal California gnatcatcher was designated on December 19, 2007 (72 FR 72010) . The RMDP area does not include any critical habitat for the coastal California gnatcatcher; therefore, critical habitat for this species will not be discussed further in this biological opinion. No recovery plan exists for the coastal California gnatcatcher. The Service completed a 5-year of the species' status in September 2010 (Service 2010b).

The coastal California gnatcatcher is a small member of the old-world warbler and gnatcatcher family Sylviidae (AOU 1998). The bird is dark blue-gray above and grayish-white below. The tail is mostly black above and below. The male has a distinctive black cap, which is absent during the winters. Both sexes have a white eye-ring. The coastal California gnatcatcher is primarily insectivorous, non-migratory, and exhibits strong site tenacity (Atwood 1990). Fecal samples showed a predominance of leaf and plant-hoppers and spiders in the diet, while true bugs, wasps, bees, and ants were only minor components (Burger et al. 1999). The coastal California gnatcatcher is a highly detectable species for much of the year, both visually and vocally. Preston et al. (1998) found that detectability of a San Diego population ranged from 80 percent to 90 percent of pairs from March through September and from 50 percent to 80 percent of pairs from October through December.

Coastal California gnatcatchers occur mainly on cismontane slopes (coastal side of the mountains) in southern California, ranging from Ventura and northern Los Angeles counties, south through the Palos Verdes Peninsula to Orange, Riverside, San Bernardino and San Diego counties (Service 2010b). The species' range continues south into Baja California to El Rosario, Mexico (Atwood 1991). Atwood (1990) reported that 99 percent of all coastal California gnatcatcher locality records occurred at or below an elevation of 984 feet. Atwood and Bolsinger (1992) reported that, of 324 sites of recent occurrence, 272 (84 percent) were located below 820 feet, 315 (97 percent) were below 1,640 feet, and 324 (100 percent) were below 2,460 feet. Since that time, additional data collected at higher elevation shows that this species may occur as high as 3,000 feet and that more than 99 percent of the known coastal California gnatcatcher locations occurred below 2,500 feet (65 FR 63680).

Coastal California gnatcatchers are typically found in or near coastal sage scrub habitat on mesas, gently sloping areas, and along the lower slopes of the coast ranges. The species tends to occur most frequently within stands dominated by California sagebrush (*Artemisia californica*) (Atwood 1990). An analysis of the percent gap in shrub canopy supports the observation that coastal California gnatcatchers prefer relatively open stands of coastal sage scrub (Weaver 1998). The coastal California gnatcatcher occurs in high frequencies and densities in scrub with an open or broken canopy, is absent from scrub dominated by tall shrubs, and occurs in low frequencies and densities in low scrub with a closed canopy (Weaver 1998).

Coastal California gnatcatchers also use chaparral, grassland, and riparian habitats where they occur adjacent to coastal sage scrub (Campbell et al. 1998). The use of these habitats appears to be most frequent during late summer, autumn, and winter, with smaller numbers of individuals using such areas during the breeding season. Although existing quantitative data may reveal relatively little about coastal California gnatcatcher use of these other habitats, these areas may be critical during certain times of year for dispersal or as foraging areas during drought conditions (Campbell et al. 1998). Breeding territories have also been documented in non-sage scrub habitat. Campbell et al. (1998) believe that habitats other than coastal sage scrub are used by coastal California gnatcatchers for foraging, dispersal by juveniles, respite from temperature extremes, fire avoidance, and fledglings to escape predation. Linkages of habitats other than coastal sage scrub along linear features such as highways and power line corridors may also be of substantial value in linking populations of the coastal California gnatcatcher (Famolaro and Newman 1998).

The coastal California gnatcatcher becomes highly territorial by late February or early March and males become more vocal during this period (Mock et al. 1990). In southwestern San Diego County, the mean territory size during the breeding season ranged from 12 to 27 acres per pair; during the non-breeding season, territory size ranged from 12 to 42 acres per pair. During the non-breeding season, coastal California gnatcatchers have been observed to wander into adjacent territories and unoccupied habitat, increasing their home range size by up to 78 percent over their breeding territory (Preston et al. 1998).

The breeding season of the coastal California gnatcatcher extends from mid-February through the end of August, with the peak of nesting activity occurring from mid-March through mid-May. The coastal California gnatcatcher's nest is a small, cup shaped basket usually found 1 to 3 feet above the ground in a small shrub or cactus. Clutch sizes range between three and five eggs, with the average being four. Juvenile birds associate with their parents for several weeks (sometimes months) after fledging (Atwood 1990). Nest building begins in mid-March with the earliest recorded egg date of March 20 (Mock et al. 1990). Post breeding dispersal of fledglings occurs between late May and late November. Coastal California gnatcatchers are persistent nest builders and often attempt multiple broods, which is suggestive of a high reproductive potential. This may be offset by high rates of nest predation and nest parasitism (Atwood 1990).

Predation is the most common cause of nest failure (Grishaver et al. 1998). Potential nest predators are numerous, and include cats, snakes, raccoons, and corvids (birds in the family Corvidae) (Grishaver et al. 1998). The coastal California gnatcatcher also is known to be affected by nest parasitism by the brown headed cowbird. Nest parasitism may have shifted the coastal California gnatcatcher's nesting season in some areas to earlier in the year to help compensate for the negative effects (Patten and Campbell 1998). However, the gains in nest success from decreased nest parasitism appear to be negated by increased nest abandonment due to predation before brown-headed cowbirds have migrated into an area (Braden et al. 1997).

Post-natal dispersal for the coastal California gnatcatcher is an important aspect of the biology of the species (Galvin 1998). The mean dispersal distance of coastal California gnatcatchers from a study of birds banded in San Diego County is reported at less than 1.9 miles (Bailey and Mock 1998). Although the mean dispersal distances that have been documented above are relatively low, dispersal of juveniles is difficult to observe and document without extensive banding studies. The few current studies may not adequately estimate the coastal California gnatcatcher's dispersal capability (Bailey and Mock 1998). Juvenile coastal California gnatcatchers are apparently able to traverse highly man modified landscapes for at least short distances (Bailey and Mock 1998).

Natural and restored coastal sage scrub habitat along highway corridors is used for foraging and nesting by coastal California gnatcatchers and may also serve important dispersal functions (Famolaro and Newman 1998). Typically, however, the dispersal of juveniles requires a corridor of native vegetation, which provides foraging and cover opportunities to link larger patches of appropriate sage scrub vegetation (Soulé 1991). These dispersal corridors may facilitate the exchange of genetic material and provide a path for recolonization of areas from which the species has been extirpated (Soulé 1991, Galvin 1998). Without dispersal corridors, birds in shrub habitats isolated by urbanization may undergo rapid, localized extinction (Soulé et al. 1988).

The coastal California gnatcatcher was considered locally common in the mid-1940s, but by the 1960s this subspecies had declined substantially in the U.S. due to widespread habitat destruction (Atwood 1990). In 1993, at the time the coastal California gnatcatcher was listed as threatened,

the Service estimated that approximately 2,562 pairs of coastal California gnatcatchers occurred in the U.S. In 1997, the total number of coastal California gnatcatchers in the U.S. was estimated at 2,899 pairs with two-thirds occurring in San Diego County (Service 1996). These population estimates were intended to represent a coarse approximation of the number of coastal California gnatcatchers in southern California. Currently, the Service believes that earlier estimates were probably low and that the number of coastal California gnatcatchers is higher, although no accurate estimate is available (Service 2010b).

The destruction and fragmentation of habitat are the principal reasons for the coastal California gnatcatcher's federally threatened status (58 FR 16742). Up to 90 percent of coastal sage scrub vegetation has been lost as a result of development and land conversion (Westman 1981a and b; Barbour and Major 1977); coastal sage scrub is considered to be one of the most depleted habitat-types in the U.S. (Kirkpatrick and Hutchinson 1977, O'Leary 1990). The amount of occupied suitable habitat available to coastal California gnatcatchers has continued to decline since the species was listed as development in the species' range has continued. Urbanization contributes to the loss, degradation, and fragmentation of coastal sage scrub by altering wildfire frequency due to human intervention. Higher fire frequencies and the lag period associated with recovery of the vegetation may substantially reduce the viability of affected subpopulations. Less frequent fires may allow the vegetation to reach a density and height not preferred by coastal California gnatcatchers.

Spotlight Species Action Plan for Coastal California Gnatcatcher

A recovery plan for the coastal California gnatcatcher has not been published; however, a Spotlight Species Action Plan (2010-2014) (SSAP) has been prepared (Service 2009). This and similar plans are intended as internal guidance documents for the Service to direct its resources toward recovery of "at risk" or high profile listed species.

According to the SSAP, areas with coastal sage vegetation have been subject to much urban development resulting in conflicts between species and habitat conservation and construction or other development projects and other forms of economic activity. To address this economic conflict and promote recovery of the coastal California gnatcatcher, the Service and CDFG have worked jointly with jurisdictions and other stakeholders to prepare regional Habitat Conservation Plans (HCPs) and Natural Community Conservation Plans (NCCPs) that permitted incidental take of coastal California gnatcatcher in return for mitigation in the form of habitat conservation and management to benefit the species. These regional HCP/NCCP Plans established a network of core and linkage habitat preserves throughout much of the coastal California gnatcatcher U.S. range. The SSAP identifies two threat sources: (1) urban and agriculture development; wildland fire; habitat type conversion; and (2) climate change. Wildfires in 2003 and, especially, 2007 burned tens of thousands of acres of coastal California gnatcatcher's habitat including areas preserved under the regional HCP/NCCPs. The burned areas are now at risk of being overrun by nonnative grasses and forbs (habitat type-conversion).

The SSAP states that the target of recovery efforts is to improve the population status of the coastal California gnatcatcher by increasing the size of coastal California gnatcatcher populations and improving habitat quality at sites burned in the past 10 years. To accomplish this, the Service would work with its partners to select sites that would be the best candidates for restoration. The RMDP area is not within any of the burned areas targeted for habitat restoration; however the SSAP's general recovery goal of improving the population status of the California gnatcatcher as applied to the RMDP area is to increase the size of coastal California gnatcatcher populations in the plan area.

Five-year Review of the Status of the Coastal California Gnatcatcher (Service 2010b)
The 5-year review of the status of the coastal California gnatcatcher concludes that many of the threats that existed when the species was listed as threatened in 1993 remain. A more recent development is the conversion of coastal sage scrub habitat to other vegetation types as a result of catastrophic wildfires in the first decade of this century. Despite large-scale, long-time planning efforts to conserve the species (e.g., NCCPs, HCPs), the 5-year review concludes that the species' listing status should remain unchanged.

ENVIRONMENTAL BASELINE

The implementing regulations for section 7(a)(2) define the action area being addressed in a consultation as the area that may be directly or indirectly affected by the proposed action (50 *Code of Federal Regulations* 402.02). We consider the action area for this biological opinion to include the entire RMDP area, totaling 13,651 acres. In addition, because of the potential for indirect effects due to non-point and point source discharges into the Santa Clara River from the proposed development, the action area includes the Santa Clara River corridor between the RMDP area and the "dry gap," which is approximately 5 miles downstream of the RMDP area boundary.

The RMDP area is located in northern Los Angeles and eastern Ventura counties, and consists of the Newhall Ranch Specific Plan area and the adjacent Salt Creek Area. The Santa Clara River and State Highway 126 traverse the northern portion of the site, and the Santa Clara River extends approximately 5.5 miles east to west across the RMDP area.

The action area contains large areas of natural vegetation; however, the project applicant has historically leased, and continues to lease, portions of the RMDP area for oil and natural gas production, as well as for cattle grazing, ranching, and agricultural operations (e.g., food crop production, dry land farming, honey farming). As a result of these activities, natural vegetation is absent in some areas, replaced by dirt and asphalt roads, graded oil well pads and pipelines, and pumping, storage, and transmission facilities.

Vegetation communities and land covers in the action area vary in quality from high biological value in natural areas to highly disturbed lands, such as upland agricultural areas and facilities related to oil and natural gas production (Table 3). Native and naturalized vegetation

communities present are representative of those found in the region and include high-quality examples of the vegetation communities found in the Santa Susana Mountains to the south and the Santa Clara River ecosystem. Upland vegetation communities dominate the landscape within the site, both north and south of the Santa Clara River. The dominant upland native vegetation communities include California sagebrush scrub and associations, undifferentiated chaparral and associations, coast live oak woodlands, and valley oak woodlands and associations. The dominant non-native community is California annual grassland. The Santa Clara River supports a variety of riparian vegetation communities, including southern cottonwood-willow riparian forest, southern willow scrub, southern coast live oak riparian forest, giant reed, bulrush-cattail wetland, Mexican elderberry and associations, tamarisk scrub, mulefat scrub, arrow weed scrub, alluvial scrub, big sagebrush scrub, herbaceous wetlands, coastal and valley freshwater marsh, cismontane alkali marsh, and river wash. Intermittent and ephemeral drainages within the action area include cismontane alkali marsh, river wash, mulefat scrub, scalebroom scrub, big sagebrush scrub, and alluvial scrubs.

TABLE 3. Vegetation Communities and Land Cover Types within the RMDP Area

Vegetation Community/Land Cover Type	Associations	Total Acreage
Upland Grassland		
California annual grassland		2,175.5
Purple needlegrass		0.6
Coastal Scrub		
California sagebrush scrub		1,529.3
California sagebrush scrub	Burned California sagebrush scrub	1,469.3
California sagebrush scrub	California sagebrush scrub – *Artemisia californica*	82.5
California sagebrush scrub	California sagebrush scrub – purple sage	393.5
California sagebrush scrub	Disturbed California sagebrush scrub – purple sage scrub	4.5
California sagebrush scrub – black sage scrub		196.3
California sagebrush scrub – California buckwheat		310.0
California sagebrush scrub/undifferentiated chaparral		135.0
California sagebrush scrub/undifferentiated chaparral	Burned California sagebrush scrub/ undifferentiated chaparral	5.2
Coyote brush scrub		9.2
Chaparral Scrub		
Chamise chaparral		55.7
Scrub oak chaparral		1.5
Undifferentiated chaparral		1,106.9
Undifferentiated chaparral	Burned undifferentiated chaparral	957.2
Other Scrubs		
Eriodictyon scrub		0.2
Upland Woodland and Savannah		
California walnut woodland		27.2
Coast live oak woodland		757.8
Mixed oak woodland		168.9
Valley oak woodland		79.4
Valley oak woodland	Valley oak/grass	461.4

TABLE 3. Vegetation Communities and Land Cover Types within the RMDP Area (continued)

Vegetation Community/Land Cover Type	Associations	Total Acreage
Riparian Waters and Wetlands		
Bulrush–cattail wetland		1.4
Cismontane alkali marsh		18.6
Coastal and valley freshwater marsh		2.0
Herbaceous wetland		183.1
River wash		290.0
Riparian Scrub		
Alluvial scrub		1.0
Arrow weed scrub		18.7
Big sagebrush scrub		76.5
Big sagebrush - California buckwheat		0.5
Giant reed		5.6
Mexican elderberry		12.8
Mexican elderberry	Disturbed Mexican elderberry	0.3
Mulefat scrub		71.5
Southern willow scrub		22.7
Shrub tamarisk		2.8
Riparian Forest Woodland		
Southern coast live oak riparian forest		0.7
Southern cottonwood-willow riparian forest		358.3
Land Covers		
Agriculture		1,576.4
Developed land[1]		0.5
Disturbed land[2]		1,080.6
Total		**13,651.1**

[1] Developed land refers to areas supporting manmade structures including homes, yards, roadways, and other highly modified lands supporting structures associated with dwellings or other permanent structures. Within the RMDP area, developed land refers to existing roads.

[2] Disturbed land typically occurs in areas where soils have been recently or repeatedly disturbed by grading or compaction resulting in the growth of very few native perennials, and are usually dominated by bare ground or non-native dicotyledonous species including filaree (*Erodium* spp.), black mustard, thistles (e.g., *Cynara cardunculus*, *Carduus pycnocephalus*, and *Centaurea melitensis*), dove weed, and others.

The action area is topographically diverse, with slope gradients ranging from moderate to steep in the hillsides to very gentle in the Santa Clara River floodplain and in major tributary canyons. Two large mesas (i.e., Grapevine Mesa and Airport Mesa) are adjacent to the Santa Clara River. The primary ridges are east-, west-, and northwest-trending, with secondary ridges trending north and south. Distinctive ridges within the action area include Sawtooth Ridge, along the northeastern side of Long Canyon, and Round Mountain at the northern edge of Potrero Canyon. Site elevations range from 825 feet above mean sea level in the Santa Clara River bottom at the Ventura County/Los Angeles County line to approximately 3,200 feet on the ridgeline of the Santa Susana Mountains along the southern boundary.

Past Consultations in the Vicinity of the Action Area

The Service has issued numerous biological opinions for actions that have occurred or will occur within the vicinity of the action area for this consultation. In all cases, the Service determined that the proposed action was not likely to jeopardize the continued existence of, nor destroy or

adversely modify the critical habitat of, the least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, or coastal California gnatcatcher. Appendix A shows the level of take we anticipated in each of the biological opinions issued in the action area and vicinity.

Least Bell's Vireo

Least Bell's vireos have been observed within the action area during focused bird surveys, which were conducted annually from 1993 to 2007 following surveys according to Service protocol for this species. Least Bell's vireos nested in the River corridor on-site in every year surveys were conducted (Guthrie 1993, 1995, 1996, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006; Labinger and Greaves 1995, 1996, 1997, 1999; Bloom Biological 2007). According to Bloom Biological (2007), at least 56 territories and three active nests occurred along the Santa Clara River and adjacent floodplains within and immediately surrounding the RMDP area (Interstate 5 Bridge west to Las Brisas Bridge). The species is associated primarily with the Santa Clara River mainstem; all observations of nesting and transient individuals were within this area. The number of observations of this species in the vicinity of the action area suggests that least Bell's vireos regularly use riparian habitat in the Santa Clara River corridor in and around the site for breeding and foraging as well as during migration.

Within the action area, the primary nesting habitat (southern cottonwood-willow riparian forest, southern coast live oak riparian forest, southern willow scrub, mulefat scrub, arrow weed scrub, and Mexican elderberry scrub and woodland,) of the least Bell's vireo occurs along the Santa Clara River and Castaic Creek. Based upon the figures in Table 3, primary nesting habitat for least Bell's vireos totals 485 acres. Some suitable nesting habitat may exist in the other drainages within the action area (e.g., Potrero Canyon and Salt Creek). The scientific literature indicates that native upland shrubland and woodland habitat adjacent to nesting habitat may be used for foraging as well, especially late in the breeding season; the majority of habitat for upland foraging occurs within 100 feet of the riparian zone (Kus and Miner 1989). Specific locations of suitable nesting riparian habitat with adjacent upland foraging habitat occur within the action area, generally along the south side of the Santa Clara River.

Appendix A shows that in past biological opinions in the vicinity of the action area, we anticipated the cumulative projects would result in take of 39 least Bell's vireos and 1.68 acres of designated critical habitat. None of these biological opinions resulted in jeopardy or adverse modification determinations. During the period over which these biological opinions were issued, the least Bell's vireo population along the Santa Clara River has grown (Service 2006).

Critical Habitat for the Least Bell's Vireo

The Santa Clara River is within critical habitat Unit 2. This unit includes approximately 4,409 acres, which extends for approximately 12 miles beginning in the vicinity of Rancho Camulos in Ventura County and ending in the vicinity of Rye Canyon Road in Los Angeles County. The critical habitat rule does not define any specific conservation function for this unit. We assume

that it is intended to serve the same function as the overall designation, which is to conserve known populations of least Bell's vireo through the section 7 consultation mechanism.

The action area includes approximately 2,252 acres of critical habitat. According to the response to a comment in the final rule concerning refinement of the critical habitat,

> "In cases where areas designated as critical habitat do not contain the primary constituent elements, impacts occurring within this area will not result in a finding of adverse modification by the Service. Thus, designation of critical habitat will not effect [sic] those areas within the legal critical habitat boundaries that do not contain vireo nesting or foraging habitat." (59 FR 4845).

A total of 443 acres of the 2,252-acre critical habitat unit within the RMDP area supports the primary constituent elements of critical habitat for the least Bell's vireo (Corps and CDFG 2010). The remaining 1,809 acres are agricultural fields, oil production, and other uses that have removed the natural vegetation. By further calculation, of those 2,252 acres, approximately 1,408 acres are within the footprint of the proposed development (the Specific Plan area). Most of the habitat in these 1,408 acres is upland habitat which does not support the PCEs of least Bell's vireo critical habitat.

Draft Recovery Plan for the Least Bell's vireo

The draft recovery plan for the least Bell's vireo identified 14 vireo "population/metapopulation units," including the Santa Clara River population unit. The draft recovery plan does not identify the geographic limits of the Santa Clara River population unit, simply stating that "habitat for the [vireo] occurs in patches along much of the river, with location and quality varying from year to year as conditions in the river change following winter storm events." The draft recovery plan does not specify the recovery function of the Santa Clara River unit.

Southwestern Willow Flycatcher

Willow flycatchers (possibly *E.t. extimus, E. t. adastus,* or *E. t. brewsteri*) have been detected almost every year within the river corridor in the action area during the focused bird surveys. All observations of willow flycatchers within the region have been concluded to be migrants because they were only detected once, or were only detected during the first two survey periods and not during the survey period between June 22 and July 17 when only the southwestern willow flycatcher would be present. While the migrant willow flycatchers observed could include the southwestern willow flycatcher, no southwestern willow flycatchers exhibiting nesting, paired, or territorial behavior have been observed in the action area.

The most recent observation of confirmed breeding southwestern willow flycatchers along the Santa Clara River was in 2009, when one pair nested within the vicinity of the Santa Paula Water Recycling Facility (approximately 24 miles downstream of the RMDP area). This pair successfully fledged one chick (Davenport 2009). Another observation of confirmed breeding southwestern willow flycatchers along the Santa Clara River was in 2006, when two pairs nested

near Fillmore (approximately 11 miles downstream of the RMDP area), one successfully. The California Natural Diversity Database (CDFG 2010a) also lists one occurrence of nesting southwestern willow flycatchers in the Santa Clara River corridor upstream of the action area, along Soledad Canyon Road near Agua Dulce, in 1997.

Within the action area, suitable willow flycatcher habitat exists in southern willow scrub, southern coast live oak riparian forest, and southern cottonwood–willow riparian forest, which occur predominantly in the Santa Clara River as well as a portion of Castaic Creek and Salt Creek. Based upon the figures in Table 1, suitable southwestern willow flycatcher habitat totals 382 acres. Suitable southwestern willow flycatcher habitat on-site has been surveyed annually from 1999 to 2007 according to Service protocol for this species. Between 1993 and 1998, surveys were conducted in conjunction with surveys for least Bell's vireo and although protocol southwestern willow flycatcher surveys were not conducted during these years, observations of non-breeding willow flycatchers were recorded. The most recent protocol survey (Bloom Biological 2007) was conducted by surveying all potential and marginally potential habitat by slowly walking and stopping to listen for calls and songs over a 2.5-mile stretch (0.25 to 0.75 miles wide) of the Santa Clara River and its tributaries within and adjacent to the RMDP area.

Currently, the action area appears to be a migratory stop for willow flycatchers. Nesting populations of the southwestern willow flycatcher have not been detected on-site.

Appendix A shows that in past biological opinions in the vicinity of the action area, we anticipated that, cumulatively, the projects would result in take of 9 southwestern willow flycatchers. None of these biological opinions resulted in jeopardy determinations.

Recovery Plan for Southwestern Willow Flycatcher

The action area is located within the Coastal California Recovery Unit of the final recovery plan. Within the Santa Clara River, the reach from Bouquet Canyon Road to the Pacific Ocean, which crosses through the action area, has been identified as a Management Unit where recovery actions should be focused (Service 2002). Specifically, the metapopulation in his management unit has been identified for increased population stability and enhancement. The minimum number of territories targeted for this management unit before the southwestern willow flycatcher can be reclassified to threatened is 25.

California Condor

Surveys for the California condor were included as part of other raptor and avian species surveys that were conducted along the Santa Clara River (Bloom Biological 2007). The entire survey area consisted of approximately 25 miles of the Santa Clara River and its major tributaries, which included the entire stretch of the river within the action area.

California condors are known to exist and nest in the Sespe Condor Sanctuary approximately 13 miles northwest of the action area. As opportunistic scavengers, California condors can travel up to 139 miles per day (Wilbur 1978; Meretsky and Snyder 1992; Snyder and Snyder 2000). In

recent history California condors in Ventura and Los Angeles counties had extensive foraging habitat in the southern portion of their range, including the Simi Hills, Thousand Oaks, Santa Susana Mountains, and the Antelope Valley. Beginning in the 1950s, much of this area began to go through extensive land use change, from undeveloped land to commercial and residential development and changes in agricultural practices which reduced the extent of suitable foraging habitat.

California condors traveling between the roosting and nesting areas of the Sespe Condor Sanctuary and extensive portions of the Los Padres National Forest and the San Gabriel Mountains travel along the northern ridges and foothills east of Hopper Canyon and north of the Santa Clara River Valley, and cross the valley to the south where they pick up the Santa Susana Mountains as an extension of their flyway to the east. Flying conditions are excellent for the birds as they take advantage of prevailing winds coming up the Santa Clara River Valley and thermals rising off the grassland and chaparral hillsides on both sides of the Santa Clara and Simi Valleys.

Since 2000, a number of condors in the population have been fitted with either satellite or Global Positioning System (GPS) transmitters, which produce GPS coordinates. These coordinates can pinpoint topographically the exact location for each bird at any given moment. California condors released at the Hopper Mountain National Wildlife Refuge north of Fillmore soon discovered the excellent flying conditions of the Santa Clara Valley and the San Gabriel Mountains, and began exploring these areas. A favorite destination for the birds was Kagel Mountain in the San Gabriel Mountains, a well-known launch site for paragliders and hanggliders. The obvious attraction is the excellent flying conditions. Flights from Hopper Mountain to the San Gabriel Mountains take birds directly over the action area.

As described in the introduction for the species, California condors are obligate scavengers, constantly surveying the landscape for potential food sources. The RMDP area offers excellent foraging habitat for California condors; an open grassland oak-savanna landscape with domestic cattle and native deer populations.

Historical records for the RMDP area documented in the McBee archives, a system developed in the mid 1960's by Service research biologists studying the species, record all known California condor sightings up through 1986. The earliest known records from the RMDP area are from 1935 in an interview conducted by Carl Koford in 1940, with a Mr. Hackney, orchard foreman of Newhall Ranch. Carl Koford describes the interview as follows: "…..5 to 6 years ago he and his brother saw 7 to 8 condors on Tapo Ridge at a carcass. They were on the road, and as they drew near, the birds took off. They seemed very clumsy on the ground and took off downhill to the North. Mr. Hackney thinks this observation took place in May or June. He recognized the birds by the large size and white patches under the wing." A second historical sighting relayed to Mr. Koford on June 3, 1940, by a Mr. Villa regarding condors in Tapo Canyon state: "condors were most numerous in winter by far. He said he had seen great numbers-perhaps 100-at a time in winter (1938-1939 winter especially)." The observations of Mr. Villa would corroborate

observations by staff of the Condor Recovery Program in the southern part of the condor's range. Condor numbers increase in the southern part of the range during winter months when flying conditions in the foothills of the San Joaquin Valley are less optimal due to tule fog and overcast conditions.

In the 1974 California Condor Recovery Plan, mention is also made of the importance of grassland foraging habitat south of the Santa Clara River Corridor. Under Appendix A, titled Action Plan Narrative outside the Sespe-Piru area, "Food and feeding habitat", the Recovery Plan states, "Through contact with Ventura County Planning departments and other groups and individuals, encourage zoning, land use agreements, legislation, etc., that will result in large areas of open space within the present condor range being retained with few disturbances and with an optimum complement of livestock. *Emphasis should be placed on the Big Mountain-Oak Ridge area south of the Santa Clara Valley, as this is a historically used condor feeding area, and is the largest area of open range in close proximity to the Sespe Condor Sanctuary.*" (emphasis is the author's). Since this was written, additional areas of potential foraging habitat have been lost in the Simi Valley foothills and surrounding areas making this area of additional concern.

Recent condor use of the RMDP area has been documented by visual observations and GPS data (Table 4). Twenty-five out of 46 condors are now wearing GPS transmitters in southern California. These transmitters give hourly locations (coordinates) for each bird throughout most daylight hours. The ability to download this data on a daily basis greatly increases the accuracy of tracking individual bird movements and determining high use areas.

TABLE 4. California Condor Records on Newhall Ranch in 2008 and 2009.

Condor (by number)	Date of Record	Behavior	Notes
SB #79	1/26/09	Perched, flying	Likely associated with cow carcass documented by C. Niemela on 1/30/09.
	1/27/09	Perched, flying	
	4/11/09	Flying	Likely associated with cow carcass found by G. Grisdale on 4/24/09.
	4/15/09	Perched, flying	
	4/16/09	Perched, flying	
SB #107	4/10/08	Ground	
	1/27/09	Perched	Likely associated with cow carcass documented by C. Niemela on 1/30/09.
	4/16/09	Flying, perched	Likely associated with cow carcass found by G. Grisdale on 4/24/09.
SB #125	4/24/09	Flying, perched	Likely associated with cow carcass found by G. Grisdale on 4/24/09.
SB #156	4/2/08	Flying, perched	
	4/3/08	Flying	
	4/4/08	Ground	

TABLE 4. California Condor Records on Newhall Ranch in 2008 and 2009. (continued)

Condor (by number)	Date of Record	Behavior	Notes
	4/6/08	Ground	
	4/7/08	Ground	
	5/20/08	Ground	
	5/24/08	Ground	
	5/25/08	Ground	
	6/3/08	Ground	
SB #161	4/3/08	Ground	

On several days during April through July of 2008, staff from Hopper Mountain National Wildlife Refuge detected via GPS transmitters that California condors had landed within the action area. Peter Bloom (biological consultant to Newhall Land) went to the landing and confirmed that there was a domestic cow carcass that had been scavenged and that there was "white wash" at the site of the carcass. This observation shows that, although the RMDP area does not provide suitable nesting habitat for California Condors, this opportunistic species does at least sporadically forage over the higher-elevation areas of the site, including the High Country SMA region where more exposed terrain and updrafts likely occur. Additionally, as the California condor population increases, California condors may fly more frequently over the action area on their way to foraging opportunities

No other biological opinions have been issued for the California condor in the vicinity of the RMDP area. We have issued biological opinions to the U.S. Forest Service for effects of ongoing activities (e.g., road maintenance) on the California condor in the Los Padres National Forest and to the Bureau of Land Management for the leasing of an oil pad site near the Sespe Condor area. Neither of these biological opinions concluded that the actions would result in jeopardy of the California condor, nor did they anticipate that any injury or mortality would result from the proposed actions.

Recovery Plan for the California Condor

The California condor recovery plan identifies a series of geography-specific activities (Service 1996) to assist in the recovery of the condor. The recovery plan does not propose any recovery activities in the action area. The nearest recovery activity area relative to the action area is the Sespe–Piru Condor Area.

Arroyo Toad

Studies by Bloom Biological (2009) and Impact Sciences (2001, 2002a) concluded that nearly all of the suitable arroyo toad habitat within the action area occurs between the banks of the Santa Clara River (excluding adjacent uplands) and within its associated tributaries. This suggests that suitable habitat exists within the action area for breeding adults and arroyo toad tadpoles; however, beyond the outer banks, both natural topography and human activities provide either an inaccessible or inhospitable environment for dispersing juvenile and/or adult arroyo toads. Furthermore, much of the upland habitat beyond the banks of the river and its tributaries does not support habitat for adult arroyo toads. The only areas where suitable, accessible, upland foraging

habitat exists are on the southern side of the Santa Clara River (primarily California sagebrush scrub vegetation). These areas were designated as being of moderate habitat quality by Impact Sciences (2001). Only a few such areas exist where access by adult toads would not be constrained by either very dense vegetation or steep banks (Bloom Biological 2007).

During surveys conducted in May and September of 2000, six arroyo toad tadpoles were identified by Aquatic Consulting Services (2002a, 2002d) at five locations within the action area. Although several protocol surveys were conducted after 2000 for all life stages of arroyo toads, including eggs, larvae, juveniles, and adults (SMEA 1995; RECON 1999; Impact Sciences 2001, 2002a; Aquatic Consulting Services 2002a, 2002b, 2002c, 2002d), no other arroyo toads were been identified within the action area..

In portions of the Santa Clara River watershed upstream of the action area, adult toads have been documented in limited numbers along the river and tributaries. One adult toad was identified within approximately 0.31 mile of the action area's upper limit (CNDDB 2010c). Other documented occurrences of arroyo toad in the upper Santa Clara River watershed (but outside the action area boundaries) include:

- Santa Clara River just east of Interstate 5; one individual captured and released on July 20, 1994 (CNDDB 2010c), located approximately 2 river miles from the action area; however, a portion of the action area (upland and not within the river) is located approximately 0.25 mile away from this occurrence. This upland area between the occurrence and the action area is already developed and urbanized. Therefore, the principle connection between the action area and the known record is along the 2 river miles.
- Castaic Creek; occurrences have been documented on Department of Water Resources land and the Angeles National Forest, both above and below Castaic Lake Reservoir (70 FR 19562), located approximately 12 river miles upstream from the action area.
- Upper San Francisquito Creek; calling male arroyo toads observed in 1997 near the old Saint Francis Dam (70 FR 19562), located approximately 12 river miles upstream from the action area.
- Upper San Francisquito Creek; recent surveys (presumably on USFS land) "found evidence of the species" in the drainage (70 FR 19562), approximately 8.5 river miles upstream of the action area.
- Santa Clara River; report of six arroyo toad tadpoles adjacent to Castaic Junction in 2000 (CNDDB 2010c), which is within the action area.
- Santa Clara River; four adult arroyo toads reported by Sandburg (2001) near the confluence with San Francisquito Creek (unpublished notes sent to the Service), located approximately 3 river miles upstream of the action area.
- Santa Clara River; a single adult was observed near the confluence with San Francisquito Creek (Impact Sciences 2002a), located approximately 3 river miles upstream of the action area.

- Soledad Canyon area; 75 tadpoles reported from 3 sites located approximately 11 miles east of the Interstate 5 crossing (Sandburg 2001), located approximately 17 river miles upstream of the action area.
- Santa Clara River; in 2003, Ramirez reported "recent observations of arroyo toads and eggs" in the vicinity of the confluence with San Francisquito Creek (Ramirez 2003), located approximately 3 river miles upstream of the action area.

The survey protocol for the arroyo toad (Service 1999) states that areas within 0.62 mile of arroyo toad sites (documented by the presence of eggs, tadpoles, juveniles, or adults) that have suitable habitat will be presumed to have arroyo toads. Given that a known adult arroyo toad occurrence has been identified within 0.62 mile of the site boundary and six tadpoles were located in the action area, and because the riverine habitat within the action area is contiguous, the arroyo toad may be present anywhere suitable habitat for the species occurs within the action area. URS (2010) reports that the action area supports approximately 1,476.3 acres of potential arroyo toad habitat (Figure 5-2 of the biological assessment).

Although the action area supports suitable habitat for the arroyo toad and tadpoles have been reported within the action area, only a low number of tadpoles, and no adult or subadult arroyo toads, have been observed within the action area despite multiple survey efforts conducted over more than a decade. Additionally, the CNDDB (2010c) lists no arroyo toad sightings within the portion of the action area between the RMDP area and the "dry gap," several miles downstream in eastern Ventura County. Work by Impact Sciences (2001, 2002a, 2002b) suggests that, because the upland habitat is not suitable for adult arroyo toad foraging within the action area, it is possible that arroyo toad numbers were never high in this portion of the Santa Clara River. Bloom Biological (2007) suggests that there may be many factors responsible for the absence of arroyo toads from the action area, including stream contaminants, predation by African clawed frogs and bullfrogs, disease, irregular pulses of water in the river, and reduced arthropod food supply.

Regardless of explanation, data from the systematic surveys that have been conducted to date appear to support the conclusion that no resident breeding population of this species is currently present within the action area (SMEA 1995; RECON 1999; Impact Sciences 2001, 2002a; Aquatic Consulting Services 2002a, 2002b, 2002c, 2002d). Additionally, the arroyo toad is likely extirpated from the portion of the Santa Clara River from Castaic Creek downstream to the Ventura County line (Bloom Biological 2007). However, given the presence of upstream populations of arroyo toad, tadpole observations in the eastern portion of the action area (within the Santa Clara River), and the presence of high quality habitat throughout the reach of the Santa Clara River and Castaic Creek on the site, the potential exists for the arroyo toad to occur in the portions of the Santa Clara River and Castaic Creek within the action area as well as in surrounding riparian and upland areas.

Appendix A shows that in past biological opinions in the vicinity of the action area, we anticipated the projects would result in take of 11 arroyo toads in total. None of these biological

opinions resulted in jeopardy determinations. During the period over which these biological opinions were issued, the population of arroyo toads in the action area has apparently declined. Past observations have not been repeated despite surveys for aquatic species during which arroyo toads would have been observed.

Critical Habitat for the Arroyo Toad

The Santa Clara River is within critical habitat Unit 6. This unit is located in northwestern Los Angeles County and consists of three subunits totaling 2,802 acres. The action area lies within critical habitat subunit 6b, which encompasses approximately 2.6 miles of Castaic Creek from the downstream edge of the Old Road right-of-way down to the confluence with the Santa Clara River, 6 miles of the Santa Clara River from the confluence with Bouquet Creek down to the confluence with Castaic Creek, and 1.1 mile of San Francisquito Creek from Newhall Ranch Road downstream to the confluence with the Santa Clara River. This subunit consists of 1,003 acres. The conservation function of this unit is as a connection between the known populations of arroyo toad in tributaries to the Santa Clara River, and to accommodate natural population expansion and fluctuation.

The action area includes approximately 413.1 acres of critical habitat for the arroyo toad. The physical and biological features essential for the conservation of the arroyo toad found in this subunit include: breeding pools in low-gradient stream segments with sandy substrate, seasonal flood flows, and riparian habitat and upland benches for foraging and dispersal (i.e., primary constituent elements).

According to the final rule (76 FR 7246),

> "When determining revisions to critical habitat boundaries for this final rule, we made every effort to avoid developed areas, such as lands covered by buildings, pavement, and other structures, because such lands lack PCEs for the arroyo toad. We did not designate some areas if habitat was highly degraded and not likely restorable, nor did we designate areas that were highly fragmented or isolated. Such areas provide little or no long-term conservation value and do not support the physical and biological features essential to the conservation of the arroyo toad. Agricultural lands may have been included if they were within areas identified as necessary for dispersal or connectivity between known occurrences. However, we avoided known areas of intensive agriculture that lacked the PCEs for the arroyo toad. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this revised critical habitat are excluded by text in this final rule. Therefore, Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification, unless the specific action may affect adjacent critical habitat.

Consequently, while the boundary of the critical habitat includes 413.1 acres within the RMDP area, some of the lands within those 413.1 acres may be "excluded by text" because they do not contain the PCEs. Newhall estimates[2] that of the 413.1 acres of designated critical habitat within the RMDP area, approximately 71.4 acres do not contain the PCEs identified in the arroyo toad critical habitat, and 341.7 acres do contain the PCEs. This figure is based upon exclusion of heavily cultivated fields, oil production areas, and areas of permanent disturbance that were included within the limits of designated critical habitat and not excluded because of the scale of the maps.

Recovery Plan for the Arroyo Toad

The Santa Clara River basin is included in Subregion 7 of the Northern Recovery Unit in the recovery plan for the arroyo toad (Service 1999). More specifically, waterways included in this Recovery Unit Subregion include Sespe Creek, Piru Creek, Agua Blanca Creek, Castaic Creek, San Francisquito Creek, and Bouquet Creek (Service 1999). The inclusion of these waterways is based on current or historical occurrences of arroyo toad in portions of the drainages. The main stem of the Santa Clara River is not directly identified in the recovery plan as having a conservation role in the recovery strategy for the species.

Unarmored Threespine Stickleback

ENTRIX (2009) conducted surveys for the unarmored threespine stickleback in 2004 and 2005 within the reach of the Santa Clara River mainstem within the action area. Where flows were present, the tributary drainages of Salt Canyon, Potrero Canyon, Long Canyon, San Martinez Grande Canyon, Chiquito Canyon, Humble Canyon, Lion Canyon, and Middle Canyon were surveyed using dip nets and seines. At certain locations, bank observation was utilized when other techniques were not feasible due to access issues.

ENTRIX (2009) surveyed for unarmored threespine stickleback habitat attributes between Salt Creek Canyon and The Old Road Bridge. The survey recorded habitat type, length and mean width, mean and maximum depth, substrate composition, water and air temperature, and percent edgewater vegetation.

Additional surveys for the unarmored threespine stickleback were conducted in 1988, 1995, 2000, 2002 through 2005 and 2007 (Aquatic Consulting Services 2002a, 2002b, 2002c, 2002d; ENTRIX 2009, Haglund 1989; Impact Sciences 2003a, 2003b, 2003c, 2003d). The unarmored threespine stickleback was observed during surveys within the Santa Clara River portion of the Newhall Ranch Specific Plan in 1988, 1995, 2000, 2002, 2003, and 2007 (Aquatic Consulting Services 2002a, 2002b, 2002c, 2002d; ENTRIX 2009; Haglund 1989; Impact Sciences 2003a, 2003b, 2003c).

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[2] We reviewed maps and aerial photographs of the action area with Newhall's representatives and agree that their estimates are and conclusions are valid. Maps showing the acreages and boundaries were provided by Newhall and are on file at the Ventura Fish and Wildlife Office.

On August 24, 2009, Service staff along with biologists from the U.S. Geological Survey (USGS), San Marino Associates, and Newhall Land and Farming staff surveyed the Santa Clara River beginning at its confluence with San Francisquito Creek downstream to the Las Brisas Bridge. Approximately 60 unarmored threespine sticklebacks were detected in the vicinity of the Santa Clara River and San Francisquito confluence. Approximately 60 more unarmored threespine sticklebacks were detected immediately downstream of The Old Road Bridge. No unarmored threespine sticklebacks were detected below the Valencia waste water treatment plant (Chris Dellith, Service, pers. obs. 2009).

Suitable habitat for this species is present throughout the reach of the Santa Clara River within the action area (approximately 5 river miles), although the locations of the habitat change temporally with changes in river morphology. No suitable unarmored threespine stickleback habitat, with the exception of Castaic Creek, is present in tributaries to the Santa Clara River within the action area (ENTRIX 2009). The unarmored threespine stickleback is found in all sections of the Santa Clara River within the action area.

Appendix A shows that in past biological opinions in the vicinity of the action area, we anticipated that cumulatively, the projects would result in take of 68 unarmored threespine stickleback. None of these biological opinions resulted in jeopardy determinations.

Recovery Plan for the Unarmored Threespine Stickleback
The unarmored threespine stickleback recovery plan (Revised) was published in 1985 (Service 1985). The recovery plan designated three areas as very important for the survival and recovery of the species: (1) two disjunct reaches of the Santa Clara River in Los Angeles County; (2) a short reach of San Francisquito Canyon; and (3) and the lowermost 8.4 miles in San Antonio Creek in Santa Barbara County. One of the reaches in the Santa Clara River is the area from San Martinez Grande Canyon upstream to the I-5 Bridge, which runs through the action area. The recovery plan does not specify the recovery function of any of the units.

Coastal California Gnatcatcher
The coastal California gnatcatcher was not detected within the RMDP area during annual surveys between 1993 and 2008 (Bloom Biological 2007a; Dudek 2006; Guthrie 2000a, 2000b, 2004a, 2004d, 2004e; Impact Sciences 2000; SAIC 2003) and surveys according to Service protocol for this species in 2000 (Guthrie 2000a, 2000b, 2000c; Impact Sciences 2000), in 2004 (Guthrie 2004a, 2004b, 2004d, 2004e and 2004g), in 2007 (Dudek 2007b), and in 2008 (Dudek 2008); however, an individual coastal California gnatcatcher was observed on August 8 and August 15, 2008, within the RMDP area by Dudek biologist Traci Caddy, during monitoring for improvements of the Del Valle Training Center Road, located south of the town of Val Verde, off Chiquito Canyon and east of the Del Valle Training Center. The August 15 observation occurred during construction monitoring, when the individual was observed for approximately 5 minutes in California sagebrush-California buckwheat scrub before it flew west. The coastal California gnatcatcher was not observed for the remaining 3 weeks of construction monitoring, which terminated on September 15, 2008. Given the time of year and because no other coastal

California gnatcatchers have ever been detected within the RMDP area (despite extensive focused and general surveys), these observations are suspected to have been dispersing or transient individuals, perhaps from isolated populations of coastal California gnatcatchers that have been periodically observed to the east of the RMDP area. A second individual coastal California gnatcatcher was observed on October 5, 2007, by Dudek biologist Jeff Priest and biologist Ron Francis, a sub-consultant to Dave Crawford, Compliance Biology, Inc., at the Valencia Commerce Center (VCC) project site, adjacent to the RMDP area (Dudek 2007c). This observation occurred for approximately 8 to 10 minutes within the VCC planning area in coastal scrub habitat located on the hills in the north-central portion of the site, on an easterly-facing slope.

The action area supports approximately 4,126 acres of suitable habitat (i.e., California sagebrush scrub) for the coastal California gnatcatcher. Based on the amount of suitable habitat onsite, the number of coastal California gnatcatchers currently known to occur in Los Angeles and Ventura counties, and the species range of territory sizes, we believe that the action area could theoretically contain from 152 to 343 coastal California gnatcatcher pairs. Other documented occurrences of coastal California gnatcatcher in the vicinity of the action area (but outside the action area boundaries) have been detected or are known to occur approximately:

- 3.9 miles south of the action area in Las Virgenes Canyon in Calabasas;
- 9.2 miles southwest of the action area near Little Simi Valley;
- 14 miles southwest of the action area adjacent to Tierra Rejada Road and borders the western boundary of the City of Simi Valley;
- 16 miles southwest of the action area near the intersection of State Route 23 and Tierra Rejada Road in Moorpark;
- 10 miles southwest of the action area near California Lutheran University in Thousand Oaks;
- 5 miles northeast of the action area near the intersection of Lowridge Place and San Francisquito Canyon Road in Santa Clarita;
- 7 miles northeast of the action area near the junction of Haskell Canyon and Bouquet Canyon in Santa Clarita;
- 11 miles east of the action area near the intersection of Live Oaks Spring and Sand Canyon Road in Santa Clarita;
- 8 miles southeast of the action area near the intersection of Golden Valley Road and Sierra Highway in Santa Clarita; and
- 12 miles southeast of the action area near the intersection of Odyssey Dive and Blucher Avenue in Granada Hills.

Appendix A shows that in past biological opinions in the vicinity of the action area, we anticipated that cumulatively, the projects would result in take of two coastal California gnatcatchers and loss of approximately 389 acres of designated critical habitat. None of these biological opinions resulted in jeopardy or adverse modification determinations. During the period over which these biological opinions were issued, more coastal California gnatcatchers have been observed; however, we do not know whether these additional observations are due to

population increases or greater survey efforts. Also, since the biological opinions were issued that analyzed coastal California gnatcatcher critical habitat, the critical habitat rule has been revised and no longer includes any critical habitat in the region.

While we estimate that, based on suitable habitat, the potential exists for up to 343 pairs of coastal California gnatcatcher in the action area (based upon suitable habitat and published range sizes), the actual number of coastal California gnatcatchers observed in the action area following 15 years of avian surveys is one individual bird. This bird was not located during subsequent surveys, so we conclude it was either a transient or at the edge of its territory. In any case, we have no evidence that the action area supports the estimated number of coastal California gnatcatcher pairs that we calculated based on suitable habitat. Notwithstanding the potential for large numbers of coastal California gnatcatchers based on habitat availability, we conclude from the known records that one coastal California gnatcatcher is present in the action area.

Spotlight Species Action Plan

The SSAP (Service 2009) states that the target of recovery efforts is to improve the population status of the coastal California gnatcatcher by increasing the size of coastal California gnatcatcher populations and improving habitat quality at selected sites within regional HCP/NCCPs that burned in the past 10 years. Although portions of the action area burned during fires in 2007, the action area is not within a designated regional HCP/NCCP selected for restoration under the SSAP; however the SSAP's general recovery goal of improving the population status of the California gnatcatcher can be applied to the RMDP area, and we conclude that the goal would be to increase the size of coastal California gnatcatcher populations in the plan area.

EFFECTS ANALYSIS

The RMDP area is located in northern Los Angeles and eastern Ventura counties, and encompasses approximately 13,651 acres. The proposed action under review is the issuance of an individual 404 permit by the Corps. As detailed earlier in this opinion in the Project Description section, issuance of the permit is necessary to enable construction of development associated with the RMDP. Therefore, we consider the impacts of the development project itself to be an indirect effect of the Corps permit and thus include the development project in our analysis of impacts. At build-out, the proposed development would result in permanent impacts to approximately 4,907 acres of existing vegetation communities and land covers, representing 36 percent of the RMDP area. Of the six species potentially affected by the proposed action (i.e., the least Bell's vireo, southwestern willow flycatcher, California condor, coastal California gnatcatcher, arroyo toad, and unarmored threespine stickleback), four species are dependent upon aquatic and riparian habitat. In total, the build-out would result in the permanent removal of approximately 184 acres of riparian vegetation, representing 13.1 percent of the vegetation within RMDP area. The coastal California gnatcatcher occurs in coastal scrub habitats. In total, the build-out would result in the permanent removal of approximately 1,458 acres of coastal scrub communities, representing 10.2 percent of these communities within the RMDP area.

In addition to the permanent loss of the riparian vegetation and other land covers, there would be both direct and indirect effects to the least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, and coastal California gnatcatcher. Some of these effects would be the result of the following: habitat loss; habituation; use of herbicides and pesticides; maintenance activities; nonpoint-source pollution; project-related fugitive dust; project-related noise: project-related ground vibration; project-related night lighting; predation and resource competition by pets and non-native animal species; invasion by exotic plant species; introduction of diseases; project-related trash; and urbanization. Specific effects of these factors and activities are described below, under the sub-heading for each of the respective species covered in this consultation; however, a general discussion of urbanization, which would directly and indirectly affect the least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, and coastal California gnatcatcher is provided in the following paragraphs.

Development for urban use involves clearing of existing vegetation. Larger urban developments also often involve earth-moving activities resulting in topographical recontouring. Urban development typically results in buildings, roads, and other infrastructure, such as pipeline installation, which are permanent. Without active management in the form of habitat restoration, sites formerly supporting native vegetation (e.g., coastal sage scrub) that have undergone severe disturbance (like heavy equipment and earth moving activities) take decades to recover (Stylinski and Allen 1999). Clearing for fire abatement (e.g., fire breaks, fuel breaks) is done to protect urban and agricultural areas and similarly involves vegetation clearing and often tilling, and can thus result in adverse effects to listed species.

Residential and commercial development (i.e., urbanization) adjacent to or upstream of a water course can lead to the loss of freshwater fish and an increase in non-native species (Marchetti et al. 2006). Nonpoint-source pollution and habitat alteration often result from urbanization. One of these sources of pollutants is stormwater run-off, which is the byproduct of the construction of roadways or structures that reduce the permeability of urban watersheds. Stormwater run-off resulting from urbanization conveys large amounts of organic matter; pesticides; and fertilizers; heavy metals; hydrocarbons; oil and grease; and other debris into streams and wetlands. Skinner et al. (1999) found that developed watersheds had greater concentrations of toxic pollutants than less developed areas with more open space. The decrease in water quality can have negative impacts on native aquatic and riparian species (Moyle 2002).

In the sections that follow, we analyze the effects of project components on individuals of the species and their habitats. The impact of these combined effects on the survival and recovery of each species is summarized at the end of each analysis and re-stated in detail in the Conclusion section that follows these analyses.

Least Bell's Vireo and Southwestern Willow Flycatcher
Because these species generally occupy the same habitat types, we expect that the effects to least Bell's vireo and southwestern willow flycatcher due to the proposed project will be similar; therefore we have combined the analysis for these two species. Loss of riparian habitat would diminish available foraging habitat for least Bell's vireos and southwestern willow flycatchers. Project-related fugitive dust, noise and ground vibration, and night lighting, contact with polluted runoff, and human activity near habitat occupied by least Bell's vireos and southwestern willow flycatchers could disturb individuals to the extent that they could abandon foraging and breeding habitat. In particular, construction-related noise, vibration, and night lighting could adversely affect nesting and breeding behavior, resulting in a decrease in nesting success. Specific Plan build-out would convert lands adjacent to the river corridor to urban uses and could potentially result in adverse edge effects on least Bell's vireo and southwestern willow flycatcher populations within the river corridor. Long-term potential secondary impacts include harassment by humans, predation by pets and non-native animal species, invasion by exotic plant species such as giant reed and tamarisk, increased trash, increased native and non-native mesopredators (e.g., striped skunks (*Mephitis mephitis*), raccoons, and Virginia opossums (*Didelphis virginiana*)) as a result of increased habitat fragmentation, degraded water quality, hydrologic and geomorphic alterations, noise, and night lighting. Least Bell's vireos and southwestern willow flycatchers often react strongly to the close approach of humans, particularly when nestling or fledgling young are also present. Moreover, human disturbances may compromise least Bell's vireo nesting (Salata 1987). Anecdotal evidence further suggests that human presence can attract predators to least Bell's vireo and southwestern willow flycatcher habitat areas. Predators and cowbirds may both be capable of "homing in" on agitated least Bell's vireos and southwestern willow flycatchers, and subsequently destroy or parasitize nearby nests (The Nature Conservancy 1997, Chace et al. 2002). Project-induced alterations, reductions, or disturbances of occupied and potential least Bell's vireo habitat and an increased human presence may induce higher rates of cowbird parasitism and nest depredation (RECON 1989, Pike and Hays 1992).

Construction activities that completely remove habitat reduce availability of breeding, nesting, and foraging sites for least Bell's vireos and southwestern willow flycatcher. Even if habitat modification activities occur outside of the breeding season for these subspecies, the reduction of nesting and foraging habitat could adversely affect individual least Bell's vireos and southwestern willow flycatchers by reducing the available resources for individuals' subsequent reproduction. Least Bell's vireos and southwestern willow flycatchers typically return to established breeding territories year after year (Greaves and Labinger 1997, Salata 1983, Sogge 2000, Sedgewick 2000). In a study on the San Diego River (Beck 1996), a banded population of least Bell's vireo generally returned year after year with only minor adjustments in territory location. Further, loss of habitat may cause the returning least Bell's vireos or southwestern willow flycatchers to adjust or shift their territories. When shifting territories, least Bell's vireos or southwestern willow flycatcher could experience decreased fitness due to increased energy and time spent competing for a new territory. A shift in territories could result in a delay in the initiation of nest building, fewer nesting attempts per season, a reduced clutch size per attempt,

and an overall reduction in reproductive output. Loss of habitat, even temporarily, may cause the birds to seek out another area in which to nest, either permanently or until the site has been revegetated and restored. Although the RMDP area is not expected to be fully restored for several years following construction activities, restoration of the disturbed areas and removal of invasive, exotic vegetation, would help minimize the long-term effects on the least Bell's vireos and southwestern willow flycatcher from the project related to habitat degradation.

In specific terms, Newhall's construction-related activities (e.g., vegetation removal and movement of equipment in construction zones) would result in the permanent loss of 77 acres of least Bell's vireo nesting and foraging habitat. Based upon the published territory sizes for the least Bell's vireo (0.5 to 7.5 acres/pair) and assuming a uniform distribution of territories and saturation of suitable habitat and the area of permanently affected habitat, the project activities could theoretically result in the permanent direct loss of habitat for 10 to 154 pairs of least Bell's vireos. Approximately 41 acres of suitable least Bell's vireo nesting and foraging habitat would be temporarily affected as a result of project construction (temporarily affected habitat includes disturbed areas that would be subject to restoration or would not have permanent structures or roads). Based upon the published territory sizes for the least Bell's vireo (0.5 to 7.5 acres/pair) and assuming a uniform distribution of territories and saturation of suitable habitat and the area of temporarily affected habitat, the project activities could theoretically result in the temporary loss of habitat for 5 to 82 pairs of least Bell's vireos.

Newhall's construction-related activities would result in the permanent loss (direct and indirect) of 23.1 acres of suitable breeding and foraging habitat for the southwestern willow flycatcher. Based on the range of territory sizes for southwestern willow flycatcher (0.15 to 5.7 acres/pair) and assuming a uniform distribution of territories and saturation of suitable habitat and the amount of suitable habitat for this species that could be lost, the project activities could result in the direct loss of 4 to 154 southwestern willow flycatcher territories due to permanent habitat loss. Approximately 30 acres of suitable southwestern willow flycatcher nesting and foraging habitat would be temporarily affected as a result of project construction. By similar calculation, approximately 5 to 200 southwestern willow flycatcher territories could be adversely affected as a result of temporary impacts.

Least Bell's vireos and southwestern willow flycatcher may attempt to nest in uncleared riparian habitat near any development during periods when construction activity or project-related noise is temporarily halted, minimized, or in a different location. If construction activity or noise increases once a least Bell's vireo or southwestern willow flycatcher pair has established a nest or breeding territory near the project activities, the pair may abandon their nest, resulting in a failed breeding attempt and unnecessary expenditure of energy.

Accidental releases of contaminants (e.g., fuels, oil, pesticides, etc.) into the riparian area or water may negatively affect the quality of the habitat for the least Bell's vireo and southwestern willow flycatcher by killing native plants used for nesting or foraging and decreasing the prey base. Maintenance of flood, drainage, and water quality protection facilities also has the

potential to cause injury or mortality of least Bell's vireos and southwestern willow flycatchers due to destruction of nests; however, to reduce or eliminate such effects, Newhall would implement minimization and avoidance measures described in the RMDP.

Polluted run-off from construction activities as well as long-term adverse effects to water quality also have the potential to cause harm to individual least Bell's vireos and southwestern willow flycatchers; however, compliance with the construction general permit (Order No. 99-08-DWQ) mandates that construction-related non-stormwater discharges do not cause or contribute to violation of any clean water standards. Also, Project Design Features of the RMDP would limit stormwater pollutant levels in the long term.

The development proposed within the RMDP area would preclude least Bell's vireo or southwestern willow flycatcher from nesting within the immediate vicinity of residential or commercial development for two reasons related to predation. The first predation problem is the introduction of non-native predators, specifically cats, which can prey on least Bell's vireo or southwestern willow flycatcher adults, young and eggs. Cats are known to have a great impact on native animals, especially birds (Jurek 1994). The presence of cats extends the negative effects of the development well into adjacent habitat and could eliminate any nesting attempts by least Bell's vireo and southwestern willow flycatcher in the future, even if the habitat adjacent to development is preserved. Second, residential development may result in the control of native predators, such as coyote (*Canis latrans*). Coyotes are known to suppress the populations of smaller predators, such as cats, grey foxes (*Urocyon cinereoargenteus*), and Virginia opossums that also prey upon nesting birds. In the absence of coyotes, populations of these smaller predators may increase, and native birds that nest in riparian habitat, including the least Bell's vireo and southwestern willow flycatcher, may decline or be eliminated (Soulé *et al.* 1988).

In addition to the predator problems, housing and commercial development introduces a suite of other indirect effects. These include night lighting, noise, introduction of non-native plants, increased irrigation and surface water runoff, and potential contamination by pesticides used by residents. Furthermore, human activity in least Bell's vireo and southwestern willow flycatcher breeding habitat such as hiking, exploring, recreational shooting, and walking unleashed dogs could flush birds away from nests, or disturb adults to such a degree that reproductive attempts are unsuccessful. The combined impact of these effects would be to reduce the suitability of the habitat for least Bell's vireo and southwestern willow flycatcher.

Chronic traffic noise associated with roads and bridges in close proximity to potential breeding habitat in the river corridor could have adverse effects on the establishment of breeding territories and reproductive success. Birds rely on auditory signals in the form of songs, and alarm or scolding calls, to establish and defend territories, attract a mate, feed and care for young at the nest, and to locate and evade a potential predator (e.g., Scherzinger 1979). Construction and the use of heavy equipment can result in noise and vibration impacts which are thought to be potentially harmful to a variety of bird species (Gunn and Livingston 1974, RECON 1989, Pike and Hays 1992).

We have used 60 dBA as a practical threshold above which significant impacts to the least Bell's vireo and southwestern willow flycatcher might occur. The 60dBA threshold is considered average conversation level and is typically the level encountered under ambient conditions (i.e., without noise sources such as vehicles or tools). Based upon this threshold, RECON (1989) estimated that noise levels above 60 dBA from March 15 to September 15 may impact least Bell's vireo reproductive success. While least Bell's vireos often continue to occupy areas subject to noise levels above 60 dBA, one study has documented significantly reduced reproductive success due to noise impacts (U.S. Marine Corps 1995). We expect that above some yet unknown noise threshold, least Bell's vireos, as well as southwestern willow flycatcher, could abandon an otherwise suitable habitat area. Greaves (1989) hypothesized that the lack of breeding least Bell's vireos in apparently suitable habitat is due to noise from human presence (e.g., bulldozers, off-highway vehicles, and hiker travel). Therefore, unabated noise resulting from construction activities may interfere with the reception of auditory signals by least Bell's vireo and southwestern willow flycatcher potentially resulting in increased predation, lowered reproductive success and/or abandonment of otherwise suitable habitat. Dudek (2007d) conducted a traffic noise study that indicates least Bell's vireos currently nest in close proximity to State Route-126 in areas where noise levels somewhat exceed 60 dBA.

The noise model for the proposed RMDP shows that the large majority of the riparian zone in the river corridor would have noise levels less than 65 dBA (except at two bridge crossings) and, thus, levels not substantially greater than existing conditions. The noise levels at the two bridges would affect at least three known least Bell's vireo territories. One known least Bell's vireo territory would be affected by noise as a result of increased traffic along Highway 126. In terms of suitable habitat for both the least Bell's vireos and southwestern willow flycatcher, 332.3 acres would be affected by noise. Within this suitable habitat, approximately seven known territories of least Bell's vireo would be affected by noise. No known territories of the southwestern willow flycatcher would be affected.

Night lighting associated with roads and bridges in close proximity to potential breeding habitat for least Bell's vireos and southwestern willow flycatchers in the river corridor could have adverse effects on the establishment of breeding territories and reproductive success for both species. Construction-related and long-term lighting secondary impacts, may impede the establishment of breeding territories and reproductive success both in the short-term and long-term.

Despite the amount of suitable habitat for the least Bell's vireos and southwestern willow flycatcher that would be permanently and temporarily affected by the project, and the number of territories for each species that could hypothetically be present, the data for the action area indicate that neither species is as abundant in the action area as measurements based solely on territory size and acreage of suitable habitat would indicate. The highest census for least Bell's vireos recorded 56 territories within the action area. Of those 56 known territories, none would be directly removed by project activities. Impacts to the least Bell's vireo are expected to result solely from indirect effects (e.g., noise), and the indirect effects would extend only into 1 of the

known 56 territories (based upon the 60dBA noise contour). The total effect of the project on the known least Bell's vireo territories would be the potential loss of 1 out of 56. Rangewide, this number is small in comparison to the most recent census data for the species that indicates an increase in the number of territories from 298 at the time of listing to 2,968 (Service 2006). With the measures proposed by the applicant to address other threats to the least Bell's vireo (e.g. cowbird trapping, habitat restoration), the impact on the species rangewide would be minimal.

For the southwestern willow flycatcher, no territories have been recorded within the action despite several years of survey effort. Therefore, we assume no territories would be lost as a result of the project. Impacts to the southwestern willow flycatcher would be limited to loss of habitat used by migrating individuals for foraging and resting. Because much more suitable habitat for those activities would remain intact after the project due to measures proposed by the applicant (e.g., preservation of riparian habitat), we expect that the impact of the project on the southwestern willow flycatcher rangewide to be negligible. No active or known nesting habitat would be lost and the species should not decline in numbers or distribution as a result of the RMDP project.

As described in the recovery plan for the southwestern willow flycatcher (Service 2002) and in the draft recovery plan for the least Bell's vireo (Service 1998), the recovery strategies for both species focus on five tasks: (1) protecting and/or restoring habitat, (2) reducing cowbird nest parasitism, (3) reducing influx of exotic species, (4) researching life histories of the species, and (5) increasing public education about the species (Service 2002, Service 1998). Although the action under review has the potential to adversely affect least Bell's vireo and southwestern willow flycatcher, and will result in the permanent loss and temporary disturbance of habitat for both species, these impacts should be minimized through implementation of conservation measures. Mainly, the applicant proposes to preserve and restore riparian habitat and implement cowbird trapping. These measures are consistent with the recovery tasks listed above and, as a result, the proposed project should not impede attainment of the recovery goals for the two species. Impacts to suitable habitat should be offset by riparian and upland restoration and enhancement activities that will provide suitable habitat for least Bell's vireo and southwestern willow flycatcher (See Dudek 2010, Mitigation Measures BIO-1 through BIO-16).

To the extent the RMDP will cause changes in hydrology, these impacts are expected to be minimal and largely offset by hydro-modification control measures (e.g., a combination of drop structures/grade stabilizers and bank stabilization to maintain sediment equilibrium and protect the channel bed and banks). Also, the Santa Clara River system is dynamic and undergoes cyclical flooding, scouring, and successional revegetation, and we do not expect the hydrological changes resulting from the proposed project will change those dynamics. Consequently, changes to hydrology are not expected to have a substantial effect on suitable habitat for the least Bell's vireo and southwestern willow flycatcher.

The suite of RMDP mitigation measures also includes a cowbird trapping program and strategies for the removal and control of exotic plant species, such as giant reed, which degrade habitat

necessary for least Bell's vireo and southwestern willow flycatcher (see Dudek 2010, Mitigation Measures BIO-78; SP-4.6-11, SP-4.6-15, BIO-6, BIO-10). The proposed cowbird trapping will help alleviate the nest parasitism that has contributed to the decline of both species throughout their respective ranges and should help increase nesting success (or allow nesting by southwestern willow flycatchers which are not currently known to nest in the action area). The proposed restoration and exotic plant removal measures should increase the amount of available and suitable habitat for both species, and help offset the habitat losses that would occur.

As to the remaining two recovery goals – species research and public education – the proposed action either advances these objectives or is task-neutral. For example, previously adopted mitigation measures for the Newhall Specific Plan require extensive pre-construction surveys for least Bell's vireo and southwestern willow flycatcher. These surveys add to the store of publicly-available data on these species. The RMDP also includes a program for educating homeowners as to the wildlife surrounding residential developments (Dudek 2010, Mitigation Measure BIO-63).

The proposed action also is subject to a host of pollution-control measures that will reduce secondary effects on least Bell's vireo and southwestern willow flycatcher. These include measures to maintain water quality in riparian areas (see Dudek 2010, Mitigation Measures SP-4.2-6, SP-4.2-7, WQ-1, WQ-2). Furthermore, noise impacts on the species should be controlled to minimize impacts on the birds (Dudek 2010, Mitigation Measure BIO-56.)

We conclude that the proposed action, as modified by the RMDP proposed mitigation measures, should not appreciably reduce the reproduction, numbers, or distribution of either the least Bell's vireo or southwestern willow flycatcher. The total effect of the project on the known least Bell's vireo territories would be the potential loss of 1 out of 56. Rangewide, this number is negligible in comparison to the most recent census data for the species that indicates an increase in the number of territories from 298 at the time of listing to 2,968 (Service 2006). No southwestern willow flycatcher territories would be lost as a result of the project; no active or known nesting habitat would be lost and the species should not decline in number or distribution as a result of the RMDP project. Impacts to the southwestern willow flycatcher would be limited to loss of habitat used by migrating individuals for foraging and resting. Because much more suitable habitat for those activities would remain intact after the project due to measures proposed by the applicant (e.g., preservation of riparian habitat), we expect that the impact of the project on the southwestern willow flycatcher rangewide to be negligible. Most of the existing suitable habitat for both species would be preserved in the action area, and the applicant has proposed specific measures (e.g., cowbird trapping, exotic plant removal, habitat restoration, maintenance of current hydrological conditions, etc.) to address likely sources of adverse effects that could result from the action, as described above.

Critical Habitat for the Least Bell's Vireo

Critical habitat Unit 2 comprises approximately 4,409 acres, of which approximately 2,252 acres are within the RMDP area. Of those 2,252 acres, approximately 1,408 acres are within the

footprint of the proposed development (the Specific Plan area). For its proposed development, Newhall selected areas within the RMDP and the critical habitat where native habitat has been replaced by other uses, such as agriculture, cattle grazing, and oil production. Most of these are upland areas which do not support the PCEs of least Bell's vireo critical habitat. According to the response to a comment in the final rule concerning refinement of the critical habitat, "In cases where areas designated as critical habitat do not contain the primary constituent elements, impacts occurring within this area will not result in a finding of adverse modification by the Service. Thus, designation of critical habitat will not effect [sic] those areas within the legal critical habitat boundaries that do not contain vireo nesting or foraging habitat." (59 FR 4845).

According to the Final EIR/EIS (Corps and CDFG 2010), a total of 443 acres of the 2,252-acre critical habitat unit within the RMDP area supports the primary constituent elements of critical habitat for the least Bell's vireo. The remaining 1,809 acres are agricultural fields, or are in oil production or other uses that have removed the natural vegetation. Of the 443 acres, 408 acres are southern willow scrub, southern cottonwood–willow riparian forest, mulefat scrub, arrow weed scrub, and Mexican elderberry scrub and woodland, which are breeding/foraging habitats for the least Bell's vireo. The other 35 acres are riparian/wetland and upland shrub habitats (big sagebrush scrub, alluvial scrub, sagebrush scrubs, chaparral, and coyote brush scrub) and woodlands (coast live oak, valley oak) within 100 feet of nesting/foraging habitat that may be used for foraging, especially in the latter part of the breeding season.

Overall, the construction of RMDP facilities and build-out of the Specific Plan area will result in the permanent loss of 62 acres of the 443 acres of critical habitat containing primary constituent elements. An additional 49 acres of critical habitat that contain the primary constituent elements, including 48 acres of nesting/foraging habitat and 0.8 acre of foraging habitat only, would be temporarily impacted as a result of implementation of the RMDP. Restoration and enhancement components of the RMDP would create an additional 139 acres of riparian/wetland habitat in the Santa Clara River corridor within the critical habitat unit.

In addition to the direct habitat impacts described above, implementation of the proposed RMDP and build-out of the Specific Plan could also potentially modify natural watershed and stream hydrologic and geomorphologic function/processes within the action area by increasing volumes and duration of flow via increased runoff from impervious surfaces and drainage infrastructure. Increased flow could also result in the modification of riparian communities. Sediment-transport modeling by Pacific Advanced Civil Engineering determined that the total floodplain area within the Santa Clara River exposed to potentially erosive velocities would increase for only the five-year and 20-year flood events (PACE 2010). These changes to stream hydrology and geomorphic function/processes could adversely affect the primary constituent elements for the least Bell's vireo by changing the vegetative structure in certain areas; however, the Santa Clara River system is naturally subject to a flood/scour/regrowth cycle and the changes that could occur to the PCEs at these locations would be masked by the normal processes. Localized erosion could result from high flow around outlet structures, access ramps, and bridge abutments. These adverse effects would be offset by a decrease in acres exposed to erosive velocities in two-

year, 10-year, 50-year, 100-year, and capital flood events (PACE 2010). Consequently, the critical habitat unit and its function should remain intact and not be substantially affected by changes to the hydrology of the watershed.

As noted here and in the Environmental Baseline, of the 2, 252 acres of the critical habitat unit within the action area, only 443 acres within the action area support the PCEs. Approximately 62 acres of this 443 acres (14 percent) would be permanently lost due to the proposed actions The additional 49 acres of critical habitat that would be temporarily affected would be restored, as well as an additional 139 acres that do not currently support the PCEs. We conclude that the permanent loss of the 62 acres and temporary loss of 49 acres would be offset by successful restoration/creation of 139 acres of riparian/wetland habitat in the Santa Clara River corridor in the critical habitat unit (the success of restoration would be monitored and reported to the Corps and CDFG pursuant to the measures proposed by the applicant, see Appendix B), and that the recovery function of the critical habitat unit will remain intact.

Summary of the Effects on the Least Bell's Vireo and Southwestern Willow Flycatcher
Because we do not expect any direct impacts to least Bell's vireos, and indirect effects to only 4 known territories, we have concluded that the proposed project would not reduce the reproduction, numbers, or distribution of the species to the point where it would reduce appreciably the likelihood of the species' survival and recovery. In addition, the applicant has proposed numerous measures to protect and restore suitable habitat for the least Bell's vireo and these measures should further reduce the impacts of the project on the species. Similarly for the southwestern willow flycatcher, because none have been recorded nesting in the action area, the few observed have likely been migrants, and much of the suitable habitat for the species would remain intact, we also do not expect the RMDP project to reduce the southwestern willow flycatcher's reproduction, numbers, or distribution in the wild or adversely affect recovery of the species.

For the critical habitat of the least Bell's vireo, we conclude that the loss of a small proportion of the unit would not interfere appreciably with the survival or recovery function of either the unit or the entire critical habitat designation. The lost habitat is at the periphery of the unit's boundaries and not in a location where it would fragment the critical habitat unit or result in the loss of the function of the critical habitat. The majority of the critical habitat would continue to support the PCEs where they currently exist and provide habitat for the recovering least Bell's vireo population. Also, considering the entire critical habitat designation of 38,000 acres statewide, the proposed effects are relatively small and should not diminish the value of the critical habitat overall for recovery of the species. While the critical habitat rule does not define any specific conservation function for this unit, we ascribe to the unit the same function as the overall designation, which is to conserve known populations of least Bell's vireo through the section 7 consultation mechanism. Given the relatively small impact of the RMDP project on least Bell's vireo and the restoration efforts incorporated into the project that will create PCEs within the unit where they currently do not exist, we conclude that the recovery function of the critical habitat designation will not be diminished. The number of acres within the unit with

functioning PCEs will increase as a result of implementation of the project following restoration of up to 139 acres of riparian habitat (compared to approximately 62 acres permanently lost). We therefore conclude that the proposed action is not likely to appreciably diminish the value of critical habitat for the survival or recovery of the least Bell's vireo.

California Condor

California condors are highly social, inquisitive, and intelligent animals, and by nature are attracted to areas of activity. In the early years of release, California condors showed little wariness of humans and human structures because there were no older wild mentor birds in the release population. Young newly released California condors were attracted to houses and other human structures where they found objects and items to stimulate their curiosity. They also showed little fear of humans. A great deal of effort was expended flushing and hazing birds from human habitation, and with regard to a number of individuals, this procedure was effective; however, at least 19 birds strongly exhibiting this human attraction behavior had to be permanently removed from the wild and placed in the captive breeding program.

Evidence from monitoring this behavior suggests that some California condors, depending upon the individual condor's tendencies, may continue to exhibit their attraction to humans and human structures, while others may react to the hazing or other deterrent actions, and begin to spend less and less time around humans and human habitation. Birds that do not react to discouragement techniques become habituated to humans and their activities, and seem to be drawn to close contact with humans. California condors that become attracted to human activity and structures are more susceptible to being shot, fed harmful foods, being struck by vehicles, ingesting toxic substances (e.g., coolant, rodenticides), collisions with structures, ingesting microtrash, and other forms of injury.

California condors that do not respond to deterrence must be removed from the wild for their own safety and to minimize the transference of such behaviors to other members of the flock. Such individuals are no longer part of the wild flock and cannot contribute to the species' survival and recovery in the wild. While physical injury to a condor in the traditional sense may not always occur, such as injury due to ingestion of harmful foods (i.e., foods that do not meet the condor's nutritional requirements, such as dog food or cooked meat), the habituation of condors to human presence nevertheless injures condors because habituation significantly disrupts essential behavioral patterns of individual birds and prevents them from surviving successfully in the wild. For instance, a habituated bird may seek out humans for proffered food rather than forage and hunt in the wild for carrion. The ability to successfully forage and hunt for food is essential for the survival of a condor in the wild. Habituation interferes with feeding and other essential behaviors and compels the capture of the bird for its own safety and the safety of other condors. We thus consider habituation necessitating capture of a condor as an injury to the bird – a form of "harm" within the definition of take under the Act. The removal of an individual from the wild flock also harms the species as a whole because it reduces the size of an already small wild population while it struggles to recover. The individual may still contribute to recovery of the species through participation in the captive-breeding program;

however, the goal of recovery is wild reproduction, to which birds remanded to captivity do not contribute.

The applicant has proposed minimize the potential for habituation by having a qualified biologist with knowledge of California condors to monitor construction activities within the action area. The biologist would be present at all times during clearing and grubbing of construction areas. During mass grading, construction sites would be monitored on a daily basis. The authorized biologist would have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed landing in the action area, the applicant would avoid further construction within 500 feet of the sighting until the animals have left the area, or as otherwise authorized by CDFG and the Service. All condor sightings in the action area are required to be reported to CDFG and the Service within 24 hours of the sighting. Should condors be found roosting within 0.5 mile of the construction area, no construction activity would occur between one hour before sunset to 1 hour after sunrise, or until the condors leave the area, or as otherwise directed by the Service. Should condors be found nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization occurs from CDFG and the Service.

To further protect California condor from negative interactions with humans and/or artificial structures, the applicant (or the applicant's agents managing the preserved open space) would remove dead cattle that are found or reported within 1,000 feet of a residential or commercial development boundary. Dead cattle would be relocated to a predetermined location within the High Country SMA or Salt Creek area. The locations where carcasses would be placed would be a minimum of 1,000 feet from a development area boundary. Appropriate locations for transfer of carcasses include open grasslands and oak/grassland areas where condors can readily detect carcasses and easily land and take off without encountering physical obstacles such as powerlines and other utility structures. The proposed locations would be selected and approved by the CDFG and the Service. Pursuant to this measure, a telephone number for reporting dead cattle would be provided and actively maintained. Any cattle carcasses transferred to the relocation areas would be reported to the Service.

The measures outlined above would help minimize the potential for condors to become habituated to new structures in the action area. However, over the 25-year period that this biological opinion is in effect, we cannot rule out the likelihood that such habituation would still occur. We do not think habituation would be a frequent event because condors only rarely occur in the action area, and even then such visits mainly occur when they are attracted to a food item. The measures to move carcasses away from development should reduce those instances. But condors remain intelligent and curious, and as their population increases and they expand their exploration of their historical range, we think at least one instance of habituation may still occur within the 25-year period.

Irrespective of the potential for habituation, garbage and debris left out by construction workers while conducting project activities could be detrimental to California condors. Such small items

include: bottle caps, nails, screws, nuts, washers, rags, electrical components, and wire. California condors have been known to ingest these and similar items. Between 2001 and 2010, of the 29 California condor chicks hatched in the wild, 25 were determined to have micro-trash in their digestive tracts, 10 died as a result, others were removed from the wild for recuperation, and two had emergency surgery and were returned to the wild (Service 2010a). Newhall has proposed to require that all construction areas be kept clean of debris, such as cable, trash, and construction materials. The applicant proposes to collect all microtrash and litter, vehicle fluids, and food waste from construction areas on a daily basis. Workers would be trained on what constitutes microtrash, its potential effects on California condors, and how to avoid the deposition of microtrash. These measures should avoid microtrash ingestion by California condors at construction sites.

California condors may collide with exposed power lines erected to deliver power to development areas. Powerlines that span canyons or are located along ridge lines would be the most dangerous for flying California condors. Collision with power lines has been one of the leading causes of recent California condor injury and mortality, especially for young birds. Six immature California condors have been recovered below power lines in southern California, three of those near the Hopper Mountain National Wildlife Refuge; another five condors have collided with power lines in the northern portion of their range in Central California. Several of these were near the Ventana Wilderness Area. California condors can also be electrocuted by power lines if the lines are spaced too closely.

The applicant proposes to install utility poles, phone, and cell towers in conformance with APLIC standards for collision-reducing techniques (APLIC 2006). The effectiveness of the APLIC guidelines may depend upon the location of new powerlines; the measures are less likely to be effective where the powerlines span canyons or are located along ridgelines where California condors are more likely to be soaring due to favorable wind patterns. To that end, the proposed avoidance and minimization measures state that the location of powerlines would be coordinated with CDFG and the Service[3] to ensure that new powerlines and poles in the High Country SMA (where condors are most likely to occur) would be situated where collisions by condors would be avoided. Because the Service and CDFG would not approve any towers or powerlines that would pose a collision hazard to condors, combined with implementation of the APLIC guidelines, we conclude that the potential for such collisions to occur is eliminated. Although condor use of the area is currently low, we expect that use to increase as the population gets larger and the birds explore more of their historical range. Consequently, we will take any increased use of the action area into consideration if powerline or tower installation is proposed in areas that could be used by condors.

The proposed project would result in the loss of some foraging habitat for the California condor within the RMDP area (i.e., condors fed on calf carcasses in Potrero Canyon in 2008 and 2009).

[3] The original measure (BIO-81) did not include the Service. The applicant agreed upon consultation to include the Service in the approval process so that this agency would be satisfied that collision potential was eliminated. BIO-81 has been revised in Appendix B to reflect the changes.

Construction activities and the corresponding removal of cattle from the lower canyons and urban development would eliminate foraging options; however, much of the canyon landscape within the action area is marginally to severely degraded and only small sections are now conducive to grazing range for cattle. Until recently, the few historical records of condor feeding were restricted to the upper elevations (Tapo Canyon and Ridge on the eastern edge of the Ranch property boundary) and with the removal of cattle from the lower canyons only upper elevations would remain available foraging habitat for condors. The protection of the oak-savannah upper elevations (High Country SMA and Salt Creek Area) in permanent conservation easements and ownership in the amount of 5,722 acres would continue to provide suitable foraging habitat for condors, especially if these areas are managed for cow/calf operations. A native deer population should provide some feeding opportunities in the preserved lands.

The proposed action includes measures intended to avoid and/or minimize most of the adverse effects described above. We believe the measures should reduce the potential for most these effects on the California condor; however, we believe that despite the measures proposed by the applicant, condor attraction to new structures and human activity in proximity to known foraging and feeding areas may lead to habituation during the 25-year life of this biological opinion, and that such habituation is itself a form of injury to the bird and would necessitate the removal such birds from the wild.

The recovery plan for the California condor focuses on: (1) increasing reproduction in captivity to provide condors for release, (2) release of condors to the wild, (3) minimizing condor mortality factors, (4) maintaining habitat for condor recovery, and (5) implementing condor information and education programs. None of these recovery activities were identified within the action area. The proposed action does not involve captive breeding programs or the release of condors into the wild, and is therefore neutral as to tasks (1) and (2). The proposed action is also neutral as to task (5), although the research required in evaluating the action has increased the amount of publicly-available information on the California condor.

Although none of recovery activities were identified for the action area in the recovery plan, the proposed action does have the potential to affect tasks (3) and (4) – minimizing condor mortality factors and maintaining condor habitat, respectively. As to the first, the major mortality factor affecting the species is lead poisoning, followed by collisions with human structures and ingestion of microtrash. The project area lies within the area of California covered under AB 821, the Ridley-Tree Condor Preservation Act, which prohibits the use of lead hunting ammunition, the leading source of lead poisoning among condors. In addition, hunting of all types will be prohibited in the entire project area, including the High Country SMA and Salt Creek area where condors are most likely to opportunistically forage. Further, the proposed action includes mitigation measures that we anticipate will eliminate the likelihood of bird collisions and microtrash ingestion, including: design and construction of utilities per Avian Power Line Interaction Committee (APLIC 2006) guidelines and operated with anti-perching devices to help reduce collisions and electrocutions of California condors; maintenance of construction areas free of microtrash and other debris; and biological monitoring by a qualified

biologist during construction activities (URS 2010). Therefore, the proposed action will complement efforts to minimize condor mortality factors.

With respect to maintaining condor habitat in the RMDP area over the long term, the proposed action will cause the loss of known foraging/feeding areas for the condor. Construction activities and the corresponding removal of cattle from the lower canyons and urban development would eliminate foraging options in some of the lower canyons; however, much of the canyon landscape within the action area is marginally to severely degraded and only small sections are now conducive to grazing range for cattle. Until recently, the few historical records of condor feeding were restricted to the upper elevations (Tapo Canyon and Ridge on the eastern edge of the Ranch property boundary) and with the removal of cattle from the lower canyons those upper elevations would remain available foraging habitat for condors. The protection of the oak-savannah upper elevations (High Country SMA and Salt Creek Area) in permanent conservation easements and ownership in the amount of 5,722 acres would continue to provide suitable foraging habitat for condors. A native deer population should provide some feeding opportunities in the preserved lands, and that may be supplemented with current cow/calf operations. While we do not have exact figures for how much foraging/feeding habitat would be lost because condors are opportunistic feeders and can forage over a wide variety of habitat, we believe the lost foraging/feeding habitat is relatively small in comparison to the permanent conservation easements in the High Country SMA and Salt Creek Area totaling more than 5,700 acres.

Summary of Effects on the California Condor

In summary, we conclude that although the proposed project would have some effects on the California condor, we do not believe the impacts would be substantial. The proposed project does introduce urbanization into a currently undeveloped landscape; however, the areas to be developed consist of marginal to severely degraded habitat that provides very limited foraging opportunities for the condor. The condor should continue to expand its use of higher value historical habitat that would be preserved by the project in the High Country SMA and Salt Creek areas, and should occasionally find food during routine foraging bouts over the area. Although there is some potential for individual birds to become habituated, we expect it to be an infrequent occurrence for the reasons cited earlier. With incorporation into the proposed action of various measures to protect the condor and higher quality condor foraging habitat, we do not expect that the action will reduce the reproduction, numbers, or distribution of the species, or impede its recovery.

Arroyo Toad

The analysis of effects of the proposed project on the arroyo toad is hypothetical. The species has not been observed in the action area during aquatic surveys for the last 10 years; however, we do have historical records of its presence and recent observations nearby the action area that indicate the potential for the species' presence during the 25-year permit term.

Development activities could kill, injure or otherwise displace arroyo toads from suitable habitat that are present within the RMDP area. Construction actions have the potential to cause mortality, limit foraging and breeding, and to exclude arroyo toads from portions of the area. Maintenance of bridges and of flood, drainage, and water quality protection features may have similar effects. Development is expected to result in the permanent and temporary losses of suitable arroyo toad habitat.

Implementation of the proposed RMDP would include the construction of bridges and bank stabilization within areas of the Santa Clara River containing high-quality arroyo toad habitat. Maintenance of these features and of other flood, drainage, and water quality protection features, may also result in effects to this habitat. Other construction activities would occur in areas containing moderate- to low-quality habitat. Additionally, build-out of the Specific Plan area would include construction in riparian and upland habitats potentially occupied by arroyo toad. These changes to habitat could result in displacement of individuals, interruption of breeding, and reduction in the availability of habitat for any members of the species present in the action area.

Construction of these features associated with both the RMDP and build-out of the Specific Plan area would require movement of people and equipment in construction areas. Any arroyo toads present could be killed or injured, either on the ground surface or in their burrows, by vehicles and heavy equipment associated with bank stabilization activities, repair, and maintenance. Trench excavation and berm removal could injure or kill arroyo toads by crushing them at the surface or within their burrows. Foot traffic by workers associated with the construction activities, biological surveys, and restoration activities could kill or injure arroyo toads. Revegetation activities involving the use of augers to dig holes for plantings could kill arroyo toads within burrows. The potential for arroyo toads to be killed or injured during these activities would be greatest within riparian habitats when workers are concentrated in those areas, or at night along the access roads and sandy areas when arroyo toads are either actively foraging or moving to or away from the Santa Clara River. The applicant has proposed to have a qualified biologist survey for and relocate any arroyo toads found in construction areas. This measure should reduce the potential for arroyo toads to be killed or injured by people or equipment; however, it is unlikely that if the species is present, all individuals could be detected. Although such effects could result from the proposed action, we do not expect injury or mortality to occur because no arroyo toads have been observed in the action area in approximately 10 years.

Build-out of the Specific Plan area would increase impervious surfaces in the surrounding watershed, which, in the absence of water detention basins and other facilities, would increase surface runoff into the Santa Clara River both within the RMDP area and downstream. Increases in surface runoff could affect any arroyo toads present in the action area by disrupting breeding if flow rates were too high to allow eggs and tadpoles to remain in place. Increased water flows could also cause sedimentation which would bury eggs or displace adults and juveniles. Although such effects to individual arroyo toads could result from the proposed action, we do not

expect them to occur because no arroyo toads have been observed in the action area in approximately 10 years.

The RMDP could affect arroyo toads downstream of work areas through short-term hydrologic or water quality alterations of the river during construction. In addition, RMDP-related work could disperse sediments and pollutants from construction on upland portions of the site into the Santa Clara River. Hydrologic and water-quality-related impacts could include changes to the base flows, changes to the timing and duration of flood flows, discharges of chemical pollutants, increased turbidity and sedimentation, and changes in water temperature due to short-term changes to the active channel morphology. As described above, increases in surface runoff could affect arroyo toads by disrupting breeding if flow rates were too high, and increased water flows could also cause sedimentation which would bury eggs or displace adults and juveniles; however, the Corps and Newhall have proposed avoidance and minimization measures, as well as BMPs (i.e., erosion and sedimentation controls), including restoration of disturbed areas, removal of exotic vegetation and predators, and preservation of existing habitat, which we believe will avoid or reduce the effects on hydrology and water quality alterations on the arroyo toads it the species if found within the action area.

A study by PACE (2010) addressed issues related to the long-term hydrology and geomorphic function of the river and potential long-term impacts. Sediment-transport modeling in the study determined that, with the build-out of the RMDP components and Specific Plan land uses, the total floodplain area exposed to erosive velocities would be lower in most storm events and that, overall, there would be no significant change in erosion and sediment deposition, within the action area or downstream. The study also showed that RMDP components would result in a net decrease in the degradation of geomorphic function on the river. In addition, the impacts of RMDP on Santa Clara River vegetation are expected to be minor, both within the action area and downstream of the action area. Regarding water quality issues, compliance with the construction general permit (Order No. 99-08-DWQ) mandates that construction-related non-stormwater discharges do not cause or contribute to violation of any clean water standards. Project Design Features of the RMDP would reduce stormwater pollutant levels in the long term. The PACE (2010) study also concluded that there would be no significant impacts in water flows, velocities, depth, sedimentation, or floodplain and channel conditions downstream of the RMDP area as a result of the proposed project. These hydraulic effects were also found to be insufficient to alter the amount, location, and nature of aquatic and riparian habitats within the RMDP area. PACE (2010) has further determined that the river would still retain sufficient width to allow natural fluvial processes to continue. As a result, the mosaic of habitats in the Santa Clara River that support the arroyo toad should be maintained, and any populations found within the river corridor would not be substantially affected. Assuming the PACE (2010) study is correct, combined with the avoidance and minimization measures proposed by the applicant, we conclude that the potential effects to the arroyo toad from changes in the stream hydrology and water quality would be minor, and that the remaining potential habitat for the species would continue to support the species if it were present.

The occupancy of the Specific Plan area, over the long term, could result in adverse secondary effects to arroyo toads, if found within the action area . Specifically, the proximity of urban development to suitable arroyo toad habitat could result in disruption of nocturnal activities and greater vulnerability to predation by nocturnal predators (such as owls and coyotes) as a result of nighttime lighting; greater vulnerability to predation by pets, stray, and feral cats and dogs as well as other mesopredators (see Crooks and Soulé 1999); collecting; degradation of habitat from increased human use (e.g., trampling, trash, and off-road vehicles) and altered fire regimes (likely too frequent fire); invasion by exotic plants (e.g., giant reed, tamarisk, and pampas grass) and wildlife species (e.g., bullfrogs, African clawed frogs, exotic fish, and crayfish); and increased risk of roadkill on roads adjacent to any occupied areas, particularly at proposed culvert crossings where vehicles would cross the site's smaller tributary drainages. The applicant has proposed to remove exotic predators and maintain suitable habitat within the Santa Clara River, as well as restrict human access to open space through well-defined trials and restrictions. These measures should be effective at avoiding and minimizing the effects on any toads present in the action area.. Further, because no arroyo toads have been observed in the action area in approximately 10 years of surveys, we have no evidence to suggest that these effects would decrease the numbers or distribution of the arroyo toad.

Project-related noise and activity near habitat occupied by arroyo toads could disturb individuals to the extent that foraging and burrowing behavior could be altered. Although the site is not expected to be fully restored for several years following construction activities, restoration of the site and removal of invasive, exotic vegetation, as proposed by Newhall, would help minimize any potential long-term effects of the project on the arroyo toad related to habitat degradation.

Temporary effects to any arroyo toads present in the action area would result during installation of the bank protection and preparation of the 85-foot construction zone required for bridge construction. When heavy equipment is used in proximity to aquatic habitats, the potential exists that these sensitive areas may be destroyed or degraded. The direct placement of material or runoff of sediments generated by the project into aquatic habitats can result in the loss of habitat values through filling or in the degradation of water quality. Arroyo toads are likely to be particularly sensitive to both direct filling of streams and sedimentation; the shallow pools this species requires for breeding can be destroyed by the addition of relatively small amounts of material, either by direct filling or by the alteration of the sandy and gravelly substrata that the arroyo toad requires. Arroyo toads may also be particularly vulnerable to the release of toxic materials because they generally use aquatic habitats with low flows; under such environmental conditions, toxins may be more concentrated and lethal. Additionally, the slow flows associated with breeding pools may increase the likelihood that fine sediments carried into the pools would remain there smothering eggs and tadpoles.

Runoff from areas where concrete is being used to mix with the soil cement could cause increases in water pH. Substantial increases would kill all life stages of the arroyo toad for some distance downstream of the release; a release of such materials resulted in mortalities of arroyo toads in Mono Creek in the Los Padres National Forest in the early 1990s. The rate of water

flow and amount of released material would affect the distance over which the pH would be altered. Because such effects could extend far beyond the actual work area, this has the ability to affect a larger number of arroyo toads. Equipment storage, maintenance, and staging areas would be located on upland sites and away from the any surface flow. These measures would be effective at reducing the potential for arroyo toad mortality and would reduce the likelihood that toxic materials would inadvertently reach aquatic habitat.

Project personnel associated with the project could travel outside of areas where work is occurring; such activities, particularly with vehicles, could kill or injure arroyo toads and damage their habitat. Flagging of the construction areas may help reduce intrusions. Careless workers could release toxic materials, leave garbage that would attract predators of the arroyo toad, or conduct activities outside of designated areas. Newhall has proposed to limit construction activities in the river bed, and define and mark the limits of project disturbance. These measures should be effective in reducing direct mortality or injury of arroyo toads during bridge and bank protection installation.

Biologists conducting surveys and project monitoring could transmit diseases carried on field equipment and gear used in other places. In some cases, these introduced diseases have had catastrophic effects on amphibian populations. Some evidence exists that other environmental stresses, such as the introduction of chytrid fungus, may exacerbate the effects of diseases on amphibians (Fellers et al. 2001). Chytrid fungus is a water-borne fungus that can be spread through direct contact between aquatic animals and by a spore that can move short distances through the water. The fungus only attacks the parts of an animal's skin that have keratin (thickened skin), such as the mouthparts of tadpoles and the tougher parts of adults' skin, such as the toes. It can decimate amphibian populations, causing fungal dermatitis, which usually results in death in 1 to 2 weeks. Infected animals may spread the fungal spores to other ponds and streams before they die. Once a water body has become infected with chytrid fungus, the fungus stays in the water for an undetermined amount of time. Infected equipment or footwear could introduce chytrid fungus into areas where it did not previously occur. If this occurs in the action area, any arroyo toads present could be affected. The potential for transfer of chytrid fungus on equipment would be effectively reduced or avoided by implementing the declining amphibian population task force code of practice as proposed by the Corps and Newhall (a copy of the guidelines is attached as Appendix C).

Arroyo toads present in the action area in various life stages could be affected by trampling while the site is being accessed, or by installation of fencing material. Impacts to arroyo toad egg masses and tadpoles would be most severe if fencing were installed through occupied breeding pools. Newhall proposes to survey the construction area, including breeding pools, and monitor construction activities in order to avoid arroyo toad egg masses and tadpoles to help reduce the likelihood of arroyo toad deaths. Following the construction of bridge and bank protection, the affected reach of the creek would lack streamside vegetation. This may allow invasive, exotic vegetation to establish and become dominant in the project area, reducing habitat for the arroyo toad. To prevent the spread of exotic vegetation in the project site, Newhall would remove

exotic vegetation from the project area during grubbing operations, and monitor and control infestations of exotic vegetation infestation in the project area during the planned restoration of the riparian habitat.

Some actions proposed by Newhall may involve the use of herbicides to control or eliminate non-native plant species in suitable arroyo toad habitat. The effects of these pesticides and herbicides are not limited to arroyo toad; other aquatic species such the unarmored threespine stickleback may be adversely affected as well and this discussion applies to both species. If Newhall uses herbicides, glyphosate (formulated as Rodeo® or Aquamaster®) is probably the most likely herbicide to be used. Glyphosate is the active ingredient in a variety of herbicides including Roundup®, Rodeo®, Aquamaster®, Buccaneer®, Glyfos®, Honcho®, Touchdown®, Vision®, Duramax®, Rattler®, and others. Glyphosate is a systemic herbicide that will kill broadleaf and grass species by inhibiting the production of aromatic amino acids in plants and some microorganisms that are necessary to build proteins (Devine et al. 1993). Because many animals lack the synthesis pathway that glyphosate disrupts, it is considered to have low potential to cause toxicity in animals (Devine et al. 1993). Most glyphosate products are formulated to contain surfactants that allow the active ingredients to spread over and penetrate the plant cuticles. Surfactants can be the most toxic portion of a pesticide product. The surfactant associated with many glyphosate products is a polyethoxylated tallowamine (POEA) surfactant.

Arroyo toad egg strands, tadpoles, juveniles and adults and all life stages of unarmored threespine stickleback may be exposed to glyphosate products and POEA surfactants in aquatic habitats through direct overspray of wetlands, drift from treated areas, or contaminated runoff from treated areas. The half-life of glyphosate in pond water ranges between 12 days and 10 weeks (Extoxnet 1996). Additionally, juvenile and adult arroyo toads can also be exposed to glyphosate in terrestrial habitats that have been treated. Glyphosate and POEA readily binds to soil particles and can be degraded by microbes in 7 to 70 days depending on soil conditions (Giesy et al. 2000). The half-life of glyphosate in soil can range from three to 249 days and the POEA surfactant in Roundup has a soil half-life of less than one week (USFS 1997).

No information is available regarding the toxicity of glyphosate products specifically to arroyo toads or unarmored threespine stickleback. Studies exploring the lethal and sublethal effects of glyphosate products on other amphibians or fish, including similar frog species classified in the same genus as the arroyo toad (*Anaxryus*) are available but are largely focused on aquatic life stages of the species and formulations of glyphosate that include surfactants. Roundup Original Max®, a glyphosate product with POEA surfactant, was demonstrated to be moderately to highly toxic to nine species of frog and toad tadpoles (Relyea and Jones 2009). Mann and Bidwell (1999) also found evidence of acute toxicity to four Australian frog species exposed to Roundup, ® while the isopropylamine (IPA) salt of glyphosate (the active constituent in Roundup®) was found to be non-toxic. The mortality of tadpoles is hypothesized to be caused by the lysis of gill cells from exposure to surfactants (Lajmanovich et al. 2003, Edington et al. 2004) resulting in either to asphyxiation or loss of osmotic stability (Able 1974) indicating that the life stage during

which frogs and toads have gills may be particularly vulnerable. Glyphosate products containing POEA surfactants have also been shown to have sub-lethal effects to amphibians including decreased size, increased time to metamorphosis, tail malformations, and gonadal abnormalities (Govindarajulu 2008, Howe et al. 2004).

Several studies suggest that the toxicity of glyphosate products is linked with the surfactant, and not the glyphosate. Howe et al. (2004) compared the toxicity of glyphosate alone, to glyphosate with POEA surfactant, and POEA alone, on green frogs. Results indicated that the toxicity of glyphosate with POEA surfactant was similar to the POEA surfactant alone, which was much greater than glyphosate alone, indicating that the POEA was responsible for the toxic effects. In a comprehensive review of studies involving the effects of glyphosate on amphibians Govindarajulu (2008) concluded that the toxic effect of glyphosate products containing POEA are due to the POEA rather than the active glyphosate ingredient.

These studies indicate that glyphosate products formulated with POEA surfactants will likely kill or injure arroyo toads in aquatic habitats, with tadpoles being particularly vulnerable. Because glyphosate and POEA readily bind to soil and sediments, these chemicals may be less available to arroyo toads in terrestrial habitats; however, research is needed to determine toxicity mechanisms and thresholds from terrestrial exposure. Based on the literature (Howe 2004, Govindarajulu 2008), adverse effects to arroyo toads from the use of glyphosate products can be minimized through the use of products that do not contain a surfactant. Formulations that lack a surfactant include Rodeo and Aquamaster, which have been approved by the Environmental Protection Agency, through their registration process, for aquatic use.

A low-toxicity, non-POEA surfactant that works well with Rodeo® or Aquamaster® is Agri-Dex®, produced by Helena Chemicals. We are not aware of any information regarding the toxicity of Agri-Dex® on amphibians, but based on the data available, Monheit et al. (2004) concluded crop oil-based surfactants (i.e., Agri-Dex®) are probably less acutely toxic to fish, aquatic invertebrates and one frog species tested, than some other types of surfactants. The amount of Agri-Dex® that resulted in acute toxicity (i.e., >1000 parts per million (ppm) (Helena Chemical Company 2004, Washington State Department of Ecology and Agriculture 2004) was levels of magnitude higher than other surfactants tested including POEA (1.6 to 0.65ppm in Haller and Stocker 2003, Giesy et al. 2000, Folmar et al. 1979). It is important to note that so called crop oil-based surfactants, which suggest these products are vegetable-based, are actually petroleum products (USFS 1997). There could be sub-lethal adverse effects or long-term adverse effects to arroyo toads from chronic exposure to these chemicals that have not been documented. Overall, Agri-Dex® may be less toxic than other surfactants, but the use of glyphosate without a surfactant is probably even less toxic to the arroyo toads.

Herbicides may be used anywhere within the RMDP area in areas where non-native plants are to be controlled. Within suitable arroyo toad habitat, herbicides are most likely to be used to control giant reed and tamarisk. According to Table 3, the RMDP area supports approximately 5.6 acres of giant reed and 2.8 acres of tamarisk. Therefore, the project could result in the

application of herbicides over 8.4 acres of suitable arroyo toad habitat. This is approximately 0.6 percent of the total suitable arroyo toad habitat in the RMPD area. The removal of these non-native plants would be beneficial to the arroyo toad.

Adverse effects from herbicides may be reduced by measures proposed in section 7 of the RMDP, incorporated here by reference (e.g., Mitigation Measure E-3 requires the use of Rodeo® and Agri-Dex® in certain circumstances). The measures in section 7 of the RMDP are designed to avoid impacts to endangered species and minimize impacts to other riparian resources (Dudek 2010). They include species-specific measures, such as surveying for individuals of the listed species each day prior to beginning work activities and clearly demarcating all treatment areas, to avoid and minimize direct and indirect contact of the herbicides with unarmored threespine stickleback and arroyo toads, if any are present in the area, that are foraging or moving about. If surfactants are required, Newhall will be restricted to using non-ionic chemicals, such as Agri-Dex, which are approved for aquatic use (Dudek 2010) and are the least toxic alternative to aquatic species like the arroyo toad and unarmored threespine stickleback. Combined with the small proportion of suitable arroyo toad habitat that could be sprayed, we believe these measures would be effective at minimizing or avoiding the effects of herbicides on the arroyo toad, if any are found to be present.

According to the Recovery Plan for the arroyo toad, "[t]he recovery strategy for the arroyo toad consists of five parts: 1) stabilize and maintain populations throughout the range of the arroyo toad in California by protecting sufficient breeding and nonbreeding habitat, 2) monitor the status of existing populations to ensure recovery actions are successful, 3) identify and secure, by appropriate management and monitoring, additional suitable arroyo toad habitat and populations, 4) conduct research to determine the population dynamics and ecology of the species to guide management efforts and determine the best methods for reducing threats, and 5) develop and implement an outreach program" (Service 1999). The proposed action should not impede the recovery of the arroyo with respect to the recovery plan and in general for the following reasons:

As discussed above, few arroyo toads (i.e., a few tadpoles, but no metamorphs, juveniles, sub-adults or adults) have ever been observed in the action area – and none have been observed over 10 years of recent surveys - so the likelihood of direct loss of individuals is low. Nevertheless, the RMDP includes a 17-point protocol for protecting individual arroyo toads in the event they are encountered (Dudek 2010, Mitigation Measure BIO-17). These measures will ensure that if arroyo toads are found within the action area that injury or mortality of individuals would be avoided to the extent practicable.

Habitat for the arroyo toad could be affected by the action, especially if the proposed flood control structures or other facilities change the flow regime in the Santa Clara River; however, these impacts should be minimized by hydro-modification controls, BMPs, and other measures implemented both during construction and post-construction. Such measures include: a Stream Diversion Plan; construction of bypass channels; prohibition of unauthorized operation of equipment in flowing or ponded water; provision of alternative slow-water habitats near river

crossing and bridge construction areas to provide refuge during construction; mud, silt, and other pollutant controls and other BMPs to protect water quality; and biological monitoring during construction by a Service-approved biologist (Dudek 2010, Mitigation Measures BIO-43 through BIO-47, GRR-1 through GRR-8, WQ-1 and WQ-2). Furthermore, the proposed action includes large conservation easements in the River Corridor SMA and Salt Creek area, both of which would benefit the arroyo toad (Dudek 2010, Mitigation Measures BIO-1 through BIO-16). The sum of these measures indicate to us that sufficient habitat to support arroyo toads would remain within the action area following project completion, notwithstanding the fact that the species has not been observed in the action area for approximately 10 years.

To the extent the action may introduce exotic species into suitable arroyo toad habitat, or exacerbate colonization by such exotic species, those impacts will be controlled through the monitoring and removal of exotic plants and wildlife, such as giant reed, bullfrog, and African clawed frog (Dudek 2010, Mitigation Measures BIO-10 and BIO-80). In addition, the action will be subject to controls on the use of herbicidal surfactants, as described above. Therefore, the action should improve the potential for the recovery of the arroyo toad by eliminating, in the action area, one source of the species' rangewide decline.

With respect to recovery task 2) (monitoring of arroyo toad population status), the proposed action advances this goal by requiring monitoring to detect species presence prior to initiation of construction activities. In addition, the mitigation measures imposed for the benefit of the arroyo toad and other riparian species have specific success criteria that must be met. The action also advances task 3), as it creates, enhances, and/or restores riparian and upland areas that may function as habitat for the arroyo toad in the future. (Dudek 2010, Mitigation Measures BIO-1 through BIO-16)

Critical Habitat for the Arroyo Toad

Subunit 6b of the designated critical habitat comprises approximately 1,003 acres, of which approximately 413.1 acres are within the RMDP area. As described in the Environmental Baseline section, Newhall estimates that approximately 71.4 acres within designated critical habitat Subunit 6b do not support the PCEs due to intensive agriculture, oil production, and permanent development. Implementation of the RMDP and build-out of the Specific Plan area would result in the permanent loss of 12.0 acres of the 341.7 acres of designated critical habitat containing primary constituent elements, which represents a loss of 3.8XXX percent of the designated critical habitat with the primary constituent elements in the RMDP area. In terms of impacts to designated critical habitat areas that do not support the primary constituent elements, the RMDP activities would also result in temporary impacts to 30.7 acres, permanent impacts to 28.2 acres, and the remaining 12.5 acres would not be affected by the action. Habitat temporarily affected in both areas (those with the primary constituent elements and those lacking those elements) would be restored to a natural condition.

Summary of Effects on Arroyo Toad
Because arroyo toads have not been detected despite numerous surveys over 10 years within the RMDP area, we do not anticipate that any arroyo toads will be killed or injured by project activities. Because the action area does not appear to currently support the species, and because the applicant has proposed numerous measures to protect aquatic species including the arroyo toad if it is found during activities, we do not expect the proposed action would appreciably reduce the species' reproduction, numbers, or distribution in the wild.

The proposed action, as modified by the RMDP proposed mitigation measures, will not impede recovery of the arroyo toad. Although the Santa Clara River is not directly identified in the Recovery Plan as having a conservation role in the recovery strategy for the species, the proposed mitigation measures would support and facilitate recovery should arroyo toads occupy this area in the future, including protection of suitable breeding and nonbreeding habitat in the River Corridor SMA and habitat management (e.g., water quality, controls on bullfrogs, African clawed frogs, and giant reed).

Because only a small portion of the designated critical habitat would be affected by the project, we do not expect that the function of critical habitat Subunit 6b would be appreciably diminished. The unit should still meet the goal of the critical habitat designation, which is the protection and management of breeding and non-breeding habitat on a watershed basis for the conservation of the species because most of the unit is conserved, and areas that were proposed but excluded from the final rule designating critical habitat are also conserved.

Unarmored Threespine Stickleback
Under the RMDP, Newhall proposes bank stabilization, two bridges, the Newhall Ranch WRP outfall, temporary haul routes, water quality control facilities (including outlet structures/energy dissipaters), viewing platform locations, and habitat enhancement activities within the Santa Clara River. Newhall proposes to construct approximately 29,843 feet of bank stabilization along the north and south banks of the Santa Clara River. Approximately 29,293 feet of buried bank stabilization (i.e., 98 percent of the project total) would be installed in upland areas adjacent to the river. By constructing the majority of the proposed buried bank stabilization in the upland areas, direct impacts to the unarmored threespine stickleback habitat should be minimized; however, the remaining 550 feet of bank stabilization would occur in unarmored threespine stickleback habitat.

Individual unarmored threespine sticklebacks in the RMDP area may be injured or crushed by excavation and construction equipment, construction debris or worker foot traffic during construction activities. The noise and ground vibrations from the operation of heavy equipment during construction activities may disturb unarmored threespine sticklebacks and cause individuals to disperse and possibly be driven into areas where they would be more susceptible to injury or mortality due to predation, vehicular or foot traffic, or falling debris. The effects of these activities would be minimized by the proposed capture and relocation of individual unarmored threespine sticklebacks out of work areas to prevent injury and mortality.

The dewatering and diversion of water for construction projects within the project area could result in the direct mortality of unarmored threespine sticklebacks from desiccation or crushing. The use of blocking nets, as proposed in the RMDP, would prevent unarmored threespine sticklebacks from entering the diversion channel during its construction. With the termination of the above dewatering activities, unarmored threespine sticklebacks could become stranded in the diversion channels or caught in the folds of the proposed plastic sheeting that would line the diversion as the flow recedes. Newhall proposes to gradually step-down water discharges once dewatering is no longer needed so that Service-approved biologists can capture stranded unarmored threespine stickleback and relocate them to a predetermined downstream site. This measure will minimize the effects to unarmored threespine stickleback from dewatering and diversions.

Disturbance of unarmored threespine sticklebacks would occur while capturing and transporting individuals to suitable habitat. Individuals may also be injured or killed in a seine net should it be used improperly, such as if fish remained trapped in the net or out of water for too long. Mortality following translocation may occur given the uncertainty of the survival of unarmored threespine sticklebacks in unfamiliar sites or from injuries and stress to related handling and transportation. These effects would be reduced by clearly marking the boundaries of the work areas and by employing only experienced biologists to capture and handle the species.

Project-related material releases onto channel substrate or into water would result in effects to water quality that may be hazardous to unarmored threespine sticklebacks. Debris falling into the river may also degrade water quality. Water quality in the Santa Clara River could be affected if construction-related chemicals (fuels, lubricants, wastes) are accidentally introduced into the water or are allowed to accumulate in stream soils. As proposed in the RMDP, the implementation of measures to control pollution, such as refueling at designated areas and containment of spilled substances, would reduce these effects. The effects of herbicide use on aquatic species, including the unarmored threespine stickleback, are discussed above under the heading for the arroyo toad.

Employees of Newhall and other personnel associated with the project could travel outside of areas where work is occurring and into adjacent flowing water; such activities, particularly with vehicles, could kill or injure unarmored threespine stickleback. Flagging of the construction areas may help reduce intrusions. Careless workers could release toxic materials, leave garbage and food-related items that would attract predators of the unarmored threespine stickleback, or conduct activities outside of designated areas.

A study by PACE (2010) addressed issues related to hydrology and geomorphic function of the river and potential long-term impacts. Sediment-transport modeling in the study determined that, with the build-out of the RMDP components and Specific Plan land uses, the total floodplain area exposed to erosive velocities would be lower in most storm events and that, overall, there would be no significant change in erosion and sediment deposition, within the action area or downstream. The study also showed that RMDP components would result in a net decrease in

the degradation of geomorphic function on the river. In addition, the impacts of RMDP on Santa Clara River vegetation are expected to be minor, both within the action area and downstream of the action area. Regarding water quality issues, compliance with the construction general permit (Order No. 99-08-DWQ) mandates that construction-related non-stormwater discharges do not cause or contribute to violation of any clean water standards. Project Design Features of the RMDP would reduce stormwater pollutant levels in the long term. Based upon this information, we do not expect any adverse effects to unarmored threespine stickleback as a result of changes to the hydrology, geomorphpology, and water quality.

While the long-term effects of the specific plan build-out described above could lead to the loss of an indeterminable number of unarmored threespine stickleback and an increase in non-native species (Marchetti et al. 2006), the RMDP incorporates measures to minimize these effects. These measures include compliance with NPDES requirements, including the following water quality control facilities: 1) water quality basins; 2) debris basins, located just upstream of the interface between developed and undeveloped areas, primarily to trap debris coming from the upper watersheds (Debris Retaining Inlets [DRI]); 3) detention basins, which are typically sized to capture the predicted runoff volume and retain the water volume for a period of time (usually 24 to 48 hours); 4) catch basin inserts or screens/filters installed in existing or new storm drains to capture pollutants in the stormwater runoff; 5) bioretention, such as vegetated, grassy swales, that provide water quality benefits and convey stormwater runoff; and 6) solids separator units or in-line structures that reduce or manipulate runoff velocities such that particulate matter falls out of suspension and settles in a collection chamber. The overall population status of the species in the watershed would not be substantially altered by the proposed action because the applicant proposes measures to minimize these effects and the majority of the existing habitat would remain intact..

The recovery plan for the unarmored threespine stickleback designated three areas as very important for the survival and recovery of the species: (1) two disjunct reaches of the Santa Clara River in Los Angeles County; (2) a short reach of San Francisquito Canyon; and (3) and the lowermost 8.4 miles in San Antonio Creek in Santa Barbara County (Service 1985). One of the reaches in the Santa Clara River is the area from San Martinez Grande Canyon upstream to the I-5 Bridge, which runs through the action area.

According to the recovery plan, the unarmored threespine stickleback faces three major threats: (1) inadequate or unsuitable stream flows, (2) predation and/or overcompetition by exotic species, and (3) introgression by *G. a. microcephalus* (Service 1985). Each of these threats must be addressed to facilitate recovery of the species. Further, each threat tends to increase in magnitude when the stream habitat on which the unarmored threespine stickleback depends is channelized. In this case, the proposed action contemplates the construction of significant flood control infrastructure in portions of the Santa Clara River used by the stickleback. Should those infrastructure components materially alter the flow regime of the river in these locations, the action could exacerbate existing threats and frustrate recovery of the species.

To avoid this outcome, the proposed action has been designed to minimize its potential to alter flows within the Santa Clara River (Dudek, Mitigation Measures GRR-1 through GRR-8.) Hydrological analyses show that the proposed action should reduce erosion and scour of the River's floodplain, except during the five-year and 20-year flood events (see ENTRIX 2010 study, entitled "Focused Special Status Fish Habitat Assessment and Impact Analysis," attached as Appendix F.5 to Dudek 2010, at 4-2 through 4-6, and 6-13). These same analyses indicate that the action should actually increase the amount of refugia habitat for the unarmored threespine stickleback (i.e., backflows with velocities of less than two cubic feet per second), thus potentially improving the species' ability to survive storm events.

In addition, to avoid harm to individual unarmored threespine stickleback during construction activities, the RMDP includes specific protocols for diverting fish away from construction areas. (Dudek 2010, Mitigation Measures BIO-43 through BIO-47). Pollutants, including those from pesticides should be controlled through BMPs and water quality protective measures set forth in Mitigation Measures WQ-1 and WQ-2, among others.

With respect to threat (2) – invasive species – the project has the potential to introduce such species into habitat used or occupied by unarmored threespine stickleback (Dudek 2010, Mitigation Measures BIO-10 and BIO-80). However, mitigation measures imposed on the action (e.g., BIO-80, control of exotic species) should offset this threat. The success of these measures will be monitored on a long-term basis.

Finally, as to threat (3) – introgression – the proposed action will not cause inundation of the "Dry Gap" that separates the protected subspecies, *G. a. williamsoni*, from *G. a. microcephalus*. GSI Water Solutions' analysis (2008) of post-development conditions within the Dry Gap determined that the future WRP discharge will not affect the seasonality (i.e., ephemeral nature) or duration of flows through the Dry Gap. Potential impacts to unarmored threespine stickleback from genetic introgression are not expected to occur. Therefore, the proposed action should not increase the threat of introgression.

Summary of Effects to the Unarmored Threespine Stickleback

The proposed project, as modified by proposed mitigation measures, should not reduce the reproduction, numbers, or distribution of the unarmored threespine stickleback. The proposed measures will minimize the direct effects to individuals of the species and the current hydrological conditions are predicted to be maintained (PACE 2010). Further, the proposed action includes measures that support and facilitate recovery, including protection, restoration, and enhancement of habitat.

Coastal California Gnatcatcher

The action area supports approximately 4,126 acres of suitable habitat (i.e., coastal sage scrub) for the coastal California gnatcatcher. Approximately 1,350 acres of suitable habitat within the action area would be directly permanently lost as a result of project implementation, representing approximately 33 percent of suitable habitat within the action area for the coastal California

gnatcatcher. A total of 2.3 acres would be directly but temporarily impacted by project implementation.

All project-related activities in the action area (e.g., construction of roads, flood control structures, associated infrastructure, and residential development) could adversely affect coastal California gnatcatchers. These activities could have direct or indirect effects to coastal California gnatcatchers within the action area. As mentioned above in the Environmental Baseline section, we estimate that the action area could theoretically provide suitable habitat for 152 to 343 pairs of coastal California gnatcatchers. Based on the permanent impacts and territory size, suitable habitat for 50 to 112 pairs of coastal California gnatcatchers would be destroyed; however, surveys for coastal California gnatcatcher have not detected any territories within the action area. The applicant has requested that the Corps consider the species present in the action area due to the observation of one individual coastal California gnatcatcher in the action area, the proximity of other observations of the species, and the quality of the habitat in the action area.

The project activities could result in disturbance or possibly direct injury or mortality of any resident or nesting coastal California gnatcatchers present in the area, including, but not limited to disturbance of nesting behavior resulting in unsuccessful breeding and nest formation, abandonment of an active nest by adult birds, mortality of eggs and young birds within a nest, dispersal of adults to other suitable habitat because of temporary loss or degradation of habitat within the action area (1 to 5 years for habitat regeneration in areas of revegetation), and reduction in the value of the habitat for cover and foraging. The loss of habitat for cover, forage, and reproduction could cause individuals to disperse to other suitable habitat. Any breeding pairs or resident coastal California gnatcatchers discovered within the action area would likely relocate to nearby unoccupied suitable habitat, and direct mortality of these birds and direct disturbance to nesting would likely be avoided because of the specific procedures to limit the impact of maintenance and construction activities, which are detailed in the RMDP biological assessment in Appendix B, incorporated here by reference (URS 2010).

Coastal California gnatcatchers are highly territorial and a loss of habitat due to project development outside of the nesting season may cause the birds to seek out another area in which to forage and nest permanently. Such relocation may adversely affect the birds by causing an increase in energy expenditure necessary to locate, establish and defend a new territory. However, to date, we are not aware of any gnatcatcher territories within the action area. Food-related trash and open containers attract raccoons, coyotes, ravens (*Corvus corax*), and other predators of coastal California gnatcatcher. Any increase in normal predation levels could have adverse effects on coastal California gnatcatchers that could potentially occupy the site in the future. This potential impact would be minimized or avoided by the careful control of waste products at all work sites as discussed in the RMDP biological assessment in Appendix B, incorporated here by reference (URS 2010).

The project could indirectly affect suitable gnatcatcher habitat through introduction of non-native plants, increased fire frequency or fire suppression (i.e., brush clearance), the loss of large predators that control the numbers of small and medium predators that prey upon birds (e.g., raccoon, Virginia opossum, striped skunk), and human intrusions.

Summary of Effects on the Coastal California Gnatcatcher

While we estimated that up to 343 pairs of coastal California gnatcatcher theoretically could occur in the action area (based upon suitable) habitat and published range sizes), and that up to 112 pairs could be affected directly by habitat removal, only one individual bird has been observed in the action area over 15 years of surveys. We conclude that that very few, if any, coastal California gnatcatchers are present in the action area and could be affected by the action. While the proposed activities could disturb all coastal California gnatcatchers found to be present within the action area, because we are not aware of any gnatcatchers occupying the action area, the activities are not likely to result in the death of any coastal California gnatcatcher individuals; therefore, the effects on the California gnatcatcher are likely to be minimal. While approximately 33 percent (approximately 1,350 acres) of the suitable habitat in the action area would be lost, that loss constitutes only a small portion of suitable habitat of the entire range of the coastal California gnatcatcher would be affected by the project (approximately 0.2 percent of the rangewide modeled habitat estimated at 639,387 acres; Service 2010b). Consequently, the proposed action should not reduce the reproduction, numbers, or distribution of the species in the wild.

A recovery plan for the coastal California gnatcatcher has not been prepared. According to the Spotlight Species Action Plan for the coastal California gnatcatcher (as described earlier), the action area is not within any regional HCP/NCCP. Therefore, we do not expect the proposed action to interfere with the goals of the SSAP. In general recovery terms, the action area is at the northern edge of the coastal California gnatcatcher's distribution and likely represents the species at the extreme of its historical range. Only one individual coastal California gnatcatcher has been observed in the action area. The single gnatcatcher individual observed in the action area and immediate vicinity indicates that the rangewide recovery of the species is not dependent upon the small number of individuals potentially present within the action area. Approximately 67 percent of the suitable habitat for the coastal California gnatcatcher within the action area RDMP plan area would not be disturbed and would be preserved as open space and remain available to the California gnatcatcher should it eventually colonize this area. We conclude that the proposed action should not appreciably diminish the contribution of the action area to the recovery of the coastal California gnatcatcher.

CUMULATIVE EFFECTS

Cumulative effects are those impacts of future State and private actions that are reasonably certain to occur in the action area. Future Federal actions that are unrelated to the proposed action would be subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed project. We are unaware of any other

non-Federal actions that are reasonably certain to occur and are likely to adversely affect the least Bell's vireo or its critical habitat, southwestern willow flycatcher, California condor, arroyo toad and its proposed critical habitat, unarmored threespine stickleback, and coastal California gnatcatcher in the action area.

CONCLUSIONS

After reviewing the current status of the least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, coastal California gnatcatcher; the environmental baseline; the effects of the action; and the cumulative effects; it is the Service's biological opinion that the Corp's proposed authorization of Newhall to permanently impact approximately 66 acres of Waters of the U.S. for the construction of roads, flood control structures, associated infrastructure, and build-out of the specific plan (i.e., urban development) for the Newhall Ranch Resource Management and Development Plan in the Santa Clara River and several other tributaries near Santa Clarita is:

(a) not likely to jeopardize the continued existence of the least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, or coastal California gnatcatcher, and

(b) not likely to destroy or adversely modify the designated critical habitat of the least Bell's vireo or arroyo toad.

We have reached these conclusions for the following reasons:

<u>Least Bell's vireo</u>
Of the 485 acres of suitable nesting habitat for the least Bell's vireo in the action area, 77 acres would be directly, permanently removed by project activities. None of the recorded territories of least Bell's vireo would be affected. The remaining 408 acres would be conserved and, with the exception of areas that would be subject to indirect effects as described in the Effects Analysis and below, we expect the remaining habitat to continue to support known least Bell's vireo territories and to accommodate any population expansion the species experiences. The applicant has proposed numerous measures (e.g., restoration of disturbed areas, removal of invasive exotic plants, etc.) to minimize and mitigate the effects of the habitat loss on the least Bell's vireo and these should be effective at ensuring that the species persists in the action area.

As described in the Effects Analysis section, the proposed actions pose potential indirect effects to the least Bell's vireo. These include effects from noise, non-native predators, fire management, and other causes. The applicant has proposed measures to address these effects; however, indirect effects cannot be completely avoided or minimized to the point where the least Bell's vireo would not be affected. Based upon the 60 dBA contour provided by the applicant as a measure of the extent of indirect effects, as described in the Effects Analysis, of the 56 least Bell's vireo territories recorded in the action area, only four of those territories would be affected

by noise from the project activities (including long-term occupancy). In addition to the indirect effects to known territories, we expect indirect effects to intrude into approximately 2 acres of suitable least Bell's vireo habitat (Dudek 2010), thus potentially interfering with the essential behaviors of additional least Bell's vireos. Put into context of the total available suitable habitat within the action area and the number of pairs of least Bell's vireo that suitable habitat could potentially support, the number of least Bell's vireos that would be affected by indirect impacts is a small proportion of the least Bell's vireo population that could be supported in the action area. We do not expect that the project will appreciably diminish the least Bell's vireo population in the action area as a result of indirect effects.

Because we do not anticipate an appreciable decline in the population of least Bell's vireos within the action area, we also do not believe that the proposed action will appreciably reduce the likelihood of the species' survival and recovery in the wild. The action area represents a small percentage of the known population, so that the minor effects we expect due to the proposed action are not likely to reduce the numbers, reproduction, or distribution of the species. The recovery plan does not define any specific recovery function for the Santa Clara River unit; however, the minor impact to the species as a whole supports our conclusion that the proposed project would not interfere substantially with the likelihood of the recovery of the of the least Bell's vireo.

As noted in the Environmental Baseline, the critical habitat unit of which the action area is a part comprises 4,409 acres, 2,252 acres of which are within the action area. Of the 2, 252 acres of the unit within the action area, 1,408 acres would be permanently lost to development; however, much of this 1,408 acres does not support the PCEs of the critical habitat designation. Newhall has calculated, and we concur, that only 443 acres within the action area support the PCEs. Approximately 77 acres of this 443 acres (17 percent) would be permanently lost due to the proposed actions. We conclude that the loss of this small proportion of the unit would not interfere appreciably with the survival or recovery function of either the unit or the entire critical habitat designation. The lost habitat is not in a location where it would fragment the critical habitat unit or result in the loss of an important element in the function of the critical habitat. The majority of the critical habitat would continue to support the PCEs where they currently exist and provide habitat for the recovering least Bell's vireo population. Also, considering the entire critical habitat designation of 38,000 acres statewide, the proposed effects are relatively small and should not diminish the value of the critical habitat overall.

Southwestern willow flycatcher

Despite surveys, no nesting southwestern willow flycatchers have been recorded within the action area. A few southwestern willow flycatchers have been observed but these birds were not nesting and did not persist through the breeding season so they are assumed to have been transients. As a result, we do not expect any nesting southwestern willow flycatchers to be adversely affected by the proposed project. Because the only direct effect to the species would be the permanent loss of 21 acres of suitable habitat and 2.1 acres of indirect effects, we do not expect that the population of southwestern willow flycatcher in the action area which thus far has

consisted only of transient individuals, to be appreciably reduced by the proposed activities. The applicant has proposed numerous measures (e.g., restoration of disturbed areas, removal of invasive exotic plants, etc.; see Appendix B) to minimize and mitigate the effects of the habitat loss on the southwestern willow flycatcher and these should be effective at ensuring that the species persists in the action area.

Because we do not anticipate an appreciable decline in southwestern willow flycatchers within the action area, we also do not believe that the proposed action will appreciably reduce the likelihood of the species' survival and recovery in the wild. The action area represents a small percentage of the known population so that the minor effects we expect due to the proposed action are not likely to substantially reduce the numbers, reproduction, or distribution of the species.

The recovery plan for the southwestern willow flycatcher indicates that the Coastal California Recovery Unit that comprises the action area requires improved population stability and enhancement of existing habitat. The proposed action includes habitat restoration that is consistent with this goal. The recovery plan also states that delisting would require, in part, a stable population of 25 pairs of southwestern willow flycatcher in the recovery unit. Despite the loss of a small area of suitable nesting habitat, the proposed action would not interfere with this goal as no territories have been recorded within the action area. We have determined that the minor impact to the species as a whole supports our conclusion that the proposed project would not interfere appreciably with the likelihood of the recovery of the southwestern willow flycatcher in the wild.

California condor

In the Effects Analysis section of this biological opinion, we discuss several possible effects to California condors that could result from the proposed action. We conclude that the most likely adverse effect that could arise from the proposed action, for which avoidance and minimization measures would not be completely effective, is habituation of individual birds to human structures or activities. Other effects from the project, such as the loss of potential foraging/feeding habitat and exposure to microtrash, are addressed by the proposed avoidance and minimization measures (e.g., preservation of high elevation habitat, removal of microtrash form construction sites) such that the adverse effects are not likely to have an impact on the species.

While it is possible that individual California condors may become attracted to new development in the RMDP area, we expect that such occurrences would be infrequent because the birds do not visit the area very often and are more likely to be drawn to a carcass and feeding than solely to new human activity. Despite the infrequency at which we expect habituation to occur, we still consider it a possible effect of the proposed development. If such habituation does occur, the individual California condor would have to be removed from the wild and either relocated to an another area to try to break this pattern of behavior, or taken permanently into captivity if the behavior continued. Birds removed from the wild may still play a role in the captive breeding

program, but they would not be a part of the recovering wild flock. Because we expect the measures built into the project will effectively reduce the habituation impacts of the project, , we believe the impact of the project on the California condor as a species would be minimal and would not reduce appreciably the likelihood of the species' survival and recovery in the wild.

Arroyo toad

Very few arroyo toads have been recorded in the action area. The last record was of 6 tadpoles in 2000. Despite numerous aquatic surveys in the last 10 years, no other arroyo toads have been observed in the action area; however, per the survey protocol, as the species has been observed within 0.31 miles upstream of the action area, we assume arroyo toads could be present. Because the numbers are so low, we expect the proposed actions to affect few, if any, arroyo toads. Further, we expect that the loss of the 733 acres of suitable habitat that supports few, if any, arroyo toads, while a fairly large percentage of the available suitable habitat (38 percent) within the action area would not have a substantial effect on the species. The preservation of the remaining 62 percent of the suitable habitat in the action area, restoration of other areas proposed by the project, and the low potential for direct and indirect effects to individual arroyo toads lead us to conclude that the minor effects of the action at the local level will not have an appreciable effect on the arroyo toad, and thus will not result in an appreciable reduction of the reproduction, numbers, or distribution of the species.

The recovery plan for the arroyo toad does not state any specific goal for the Northern Recovery Unit of which the action area is a part. The overarching goal of the plan is to have in place management plans implemented on federally-controlled lands to conserve, maintain, and restore habitat for the arroyo toad. None of those federally-controlled lands are present in the action area; however, the RMDP includes measures that are intended to conserve the physical and biological features that would support arroyo toads. We conclude that the proposed action would not reduce appreciably the likelihood of recovery of the arroyo toad because the action area currently does not support a substantial population of the species and the applicant proposes to implement measures that would contribute to the species' conservation (i.e., habitat restoration, removal of non-native predators, etc.).

As discussed in the Effects Analysis section, the action area comprises approximately 413.1 acres of the designated critical habitat for the arroyo toad. The applicant has calculated, and we agree, that 341.7 acres of the critical habitat within the action area support the PCEs as defined in the final rule (the remaining 71.4 acres are agricultural fields, oil production, or other permanent disturbance). Of the 341.7 acres that support the PCEs, the proposed action would permanently remove 12.0 acres. We do not expect this amount of permanent loss to appreciably reduce the value of the critical habitat, either at the unit level (3.8 percent) or for the entire designation of 98,366 acres (X0.01 percent) because the physical and biological features (PCEs) would remain intact on a vast majority of the designated critical habitat. Also, temporarily disturbed areas and some which do not currently support the PCEs would be restored. The critical habitat unit of which the action area is a part will continue to serve its conservation functions as a connection between the known populations of arroyo toad in tributaries to the Santa Clara River, and to

accommodate natural population expansion and fluctuation. The minor effects of the proposed action should not diminish the ability of the entire critical habitat designation to protect and support the management of breeding and non-breeding habitat on a watershed basis for the conservation of the species. Because the goals of the critical habitat designation would still be met within the action area, we conclude that the recovery function of the entire 98,366 acres of critical habitat would not be appreciably diminished.

Unarmored threespine stickleback

The unarmored threespine stickleback is present throughout the action area within the Santa Clara River where surface flows are present. Numbers of individuals are not a good measure of the effects of the proposed action on the species because they fluctuate widely within and between years, depending upon conditions and the time of year (e.g., more individuals are present following breeding). While we acknowledge that some individual unarmored threespine sticklebacks could be killed or injured by the proposed actions, we believe these small numbers would be masked by the species' normal population fluctuations. Therefore, we look at the area of affected habitat when making conclusions about the survival and recovery of the unarmored threespine stickleback as related to this action.

The Effects Analysis indicates that the proposed action would permanently affect only 550 feet (of approximately 5 river miles) of habitat for unarmored threespine stickleback (i.e., bank stabilization would be installed mostly in upland areas away from unarmored threespine stickleback habitat). Other potential effects (e.g., changes in water quality and quantity, stranding during temporary water diversions, etc.) would be avoided or minimized by the measures proposed by the applicant as described in the Effects Analysis. Therefore, we expect the proposed actions to have only a minor effect on the unarmored threespine stickleback population in the action area. Because the reproduction, numbers, or distribution of the unarmored threespine stickleback in the watershed would not be altered by the action, we conclude that it is not likely to appreciably diminish the likelihood of the species' survival and recovery throughout its known range.

The recovery plan for the unarmored threespine stickleback identifies the stretch of the Santa Clara River within the action area to be one of three significant stretches of habitat for the survival and recovery of the unarmored threespine stickleback. As described in the Effects Analysis section, the proposed action has been designed to avoid changes in streamflows, reduce the number of exotic predators (e.g., African clawed frogs), and to avoid introgression with the more common subspecies which is currently separated from the listed subspecies by a "dry gap" in the Santa Clara River. The proposed action is also intended to protect, restore, and enhance suitable habitat for the unarmored threespine stickleback, which is consistent with the goals of the recovery plan. Because we have already determined that the effects to both individual unarmored threespine sticklebacks and the species' habitat would not be substantial on either a local or range-wide basis, we conclude that the proposed action would not appreciably diminish the species' likelihood of recovery.

Coastal California gnatcatcher
The actual number of coastal California gnatcatchers observed in the action area following 15 years of annual bird surveys is one (1) individual bird. This bird was not located during subsequent focused surveys, so we conclude it was either a transient or at the edge of its territory. In the Effects Analysis, we project the potential for up to 343 pairs of coastal California gnatcatchers in the action area (based upon suitable habitat and published range sizes); however, the action area does not appear to support any resident coastal California gnatcatchers. In other words, while approximately 33 percent of the suitable habitat for coastal California gnatcatchers in the action area would be removed by the project (1,350 acres lost out of 4,126 acres present), this habitat is not occupied by the species (based upon repeated surveys). Therefore, we have determined that the effects to coastal California gnatcatcher within the action area would be minor and the effects to the coastal California gnatcatcher and its habitat would not result in an appreciable reduction in the numbers, reproduction, or distribution of the species. Because this is true at the level of the action area, it is also true when considering the effects to the species rangewide. That is, if the local effects are minor, the effects to the species as a whole would be similarly and proportionately small.

In terms of the coastal California gnatcatcher's recovery, the loss of approximately 33 percent of the suitable habitat for the species within the action area would appear to be substantial. If the suitable habitat areas were known to be occupied by the species, the loss of that much habitat could have the effect of diminishing the numbers and distribution of the species. However, because only one individual coastal California gnatcatcher was observed on the site on one occasion, we conclude that the loss of 1,350 acres of (mostly) unoccupied suitable habitat would not appreciably diminish the species' likelihood of recovery. The large areas of coastal sage scrub habitat that would remain intact (approximately 2,776 acres) within the action area would still be available to support the species and contribute to its recovery if the species should expand into and occupy the to the action area in the future.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened wildlife species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent actions that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the

Act provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and the Corps must include these measures in any permit issued to Newhall and the applicant must carry out these measures for the exemption in section 7(o)(2) to apply. The Corps has a continuing duty to regulate the activity covered by this incidental take statement. If the Corps or the applicant fail to implement these terms and conditions, the protective coverage of section 7(o)(2) may lapse. To monitor the impact of incidental take, the Corps must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement [50 CFR §402.14(i)(3)].

This incidental take statement exempts from the take prohibitions of the Act, take of least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, and coastal California gnatcatcher that is carried out in accordance with its terms and conditions. It does not address the restrictions or requirements of other applicable laws.

AMOUNT AND EXTENT OF TAKE

Least Bell's Vireo

We anticipate that take of least Bell's vireos would be most likely to result from habitat loss and indirect effects (e.g., noise). None of the other effects of the project we analyzed are likely to result in take of least Bell's vireos due, in part, to the avoidance and minimization measures proposed to address the project impacts.

Surveys have detected up to 56 territories in the action area; however, none of these territories would be directly affected by the project activities. Although no known territories of least Bell's vireo within the action area would be directly affected by the project, the RMDP and specific plan build out would directly remove 77 acres of habitat that could be used by the least Bell's vireo for nesting and foraging. We do not anticipate that the loss of these 77 acres will directly result in the take of least Bell's vireos because it does not overlap with any of the 56 known territories. Of the 56 recorded least Bell's vireo territories, elevated noise levels (above the 60 dBA noise contour) at the two bridge crossings and due to increased traffic on Highway 126 overlap with 4 of these recorded territories. We assume that the elevated noise levels at these 4 territories could disrupt nesting and foraging behavior, resulting in nest abandonment, which could lead to starvation, predation, and other effects listed in the Effects Analysis. Thus, we anticipate the take of up to 4 pairs of least Bell's vireo (8 individuals). While indirect effects could intrude into other areas of suitable habitat, none of those areas are currently occupied by any of the 56 known territories and we do not anticipate any further take in these areas due to noise and other indirect impacts.

Southwestern Willow Flycatcher
We anticipate that any potential take of southwestern willow flycatcher most likely would result from habitat loss and indirect effects (e.g., noise). None of the other effects of the project we analyzed are likely to result in take of southwestern willow flycatchers, in part due to the avoidance and minimization measures proposed to address the project impacts.

Within the action area, the RMDP and specific plan build out would directly remove 23 acres of riparian habitat that could be used by the southwestern willow flycatcher for nesting and foraging as described in the Effects Analysis section. . However, no nesting territories have recorded in the action area; only individual southwestern willow flycatchers, assumed to be transients, have been observed. Because 359 acres of suitable southwestern willow flycatcher habitat would remain intact (382 acres of suitable habitat minus 23 acres), we assume that other transient southwestern willow flycatchers could easily find adequate foraging or resting habitat in the action area.

We do not anticipate the proposed action will incidentally take any southwestern willow flycatchers. Although the "Effects Analysis" section above indicates that implementation of the proposed action has the potential to cause biological effects to the southwestern willow flycatcher that conform to the regulatory definition of take, the mere potential for take is not a legitimate basis for a take exemption. Since no take is anticipated or exempted, no reasonable and prudent measures and terms and conditions for the southwestern willow flycatcher are provided below. If take is detected during implementation of the proposed action, reinitiation of formal consultation should be requested, and any operations causing such take should cease pending the outcome of the reinitiated consultation.

California Condor
We anticipate that take of California condors as a result of the proposed project would be limited to harm that could occur as a result of habituation to human activity and structures. Condors that become habituated to new development in the RMDP area are vulnerable to injury from collision with powerlines and vehicles, interactions with humans (e.g., shooting), ingesting toxic substances, being fed harmful items, and ingestion of microtrash. While the applicant has proposed measures to reduce the potential for habituation (e.g., removal of animal carcasses at least 1,000 feet from development), the long-term presence of the development and our expectation that as condor numbers increase, they will resume using parts of their historical range more frequently, including the RMDP area, suggests that interactions between humans and condors are likely to occur, and such interactions could result in habituation of a condor.

We further anticipate that habituation will be infrequent. Given the restriction of development to mainly lowland areas that are rarely frequented by condors and the preservation of the higher elevation lands and habitat that the California condors are more likely to use (i.e., foraging, feeding, roosting), interactions with humans should be uncommon. However, habituation that leads to a condor's removal from the wild flock represents a substantial impact to the individual

bird and to the small population of a species in the initial stages of recovery. Many of the historical threats to the California condor have been addressed (e.g., DDT, lead poisoning), but as the number of condors in the wild increases, new unhealthy and potentially dangerous behaviors are observed, such as habituation, and require new techniques to remedy.

Even though we believe the number of condors that will become habituated to human activity as a result of the RMDP project would be low, we cannot precisely determine what that number would be. For the purpose of providing a level at which reinitiation of formal consultation would be triggered, we anticipate that no more than one (1) California condor will become habituated within the 25-year period during which this biological opinion is in effect. This number takes into account the the condors infrequent use of lowland areas where development will occur within the action area, the natural likelihood that condors will interact with humans, and the measures the applicant has proposed to minimize such interactions and prevent habituation.

Further, because considerable uncertainty exists regarding the extent of future condor use of the RMDP area, in the face of an expanding wild condor population that appears to be recolonizing areas of its historical range, we have determined that the level of take should be conservatively estimated and be protective of the species' recovery.

Arroyo Toad

Arroyo toads have not been reported in the action area, despite numerous aquatic surveys, since 6 tadpoles were observed in 2000. Based upon the most recent survey data indicating the species is not present, we would anticipate that none (0) would be taken as a result of construction, maintenance, and restoration activities because none have been reported since 2000. While we assumed the species is present for the effects analysis and jeopardy determination (based upon past observations and the presence of individuals upstream of the action area), we cannot extend that assumption to anticipating take because we have no basis for determining the numbers or locations of individual arroyo toads that are not observed. If any arroyo toads are found dead or injured as a result of construction, maintenance, or restoration activities, the action should cease until the Corps reinitiates formal consultation and that process is concluded.

The applicant has proposed to capture and relocate any arroyo toads encountered during project activities that could be affected by the actions. The purpose of this measure is to avoid and minimize any injury or mortality to individual arroyo toads. Because no arroyo toads have been recorded in the action area since 2000, we would expect that none would be captured and relocated. Consequently, if any arroyo toads are found in the project area, all activities should cease until this biological opinion is amended to account for such take.

Unarmored Threespine Stickleback

Based upon the Effects Analysis and the avoidance and minimization measures proposed by the Corps and applicant, we anticipate that take from the proposed action will result from individual unarmored threespine sticklebacks being killed or injured by equipment or foot traffic during

work in the river (i.e., bridge and bank stabilization installation), entrainment in pumps during de-watering and diversions, and as a result of capture for relocation purposes. We do not anticipate that take will result from the other effects analyzed (i.e., water quality changes, non-native predators, etc.).

We cannot determine the precise number of unarmored threespine sticklebacks that may be killed or injured as a result of the construction, maintenance and restoration activities in the Santa Clara River authorized by the Corps. Numbers and locations of unarmored threespine sticklebacks within a population vary from year to year. Because the Corps and Newhall have proposed to use numerous avoidance and minimization measures (see Appendix B), we anticipate that few, unarmored threespine sticklebacks are likely to be killed or injured during this work.

Despite our inability to anticipate a precise number of unarmored threespine sticklebacks that would be killed or injured during construction, maintenance, and restoration activities, we must determine a reasonable number for the purpose of establishing a limit that would trigger reinitiation of formal consultation. The considerations we used in arriving at that number include: (1) the unarmored threespine stickleback population can fluctuate greatly in number of individuals; (2) dead or injured individuals are difficult to detect, so that any that are found dead or injured may represent a larger impact to the population; (3) some unarmored threespine sticklebacks may be killed or injured by equipment or foot traffic and during pumping of water for diversions or dewatering; (5) because the number of unarmored threespine sticklebacks in a population can be high, many individuals could be affected without a substantial effect on the population; and (6) the take level we anticipate must be consistent with the non-jeopardy determination in that it cannot appreciably reduce the numbers reproduction, or distribution of the species. Based upon the scope of the RMDP project and take anticipated in previous biological opinions from the region (see Appendix A), we have determined that if 10 (ten) unarmored threespine sticklebacks are found dead or injured as a result of construction (including entrainment in pumps; excluding capture, as described below), maintenance, or restoration activities, the actions resulting in take should cease until the Corps reinitiates formal consultation and that process is concluded.

In addition to take we anticipate from construction, maintenance, or restoration activities and entrainment in pumps, the applicant has proposed to capture and relocate unarmored threespine sticklebacks from construction zones and parts of the river that would be de-watered or subject to water diversion. We cannot precisely anticipate how many unarmored threespine sticklebacks would be captured during these activities; however, we are obliged to make a reasonable estimate based upon factors similar to those outlined in the previous paragraph. In contrast, many more unarmored threespine sticklebacks are likely to be captured than would be found dead or injured (in fact, that is the goal of the capture/relocation). Consequently, if 100 unarmored threespine sticklebacks are captured during de-watering/water diversion activities, the Corps must reinitiate formal consultation. Project activities that could result in further take should cease during the reinitiation period because the take exemption would have lapsed when

more than 100 unarmored threespine sticklebacks were captured. (More detail on the reinitiation requirements is provided in the section on Reinitiation, below.)

Coastal California Gnatcatcher

Despite the presence of 4,126 acres of suitable coastal sage scrub habitat that could be occupied by the coastal California gnatcatcher, only one individual coastal California gnatcatcher has been observed within the action area in 15 years of avian surveys. We analyzed the effects of the project on much of this suitable habitat, but based upon the negative surveys results for the species for approximately 15 years, we conclude that only the area where the one bird was observed is occupied. We anticipate that the one (1) coastal California gnatcatcher will be taken as a result of habitat loss for development in the area where it was observed. The bird may be killed or injured outright by the removal of vegetation, or it may be forced from its territory into adjacent habitat that may be less suitable where it would be at risk of predation, starvation, or other injury as described in the Effects Analysis. If other coastal California gnatcatchers are observed during or prior to habitat removal and could be taken, the activities should cease until the Corps reinitiates formal consultation and that process is completed. The take of any other coastal California gnatcatchers in the action area is not anticipated nor exempted from the section 9 prohibitions pursuant to section 7(o)(2).

REASONABLE AND PRUDENT MEASURES

As discussed in the Effects Analysis and shown in Appendix B, the Corps and Newhall have proposed numerous measures to minimize the incidental take of listed species (see Appendix B); however; the Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize the impacts of incidental take anticipated by this biological opinion:

1. The Corps must require Newhall to minimize the impact of indirect effects on the least Bell's vireo by implementing measures to address noise.

2. The applicant will incorporate measures into its development plans to minimize potential for habituation behaviors by California condors.

3. The Corps must require Newhall to employ only qualified biologists to capture and relocate any unarmored threespine sticklebacks at risk of desiccation or other injury or mortality during construction, maintenance, or restoration activities.

4. The Corps must require Newhall to screen any pumps used in de-watering in unarmored threespine stickleback habitat to prevent entrainment.

5. Measures must be implemented during construction in suitable coastal California gnatcatcher to minimize the impact of the habitat loss that will occur.

The Service's evaluation of the effects of the proposed action includes consideration of the measures to minimize the adverse effects of the proposed action on the least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, and coastal California gnatcatcher that were developed by the Corps and Newhall and are discussed in the RMDP biological assessment in Appendix B, which are incorporated here by reference (URS 2010). Any subsequent changes in these measures proposed by the Corps and Newhall may constitute a modification of the proposed action and may warrant reinitiation of formal consultation, as specified at 50 CFR 402.16. These reasonable and prudent measures are intended to supplement the protective measures that are proposed by the Corps and Newhall as part of the proposed action.

TERMS AND CONDITIONS

To be exempt from the prohibitions of section 9 of the Act, the Corps and Newhall must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

The following term and condition implements reasonable and prudent measure 1:

1.1 Newhall or its contractors must employ any practicable methods to minimize noise impacts to least Bell's vireo habitat during construction, including temporary soundwalls, use of quieter equipment, or vegetation screening. For long-term noise impacts, Newhall must incorporate vegetation screening where possible to reduce traffic noise into least Bell's vireo habitat, using only plant species native to the action area.

The following terms and conditions implement reasonable and prudent measure 2:

2.1 The applicant must produce educational materials to be included in Homeowner's Associations (HOA) notifications to prospective homeowners, that provides information on the identification and protection of California condors. The information on California condors included in HOA publications must be approved by the Service prior to human occupancy of any project development.

2.2 The applicant must ensure that HOA materials provided under 2.1 include mandatory reporting by residents of any California condors seen on or near developed areas, including any condor seen perching on structures, drinking from standing water (e.g., swimming pools), or feeding on carcasses within an estimated 1,000 feet of development. .

2.3 If any California condor is observed on or near (perched or on the ground within est. 1,000 feet) developed areas, the applicant or HOA must notify the Service immediately. The applicant or HOA must call the Hopper Mountain National Wildlife Refuge office (phone: (805) 644-5185) and the Ventura Fish and Wildlife Office (phone: (805) 644-1766) to report the incident.

The Service will likely be concurrently monitoring the movements of any California condor that moves toward the RMDP area (using GPS units or telemetry). If the Service has data to indicate that any California condor is on the vicinity of the RMDP area, the Service shall be allowed access to the project to make visual observations of the bird(s).

2.4 If any California condor is on or near developed areas, as described above, the HOA or applicant must allow the Service access to attempt to haze the bird away from the area. Hazing may include running dogs in the area, spraying the condor with water, noise-making devices, and other deterrents. Residents and people other than Service personnel are not authorized to haze the condors; such hazing could constitute take by harassment which is not exempted from the take prohibitions of section 9 by this biological opinion.

The Service shall be allowed to attempt hazing as often and repeatedly as it deems necessary to prevent habituation or other injury to a condor.

2.5 If attempts at hazing are unsuccessful, the Service will notify the HOA and/or applicant that capture of the California condor is required. Upon notification that capture is required, the HOA or applicant must allow the Service access to an appropriate area (as determined by the Service) to capture the California condor for relocation or removal to captivity. Any California condor that must be captured will be considered taken.

The following terms and conditions implement reasonable and prudent measure 3:

3.1 At least 30 days prior to the onset of any activity, Newhall must submit for Service approval the names and qualifications of any individuals it wishes to conduct capture and relocation of unarmored threespine sticklebacks. While individuals possessing recovery permits issued pursuant to section 10(a)(1)(A) of the Act may be qualified to conduct these activities, that permit does not authorize the activities covered in this biological opinion. The authorization of such take must be made under the auspices of this biological opinion, and such authorization is valid only for the RMDP project.

3.2 Prior to any work, the authorized biologist must locate a suitable relocation spot for any unarmored threespine sticklebacks captured. A suitable relocation spot should be within 500 feet of the point of capture, contain water of adequate depth and flow rate (similar to the point of capture), and have a suitable substrate (similar to the point of capture).

3.3 Any unarmored threespine sticklebacks captured must be held for as short a time as possible using clean buckets free of lotions, soaps, or other chemicals.

The following terms and conditions implement reasonable and prudent measure 4:

4.1 Intakes of any pumps used for dewatering or diversions must be completely screened with wire mesh with openings no larger than 0.25 inches.

4.2 Upon completion of activities that required dewatering or diversion, the flow that existed prior to the dewatering/diversion must be restored.

The following terms and conditions implement reasonable and prudent measure 5:

5.1 A qualified biologist must survey and monitor the coastal California gnatcatcher habitat to determine if the species is present, and if so, whether it is actively nesting. The qualifications of the biologist will be submitted to the Service for our approval at least 15 days prior to the onset of activities that would require the biologist to survey and monitor for coastal California gnatcatchers.

5.2 Surveys must be conducted by the authorized biologist(s) walking through suitable habitat areas, within the limits described below, while watching and listening for coastal California gnatcatchers. If necessary, the authorized biologist(s) may use playback of recorded coastal California gnatcatcher calls to elicit a response, as described in the Service's coastal California gnatcatcher survey protocol.

5.3 Monitoring of coastal California gnatcatchers must be conducted by the authorized biologist(s) during the construction period. This period must include initial grading, excavation and fill, and contouring of the pads and roadways. Surveys must be conducted at least twice per week, separated by at least one day, between 6:00 am and 10:00 am. The optimum survey time would be before daily construction activities begin, although the Service recognizes that this may not always be possible. All survey dates and times must be logged and reported to the Service at the end of the project.

5.4 If grading occurs during the peak of the coastal California gnatcatcher nesting season (mid-March through mid-May), the applicant must not remove vegetation within 400 feet of any active coastal California gnatcatcher nest. The 400-foot distance is the radius necessary to protect a circular area of 12 acres (the minimum size of one coastal California gnatcatcher territory; habitat connection between the nest site and adjacent dedicated open space must be maintained until nesting is completed). The authorized biologist must have the authority to halt activities that he/she determines may affect any nesting coastal California gnatcatchers detected within the limits described above.

5.5 Monitoring for nesting coastal California gnatcatchers during activities following initial vegetation grubbing must extend 200 feet into adjacent coastal sage scrub habitat, beyond the marked grading limits. The Service assumes that 200 feet off-site will satisfy the 400-foot buffer intended to protect nesting coastal California gnatcatchers. Regardless of whether nesting coastal California gnatcatchers are found on the site or within the 200-foot off-site buffer, no vegetation removal or construction must proceed within 400 feet of any coastal California gnatcatcher nest location. The authorized biologist must have the authority to halt activities that he/she determines may affect any nesting coastal California gnatcatchers detected within the limits described above.

5.6 If the Service-approved biologist(s) halts any action that may result in impacts that exceed the levels anticipated by the Corps and the Service during review of the proposed action, the Corps and the Service must be notified immediately by the biological monitor. The monitor must keep a log of survey dates, times, and observations to be submitted to the Service at the end of the project.

5.7 The number of access routes, number and size of staging areas, and the total area of the activities within suitable coastal California gnatcatcher habitat must be limited to the minimum necessary to achieve the project goal. Routes and boundaries must be clearly demarcated and these areas must be outside of coastal sage scrub habitat unless included in the original plans. Areas disturbed for access and staging must be restored.

5.8 Measures to prevent unauthorized off-road vehicles from accessing adjacent areas from the project site must be implemented, including barriers (*e.g.*, boulders, fencing) or security patrols.

REPORTING REQUIREMENTS

The Corps or Newhall must provide a written report to the Service on an annual basis for the duration of the project plus a final report once the project has been completed. The reports must document the age class (if possible) and number of arroyo toads, and unarmored threespine stickleback relocated from the action area, the date and time of relocation, and a description of relocation sites. The report must also state the number of least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, and coastal California gnatcatcher killed or injured, and describe the circumstances of the injuries or mortalities if known. The report must contain a brief discussion of any problems encountered in implementing minimization measures, results of biological surveys and sighting records, and any other pertinent information. We encourage you to submit recommendations regarding modification or addition of measures that would maintain or improve protection of least Bell's vireo, southwestern willow flycatcher, California condor, arroyo toad, unarmored threespine stickleback, and coastal California gnatcatcher, while simplifying compliance with the Act.

DISPOSITION OF INJURED OR DEAD SPECIMENS

Within 3 days of locating any dead or injured listed animals, the Corps or Newhall must notify the Ventura Fish and Wildlife Office by telephone ((805) 644-1766) and in writing. The report must include the date, time, location of the carcass, a photograph, cause of death, if known, and any other pertinent information. Care must be taken in handling dead specimens to preserve biological material in the best possible state for later analysis. Should any injured animals survive, either the Corps or Newhall must contact the Service regarding their final disposition.

The remains of any least Bell's vireos, southwestern willow flycatchers, California condors, arroyo toads, unarmored threespine sticklebacks, and coastal California gnatcatcher, must be

placed with the Ventura Fish and Wildlife Office, 2493 Portola Road, Suite B, California, 93010 (Attention: Chris Dellith; (805) 644-1766, extension 227).

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information.

1. We recommend that any non-native predators of least Bell's vireo, southwestern willow flycatcher, arroyo toad, unarmored threespine stickleback, and coastal California gnatcatcher, be permanently removed from the wild if they can be captured while monitoring project activities. Anyone conducting such removals should be in compliance with the California Fish and Game Code.

2. We recommend that Newhall conduct annual breeding season surveys within the Santa Clara River watershed for least Bell's vireos and southwestern willow flycatchers, and report the results of these surveys to the Service. This will improve our knowledge of the distribution of these species and assist us in making future conservation decisions regarding these species and their habitat.

3. We recommend that Newhall pursue additional vegetation enhancement, exotic plant removal, and African clawed frog control opportunities in the Santa Clara River corridor to further the recovery of the unarmored threespine stickleback, and arroyo toad.

4. We recommend that Newhall relocate other native amphibians and reptiles that could be harmed by project activities from the project area to suitable habitat outside the project area prior to and during project activities.

The Service requests notification of the implementation of any conservation recommendations so we may be kept informed of actions benefiting listed species or their habitats.

REINITIATION NOTICE

This concludes formal consultation on the Corps' proposed authorization of activities associated with the Newhall Ranch Specific Plan. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat

not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, the exemption issued pursuant to section 7(o)(2) will have lapsed and any further take would be a violation of section 4(d) or 9. Consequently, operations causing such take should cease pending reinitiation.

If you have any questions regarding this consultation, please contact Chris Dellith of my staff at (805) 644-1766, extension 227.

Sincerely,

Diane K. Noda

Diane K. Noda
Field Supervisor

cc:
Helen Birss, California Department of Fish and Game

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PERSONAL COMMUNICATION AND OBSERVATIONS

Lenny Malo, Los Angeles Basin, Natural Resources Division Manager, URS Corporation, email correspondence, September 30, 2009.

Matt Carpenter, Environmental Resources Director, Newhall Land and Farming, telephone conversation, August 26, 2010.

Chris Dellith, Senior Biologist, U.S. Fish and Wildlife Service, personal observation, August 26, 2009.

Rhys Evans, Natural Resource Manager, Vandenberg Air Force Base, email correspondence, 2008

Appendix A. Past Consultations in the Vicinity of the Action Area

Project Name	Date	Biological Opinion Number	Species Covered[1]	Take (Anticipated)	Critical Habitat[1] (Acres Permanently Disturbed)
Temporary Diversion Berm on the Santa Clara River, Newhall Ranch	October 26, 1993	1-8-94-F-1	UTS	5	NA
Southern Pacific Milling Company Sand and Gravel Mine	February 7, 1994	1-8-93-F-29	LBV	1	NA
Installation of a Southern California Gas Company Pipeline	August 28, 1995	1-8-95-F-34	UTS	10	NA
Installation of Irrigation Pipelines on the Santa Clara River, Newhall Ranch	October 23, 1995	1-8-95-F-47	UTS	10	NA
Construction of Erosion Control Facilities for the Valencia Water Reclamation Plant	February 29, 1996	1-8-96-FC-18	LBV UTS	0 10	0 NA
Repair of I-5 Bridge over the Santa Clara River	September 6, 1996	1-8-96-F-39	LBV	1	NA
Widening of State Route 126	April 20, 1997	1-8-97-F-44	LBV	1	0.5
Newhall Land and Farming's Summer Crossings and Water Diversion	September 25, 1998	1-8-98-FW-68	UTS	10	NA
Sewer Line and Force Main	September 28, 1998	1-8-98-F-67	LBV	10	NA

Project Name	Date	Biological Opinion Number	Species Covered[1]	Take (Anticipated)	Critical Habitat[1] (Acres Permanently Disturbed)
Natural River Management Plan	November 27, 1998	1-8-98-FC-61	LBV SWIFL UTS	UTD[2] UTD 10	11 NA NA
Replacement of I-5 Bridge over the Santa Clara River	December 26, 2000	1-8-00-F-68	LBV SWIFL UTS	2 2 1	1.18 NA NA
Replacement of Highway 101 Bridge over the Santa Clara River, Ventura County	May 3, 2001	1-8-01-F-4	LBV SWIFL	2 1	NA NA
Plum Canyon Phase 1C Residential Development, Santa Clarita, Los Angeles County	June 27, 2001	1-8-01-F-30	CAGN	0	90[3]
Amendment to the Biological Opinion for the Santa Clara River Bridge Replacement Project	April 3, 2002	1-8-01-F-4	LBV SWIFL	0 0	NA NA
Natural River Management Plan (Supplement to previous application dated November 27, 1998)	November 15, 2002	1-8-02-F-4R	ARTO	1	NA
Castaic Creek Bank Protection, Valencia Commerce Center, Los Angeles County	December 17, 2002	1-8-02-F-43	ARTO UTS	1 1	NA NA

Project Name	Date	Biological Opinion Number	Species Covered[1]	Take (Anticipated)	Critical Habitat[1] (Acres Permanently Disturbed)
Restoration of Hart Baseball Field along the Santa Clara River, Los Angeles County	February 20, 2003	1-8-02-F-54	ARTO UTS	1 1	NA NA
Plum Canyon Residential Development, Los Angeles County	March 25, 2003	1-8-02-F-63	CAGN	0	206[3]
Sand Canyon Residential Development, Santa Clarita, Los Angeles County	June 30, 2003	1-8-02-F-65	CAGN	0	39.6[3]
Re-initiation of the Replacement of the I-5 Bridge over the Santa Clara River	August 1, 2003	1-8-03-F-22R	LBV SWIFL ARTO UTS	2 2 6 3	1.18 NA NA NA
Santa Clara River Reaches 71 and 82	October 24, 2004	1-8-04-F-4	ARTO UTS	1 1	NA NA
Townhomes at the River Development and Construction of a Flood Control Levee	March 31, 2005	1-8-04-F-39	LBV	4	NA
I-5 Hasley Canyon Interchange Improvement	May 31, 2005	1-8-05-F-16	ARTO UTS	1 1	NA NA
Plum Canyon Phase 1D Residential Development, Santa Clarita, Los Angeles County	June 16, 2005	1-8-04-F-51	CAGN	2	53[3]
Northlake Residential Development Project, Santa Clarita, Los Angeles County	June 21, 2005	1-8-04-F-57	LBV SWIFL	4 4	NA NA

Project Name	Date	Biological Opinion Number	Species Covered[1]	Take (Anticipated)	Critical Habitat[1] (Acres Permanently Disturbed)
Amendment to Biological Opinion for Santa Clara River Bridge Replacement	February 16, 2006	1-8-01-F-04	LBV	0	1.18
			SWIFL	0	NA
Santa Paula Water Recycling Facility	September 5, 2006	1-8-06-F-34	LBV	12	NA
Robin's Nest Recreational Vehicle Park	September 28, 2006	1-8-06-F-27	UTS	5	NA

[1] Notes: Least Bell's Vireo (LBV), Southwestern Willow Flycatcher (SWIFL), Arroyo Toad (AT), Unarmored Threespine Stickleback (UTS), Coastal California Gnatcatcher (CAGN), Not Applicable (NA)
[2] UTD = Unable to determine; the biological opinion does not specify the level of take anticipated.
[3] The affected critical habitat unit for the coastal California gnatcatcher was removed from the revised designation.

Appendix B: Mitigation Measures Proposed Newhall Land and Farming

In June 2010, the U.S. Army Corps of Engineers (Corps) and the California Department of Fish and Game (CDFG) released a Final Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the proposed Newhall Ranch Development project. The EIS/EIR provides mitigation measures that would reduce the project's impacts on biological resources, including 80 measures previously adopted by the County of Los Angeles during the Specific Plan approval process and 89 measures added by the Corps and CDFG. Measures identified in the Newhall Ranch Specific Plan Program EIR for biological resources that minimize effects to federally listed wildlife species within the action area are included below from subsection B-1. Additional measures identified in the EIR/EIS for biological resources that minimize effects to federally listed wildlife species within the action area are included below in subsection B-2. These additional measures are consistent with and supplement those mitigation measures listed in the previously certified Newhall Ranch Specific Plan Program EIR.

B.1 MITIGATION MEASURES ALREADY REQUIRED BY THE ADOPTED SPECIFIC PLAN

SP-4.6-1 The restoration mitigation areas located within the River Corridor SMA shall be in areas that have been disturbed by previous uses or activities. Mitigation shall be conducted only on sites where soils, hydrology, and microclimate conditions are suitable for riparian habitat. First priority will be given to those restorable areas that occur adjacent to existing patches (areas) of native habitat that support sensitive species, particularly Endangered or Threatened species. The goal is to increase habitat patch size and connectivity with other existing habitat patches while restoring habitat values that will benefit sensitive species.

SP-4.6-2 A qualified biologist shall prepare or review revegetation plans. The biologist shall also monitor the restoration effort from its inception through the establishment phase.

SP-4.6-3 Revegetation Plans may be prepared as part of a CDFG 1603 Streambed Alteration Agreement and/or a Corps Section 404 Permit, and shall include:

- Input from both the Project proponent and resource agencies to assure that the Project objectives applicable to the River Corridor SMA and the criteria of this RMDP are met.
- The identification of restoration/mitigation sites to be used. This effort shall involve an analysis of the suitability of potential sites to support the desired habitat, including a description of the existing conditions at the site(s) and such base line data information deemed necessary by the permitting agency.

SP-4.6-4 The revegetation effort shall involve an analysis of the site conditions such as soils and hydrology so that site preparation needs can be evaluated. The revegetation plan shall include the details and procedures required to prepare the restoration site for planting (i.e., grading, soil preparation, soil stockpiling, soil amendments, etc.), including the need for a supplemental irrigation system, if any.

SP-4.6-5 Restoration of riparian habitats within the River Corridor SMA shall use plant species native to the Santa Clara River. Cuttings or seeds of native plants shall be gathered within the River Corridor SMA or purchased from nurseries with local supplies to provide good genetic stock for the replacement habitats. Plant species used in the restoration of riparian habitat shall be listed on the approved project plant palette (Specific Plan Table 2.6-1, Recommended Plant Species for Habitat Restoration in the River Corridor SMA) or as approved by the permitting State and Federal agencies.

SP-4.6-6 The final revegetation plans shall include notes that outline the methods and procedures for the installation of the plant materials. Plant protection measures identified by the project biologist shall be incorporated into the planting design/layout.

SP-4.6-7 The revegetation plan shall include guidelines for the maintenance of the mitigation site during the establishment phase of the plantings. The maintenance program shall contain guidelines for the control of non-native plant species, the maintenance of the irrigation system, and the replacement of plant species.

SP-4.6-8 The revegetation plan shall provide for monitoring to evaluate the growth of the developing habitat. Specific performance goals for the restored habitat shall be defined by qualitative and quantitative characteristics of similar habitats on the River (e.g., density, cover, species composition, structural development). The monitoring effort shall include an evaluation of not only the plant material installed, but the use of the site by wildlife. The length of the monitoring period shall be determined by the permitting state and/or federal agency.

SP-4.6-9 Monitoring reports for the mitigation site shall be reviewed by the permitting State and/or Federal agency.

SP-4.6-10 Contingency plans and appropriate remedial measures shall also be outlined in the revegetation plan.

SP-4.6-11 Habitat enhancement as referred to in this document means the rehabilitation of areas of native habitat that have been moderately disturbed by past activities (e.g., grazing, roads, oil and natural gas operations, etc.) or have been invaded by non-native plant species such as giant cane (*Arundo donax*) and tamarisk (*Tamarix* sp.).

SP-4.6-12 Removal of grazing is an important means of enhancement of habitat values. Without ongoing disturbance from cattle, many riparian areas will recover naturally. Grazing except as permitted as a long-term resource management activity will be removed from the River Corridor SMA pursuant to the Long-Term Management Plan set forth in Section 4.6 of the Specific Plan EIR.

SP-4.6-13 To provide guidelines for the installation of supplemental plantings of native species within enhancement areas, a revegetation plan shall be prepared prior to implementation of mitigation (see guidelines for revegetation plans above). These supplemental plantings will be composed of plant species similar to those growing in the existing habitat patch (see Specific Plan Table 2.6-1).

SP-4.6-14 Not all enhancement areas will necessarily require supplemental plantings of native species. Some areas may support conditions conducive for rapid "natural" reestablishment of native species. The revegetation plan may incorporate means of enhancement to areas of compacted soils, poor soil fertility, trash or flood debris, and roads as a way of enhancing riparian habitat values.

SP-4.6-15 Removal of non-native species such as giant cane (*Arundo donax*), salt cedar or tamarisk (*Tamarix* sp.), tree tobacco (*Nicotiana glauca*), castor bean (*Ricans communis*), if included in a revegetation plan to mitigate impacts, shall be subject to the following standards:

- First priority shall be given to those habitat patches that support or have a high potential for supporting sensitive species, particularly Endangered or Threatened species.
- All non-native species removals shall be conducted according to a resource agency approved exotics removal program.
- Removal of non-native species in patches of native habitat shall be conducted in such a way as to minimize impacts to the existing native riparian plant species.

SP-4.6-16 Mitigation banking activities for riparian habitats will be subject to State and Federal regulations and permits. Mitigation banking for oak resources shall be conducted pursuant to the Oak Resources Replacement Program. Mitigation banking for elderberry scrub shall be subject to approval of plans by the County Forester.

SP-4.6-17 Access to the River Corridor SMA for hiking and biking shall be limited to the River trail system (including the Regional River Trail and various Local Trails) as set forth in this Specific Plan.

- The River trail system shall be designed to avoid impacts to existing native riparian habitat, especially habitat areas known to support sensitive species. Where impacts to riparian habitat are unavoidable, disturbance shall be minimized and mitigated as outlined above under Mitigation Measures 4.6-1 through 4.6-8.

- Access to the River Corridor SMA will be limited to day time use of the designated trail system.
- Signs indicating that no pets of any kind will be allowed within the River Corridor SMA, with the exception that equestrian use is permitted on established trails, shall be posted along the River Corridor SMA.
- No hunting, fishing, or motor or off-trail bike riding shall be permitted.
- The trail system shall be designed and constructed to minimize impacts on native habitats.

SP-4.6-18 Where development lies adjacent to the boundary of the River Corridor SMA a transition area shall be designed to lessen the impact of the development on the conserved area. Transition areas may be comprised of Open Area, natural or revegetated manufactured slopes, other planted areas, bank areas, and trails. Exhibits 2.6-4, 2.6-5, and 2.6-6 indicate the relationship between the River Corridor SMA and the development (disturbed) areas of the Specific Plan. The SMAs and the Open Area as well as the undisturbed portions of the development areas are shown in green. As indicated on the exhibits, on the south side of the river the River Corridor SMA is separated from development by the river bluffs, except in one location. The Regional River Trail will serve as transition area on the north side of the river where development areas adjoin the River Corridor SMA (excluding Travel Village).

SP-4.6-19 The following are the standards for design of transition areas:

- In all locations where there is no steep grade separation between the River Corridor SMA and development, a trail shall be provided along this edge.
- Native riparian plants shall be incorporated into the landscaping of the transition areas between the River Corridor SMA and adjacent development areas where feasible for their long-term survival. Plants used in these areas shall be those listed on the approved plant palette (Specific Plan Table 2.6-2 of the Resource Management Plan [Recommended Plants for Transition Areas Adjacent to the River Corridor SMA]).
- Roads and bridges that cross the River Corridor SMA shall have adequate barriers at their perimeters to discourage access to the River Corridor SMA adjacent to the structures.
- Where bank stabilization is required to protect development areas, it shall be composed of ungrouted rock, or buried bank stabilization as described in Section 2.5.2.a, except at bridge crossings and other locations where public health and safety requirements necessitate concrete or other bank protection.
- A minimum 100-foot-wide buffer adjacent to the Santa Clara River should be required between the top river side of bank stabilization and development within the Land Use Designations Residential Low Medium, Residential Medium, Mixed-Use and Business Park unless, through Planning Director review in consultation with the staff biologist, it is determined that a lesser buffer would adequately protect the riparian resources within the River Corridor, or that a

100-foot-wide buffer is infeasible for physical infrastructure planning. The buffer area may be used for public infrastructure, such as: flood control access; sewer, water and utility easements; abutments; trails and parks, subject to findings of consistency with the Specific Plan and applicable County policies.

SP-4.6-20 The following guidelines shall be followed during any grading activities that take place within the River Corridor SMA:

- Grading perimeters shall be clearly marked and inspected by the project biologist prior to grading occurring within or immediately adjacent to the River Corridor SMA.
- The project biologist shall work with the grading contractor to avoid inadvertent impacts to riparian resources.

SP-4.6-21 Upon final approval of the Newhall Ranch Specific Plan, the Special Management Area designation for the River Corridor SMA shall become effective. The permitted uses and development standards for the SMA are governed by the Development Regulations, Chapter 3 of the Specific Plan.

SP-4.6-22 Upon completion of development of all land uses, utilities, roads, flood control improvements, bridges, trails, and other improvements necessary for implementation of the Specific Plan within the River Corridor in each subdivision allowing construction within or adjacent to the River Corridor, a permanent, non-revocable *conservation and public access easement* shall be offered to the County of Los Angeles pursuant to Mitigation Measure 4.6-23, below, over the portion of the River Corridor SMA within that subdivision.

SP-4.6-23 The River Corridor SMA *Conservation and Public Access Easement* shall be offered to the County of Los Angeles prior to the transfer of the River Corridor SMA ownership, or portion thereof to the management entity described in Mitigation Measure 4.6-26, below.

SP-4.6-24 The River Corridor SMA *Conservation and Public Access Easement* shall prohibit grazing, except as a long-term resource management activity, and agriculture within the River Corridor and shall restrict recreation use to the established trail system.

Agricultural land uses and grazing for purposes other than long-term resource management activities within the River Corridor shall be extended in the event of the filing of any legal action against Los Angeles County challenging final approval of the Newhall Ranch Specific Plan and any related project approvals or certification of the Final EIR for Newhall Ranch. Agricultural land uses and grazing for purposes other than long-term resource management activities within the River Corridor shall be extended by the time period between the filing of any such legal action and the entry of a final judgment by a court with appropriate jurisdiction, after exhausting all

rights of appeal, or execution of a final settlement agreement between all parties to the legal action, whichever occurs first.

SP-4.6-25 The River Corridor SMA conservation and public access easement shall be consistent in its provisions with any other conservation easements to State or Federal resource agencies which may have been granted as part of mitigation or mitigation banking activities.

SP-4.6-26 Prior to the recordation of the River Corridor SMA *Conservation and Public Access Easement* as specified in Mitigation Measure 4.6-23, above, the land owner shall provide a plan to the County for the permanent ownership and management of the River Corridor SMA, including any necessary financing. This plan shall include the transfer of ownership of the River Corridor SMA to the Center for Natural Lands Management, or if the Center for Natural Lands Management is declared bankrupt or dissolved, ownership will transfer or revert to a *joint powers authority* consisting of Los Angeles County (4 members), the City of Santa Clarita (2 members), and the Santa Monica Mountains Conservancy (2 members).

SP-4.6-26a Two types of habitat restoration may occur in the High Country SMA: 1) riparian revegetation activities principally in Salt Creek Canyon; and 2) oak tree replacement in, or adjacent to, existing oak woodlands and savannahs.

- Mitigation requirements for riparian revegetation activities within the High Country SMA are the same as those for the River Corridor SMA and are set forth in Mitigation Measures 4.6-1 through 4.6-11 and 4.6-13 through 4.6-16, above.
- Mitigation requirements for oak tree replacement are set forth in Mitigation Measure 4.6-48, below.

SP-4.6-27 Removal of grazing from the High Country SMA except for those grazing activities associated with long-term resource management programs, is a principal means of enhancing habitat values in the creeks, brushland and woodland areas of the SMA. The removal of grazing in the High Country SMA is discussed below under (b) 4. Long Term Management. All enhancement activities for riparian habitat within the High Country SMA shall be governed by the same provisions as set forth for enhancement in the River Corridor SMA. Specific Plan Table 2.6-3 of the Resource Management Plan provides a list of appropriate plant species for use in enhancement areas in the High Country SMA.

SP-4.6-28 Mitigation banking activities for riparian habitats will be subject to State and Federal regulations and permits. Mitigation banking for oak resources, shall be conducted pursuant to the Oak Resource Replacement Program. Mitigation banking for elderberry scrub shall be subject to approval of plans by the County Forester.

SP-4.6-29 Access to the High Country SMA will be limited to day time use of the designated trail system.

SP-4.6-30 No pets of any kind will be allowed within the High Country SMA, with the exception that equestrian use is permitted on established trails.

SP-4.6-31 No hunting, fishing, or motor or trail bike riding shall be permitted.

SP-4.6-32 The trail system shall be designed and constructed to minimize impacts on native habitats.

SP-4.6-33 Construction of buildings and other structures (such as patios, decks, etc.) shall only be permitted upon developed pads within Planning Areas OV-04, OV-10, PV-02, and PV-28 and shall not be permitted on southerly slopes facing the High Country SMA (Planning Area HC-01) or in the area between the original SEA 20 boundary and the High Country boundary. If disturbed by grading, all southerly facing slopes which adjoin the High Country SMA within those Planning Areas shall have the disturbed areas revegetated with compatible trees, shrubs and herbs from the list of plant species for south and west facing slopes as shown in Table 2.6-3, Recommended Plant Species For Use In Enhancement Areas In The High Country.

Transition from the development edge to the natural area shall also be controlled by the standards of wildfire fuel modification zones as set forth in Mitigation Measure 4.6-49. Within fuel modification areas, trees and herbs from Table 2.6-3 of the Resource Management Plan should be planted toward the top of slopes; and trees at lesser densities and shrubs planted on lower slopes.

SP-4.6-34 Grading perimeters shall be clearly marked and inspected by the project biologist prior to impacts occurring within or adjacent to the High Country SMA.

SP-4.6-35 The project biologist shall work with the grading contractor to avoid inadvertent impacts to biological resources outside of the grading area.

SP-4.6-36 Upon final approval of the Newhall Ranch Specific Plan, the Special Management Area designation for the High Country SMA shall become effective. The permitted uses and development standards for the SMA are governed by the Development Regulations, Chapter 3.

SP-4.6-37 The High Country SMA shall be offered for dedication in three approximately equal phases of approximately 1,400 acres each proceeding from north to south, as follows:

1. The first offer of dedication will take place with the issuance of the 2,000th residential building permit of Newhall Ranch;

2. The second offer of dedication will take place with the issuance of the 6,000th residential building permit of Newhall Ranch; and
3. The remaining offer of dedication will be completed by the 11,000th residential building permit of Newhall Ranch.

The Specific Plan applicant shall provide a quarterly report to the Departments of Public Works and Regional Planning which indicates the number of residential building permits issued in the Specific Plan area by subdivision map number.

SP-4.6-38 Prior to dedication of the High Country SMA, a *conservation and public access easement* shall be offered to the County of Los Angeles and a conservation and management easement offered to the Center for Natural Lands Management. The High Country SMA *Conservation and Public Access Easement* shall be consistent in its provisions with any other *conservation easements* to State or Federal resource agencies which may have been granted as part of mitigation or mitigation banking activities.

SP-4.6-39 The High Country SMA conservation and public access easement shall prohibit grazing within the High Country, except for those grazing activities associated with the long-term resource management programs, and shall restrict recreation to the established trail system.

SP-4.6-40 The High Country SMA conservation and public access easement shall be consistent in its provisions with any other conservation easements to State or Federal resource agencies which may have been granted as part of mitigation or mitigation banking activities.

SP-4.6-41 The High Country SMA shall be offered for dedication in fee to a *joint powers authority* consisting of Los Angeles County (4 members), the City of Santa Clarita (2 members), and the Santa Monica Mountains Conservancy (2 members). The *joint powers authority* will have overall responsibility for recreation within and conservation of the High Country.

SP-4.6-42 An appropriate type of service or assessment district shall be formed under the authority of the Los Angeles County Board of Supervisors for the collection of up to $24 per single family detached dwelling unit per year and $15 per single family attached dwelling unit per year, excluding any units designated as Low and Very Low affordable housing units pursuant to Section 3.10, Affordable Housing Program of the Specific Plan. This revenue would be assessed to the homeowner beginning with the occupancy of each dwelling unit and distributed to the *joint powers authority* for the purposes of recreation, maintenance, construction, conservation and related activities within the *High Country Special Management Area.*

SP-4.6-43 Suitable portions of *Open Area* may be used for mitigation of riparian, *oak resources*, or elderberry scrub. Mitigation activities within *Open Area* shall be subject to the following requirements, as applicable:

- River Corridor SMA Mitigation Requirements, including: Mitigation Measures 4.6-1 through 4.6-11 and 4.6-13 through 4.6-16
- High Country SMA Mitigation Requirements, including: Mitigation Measures 4.6-27, 4.6-29 through 4.6-42
- Mitigation Banking: Mitigation Measure 4.6-16

SP-4.6-44 Drainages with flows greater than 2,000 cfs will have soft bottoms. Bank protection will be of ungrouted rock, or buried bank stabilization as described in Section 2.5.2.a, except at bridge crossings and other areas where public health and safety considerations require concrete or other stabilization.

SP-4.6-45 The precise alignments and widths of major drainages will be established through the preparation of drainage studies to be approved by the County at the time of subdivision maps which permit construction.

SP-4.6-46 While Open Area is generally intended to remain in a natural state, some grading may take place, especially for parks, major drainages, trails, and roadways. Trails are also planned to be within Open Area.

SP-4.6-47 At the time that final subdivision maps permitting construction are recorded, the *Open Area* within the map will be offered for dedication to the Center for Natural Lands Management. Community Parks within *Open Area* are intended to be public parks. Prior to the offer of dedication of *Open Area* to the Center for Natural Lands Management, all necessary *conservation and public access easements*, as well as easements for infrastructure shall be offered to the County.

SP-4.6-47a Mitigation Banking will be permitted within the River Corridor SMA, the High Country SMA, and the *Open Area land use designations*, subject to the following requirements:

- Mitigation banking activities for riparian habitats will be subject to State and Federal regulations, and shall be conducted pursuant to the mitigation requirements set forth in Mitigation Measure 4.6-1 through 4.6-15 above.
- Mitigation banking for oak resources shall be conducted pursuant to 4.6-48, below.
- Mitigation banking for elderberry scrub shall be subject to approval of plans by the County Forester

SP-4.6-48 Standards for the restoration and enhancement of oak resources within the High Country SMA and the Open Area include the following (oak resources include oak trees of the sizes regulated under the County Oak Tree Ordinance, southern California black walnut trees, Mainland cherry trees, and Mainland cherry shrubs):

- To mitigate the impacts to oak resources that may be removed as development occurs in the Specific Plan Area, replacement trees shall be planted in conformance with the oak tree ordinance in effect at that time.
- Oak resource species obtained from the local gene pool shall be used in restoration or enhancement.
- Prior to recordation of construction-level final subdivision maps, an oak resource replacement plan shall be prepared that provides the guidelines for the oak tree planting and/or replanting. The Plan shall be reviewed by the Los Angeles Department of Regional Planning and the County Forester and shall include the following: site selection and preparation, selection of proper species including sizes and planting densities, protection from herbivores, site maintenance, performance standards, remedial actions, and a monitoring program.
- All plans and specifications shall follow County oak tree guidelines, as specified in the County Oak Tree Ordinance.

SP-4.6-49 To minimize the potential exposure of the development areas, Open Area, and the SMAs to fire hazards, the Specific Plan is subject to the requirements of the Los Angeles County Fire Protection District (LACFPD), which provides fire protection for the area. At the time of final subdivision maps permitting construction in development areas that are adjacent to Open Area and the High Country SMA, a wildfire fuel modification plan shall be prepared in accordance with the fuel modification ordinance standards in effect at that time and shall be submitted for approval to the County Fire Department.

SP-4.6-50 The wildfire fuel modification plan shall depict a fuel modification zone the size of which shall be consistent with the County fuel modification ordinance requirements. Within the zone, tree pruning, removal of dead plant material and weed and grass cutting shall take place as required by the fuel modification ordinance.

SP-4.6-51 In order to enhance the habitat value of plant communities that require fuel modification, fire retardant plant species containing habitat value may be planted within the fuel modification zone. Typical plant species suitable for Fuel Modification Zones are indicated in Specific Plan Table 2.6-5 of the Resource Management Plan. Fuel modification zones adjacent to SMAs and Open Areas containing habitat of high value such as oak woodland and savannas shall utilize a more restrictive plant list, which shall be reviewed by the County Forester.

SP-4.6-52 The wildfire fuel modification plan shall include the following construction period requirements: a) a fire watch during welding operations; b) spark arresters on all equipment or vehicles operating in a high fire hazard area; c) designated smoking and non-smoking areas; and d) water availability pursuant to the County Fire Department requirements.

SP-4.6-53 If, at the time any subdivision map proposing construction is submitted, the County determines through an Initial Study, or otherwise, that there may be Rare, Threatened or Endangered, plant or animal species on the property to be subdivided, then, in addition to the prior surveys conducted on the Specific Plan site to define the presence or absence of sensitive habitat and associated species, current, updated site-specific surveys for all such animal or plant species shall be conducted in accordance with the consultation requirements set forth in Mitigation Measure 4.6-59 within those areas of the Specific Plan where such animal or plant species occur or are likely to occur.

The site-specific surveys shall include the unarmored three-spine stickleback, the arroyo toad, the Southwestern pond turtle, the California red-legged frog, the southwestern willow flycatcher, the least Bell's vireo, the San Fernando Valley spineflower and any other Rare, Sensitive, Threatened, or Endangered plant or animal species occurring, or likely to occur, on the property to be subdivided. All site-specific surveys shall be conducted during appropriate seasons by qualified botanists or qualified wildlife biologists in a manner that will locate any Rare, Sensitive, Threatened, or Endangered animal or plant species that may be present. To the extent there are applicable protocols published by either the U.S. Fish and Wildlife Service (Service) or the CDFG, all such protocols shall be followed in preparing the updated site-specific surveys.

All site-specific survey work shall be documented in a separate report containing at least the following information: a) project description, including a detailed map of the project location and study area; b) a description of the biological setting, including references to the nomenclature used and updated vegetation mapping; c) detailed description of survey methodologies; d) dates of field surveys and total person-hours spent on the field surveys; e) results of field surveys, including detailed maps and location data; f) an assessment of potential impacts; g) discussion of the significance of the Rare, Threatened or Endangered animal or plant populations found in the project area, with consideration given to nearby populations and species distribution; h) mitigation measures, including avoiding impacts altogether, minimizing or reducing impacts, rectifying or reducing impacts through habitat restoration, replacement or enhancement, or compensating for impacts by replacing or providing substitute resources or environments, consistent with CEQA (*CEQA Guidelines* section 15370); i) references cited and persons contacted; and j) other pertinent information, which is designed to disclose impacts and mitigate for such impacts."

SP-4.6-54 Prior to development within or disturbance to occupied unarmored threespine stickleback habitat, a formal consultation with the Service shall occur.

SP-4.6-55 Prior to development or disturbance within wetlands or other sensitive habitats, permits shall be obtained from pertinent Federal and State agencies and the Specific Plan shall conform to the specific provisions of said permits. Performance criteria shall include that described in Mitigation Measures 4.6-1 through 4.6-16 and 4.6-42 through 4.6-47 for wetlands, and Mitigation Measures 4.6-27, 4.6-28, and 4.6-42 through 4.6-48 for other sensitive habitats.

SP-4.6-56 All lighting along the perimeter of natural areas shall be downcast luminaries with light patterns directed away from natural areas.

SP-4.6-57 Where bridge construction is proposed and water flow would be diverted, blocking nets and seines shall be used to control and remove fish from the area of activity. All fish captured during this operation would be stored in tubs and returned unharmed back to the river after construction activities were complete.

SP-4.6-58 To limit impacts to water quality the Specific Plan shall conform with all provisions of required NPDES permits and water quality permits that would be required by the State of California Regional Water Quality Control Board.

SP-4.6-59 Consultation shall occur with the County of Los Angeles ("County") and California Department of Fish and Game ("CDFG") at each of the following milestones:

1. Before Surveys. Prior to conducting sensitive plant or animal surveys at the Newhall Ranch subdivision map level, the applicant, or its designee, shall consult with the County and CDFG for purposes of establishing and/or confirming the appropriate survey methodology to be used.
2. After Surveys. After completion of sensitive plant or animal surveys at the subdivision map level, draft survey results shall be made available to the County and CDFG within sixty (60) calendar days after completion of the field survey work.
3. Subdivision Map Submittal. Within thirty (30) calendar days after the applicant, or its designee, submits its application to the County for processing of a subdivision map in the Mesas Village or Riverwood Village, a copy of the submittal shall be provided to CDFG. In addition, the applicant, or its designee, shall schedule a consultation meeting with the County and CDFG for purposes of obtaining comments and input on the proposed subdivision map submittal. The consultation meeting shall take place at least thirty (30) days prior to the submittal of the proposed subdivision map to the County.

4. Development/Disturbance and Further Mitigation. Prior to any development within, or disturbance to, habitat occupied by Rare, Threatened, or Endangered plant or animal species, or to any portion of the Spineflower Mitigation Area Overlay, as defined below, all required permits shall be obtained from both The Service and CDFG, as applicable. It is further anticipated that the federal and state permits will impose conditions and mitigation measures required by federal and state law that are beyond those identified in the Newhall Ranch Final EIR (March 1999), the Newhall Ranch DAA (April 2001) and the Newhall Ranch Revised DAA (2002). It is also anticipated that conditions and mitigation measures required by federal and state law for project-related impacts on Endangered, Rare or Threatened species and their habitat will likely require changes and revisions to Specific Plan development footprints, roadway alignments, and the limits, patterns and techniques associated with project-specific grading at the subdivision map level.

SP-4.6-60 If at the time subdivisions permitting construction are processed, the County determines through an Initial Study that there may be elderberry scrub vegetation on the property being subdivided, then a site specific survey shall be conducted to define the presence or absence of such habitat and any necessary mitigation measures shall be determined and applied.

SP-4.6-61 If at the time subdivisions permitting construction are processed, the County determines through an Initial Study that there may be mainland cherry trees and/or mainland cherry shrubs on the property being subdivided, then a site specific survey shall be conducted to define the presence or absence of such habitat and any necessary mitigation measures shall be determined and applied.

SP-4.6-62 When a map revision or Substantial Conformance determination on any subdivision map or Conditional Use Permit would result in changes to an approved oak tree permit, then the oak tree report for that oak tree permit must be amended for the area of change, and the addendum must be approved by the County Forester prior to issuance of grading permits for the area of the map or CUP being changed.

SP-4.6-63 Riparian resources that are impacted by buildout of the Newhall Ranch Specific Plan shall be restored with similar habitat at the rate of 1 acre replaced for each acre lost.

SP-4.6-64 The operator of the golf course shall prepare a Golf Course Maintenance Plan which shall include procedures to control storm water quality and ground water quality as a result of golf course maintenance practices, including irrigation, fertilizer, pesticide and herbicide use. This Plan shall be prepared in coordination with the County biologist and approved by the County Planning Director prior to the issuance of a Certificate of Occupancy.

B.2 ADDITIONAL MITIGATION MEASURES ADOPTED IN THE EIS/EIR

BIO-1 Mitigation Measures SP-4.6-1 through SP-4.6-16 specify requirements for riparian mitigation conducted in the High Country SMA, Salt Creek area, and Open Area. The RMDP includes requirements for mitigation of both riparian and upland habitats (such as riparian adjacent big sagebrush scrub), and incorporates these Mitigation Measures (SP-4.6-1 through SP-4.6-16). A Comprehensive Mitigation Implementation Plan (CMIP) has been developed by Newhall Land that provides an outline of mitigation to offset impacts described in the RMDP. The CMIP demonstrates the feasibility of creating the required mitigation acreage from RMDP project impacts (see BIO-2).

Detailed riparian/wetland mitigation plans, in accordance with the CMIP, shall be submitted to, and are subject to the approval of, the Corps and CDFG as part of the sub-notification letters for individual projects. Individual project submittals shall include applicable CMIP elements, complying with the requirements outlined below. The detailed wetlands mitigation plan shall specify, at a minimum, the following: 1) the location of mitigation sites; 2) site preparation, including grading, soils preparation, irrigation installation, 2a) the quantity (seed or nursery stock) and species of plants to be planted (all species to be native to region); 3) detailed procedures for creating additional vegetation communities; 4) methods for the removal of non-native plants; 5) a schedule and action plan to maintain and monitor the enhancement/restoration area; 6) a list of criteria by which to measure success of the mitigation sites (e.g., percent cover and richness of native species, percent survivorship, establishment of self-sustaining native of plantings, maximum allowable percent of non-native species); 7) measures to exclude unauthorized entry into the creation/enhancement areas; and 8) contingency measures in the event that mitigation efforts are not successful. The detailed wetlands mitigation plans shall also classify the biological value (as "high," "moderate," or "low") of the vegetation communities to be disturbed as defined in these conditions, or may be based on an agency-approved method (e.g., Hybrid Assessment of Riparian Communities (HARC)). The biological value shall be used to determine mitigation replacement ratios required under BIO-2 and BIO-10. The detailed wetlands mitigation plans shall provide for the 3:1 replacement of any southern California black walnut to be removed from the riparian corridor for individual projects. The plan shall be subject to the approval of CDFG and the Corps and approved prior to the impact to riparian resources. BIO-4 describes that the functions and values will be assessed for the riparian areas that will be removed, and BIO-2 and BIO-10 describe the replacement ratios for the habitats that will be impacted.

BIO-2 The permanent removal of existing habitats in Corps and/or CDFG jurisdictional areas in the Santa Clara River and tributaries shall be replaced by creating habitats of similar functions and values/services (see Mitigation Measure BIO-4 and Mitigation

Measure SW-3 of Section 4.6 of the Final EIS/EIR) on the Project site, or as allowed under Mitigation Measure BIO-10.

a. Permanent impacts to Corps jurisdiction (which is a subset of CDFG jurisdiction) are to be mitigated by initiating mitigation site creation and/or restoration in advance of impacts, to replace the combined loss of acreage, functions, and services at a minimum 1:1 ratio. Initiation of a Corps mitigation site is defined as: (1) completion of site preparation; (2) installation of temporary irrigation; and (3) seeding and/or planting of the mitigation site. For detailed information, please refer to the *Mitigation Plan for Impacts to Waters of the United States* included in the Draft 404(b)(1) Alternatives Analysis in Appendix F1.0 of the Final EIS/EIR. The Salt Creek creation and restoration site and the Mayo Crossing restoration site (i.e., an existing agricultural field) are considered the initial sites to be implemented prior to Corps jurisdictional impacts by development, thereby establishing upfront mitigation credits. As individual Project components are proposed for construction, consistent with the construction notification, quantities of mitigation acreage required to offset permanent impact acreages shall be calculated and compared to pre-mitigation area credits remaining. A project would not proceed unless adequate mitigation capacity is demonstrated. Temporary impact areas shall be mitigated in place in a manner that restores impacted functions and services as described in the mitigation plan noted above. If upfront compensatory mitigation cannot be achieved, a Corps-approved method would be utilized to determine the additional compensatory mitigation to offset the temporal loss of functions and services not included in the 1:1 mitigation ratio for permanent impacts.

   These measures satisfy the Corps mitigation requirements for impacts to Corps jurisdictional areas. However, impacts to jurisdictional areas (which include all areas subject to Corps and/or CDFG jurisdiction) are also subject to all of the mitigation requirements for impacts to CDFG jurisdiction, including BIO-2b.

b. For permanent and temporary impacts to CDFG jurisdiction, consistent with the sub-notification, quantities of mitigation acreage required shall be calculated in accordance with the criteria below:

   - If suitable mitigation sites have met success criteria (BIO-6) prior to disturbance at the impact site, the mitigation sites shall replace the permanently impacted habitats in kind at a 1:1 ratio.
   - If a suitable mitigation site has not met success criteria prior to disturbance of the impact site, habitat shall be replaced in kind (tributary for tributary impacts, river for river impacts) according to the replacement ratios specified in Table 4.5-68, below. These ratios provide compensatory mitigation for temporal losses of riparian function by considering the existing functional condition of

the resources to be impacted, as well as time required for different vegetation types to become established and mature.

- If a suitable mitigation site has not been initiated within two years following disturbance of the impact site, but is initiated within 5 years following such disturbance, the permanently impacted habitats shall be replaced in kind at a replacement ratio equal to the ratio required by Table 4.5-68, below, plus 0.5:1. (For example, if mitigation for impacts to high-quality mulefat scrub were initiated three years after disturbance, the required replacement ratio would be 2.5:1.)
- If a suitable mitigation site has not been initiated within 5 years following disturbance of the impact site, the permanently impacted habitats shall be replaced in kind at a replacement ratio equal to the ratio required by Table 4.5-68, below, plus 1:1. (For example, if mitigation for impacts to high-quality mulefat scrub were initiated six years after disturbance, the required replacement ratio would be 3:1.)

Where temporary impacts to CDFG-jurisdictional areas are proposed, the mitigation acreage required shall be determined based upon the duration of the proposed construction disturbance and the type of vegetation to be impacted. As individual Project components are proposed for construction, consistent with the sub-notification process, the quantities of mitigation acreage required for temporary impacts to CDFG jurisdictional areas shall be calculated according to the following criteria:

- If suitable mitigation sites have met success criteria prior to temporary disturbance at the impact site, the mitigation sites shall replace the temporarily impacted habitats in kind at a 1:1 ratio regardless of the duration of the temporary disturbance.
- If the duration of temporary disturbance is less than two years, and no suitable mitigation sites have met success criteria prior to the disturbance, temporarily impacted habitats shall be replaced in kind at a 1:1 ratio, except for southern cottonwood/willow riparian forest and oak woodland habitats, which shall be replaced in kind at a ratio of 1:1 if low quality, 1.5:1 if medium quality, and 2:1 if high quality.
- If the duration of temporary disturbance is between two and five years, and no suitable mitigation sites have met success criteria prior to the disturbance, temporarily impacted habitats shall be replaced in kind at a 1.5:1 ratio, except for southern cottonwood/willow riparian forest and oak woodland habitats, which shall be replaced in kind at a ratio of 1:1 if low quality, 1.5:1 if medium quality, and 2:1 if high quality.
- If the duration of temporary disturbance exceeds five years, and no suitable mitigation sites have met success criteria prior to the disturbance, temporarily impacted habitats shall be replaced in kind at a 2:1 ratio, except for southern cottonwood/willow riparian forest and oak woodland habitats, which shall be

replaced in kind at a ratio of 1:1 if low quality, 1.5:1 if medium quality, and 2:1 if high quality.

In lieu of the habitat replacement described above and subject to CDFG approval, removal of invasive, exotic plant species from existing CDFG jurisdictional areas, followed by restoration/revegetation, may also be used to offset impacts. If this method is employed, mitigation shall be credited at an acreage equivalent to the percentage of exotic vegetation present at the restoration site. For example, if a 10-acre jurisdictional area is occupied by 10 percent exotic species, restoration shall be credited for 1 acre of impact. If appropriate, as authorized by CDFG, reduced percentage credits may be applied for invasive removal with passive restoration (weeding and documentation of natural recruitment only).

BIO-3 Creation of new vegetation communities and restoration of impacted vegetation communities shall occur at suitable sites in or adjacent to jurisdictional areas or in areas where bank stabilization would occur. Locations where the excavation of uplands for bank protection/stabilization results in creation of new, unvegetated riverbed or other disturbance shall receive the highest level of priority for vegetation community restoration. Restoration sites may also occur at locations outside the riverbed where there are appropriate hydrologic conditions to create a self-sustaining riparian vegetation community and where upland and riparian vegetation community values are absent or very low. All sites shall contain suitable hydrological conditions and surrounding land uses to ensure a self-sustaining functioning riparian vegetation community. Candidate restoration sites shall be described in the annual mitigation status report (BIO-12). Sites will be approved when the detailed wetlands mitigation plans are submitted to the Corps and CDFG as part of the sub-notification letters submitted for individual projects Status of the sites will be addressed as part of the annual mitigation status report and mitigation accounting form agency review. Each mitigation plan will include acreages, maps and site specific descriptions of the proposed revegetation site, including analysis of soils, hydrologic suitability, and present and future adjacent land uses.

BIO-4 Replacement vegetation communities shall be designed to replace the functions and values of the vegetation communities being removed. The replacement vegetation communities shall have similar dominant trees and understory shrubs and herbs (excluding exotic species) to those of the affected vegetation communities (see [EIS/EIR] Table 4.5-69 for example of recommended plant species for the River Corridor SMA and tributaries). In addition, the replacement vegetation communities shall be designed to replicate the density and structure of the affected vegetation communities once the replacement vegetation communities have met the mitigation success criteria.

BIO-5 Average plant spacing shall be determined based on an analysis of vegetation communities to be replaced. The applicant shall develop plant spacing specifications

for all riparian vegetation communities to be restored. Plant spacing specifications shall be reviewed and approved by the Corps and CDFG when restoration plans are submitted to the agencies as part of the sub-notification letters submitted to the Corps and CDFG for individual projects or as part of the annual mitigation status report and mitigation accounting form.

TABLE 4.5-68 CDFG JURISDICTIONAL PERMANENT IMPACTS MITIGATION RATIOS

RATIOS LISTED BY VEGETATION TYPES AND QUALITY

Vegetation Community	Veg Code/ID	High Reach Value[1] (Mit. Ratio)	Medium Reach Value[2] (Mit. Ratio)	Low Reach Value[3] (Mit. Ratio)
Southern Cottonwood-Willow Riparian Forrest	SCWRF	4:1	3:1	2:1
Southern Willow Scrub	SWS	3:1	2.5:1	2:1
Oak Woodland (Coast Live, Valley)	CLOW/VOW	3:1	2.5:1	2:1
Big Sagebrush Scrub	BSS	2.5:1	2:1	1.5:1
Mexican Elderberry Scrub	MES	2.5:1	2:1	1.5:1
Cismontane Alkaline Marsh	CAM	2.5:1	2:1	1.5:1
Coastal and Valley Fresh Water Marsh	CFWM	2:1	1.5:1	1:1
Mulefat Scrub	MFS	2:1	1.5:1	1.25:1
Arrowweed Scrub	AWS	2:1	1.5:1	1:1
California Sagebrush scrub, and CSB-dominated habitats	CSB, CSB-A, -BS, -CB, -CHP, and -PS	2:1	1.5:1	1:1
Herbaceous Wetland	HW	1.5:1	1.25:1	1:1
River Wash, emergent veg.	RW	1.5:1	1.25:1	1:1
Chaparral, Chamise Chaparral	CHP, CC	1.5:1	1.25:1	1:1
Coyote Brush Scrub	CYS	1.5:1	1.25:1	1:1
Eriodictyon Scrub	EDS	1.5:1	1.25:1	1:1
California Grass Lands	CGL	1:1	1:1	1:1
Agricultural/Disturbed/Developed	AGR/DL/DEV	1:1	1:1	1:1

[1] HIGH reach value indicates a portion of the Santa Clara River or main tributary that scored above 0.79 Total Score utilizing the HARC methodology described in Section 4.2, Geomorphology and Riparian Resources, of this EIS/EIR.

[2] MEDIUM reach value indicates a portion of the Santa Clara River or main tributary that scored between 0.4 and 0.79 Total Score utilizing the HARC methodology described in Section 4.2.

[3] LOW reach value indicates a portion of the Santa Clara River or main tributary that scored below 0.4 Total Score utilizing the HARC methodology described in Section 4.2.

TABLE 4.5-69 POTENTIAL PLANT SPECIES FOR VEGETATION COMMUNITY RESTORATION IN THE RIVER CORRIDOR SMA AND TRIBUTARIES

Common Name	Scientific Name
Trees	
Red willow	*Salix laevigata*
Arroyo willow	*Salix lasiolepis*
Fremont cottonwood	*Populus fremontii*
Black cottonwood	*Populus balsamifera* ssp. *trichocarpa*
Western sycamore	*Platanus racemosa*
Shrubs	
Mulefat	*Baccharis salicifolia*
Sandbar willow	*Salix exigua*
Arrow weed	*Pluchea sericea*
Herbs	
Mugwort	*Artemisia douglasiana*
Western ragweed	*Ambrosia psilostachya*
Cattail	*Typha latifolia*
Bulrush	*Scirpus americanus*
Prairie bulrush	*Scirpus maritimus*

Note: This is a recommended list. Other species may be found suitable based on site conditions and state and federal permits.

BIO-6 The revegetation site will be considered "complete" upon meeting all of the following success criteria. In a sub-notification letter, the applicant may request modification of success criteria on a project by project basis. Acceptance of such request will be at the discretion of CDFG and the Corps.

1. Regardless of the date of initial planting, any restoration site must have been without active manipulation by irrigation, planting, or seeding for a minimum of three years prior to Agency consideration of successful completion.
2. The percent cover and species richness of native vegetation shall be evaluated based on local reference sites established by CDFG and the Corps for the plant communities in the impacted areas.
3. Native shrubs and trees shall have at least 80 percent survivorship after two years beyond the beginning of the success evaluation start date. This may include natural recruitment.
4. Non-native species cover will be no more than 5 percent absolute cover through the term of the restoration.
5. Giant reed (*Arundo donax*), tamarisk (*Tamarix ramosissima*), perennial pepperweed (*Lepidium latifolium*), tree of heaven (*Ailanthus altissimus*), pampas grass (*Cortaderia selloana*) and any species listed on the California State Agricultural list, or Cal-IPC list of noxious weeds will not be present on the revegetation site as of the date of completion approval.

6. Using the HARC assessment methodology, the compensatory mitigation site shall meet or exceed the baseline functional scores of the impact area in jurisdictional waters of the United States. If the compensatory mitigation site cannot meet or exceed the baseline functional score of the impact area in Corps' jurisdictional waters.

BIO-7 If at any time prior to Agency approval of the restoration area, the site is subject to an act of "God" (e.g., flood, fires, or drought) the applicant shall be responsible for replanting the damaged area. The site will be subject to the same success criteria as provided for in BIO-6. Should a second act of God occur prior to Agency approval of the restoration area, the applicant shall coordinate with the Agencies and develop an alternative restoration strategy(ies) to meet success requirements. This may include restoration elsewhere in the river corridor or tributaries.

BIO-8 Temporary irrigation shall be installed as necessary for plant establishment. Irrigation shall continue as needed until the restoration site becomes self sustaining, regarding survivorship and growth. Irrigation shall be terminated in the fall to provide the least stress to plants.

BIO-9 In areas where invasive exotic plant species control is authorized by CDFG in-lieu of other riparian habitat mitigation (BIO-2), removal areas shall be kept free of exotic plant species for five years after initial treatment. In areas where extensive exotic removal occurs, revegetation with native plants or natural recruitment shall be documented.

BIO-10 The exotics control program may utilize methods and procedures in accordance with the provisions in the Upper Santa Clara River Watershed Arundo/Tamarisk Removal Plan Final EIR, dated February 2006, or the applicant may propose alternative methods and procedures for Corps and CDFG review and approval pursuant to a sub-notification letter or annual mitigation status report submittal. Exotic plant species control will be credited at an acreage equivalent to the percentage of exotic vegetation at the restoration site. By example: a 10-acre site occupied by 10 percent exotic species will be credited for one acre of mitigation. The exotic weed control location will be documented on the annual mitigation status report and mitigation accounting form. If "in-lieu fees" are paid, it will be documented on the annual mitigation status report and mitigation accounting form, along with a reporting of the status of exotic vegetation treatment.

BIO-11 To provide an accurate and reliable accounting system for mitigation, the applicant utilizing the RMDP shall file a mitigation accounting form annually with the Corps and CDFG by April 1. This form shall document the amount of vegetation planted during the past year, any "in-lieu fees" paid for exotic invasive plant species control, the status of all mitigation credits to date, and any credits subtracted by projects implemented during the past year. The applicant, utilizing the RMDP, shall keep

detailed records and provide a mitigation accounting form to the Corps and CDFG annually for review for the life of the permit, or until all credits have been used up for individual projects, and success criteria have been met. The Corps and CDFG shall provide concurrence within 60 days, including written verification for all restoration and weed removal sites that meet the specified performance criteria. Adequate proof of delivery of applicable reports would be required as well as subsequent notice to the Agencies requesting surety release.

BIO-12 An annual mitigation status report shall be submitted to the Corps and CDFG by April 1 of each year until satisfaction of success criteria identified in BIO-6. This report shall include any required plans for plant spacing, locations of candidate restoration and weed control sites or proposed "in-lieu fees," restoration methods, and vegetation community restoration performance standards. For active vegetation community creation sites, the report shall include the survival, percent cover, and height of planted species; the number by species of plants replaced; an overview of the revegetation effort and its success in meeting performance criteria; the method used to assess these parameters; and photographs. For active exotics control sites, the report shall include an assessment of weed control; a description of the relative cover of native vegetation, bare areas, and exotic vegetation; an accounting of colonization by native plants; and photographs. The report shall also include the mitigation accounting form (see BIO-11), which outlines accounting information related to species planted or exotics control and mitigation credit remaining. The annual mitigation and monitoring report shall document the current functional capacity of the compensatory mitigation site using the HARC assessment methodology, as well as documenting the baseline functional scores of the impact site in jurisdictional waters of the United States.

BIO-13 The mitigation program shall incorporate applicable principles in the interagency Federal Guidance for the Establishment, Use, and Operation of Mitigation Banks (60 FR 58605–58614) to the extent feasible and appropriate, particularly the guidance on administration and accounting. Nothing in the section 404 or section 2081 Permit or section 1605 agreement shall preclude the applicant from selling mitigation credits to other parties wishing to use those permits or that agreement for a project and/or maintenance activity included in the permits/agreement.

BIO-14 Temporary impacts from construction activities in the riverbed shall be restricted to the following areas of disturbance: 1) an 85-foot-wide zone that extends into the river from the base of the rip-rap or gunite bank protection where it intercepts the river bottom; 2) 100 feet on either side of the outer edge of a new bridge or bridge to be modified; 3) a 60-foot-wide corridor for utility lines; 4) 20-foot-wide temporary access ramps; and 5) 60-foot roadway width temporary construction haul routes. The locations of these temporary construction sites and the routes of all access roads shall be shown on maps submitted with the sub-notification letter submitted to the Corps and CDFG for individual project approval. Any variation from these limits shall be

submitted, with a justification for a variation for Corps and CDFG approval. The construction plans should indicate what type of vegetation, if any, would be temporarily disturbed or removed and the post-construction activities to facilitate revegetation of the temporarily impacted areas. The boundaries of the construction site and any temporary access roads within the riverbed shall be marked in the field with stakes and flagging. No construction activities, vehicular access, equipment storage, stockpiling, or significant human intrusion shall occur outside the work area and access roads.

BIO-15 All native riparian trees with a three-inch diameter at breast height (dbh) or greater in temporary construction areas shall be replaced using 1- or 5-gallon container plants, containered trees, or pole cuttings in the temporary construction areas in the winter following the construction disturbance. The mitigation ratios for temporary impacts to vegetation communities are described in BIO-2. The growth and survival of the replacement trees shall meet the performance standards specified in BIO-6. In addition, the growth and survival of the planted trees shall be monitored until they meet the self sustaining success criteria in accordance with the methods and reporting procedures specified in BIO-6, BIO-7, BIO-11, and BIO-12.

BIO-16 Vegetation communities temporarily impacted by the proposed Project shall be revegetated as described in BIO-2. Large trunks of removed trees may also remain on site to provide habitat for invertebrates, reptiles, and small mammals or may be anchored within the Project site for erosion control. To facilitate restoration, mulch, or native topsoil (the top 6- to 12-inch deep layer containing organic material), may be salvaged from the work area prior to construction. Following construction, salvaged topsoil shall be returned to the work area and placed in the restoration site. Within one year, the Project biologist will evaluate the progress of restoration activities in the temporary impact areas to determine if natural recruitment has been sufficient for the site to reach performance goals. In the event that native plant recruitment is determined by the Project biologist to be inadequate for successful habitat establishment, the site shall be revegetated in accordance with the methods designed for permanent impacts (i.e., seeding, container plants, and/or a temporary irrigation system may be recommended). This will help ensure the success of mitigation areas. The applicant shall restore the temporary construction area per the success criteria and ratios described in BIO-1, BIO-2, and BIO-6. Annual monitoring reports on the status of the recovery of temporarily impacted areas shall be submitted to the Corps and CDFG as part of the annual mitigation status report (BIO-11 and BIO-12).

BIO-17 Focused surveys for arroyo toad shall be conducted. Prior to initiating construction for the installation of bridges, storm drain outlets, utility lines, bank protection, trails, and/or other construction activities, all construction sites and access roads within the riverbed as well as all riverbed areas within 1,000 feet of construction sites and access roads shall be surveyed at the appropriate season for arroyo toad. The applicant shall

contract with a qualified biologist to conduct focused surveys for arroyo toad. If detected in or adjacent to the Project area, no work will be authorized within 500 feet of occupied habitat until the applicant provides concurrence from the Service to CDFG and the Corps. The applicant shall implement measures required by the Service Biological Opinion that either supplement or supersede these measures. If arroyo toads are determined to be present, the applicant shall develop and implement a monitoring plan that includes the following measures in consultation with the Service and CDFG.

1) The applicant shall retain a qualified biologist with demonstrated expertise with arroyo toads to monitor all construction activities in potential arroyo toad habitat and assist the applicant in the implementation of the monitoring program. This person will be approved by the Service prior to the onset of ground-disturbing activities. This biologist will be referred to as the authorized biologist hereafter. The authorized biologist will be present during all activities immediately adjacent to or within habitat that supports populations of arroyo toad.
2) Prior to the onset of construction activities, the applicant shall provide all personnel who will be present on work areas within or adjacent to the Project area the following information:

    a. A detailed description of the arroyo toad, including color photographs;
    b. The protection the arroyo toad receives under the Endangered Species Act and possible legal action that may be incurred for violation of the Act;
    c. The protective measures being implemented to conserve the arroyo toad and other species during construction activities associated with the proposed Project; and
    d. A point of contact if arroyo toads are observed.

3) All trash that may attract predators of the arroyo toad will be removed from work sites or completely secured at the end of each work day.
4) Prior to the onset of any construction activities, the applicant shall meet on site with staff from the Service and the authorized biologist. The applicant shall provide information on the general location of construction activities within habitat of the arroyo toad and the actions taken to reduce impacts to this species. Because arroyo toads may occur in various locations during different seasons of the year, the applicant, the Service, and authorized biologists will, at this preliminary meeting, determine the seasons when specific construction activities would have the least adverse effect on arroyo toads. The goal of this effort is to reduce the level of mortality of arroyo toads during construction. The parties realize that if arroyo toads are present, complete prevention of all mortality is likely not possible because some arroyo toads may occur anywhere within suitable habitat during any given season; the detection of every individual over large areas is impossible because of the small size, fossorial habits, and cryptic coloration of the arroyo toad.

5) Where construction can occur in habitat where arroyo toads are widely distributed, work areas will be fenced in a manner that prevents equipment and vehicles from straying from the designated work area into adjacent habitat. The authorized biologist will assist in determining the boundaries of the area to be fenced in consultation with the Service /CDFG. All workers will be advised that equipment and vehicles must remain within the fenced work areas.
6) The authorized biologist will direct the installation of the fence and conduct a minimum of three nocturnal surveys to move any arroyo toads from within the fenced area to suitable habitat outside of the fence. If arroyo toads are observed on the final survey or during subsequent checks, the authorized biologist will conduct additional nocturnal surveys if he or she determines that they are necessary in concurrence with the Service /CDFG.
7) Fencing to exclude arroyo toads will be at least 24 inches in height.
8) The type of fencing must be approved by the authorized biologist and the Service /CDFG.
9) Construction activities that may occur immediately adjacent to breeding pools or other areas where large numbers of arroyo toads may congregate will be conducted during times of the year (fall/winter) when individuals have dispersed from these areas. The authorized biologist will assist the applicant in scheduling its work activities accordingly.
10) If arroyo toads are found within an area that has been fenced to exclude arroyo toads, activities will cease until the authorized biologist moves the arroyo toads.
11) If arroyo toads are found in a construction area where fencing was deemed unnecessary, work will cease until the authorized biologist moves the arroyo toads. The authorized biologist in consultation with the Service /CDFG will then determine whether additional surveys or fencing are needed. Work may resume while this determination is being made, if deemed appropriate by the authorized biologist and the Service.
12) Any arroyo toads found during clearance surveys or otherwise removed from work areas will be placed in nearby suitable, undisturbed habitat. The authorized biologist will determine the best location for their release, based on the condition of the vegetation, soil, and other habitat features and the proximity to human activities. Clearance surveys shall occur on a daily basis in the work area.
13) The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed.
14) Staging areas for all construction activities will be located on previously disturbed upland areas designated for this purpose. All staging areas will be fenced within potential toad habitat.
15) To ensure that diseases are not conveyed between work sites by the authorized biologist or his or her assistants, the fieldwork code of practice developed by the Declining Amphibian Populations Task Force (DAPTF 2009) will be followed at all times.

16) Drift fence/pitfall trap surveys will be implemented in toad sensitive areas prior to construction in an effort to reduce potential mortality to this species. Prior to any construction activities in the Project area, silt fence shall be installed completely around the proposed work area and a qualified biologist should conduct a preconstruction/clearance survey of the work area for arroyo toads. Any toads found in the work area should be relocated to suitable habitat. The silt fence shall be maintained for the duration of the work activity.
17) The applicant shall restrict work to daylight hours, except during an emergency, in order to avoid nighttime activities when arroyo toads may be present on the access road. Traffic speed should be maintained at 15 mph or less in the work area.

BIO-19 The 1,518-acre Salt Creek area shall be offered for dedication to the public pursuant to Condition 42 of the approved Specific Plan using a "rough step" land dedication approach. Irrevocable offers of dedication will be provided to CDFG for identified impact offsets in accordance with the Plan (BIO-1). The Salt Creek area includes approximately 629 acres of coastal scrub communities within both Ventura and Los Angeles counties. This land dedication shall be managed in conjunction with the 4,205-acre High Country SMA (containing 1,314 acres of coastal scrub communities).

a. To facilitate wildlife movement between the north side of SR-126 and the Salt Creek area, enhancements will be made to the existing agricultural undercrossing and to the agricultural land at the base of Salt Creek as discussed in BIO-59. A Wildlife Movement Enhancement Plan shall be submitted to the Corps and CDFG for approval prior to implementation. The plan shall include at the minimum the following:

   i. A portion of the agricultural field on the north side of SR-126 will be dedicated to wildlife movement. Trees and/or scrubs will be planted in the agricultural field to guide wildlife into the existing undercrossing.
   ii. On the south side of SR-126 two rows of trees/scrubs will be planted to guide wildlife to the Santa Clara River.
   iii. A wildlife corridor will be created through the agricultural fields at the base of Salt Creek Canyon.

BIO-20 Approximately 1,900 acres of coastal scrub shall be preserved on the Project site. The preservation of this vegetation type shall occur on site within the High Country SMA, the Salt Creek area, and the River Corridor SMA within the Specific Plan site. Irrevocable offers of dedication will be provided to CDFG for identified impact offsets in accordance with the Plan (BIO-1) using a "rough step" land dedication approach. Some of this habitat is recovering from wildfire and the expectation is that it will recover without active intervention. The functional values of any burned dedicated land areas shall be evaluated annually until such time that conditions are

commensurate with the quality of the impacted habitat being mitigated. In the event that the functional value of this burned habitat has not recovered within 5 years of the dedication due to invasive species, to fire ecology, erosion, drought, or unforeseen events, then adaptive management pursuant to BIO-21 will be implemented for coastal scrub restoration.

BIO-21 Supplemental restoration of coastal scrub shall be conducted as an adaptive management measure pursuant to BIO-20. Eight areas were identified in the Draft Newhall Ranch Mitigation Feasibility Report in the High Country SMA, Salt Creek area, and River Corridor SMA (Dudek 2007a) for coastal scrub restoration. In the event that coastal scrub restoration is required pursuant to BIO-20, the applicant shall develop a Coastal Scrub Restoration Plan, subject to the approval of CDFG. The plan shall specify, at a minimum, the following: 1) the location of mitigation sites to be selected from suitable mitigation land in the High Country and Salt Creek areas identified in the Feasibility Study; 2) a description of "target" vegetation (native shrubland) to include estimated cover and abundance of native shrubs; 3) site preparation measures to include topsoil treatment, soil decompaction, erosion control, temporary irrigation systems, or other measures as appropriate; 4) methods for the removal of non-native plants (e.g., mowing, weeding, raking, herbicide application, or burning); 5) the source of all plant propagules (e.g., seed, potted nursery stock, etc. collected from within five miles of the restoration site), the quantity and species of seed or potted stock of all plants to be introduced or planted into the restoration/enhancement areas; 6) a schedule and action plan to maintain and monitor the enhancement restoration areas, to include at minimum, qualitative annual monitoring for revegetation success and site degradation due to erosion, trespass, or animal damage for a period no less than 2 years; 7) as needed where sites are near trails or other access points, measures such as fencing, signage, or security patrols to exclude unauthorized entry into the restoration/enhancement areas; and 8) contingency measures such as replanting, weed control, or erosion control to be implemented if habitat improvement/restoration efforts are not successful.

Habitat restoration/enhancement will be judged successful when: 1) percent cover and species richness of native species reach 50 percent of cover and species richness at reference sites; and 2) the replacement vegetation has persisted at least one summer without irrigation.

Annual monitoring reports will be prepared and submitted to CDFG and will be made available to the public to guide future mitigation planning. Monitoring reports will describe all restoration/enhancement measures taken in the preceding year; describe success and completion of those efforts and other pertinent site conditions (erosion, trespass, animal damage) in qualitative terms; and describe vegetation survival or establishment in quantitative terms.

BIO-22 a. Newhall Land shall prepare an Oak Resource Management Plan, to be submitted for approval to CDFG and County of Los Angeles, and implemented upon approval. The Plan shall identify areas suitable for oak woodland enhancement and creation. The Plan shall distinguish between oaks to be planted in compliance with CLAOTO (BIO-22b) and the additional measures required by this EIS/EIR (BIO-2 for woodlands in jurisdictional streambeds; and BIO-22c and BIO-22d for upland areas).

The Oak Resource Management Plan shall include measures to create or enhance woodlands as follows: 1) locations and acreages of mitigation sites where woodland creation or enhancement will occur; 2) a description of proposed cover and number of native trees, shrubs, and grasses per acre to be established. This description shall be based on comparable intact woodlands in the area of impact or elsewhere within the RMDP planning area, consistent with conditions of the proposed mitigation site; 3) site preparation measures to include (as appropriate) topsoil treatment, soil decompaction, erosion control, weed grow/kill cycle, or as otherwise approved by the agencies; 4) methods for the removal of non-native plants (e.g., mowing, weeding, raking, herbicide application, or burning); 5) a plant palette listing all species, including sizes, planting densities, or seeding rates, to be based on target vegetation; 6) the source of all plant propagules (e.g., seed, potted nursery stock) and the quantity and species of seed or potted stock of all plants to be introduced or planted into the mitigation areas; 7) temporary irrigation, protection from herbivores, fertilizer, weeding, etc.; 8) a schedule and action plan to maintain and monitor the enhancement/restoration areas to include, at minimum, qualitative annual monitoring for revegetation success and site degradation due to erosion, trespass, or animal damage for a period no less than five years total and no less than two years after removal of irrigation (if any); 9) where sites are near trails or other access points, measures such as fencing, signage, or security patrols to exclude unauthorized entry into the mitigation areas shall be implemented as needed; 10) tree protection standards to be implemented for individual trees or woodlands adjacent to development activity; 11) success criteria as stated in BIO-22b and BIO-22d; and 12) contingency measures, such as replanting, erosion control, irrigation system repair, or understory re-seeding, to be implemented if habitat improvement/restoration efforts do not meet the success criteria stated in the plan.

b. To meet the minimum mitigation criteria set forth in CLAOTO, Newhall Land will replace impacted oaks (measuring 8 inches in diameter, or greater, or with a combined diameter of 12 inches for multi-stem oaks) at a ratio of 2:1. Additionally, oaks meeting the criteria for classification as a Heritage Tree (defined by CLAOTO as "any oak tree measuring 36 inches or more in diameter") will be replaced at a ratio of 10:1. Whether they are planted in dedicated open space areas or developed areas, replacement oak trees planted in conformance with CLAOTO shall adhere to the following standards:

1. Replacement oak trees shall be exclusively indigenous species, shall be at least a 15-gallon size specimen, and measure at least one inch in diameter one foot above the base, unless otherwise approved by the County Forester.
2. Replacement trees shall be properly cared for and maintained for a period of two years and replaced by Newhall Land if mortality occurs within that period.
3. Replacement planting shall be conducted in phases as impacts occur. Alternatively, Newhall Land may choose to plant replacement trees in open space areas prior to realization of Project-related impacts (pre-mitigation). Any pre-mitigation shall adhere to the standards outlined herein.
4. Following completion of the two-year maintenance period, the County Forester shall provide final authorization that CLAOTO standards have been met.

c. In addition to the CLAOTO requirements (BIO-22b, above), this EIS/EIR requires replacement of oak trees at the ratios in the table below for trees lost or impacted in uplands. These trees are in addition to the CLAOTO requirement described above. These additional trees may also be incorporated into woodland habitat enhancement or creation, as described above. Additional replacement ratios are provided in [EIS/EIR] Table 4.5-70.

TABLE 4.5-70 ADDITIONAL BIO-22C OAK TREE REPLACEMENT RATIOS

Trunk Diameter[1]	Mitigation Ratio
8 – 35	0.5:1
36 +	2.5:1

[1] Trunk diameter measured at 4.5 feet above mean natural grade. Mitigation required for single-stem oaks with a minimum 8-inch diameter and multi-stem oaks with a combined diameter of 12 inches.

d. Newhall will mitigate lost oak woodlands occurring on upland sites (i.e., outside CDFG/Corps jurisdictional stream channels) by creating or enhancing oak woodlands in the Salt Creek area and High Country SMA. At minimum, Newhall Land will mitigate woodland habitat at a 1:1 ratio through creation of new oak woodlands. As an alternative, Newhall Land may choose to enhance, improve, and manage existing degraded woodland areas at a minimum 2:1 ratio for lost woodland acreage.

For woodland enhancement or replacement, dominant species (coast live oak or valley oak) and planting densities will be based on mitigation site suitability. All plant propagules, including acorns or tree cuttings and all seed or potted nursery stock of oaks or other species, shall be collected within a five-mile radius and within 1,000 feet elevation of the restoration site.

The woodland creation or enhancement sites shall be monitored for oak tree survival and vigor and other habitat values, including species diversity and wildlife use. The replacement or enhancement sites will be considered "complete" upon meeting all of

the following success criteria, or as otherwise approved by CDFG. Any replacement oak trees planted in woodlands for conformance with CLAOTO will also be subject to CLAOTO performance criteria (BIO-22b).

1. Regardless of the date of initial woodland creation or enhancement, each site must have been without active manipulation by irrigation, planting, or re-seeding for a minimum of three years prior to evaluation for successful completion.
2. The percent cover and species richness of restored or enhanced native vegetation shall be evaluated based on target vegetation described in the woodland creation or enhancement plan.
3. Densities (numbers/acre) of surviving, healthy oak shall be within 5 percent of the plan target density. Cover and species richness of other native shrubs shall reach 50 percent of the cover and species richness described for the "target" woodland. Optimal woodland densities and acorn planting quantities, by oak woodland type, are presented in [EIS/EIR] Table 4.5-71.

TABLE 4.5-71 OPTIMAL WOODLAND DENSITIES AND ACORN PLANTING QUANTITIES, BY OAK WOODLAND TYPE

Woodland Type	Average Existing Woodland Density (Trees per Acre)	Target Density for Newhall Land (Trees per Acre)
Coast live oak woodland	22	50
Mixed oak woodland	19	40
Valley oak woodland	16	25

4. Non-native grass cover shall not exceed the "target" woodland non-native grass cover, and other non-native species shall not exceed 10 percent cover at any time. Any species listed on the California State Agricultural list (CDFA 2009) or Cal-IPC list of noxious weeds (Cal-IPC 2006, 2007) will not be present on the revegetation site at the time that project success is determined.

BIO-42 All oaks that will not be removed that are regulated under CLAOTO with driplines within 50 feet of land clearing (including brush clearing) or areas to be graded shall be enclosed in a temporary fenced zone for the duration of the clearing or grading activities. Fencing shall extend to the root protection zone (i.e., the area at least 15 feet from the trunk or five feet beyond the drip line, whichever distance is greater). No parking or storage of equipment, solvents, or chemicals that could adversely affect the trees shall be allowed within 25 feet of the trunk at any time. Removal of the fence shall occur only after the Project arborist or qualified biologist confirms the health of preserved trees.

BIO-43 Prior to initiating construction for the installation of bridges, storm drain outlets, utility lines, bank protection, trails, and/or other construction activities that result in any disturbance to the banks or wetted channel, aquatic habitats within construction sites and access roads, as well as all aquatic habitats within 300 feet of construction sites and access roads, shall be surveyed by a qualified biologist for the presence of the unarmored threespine stickleback, arroyo chub, and Santa Ana sucker. The Corps

and CDFG shall be notified at least 14 days prior to the survey and shall have the option of attending. The biologist shall file a written report of the survey with both agencies within 14 days of the survey and no later than 10 days prior to any construction work in the riverbed. If there is evidence that fish spawn has occurred in the survey area, then surveys shall cease unless otherwise authorized by the Service. If surveys determine that gravid fish are present, that spawning has recently occurred, or that juvenile fish are present in the proposed construction areas, all activities within aquatic habitat will be suspended. Construction within aquatic habitats shall only occur when it is determined that juvenile fish are not present within the Project area.

BIO-44 Temporary bridges, culvert crossings, or other feasible methods of providing access across the river shall be constructed outside of the winter season and not during periods when spawning is occurring. Prior to the construction of any temporary or permanent crossing of the Santa Clara River, the applicant shall develop a Stream Crossing and Diversion Plan. The plan shall include the following elements: the timing and methods for pre-construction aquatic species surveys; a detailed description of the diversion methods (e.g., berms shall be constructed of on-site alluvium materials of low silt content, inflatable dams, sand bags, or other approved materials); special-status species relocation; fish exclusion techniques, including the use of block netting and fish relocation; methods to maintain fish passage during construction; channel habitat enhancement, including the placement of vegetation, rocks, and boulders to produce riffle habitat; fish stranding surveys; and the techniques for the removal of crossings prior to winter storm flows. The Plan shall be submitted to the Service and CDFG for approval at least 30 days prior to implementation.

If adult special-status fishes are present and spawning has not occurred, they shall be relocated prior to the diversion or crossing. Block nets of 1/8-inch woven mesh will be set upstream and downstream. On days with possible high temperature or low humidity (temperatures in excess of 80 degrees F), work will be done in the early morning hours, as soon as sufficient light is available, to avoid exposing fishes to high temperatures and/or low humidity. If high temperatures are present, the fishes will be herded to downstream areas past the block net. Once the fishes have been excluded by herding, a Service staff member or his or her agents shall inspect the site for remaining or stranded fish. A Service staff member or his or her agents shall relocate the fish to suitable habitat outside the Project area (including those areas potentially subject to high turbidity). During the diversion/relocation of fishes, the Service or his or her agents shall be present at all times.

BIO-45a Stream diversion bypass channels: Stream diversion bypass channels will be constructed when the active wetted channel is within the work zone. Diversion bypass channels will be built in accordance with BIO-44 and in consultation with CDFG/Service. Equipment shall not be operated in areas of ponded or flowing water unless authorized by CDFG/Service.

The diversion channel shall be of a width and depth comparable to the natural river channel. In all cases where flowing water is diverted from a segment of the stream channel, the bypass channel will be constructed prior to the diversion of the active stream. The bypass channel will be constructed prior to diverting the stream, beginning in the downstream area and continuing in an upstream direction. Where feasible and in consultation with CDFG/Service, the configuration of the diversion channel will be curved (sinuous) with multiple sets of obstructions (i.e., boulders, large logs, or other CDFG/Service-approved materials) placed in the channel at the point of each curve (i.e., on alternating sides of the channel). If emergent aquatic vegetation is present in the original channel, the applicant will transplant suitable vegetation into the diversion channel and on the banks prior to or at the time of the water diversion. A qualified restoration ecologist will supervise the construction of the diversion channels on site. The integrity of the channel and diversion shall be maintained throughout the intended diversion period. Channel bank or barrier construction shall be adequate to prevent seepage into or from the work area. Construction of diversion channels shall not occur if surveys determine that gravid fish are present, spawning has recently occurred, or juvenile fish are present in the proposed construction areas. At the conclusion of the diversion, either at the commencement of the winter season, or the completion of construction, the applicant will coordinate with CDFG/Service to determine if the diversion should be left in place or the stream returned to the original channel. If CDFG/Service determine the stream should be diverted to the original channel, the original channel will be modified prior to re-diversion (i.e., while dry) to construct curves (sinuosity) into that channel, including the placement of obstructions (i.e., boulders, large logs, or other CDFG/Service-approved materials). The original channel will be replanted with emergent vegetation as the diversion channel was planted. If the diversion channel is abandoned, the boulders will remain in place.

BIO-45b Dewatering: Construction dewatering in close proximity to stream flow shall implement the following:

- Assess local stream and groundwater conditions, including flow depths, groundwater elevations, and anticipated dewatering cone of influence (radius of draw down).
- Assess surface water elevations upstream, adjacent to, and downstream of the extraction points, to assess any critical flow regimes susceptible to excessive draw down and therefore fish stranding issues.
- Assess surface water elevations downstream of the discharge locations (if discharge is proposed to the flowing stream) to assess any flow regimes and overbank areas that may be susceptible to flooding and therefore fish stranding at the cessation of discharge. Discharge locations shall also be assessed for potential channel bed erosion from dewatering discharge, and appropriate BMPs must be implemented to prevent excessive erosion or turbidity in the discharge.

- The information above shall be summarized and provided in a plan approved by CDFG and Corps.
- Fish shall be excluded from any artificial flowing channels from dewatering discharge. Methods to ensure separation may include, but are not limited to: block netting at the confluence; creation of a physical drop greater than four inches at the confluence; or maintaining a velocity range unsuitable for fish passage, such as a berm at the confluence with small diameter pipes for discharge.

BIO-46 During any stream diversion or culvert installation activity, a qualified biologist(s) shall be present and shall patrol the areas within, upstream, and downstream of the work area. The biologists shall inspect the diversion and inspect for stranded fish or other aquatic organisms. Under no circumstances shall the unarmored threespine stickleback be collected or relocated, unless Service personnel or their agents implement this measure. Any event involving stranded fish shall be recorded and reported to CDFG and the Service within 24 hours.

BIO-47 Slow moving water habitats shall be constructed upstream and downstream of any river crossing or bridge construction area to provide refuge for special-status fishes during construction. Where feasible and in consultation with CDFG and the Service, the applicant shall enhance slow-moving water habitats for each linear foot disturbed by hand-excavating shallow side channels and placing multiple sets of obstructions (e.g., boulders, large logs, or other CDFG- and the Service-approved materials) in the channel.

BIO-48 Installation of bridges, culverts, or other structures shall not impair the movement of fish and aquatic life. Bottoms of temporary culverts shall be placed at or below channel grade. Bottoms of permanent culverts shall be placed below channel grade. Culvert crossings shall include provisions for a low flow channel where velocities are less than 2 feet per second to allow fish passage.

BIO-49 Water containing mud, silt, or other pollutants from construction activities shall not be allowed to enter a flowing stream or be placed in locations that may be subject to normal storm flows during periods when storm flows can reasonably be expected to occur.

BIO-51 Bridges over the Santa Clara River shall be designed to minimize impacts to natural areas and riparian resources from associated lighting and stormwater runoff. All lighting will be designed to be directed away from natural areas (pursuant to SP-4.6-56) using shielded lights, low sodium-vapor lights, bollard lights, or other available light and glare minimization methods. Bridges will be designed to minimize normal vehicular lighting from trespassing into natural areas using side walls a minimum of 24 inches high. All stormwater from the bridges will be directed to water treatment facilities for water quality treatment.

BIO-52 Prior to grading and construction activities, a qualified biologist shall be retained to conduct a Worker Environmental Awareness Program (WEAP) for all construction/contractor personnel. A list of construction personnel who have completed training prior to the start of construction shall be maintained on site and this list shall be updated as required when new personnel start work. No construction worker may work in the field for more than 5 days without participating in the WEAP. The qualified biologist shall provide ongoing guidance to construction personnel and contractors to ensure compliance with environmental/permit regulations and mitigation measures. The qualified biologist shall perform the following:

- Provide training materials and briefings to all personnel working on site. The material shall include but not be limited to the identification and status of plant and wildlife species, significant natural plant community habitats (e.g., riparian), fire protection measures, and review of mitigation requirements.
- A discussion of the federal and state Endangered Species Acts, Bald and Golden Eagle Protection Act, Migratory Bird Treaty Act, other state or federal permit requirements and the legal consequences of non-compliance with these acts;
- Attend the pre-construction meeting to ensure that timing/location of construction activities do not conflict with other mitigation requirements (e.g., seasonal surveys for nesting birds, pre-construction surveys, or relocation efforts);
- Conduct meetings with the contractor and other key construction personnel describing the importance of restricting work to designated areas. Maps showing the location of special-status wildlife or populations of rare plants, exclusion areas, or other construction limitations (e.g., limitations on nighttime work) will be provided to the environmental monitors and construction crews prior to ground disturbance. This applies to preconstruction activities, such as site surveying and staking, natural resources surveying or reconnaissance, establishment of water quality BMPs, and geotechnical or hydrological investigations;
- Discuss procedures for minimizing harm to or harassment of wildlife encountered during construction and provide a contact person in the event of the discovery of dead or injured wildlife;
- Review/designate the construction area in the field with the contractor in accordance with the final grading plan;
- Ensure that haul roads, access roads, and on-site staging and storage areas are sited within grading areas to minimize degradation of vegetation communities adjacent to these areas (if activities outside these limits are necessary, they shall be evaluated by the biologist to ensure that no special-status species habitats will be affected);
- Conduct a field review of the staking (to be set by the surveyor) designating the limits of all construction activity;
- Flag or temporarily fence any construction activity areas immediately adjacent to riparian areas;

- Ensure and document that required pre-construction surveys and/or relocation efforts have been implemented;
- To reduce the potential for the spread of New Zealand mud snails and weeds (including weed seeds) during Project clearing and construction, all heavy equipment proposed for use on the Project site shall be verified cleaned (including wheels, tracks, undercarriages, and bumpers, as applicable) before delivery to the Project site. Equipment must be documented as mud snail and weed free upon delivery to the Project site initial staging area, including: (1) vegetation clearing equipment (skid steer loaders, loaders, dozers, backhoes, excavators, chippers, grinders, and any hauling equipment, such as off-road haul trucks, flat bed, or other vehicles); (2) earth-moving equipment (scrapers, dozers, excavators, loaders, motor-graders, compactors, backhoes, off-road water trucks, and off-road haul trucks); and (3) all Project-associated vehicles (including personal vehicles) that, upon inspection by the monitoring biologist, are deemed to present a risk for spreading mud snails or weeds. Equipment shall be cleaned at existing construction yards or at a wash station. The biological monitor shall document that all construction equipment (as described above) has been cleaned prior to working within the Project work site. Any equipment/vehicles determined to not be free of mud snails and weeds shall immediately be sent back to the originating construction yard for washing, or wash station where rinse water is collected and disposed of in either a sanitary sewer or other legal point of disposal. Equipment/vehicles moved from the site must be inspected, and re-washed as necessary, prior to re-engaging in construction activities in the Project work area. A written daily log shall be kept for all vehicle/equipment washing that states the date, time, location, type of equipment washed, methods used, and location of work;
- Be present during initial vegetation clearing and grading; and
- Submit to CDFG an immediate report (within 72 hours) of any conflicts or errors resulting in impacts to special-status biological resources.

BIO-55 a. As a supplement to BIO-1 through BIO-16, additional habitat mitigation through replacement or enhancement of nesting/foraging habitat for least Bell's vireo will be provided for certain key habitat zones at higher ratios (identified as "key population areas" in [EIS/EIR] Figure 4.5-86, Alternative 2 Impacts to Least Bell's Vireo Habitat). Southern willow scrub, southern cottonwood–willow riparian, arrow weed scrub, mulefat scrub, and Mexican elderberry scrub and woodland that provide nesting/foraging habitat for least Bell's vireo in "key population areas" shall be replaced or enhanced. All permanent loss to nesting/foraging habitat in key population areas shall be mitigated at a 5:1 ratio unless otherwise authorized by CDFG or the Service. Temporary habitat loss of foraging/nesting habitat in key population areas shall be mitigated at a 2:1 ratio. The requirements for replacing habitat by either creating new habitat or removing exotic species from existing habitat shall follow the procedures outlined in BIO-1 through BIO-16. To replace the lost functions of habitat located adjacent to the Santa Clara River due to noise impacts, all

nesting/foraging habitat within the 60 dBA sound contour (associated with development site roadway improvements) shall be considered degraded. Nesting/foraging habitat within this area shall be mitigated at a ratio of 2:1.

b. The loss of documented occupied nesting habitat for coastal California gnatcatcher shall be mitigated. If the coastal California gnatcatcher is identified nesting on site, the applicant will acquire or preserve nesting coastal California gnatcatcher habitat at a 3:1 ratio for impacts to documented occupied habitat, or by the ratio specified in BIO-2, whichever is greater. Mitigation acquisition shall occur at an agreed-upon location as approved by the Service upon consultation. The applicant shall enter into a binding legal agreement regarding the preservation of occupied habitat describing the terms of the acquisition, enhancement, and management of those lands.

BIO-56 Within 30 days of ground-disturbing activities associated with construction or grading that would occur during the nesting/breeding season of native bird species potentially nesting on the site (typically March through August in the Project region, or as determined by a qualified biologist), the applicant shall have weekly surveys conducted by a qualified biologist to determine if active nests of bird species protected by the Migratory Bird Treaty Act and/or the California Fish and Game Code are present in the disturbance zone or within 300 feet (500 feet for raptors) of the disturbance zone. Pre-construction surveys shall include nighttime surveys to identify active rookery sites. The surveys shall continue on a weekly basis, with the last survey being conducted no more than 7 days prior to initiation of disturbance work. If ground-disturbing activities are delayed, then additional pre-disturbance surveys shall be conducted such that no more than seven days will have elapsed between the survey and ground-disturbing activities.

If active nests are found, clearing and construction within 300 feet of the nest (500 feet for raptors) shall be postponed or halted, at the discretion of the biologist in consultation with CDFG, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. In the event that golden eagles establish an active nest in the River Corridor SMA, the buffers will be established in consultation with CDFG. Potential golden eagle nesting will be reported to CDFG within 24 hours. Limits of construction to avoid an active nest shall be established in the field with flagging, fencing, or other appropriate barriers and construction personnel shall be instructed on the sensitivity of nest areas. The biologist shall serve as a construction monitor during those periods when construction activities will occur near active nest areas to ensure that no inadvertent impacts to these nests occur. Results of the surveys shall be provided to CDFG in the annual mitigation status report.

For listed riparian songbirds (least Bell's vireo, southwestern willow flycatcher, yellow-billed cuckoo) Service protocol surveys shall be conducted. If active nests are found, clearing and construction within 300 feet of the nest shall be postponed or

halted, at the discretion of the biologist in consultation with CDFG and the Service, until the nest is vacated and juveniles have fledged, as determined by the biologist, and there is no evidence of a second attempt at nesting. If no active nests are observed, construction may proceed. If active nests are found, work may proceed provided that construction activity is located at least 300 feet from active nests (or as authorized through the context of the Biological Opinion and 2081b Incidental Take Statement). This buffer may be adjusted provided noise levels do not exceed 60 dBA hourly Leq at the edge of the nest site as determined by a qualified biologist in coordination with a qualified acoustician.

If the noise meets or exceeds the 60 dBA Leq threshold, or if the biologist determines that the construction activities are disturbing nesting activities, the biologist shall have the authority to halt the construction and shall devise methods to reduce the noise and/or disturbance in the vicinity. This may include methods such as, but not limited to, turning off vehicle engines and other equipment whenever possible to reduce noise, installing a protective noise barrier between the nest site and the construction activities, and working in other areas until the young have fledged. If noise levels still exceed 60 dBA Leq hourly at the edge of nesting territories and/or a no-construction buffer cannot be maintained, construction shall be deferred in that area until the nestlings have fledged. All active nests shall be monitored on a weekly basis until the nestlings fledge. The qualified biologist shall be responsible for documenting the results of the surveys and the ongoing monitoring and for reporting these results to CDFG and the Service.

For coastal California gnatcatcher, the applicant shall conduct Service protocol surveys in suitable habitat within the Project area and all areas within 500 feet of access or construction-related disturbance areas. Suitable habitats, according to the protocol, include "coastal sage scrub, alluvial fan, chaparral, or intermixed or adjacent areas of grassland and riparian habitats." A permitted biologist shall perform these surveys according to the Service' Coastal California Gnatcatcher Presence/Absence Survey Guidelines. If a territory or nest is confirmed, the Service and CDFG shall be notified immediately. If present, a 500-foot disturbance-free buffer shall be established and demarcated by fencing or flagging. No Project activities may occur in these areas unless otherwise authorized by the Service and CDFG. Construction activities in suitable gnatcatcher habitat will be monitored by a full-time qualified biologist. The monitoring shall be of a sufficient intensity to ensure that the biologist could detect the presence of a bird in the construction area.

BIO-62 At least 1,900 acres of Open Area within the Specific Plan area shall be offered for dedication to an NLMO in fee and/or by conservation easement. These 1,900 acres of the Open Area will be left as natural vegetation. Dedication of open areas lands shall be reported annually to CDFG.

BIO-63 Each tract map Home Owners' Association shall supply educational information to future residents regarding pets, wildlife, and open space areas. The material shall discuss the presence of native animals (e.g., coyote, bobcat, and mountain lion), indicate that those native animals could prey on pets, indicate that no actions shall be taken against native animals should they prey on pets allowed outdoors, and indicate that pets must be leashed while using the designated trail system and/or in any areas within or adjacent to open space. Control of stray and feral cats and dogs will be conducted in open space areas on an as-needed basis by the NLMO(s) or the Newhall Ranch joint powers authority (JPA) managing the River Corridor SMA, High Country SMA, or Salt Creek area or by the HOAs managing the Open Areas. Feral cats and dogs may be trapped and deposited with the local Society for the Prevention of Cruelty to Animals or the Los Angeles County Department of Animal Control.

BIO-64 An integrated pest management (IPM) plan that addresses the use of pesticides (including rodenticides and insecticides) on site will be prepared prior to the issuance of building permits for the initial tract map. The IPM will implement appropriate Best Management Practices to avoid and minimize adverse effects on the natural environment, including vegetation communities, special-status species, species without special status, and associated habitats, including prey and food resources (e.g., insects, small mammals, seeds). Potential management practices include cultural (e.g., planting pest-free stock plants), mechanical (e.g., weeding, trapping), and biological controls (e.g., natural predators or competitors of pest species, insect growth regulators, natural pheromones, or biopesticides), and the judicious use of chemical controls, as appropriate (e.g., targeted spraying versus broadcast applications). The IPM will establish management thresholds (i.e., not all incidences of a pest require management); prescribe monitoring to determine when management thresholds have been exceeded; and identify the most appropriate and efficient control method that avoids and minimizes risks to natural resources. Preparation of the CC&Rs for each tract map shall include language that prohibits the use of anticoagulant rodenticides in the Project site.

BIO-69 The Newhall Ranch JPA will have overall responsibility for recreation within and conservation of the High Country. The Newhall Ranch JPA and NLMO shall develop and implement a conservation education and citizen awareness program for the High Country SMA informing the public of the special-status resources present within the High Country SMA and providing information on common threats posed by the presence of people and pets to those resources. The NLMO shall install trailhead and trail signage indicating the High Country SMA is a biological conservation area and advising that people and their animals must stay on existing trails at all times and that violators may be cited. The NLMO shall provide quarterly maintenance patrols to remove litter and monitor trail expansion and fire hazards within the High Country SMA, funded by the JPA.

BIO-70 Construction plans shall include necessary design features and construction notes to ensure protection of vegetation communities and special-status plant and aquatic wildlife species adjacent to construction. In addition to applicable erosion control plans and performance under SCAQMD Rule 403d dust control (SCAQMD 2005), the Project stormwater pollution prevention plan (SWPPP) shall include the following minimum BMPs. Together, the implementation of these requirements shall ensure protection of adjacent habitats and wildlife species during construction. At a minimum, the following measures/restrictions shall be incorporated into the SWPPP, and noted on construction plans where appropriate, to avoid impacting special-status species during construction:

- Avoid planting or seeding invasive species in development areas within 200 feet of native vegetation communities.
- Provide location and details for any dust control fencing along Project boundaries (BIO-71).
- Vehicles shall not be driven or equipment operated in areas of ponded or flowing water, or where wetland vegetation, riparian vegetation, or aquatic organisms may be destroyed, except as otherwise provided for in the 404 Permit or 1603 Agreement.
- Silt settling basins installed during the construction process shall be located away from areas of ponded or flowing water to prevent discolored, silt-bearing water from reaching areas of ponded or flowing water during normal flow regimes.
- If a stream channel has been altered during the construction and/or maintenance operations, its low flow channel shall be returned as nearly as practical to pre-Project topographic conditions without creating a possible future bank erosion problem or a flat, wide channel or sluice-like area. The gradient of the streambed shall be returned to pre-Project grade, to the extent practical, unless it represents a wetland restoration area.
- Temporary structures and associated materials not designed to withstand high seasonal flows shall be removed to areas above the high water mark before such flows occur.
- Staging/storage areas for construction equipment and materials shall be located outside of the ordinary high water mark.
- Any equipment or vehicles driven and/or operated within or adjacent to the stream shall be checked and maintained daily, to prevent leaks of materials that could be deleterious to aquatic life if introduced to water.
- Stationary equipment such as motors, pumps, generators, and welders which may be located within the riverbed construction zone shall be positioned over drip pans. No fuel storage tanks shall be allowed in the riverbed.
- No debris, bark, slash sawdust, rubbish, cement or concrete or washing thereof, oil, petroleum products, or other organic material from any construction, or associated activity of whatever nature, shall be allowed to enter into, or be placed where it may be washed by rainfall or runoff into, watercourses included in the

permit. When construction operations are completed, any excess materials or debris shall be removed from the work area.

- No equipment maintenance shall be done within or near any stream where petroleum products or other pollutants from the equipment may enter these areas with stream flow.
- The operator shall install and use fully covered trash receptacles to contain all food, food scraps, food wrappers, beverage containers, and other miscellaneous trash.
- The operator shall not permit pets on or adjacent to the construction site.
- No guns or other weapons are allowed on the construction site during construction, with the exception of the security personnel and only for security functions. No hunting shall be authorized/permitted during construction.

BIO-71 Development areas shall have dust control measures implemented and maintained to prevent dust from impacting vegetation communities and special-status plant and aquatic wildlife species. Dust control shall comply with SCAQMD Rule 403d (SCAQMD 2005). Where construction activities occur within 100 feet of known special-status plant species locations, chemical dust suppression shall not be utilized. Where determined necessary by a qualified biologist, a screening fence (i.e., a 6-foot-high chain link fence with green fabric up to a height of 5 feet) shall be installed to protect special-status species locations.

BIO-72 Plant palettes proposed for use on landscaped slopes, street medians, park sites, and other public landscaped and FMZ areas within 200 feet of native vegetation communities shall be reviewed by a qualified restoration specialist to ensure that the proposed landscape plants will not naturalize and require maintenance or cause vegetation community degradation in the open space areas (River Corridor SMA, High Country SMA, Salt Creek area, and natural portions of the Open Area). Container plants to be installed within public areas within 200 feet of the open space areas shall be inspected by a qualified restoration specialist for the presence of disease, weeds, and pests, including Argentine ants. Plants with pests, weeds, or diseases shall be rejected. In addition, landscape plants within 200 feet of native vegetation communities shall not be on the Cal-IPC California Invasive Plant Inventory (most recent version) or on the list of Invasive Ornamental Plants listed in Appendix B of the SCP. The current Cal-IPC list can be obtained from the Cal-IPC web site (http://www.cal-ipc.org/ip/inventory/index.php). Landscape plans will include a plant palette composed of native or non-native, non-invasive species that do not require high irrigation rates. Except as required for fuel modification, irrigation of perimeter landscaping shall be limited to temporary irrigation (i.e., until plants become established).

BIO-73 Permanent fencing shall be installed along all River Corridor SMA trails adjacent to the Santa Clara River, or other sensitive resources, in order to minimize impacts associated with increased human presence on protected vegetation communities and

special-status plant and wildlife species. The fencing will be split rail to avoid inhibiting wildlife movement. Viewing platforms will be located in land covers currently mapped as agriculture, disturbed land, or developed land.

BIO-74 To protect Middle Canyon Spring and to reduce potential direct impacts to any special-status species that may be located within the spring complex due to unrestricted access, the Project applicant or its designee shall avoid all construction-related activities within the Middle Canyon Spring complex and erect and maintain temporary orange fencing and prohibitive signage around the Middle Canyon Spring prior to and during all phases of construction within 200 feet of the spring and, if applicable, around the Middle Canyon drainage within 100 feet of flowing water. A qualified biologist will be present to monitor construction activities within 200 feet of the spring and, if applicable, around the Middle Canyon drainage within 100 feet of flowing water. The areas behind the temporary fencing shall not be used for the storage of any equipment, materials, construction debris, or anything associated with construction activities. Any upslope runoff from construction areas will be directed away from the Middle Canyon Spring. Following the final phase of construction of any Newhall Ranch subdivision tract adjacent to Middle Canyon Spring, the Project applicant or its designee shall install and maintain permanent fencing along the subdivision tract bordering the spring. Permanent signage shall be installed on the fencing along the spring boundary to indicate that the fenced area is a biological preserve that contains protected species and habitat. No trail shall be constructed that passes within 100 feet of the Middle Canyon Spring.

a. As described in BIO-51, the Commerce Center Drive Bridge will be designed to minimize secondary impacts associated with lighting and water quality impacts through the installation of indirect and downcast lighting, and routing of stormwater to water quality treatment facilities.

BIO-78 A cowbird trapping program shall be implemented once vegetation clearing begins and maintained throughout the construction, maintenance, and monitoring period of the riparian restoration sites. A minimum of five traps shall be utilized, with at least one trap adjacent to the project site and one or two traps located at feeding areas or other CDFG-approved location. The trapping contractor may consult with CDFG to request modification of the trap location(s). CDFG must approve any relocation of the traps. Traps will be maintained beginning each year on April 1 and concluding on/or about November 1 (may conclude earlier, depending upon weather conditions and results of capture). The trapping contractor may also consult CDFG on a modified, CDFG-approved trapping schedule modification. The applicant shall follow CDFG and the Service protocol. In the event that trapping is terminated after the first few years, subsequent phases of the RMDP development will require initiation of trapping surveys to determine whether re-establishment of the trapping program is necessary.

BIO-80 The Project applicant will retain a qualified biologist to develop an Exotic Wildlife Species Control Plan and implement a control program for bullfrog, African clawed frog, and crayfish. The program will require the control of these species during construction within the River corridor and modified tributaries (bridges, diversions, bank stabilization, drop structures). The Plan shall include a description of the species targeted for eradication, the methods of harvest that will be employed, the disposal methods, and the measures that would be employed to avoid impacts to sensitive wildlife (e.g., stickleback, arroyo toad, nesting birds) during removal activities (i.e., timing, avoidance of specific areas). Annual monitoring shall occur for the first 5 years after construction of Project facilities. After 5 years, bi-annual monitoring shall occur in perpetuity to determine if additional control is necessary. The Project applicant will fund an endowment, approved by CDFG, for monitoring in perpetuity. Monitoring will be conducted within sentinel locations along the River Corridor SMA and where the Project provides potential habitat for these species (e.g., future ponds and water features). Control shall be conducted within Project facilities where monitoring results indicate that exotic species have colonized an area.

BIO-81 The installation of new, or relocation of existing, utility poles and phone and cell towers shall be coordinated with CDFG where located in the High Country SMA and Salt Creek area. The applicant or SCE shall install utility poles, phone, and cell towers in conformance with APLIC standards for collision-reducing techniques as outlined in Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006 (APLIC 2006).

BIO-82a. All surfaces on new antennae and phone/utility towers shall be designed and operated with anti-perching devices in conformance with APLIC standards to deter California condors and other raptors from perching. During construction the area shall be kept clean of debris, such as cable, trash, and construction materials. The applicant shall collect all microtrash and litter (anything shiny, such as broken glass), vehicle fluids, and food waste from the Project area on a daily basis. Workers will be trained on the issue of microtrash: what constitutes microtrash, its potential effects on California condors, and how to avoid the deposition of microtrash.

b. The applicant shall retain a qualified biologist with knowledge of California condors to monitor construction activities within the Project area. The resumes of the proposed biologist(s) will be provided to CDFG for concurrence. This biologist(s) will be referred to as the authorized biologist hereafter. During clearing and grubbing of construction areas, the qualified biologist shall be present at all times. During mass grading, construction sites shall be monitored on a daily basis. The authorized biologist will have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed landing in the Project area, the applicant shall avoid further construction within 500 feet of the sighting until the animals have left the area, or as otherwise authorized by CDFG and the Service. All condor sightings in the Project area will be reported to CDFG and the Service within

24 hours of the sighting. Should condors be found roosting within 0.5 mile of the construction area, no construction activity shall occur between one hour before sunset to 1 hour after sunrise, or until the condors leave the area, or as otherwise directed by the Service. Should condors be found nesting within 1.5 miles of the construction area, no construction activity will occur until further authorization occurs from CDFG and the Service.

c. To further protect California condor potentially foraging in the Project area over the long term from negative interactions with humans and/or artificial structures, the applicant or the JPA or the NLMO shall remove dead cattle that are found or reported within 1,000 feet of a residential or commercial development boundary. Dead cattle shall be relocated to a predetermined location within the High Country SMA or Salt Creek area. The locations where carcasses shall be placed shall be a minimum of 1,000 feet from a development area boundary. Appropriate locations for transfer of carcasses include open grasslands and oak/grassland areas where condors can readily detect carcasses and easily land and take off without encountering physical obstacles such as powerlines and other utility structures. The proposed locations would be selected and approved by the CDFG and the Service. Pursuant to this measure, a telephone number for reporting dead cattle shall be provided and actively maintained. Any cattle carcasses transferred to the relocation areas shall be reported to the Service Condor group.

APPENDIX C

The Declining Amphibian Populations Task Force Fieldwork Code of Practice

1. Remove mud, snails, algae, and other debris from nets, traps, boots, vehicle tires, and all other surfaces. Rinse cleaned items with sterilized (e.g., boiled or treated) water before leaving each work site.

2. Boots, nets, traps, and other types of equipment used in the aquatic environment should then be scrubbed with 70 percent ethanol solution and rinsed clean with sterilized water between study sites. Avoid cleaning equipment in the immediate vicinity of a pond. wetland, or riparian area.

3. In remote locations, clean all equipment with 70 percent ethanol or a bleach solution, and rinse with sterile water upon return to the lab or "base camp" Elsewhere, when washing-machine facilities are available, remove nets from poles and wash in a protective mesh laundry bag with bleach on the "delicates" cycle.

4. When working at sites with known or suspected disease problems, or when sampling populations of rare or isolated species, wear disposable vinyl[4] gloves and change them between handling each animal. Dedicate sets of nets, boots, traps, and other equipment to each site being visited. Clean them as directed above and store separately at the end of each field day.

5. When amphibians are collected, ensure that animals from different sites are kept separately and take great care to avoid indirect contact (e.g., via handling, reuse of containers) between them or with other captive animals. Isolation from unsterilized plants or soils which have been taken from other sites is also essential. Always use disinfected and disposable husbandry equipment.

6. Examine collected amphibians for the presence of diseases and parasites soon after capture. Prior to their release or the release of any progeny, amphibians should be quarantined for a period and thoroughly screened for the presence of any potential disease agents.

7. Used cleaning materials and fluids should be disposed of safely and, if necessary, taken back to the lab for proper disposal. Used disposable gloves should be retained for safe disposal in sealed bags.

The Fieldwork Code of Practice has been produced by the Declining Amphibian Populations Task Force with valuable assistance from Begona Arano, Andrew Cunningham, Tom Langton, Jamie Reaser, and Stan Sessions.

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[4] Do not use latex gloves. Latex is toxic to amphibians.

For further information on this Code, or on the Declining Amphibian Populations Task Force, contact John Wilkinson, Biology Department, The Open University, Walton Hall, Milton Keynes, MK7 6AA, UK.
E-mail: DAPTF@open.ac.uk
Fax: +44 (0) 1908-654167

The Santa Clarita Valley

2010 Water Quality Report

Castaic Lake Water Agency (CLWA) and the local water retailers continuously work to provide new ways to ensure you and your neighbors have a reliable water supply at a reasonable price. We are committed to maintaining high quality water for you, our customers. The California Department of Public Health requires water agencies to publish a report that provides background on the quality of your water and shows you how it meets or exceeds federal and state drinking water standards.

This 2010 Annual Water Quality Report describes in detail the quality of local water supplies in Santa Clarita Valley. In 2009, CLWA and the local retailers met all of the drinking water quality standards. Further explanations of the requirements are in the accompanying pages.

Water conservation is a collaborative effort between CLWA, the local water retailers and their customers. Santa Clarita Valley's water supply remains sufficient to meet resident's needs in 2010, largely due to the community's ongoing conservation efforts and rainfall experienced earlier this year.

Despite this year's normal rainfall total, California has not yet recovered from three consecutive years of drought and residents need to continue to conserve water inside and outside. Remember to water at night or the early morning hours and regularly check your toilets and faucets for leaks.

Last year, we launched a series of programs to encourage residents and businesses to continue their conservation efforts. These programs include free on-site water survey for businesses, institutions and homeowners' associations as well as residential programs for free weather-based irrigation controllers. We urge businesses and institutional customers to take action and reduce water use by signing up for free water use surveys. We will evaluate your business' water use patterns and offer ways you can reduce water use and save money.

In addition, our new plant book "Colorful Landscapes for Water Conservation" makes it easy for both novice and experienced gardeners to incorporate California-friendly plants into their gardens. Take a trip to the CLWA Conservatory Garden to pick up your free copy or sign up for one of the free monthly Landscape Education workshops. Visit us on the web at www.clwa.org for more easy water conservation tips. Also, check with your local water retailer for its conservation programs.

If you have any questions about this report or water quality, please contact us at 661-297-1600. Additional information is available from the local water retailers, whose contact information is supplied at the end of this report.

Sincerely,

Dan Masnada
General Manager
CLWA

Steve Cole
General Manager
NCWD

Mauricio Guardado
Retail Manager
SCWD

Robert DiPrimio
President
VWC

Adam Ariki
District Engineer
Los Angeles County
Waterworks District #36

NOTE: All of the test results in this report were run in 2009 unless noted otherwise. If you do not find a chemical listed in this report, it was not found in any test performed on local water. Your local water supplier is therefore in compliance with all drinking water regulations unless a specific violation is noted.

CASTAIC LAKE WATER AGENCY

CLWA SANTA CLARITA WATER DIVISION

NEWHALL COUNTY-WATER DISTRICT

VALENCIA WATER COMPANY

LA COUNTY DEPARTMENT OF PUBLIC WORKS

REMEMBER:
Use Water Wisely It's a Way of Life

The Castaic Lake Water Agency wants all customers to rethink household and outdoor water habits and reduce water use even more during the hot, dry summer months.

You can easily reduce water use with simple adjustments to your outdoor watering:

- Replace a section of your water guzzling grass with California friendly plants
- Reduce evaporation by watering at night or early morning
- Avoid runoff by setting your sprinklers to run for two short cycles

By conserving water, you help your water providers help you.
To find out how, visit **clwa.org or scvh2o.org.**

FOR MORE INFORMATION

CASTAIC LAKE WATER AGENCY
David Kimbrough | 661-297-1600 x223
E-mail: dkimbrough@clwa.org | Website: www.clwa.org
The Castaic Lake Water Agency is governed by a Board of Directors that meets at 6:30 pm on the second and fourth Wednesdays of each month at the Rio Vista Administration Building, 27234 Bouquet Canyon Road.

CLWA SANTA CLARITA WATER DIVISION
Cathy Hollomon | 661-259 -2737
E-mail: chollomon@scwater.org | Website: www.scwater.org
The Santa Clarita Water Division is a division of the CLW . The CLWA Retail Operations Committee meets at 6:30 pm on the first Monday of each month at the SCWD office, 22722 Soledad Canyon Road.

NEWHALL COUNTY WATER DISTRICT
Ryan Bye | 661-259-3610
E-mail: rbye@ncwd.org | Website: www.ncwd.org
The Newhall County Water District is governed by a Board of Directors that meets at 6:30 pm on the second Thursday of each month at the District Board Room, 23655 Newhall Avenue, Suite "C."

VALENCIA WATER COMPANY
James Saenz | 661-294-0828
E-mail: jsaenz@valenciawater.com | W .valenciawater.com
The Valencia Water Company is a public water utility regulated by the California Public Utilities Commission. The office is located at 24631 Avenue Rockefeller.

LOS ANGELES COUNTY WATERWORKS DISTRICT NO. 36
Timothy Chen | (626) 300-3342
E-mail: tchen@dpw.lacounty.gov | W .lacwaterworks.org
Waterworks District No. 36 is governed by the Los Angeles County Board of Supervisors that meets every Tuesday at 9:30 am at the Kenneth Hahn Hall of Administration, 500 West Temple Street Room 381B, Los Angeles.
On Tuesdays following a Monday holiday, the meetings begin at 1:00 pm.

Este informe contiene información muy importante sobre su agua potable. Si usted quisiera el texto en español para este reporte, comuníquese con David Kimbrough al número de teléfono 661-297-1600 x223.

CASTAIC LAKE WATER AGENCY

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SANTA CLARITA, CA

CLWA PROVIDES WATER TO LOCAL PURVEYORS

CLWA receives and treats surface water from the SWP and other imported sources. The SWP consists of facilities operated by the California Department of Water Resources to conserve and convey water to SWP contractors for use as agricultural or urban supply. CLWA operates two water treatment plants, the Earl Schmidt Filtration Plant (ESFP) in Castaic and the Rio Vista Water Treatment Plant (RVWTP) in Saugus. The SCV's four water purveyors distribute the treated imported water along with groundwater from the shallow Alluvial aquifer and the deeper Saugus formation. Water quality information for your area is presented in the table contained in this report.

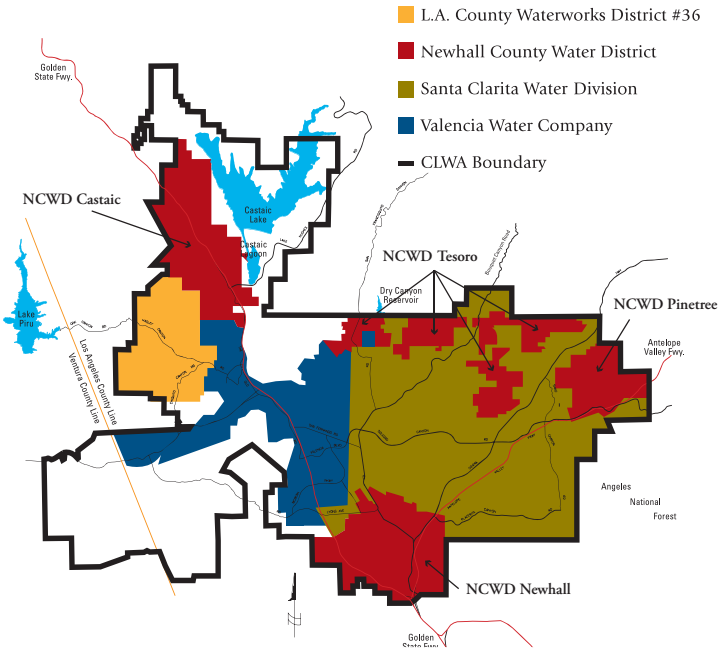
CLWA Santa Clarita Water Division (SCWD) provides water to a portion of the City of Santa Clarita and unincorporated portions of Los Angeles County in the communities of Saugus, Canyon Country and Newhall. Customers received approximately 64% imported water and 36% local groundwater in 2009.

Los Angeles County Waterworks District #36 (LACWD #36) serves customers located in Hasley Canyon and the community of Val Verde. Customers received 100% imported water in 2009.

Newhall County Water District (NCWD) serves customers located in the Castaic, Newhall, Pinetree and Tesoro del Valle areas. In 2009, Castaic customers received 43% imported water and 57% local groundwater, Newhall customers received 20% imported water and 80% local groundwater, and Pinetree customers received 77% imported water and 23% local groundwater. Tesoro del Valle customers received 100% imported water.

Valencia Water Company (VWC) supplies water to customers in Valencia, Stevenson Ranch, and portions of Castaic, Saugus, and Newhall. In 2009, VWC customers received 48% imported water and 51% local groundwater and 1% recycled water was delivered to large landscape customers.

Castaic Lake Water Agency Service Area



CHEMICALS IN THE NEWS – NITROSAMINES (NDMA)

In complying with USEPA sampling requirements under the Unregulated Contaminant Monitoring Regulation – Cycle 2 (UCMR2), Valencia Water Company detected N-Nitrosodimethylamine (NDMA) above the detection limit for reporting of 2.0 parts per trillion in a few samples. These detections are at extremely low concentrations.

NDMA is formed from nitrites and amines. Recent research and results of UCMR2 data suggest this contaminant is created as a disinfection by-product during water treatment processes. In addition, NDMA has been found in groundwater near sites that used or manufacture rocket fuel or other combustible compounds.

Public health authorities are expected to regulate NDMA over the next few years. Recent laboratory studies have indicated NDMA caused various health risks in laboratory animals, including liver, kidney, lung and stomach cancer. NDMA has been detected in nearly 25% of public water supplies during the first 24 months of UCMR2 monitoring, at concentrations as high as 600 parts per trillion. For details you can visit the UCMR section on the EPA's website at http://www.epa.gov/safewater/ucmr/data.html.

WATER QUALITY DEFINITIONS

In order to ensure that tap water is safe to drink, the United States Environmental Protection Agency (USEPA) and the California Department of Public Health (DPH) prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. USEPA, DPH and the California Environmental Protection Agency (CalEPA) set goals and legal standards for the quality of drinking water. These standards are intended to protect consumers from contaminants in drinking water. Most of the standards are based on the concentration of contaminants, but a few are based on a Treatment Technique (TT) to remove the contaminant. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline.

When a contaminant is regulated based on concentration, there are three levels that are listed: 1) **Detection Limit for Report (DLR)**, 2) the **Public Health Goal (PHG)** or **Maximum Contaminant Level Goal (MCLG)**, and 3) the **Maximum Contaminant Level (MCL), Action Level (AL) or Notification Level (NL).**

The DLR is the smallest concentration of a contaminant that can be measured and reported. DLRs are set by DPH (same as MRL, Minimum Reporting Level, set by USEPA).

PHG and MCLG are the level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by Cal EPA. MCLGs are set by the USEPA.

A Primary MCL is the highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible.

Secondary MCLs are set to protect the odor, taste and appearance of drinking water.

ALs are federal standards developed by USEPA that address the concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

NLs are state guidelines developed by DPH that address the concentration of a contaminant which, if exceeded, triggers public notification.

TTs are a required process intended to reduce the level of a contaminant in drinking water.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

METALS AND SALTS

Metals and salts are tested in groundwater from wells once every three years and in Castaic Lake water every month. Small quantities of naturally occurring arsenic are found in Castaic Lake and in groundwater from a few wells. These are present due to the natural erosion of the rocks that water travels over or through. Inorganic compounds such as salts and metals can be naturally occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.

A number of naturally occurring salts are found in both surface and well water. These include chloride, fluoride, nitrate, nitrite, calcium, magnesium, potassium, and sodium. Taken together they are called Total Dissolved Solids (TDS). Calcium and magnesium together are called "hardness" and can deposit as scale.

Nitrate in drinking water at levels above 45 mg/L is a health risk for infants less than six months of age. High nitrate levels in drinking water can interfere with the capacity of the infant's blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of the skin. High nitrate levels may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are pregnant or caring for an infant, y ld ask for advice from your health care provider. Nitrates are tested at least annually.

While your drinking water meets the federal and state standard for arsenic, it does contain low levels of arsenic. The arsenic standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The USEPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

DISINFECTION BY-PRODUCTS

The CLWA uses ozone and chloramines to disinfect its water. Disinfection By-Products (DBPs), which include Trihalomethanes (THMs) and Haloacetic Acids (HAA5) are generated by the interaction between naturally occurring organic matter and disinfectants such as chlorine and ozone. THMs and HAA5 a l average.

Ozone is a very powerful disinfectant that not only kills organisms that no other disinfectant can but also destroys organic chemicals that cause unpleasant tastes and odors.

MICROBIOLOGICAL

Microbial contaminants, such as viruses and bacteria, can be naturally occurring or result from urban storm water runoff, sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.

The most important microbiological drinking water tests are for bacteria. Water is tested throughout the systems weekly for Total Coliform bacteria and for Escherichia coli (E. coli). The presence of E. coli indicates fecal contamination of waters. No E.coli was detected in any drinking waters in the SCV last year. Total coliforms are a group of bacteria that indicate water quality may have deteriorated. The MCL for total coliforms is 5% of all monthly tests showing positives for larger systems.

Additional microbiological tests for the water-borne parasites cryptosporidium parvum and giardia lamblia were performed on Castaic Lake water, and none were detected.

RADIOLOGICAL TESTS

Radioactive compounds can be found in both ground and surface waters, and can be naturally occurring or be the result of oil and gas production and mining activities. Testing is conducted for two types of radioactivity: alpha and beta. If none is detected at concentrations above five picoCuries per liter no further testing is required. If it is detected, the water must be checked for uranium and radium.

CLWA is required to monitor its source water for specific contaminants on a regular basis. R . CLWA failed to monitor as required for drinking water standards during the past two year and, therefore, was in violation of the regulations. In 2008 and 2009 one sample should have been collected for both tritium and strontium-90. Therefore, the quality of our drinking water during those two years is uncertain in regard to those two analytes. Even though this failure was not an emergency, as our customers, you have a right to know what you should do, what happened, and what we did to correct this situation. There is nothing you need to do at this time. CLWA has collected the appropriate samples and no standards were exceeded, as results from sampling in years preceding 2008 also indicated.

LEAD AND COPPER

The local water retailers are required to sample for lead and copper at specific consumer taps every three years. The results for lead and copper are reported as the 90th percentile. The 90th percentile is the result that is greater than 90% of all t ly for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. CLWA and the retailers are responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, a lable from the Safe Drinking Water Hotline 1-800-42604791 or at http://www.epa.gov/safewater/lead

ORGANIC COMPOUNDS

Organic chemical contaminants, including synthetic and volatile organic chemicals, are by products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems. Organic compounds also include pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses. Water is tested for two types of organic compounds: volatile organic compounds (VOCs) and non-volatile synthetic organic compounds (SOCs). These organic compounds are synthetic chemicals produced from industrial and agricultural uses. Castaic Lake is checked annually for VOCs and SOCs. Local w lls are tested at least annually for VOCs and periodically for SOCs. Tetrachloroethylene (PCE) was found in trace levels (below the MCL in groundwater in the SCV. Some people who use water containing tetrachloroethylene in excess of the MCL over many years may experience liver problems, and may have an increased risk of getting cancer.

DRINKING WATER SOURCE ASSESSMENT AND PROTECTION

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, that can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, that may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, that are by products of industrial processes and petroleum production, a .
- Radioactive contaminants, that can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the USEPA and the DPH prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

As part of DPH requirements, the retailers of the SCV conducted a Drinking Water Source Assessment and Protection (DWSAP) study for all of their groundwater sources. This study enables DPH and water utilities to collect information about each drinking water source and surrounding residential, commercial, and industrial activities. It was completed and provided to DPH in 2002.

As part of the program, "surrounding activities" which include schools, medical offices, gas stations and various other facilities around each water source are categorized and ranked as "possible contaminating activities" (PCA). Below is a list of PCAs that may have contributed to trace levels of contaminants in local wells. Trace levels of PCE (below the MCL) have been detected in one well.

- Automobile/gas stations, auto shops - tetrachloroethylene (PCE)
- Dry cleaners - PCE
- Known contaminant plumes - perchlorate

In addition, a known perchlorate contaminant plume has been identified and several wells have tested positive for perchlorate. In October 2007, DPH adopted an MCL of 6 ug/L for this contaminant. Prior to October, a PHG of 6 ug/L and a notification level (NL) of 6 ug/L were established by the Office of Health Hazard Assessment and the DPH respectively.

In 2008, all of the surface water supplied to the SCV was provided by or delivered through the SWP via Castaic Lake. The Department of Water Resources produces a watershed sanitary survey (WSS) of the SWP watersheds every five years. The last survey was published in 2001. Based on that WSS, a DWSAP study for Castaic Lake was completed in 2003. The study found that Castaic Lake supplies are considered to be most vulnerable to septic and sewage lift stations, recreational activities, boating, traffic accidents and spills, grazing livestock, algal blooms and fires.

Assessments for SCWD's two new drinking water sources, the Santa Clara and Valley Center wells, were completed in January 2009 and February 2009 respectively. The Santa Clara well is considered principally vulnerable to septic systems although this assessment was not made as a result of any detected contaminant.

The Valley Center well is considered principally vulnerable to the following activities also not made as a result of any detected contaminants: automobile body and repair shops, fleet/truck/bus terminals, furniture repair/manufacturing, machine shops, photo processing/printing, and sewer collection systems. Copies of the complete assessments are available at the SCWD office located at 22722 Soledad Canyon Road in Santa Clarita. You may request summaries of the assessments be sent to you by contacting Cathy Z. Hollomon at (661) 259-2737.

Additional DWSAP information is available upon request from your local water retailers. Contact names and numbers are supplied at the end of this report.

The Results of Thousands of Tests on Your Water

PARAMETERS/ CONSTITUENTS	Units	MCL (AL)	MCLG (PHG)	DLR	Castaic Lake Water Agency Wholesale Division			Castaic Lake Water Agency Santa Clarita Division			Valencia Water Company			Newhall County Water District Castaic			Newhall County Water District Newhall			Newhall County Water District Pinetree			Newhall County Water District Tesoro[1]			Los Angeles County Water Works District #36[1]		
INORGANICS					Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical
Aluminum	ug/L	1000	(60)	50	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	90	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR						
Arsenic	ug/L	10	None	2	2.2	5.6	4.2	<DLR	2.3	<DLR	<DLR	4.6	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	4.3	2.2						
Barium	ug/L	1000	(2000)	100				<DLR	140	<DLR	<DLR	103	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	150	<DLR						
Boron	ug/L	None	None	100				490	1800	1000																		
Fluoride[2]	mg/L	2	(1)	0.1	<DLR	<DLR	<DLR	0.30	0.52	0.4	0.10	0.80	0.40	0.5	0.5	0.5	0.30	0.40	0.35	0.34	0.45	0.40						
Nitrate (as NO3)	mg/L	45	(45)	2	<DLR	4.4	2.3	11	32	23	6.7	28.2	16.8	<DLR	<DLR	<DLR	15.0	36.0	28.4	8.8	20	12.9						
ORGANICS																												
Tetrachloroethylene[3]	ug/L	5	(0.06)	0.5	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	0.60	<DLR						
DISINFECTION BY-PRODUCTS																												
Bromate RVWTP	ug/L	10	0	5	<DLR	6.0	<DLR																					
Bromate ESFP	ug/L	10	0	5	<DLR	11	<DLR																					
Haloacetic Acids (HAA5)	ug/L	60	0	1.0	2.0	8.1	4.4	0	17	4.3	0	5.8	2.8	1.9	4.1	3.1	<DLR	3.4	0.1	2.6	5.3	3.9	3.2	8.6	4.9	<DLR	23.1	8.6
Trihalomethanes, Total (TTHMs)	ug/L	80	0	0.5	8.0	23.0	16.0	0.95	72	18.7	1.7	36	16.5	9.3	19	13.4	<DLR	19.0	1.6	12	21	16.9	18	39	26.4	12.3	33	24.5
MICROBIOLOGICAL																												
Coliform % Positive Samples	%	5	0		0	1	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CLARITY / TURBIDITY																												
Surface Water Only RVWTP	NTU	TT = 1 NTU	None		0.07	0.12	0.09																					
		TT = 95% of Samples ≤ 0.2 NTU			100	100	100																					
Surface Water Only ESFP	NTU	TT = 1 NTU	None		0.07	0.15	0.10																					
		TT = 95% of Samples ≤ 0.2 NTU			100	100	100																					
RADIOLOGICAL																												
Alpha Activity, Gross	pCi/L	15	0	3	<DLR	5.8	3.3	<DLR	4.7	2.4	<DLR	5.96	<DLR	<DLR	7.6	<DLR	4.6	5.8	5.2	<DLR	17	8.4						
Beta Activity, Gross	pCi/L	50	0	4	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR				<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	27	10.4						
Radium 228	pCi/L	5	0	1				<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR	<DLR						
Uranium	pCi/L	20	(0.2)	2	3.1	4.9	4.1	1.7	4.6	2.6	<DLR	2.5	<DLR	<DLR	<DLR	<DLR	1.4	2.8	2.1	<DLR	20	11.35						
Year of Analysis					2009	2009	2009	2009	2009	2009	2009	2009	2009	2008	2008	2008	2009	2009	2009	2005/ 2009	2005/ 2009	2005/ 2009						
LEAD AND COPPER (Retailers Only)								90th Percentile	No. of sites Tested	No. of Sites Above the AL	90th Percentile	No. of Sites Tested	No. of Sites Above the AL	90th Percentile	No. of Sites Tested	No. of Sites Above the AL	90th Percentile	No. of Sites Tested	No. of Sites Above the AL	90th Percentile	No. of Sites Tested	No. of Sites Above the AL	90th Percentile	No. of Sites Tested	No. of Sites Above the AL	90th Percentile	No. of Sites Tested	No. of Sites Above the AL
Copper	ug/L	(1300)	(170)	50			NA	480	54	1	690	32	1	400	20	0	1100	30	3	1100	20	1	180	20	0	538	23	0
Lead	ug/L	(15)	(2)	5			NA	7.4	54	2	6	32	1	2.5	20	0	9.5	30	3	3.3	20	0	12	20	1	6	23	0
Year of Analysis								2009	2009	2009	2007	2007	2007	2009	2009	2009	2009	2009	2009	2009	2009	2009	2008	2008	2008	2008	2008	2008
SECONDARY STANDARDS					Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical	Minimum	Maximum	Typical
Chlorides[4]	mg/L	250/500/600			74	78	76	67	110	92	24	128	71	75	76	76	35	40	37.5	78	140	109						
Color	Units	15			5	10	5	<DLR	<DLR	<DLR	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5						
Odor-Threshold	Units	3			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1						
Sulfates[4]	mg/L	250/500/600		1	50	63	56	110	200	159	127	406	226	100	110	107	150	210	180	99	120	110						
Turbidity	NTU	5			0.44	1.87	1.02	0.05	0.71	0.13	0.05	0.33	0.11	0.07	0.34	0.17	0.15	0.19	0.17	0.06	0.21	0.14						
Total Dissolved Solids[4]	mg/L	500/1000/1500			285	387	333	650	888	777	542	983	732	466	478	474	592	716	654	610	764	687						
Conductivity[4]	uS / cm	900/1600/2200			540	585	562	1000	1310	1162	872	1572	1175	777	789	782	803	973	888	984	1290	1137						
ADDITIONAL TESTS																												
Calcium	mg/L				27	35	31	94	140	111	87	147	107	54	61	58	83	120	102	94	110	102						
Magnesium	mg/L				11	13	12	24	48	33	23.3	45	33.8	23	23	23	18	28	23	21	24	22.5						
Sodium	mg/L				56	69	61	71	110	95	55	117	86.1	68	69	205	51	61	56	81	140	110.5						
Potassium	mg/L				2.3	3.2	2.8	2.3	4.7	3.8	1.3	5	3.3	3.3	3.7	3.5	2.2	2.2	2.2	3.2	3.4	3.3						
Hardness as CaCO[3]	mg/L				114	137	127	334	502	412	317	535	407	235	238	237	274	415	345	334	361	348						
pH	Units				7.60	8.40	7.92	7.6	7.9	7.8	7.22	7.57	7.47	7.61	7.70	7.64	7.25	7.35	7.30	7.17	7.28	7.23						
Alkalinity as CaCO[3]	mg/L				81	99	90	130	330	285	166	304	240	167	176	172	183	221	202	289	359	324						

Key for the Charts used in this Report

1 All values for NCWD Tesoro Water and Los Angeles County Waterworks District #36 are the same as CLWA, except in the specific rows shown.

2 Depending on annual temperatures.

3 Some people who use water containing tetrachloroethylene in excess of the MCL over many years may experience liver problems, and may have an increased risk of getting cancer.

4 There are three MCLs for these parameters: The first is the recommended, long term. The second is the upper, long term. The third is short term.

AL Action Level
DLR Detection Limit for Reporting
ESFP Earl Schmidt Filtration Plant
MCL Maximum Contaminant Level

MCLG Maximum Contaminant Level Goal
ug/L Microgram / Liter
mg/L Milligram / Liter
mS Millisiemens / Centimeter

NTU Nephlometric Turbidity Units
NA Not Analyzed/Not Applicable
pCi/L Picocurie / Liter
PHG Public Health Goal

RVWTP Rio Vista Water Treatment Plant
ESFP Earl Schmidt Filtration Plant

APPENDIX F4.7

Traffic/Access

AUSTIN-FOUST ASSOCIATES, INC.
TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING

MEMORANDUM

TO: Susan Tebo, Impact Sciences, Inc.

FROM: Daryl Zerfass, P.E.

DATE: May 23, 2011

SUBJECT: **LANDMARK VILLAGE TRAFFIC IMPACT ANALYSIS – SUPPLEMENTAL FREEWAY ANALYSIS**

This memo serves as a supplement to the Landmark Village Long-Range Cumulative (Buildout) Conditions Traffic Forecasts (December 2007) and the Landmark Village Traffic Impact Analysis (September 2004). This supplemental study provides an analysis of the project's freeway impacts using revised freeway lane capacities and updated forecasts of long-range cumulative conditions.

The I-5 freeway impacts analysis presented in the Landmark Village Recirculated Draft EIR (RDEIR) analyzed the potential impacts of the proposed project on the I-5 freeway. The analysis was prepared shortly after the completion of the Caltrans freeway impact study that was prepared for the upcoming I-5 High Occupancy Vehicle (HOV) and Truck Lane project (I-5 PA&ED HOV & Truck Lanes – SR-14 to Parker Road Traffic Study, October 2007), and the Landmark Village RDEIR analysis utilized data directly from the Caltrans study. However, because the analysis presented in the RDEIR was prepared prior to final approval and funding by Caltrans of the SR-14 to Parker Road project, the analysis did not include the improvements as in place as part of the baseline condition. Caltrans has subsequently certified the necessary environmental documentation (September 2009) and expects construction of the improvement project to be completed in 2016.

Following release of the RDEIR, Caltrans District 7 staff requested that impact analyses evaluating the section of the I-5 freeway within the Santa Clarita Valley utilize a capacity of 1,600 vehicles per hour (vph) for the future HOV lanes based on the desire to achieve an operating condition for the HOV lanes that is better than the operating condition for the general purpose or mixed-flow lanes, i.e., a desire that the HOV lanes operate at LOS C rather than LOS E or F as is accepted for the general purpose lanes. For buffered or contiguous HOV facilities, Caltrans considers that LOS C occurs at approximately 1,650 vph, or less if there is significant bus volume or if there are physical constraints. (*High Occupancy Vehicle Guidelines for Planning, Design and Operations*, Caltrans, 2003, Chapter 2,

2223 Wellington Avenue, Suite 300 • Santa Ana, California 92701-3161
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page 4.) In contrast, 2,000 vph is commonly utilized to represent the threshold between LOS E and F conditions for a mixed-flow freeway lane. In addition, Caltrans staff specified that 1,200 vph be utilized as the capacity of the future truck climbing lanes for this section of freeway.

As explained below, the analysis conducted utilizing these reduced capacities shows that while some segments of the HOV lanes would operate over capacity under the 2030 scenario utilizing this criteria, the Landmark Village project would not cause a significant project or cumulative impact.

Table 1 depicts the Freeway Volumes and V/C Ratios - Long-Range Buildout Conditions and shows that while none of the mixed-flow (general purpose) lanes exceed a V/C ratio of 1.00 when taking into account the planned freeway improvement project, several segments of the southbound HOV lane exceed a V/C ratio of 1.00 under long-range buildout conditions. Specifically, the southbound HOV lane from Rye Canyon Road to SR-14 is shown to have V/C ratios that range from 1.13 to 1.25. However, since the capacity used for the HOV lane (1,600 vph) represents mid-LOS C operating conditions, it is important to note that a V/C ratio of 1.00 in the HOV lanes represents a substantially better operating condition than does a V/C ratio of 1.00 in a mixed-flow lane.

Consideration has also been given to the number of vehicles actually eligible to utilize the HOV lane. Under existing conditions within the project's study area, the volume of traffic eligible to utilize the HOV lane is approximately 27 percent of the total volume according to a survey prepared for the Caltrans PA&ED EIR. Under long-range buildout peak conditions, when the total volume of traffic is approaching the maximum capacity of the freeway and traffic volumes reach the point of being uniformly distributed across all lanes, in no case does the HOV lane volume exceed 27 percent of the total volume. Therefore, the HOV lane volume estimates utilized for this study are supported by data for the existing condition.

In summary, with the planned freeway improvement project that is adding truck lanes and HOV lanes to the I-5 freeway within the Santa Clarita Valley in place, project traffic does not result in a significant impact to the freeway, which is the same conclusion reached in the RDEIR traffic study. However, because the RDEIR traffic study identified significant project impacts to the freeway without the freeway improvement project in place, the RDEIR includes mitigation measures for the four freeway segments identified as significantly impacted. Specifically, the mitigation measures require the project to pay its fair share of the HOV/Truck Lanes freeway improvement project for those four segments.

Subsequent to the circulation of the RDEIR, the project applicant has had regular meetings with Caltrans staff to develop a mitigation agreement addressing the project's fair-share payment towards the planned freeway project. As part of the mitigation agreement, the project's share of future traffic along all segments of the freeway project limits (i.e., from Parker Road to SR-14) was calculated using a fair-share formula developed by Caltrans. For the mitigation agreement, the project applicant has agreed to pay the project's fair-share for all nine freeway segments that comprise the SR-14 to Parker Road HOV/Truck Lanes freeway project, not just for the four segments where the RDEIR has identified a significant project impact. As such, the project's mitigation agreement with Caltrans will over mitigate the impact identified in the RDEIR.

Table 1: Freeway Volumes and V/C Ratios – Long-Range Buildout Conditions

		Capacities		Long-Range Without Project				Long-Range With Project				Project Increment	
				MF Lanes		HOV Lanes		MF Lanes		HOV Lanes			
Segment	**Lanes**	**MF Lanes**	**HOV Lanes**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**MF**	**HOV**
Northbound – AM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	3,411	0.43	n/a	n/a	3,400	0.43	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	3,707	0.46	n/a	n/a	3,700	0.46	n/a	n/a	0.00	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	3,718	0.46	340	0.21	3,760	0.47	340	0.21	0.01	0.00
404. Between Hasley Canyon & SR-126	4M + 1H + 1A	9,000	1,600	5,274	0.59	370	0.23	5,320	0.59	380	0.24	0.00	0.01
405. Between SR-126 & Rye Canyon	4M + 1H	8,000	1,600	5,328	0.67	500	0.31	5,480	0.69	520	0.33	0.02	0.02
406. Between Rye Canyon & Magic Mtn	4M + 1H	8,000	1,600	5,298	0.66	530	0.33	5,450	0.68	550	0.34	0.02	0.01
407. Between Magic Mtn & Valencia	4M + 1H+ 1A	9,000	1,600	6,165	0.69	610	0.38	6,280	0.70	620	0.39	0.01	0.01
408. Between Valencia & McBean	4M + 1H	8,000	1,600	7,062	0.88	720	0.45	7,170	0.90	730	0.46	0.02	0.01
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,141	0.89	740	0.46	7,250	0.91	750	0.47	0.02	0.01
410. Between Pico/Lyons & Calgrove	4M + 1H+ 1A	9,000	1,600	6,976	0.78	720	0.45	7,070	0.79	730	0.46	0.01	0.01
411. Between Calgrove & SR-14	4M + 1H + 1T	9,200	1,600	6,980	0.76	730	0.46	7,060	0.77	740	0.46	0.01	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	9,156	0.64	1,010	0.32	9,180	0.64	1,020	0.32	0.00	0.00
Northbound – PM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	6,389	0.80	n/a	n/a	6,400	0.80	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	7,468	0.93	n/a	n/a	7,500	0.94	n/a	n/a	0.01	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	7,621	0.95	1,320	0.83	7,670	0.96	1,330	0.83	0.01	0.00
404. Between Hasley Canyon & SR-126	4M + 1H + 1A	9,000	1,600	7,927	0.88	1,310	0.82	7,980	0.89	1,320	0.83	0.01	0.01
405. Between SR-126 & Rye Canyon	4M + 1H	8,000	1,600	6,752	0.84	1,280	0.80	6,810	0.85	1,290	0.81	0.01	0.01
406. Between Rye Canyon & Magic Mtn	4M + 1H	8,000	1,600	6,762	0.85	1,270	0.79	6,820	0.85	1,280	0.80	0.00	0.01
407. Between Magic Mtn & Valencia	4M + 1H+ 1A	9,000	1,600	6,764	0.75	1,300	0.81	6,800	0.76	1,300	0.81	0.01	0.00
408. Between Valencia & McBean	4M + 1H	8,000	1,600	7,414	0.93	1,340	0.84	7,460	0.93	1,340	0.84	0.00	0.00
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,005	0.88	1,370	0.86	7,030	0.88	1,370	0.86	0.00	0.00
410. Between Pico/Lyons & Calgrove	4M + 1H+ 1A	9,000	1,600	6,984	0.78	1,390	0.87	7,010	0.78	1,390	0.87	0.00	0.00
411. Between Calgrove & SR-14	4M + 1H + 1T	9,200	1,600	6,891	0.75	1,390	0.87	6,910	0.75	1,390	0.87	0.00	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	14,235	0.99	3,130	0.98	14,270	0.99	3,130	0.98	0.00	0.00
Southbound – AM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	4,696	0.59	n/a	n/a	4,700	0.59	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	5,689	0.71	n/a	n/a	5,700	0.71	n/a	n/a	0.00	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	6,483	0.81	710	0.44	6,490	0.81	710	0.44	0.00	0.00
404. Between Hasley Canyon & SR-126	4M + 1H	8,000	1,600	6,763	0.85	730	0.46	6,770	0.85	730	0.46	0.00	0.00
405. Between SR-126 & Rye Canyon	4M + 1H+ 1A	9,000	1,600	6,625	0.74	700	0.44	6,690	0.74	710	0.44	0.00	0.00
406. Between Rye Canyon & Magic Mtn	4M + 1H+ 1A	9,000	1,600	6,650	0.74	710	0.44	6,690	0.74	710	0.44	0.00	0.00
407. Between Magic Mtn & Valencia	4M + 1H	8,000	1,600	6,720	0.84	780	0.49	6,720	0.84	780	0.49	0.00	0.00
408. Between Valencia & McBean	4M + 1H+ 1A	9,000	1,600	7,795	0.87	910	0.57	7,790	0.87	910	0.57	0.00	0.00
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,561	0.95	960	0.60	7,540	0.94	960	0.60	-0.01	0.00
410. Between Pico/Lyons & Calgrove	4M + 1H + 1T	9,200	1,600	7,202	0.78	1,010	0.63	7,190	0.78	1,010	0.63	0.00	0.00
411. Between Calgrove & SR-14	4M + 1H + 2T	10,400	1,600	7,308	0.70	1,020	0.64	7,280	0.70	1,020	0.64	0.00	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	13,842	0.96	3,010	0.94	13,800	0.96	3,000	0.94	0.00	0.00

(Continued)

Table 1: Freeway Volumes and V/C Ratios – Long-Range Buildout Conditions (Continued)

Segment	Lanes	Capacities		Long-Range Without Project				Long-Range With Project				Project Increment	
				MF Lanes		HOV Lanes		MF Lanes		HOV Lanes			
		MF Lanes	HOV Lanes	Vol	V/C	Vol	V/C	Vol	V/C	Vol	V/C	MF	HOV
Southbound – PM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	6,384	0.80	n/a	n/a	6,400	0.80	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	6,890	0.86	n/a	n/a	6,900	0.86	n/a	n/a	0.00	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	6,622	0.83	1,330	0.83	6,670	0.83	1,330	0.83	0.00	0.00
404. Between Hasley Canyon & SR-126	4M + 1H	8,000	1,600	7,853	0.98	1,390	0.87	7,900	0.99	1,400	0.88	0.01	0.01
405. Between SR-126 & Rye Canyon	4M + 1H+ 1A	9,000	1,600	7,488	0.83	1,450	0.91	7,630	0.85	1,470	0.92	0.02	0.01
406. Between Rye Canyon & Magic Mtn	4M + 1H+ 1A	9,000	1,600	8,234	0.91	1,820	1.14	8,460	0.94	1,840	1.15	0.03	0.01
407. Between Magic Mtn & Valencia	4M + 1H	8,000	1,600	7,772	0.97	1,920	1.20	7,960	1.00	1,940	1.21	0.03	0.01
408. Between Valencia & McBean	4M + 1H+ 1A	9,000	1,600	8,366	0.93	1,950	1.22	8,540	0.95	1,960	1.23	0.02	0.01
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,856	0.98	1,990	1.24	8,000	1.00	2,000	1.25	0.02	0.01
410. Between Pico/Lyons & Calgrove	4M + 1H + 1T	9,200	1,600	8,475	0.92	1,880	1.18	8,610	0.94	1,890	1.18	0.02	0.00
411. Between Calgrove & SR-14	4M + 1H + 2T	10,400	1,600	8,974	0.86	1,800	1.13	9,090	0.87	1,810	1.13	0.01	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	11,813	0.82	2,140	0.67	11,850	0.82	2,150	0.67	0.00	0.00

MF (or M) = Mixed-Flow/General Purpose Lane (Capacity = 2,000 vehicles per hour)
HOV (or H) = HOV Lane (Capacity = 1,600 vehicles per hour)
A = Auxiliary Lane (Capacity = 1,000 vehicles per hour)
T = Truck Lane (Capacity = 1,200 vehicles per hour)

Capacities derived from PeMS data and through discussions with Caltrans staff.

Austin-Foust Associates, Inc. – Memorandum, Landmark Village Traffic Impact Analysis – Supplemental Freeway Fair-Share Calculation Analysis (June 17, 2011)

AUSTIN-FOUST ASSOCIATES, INC.
TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING

MEMORANDUM

TO: Susan Tebo, Impact Sciences, Inc.

FROM: Daryl Zerfass, P.E.

DATE: June 17, 2011

SUBJECT: **LANDMARK VILLAGE TRAFFIC IMPACT ANALYSIS – SUPPLEMENTAL FREEWAY FAIR-SHARE CALCULATION ANALYSIS**

Two procedures have been used to calculate the project's share of future traffic on the I-5 freeway. First, a Nexus computer modeling software procedure was prepared in which a computerized traffic demand model calculated the origin and destination of each project trip that utilizes the freeway, and then determined the project's share of the future growth based on trips that begin and/or end at future development. A second procedure subsequently was developed in conjunction with Caltrans transportation engineers to calculate project shares while similarly taking into account only future development, but without reliance on the modeling software for the share calculation. This second procedure represents a hybrid of modeling steps and spreadsheet calculations to develop the share percentages.

The Nexus procedure and the Hybrid procedure are similar in concept in that they each calculate the project's percentage share of future traffic growth for the respective subject segments of freeway. The procedures differ in the respect that the Hybrid procedure is based on a series of manual calculation steps in which multiple traffic modeling procedures are individually prepared, and then data is manually combined utilizing a spreadsheet to calculate project share percentages. In contrast, the mathematically complex Nexus procedure is fully computerized and is calculated as part of a single traffic modeling operation. Accordingly, the individual steps of the Hybrid procedure are independently discernible, while the individual steps of the Nexus process are not. The ability to separate the individual steps of the Hybrid procedure resulted in Caltrans ultimately selecting it as the preferred method to calculate the Landmark Village fair-share payment to be made to Caltrans towards I-5 mitigation improvements.

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The Nexus procedure results in the project fair-share percentages shown in RDEIR Table 4.7-34 (see also, Landmark Village Long-Range Cumulative (Buildout) Conditions Traffic Forecasts, Austin-Foust Associates, December 4, 2007), which shows that for the four segments of the I-5 freeway where the proposed Landmark Village project is identified as having a significant impact, the proposed project's average share of the traffic growth is 2.4 percent.

In comparison, the Hybrid procedure (see Landmark Village (Newhall Ranch) I-5 Share Calculations, Austin-Foust Associates, Inc., November 1, 2010) considered the increase attributable to project traffic along nine freeway segments (the four significantly impacted segments plus five additional segments), and determined that project traffic would comprise 1,067 trips out of a total projected growth of 71,200 future trips, or 1.5% of the future forecasted growth (1,067/71,200 = 1.5%). (The nine segments would be significantly impacted on a cumulative basis with buildout of the Newhall Ranch Specific Plan, which includes Landmark Village, and the Valencia Commerce Center and Entrada developments. See Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan Environmental Impact Statement/Environmental Impact Report, SCH No. 2000011025.)

Thus, under the Nexus procedure, the project's fair-share is 2.4% towards improvements on four segments, while under the Hybrid approach, the project's fair-share is 1.5% towards improvements on nine segments.

The improvements recommended to mitigate the project's identified significant cumulative impacts are the addition of a high occupancy vehicle (HOV) lane in each direction to the segment of I-5 between Rye Canyon Road and McBean Parkway and between Pico Canyon Road/Lyons Avenue and Calgrove Avenue, and the addition of one truck lane in the southbound direction to the segment between Pico Canyon Road/Lyons Avenue and Calgrove Avenue. (See Landmark Village Long-Range Cumulative (Buildout) Conditions Traffic Forecasts, Austin-Foust Associates, December 4, 2007, and RDEIR Mitigation Measures LV 4.7-17 through LV 4.7-20.) Accordingly, in calculating the project's fair-share dollar amount under each of the two methodologies, the cost basis for the calculations is the I-5 HOV and Truck Lanes SR-14 to Parker Road improvement project, which includes the improvements recommended to mitigate the project's impacts as well as improvements for adjacent freeway segments. The improvements to be constructed under the I-5 improvement project would span nine freeway segments, and include the addition of one HOV lane in each direction between SR-14 and Parker Road, connecting to the HOV lanes currently under construction on the I-5 freeway south of the SR-14 freeway. Additionally, one truck lane will be constructed in the northbound direction between SR-14 and Calgrove Avenue, one southbound truck lane will be constructed between Pico Canyon Road/Lyons Avenue and Calgrove Avenue, and two southbound truck lanes will be constructed for the segment between Calgrove Avenue and SR-14.

As shown below in Table 1, Fair-Share Cost Comparison, application of the Hybrid procedure that was selected by Caltrans for use with this project results in an overall fair-share cost attributable to the proposed Landmark Village project of approximately $625,000, whereas the RDEIR's Nexus procedure would result in a net mitigation obligation cost to the project of approximately $343,000. The greater cost resulting from the Hybrid procedure is reflective of the fact that the calculations consider the entire nine segment freeway improvement project due to the nexus between the Newhall Ranch Specific Plan, of which Landmark Village is a part, and the freeway improvement project.

Table 1: Fair-Share Cost Comparison

	Nexus Procedure	**Hybrid Procedure**
Project's Share of Future Trips	2.4% of 4 segments	1.5% of 9 segments
Unfunded portion of I-5 Improvement Project	$29,067,000[1]	$65,400,000[2]
Cost to Landmark Village (Gross)	$697,608	$980,081
Credit for Prior I-5 Expenditures	-$354,420	-$354,420
Cost to Landmark Village (Net)	$343,188	$625,661

[1]4/9 of total unfunded portion (4 impacted segments/9 total segments x $65,400,000 = $29,067,000)
[2]As of July 2010, Caltrans estimated the total cost to construct the I-5 Improvement Project at $543 million, with $65.4 million or approximately 12% of the total cost unfunded at the time.

Austin-Foust Associates, Inc. – Memorandum, Landmark Village Traffic Impact Analysis – Additional Existing Plus Project Scenario Analysis (June 16, 2011)

AUSTIN-FOUST ASSOCIATES, INC.
TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING

MEMORANDUM

TO: Susan Tebo, Impact Sciences, Inc.

FROM: Daryl Zerfass, P.E.

DATE: June 16, 2011

SUBJECT: **RIVER VILLAGE (LANDMARK VILLAGE) TRAFFIC IMPACT ANALYSIS – ADDITIONAL EXISTING PLUS PROJECT SCENARIO ANALYSIS**

This memo serves as a supplement to the original River Village (renamed and referred to herein as Landmark Village) Traffic Impact Analysis (TIA, September 2004) and provides additional analysis of the project's traffic impacts by comparing existing conditions (i.e., Existing No-Project) against the Existing Plus Project traffic conditions. The September 2004 TIA includes an Existing Plus Project analysis of the study area intersections; this memorandum summarizes that analysis and includes additional analysis of the I-5 freeway under this scenario. This memo, therefore, documents project related trips and their addition to the observed traffic count data (i.e., existing conditions) to create an Existing Plus Project scenario.

Preliminarily, the Existing Plus Project scenario generally is regarded by traffic engineers, including this engineer, as a hypothetical scenario when used in connection with a development project such as the proposed Landmark Village project, which is not anticipated to reach full buildout until approximately 2014. The scenario is hypothetical because it assumes that the proposed project would be fully built out immediately and the corresponding full buildout traffic volumes added to existing roadway volumes and infrastructure. The Existing Plus Project analysis presumes that the existing environment (existing traffic volumes, existing roadway infrastructure, and existing land uses) will not change over the buildout of the project. As a result, future increases in traffic volumes attributable to other development projects (i.e., cumulative traffic volumes) are not accounted for in the analysis. This results in the analysis potentially understating project impacts because capacity that otherwise would be utilized by intervening cumulative development is now available to the proposed project. On the other hand, because the scenario does not account for future planned roadway network improvements that would increase roadway capacities, the analysis potentially results in overstating project impacts. Furthermore, because the analysis does not take into account future development and related changing land uses, the analysis does not account for the corresponding change in trip distribution patterns that accompanies changing

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land uses, which could lead to overstating impacts in some circumstances, while understating them in others.

Analysis

Landmark Village is located within the Santa Clarita Valley in unincorporated County of Los Angeles. The Landmark Village project is bounded by State Route (SR) 126 to the north, the Santa Clara River to the south, and the Castaic Creek to the east. Landmark Village consists of a variety of land uses and, as described in the traffic study, these land uses have been categorized based on the land use categories used by the Santa Clarita Valley Consolidated Traffic Model (SCVCTM). The geographic distribution of project generated trips was derived by utilizing the SCVCTM. A special select zone trip assignment calculates the volume of project traffic on roadway segments throughout the study area.

The Landmark Village TIA includes an Existing plus Project impact analysis for the study area intersections. (A copy of the TIA is included in the Landmark Village Recirculated Draft Environmental Impact Report (RDEIR, January 2010), Appendix 4.7, River Village Traffic Impact Analysis, Austin-Foust Associates, September 2004, Section 4.8.) The conclusions reached through that Existing Plus Project scenario analysis are summarized below. Peak hour intersection capacity utilization ("ICU") values that correspond with the Existing Plus Project conditions traffic forecasts referenced above can be found in Table 1, ICU and LOS Summary - Existing Conditions with and without Project, which provides a comparison between the no-project and the with-project conditions. The table indicates that under Existing Plus Project conditions, the following intersections would be significantly impacted by the addition of project traffic:

8. I-5 NB Ramps & SR-126
80. Wolcott & SR-126
94. Commerce Center & SR-126
110. Chiquito/Long Canyon & SR-126

Roadway improvements that would mitigate the identified project impacts are identified in Table 2, Mitigation Measures for Project Intersection Impacts - Existing Conditions With Project, which lists the proposed mitigation measures for existing conditions with project. Each of the recommended mitigation measures is included in the TIA as mitigation either for the impacts identified under the Existing Plus Ambient Plus Project scenario, or under the Existing Plus Ambient Plus Project and Related projects scenario and, therefore, each will be implemented as part of the project irrespective of the Existing Plus Project analysis. (See EIR mitigation measures LV 4.7-7, 4.7-10, 4.7-11 and 4.7-12.) Table 3, ICU and LOS Summary - With Mitigation, summarizes the resulting ICUs and LOS with the mitigation in place. Detailed ICU worksheets are attached to this memorandum.

In addition to an intersection level of analysis, an evaluation of the I-5 freeway for conditions with and without the project was conducted. As noted above, the Landmark Village project is located south of and adjacent to SR-126, which is a four-lane highway. Approximately two miles east of the project site is the I-5 Freeway, which would provide regional access for residents of the site. In the vicinity of the project site, I-5 is generally an eight-lane (four lanes in each direction) freeway.

The freeway impact analysis has been prepared using a methodology developed through consultation with Caltrans District 7 staff. The determination of significant impacts is based on the Los Angeles County Congestion Management Program (CMP) criteria. This criteria identifies a significant project impact as when project traffic causes or worsens LOS F conditions by a V/C of .02 or more.

Table 1: ICU and LOS Summary – Existing Conditions with and without Project

	Existing Conditions without Project				Existing Conditions with Project				Project Increment	
	AM		PM		AM		PM			
Intersection	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**AM**	**PM**
7. I-5 SB Ramps & SR-126	.39	A	.36	A	.63	B	.52	A	.24	.16
8. I-5 NB Ramps & SR-126	.71	C	.77	C	1.15	F	1.18	F	**.44**	**.41**
80. Wolcott & SR-126	.34	A	.42	A	1.03	F	1.26	F	**.69**	**.84**
94. Commerce Center & SR-126	.52	A	.68	B	.88	D	.99	E	**.36**	**.31**
96. San Martinez Canyon & SR-126	.31	A	.40	A	.33	A	.43	A	.02	.03
110. Chiquito/Long Canyon & SR-126	.36	A	.43	A	1.05	F	1.31	F	**.69**	**.88**

Bold = Significant Impact

Level of service ranges: .00 - .60 A .71 - .80 C .91 – 1.00 E
.61 - .70 B .81 - .90 D Above 1.00 F

Table 2: Mitigation Measures for Project Intersection Impacts – Existing Conditions With Project

Location	Mitigation
8. I-5 NB Ramps & SR-126	Add 2nd & 3rd NBL, add 2nd 3rd & 4th EBT, convert shared WBL/WBT lanes to 1st & 2nd dedicated WBT, and add 3rd WBT & 1st free flow WBR.
80. Wolcott & SR-126	Add 1st NBL, add 2nd & 3rd NBR, convert shared SBL/SBT to dedicated SBT, add 2nd SBL, add 2nd EBL, add 3rd EBT, add 1st EBR, add 2nd WBL, and add 3rd WBT.
94. Commerce Center & SR-126	Construct Grade Separated Interchange
110. Chiquito/Long Canyon & SR-126	Add 1st & 2nd NBL, add 1st & 2nd NBR, add 2nd NBT, add 1st & 2nd SBL, add 2nd & 3rd SBT, add 2nd EBL, add 3rd EBT, add 1st EBR, add 1st and 2nd WBL, and add 3rd WBT.

Table 3: ICU and LOS Summary – With Mitigation

	Existing Conditions without Project				Existing Conditions plus Project with Mitigation				Change	
	AM		PM		AM		PM			
Intersection	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**AM**	**PM**
8. I-5 NB Ramps & SR-126	.71	C	.77	C	.48	A	.40	A	-.21	-.21
80. Wolcott & SR-126	.34	A	.42	A	.52	A	.64	B	.18	.22
94. Commerce Center & SR-126	.52	A	.68	B	n/a (Grade Separated Interchange)					
110. Chiquito/Long Canyon & SR-126	.36	A	.43	A	.51	A	.57	A	.15	.14

Level of service ranges: .00 - .60 A .71 - .80 C .91 – 1.00 E
.61 - .70 B .81 - .90 D Above 1.00 F

An evaluation of the I-5 freeway for conditions with and without the project is provided in Table 4, Freeway Volumes and V/C ratios - Existing + Project Conditions, which indicates that the following freeway segment would be significantly impacted by the project under Existing Plus Project conditions:

411. Southbound I-5 between Calgrove & SR-14

It should be noted that under the Existing Plus Project scenario, the project would add a greater volume of traffic to the I-5 freeway than it would under long-range cumulative conditions when the Newhall Ranch Specific Plan area (and adjacent development areas) is fully built out. The reason for this is that the built out Specific Plan area would include a significant amount of employment and commercial retail development that would serve as trip destinations for residents of the Landmark Village project, as well as other Specific Plan development. Likewise, the employment and commercial retail areas of the Landmark Village project will provide trip destinations for future residents of the Specific Plan area. As such, under Specific Plan build out conditions, Landmark Village would result in fewer project trips that leave the Santa Clarita Valley than under Existing Plus Project conditions, which translates to fewer project trips on the I-5 freeway. In this regard, the Existing Plus Project scenario overstates project impacts.

The southbound segment of I-5 between the Calgrove interchange and SR-14, which is shown to be significantly impacted by the project under Existing Plus Project conditions, operates at LOS F under existing (no-project) conditions. This segment consists of a four-lane section of uphill grade that significantly reduces travel speed for the many heavy trucks that use this segment of freeway. The two right-most lanes are primarily utilized by the slow moving trucks, which reduces the overall capacity of this segment. As such, this segment experiences worse LOS than adjacent segments that carry similar volumes of traffic.

As shown in Table 5, Mitigation Measure for Project Freeway Impacts - Existing Conditions With Project, the improvement recommended to mitigate the project's impact is the addition of one truck lane in the southbound direction. Table 6, Freeway Volumes and V/C Ratios - Existing + Project + Mitigation Conditions, summarizes the resulting V/C with the mitigation in place.

The recommended mitigation would be implemented as part of the Caltrans and Metropolitan Transportation Authority (Metro) plans to expand the I-5 freeway to include high occupancy vehicle (HOV) and truck lanes. In September 2009, Caltrans approved a Final Environmental Impact Report/Environmental Assessment (EIR/EA) for the I-5 HOV/Truck Lanes Project SR-14 to Parker Road, or I-5 Improvement Project. The I-5 Improvement Project will add: one HOV lane in each direction on I-5 from the SR-14 interchange north to Parker Road; truck climbing lanes from the SR-14 interchange to Calgrove Boulevard (northbound) and from Pico Canyon Road/Lyons Avenue to the SR-14 interchange (southbound); and full auxiliary lanes within portions of the Improvement Project study area. The Caltrans EIR/EA reports the project is included in the 2008 Regional Transportation Plan and is fully funded, and construction is anticipated to begin in 2011, with completion scheduled for 2015. Subsequent communications with Caltrans indicate that the first phase of construction, or the "Early Implementation Project," is estimated to be completed in July 2013, and the full I-5 Improvement Project is estimated to be completed in February 2016. The impacts of the Landmark Village project under Existing Plus Project conditions would be fully mitigated with completion of the Early Implementation Project, which will include a truck lane in the southbound direction from Pico/Lyons to the SR-14, and which is scheduled to be completed prior to buildout of the Landmark Village project.

Table 4: Freeway Volumes and V/C Ratios – Existing + Project Conditions

			Existing Without Project				Existing With Project				Project Increment	
			AM Pk Hr		PM Pk Hr		AM Pk Hr		PM Pk Hr			
Segment	**Lanes**	**Capacity**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**AM**	**PM**
Northbound												
401. North of Lake Hughes	4M	8,000	1,200	.15	1,900	.24	1,229	.15	1,986	.25	.00	.01
402. Between Lake Hughes & Parker	4M	8,000	1,300	.16	2,000	.25	1,330	.17	2,087	.26	.01	.01
403. Between Parker & Hasley Canyon	4M	8,000	1,600	.20	2,000	.25	1,637	.20	2,109	.26	.00	.01
404. Between Hasley Canyon & SR-126	4M	8,000	2,100	.26	2,500	.31	2,143	.27	2,626	.33	.01	.02
405. Between SR-126 & Rye Canyon	4M	8,000	2,800	.35	3,100	.39	3,286	.41	3,411	.43	.06	.04
406. Between Rye Canyon & Magic Mtn	4M	8,000	2,800	.35	3,100	.39	3,286	.41	3,411	.43	.06	.04
407. Between Magic Mtn & Valencia	4M	8,000	4,200	.53	5,300	.66	4,589	.57	5,546	.69	.04	.03
408. Between Valencia & McBean	4M	8,000	5,300	.66	6,100	.76	5,599	.70	6,287	.79	.04	.03
409. Between McBean & Pico/Lyons	4M	8,000	5,600	.70	6,700	.84	5,825	.73	6,838	.85	.03	.01
410. Between Pico/Lyons & Calgrove	4M	8,000	5,400	.68	7,200	.90	5,578	.70	7,307	.91	.02	.01
411. Between Calgrove & SR-14	4M	8,000	5,400	.68	7,200	.90	5,574	.70	7,304	.91	.02	.01
412. South of SR-14	6M + 2T	14,400	6,800	.47	13,700	.95	6,899	.48	13,759	.96	.01	.01
Southbound												
401. North of Lake Hughes	4M	8,000	1,300	.16	1,700	.21	1,384	.17	1,742	.22	.01	.01
402. Between Lake Hughes & Parker	4M	8,000	1,400	.18	1,900	.24	1,486	.19	1,943	.24	.01	.00
403. Between Parker & Hasley Canyon	4M	8,000	1,600	.20	2,000	.25	1,707	.21	2,054	.26	.01	.01
404. Between Hasley Canyon & SR-126	4M	8,000	1,900	.24	2,100	.26	2,024	.25	2,162	.27	.01	.01
405. Between SR-126 & Rye Canyon	4M	8,000	2,400	.30	2,500	.31	2,640	.33	2,997	.37	.03	.06
406. Between Rye Canyon & Magic Mtn	4M	8,000	4,200	.53	5,100	.64	4,448	.56	5,587	.70	.03	.06
407. Between Magic Mtn & Valencia	4M	8,000	4,700	.59	5,800	.73	4,897	.61	6,182	.77	.02	.04
408. Between Valencia & McBean	4M	8,000	5,700	.71	6,600	.83	5,850	.73	6,885	.86	.02	.03
409. Between McBean & Pico/Lyons	4M	8,000	6,600	.83	7,200	.90	6,711	.84	7,405	.93	.01	.03
410. Between Pico/Lyons & Calgrove	4M	8,000	7,000	.88	6,800	.85	7,086	.89	6,954	.87	.01	.02
411. Between Calgrove & SR-14	4M*	6,400	7,300	1.14	6,800	1.06	7,384	1.15	6,950	1.09	.01	**.03**
412. South of SR-14	5M + 2T	12,400	14,100	1.14	9,400	.76	14,148	1.14	9,485	.76	.00	.00

M = Mixed-Flow/General Purpose Lane (Capacity = 2,000 vehicles per hour)
M* = Mixed-Flow Lane on an Extended Uphill Grade, Without a Truck Lane (Capacity = 1,600 vehicles per hour)
T = Truck Lane (Capacity = 1,200 vehicles per hour)

Bold = Significant impact

Capacities derived from PeMS data and through discussions with Caltrans staff.

Table 5: Mitigation Measure for Project Freeway Impacts – Existing Conditions With Project

Location	Mitigation
411. Between Calgrove & SR-14	Add 1 Truck lane in southbound direction.

Table 6: Freeway Volumes and V/C Ratios – Existing + Project + Mitigation Conditions

	Existing Without Project				Existing Plus Project Plus Mitigation						Project Increment	
	AM Pk Hr		PM Pk Hr				AM Pk Hr		PM Pk Hr			
Segment	Vol	V/C	Vol	V/C	Lanes	Capacity	Vol	V/C	Vol	V/C	AM	PM
Southbound												
411. Between Calgrove & SR-14	7,300	1.14	6,800	1.06	4M+1T	9,200	7,384	.80	6,950	.76	-.34	-.30

M = Mixed-Flow/General Purpose Lane (Capacity = 2,000 vehicles per hour)
T = Truck Lane (Capacity = 1,200 vehicles per hour)
Capacities derived from PeMS data and through discussions with Caltrans staff.

7. I-5 SB Ramps & SR-126

Existing (2003) Counts

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	f		147		132	
EBL	0	0	0		0	
EBT	2	3200	304	.10	425	.13
EBR	f		639		1058	
WBL	0	0	0		0	
WBT	2	3200	943	.29*	822	.26*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.39**		**.36**

Existing Volumes With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	f		271		194	
EBL	0	0	0		0	
EBT	2	3200	524	.16	875	.27
EBR	f		879		1555	
WBL	0	0	0		0	
WBT	2	3200	1684	.53*	1338	.42*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.52**

8. I-5 NB Ramps & SR-126

Existing (2003) Counts

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	639	.40*	620	.39*
NBT	0	0	0		0	
NBR	1	1600	201	.13	36	.02
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	216	.14*	220	.14*
EBR	f		88		205	
WBL	1.5		111	.07*	251	{.14}*
WBT	0.5	3200	304	.19	202	.14
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.71**		**.77**

Existing Volumes With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	1124	.70*	931	.58*
NBT	0	0	0		0	
NBR	1	1600	201	.13	36	.02
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	1	1600	395	.25	543	.34*
EBR	f		130		331	
WBL	1.5		111	.07	251	.16*
WBT	0.5	3200	560	.35*	407	.25
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**1.15**		**1.18**

Existing Volumes With Project With Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	4320	1124	.26*	931	.22*
NBT	0	0	0		0	
NBR	1	1600	201	.13	36	.02
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	6400	395	.06	543	.08*
EBR	f		130		331	
WBL	0	0	111		251	{.16}*
WBT	3	4800	560	.14*	407	.14
WBR	f		0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.56**

80. Wolcott & SR-126

Existing (2003) Counts

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	5		0	
NBT	1	1600	0	.00	0	.00
NBR	0	0	0		0	
SBL	1.5		1		2	
SBT	0.5	3200	0	.00*	0	.00*
SBR	1	1600	7	.00	20	.01
EBL	1	1600	12	.01*	4	.00
EBT	2	3200	662	.21	1030	.32*
EBR	0	0	1		0	
WBL	1	1600	3	.00	0	.00
WBT	2	3200	731	.23*	1005	.31
WBR	1	1600	2	.00	0	.00
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.34**		**.42**

Existing Volumes With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	51		66	
NBT	1	1600	68	.31*	54	.43*
NBR	0	0	373		566	
SBL	1.5		1		2	
SBT	0.5	3200	24	.02	85	.05
SBR	1	1600	34	.02	92	.06
EBL	1	1600	42	.03	66	.04
EBT	2	3200	972	.32*	1572	.51*
EBR	0	0	63		72	
WBL	1	1600	482	.30*	354	.22*
WBT	2	3200	1313	.41	1410	.44
WBR	1	1600	2	.00	0	.00
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**1.03**		**1.26**

Existing Volumes With Project With Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	51	.03*	66	.04*
NBT	1	1600	68	.04	54	.03
NBR	2	3200	373	.12	566	.18
SBL	2	2880	1	.00	2	.00
SBT	1	1600	24	.02*	85	.05*
SBR	1	1600	34	.02	92	.06
EBL	2	2880	42	.01	66	.02
EBT	3	4800	972	.20*	1572	.33*
EBR	1	1600	63	.04	72	.05
WBL	2	2880	482	.17*	354	.12*
WBT	3	4800	1313	.27	1410	.29
WBR	1	1600	2	.00	0	.00
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.52**		**.64**

94. Commerce Center & SR-126

Existing (2003) Counts

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	28	.02	64	.04*
NBT	1	1600	152	.10*	44	.03
NBR	1	1600	21	.01	41	.03
SBL	2	2880	296	.10*	677	.24*
SBT	1	1600	39	.02	141	.09
SBR	1	1600	22	.01	53	.03
EBL	1	1600	27	.02*	23	.01*
EBT	2	3200	652	.20	827	.26
EBR	1	1600	51	.03	24	.02
WBL	1	1600	24	.02	23	.01
WBT	2	3200	632	.20*	922	.29*
WBR	f		648		123	
Clearance Interval				.10*		.10*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION **.52** **.68**

Existing Volumes With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	136	.09	151	.09*
NBT	1	1600	152	.10*	44	.03
NBR	1	1600	21	.01	41	.03
SBL	2	2880	296	.10*	677	.24*
SBT	1	1600	39	.02	141	.09
SBR	1	1600	95	.06	163	.10
EBL	1	1600	181	.11*	66	.04
EBT	2	3200	1113	.35	1773	.55*
EBR	1	1600	117	.07	138	.09
WBL	1	1600	24	.02	23	.01*
WBT	2	3200	1497	.47*	1499	.47
WBR	f		648		123	
Clearance Interval				.10*		.10*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION **.88** **.99**

96. San Martinez Cyn & SR-126

Existing (2003) Counts

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	4		8	
SBT	1	1600	0	.00*	0	.01*
SBR	0	0	2		2	
EBL	1	1600	1	.00	0	.00
EBT	2	3200	650	.20	937	.29
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	659	.21*	934	.29*
WBR	0	0	1		5	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.31**		**.40**

Existing Volumes With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	4		8	
SBT	1	1600	0	.00*	0	.01*
SBR	0	0	2		2	
EBL	1	1600	1	.00	0	.00
EBT	2	3200	737	.23*	1002	.31
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	681	.21	1028	.32*
WBR	0	0	1		5	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.33**		**.43**

110. Chiquito Cyn & SR-126

Existing (2003) Counts

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		1	
NBT	1	1600	1	.00	0	.00
NBR	0	0	1		0	
SBL	0	0	70		50	
SBT	1	1600	0	.04*	0	.03*
SBR	1	1600	12	.01	8	.01
EBL	1	1600	6	.00	15	.01*
EBT	2	3200	663	.21	927	.29
EBR	0	0	4		0	
WBL	0	0	1		0	
WBT	2	3200	713	.22*	935	.29*
WBR	1	1600	22	.01	86	.05
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.36**		**.43**

Existing Volumes With Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	15		80	
NBT	1	1600	36	.25*	179	.55*
NBR	0	0	345		628	
SBL	0	0	117	{.07}*	80	{.05}*
SBT	1	1600	158	.17	78	.10
SBR	1	1600	12	.01	8	.01
EBL	1	1600	6	.00	15	.01
EBT	2	3200	673	.24*	944	.31*
EBR	0	0	82		47	
WBL	0	0	632	{.39}*	483	{.30}*
WBT	2	3200	722	.42	951	.45
WBR	1	1600	37	.02	130	.08
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**1.05**		**1.31**

Existing Volumes With Project With Mitigation

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	15	.01	80	.03
NBT	2	3200	36	.01*	179	.06*
NBR	2	3200	345	.11	628	.20
SBL	2	2880	117	.04*	80	.03*
SBT	3	4800	158	.03	78	.02
SBR	1	1600	12	.01	8	.01
EBL	2	2880	6	.00	15	.01
EBT	3	4800	673	.14*	944	.20*
EBR	1	1600	82	.05	47	.03
WBL	2	2880	632	.22*	483	.17*
WBT	3	4800	722	.15	951	.20
WBR	1	1600	37	.02	130	.08
Right Turn Adjustment					NBR	.01*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.51**		**.57**

Subject: Re: I-5 North Project - Phases 1 & 2
From: Ashraf A Habbak
Date: Tue, 14 Sep 2010 15:46:49 -0700
To: Daryl Zerfass

Hi Daryl,

The tentative schedule of delivery is shown below for I-5 North area projects:

EA	Start PS&E	RTL	Award	CCA
2332A		5/31/11	10/1/11	7/22/13
23321	1/3/11	6/15/13	12/15/13	2/10/16
23322	1/3/11	6/15/13	12/15/13	2/10/16

EA 2332A is the truck lanes project: One N/B lane from Weldon Cyn. To South of Calgrove Blvd & One S/B Lane from South of Pico Cyn / Lyons Ave. to Weldon Cyn OC.
Funding has been identified for design and construction.

EA 23321 is HOV & Aux Lanes (NB&SB) from SR-14 to Pico Cyn / Lyons Ave & one Truck lane (S/B) from South of Calgrove to Weldon Cyn.
Funding has been identified for design but not yet for construction.

EA 23322 is HOV & Aux Lanes (NB&SB) from Pico Cyn / Lyons Ave to Parker Road.
Funding has been identified for design but not yet for construction.

Please let me know if you have any questions.

Ashraf Habbak, P.E., PMP, AVS
Project Manager

Daryl Zerfass

09/14/2010 03:11 PM

To Ashraf Habbak
cc
Subject I-5 North Project - Phases 1 & 2

Hi Ashraf,

I am in the process of preparing some planning studies for the Santa Clarita Valley. As part of these studies, we are evaluating conditions on the I-5 freeway that includes the area covered by the Truck Lane/HOV Lane project from SR-14 to Parker Road. For the study it is necessary to have an estimate for the completion date of the full project (i.e., adding the truck lanes between Pico Canyon Road and SR-14 plus adding the HOV lanes between Parker Road and SR-14).

I realize the project may be phased, and if you have an estimate for when each phase will be completed that would be helpful. If that is too speculative, a reasonable estimate for the final year in which the project is completed based on what you know today will suffice.

Please feel free to give me a call if you need further details or wish to discuss. I appreciate whatever help you can provide.

Thanks,
Daryl
--
Daryl Zerfass, P.E.
AUSTIN-FOUST ASSOCIATES, INC.
(714) 667-0496

AUSTIN-FOUST ASSOCIATES, INC.
TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING

MEMORANDUM

TO: Susan Tebo, Impact Sciences, Inc.

FROM: Daryl Zerfass, P.E.

DATE: June 9, 2011

SUBJECT: **LANDMARK VILLAGE TRAFFIC IMPACT ANALYSIS – SUPPLEMENTAL FREEWAY ANALYSIS**

This memo serves as a supplement to the Landmark Village Long-Range Cumulative (Buildout) Conditions Traffic Forecasts (December 2007) and the Landmark Village Traffic Impact Analysis (September 2004). This supplemental study provides an analysis of the project's freeway impacts using revised freeway lane capacities and updated forecasts of long-range cumulative conditions.

The I-5 freeway impacts analysis presented in the Landmark Village Recirculated Draft EIR (RDEIR) analyzed the potential impacts of the proposed project on the I-5 freeway. The analysis was prepared shortly after the completion of the Caltrans freeway impact study that was prepared for the upcoming I-5 High Occupancy Vehicle (HOV) and Truck Lane project (I-5 PA&ED HOV & Truck Lanes – SR-14 to Parker Road Traffic Study, October 2007), and the Landmark Village RDEIR analysis utilized data directly from the Caltrans study. However, because the analysis presented in the RDEIR was prepared prior to final approval and funding by Caltrans of the SR-14 to Parker Road project, the analysis did not include the improvements as in place as part of the baseline condition. Caltrans has subsequently certified the necessary environmental documentation (September 2009) and expects construction of the improvement project to be completed in 2016.

Following release of the RDEIR, Caltrans District 7 staff requested that impact analyses evaluating the section of the I-5 freeway within the Santa Clarita Valley utilize a capacity of 1,600 vehicles per hour (vph) for the future HOV lanes based on the desire to achieve an operating condition for the HOV lanes that is better than the operating condition for the general purpose or mixed-flow lanes, i.e., a desire that the HOV lanes operate at LOS C rather than LOS E or F as is accepted for the general purpose lanes. For buffered or contiguous HOV facilities, Caltrans considers that LOS C occurs at approximately 1,650 vph, or less if there is significant bus volume or if there are physical constraints.

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(*High Occupancy Vehicle Guidelines for Planning, Design and Operations*, Caltrans, 2003, Chapter 2, page 4.) In contrast, 2,000 vph is commonly utilized to represent the threshold between LOS E and F conditions for a mixed-flow freeway lane. In addition, Caltrans staff specified that 1,200 vph be utilized as the capacity of the future truck climbing lanes for this section of freeway.

As explained below, the analysis conducted utilizing these reduced capacities shows that while some segments of the HOV lanes would operate over capacity under the 2030 scenario utilizing this criteria, the Landmark Village project would not cause a significant project or cumulative impact.

Table 1 depicts the Freeway Volumes and V/C Ratios - Long-Range Buildout Conditions and shows that while none of the mixed-flow (general purpose) lanes exceed a V/C ratio of 1.00 when taking into account the planned freeway improvement project, several segments of the southbound HOV lane exceed a V/C ratio of 1.00 under long-range buildout conditions. Specifically, the southbound HOV lane from Rye Canyon Road to SR-14 is shown to have V/C ratios that range from 1.13 to 1.25. However, since the capacity used for the HOV lane (1,600 vph) represents mid-LOS C operating conditions, it is important to note that a V/C ratio of 1.00 in the HOV lanes represents a substantially better operating condition than does a V/C ratio of 1.00 in a mixed-flow lane.

Consideration has also been given to the number of vehicles actually eligible to utilize the HOV lane. Under existing conditions within the project's study area, the volume of traffic eligible to utilize the HOV lane is approximately 27 percent of the total volume according to a survey prepared for the Caltrans PA&ED EIR. Under long-range buildout peak conditions, when the total volume of traffic is approaching the maximum capacity of the freeway and traffic volumes reach the point of being uniformly distributed across all lanes, in no case does the HOV lane volume exceed 27 percent of the total volume. Therefore, the HOV lane volume estimates utilized for this study are supported by data for the existing condition.

In summary, with the planned freeway improvement project that is adding truck lanes and HOV lanes to the I-5 freeway within the Santa Clarita Valley in place, project traffic does not result in a significant impact to the freeway, which is the same conclusion reached in the RDEIR traffic study. However, because the RDEIR traffic study identified significant project impacts to the freeway without the freeway improvement project in place, the RDEIR includes mitigation measures for the four freeway segments identified as significantly impacted. Specifically, the mitigation measures require the project to pay its fair share of the HOV/Truck Lanes freeway improvement project for those four segments.

Subsequent to the circulation of the RDEIR, the project applicant has had regular meetings with Caltrans staff to develop a mitigation agreement addressing the project's fair-share payment towards the planned freeway project. As part of the mitigation agreement, the project's share of future traffic along all segments of the freeway project limits (i.e., from Parker Road to SR-14) was calculated using a fair-share formula developed by Caltrans. Under the agreement, Caltrans acknowledges that the applicant's full payment of its share amount satisfies its mitigation obligations to Caltrans relative to the project.

Table 1: Freeway Volumes and V/C Ratios – Long-Range Buildout Conditions

		Capacities		Long-Range Without Project				Long-Range With Project				Project Increment	
				MF Lanes		HOV Lanes		MF Lanes		HOV Lanes			
Segment	**Lanes**	**MF Lanes**	**HOV Lanes**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**MF**	**HOV**
Northbound – AM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	3,411	0.43	n/a	n/a	3,400	0.43	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	3,707	0.46	n/a	n/a	3,700	0.46	n/a	n/a	0.00	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	3,718	0.46	340	0.21	3,760	0.47	340	0.21	0.01	0.00
404. Between Hasley Canyon & SR-126	4M + 1H + 1A	9,000	1,600	5,274	0.59	370	0.23	5,320	0.59	380	0.24	0.00	0.01
405. Between SR-126 & Rye Canyon	4M + 1H	8,000	1,600	5,328	0.67	500	0.31	5,480	0.69	520	0.33	0.02	0.02
406. Between Rye Canyon & Magic Mtn	4M + 1H	8,000	1,600	5,298	0.66	530	0.33	5,450	0.68	550	0.34	0.02	0.01
407. Between Magic Mtn & Valencia	4M + 1H+ 1A	9,000	1,600	6,165	0.69	610	0.38	6,280	0.70	620	0.39	0.01	0.01
408. Between Valencia & McBean	4M + 1H	8,000	1,600	7,062	0.88	720	0.45	7,170	0.90	730	0.46	0.02	0.01
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,141	0.89	740	0.46	7,250	0.91	750	0.47	0.02	0.01
410. Between Pico/Lyons & Calgrove	4M + 1H+ 1A	9,000	1,600	6,976	0.78	720	0.45	7,070	0.79	730	0.46	0.01	0.01
411. Between Calgrove & SR-14	4M + 1H + 1T	9,200	1,600	6,980	0.76	730	0.46	7,060	0.77	740	0.46	0.01	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	9,156	0.64	1,010	0.32	9,180	0.64	1,020	0.32	0.00	0.00
Northbound – PM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	6,389	0.80	n/a	n/a	6,400	0.80	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	7,468	0.93	n/a	n/a	7,500	0.94	n/a	n/a	0.01	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	7,621	0.95	1,320	0.83	7,670	0.96	1,330	0.83	0.01	0.00
404. Between Hasley Canyon & SR-126	4M + 1H + 1A	9,000	1,600	7,927	0.88	1,310	0.82	7,980	0.89	1,320	0.83	0.01	0.01
405. Between SR-126 & Rye Canyon	4M + 1H	8,000	1,600	6,752	0.84	1,280	0.80	6,810	0.85	1,290	0.81	0.01	0.01
406. Between Rye Canyon & Magic Mtn	4M + 1H	8,000	1,600	6,762	0.85	1,270	0.79	6,820	0.85	1,280	0.80	0.00	0.01
407. Between Magic Mtn & Valencia	4M + 1H+ 1A	9,000	1,600	6,764	0.75	1,300	0.81	6,800	0.76	1,300	0.81	0.01	0.00
408. Between Valencia & McBean	4M + 1H	8,000	1,600	7,414	0.93	1,340	0.84	7,460	0.93	1,340	0.84	0.00	0.00
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,005	0.88	1,370	0.86	7,030	0.88	1,370	0.86	0.00	0.00
410. Between Pico/Lyons & Calgrove	4M + 1H+ 1A	9,000	1,600	6,984	0.78	1,390	0.87	7,010	0.78	1,390	0.87	0.00	0.00
411. Between Calgrove & SR-14	4M + 1H + 1T	9,200	1,600	6,891	0.75	1,390	0.87	6,910	0.75	1,390	0.87	0.00	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	14,235	0.99	3,130	0.98	14,270	0.99	3,130	0.98	0.00	0.00
Southbound – AM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	4,696	0.59	n/a	n/a	4,700	0.59	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	5,689	0.71	n/a	n/a	5,700	0.71	n/a	n/a	0.00	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	6,483	0.81	710	0.44	6,490	0.81	710	0.44	0.00	0.00
404. Between Hasley Canyon & SR-126	4M + 1H	8,000	1,600	6,763	0.85	730	0.46	6,770	0.85	730	0.46	0.00	0.00
405. Between SR-126 & Rye Canyon	4M + 1H+ 1A	9,000	1,600	6,625	0.74	700	0.44	6,690	0.74	710	0.44	0.00	0.00
406. Between Rye Canyon & Magic Mtn	4M + 1H+ 1A	9,000	1,600	6,650	0.74	710	0.44	6,690	0.74	710	0.44	0.00	0.00
407. Between Magic Mtn & Valencia	4M + 1H	8,000	1,600	6,720	0.84	780	0.49	6,720	0.84	780	0.49	0.00	0.00
408. Between Valencia & McBean	4M + 1H+ 1A	9,000	1,600	7,795	0.87	910	0.57	7,790	0.87	910	0.57	0.00	0.00
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,561	0.95	960	0.60	7,540	0.94	960	0.60	-0.01	0.00
410. Between Pico/Lyons & Calgrove	4M + 1H + 1T	9,200	1,600	7,202	0.78	1,010	0.63	7,190	0.78	1,010	0.63	0.00	0.00
411. Between Calgrove & SR-14	4M + 1H + 2T	10,400	1,600	7,308	0.70	1,020	0.64	7,280	0.70	1,020	0.64	0.00	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	13,842	0.96	3,010	0.94	13,800	0.96	3,000	0.94	0.00	0.00

(Continued)

Table 1: Freeway Volumes and V/C Ratios – Long-Range Buildout Conditions (Continued)

				Long-Range Without Project				Long-Range With Project				Project Increment	
		Capacities		MF Lanes		HOV Lanes		MF Lanes		HOV Lanes			
Segment	**Lanes**	**MF Lanes**	**HOV Lanes**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**Vol**	**V/C**	**MF**	**HOV**
Southbound – PM Peak Hour													
401. North of Lake Hughes	4M	8,000	n/a	6,384	0.80	n/a	n/a	6,400	0.80	n/a	n/a	0.00	n/a
402. Between Lake Hughes & Parker	4M	8,000	n/a	6,890	0.86	n/a	n/a	6,900	0.86	n/a	n/a	0.00	n/a
403. Between Parker & Hasley Canyon	4M + 1H	8,000	1,600	6,622	0.83	1,330	0.83	6,670	0.83	1,330	0.83	0.00	0.00
404. Between Hasley Canyon & SR-126	4M + 1H	8,000	1,600	7,853	0.98	1,390	0.87	7,900	0.99	1,400	0.88	0.01	0.01
405. Between SR-126 & Rye Canyon	4M + 1H+ 1A	9,000	1,600	7,488	0.83	1,450	0.91	7,630	0.85	1,470	0.92	0.02	0.01
406. Between Rye Canyon & Magic Mtn	4M + 1H+ 1A	9,000	1,600	8,234	0.91	1,820	1.14	8,460	0.94	1,840	1.15	0.03	0.01
407. Between Magic Mtn & Valencia	4M + 1H	8,000	1,600	7,772	0.97	1,920	1.20	7,960	1.00	1,940	1.21	0.03	0.01
408. Between Valencia & McBean	4M + 1H+ 1A	9,000	1,600	8,366	0.93	1,950	1.22	8,540	0.95	1,960	1.23	0.02	0.01
409. Between McBean & Pico/Lyons	4M + 1H	8,000	1,600	7,856	0.98	1,990	1.24	8,000	1.00	2,000	1.25	0.02	0.01
410. Between Pico/Lyons & Calgrove	4M + 1H + 1T	9,200	1,600	8,475	0.92	1,880	1.18	8,610	0.94	1,890	1.18	0.02	0.00
411. Between Calgrove & SR-14	4M + 1H + 2T	10,400	1,600	8,974	0.86	1,800	1.13	9,090	0.87	1,810	1.13	0.01	0.00
412. South of SR-14	6M + 2H + 2T	14,400	3,200	11,813	0.82	2,140	0.67	11,850	0.82	2,150	0.67	0.00	0.00

MF (or M) = Mixed-Flow/General Purpose Lane (Capacity = 2,000 vehicles per hour)
HOV (or H) = HOV Lane (Capacity = 1,600 vehicles per hour)
A = Auxiliary Lane (Capacity = 1,000 vehicles per hour)
T = Truck Lane (Capacity = 1,200 vehicles per hour)

Capacities derived from PeMS data and through discussions with Caltrans staff.

AUSTIN-FOUST ASSOCIATES, INC.
TRAFFIC ENGINEERING AND TRANSPORTATION PLANNING

MEMORANDUM

TO: Mr. Alex Herrell, Newhall Land

FROM: Daryl Zerfass, P.E.

DATE: July 1, 2010

SUBJECT: **POTRERO CANYON ROAD BRIDGE**

This memorandum addresses the effect, if any, of elimination of the Potrero Canyon Road Bridge on the traffic impacts analysis presented in the Landmark Village Recirculated Draft EIR (January 2010). As explained below, because the Potrero Canyon Road Bridge is not necessary to provide acceptable levels of service to the Landmark Village roadways following project buildout, the impacts analysis is unaffected by elimination of the bridge.

The Newhall Ranch Specific Plan (Specific Plan) identifies three future bridge crossings of the Santa Clara River within the Specific Plan boundary – Commerce Center Drive Bridge, Long Canyon Road Bridge, and Potrero Canyon Road Bridge. The Specific Plan EIR addresses a long-range scenario in which all three crossings are envisioned. Subsequent to the EIR, a separate study was prepared to identify a timeframe for construction of the roadways, including these bridges, that would support the increased traffic levels resulting from development of the Specific Plan, Entrada/Legacy Village, and Valencia Commerce Center buildout (i.e., all the projects that will build out in the Westside of the Santa Clarita Valley over the next 25 years). That study, the *Westside Santa Clarita Valley Roadway Phasing Analysis*, November 2006 (Phasing Study), was reviewed and approved by the Los Angeles County Department of Public Works for the purpose of phasing the roadway improvements necessary to support development of these projects.

The process utilized to prepare the Phasing Study consisted of first identifying the amount of development anticipated to occur each year as the Westside area first begins to develop, and continuing through the complete buildout of the Westside area. The Newhall Ranch master developer provided these anticipated absorption amounts along with the specific geographical areas anticipated to be developed each year. Based on the geographical areas being developed, the roadway infrastructure needed to serve those areas was then identified and separated into seven distinct stages. Special versions of the traffic model used by the County of Los Angeles were then prepared for each of the seven stages.

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The Phasing Study included the calculation of levels of service (LOS) for each stage based on the amount of new land development estimated to be in place at the time of road improvement construction. If deficiencies were identified, the road improvements for that stage were then modified such that acceptable LOS (defined as LOS D or better) was obtained. The study ultimately determined that each stage of road improvement construction would accommodate the concurrent level of development with acceptable levels of service.

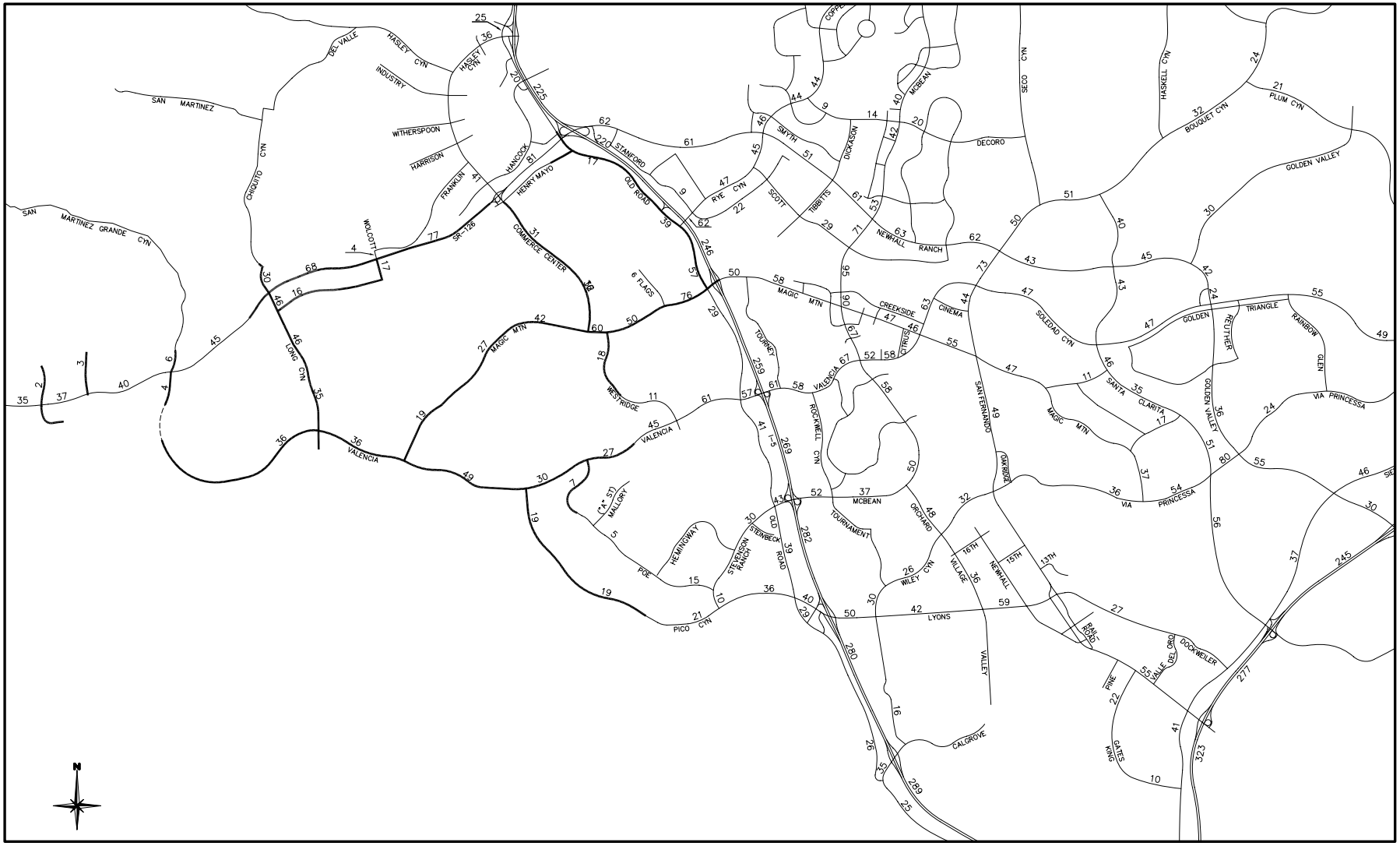
Under the Phasing Study, construction of the primary road improvements, which includes the three bridge crossings, would occur in seven stages concurrent with development of the respective land uses. Specific to the three bridge crossings, the study determined that in order to maintain acceptable levels of service, the Commerce Center Drive Bridge would be included as part of development Stage 2, the Long Canyon Road Bridge would be included as part of Stage 3, and construction of the Potrero Canyon Road Bridge would not occur until the final stage, Stage 7.

Attached are four exhibits from the Phasing Study. Specific to the Potrero Canyon Road Bridge, the first exhibit (Figure 23) shows the year 2030 average daily traffic (ADT) volumes for the development stage immediately *prior* to construction of the Potrero Canyon Road Bridge (the dashed line at the location of the bridge indicates that the bridge was not included when modeling that stage). The second and third exhibits (Tables 6 & 7) show that each roadway within the study area would operate at acceptable LOS under this scenario. The fourth exhibit, (Figure 24), shows the amount of development that was included within the year 2030 horizon under the development stage immediately prior to construction of the Potrero Canyon Road Bridge. As shown, under this scenario, the Landmark Village development is 100 percent complete by the year 2030, as is the remainder of the Specific Plan area. A fifth exhibit (Figure 23b), which was prepared for this memorandum, is also attached for comparison purposes, and it shows the ADT volumes based on Stage 7, which includes the Potrero Canyon Road Bridge. As shown on Figure 23b, the primary effect of the addition of the Potrero Canyon Road Bridge would be to reduce traffic volumes on Long Canyon Road and SR-126 as traffic is redistributed to Potrero Canyon Road.

More specific to the internal or on-site roadways, an assessment of the Landmark Village on-site roadways was conducted based on a comparison of 2030 traffic volumes with and without the Potrero Canyon Road Bridge. As shown on Figures 23 and 23b, with the exception of Long Canyon Road, traffic volumes on the on-site roadways would be unaffected by the removal of a Potrero Canyon Road Bridge. Specific to Long Canyon Road, as illustrated on Figures 23 and 23b, traffic volumes on Long Canyon Road would increase without the Potrero Canyon Road Bridge from 28,000/37,000 ADT to 35,000/46,000 ADT. However, the planned six-lane roadway would have sufficient capacity to accommodate the increase in traffic volumes as an ADT of 35,000/46,000 on a six-lane roadway is equivalent to acceptable LOS B/D. As to the local street intersection with Long Canyon Road, an evaluation of the Landmark Village local street ("A" Street) intersection with Long Canyon Road was conducted. The evaluation determined that with the planned six-lane Long Canyon Road, the intersection will operate acceptably at LOS C. As shown on Table 1, Year 2030 Level of Service Summary, under the 2030 scenario without Potrero Canyon Road Bridge, the intersection would operate at LOS C during the AM Peak Hour and LOS B during the PM Peak Hour. (The intersection capacity utilization (ICU) worksheets are attached to this memorandum.)

Thus, the Phasing Study in combination with the supplemental analysis conducted for the on-site roadways establishes that full buildout of the Specific Plan area, including Landmark Village, can occur without the Potrero Canyon Road Bridge being in place while maintaining acceptable levels of service. This is due primarily to the fact that the Potrero Canyon Road Bridge was included as part of the Specific Plan for purposes other than maintaining acceptable LOS, such as facilitating access to State Route 126. Thus, the Potrero Canyon Road Bridge is not essential to provide acceptable levels of service upon buildout of the Landmark Village project and its absence does not affect the results of the traffic impacts analysis, including the identification of significant impacts, provided in the Recirculated Draft EIR.

Enclosures



Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 23

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2030

Table 6: AM Peak Hour Level of Service Summary

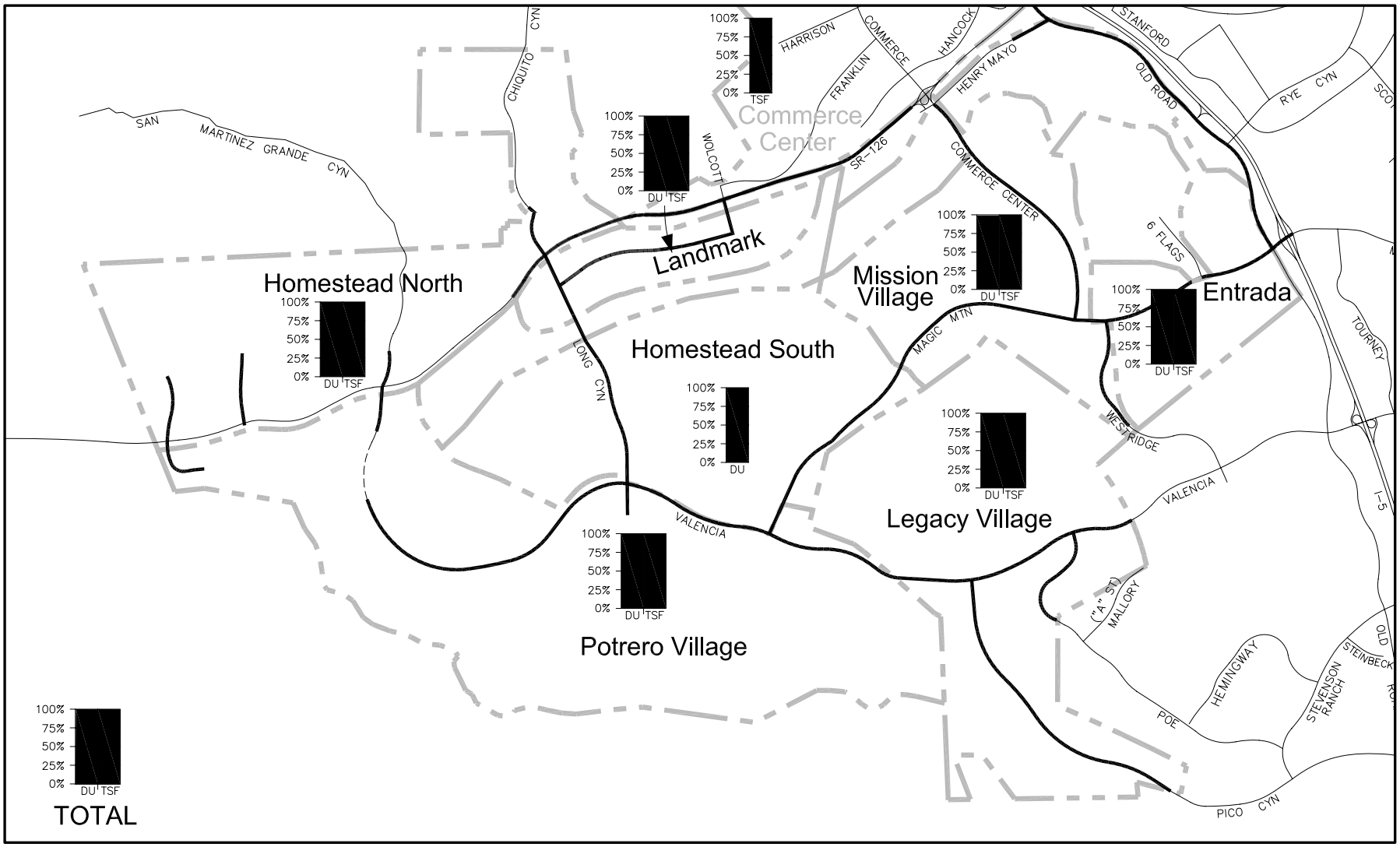
Intersection	Exist.	2011	2012	2014	2018	2022	2025	2030
7. I-5 SB Ramps & SR-126	A	C	C	C	C	C	C	C
8. I-5 NB Ramps & SR-126	A	B	B	B	A	A	B	B
9. Old Road & I-5 SB Ramps (at Rye Canyon)	C	A	A	A	A	A	A	A
10. I-5 SB Ramps & Magic Mountain	A	A	A	A	A	B	B	B
11. I-5 NB Ramps & Magic Mountain	B	A	A	A	B	B	C	C
12. I-5 SB Ramps & Valencia	A	A	A	A	B	A	A	A
13. I-5 NB Ramps & Valencia	A	A	A	A	B	B	B	C
14. I-5 SB Ramps & McBean	A	A	A	A	A	A	A	A
15. I-5 NB Ramps & McBean	A	A	A	A	A	A	B	B
16. I-5 SB On-Loop & Lyons	A	A	A	A	A	A	A	A
17. I-5 NB Ramps & Lyons	A	A	A	A	A	A	A	A
18. I-5 SB Ramps & Calgrove	A	B	B	B	B	C	C	A
19. I-5 NB Ramps & Calgrove	B	C	C	C	D	D	D	B
20. I-5 SB Ramp & Lyons	A	A	A	A	A	A	A	A
25. Old Road & Rye Canyon	D	B	C	C	D	D	D	D
26. Old Road & Magic Mountain	A	A	A	A	B	C	C	D
27. Old Road & Valencia	A	A	A	A	B	C	C	C
28. Old Road & McBean	A	A	A	A	A	A	A	A
29. Old Road & Pico	A	D	D	D	C	C	D	D
80. Wolcott & SR-126	A	A	A	A	A	B	C	C
81. Commerce Center & Henry Mayo	--	A	A	A	A	B	C	C
82. Commerce Center & SR-126 EB Ramps	--	A	A	A	A	A	A	A
83. Commerce Center & SR-126 WB Ramps	--	A	B	C	C	C	D	C
96. Martinez/Potrero & SR-126	A	A	A	A	A	A	A	B
101. Long Canyon & Valencia	--	--	--	A	A	A	A	A
102. Newhall Ranch & Valencia	--	--	--	A	A	A	A	B
103. Pico Canyon & Valencia	--	--	--	--	A	A	B	B
104. Poe & Valencia	--	--	A	A	A	A	B	B
105. Westridge & Valencia	A	A	A	A	A	A	A	A
106. Commerce Center & Magic Mountain	--	A	B	D	C	A	B	C
107. Westridge & Magic Mountain	--	A	A	A	A	B	B	B
110. Chiquito Canyon & SR-126	A	A	A	A	A	B	D	D
118. Six Flags Entrance & Magic Mountain	--	A	A	A	A	A	A	A

See Figure B-1 for intersection locations.

Table 7: PM Peak Hour Level of Service Summary

Intersection	Exist.	2011	2012	2014	2018	2022	2025	2030
7. I-5 SB Ramps & SR-126	A	A	B	B	B	B	B	C
8. I-5 NB Ramps & SR-126	A	A	B	B	B	B	B	C
9. Old Road & I-5 SB Ramps (at Rye Canyon)	E	B	A	A	B	B	C	D
10. I-5 SB Ramps & Magic Mountain	A	B	B	B	D	D	D	C
11. I-5 NB Ramps & Magic Mountain	B	B	B	B	C	D	D	D
12. I-5 SB Ramps & Valencia	A	B	B	C	D	C	D	D
13. I-5 NB Ramps & Valencia	A	B	B	B	B	B	C	C
14. I-5 SB Ramps & McBean	B	C	B	C	C	D	C	D
15. I-5 NB Ramps & McBean	B	C	B	B	C	C	D	D
16. I-5 SB On-Loop & Lyons	A	C	C	C	C	D	D	D
17. I-5 NB Ramps & Lyons	B	C	C	C	D	D	D	D
18. I-5 SB Ramps & Calgrove	B	B	B	B	C	D	D	B
19. I-5 NB Ramps & Calgrove	A	A	A	A	A	B	C	B
20. I-5 SB Ramp & Lyons	A	A	A	A	A	B	B	B
25. Old Road & Rye Canyon	D	C	C	C	B	C	C	D
26. Old Road & Magic Mountain	B	B	A	B	C	C	D	D
27. Old Road & Valencia	B	A	A	B	C	D	D	D
28. Old Road & McBean	C	D	D	D	C	C	C	D
29. Old Road & Pico	B	C	C	C	C	D	D	D
80. Wolcott & SR-126	A	C	C	C	C	C	D	C
81. Commerce Center & Henry Mayo	--	A	A	A	A	A	B	C
82. Commerce Center & SR-126 EB Ramps	--	A	A	A	A	A	A	A
83. Commerce Center & SR-126 WB Ramps	--	A	A	B	B	C	C	D
96. Martinez/Potrero & SR-126	A	A	A	A	A	A	B	C
101. Long Canyon & Valencia	--	--	--	A	A	A	B	D
102. Newhall Ranch & Valencia	--	--	--	A	A	A	A	C
103. Pico Canyon & Valencia	--	--	--	--	A	A	C	C
104. Poe & Valencia	--	--	A	A	A	A	A	B
105. Westridge & Valencia	A	A	A	A	A	A	A	B
106. Commerce Center & Magic Mountain	--	A	A	A	A	B	C	C
107. Westridge & Magic Mountain	--	A	A	A	A	B	B	B
110. Chiquito Canyon & SR-126	A	A	A	A	A	B	D	D
118. Six Flags Entrance & Magic Mountain	--	A	A	A	A	B	B	C

See Figure B-1 for intersection locations.



Legend

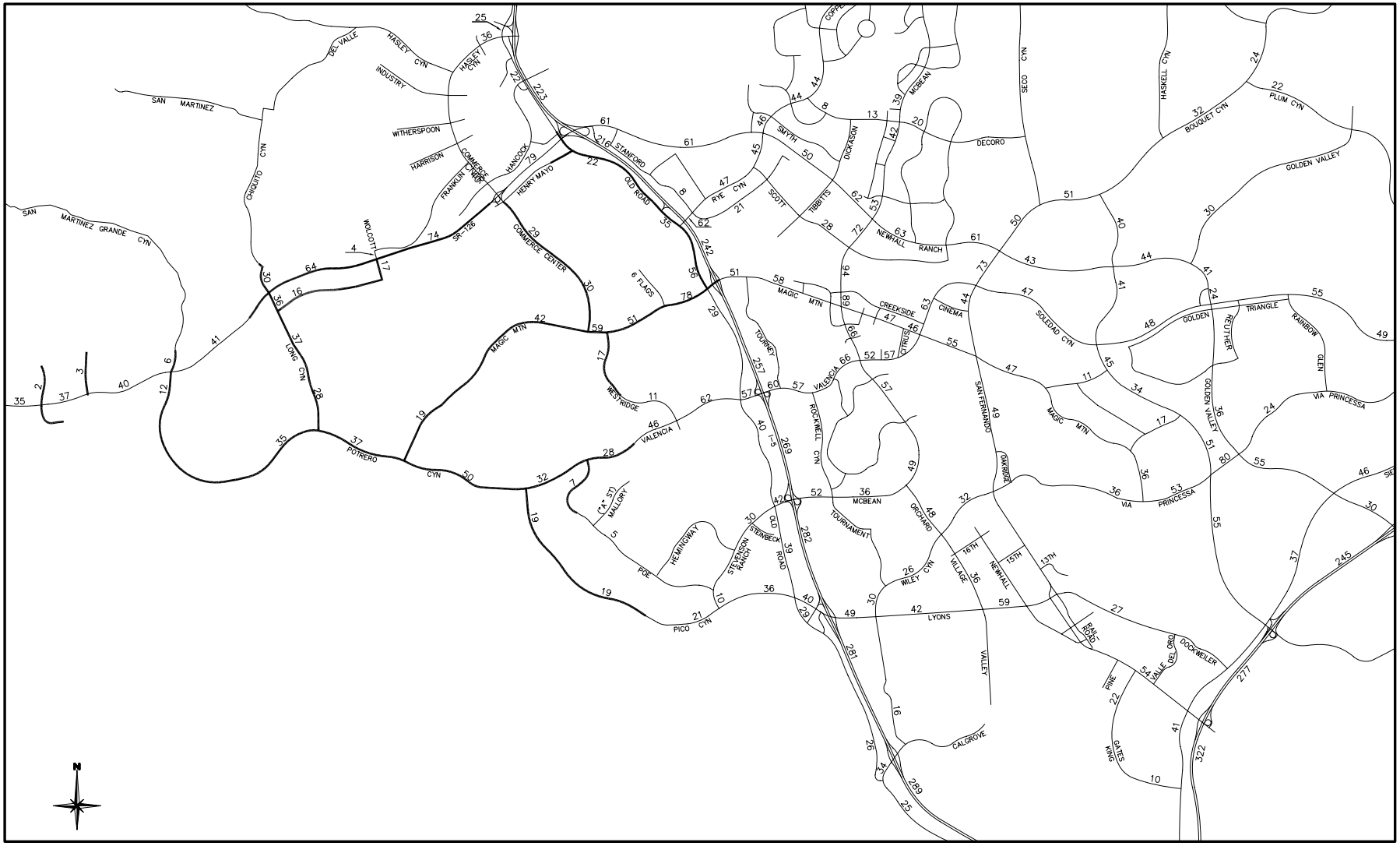
Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 24

PROJECT DEVELOPMENT BY PLANNING AREA -2030



Legend

New Westside Roadway

Figure 23b

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2030 with Potrero Canyon Road Bridge

Table 1: Year 2030 Level of Service Summary

	2030 Without Potrero Bridge				2030 With Potrero Bridge			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**
Long Canyon Road & Landmark Village "A" Street	.75	C	.66	B	.69	B	.67	B

Level of service ranges:	.00 - .60	A	.71 - .80	C	.91 – 1.00	E
	.61 - .70	B	.81 - .90	D	Above 1.00	F

Long Canyon & Landmark Village "A" Street

2030 Buildout Without Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	204	.13	41	.03*
NBT	3	4800	2184	.50*	596	.15
NBR	0	0	218		143	
SBL	2	2880	207	.07*	529	.18
SBT	3	4800	544	.12	1620	.34*
SBR	0	0	8		30	
EBL	2	2880	105	.04*	335	.12
EBT	1	1600	11	.02	20	.06*
EBR	0	0	17		80	
WBL	2	2880	105	.04	366	.13*
WBT	0.5	3200	22	{.04}*	38	{.06}
WBR	1.5		188		412	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.75**		**.66**

2030 Buildout With Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	204	.13	41	.03*
NBT	2	3200	1405	.44*	486	.15
NBR	1	1600	218	.14	143	.09
SBL	2	2880	207	.07*	529	.18
SBT	2	3200	281	.09	1112	.35*
SBR	1	1600	8	.01	30	.02
EBL	2	2880	105	.04*	335	.12
EBT	1	1600	11	.02	20	.06*
EBR	0	0	17		80	
WBL	2	2880	105	.04	366	.13*
WBT	0.5	3200	22	{.04}*	38	{.05}
WBR	1.5		188		412	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.69**		**.67**

I-5 HOV/Truck Lanes Project
SR-14 to Parker Road

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 – LA–005, PM R45.4/R59.0
EA 2332E0
EA 2332A0

Final Environmental Impact Report/ Environmental Assessment with Finding of No Significant Impact

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by the Department under its assumption of responsibility pursuant to 23 U.S.C. 327.

Caltrans

September 2009

SCH# 2007051028
07-LA-05-PM 45.4/59.0
2332E0
2332A0

Interstate 5, widen existing to include high-occupancy vehicle lanes and truck climbing lanes from State Route 14 in the south to Parker Road in the north, in the City of Santa Clarita and unincorporated Los Angeles County, California

FINAL ENVIRONMENTAL IMPACT REPORT
Submitted Pursuant to: (State) Division 13, California Public Resources Code
California Environmental Quality Act

THE STATE OF CALIFORNIA
Department of Transportation

Sept 1, 2009
Date of Approval

Ron Kosinski
Ron Kosinski
Deputy District Director
Division of Environmental Planning, District 7
California Department of Transportation

CALIFORNIA DEPARTMENT OF TRANSPORTATION
FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR

I-5 HOV/TRUCK LANES PROJECT

SR-14 TO PARKER ROAD.

The California Department of Transportation (Caltrans) has determined that Alternative 2 (Reduced Median Alternative), will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA), which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate Mitigation Measures. It provides sufficient evidence and analysis for determining that an EIS is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA.

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

Notwithstanding any other provision of law, a claim arising under federal law seeking judicial review of a permit, license or approval issued by federal agency for a highway or public transportation project shall be barred unless it is filed within 180 days after publication of a notice in the Federal Register announcing that the permit, license, or approval is final pursuant to the law under which the agency action is taken, unless a shorter time is specified in the federal law pursuant to which judicial review is allowed.

September 1, 2009
Date of Approval

Ron Kosinski
Ron Kosinski
Caltrans Deputy District Director
Division of Environmental Planning, District 7
California Department of Transportation

SCH# 2007051028
07-LA-05-PM 45.4/59.0
EA 2332E0

Interstate 5, widen existing to include high-occupancy vehicle lanes and truck climbing lanes from State Route 14 in the south to Parker Road in the north, in the City of Santa Clarita and unincorporated Los Angeles County, California

DRAFT ENVIRONMENTAL IMPACT REPORT/ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
and (Federal) 42 U.S.C. 4332(2)(C)

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327

THE STATE OF CALIFORNIA
Department of Transportation

Dec 11, 2008
Date of Approval

Ron Kosinski
Deputy District Director
Division of Environmental Planning District 7
California Department of Transportation

California Home Monday,

OPR Home > CEQAnet Home > CEQAnet Query > Search Results > Document Description

I-5 HOV/Truck Lanes Project

SCH Number: 2007051028

Document Type: NOD - Notice of Determination

Alternate Title: Interstate 5 High Occupancy Vehicle/Truck Lane Project

Project Lead Agency: Caltrans #7

Project Description

Proposed widening of existing I-5 to include HOV lanes, truck climbing lanes, and additional auxilary lanes from SR 14 on the south to Parker Rd on the north. The proposed improvements include extending the existing HOV lanes on I-5 from SR 14 to south of Paker Rd, and adding truck climbing lanes form the SR 14 interchange to Calgrove Blvd (northbound) and to Pico Canyon Rd/Lyons avenue (southbound). Also proposed adding and/or extending auxilary lanes in the northbound and southbound direction at several locations.

Contact Information

Primary Contact:
Carlos Montez
California Department of Transportation, District 7
213 897-9116
100 South Main Street, Suite 100
Los Angeles, CA 90012-3712

Project Location

County: Los Angeles
City: Santa Clarita
Region:
Cross Streets: I-5, SR 14, Interchange and Parker Road
Latitude/Longitude: 34° 25' 23.7" / 119° 34' 59.7" Map
Parcel No: various
Township: 5N
Range: 71W
Section: 25
Base: SBB&M
Other Location Info:

Determinations

This is to advise that the ☒ Lead Agency ☐ Responsible Agency Caltrans has approved the project described above on 9/1/2(made the following determinations regarding the project described above.

1. The project ☒ will ☐ will not have a significant effect on the environment.
2. ☒ An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ☐ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation measures ☒ were ☐ were not made a condition of the approval of the project.
4. A Statement of Overriding Considerations ☒ was ☐ was not adopted for this project.
5. Findings ☒ were ☐ were not made pursuant to the provisions of CEQA.

Final EIR Available at: Caltrans District 7 100 S. Main Street, Suite 100 MS16A Los Angeles, CA 90012

Date Received: 10/7/2009

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Executive Summary

S.1 Overview

The California Department of Transportation (Caltrans) proposes to widen existing Interstate 5 (I-5) to include high-occupancy vehicle (HOV) lanes, truck climbing lanes, and additional auxiliary lanes from State Route 14 (SR-14) on the south to Parker Road on the north, a distance of approximately 13.6 miles (mi) (Figure ES.1). The project is located within the City of Santa Clarita and unincorporated Los Angeles County. The proposed improvements include extending the existing HOV lanes on I-5 from SR-14 to south of Parker Road, a distance of approximately 13 mi, and adding truck climbing lanes from the SR-14 interchange to Calgrove Boulevard (northbound) and to Pico Canyon Road/Lyons Avenue (southbound), a distance of approximately 3 to 4 mi. The proposed I-5 HOV/Truck Lanes project (project) also proposes adding and/or extending auxiliary lanes in the northbound and southbound direction at several locations.

I-5 is a major north/south freeway connecting the states of California, Oregon, and Washington, and a major commuter route from the Santa Clarita Valley into the southern Los Angeles area. The area within the project limits is surrounded by mountainous terrain, and is therefore a geographically constrained area. As such, there is no direct alternative freeway route to I-5 in the city of Santa Clarita. A local arterial, The Old Road, runs parallel and adjacent to the I-5 freeway within the study limits.

In addition to serving as a major commuter facility, it is also the region's primary goods movement artery. It is part of the Interstate System of highways and is used as a major local and regional truck route. I-5 is listed as a "high-priority corridor" on the National Highway System (NHS), serving inter-regional commodities and vehicular travel in the north-south direction from California's most southern border with Mexico to its most northern border with Oregon. It is also listed on the State Highway Extra Legal Load (SHELL) Route system. These systems list those highways that have been constructed to accommodate the high volume and weight of inter- and intrastate truck traffic. Within the project limits, I-5 is classified as an urban freeway, and it functions as the gateway to and from the Los Angeles Basin to central and northern California. As a result of this unique characteristic of spanning the entire

state, the interstate in the north Los Angeles County area experiences high volumes of traffic, including truck traffic.

The existing I-5 facility within the project limits currently provides generally four mixed-flow lanes in each direction with the exception of through the midpoint of the I-5/SR-14 interchange, where there are three mixed-flow lanes in each direction. Two truck lanes in each direction pass through the I-5/SR-14 interchange area, separated from the mainline freeway. Within the project limits, this truck bypass route begins (southbound)/ends (northbound) just north of the I-5/SR-14 interchange consisting of ±5 percent grade.

Changes have been made to this environmental document since the circulation of the draft environmental document. Public and agency comments received during the circulation of the Draft Environmental Impact Report/Environmental Assessment (EIR/EA) and Public Hearing have resulted in refinements that have been incorporated in this final environmental document. A vertical line in the outside margin indicates changes in the document.

S.2 Purpose and Need

S.2.1 Need

I-5 is experiencing greater automobile and truck congestion as a result of population growth in north Los Angeles County and goods movement into and out of the Ports of Los Angeles and Long Beach. Freeway traffic volumes are expected to approximately double by 2030, which will continue to cause substantial delays.

S.2.2 Purpose

The purpose of the project is to achieve the following objectives:

- Reduce delays to vehicles caused by slower-moving trucks through the hilly southern portion of this segment of I-5.
- Improve operational and safety design features to facilitate the movement of people, freight, and goods on the project segment.
- Reduce existing and forecast traffic congestion on the project segment of I-5 to accommodate planned growth within the study area.

S.3 Project Description

This section describes the Proposed Action and the design alternatives that were developed by a multidisciplinary team to achieve the proposed project purpose and need while avoiding or minimizing environmental impacts. The alternatives are Alternative 1 (No Build Alternative), Alternative 2 (Reduced Median Alternative), and Alternative 3 (Full Median Alternative).

The project is being evaluated in three segments. Segment 1 extends from the I-5/SR-14 interchange to north of the Pico Canyon Road/Lyons Avenue/I-5 interchange. Segment 2 extends from north of the Pico Canyon Road/Lyons Avenue/I-5 interchange to north of the State Route 126 (SR-126) interchange. Segment 3 extends from north of SR-126 to south of Parker Road.

S.3.1 No Build Alternative (Alternative 1)

The No Build Alternative would maintain the current configuration of the existing freeway. There would be no improvements to the mainline freeway, only approved/ pending local interchange improvements. Some of the known projects include the following:

- **Hasley Canyon Road/I-5 Interchange Improvements:** Construction ongoing; anticipated to be completed in 2011.
- **Rye Canyon Road/I-5 Southbound Ramp Improvements:** Construction is anticipated to begin in 2009/2010 fiscal year.
- **Rye Canyon Road Widening:** Construction is anticipated to begin in 2009/ 2010.
- **Magic Mountain Parkway/I-5 Interchange Improvements:** Phase 1 was completed in April 2006. Phase 2 construction is ongoing and expected to be complete in 2009. Phase 3 currently has no funding.
- **The Old Road Improvement Projects (Widening of The Old Road from Magic Mountain Parkway to Turnberry Lane):** The Draft EIR anticipated for public review in early 2011. Phase I (Magic Mountain Parkway to Rye Canyon Road and replacement of the Santa Clara River Bridge) construction is anticipated to begin in 2013. Phase II (Rye Canyon Road to Turnberry Lane) construction is anticipated to begin as early as 2013.
- **The Old Road Widening (Parker Road to Hillcrest Parkway):** The Project Study Report (PSR) equivalent was approved on January 25, 2007. Los Angeles

County is currently performing environmental studies. Public review of the environmental document is tentatively scheduled for early 2010. The schedule is contingent upon securing additional funding for the project.

- **I-5/SR-14 HOV Direct Connector Project:** Construction is anticipated from 2008 to 2011.
- **I-5 HOV Lanes from SR-118 to SR-14:** Construction has been completed. The HOV lanes were opened in April 2008.
- **I-5 Pavement Rehabilitation:** One project is programmed, with construction to begin in 2012/2013. Other projects are to follow as funding becomes available.
- **Upgrade I-5 Median Barrier from South of Weldon Canyon Road to 530 Feet (ft) north of Weldon Canyon:** Construction is anticipated to begin in 2011.
- **Corridor Intelligent Transportation System (ITS) Improvements:** No project is currently programmed. These improvements are to be implemented with projects as appropriate until complete.
- **I-5 at Castaic Weight Station; Upgrade Weight Station Facility:** The Final Project Report/Environmental Document (PR/ED) was approved October 2008. Construction is expected to begin October 2010.

Under the No Build Alternative, the HOV and truck lanes would not be added and the congestion and operational problems in this segment would not be alleviated.

The No Build Alternative provides a baseline for comparing the impacts associated with the Build Alternatives since environmental reviews must consider the effects of not implementing the project.

S.3.2 Build Alternatives

Both Build Alternatives (Alternatives 2 and 3) propose to widen the center median and the outside shoulder of the northbound and southbound lanes between SR-14 and south of Parker Road to accommodate HOV, additional auxiliary, and truck lanes. Both Build Alternatives would provide one HOV lane in each direction from the I-5/ SR-14 interchange to south of the Parker Road interchange. Both Build Alternatives would extend one northbound truck lane from where the truck lanes currently merge with northbound I-5 near the Weldon Canyon Road/I-5 overcrossing to the Calgrove Boulevard/I-5 interchange. Southbound truck climbing lanes are proposed between the Weldon Canyon Road overcrossing and Calgrove Boulevard interchange (two

truck lanes) and from Calgrove Boulevard to south of the Pico Canyon Road/Lyons Avenue interchange (one truck lane).

Both Build Alternatives propose adding and/or extending auxiliary lanes in the northbound direction from SR-14 to the northbound truck lane merge, Calgrove Boulevard to Pico Canyon Road/Lyons Avenue, and Valencia Boulevard to Magic Mountain Parkway, and in the southbound direction between SR-126 and Rye Canyon Road, Rye Canyon Road, and Magic Mountain Parkway, and Valencia Boulevard and McBean Parkway.

S.3.2.1 Alternative 2 (Reduced Median Alternative) – Preferred Alternative

Alternative 2 proposes median and inside shoulder widths that are less than the Caltrans standard (48 ft median and less than 10 ft inside shoulders at median structure columns) within a maximum 210 ft cross section. The reduced median width of 48 ft is measured from the inside the Mixed Flow Lane (MFL), Edge of Travel Way (ETW), to inside the MFL ETW. Additional widening beyond the 48 ft minimum in the median area would be provided when necessary for horizontal stopping sight distance requirements. A 48 ft median would accommodate a 1 ft buffer, a 12 ft HOV lane, and a 10 ft inside shoulder. Shoulder widths along freeway ramps would be 8 ft. Alternative 2 would not provide for a 10 ft continuous inside shoulder (at column locations) or a 4 ft buffer between HOV and adjacent mixed-flow lanes. The HOV buffer would be 1 ft. The maximum cross section width under Alternative 2 (210 ft) is intended to accommodate the proposed HOV and truck climbing lanes within the existing Caltrans right of way to the extent feasible to limit the number of right of way acquisitions.

Per Caltrans HOV lane guidelines, California Highway Patrol (CHP) enforcement areas are recommended every 2 mi. Based on Caltrans criteria, approximately five enforcement areas would be required within the 13.6 mi project limit. Additional width in the median (beyond the proposed 48 ft) is required to provide for those CHP enforcement areas and has been included in the design of the Reduced Median Alternative.

S.3.2.2 Alternative 3 (Full Median Alternative)

The Full Median Alternative (Alternative 3) proposes construction of the truck climbing and HOV lanes consistent with Caltrans standards. The standard full median width of 62 ft is measured from inside the MFL ETW to inside the MFL ETW. The only exception to the 62 ft median width occurs in two areas north of the Pico Canyon Road/Lyons Avenue interchange, where the existing median is 60 ft wide. The typical cross section for this alternative is a maximum of 245 ft, which includes 12 ft travel lanes, a 10 ft outside shoulder, and a continuous CHP enforcement area in the median. The standard median width of 62 ft would accommodate a 4 ft buffer, a 12 ft HOV lane, a 10 ft inside shoulder, and an additional 4 ft inside shoulder for continuous CHP enforcement. The only exception to the 62 ft median width would be in two areas north of the Pico Canyon Road/Lyons Avenue interchange, where the median width would be 60 ft. The additional width for the continuous enforcement area provides for continuous 10 ft inside shoulders at the structure column locations.

Early Implementation Project (EIP)

Construction of the truck lane improvements has been identified as the EIP due to partial funding of the truck lanes component. The EIP consists of construction of truck lanes from the SR-14 interchange to south of the Pico Canyon Road/Lyons Avenue interchange.

The EIP improvements in the northbound direction would include widening into the existing median to maintain five northbound lanes after the merge of the separated truck lanes just north of the Weldon Canyon Road/I-5 overcrossing to the Calgrove Boulevard interchange. The outside lane would become the truck climbing lane as the general-purpose lanes would be shifted toward the median.

The EIP improvements in the southbound direction would include widening into the existing median to maintain five southbound lanes from south of the Pico Canyon Road/Lyons Avenue interchange to Calgrove Boulevard. The truck lanes would become the truck climbing lane and the general-purpose lanes would be shifted toward the median.

At the Calgrove Boulevard southbound on-ramp, a sixth lane would be added on southbound I-5. Two of the six southbound lanes would be dropped at the existing SR-14 interchange truck bypass lanes, while four lanes would join the existing I-5 lanes before the SR-14 general-purpose lane connector.

The EIP would be constructed within the limits analyzed for the ultimate improvements.

S.4 Joint CEQA/NEPA Document

The proposed project is a joint project by Caltrans and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Caltrans is the lead agency under CEQA. In addition, FHWA's responsibility for environmental review, consultation, and any other action required in accordance with applicable federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327(a)(2)(a).

The Draft EIR/EA was circulated for public review from December 17, 2008, to February 17, 2009. Comments have been received and addressed from the public and reviewing agencies. The Final EIR/EA includes responses to comments received on the Draft EIR/EA, and identifies the selection of Alternative 2 as the Preferred Alternative. Following the distribution of the Final EIR/EA, if the decision is made to approve the project, a Notice of Determination (NOD) will be published for compliance with CEQA and a Finding of No Significant Impact (FONSI) will be issued for compliance with NEPA.

S.5 Coordination with Public and Other Agencies

S.5.1 Permits and Approvals Needed

Table S.1 identifies the permits and/or approvals that are or may be required prior to or during construction of the project.

S.5.2 Unresolved Issues

There are no unresolved issues at this time. Coordination with regulatory agencies is ongoing.

Table S.1 Permits and/or Approvals Needed

Permit/Approval	Agency	Status
Encroachment Permit-Roadway	County of Los Angeles-Public Works	Coordination will occur after environmental document approval.
Streambed Alteration Agreement (Section 1602)	California Department of Fish and Game (CDFG)	Application will be submitted after environmental document approval.
Section 402 NPDES (Construction Activity)	Los Angeles Regional Water Quality Control Board	Application will be submitted prior to construction.
Section 402 NPDES (Groundwater Dewatering)	Los Angeles Regional Water Quality Control Board	Application will be submitted prior to construction.
Section 401 Permit	Los Angeles Regional Water Quality Control Board	Application will be submitted after environmental document approval.
Section 404 Permit (Individual or Nationwide[1])	United States Army Corps of Engineers (ACOE)	Application will be submitted after environmental document approval.
Section 7 Informal Consultation for Threatened and Endangered Species	United States Fish and Wildlife Service	Completed
Encroachment Permit-Flood Control	County of Los Angeles-Public Works	Coordination will occur after environmental document approval.

[1] After receipt of the Section 404 Permit application, the ACOE will determine whether an Individual or Nationwide Permit is applicable.

S.6 Project Impacts

Table S.2 provides a summary of the impacts that are summarized from the environmental analysis contained in Chapter 2. The environmental commitments and measures to minimize harm are listed in the Environmental Commitments Record in Appendix E.

Table S.2 Summary of Impacts

Environmental Resource		Alternative 1 (No Build)	Alternative 2 (Reduced Median) – Preferred Alternative	Alternative 3 (Full Median)
Land Use		No impact.	Temporary construction impacts and permanent acquisition of one full parcel and three partial parcels for additional right of way.	Temporary construction impacts and permanent acquisition of eight partial parcels and one full parcel for additional right of way.
Growth		No impact.	Temporary noise impacts would include construction crew commuting of construction equipment and materials to the project site and excavation/grading/roadway construction. Permanent impacts are solely from traffic noise.	Temporary noise impacts would include construction crew commuting of construction equipment and materials to the project site and excavation/grading/roadway construction Permanent impacts are solely from traffic noise.
Farmlands		No impact.	No temporary or permanent impacts to Farmlands.	Permanent loss of 3.02 acres (ac) of Prime Farmland and 1.024 ac of Farmland of Statewide Importance.
Community Impacts	**Community Character and Cohesion**	No impact.	Temporary impacts would include construction-related impacts such as traffic disruptions/congestion/detours/ increasing of noise/vibration/light and glare/increasing of emissions. No negative permanent impacts to the regional and local community.	Temporary impacts would include construction-related impacts such as traffic disruptions/congestion/detours/ increasing of noise/vibration/light and glare/increasing of emissions. No negative permanent impacts to the regional and local community.
	Relocation	No impact.	Temporary loss of parking spaces and unpaved field roads. No permanent impacts related to acquisitions or relocation of residential or commercial buildings.	Temporary loss of parking spaces and unpaved field roads. No permanent impacts related to acquisitions or relocation of residential or commercial buildings.
	Environmental Justice	No Impact.	No disproportionately high and adverse impacts on any minority or low-income populations.	No disproportionately high and adverse impacts on any minority or low-income populations.
Utilities and Emergency Services		No impact.	Temporary construction impacts. Permanent beneficial impacts from replacement/upgrade/addition of the Intelligent Transportation System (ITS) facilities.	Temporary construction impacts. Permanent beneficial impacts from replacement/upgrade/addition of the ITS facilities.
Traffic and Transportation/Pedestrian and Bicycle Facilities		Increased traffic congestion; degradation of LOS	Temporary construction impacts, closures, detours. Permanent beneficial impacts from improvement in existing and future level of service (LOS) and reduced traffic congestion.	Temporary construction impacts, closures, detours. Permanent beneficial impacts from improvement in existing and future LOS and reduced traffic congestion.
Visual and Aesthetics		No impact.	Temporary visual effects during construction. Permanent change in appearance of freeway facility.	Temporary visual effects during construction. Permanent change in appearance of freeway facility.
Cultural Resources		No impact.	No impact to known resources. Potential impact to unknown resources/burials.	No impact to known resources. Potential impact to unknown resources/burials.

Table S.2 Summary of Impacts

Environmental Resource	Alternative 1 (No Build)	Alternative 2 (Reduced Median) – Preferred Alternative	Alternative 3 (Full Median)
Hydrology and Floodplains	No impact.	Temporary construction impact. Permanent minor increase in 100-year base flood elevation.	Temporary construction impact. Permanent minor increase in 100-year base flood elevation.
Water Quality and Storm Water Runoff	No impact.	Permanent and temporary increase in pollutant loading from freeway during storm events. Permanent increase in volume of storm water runoff.	Permanent and temporary increase in pollutant loading from freeway during storm events. Permanent increase in volume of storm water runoff.
Geology and Soils	No impact.	Temporary disturbance and compaction of soil and increased soil erosion during construction. Permanent alteration of existing landforms during construction grading and construction of cut and fill slopes.	Temporary disturbance and compaction of soil and increased soil erosion during construction. Permanent alteration of existing landforms during construction grading and construction of cut and fill slopes.
Paleontology	No impact.	Potential permanent loss due to ground-disturbing activities; Paleontological Mitigation Plan required.	Potential permanent loss due to ground-disturbing activities; Paleontological Mitigation Plan required.
Hazardous Waste and Materials	No impact.	Likelihood of encountering aerially deposited lead, asbestos-containing materials, lead-based paint, and lead- and chromium-containing paint and pavement markings during construction. Potential to encounter petroleum hydrocarbon contamination, naturally occurring petroleum gas or natural gas, and polychlorinated biphenyls during construction.	Likelihood of encountering aerially deposited lead, asbestos-containing materials, lead-based paint, and lead- and chromium-containing paint and pavement markings during construction. Potential to encounter petroleum hydrocarbon contamination, naturally occurring petroleum gas or natural gas, and polychlorinated biphenyls during construction.
Air Quality	Continued degradation of air quality.	Temporary fugitive dust and diesel engine emissions during construction. Decreased air pollutant emissions during operation.	Temporary fugitive dust and diesel engine emissions during construction Decreased air pollutant emissions during operation.
Noise	No impact.	Temporary increase in noise levels during construction; permanent increase in noise levels during operation.	Temporary increase in noise levels during construction; permanent increase in noise levels during operation.
Energy	No impact.	One-time expenditure of energy to construct improvements.	One-time expenditure of energy to construct improvements.
Natural Communities	No impact.	Temporary impacts from grading and construction activities and trimming and pruning oak trees. Temporary impacts to of 4.96 ac of oak woodland habitat, 2.65 ac of Riparian Communities, 23.49 ac of Coastal Sage Scrub Communities, and 73 oak trees (including 14 heritage oaks). Permanent removal of vegetation, including mature trees;	Temporary impacts from grading and construction activities and trimming and pruning oak trees. Temporary impacts to 5.01 ac of oak woodland habitat, 2.43 ac of Riparian Communities, 26.38 ac of Coastal Sage Scrub Communities, and 80 oak trees (including 27 heritage oaks). Permanent removal of vegetation, including mature trees.

Table S.2 Summary of Impacts

Environmental Resource	Alternative 1 (No Build)	Alternative 2 (Reduced Median) – Preferred Alternative	Alternative 3 (Full Median)
		Permanent impacts to 3.27 ac of Oak Woodland Communities, 1.60 ac of Riparian Communities, 18.51 ac of Coastal Sage Scrub Communities, and 109 oak trees (including 20 heritage oaks).	Permanent impacts to 4.98 ac of Oak Woodland Communities, 1.92 ac of Riparian Communities, 22.25 ac of Coastal Sage Scrub Communities, and 120 oak trees (including 12 heritage oaks).
Wetlands and Other Waters	No impact.	4.01 ac temporary impacts to California Department of Fish and Game (CDFG) jurisdictional areas. 3.55 ac temporary impacts to United States Army Corps of Engineers (ACOE) and Regional Water Quality Control Board (RWQCB) jurisdictional areas. 1.65 ac permanent impacts to CDFG jurisdictional areas. 1.84 ac permanent impacts to ACOE and RWQCB jurisdictional areas.	4.04 ac temporary impacts to CDFG jurisdictional areas. 3.52 ac temporary impacts to ACOE and RWQCB jurisdictional areas. 2.01 ac permanent impacts to CDFG jurisdictional areas. 2.32 ac permanent impacts to ACOE and RWQCB jurisdictional areas.
Plant Species	No impact.	No impact.	No impact.
Animal Species	No impact.	Temporary construction impacts and permanent loss of habitat for Santa Ana sucker; arroyo chub; bat species; and special-status coastal sage scrub and chaparral, riparian, woodland and montane, and grassland and open space animal species.	Temporary construction impacts and permanent loss of habitat for Santa Ana sucker; arroyo chub; bat species; and special-status coastal sage scrub and chaparral, riparian, woodland and montane, and grassland and open space animal species.
Threatened and Endangered Species	No impact.	Temporary construction impacts and permanent loss of habitat for unarmored threespine stickleback, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, California gnatcatcher, and, potentially, arroyo toad.	Temporary construction impacts and permanent loss of habitat for unarmored threespine stickleback, least Bell's vireo, southwestern willow flycatcher, western yellow-billed cuckoo, California gnatcatcher, and, potentially, arroyo toad.
Invasive Species	No impact.	Potential permanent spread of invasive species.	Potential permanent spread of invasive species.
Cumulative Impacts	No impact	Cumulative loss of oak woodland.	Cumulative loss of oak woodland.

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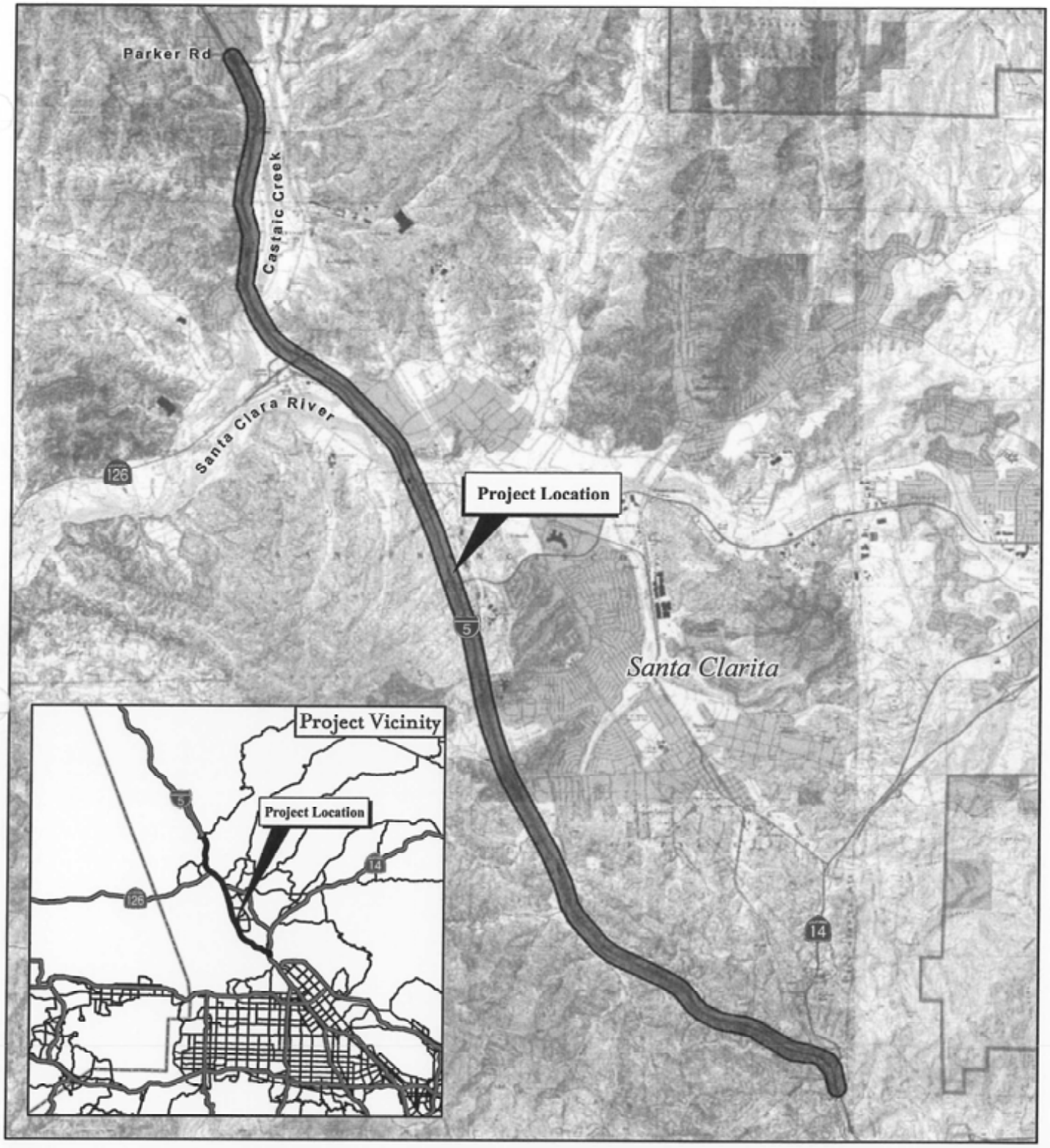

FIGURE ES.1

LEGEND

Project Location

N

0 3,750 7,500 Feet

I-5 HOV / Truck Lanes Project

Project Location

07-LA-5 PM R45.4/R59.0

EA 2332E0

SOURCE: USGS 7.5' QUAD, CALIF.

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Chapter 1 Proposed Project

1.1 Introduction

The California Department of Transportation (Caltrans) proposes to widen existing Interstate 5 (I-5) to include high-occupancy vehicle (HOV) lanes, truck climbing lanes, and additional auxiliary lanes from State Route 14 (SR-14) on the south to Parker Road on the north, a distance of approximately 13.6 miles (mi) (Figure 1.1). The project is located within the City of Santa Clarita and within unincorporated Los Angeles County. The proposed improvements include extending the existing HOV lanes on I-5 from SR-14 to south of Parker Road, a distance of approximately 13 mi, and adding truck climbing lanes from the SR-14 interchange at Calgrove Boulevard (northbound) and to Pico Canyon Road/Lyons Avenue (southbound), a distance of approximately 3 to 4 mi. The proposed I-5 HOV/Truck Lanes project (project or proposed project) also includes additional auxiliary lanes in the northbound and southbound directions at several locations.

I-5 is a major north/south freeway connecting the States of California, Oregon, and Washington, and a major commuter route from the Santa Clarita Valley into the southern Los Angeles area. The area within the proposed project limits is surrounded by mountainous terrain, and is therefore a geographically constrained area. As such, there is no direct alternative freeway route to I-5 in Santa Clarita Valley. A local arterial, The Old Road, runs parallel and adjacent to I-5 within the study limits.

In addition to serving as a major commuter facility, it is also the region's primary goods movement artery. It is part of the Interstate System of highways and is used as a major local and regional truck route. I-5 is listed as a "high-priority corridor" on the National Highway System (NHS), serving inter-regional commodities and vehicular travel in the north-south direction from California's most southern border with Mexico to its most northern border with Oregon. It is also listed on the State Highway Extra Legal Load (SHELL) Route system. These systems list those highways that have been constructed to accommodate the high volume and weight of inter- and intrastate truck traffic. Within the project limits, I-5 is classified as an urban freeway, and it functions as the gateway to and from the Los Angeles Basin to central and northern California. As a result of this unique characteristic of spanning the entire state, the interstate in the north Los Angeles County area experiences high volumes of traffic, including truck traffic.

The existing I-5 facility within the project limits currently provides generally four mixed-flow lanes in each direction with the exception of through the midpoint of the I-5/SR-14 interchange, where there are three mixed-flow lanes in each direction. Two truck lanes in each direction pass through the I-5/SR-14 interchange area, separated from the mainline freeway. Within the project limits, this truck bypass route begins (southbound)/ends (northbound) just north of the I-5/SR-14 interchange consisting of ±5 percent grade.

Two studies preceded development of the project. The *Transportation Concept Report* (November 1998) for I-5, prepared by Caltrans, suggested improvements to achieve or maintain a Level of Service (LOS) of D during the peak hours. Specifically, the *Transportation Concept Report* recommended four mixed-flow lanes, two HOV lanes, and one truck lane in each direction.

The Los Angeles County Metropolitan Transportation Authority (Metro) prepared the *North County Combined Highway Corridors Study (North County Study)* (June 24, 2004) to develop feasible and cost-effective solutions for alleviating traffic congestion in the north Los Angeles County area. Both short- and long-range improvements for the project corridor were identified in the *North County Study*. As part of the Short Term Plan, the addition of an HOV lane and a truck lane in each direction from the I-5/SR-14 interchange to Calgrove Boulevard and addition of an HOV lane in each direction from Calgrove Boulevard to I-5/SR-126 was identified. The Long Range Plan identified the addition of one truck lane and one HOV lane from SR-14 to Calgrove Boulevard, two truck lanes and one HOV lane from Calgrove Boulevard to SR-126 and one truck lane and one HOV lane from SR-126 to Lake Hughes. Both studies acknowledge the existing and projected population growth within the Santa Clarita Valley and identified freeway improvements that respond to this growth.

The proposed project is fully funded and is in the 2008 Regional Transportation Plan (RTP), which was found to conform by the Southern California Association of Governments (SCAG) on May 8, 2008, and the Federal Highway Administration/ Federal Transit Administration (FHWA/FTA) adopted the air quality conformity finding on June 5, 2008. The project is also included in 2008 Regional Transportation Improvement Program (RTIP) (RTIP Project ID: LAE0465, In L.A./Santa Clarita on Route 5 from State Route 14 to Parker Road, HOV, Truck and Auxiliary Lane Improvement, page 4). The 2008 RTIP was found to conform by FHWA/FTA on November 17, 2008. The design concept and scope of the proposed project are

consistent with the project description in the 2008 RTP, the 2008 RTIP, and the assumptions in the SCAG regional emissions analysis.

1.2 Purpose and Need

1.2.1 Need for the Proposed Project

I-5 is experiencing greater automobile and truck congestion as a result of population growth in north Los Angeles County and goods movement into and out of the Ports of Los Angeles and Long Beach. Freeway traffic volumes are expected to approximately double by 2030, which will continue to cause substantial delays.

1.2.1.1 Capacity, Transportation Demand, and Safety

Level of Service

The quality of traffic flow can be defined in terms of level of service (LOS). The measure used to provide an estimate of LOS is density. There are six LOS, ranging from LOS A (free traffic flow with low volumes and high speeds, resulting in low densities) to LOS F (traffic volumes exceed capacity and result in forced flow operations at low speeds, resulting in high densities). LOS thresholds for a basic freeway segment are summarized in Table 1.A.

Existing Traffic Volumes

Existing (2006) traffic volumes are shown in Table 1.B. Within the project limits, in the southbound direction, I-5 is experiencing a.m. and p.m. peak-hour traffic that ranges from 2,210 to 6,610 vehicles per hour (vph) and from 2,420 to 6,460 vph, respectively. In the northbound direction, the a.m. and p.m. peak-hour traffic volumes range from 1,570 to 5,620 vph and from 2,790 to 7,020 vph, respectively. The percentage of truck traffic along this stretch of I-5 varies from 9.4 percent to 20.8 percent of the total traffic volume. Average Daily Traffic (ADT)[1] ranges from 83,000 to 202,000 in the project segment of I-5.

[1] Average Daily Traffic is an estimate of the average number of vehicles passing a point or segment of a roadway facility, in both directions, during a 24-hour period.

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Table 1.A LOS Thresholds for a Basic Freeway Segment

LEVELS OF SERVICE
for Freeways

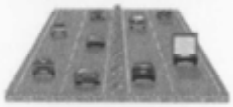
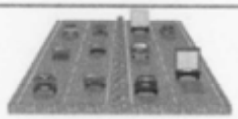
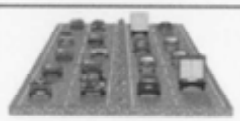
Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. **No delays**
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. **No delays**
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. **Minimal delays**
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. **Minimal delays**
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. **Significant delays**
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. **Considerable delays**

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Table 1.B Existing (2006) Traffic Volumes

I-5 Segment	% Trucks (Daily)	AM Peak Hour		PM Peak Hour		ADT
		SB	NB	SB	NB	
North of Parker Road[1]	26.6	1,600	1,190	2,040	2,250	65,000
Between Parker Road and Hasley Canyon Road	20.8	2,210	1,570	2,420	2,790	83,000
Between Hasley Canyon Road and SR-126	17.3	3,110	2,170	3,010	3,620	100,000
Between SR-126 and Rye Canyon Road	15.3	3,420	3,340	4,150	4,080	124,000
Between Rye Canyon Road and Magic Mountain Parkway	14.2	4,200	3,340	5,350	4,080	134,000
Between Magic Mountain Parkway and Valencia Boulevard	12.2	4,490	4,490	5,600	5,270	156,000
Between Valencia Boulevard and McBean Parkway	10.6	5,310	5,430	6,420	6,050	179,000
Between McBean Parkway and Pico Canyon Road/Lyons Avenue	10.1	5,730	5,560	6,450	6,610	189,000
Between Pico Canyon Road/ Lyons Avenue and Calgrove Boulevard	9.5	6,320	5,620	6,460	7,020	199,000
Between Calgrove Boulevard and SR-14	9.4	6,610	5,600	6,410	6,970	202,000
South of SR-14[2]	8.6	13,270	7,390	9,180	13,710	325,000

Source: Traffic Study, October 2007.
[1] This segment of I-5 is north of the project limits.
[2] This segment of I-5 is south of the project limits.
ADT = average daily traffic
NB = northbound
SB = southbound

The existing LOS during the a.m. and p.m. peak hours for the project segment of I-5 are summarized in Table 1.C. From this table, it can be seen that northbound I-5 from SR-14 to Magic Mountain Parkway operates at LOS C during the a.m. peak hour and at LOS C and D during the p.m. peak hour. Traffic conditions along southbound I-5 during the a.m. and p.m. peak hours operate at LOS E between Calgrove Boulevard and Pico Canyon Road/Lyons Avenue and at LOS F between the Truck Route Bypass and Calgrove Boulevard. During the p.m. peak hour, Pico Canyon Road/Lyons Avenue to Valencia Boulevard in the northbound direction operates at LOS D.

Table 1.C LOS Summary–Existing Conditions

I-5 Segment	AM Peak Hour LOS	PM Peak Hour LOS
Northbound		
Lake Hughes Road to Parker Road	A	A
Parker Road to Hasley Canyon Road	A	B
Hasley Canyon Road to SR-126	B	B
SR-126 to Rye Canyon Road	B	B
Rye Canyon Road to Magic Mountain Parkway	B	B
Magic Mountain Parkway to Valencia Boulevard	C	C
Valencia Boulevard to McBean Parkway	C	C
McBean Parkway to Pico Canyon Road	C	D
Pico Canyon Road/Lyons Avenue to Calgrove Boulevard	C	D
Calgrove Boulevard to Truck Route Bypass	C	D
Truck Route Bypass to SR-14 on-Ramp	C	D
SR-14 on-Ramp to SR-14 off-Ramp	C	D
Southbound		
Lake Hughes Road to Parker Road	A	A
Parker Road to Hasley Canyon Road	A	A
Hasley Canyon Road to SR-126	A	B
SR-126 to Rye Canyon Road	B	B
Rye Canyon Road to Magic Mountain Parkway	B	C
Magic Mountain Parkway to Valencia Boulevard	C	C
Valencia Boulevard to McBean Parkway	C	D
McBean Parkway to Pico Canyon Road/Lyons Avenue	C	D
Pico Canyon Road/Lyons Avenue to Calgrove Boulevard	E	E
Calgrove Boulevard to Truck Route Bypass	F	F
Truck Route Bypass to SR-14 on-Ramp	C	C
SR-14 on-Ramp to Balboa Road	C	C

Source: Traffic Study, October 2007.

Observation of the four-lane southbound segment of I-5 between Pico Canyon Road/ Lyons Avenue and the start of the Truck Route Bypass at SR-14 indicates that the outside lane is used exclusively by trucks. This segment was evaluated as a three-lane segment, with the fourth lane serving as the truck climbing lane for approximately 80 percent of trucks. The method indicates LOS E for each peak-hour time period for the segment between Pico Canyon Road/Lyons Avenue and Calgrove Boulevard, and LOS F between Calgrove Boulevard and SR-14.

1.2.1.2 Future Traffic Projections

The Santa Clarita Valley is a rapidly growing portion of the southern California area and is likely to continue due to the ongoing new land use development that is anticipated to continue as the valley builds out over the next 25 years. This growth

would increase both truck and general automobile traffic on I-5. Table 1.D summarizes land use and vehicle trip generation statistics for 2004 and buildout (2030) conditions. Table 1.D shows that ADT generation within the Santa Clarita Valley is forecast to increase by 99 percent between the present day and valley-wide buildout.

Table 1.D Land Use and Trip Generation Projections–Santa Clarita Valley

Land Use Type	Units	2004		2030	
		Amount	ADT	Amount	ADT
Single-Family Residential	DU	51,300	501,000	92,000	903,000
Multifamily Residential	DU	25,600	203,000	54,800	423,000
Commercial, Retail, Office, and Industrial	MSF	31.8	696,000	81.9	1,539,000
Other	–	–	170,000	–	256,000
Total	–	–	1,570,000	-	3,121,000 (+99%)

Source: Traffic Study, October 2007.
DU = Dwelling Unit
MSF = Million Square Feet
ADT = Average Daily Traffic

The daily number of vehicles traveling the project segment of I-5 is forecast to increase over time, which will increase traffic congestion in the project area under the existing lane configuration. As discussed below, without any improvements to the existing facility, traffic volumes in the project area are forecast to increase by 2030, resulting in a decrease in LOS.

1.2.1.3 Future Traffic Volumes

Future traffic demand was forecast using the Santa Clarita Valley Consolidated Traffic Model prepared to reflect the actual flow of traffic volumes south of the I-5/ SR-14 interchange, which is constrained by the available (existing and planned) capacity for that heavily traveled section of freeway. The Constrained Flow Model provides a realistic peak-hour volume for the freeway segments north of the I-5/ SR-14 interchange by taking into account the constraints that determine the flow rates south of the interchange. The predicted future traffic conditions using both models are shown in Tables 1.E and 1.F for the project segment of I-5.

Table 1.E 2030 (Santa Clarita Valley Buildout) Peak-Hour Traffic Volumes–Constrained Flow Model

I-5 Segment	AM Peak Hour		PM Peak Hour		ADT
	SB	NB	SB	NB	
North of Parker Road[1]	5,200	4,100	6,500	6,800	207,000
Between Parker Road and Hasley Canyon Road	6,700	4,900	7,600	8,200	240,000
Between Hasley Canyon Road and SR-126	7,200	6,500	9,100	8,700	251,000
Between SR-126 and Rye Canyon Road	7,000	6,900	9,200	7,700	234,000
Between Rye Canyon Road and Magic Mountain Parkway	7,200	6,900	10,100	7,700	255,000
Between Magic Mountain Parkway and Valencia Boulevard	7,300	7,100	9,800	7,900	263,000
Between Valencia Boulevard and McBean Parkway	8,100	7,600	10,000	8,300	268,000
Between McBean Parkway and Pico Canyon Road/Lyons Avenue	7,800	7,500	9,600	8,400	283,000
Between Pico Canyon Road/ Lyons Avenue and Calgrove Boulevard	7,300	7,000	8,900	8,400	281,000
Between Calgrove Boulevard and SR-14	7,400	6,400	8,800	8,200	290,000
South of SR-14[2]	17,700	9,200	11,500	16,700	617,000

Source: Traffic Study, October 2007.
[1] This segment of I-5 is north of the project limits.
[2] This segment of I-5 is south of the project limits.

Table 1.F LOS Summary–2030 No-Build Conditions (Constrained Flow Model)

I-5 Segment	AM Peak Hour (LOS)	PM Peak Hour (LOS)
Northbound		
Lake Hughes Road to Parker Road	B	D
Parker Road to Hasley Canyon Road	C	E
Hasley Canyon Road to SR-126	D	F
SR-126 to Rye Canyon Road	D	E
Rye Canyon Road to Magic Mountain Parkway	D	E
Magic Mountain Parkway to Valencia Boulevard	D	E
Valencia Boulevard to McBean Parkway	E	E
McBean Parkway to Pico Canyon Road/Lyons	E	F
Pico Canyon Road/Lyons Avenue to Calgrove	D	E
Calgrove Boulevard to Truck Route Bypass	D	E
Truck Route Bypass to SR-14 Ramp (On)	C	E
SR-14 Ramp (On) to SR-14 Ramp (Off)	C	D
Southbound		
Lake Hughes Road to Parker Road	C	D
Parker Road to Hasley Canyon Road	D	E
Hasley Canyon Road to SR-126	D	F
SR-126 to Rye Canyon Road	D	F
Rye Canyon Road to Magic Mountain Parkway	D	F
Magic Mountain Parkway to Valencia Boulevard	E	F
Valencia Boulevard to McBean Parkway	F	F
McBean Parkway to Pico Canyon Road/Lyons	E	F
Pico Canyon Road/Lyons Avenue to Calgrove	F	F
Calgrove Boulevard to Truck Route Bypass	F	F
Truck Route Bypass to SR-14 Ramp (On)	C	D
SR-14 Ramp (On) to Balboa Road	D	E

Source: Traffic Study, October 2007.

As shown in Tables 1.E and 1.F, without the project, the southbound a.m. and p.m. peak-hour traffic volumes are expected to range from 6,700 to 8,100 vph and 7,600 to 10,100 vph, respectively. The northbound a.m. and p.m. peak-hour traffic volumes are expected to range from 4,900 to 7,600 vph and 7,700 and 8,700 vph, respectively. ADT is expected to range from approximately 234,000 to 290,000 vehicles in the project segment of I-5. The corresponding LOS for the northbound direction ranges from C to E in the a.m. peak hour and from D to F in the p.m. peak hour. Similarly, the corresponding LOS for the southbound direction ranges from D to F in the a.m. peak hour and from E to F in the p.m. peak hour (with the exception of the Truck Route Bypass to the SR-14 ramp, which is projected to operate at LOS C in the a.m. peak hour and LOS D in the p.m. peak hour). As shown from Tables 1.B and 1.E, the average daily traffic (ADT) volumes are expected to increase from approximately one and a half times to more than triple from the existing (2006) to the 2030 forecast

volumes. As shown in Tables 1.C and 1.F, the existing (2006) LOS of A, B, C, and D would be degraded to LOS E and F in many locations if no action is taken.

1.2.1.4 Safety

A summary of accident rates for the project area is provided in Table 1.G with a comparison to the statewide average. This data, which is for the 36-month period of June 2005 through May 2008, indicates that the study area has a total accident rate lower than the statewide average, with the exception of the northbound direction, which has a fatality rate equal to the statewide average.

Table 1.G Accident Rate Summary–June 2005 through May 2008

Post Mile	Name	Segment Accident Rates*			Statewide Accident Rates		
		Fatal Accidents	Fatal + Injury	Total Accidents	Fatal Accidents	Fatal + Injury	Total Accidents
Northbound							
R45.500–R59.299	Junction Route 14 to Lake Hughes Road	0.009	0.18	0.60	0.009	0.28	0.90
Southbound							
R45.500–R59.299	Junction Route 14 to Lake Hughes Road	0.008	0.20	0.68	0.009	0.28	0.09

Source: Transportation Systems Network Report, Traffic Accident Surveillance and Analysis System (TSN - TASAS), June 2009.
* Note: Accidents per million vehicle miles traveled.

The causes for most of the accidents were speeding and improper turning movements. These accidents occurred at various times of the day and resulted mostly in rear-end collisions (over 37 percent). Hitting objects (over 25 percent) and sideswiping (over 21 percent) were the second and third most common collision results.

Over the 36-month accident review period, 22 fatalities occurred within the limits of the proposed project. This section of roadway is generally an eight-lane freeway. A review of the accidents indicate the following: (1) over 34 percent of the accidents occur during congested periods when slower-moving vehicles are present, and (2) over 48 percent of the accidents involve trucks.

1.2.1.5 Operational Deficiencies

The topography in the project area is mountainous or hilly, which, when combined with the large volume of trucks and passenger vehicles, results in conflicts and inefficient operations along the project segment of I-5. Due to the grades within the

project area, slow-moving trucks and vehicles must share existing travel lanes with other vehicles and can obstruct the flow of traffic, thereby increasing congestion and reducing mobility. According to the Traffic Study (October 2007), the greatest grade occurs between Calgrove Boulevard and SR-14 and through the SR-14 interchange, with ±5 percent and ±4.5 percent northbound/southbound, respectively. These areas also experience the greatest speed reduction, to less than 50 miles per hour (mph).

As described in Table 1.B, the percentage of truck traffic along this stretch of I-5 ranges from 9.4 percent to 20.8 percent of the total traffic volume. Truck percentages along the study area are higher than other freeway facilities, which generally average between 5 and 8 percent. With this level of truck traffic, delays and accidents can be attributed to slower-moving vehicles, especially in sustained grades south of the Pico Canyon Road/Lyons Avenue interchange.

Given the high percentage of trucks and the conflict and inefficient operations as mentioned above, there is a need to separate trucks from passenger vehicles to improve congestion and delay associated with the interaction of these vehicle types.

1.2.1.6 Modal Interrelationships and System Linkages

As the greater metropolitan area of Los Angeles County continues to grow to the north, the freeways will continue to be more and more congested. HOV lanes are an effective method of increasing the capacity of the freeway system. In the city of Santa Clarita, annual ridership of the Metrolink commuter rail service has more than doubled in the past 10 years. During this time, annual ridership on the local fixed bus route network grew from 1.1 million annual riders to 3.3 million annual riders, while annual ridership on the express buses increased from 107,000 to 314,000.

1.2.1.7 District 7 HOV Lane Program

Caltrans District 7 has a district-wide HOV Lane Program in place to provide HOV lanes on most of the freeways in Los Angeles County. An HOV project on I-5 from State Route 118 (SR-118) to SR-14 has recently been opened to traffic. The proposed HOV projects on I-5 from State Route 170 (SR-170) to SR-118 and from State Route 134 (SR-134) to SR-170 are currently in the design stage. The SR-14/I-5 HOV Direct Connector project is currently under construction.

According to the *North County Combined Highway Corridors Study* (June 24, 2004), long-distance trips of 25 mi or more make up a high percentage of the trips on this

segment of I-5. Trips of this length are very suitable for ridesharing if HOV lanes are available to be utilized for significant travel time advantage.

1.2.1.8 Goods Movement

SCAG has identified goods movement as a critical component of transportation system planning within southern California. In March 2005, SCAG adopted the Southern California Strategy for Goods Movement: A Plan for Action, which identified the existing and projected volume of goods being transported through the Ports of Los Angeles and Long Beach and identified strategies to address movement of these goods through both rail and surface transportation facilities. According to SCAG's Action Plan, over one-third of waterborne freight containers traffic at United States ports are handled by the Ports of Los Angeles and Long Beach, with 50 to 60 percent of this freight then transported to destinations outside the Southern California region.

Provision of truck lanes on this portion of I-5 to facilitate goods movements is currently under further review as part of the Multi-County Goods Movement Action Plan (MCGMP). Metro, in partnership with the County Transportation Commissions; SCAG; and Caltrans Districts 7, 8, 11, and 12, is developing a plan that would address the multi-county goods movement challenges and identify solutions. The goal of the MCGMP is to identify a program of planned improvements/strategies to facilitate goods movement throughout the southern California region.

1.2.2 Purpose of the Proposed Project

The purpose of the project is to achieve the following objectives:

- Reduce delays to vehicles caused by slower-moving trucks through the hilly southern portion of this segment of I-5.
- Improve operational and safety design features to facilitate the movement of people, freight, and goods on the project segment.
- Reduce existing and forecast traffic congestion on the project segment of I-5 to accommodate planned growth within the study area.

1.3 Project Description

This section describes the Proposed Action and the design alternatives that were developed by a multidisciplinary team to achieve the proposed Interstate 5 (I-5) High-Occupancy Vehicle (HOV)/Truck Lanes project (project) purpose and need while avoiding or minimizing environmental impacts. The alternatives are Alternative 1 (No Build Alternative), Alternative 2 (Reduced Median Alternative), and Alternative 3 (Full Median Alternative).

The project is located in Los Angeles County on I-5 from State Route 14 (SR-14) on the south to Parker Road on the north and covers a distance of approximately 13.6 mi (PM R45.4/R59.0). Within the limits of the project, I-5 currently provides generally four mixed-flow lanes in each direction, with the exception of three mixed-flow lanes in each direction at the I-5/SR-14 interchange. In the project area, two truck lanes are separated from the mainline freeway south of Weldon Canyon Overcrossing. This truck bypass route begins/ends just north of the I-5/SR-14 interchange. As stated in Section 1.2, the purpose of the project is to reduce delays to other vehicles caused by slower-moving trucks through the hilly southern portion of the project area, improve persons and goods throughput, and reduce existing and forecast traffic congestion.

The project is being evaluated in three segments. Segment One extends from the I-5/SR-14 interchange to north of the Pico Canyon Road/Lyons Avenue/I-5 interchange. Segment Two extends from north of the Pico Canyon Road/Lyons Avenue/I-5 interchange to north of the State Route 126 (SR-126) interchange. Segment Three extends from north of SR-126 to south of Parker Road.

Extending the proposed HOV lanes from SR-14 to Parker Road will maximize the HOV potential in this portion of the I-5 corridor, consistent with the existing planned development in north Los Angeles County, and are logical termini for the proposed project. For optimum HOV operations, it is preferable to end or begin HOV lanes in a lane that enables the HOV traffic to continue their travel without forcing those vehicles to exit an HOV lane and merge into a general-purpose lane. Connection to the existing HOV lanes at the I-5/State Route 24 (SR-24) interchange will maintain continuous flow of traffic north into the Santa Clarita Valley. Extending the HOV lanes through the I-5/SR-126 interchange will allow traffic to merge with the mainline without interfering with the HOV traffic.

1.4 Project Alternatives

1.4.1 Build Alternatives

Both Build Alternatives (Alternatives 2 and 3) propose to widen the center median and the outside shoulder of the northbound and southbound lanes between SR-14 and south of Parker Road to accommodate HOV, additional auxiliary, and truck lanes. Both Build Alternatives would provide one HOV lane in each direction from the I-5/ SR-14 interchange to south of the Parker Road interchange. Both Build Alternatives would extend one northbound truck lane from where the truck lanes currently merge with northbound I-5 near the Weldon Canyon Road/I-5 overcrossing to the Calgrove Boulevard/I-5 interchange. Southbound truck climbing lanes are proposed between the Weldon Canyon Road overcrossing and Calgrove Boulevard interchange (two truck lanes) and from Calgrove Boulevard to south of the Pico Canyon Road/Lyons Avenue interchange (one truck lane).

Both Build Alternatives propose adding and/or extending auxiliary lanes in the northbound direction from SR-14 to the northbound truck lane merge, Calgrove Boulevard to Pico Canyon Road/Lyons Avenue, and Valencia Boulevard to Magic Mountain Parkway, and in the southbound direction between SR-126 and Rye Canyon Road, Rye Canyon Road and Magic Mountain Parkway, and Valencia Boulevard and McBean Parkway.

1.4.1.1 Alternative 2 (Reduced Median Alternative) – Preferred Alternative

Alternative 2 proposes median and inside shoulder widths that are less than the California Department of Transportation (Caltrans) standard (48-foot [ft] median and less than 10 ft inside shoulders at median structure columns) within a maximum 210 ft cross section. The reduced minimum median width of 48 ft is measured from inside the Mixed Flow Lane (MFL), Edge of the Traveled Way (ETW), to inside the MFL ETW. Additional widening beyond the 48 ft minimum in the median area would be provided when necessary for horizontal stopping sight distance requirements. See Figure 1.2 for a typical cross section of Alternative 2. A 48 ft median would accommodate a 1 ft buffer, a 12 ft HOV lane, and a 10 ft inside shoulder. Shoulder widths along freeway ramps would be 8 ft. Alternative 2 would not provide for a 10 ft continuous inside shoulder (at column locations) or a 4 ft buffer between HOV and adjacent mixed-flow lanes. The HOV buffer would be 1 ft. The maximum cross

section width under Alternative 2 (210 ft) is intended to accommodate the proposed HOV and truck climbing lanes within the existing Caltrans right of way to the extent feasible to limit the number of right of way acquisitions.

Per Caltrans HOV lane guidelines, California Highway Patrol (CHP) enforcement areas are recommended every 2 mi. Based on Caltrans criteria, approximately five enforcement areas would be required within the 13.6 mi project limit. Additional width in the median (beyond the proposed 48 ft) is required to provide for those CHP enforcement areas and has been included in the design of the Reduced Median Alternative.

1.4.1.2 Alternative 3 (Full Median Alternative)

The Full Median Alternative (Alternative 3) proposes construction of the truck climbing and HOV lanes consistent with Caltrans standards. The standard full median width of 62 ft is measured from inside MFL ETW to inside MFL ETW. The only exception to the 62 ft median width occurs in two areas north of the Pico Canyon Road/Lyons Avenue interchange, where the existing median is 60 ft wide. Previous improvements in this area were constructed based on a previous standard of 60 ft. The typical cross section for this alternative is a maximum of 245 ft, which includes 12 ft travel lanes, a 10 ft outside shoulder, and a continuous CHP enforcement area in the median. See the typical cross section provided in Figure 1.3 for an example of this design. The standard median width of 62 ft would accommodate a 4 ft buffer, a 12 ft HOV lane, a 10 ft inside shoulder, and an additional 4 ft inside shoulder for continuous CHP enforcement. The only exception to the 62 ft median width would be in two areas north of the Pico Canyon Road/Lyons Avenue interchange where the median width would be 60 ft. The additional width for the continuous enforcement area provides for continuous 10 ft inside shoulders at the structure column locations.

1.4.1.3 Common Design Features of the Build Alternatives

Project features are shown in Figures 1.4, Alternative 2, and 1.5, Alternative 3, respectively. Common design features of both alternatives are described below.

Permanent Project Components

Mainline Improvements (HOV, Truck, and Auxiliary Lanes)

Both Build Alternatives propose:

- One HOV lane in the median in each direction from the I-5/SR-14 interchange (southern project limit) to south of the Parker Road interchange (northern project limit).
- One southbound truck lane south of Pico Canyon Road/Lyons Avenue and Calgrove Boulevard, and two southbound truck lanes from Calgrove Boulevard to just south of Weldon Canyon Road, where the truck bypass lanes (2) begin.
- Addition of one northbound truck lane from the I-5/SR-14 interchange to Calgrove Boulevard. All truck lanes would be built along the outside edge of the freeway.
- Auxiliary lanes in the northbound direction from SR-14 to Weldon Canyon Road, Calgrove Boulevard to Pico Canyon Road/Lyons Avenue, McBean Parkway to Valencia Boulevard, and Valencia Boulevard to Magic Mountain Parkway.
- Auxiliary lanes in the southbound direction between SR-126 and Rye Canyon Road, Rye Canyon Road and Magic Mountain Parkway, and Valencia Boulevard and McBean Parkway.
- Additional widening to provide standard horizontal stopping sight distance (SSD) (70 mph) on all 13 mainline horizontal curves.

Bridges

Several bridge structures require widening and/or replacement under both Build Alternatives. Both Alternatives would require the replacement of Weldon Canyon Bridge. In addition, both Build Alternatives would require the widening of the following seven bridges: Gavin Canyon undercrossing, Calgrove Boulevard undercrossing, Butte Canyon Bridge, I-5/SR-26 Separation (Magic Mountain Parkway overcrossing), Santa Clara Overhead, Rye Canyon undercrossing, and Castaic Creek Bridge.

Both Build Alternatives propose to improve the vertical clearance and provide SSD (70 mph) for the southbound I-5 lanes at the Pico Canyon Road/Lyons Avenue overcrossing structure.

Major Drainage Facilities

Drainage facilities are proposed at locations identified in the Preliminary Drainage Report to provide additional capacity for the existing drainage facilities based on the design flows established for the crossings. These facilities include the upsizing or replacement of existing culverts.

Water quality treatment devices include numerous vegetated swales to provide biofiltration, three detention basins, one gross solids removal device, and two Austin sand media filters. Depending on actual groundwater elevations, the detention basins may be able to function as infiltration basins. The locations of water quality treatment facilities will continue to be refined during final design.

Retaining Walls

Retaining walls are required to retain fill or cut slopes to avoid impacts and additional right of way throughout the corridor.

Retaining walls are required in the median where the elevation differences between the northbound and southbound lanes exceed 2 ft. Median retaining walls are generally required between SR-14 and Valencia Boulevard and between SR-126 and Parker Road. The heights of the median retaining walls vary from 2 ft to 18 ft.

Retaining walls are also required along the outside shoulder in many locations throughout the project to reduce impacts and minimize additional right of way requirements. These wall locations for Alternative 2 are shown in Figure 1.4, and the wall locations for Alternative 3 are shown on Figure 1.5. The outside shoulder retaining walls' heights range from 2 ft to 39 ft.

Sound Barriers

The project includes construction of sound barriers (SB) to reduce traffic noise associated with the proposed project. The following sound walls are considered reasonable and feasible on the basis of cost and effectiveness for both Alternatives 2 and 3:

- 10 ft sound barrier outside of Caltrans right of way adjacent to homes along Foxtail Court (SB No. 1-2).
- 6 ft sound barrier outside of Caltrans right of way adjacent to homes along The Old Road (SB No. 1-6).
- 10 ft sound barrier outside of Caltrans right of way, adjacent to homes along Los Arqueros and Playa Serena Drive (SB No. 2-1).
- 8 ft sound barrier for Alternative 2 and 12 ft sound wall for Alternative 3 outside of Caltrans right of way, adjacent to homes along Baviera Way (SB No. 2-2).
- 12 ft sound barrier outside of Caltrans right of way, adjacent to homes along Sycamore Meadow Drive (SB No. 2-3) for Alternative 2, and 14 to 16 ft for Alternative 3.

- 12 ft sound barrier outside of Caltrans right of way, adjacent to homes along Silver Aspen Way (SB No. 2-4).
- 16 ft sound barrier along the edge of shoulder within Caltrans right of way, adjacent to homes on Sandwedge Lane (SB No. 2-5)
- 6 ft sound barrier outside of Caltrans right of way, adjacent to homes along Altos Drive (SB No. 2-6).
- 6 ft sound barrier outside of Caltrans right of way, adjacent to the homes along Romeo Canyon Road (SB No. 3-3).
- 12 ft sound barrier outside of Caltrans right of way for Alternative 2, and 10 ft barrier for Alternative 3, adjacent to homes along Holmby Court (SB No. 3-7).
- 16 ft sound barrier along the edge of Caltrans right of way, adjacent to homes along Daisy Court (SB No. 3-11a).

Additional input from affected property owners would be obtained before the start of final design to confirm whether the walls would be constructed.

On- and Off-Ramps

Modifications to all the on- and off-ramps in the project limits are required to transition to the mainline widening.

Utilities

Utility relocations would be required in local roadways primarily at the transverse crossing of the mainline and, in some cases, adjacent to the Caltrans right of way to allow widening of the mainline. In general, the utility relocations are limited to areas where the local roadways cross I-5 at the interchanges and other structures and adjacent to the I-5 right of way where the widening encroaches onto the local roadway. Utilities to be relocated include general telephone cable, water lines, communication conduits, sewer lines, gas pipes, electrical lines, and oil transmission pipes.

Intelligent Transportation System (ITS) Facilities

Both Build Alternatives would include the addition of the following ITS facilities:

- Five new Closed Circuit Television (CCTV) cameras
- Nine new Ramp Metering Stations/Traffic Monitoring Stations (RMS/TMS)
- A new communication conduit throughout the project from SR-14 to Parker Road
- The upgrading of four CCTV cameras
- The upgrading of 19 RMS/TMS stations

- Upgrading three Changeable Message Signs (CMS)
- Upgrading a Weigh-in-Motion system (WIM)

These elements would provide needed links and fill data gaps in the current ITS system and provide for more comprehensive corridor management.

Landscaping and Irrigation Systems

Landscaping and irrigation systems would be provided where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation planting for the project. The areas available for planting would be identified and coordinated with operations and maintenance to ensure consistency with their objectives and requirements. New irrigation systems would be designed to use reclaimed water (if available).

Design Exceptions

Both Build Alternatives would require mandatory design exceptions for the spacing between interchanges from Rye Canyon Road to Magic Mountain Parkway and from Rye Canyon Road to SR-126. The spacing between these interchanges would be less than 1 mi.

The following advisory design exceptions would be required for both Build Alternatives: (1) 2:1 sideslopes instead of the standard 4:1 sideslopes; (2) a 26 ft standard between the outer edge-of-travel-way (ETW) of I-5 and the ETW of the frontage road for both Build Alternatives at various locations; (3) a median width of 22 ft under Alternative 2 and 30 to 36 ft under Alternative 3 rather than the standard 36 ft median; (4) outer separation distance, with guardrails and/or walls proposed where the separation distance is less than 26 ft; and (5) use of the Rye Canyon Interchange as a partial interchange, with all ramps not connecting to a single cross street.

Temporary Project Components

Construction

A preliminary Transportation Management Plan has been developed and included in the Project Report.

Staging of the construction would be required for all ramp reconstruction, freeway widening, and profile adjustments. The number of through lanes would be maintained by restriping and shifting traffic on the existing lanes to maintain the existing

capacity. Closure of I-5 is not anticipated; however, temporary ramp closures are expected at various interchanges within the corridor.

The majority of the project involves widening the median area and the outside shoulder area of I-5 in two stages. Stage 1 involves placing temporary railing in the median area, constructing the median retaining walls and widening the median. Stage 2 involves placing temporary railing near the outside edge of traveled way, constructing outer retaining walls, and widening the proposed outside pavement. Widening of existing structures would be constructed in a similar sequence, with interior widening completed first, followed by exterior widening. Late-night closures in each direction may also be necessary for removal of the existing and construction of the new Weldon and Biscailuz Drive Overcrossings. Reconstruction at the ramp exit and entrances may require short-term closures.

The southbound lanes at the westbound to southbound loop on-ramp at the Pico Canyon Road/Lyons Avenue interchange would be closed for three to five months during the reconstruction of the profile of southbound I-5 to provide standard vertical clearance and improved SSD. The ramp provides access from westbound Pico Canyon Road to southbound I-5. The reconstruction of the profile would require shifting of the mainline travel lanes to the east to allow for the removal of material to lower the profile. During the closure period, the existing southbound on-ramp that serves eastbound Pico Canyon Road would be temporarily reconfigured to also allow left turns from westbound Pico Canyon Road to maintain the vehicle movement affected by the ramp closure. To allow left turns from westbound Pico Canyon Road onto the ramp, the westbound approach would require temporary restriping and a temporary two-phase traffic signal would be required to control the left turns and conflicting eastbound traffic.

All construction activities would be closely coordinated with other construction projects that are occurring. Existing state facilities such as changeable message signs, traffic cameras, and traffic count stations would also be protected during construction. Close coordination would also be needed with the City, the County, Caltrans, and the public to ensure that traffic along I-5 and surrounding streets remains at an acceptable level of operation during construction.

Construction activities are anticipated to occur between 2011 and 2015.

Construction Vehicle Access and Material Staging

Construction vehicle access and staging of construction materials would occur within disturbed or developed areas inside the existing right of way or the proposed additional right of way. Vehicle access and materials staging during construction of walls adjacent to Caltrans right of way would occur in approved designated areas. All construction vehicle access, materials staging and storage, and other construction activities would occur within the defined disturbance limits for the project.

Construction Lighting

The project would require nighttime construction activities in some parts of the project area, which would require use of portable equipment to light up the work areas.

Temporary Construction Easements

Temporary construction easements (TCEs) would be necessary for constructing walls along the right of way, for the extension of major drainage facilities, for widening bridges, and for water quality improvements that extend outside of the existing right of way. Alternative 2 would require 18 TCEs and Alternative 3 would require 26 TCEs.

Early Implementation Project (EIP)

Partial funding of the truck lanes component allows these lanes to be constructed as an early phase of the project. Construction of these truck lane improvements have been identified as the Early Implementation Project (EIP). The EIP consists of construction of truck lanes from the SR-14 Interchange to south of the Pico Canyon Road/Lyons Avenue (Pico/Lyons) overcrossing. The construction of the truck lanes would be accomplished generally through widening into the existing median and shifting lanes to utilize the available width in the median and defer the major outside widening until the construction of the HOV lanes. Minor outside widening would be required to accommodate retaining walls or drainage features in some locations.

There are currently five lanes on northbound I-5 north of the State Route 14 (SR-14) interchange. Two are separated truck lanes. After the merge of the truck lanes to the I-5 mainline, the existing outside lane drops approximately 1,600 feet (ft) north of the Weldon Canyon/I-5 overcrossing. The EIP improvements in the northbound direction would include widening into the existing median to maintain five northbound lanes after the merge of the separated truck lanes just north of the Weldon Canyon Road/I-5 overcrossing to the Calgrove Boulevard interchange. The outside lane would become

the truck climbing lane as the general-purpose lanes would be shifted toward the median. The inside lane would be dropped south of the Calgrove Boulevard undercrossing structure to join the existing four northbound lanes. Dropping the inside lane rather than the outside lane is proposed to avoid weaving conflicts in advance of the northbound off-ramp to Calgrove Boulevard between exiting vehicles and slower trucks in the outside lanes.

On southbound I-5, there are currently five lanes south of the Pico/Lyons interchange. The existing outside lane drops immediately after the southbound on-ramp from the Pico/Lyons interchange. The EIP improvements in the southbound direction would include widening into the existing median to maintain five southbound lanes from south of the Pico/Lyons interchange to Calgrove Boulevard. The truck lanes would become the truck climbing lane and the general-purpose lanes would be shifted toward the median.

At the Calgrove Boulevard southbound on-ramp, a sixth lane would be added on southbound I-5. Six southbound lanes would continue over The Old Road on the Gavin Canyon undercrossing structures, which would also be widened. Two of the six southbound lanes would be dropped at the existing SR-14 interchange truck bypass lanes, while four lanes would join the existing I-5 lanes before the SR-14 general-purpose lane connector.

For the EIP, retaining walls would be constructed along the centerline of I-5, from north of Weldon Canyon Road to approximately 1,600 ft south of the Pico Canyon/Lyons interchange, to accommodate the grade difference between the northbound and southbound inside median widening. The wall heights would range from 5.9 to 18.3 ft, with an average height of 11 ft.

Minor outside widening is proposed along southbound I-5, north of Weldon Canyon Road overcrossing, which will require reconstruction of an existing retaining wall along an existing cut slope. Reconstruction of this retaining wall would also be required for the Build Alternatives.

Drainage improvements identified for the full project would be constructed with the EIP unless alternative analysis and justification is provided to defer the improvements until the full project is constructed. These drainage improvements would include an additional 12 ft by 12 ft box culvert (or alternative with equal capacity) at Drainage 39 (located east of I-5 just north of Calgrove Boulevard that receives flows from Drainage 40 via two 11 ft wide box culverts and a 4 ft diameter concrete pipe, as

well as several small corrugated metal pipes) and a 30-inch reinforced concrete pipe (RCP) at Drainage 53 (a series of earthen drainages and v-ditches located where The Old Road passes under I-5, south of Calgrove Boulevard). These drainage improvements would also be required for the Build Alternatives. All of the proposed improvements would be constructed within the grading limits previously identified for the Build Alternatives in the EIR/EA.

1.4.1.4 Unique Features of the Build Alternatives

The following text discusses additional features to those discussed above that are unique to the two Build Alternatives.

Permanent Project Components

Mainline Improvements

Alternative 2 would have a reduced median width of 48 ft, no continuous CHP enforcement area, and nonstandard interchange ramp tapers.

Alternative 3 would have a standard median width of 62 ft (except in two areas north of the Pico/Lyons interchange where the existing median is 60 ft), a continuous CHP enforcement area, and standard interchange ramp tapers.

Improvements to Adjacent Roadways

Alternative 2 would not require the realignment of any adjacent roadways.

Alternative 3 would require the realignment of a portion of Coltrane Avenue and the restriping of a portion of The Old Road.

Bridges

In addition to modifications to the bridges discussed in Section 1.4.1, under Alternative 3 the Santa Clara River Bridge would be widened and Biscailuz Drive Overcrossing would be replaced.

Sound Barriers

In addition to the sound barriers discussed above under Section 1.4.1, the additional sound barriers are proposed to reduce traffic noise associated with either Alternative 2 or 3 only.

The following sound barrier is considered reasonable and feasible on the basis of cost and effectiveness for Alternative 2 only:

- A 10 ft sound barrier outside of Caltrans right-of-way, adjacent to homes along Desert Rose Drive (SB No. 3-8).

The following sound barrier is considered reasonable and feasible on the basis of cost and effectiveness for Alternative 3 only:

- A 16 ft sound barrier outside of Caltrans right of way, adjacent to homes along Saguaro Street and Apache Court (SB No. 3-9).

Additional input from affected property owners would be obtained before the start of final design to confirm whether the walls would be constructed.

Right-of-Way Acquisition

Alternative 2 would require acquisition of two parcels for additional right of way. The acquisition would be limited to one partial parcel take and one full parcel take.

Alternative 3 would require acquisition of four parcels for additional right of way. The acquisition would be limited to three partial parcel takes and one full parcel take.

Both alternatives would require TCEs to provide access to construct the improvements.

Castaic Commercial Vehicle Enforcement Facility

Alternative 3 would permanently remove one of three lanes at the Castaic Commercial Vehicle Enforcement Facility (Castaic CVEF) that is used to inspect vehicles/trucks, reducing the total number of lanes available to two. Modifications to the exiting facility would be needed to restore the existing available truck inspection capacity. Improvements would include expansion to the east to generate more usable area for the facility. This expansion would require conversion of the existing open channel into a covered pipe system to provide room for the ramps to be widened. Retaining walls would also be necessary.

Design Exceptions

In addition to the design exceptions discussed in Section 1.4.1, Alternative 2 would require a mandatory design exception to the standard 10 ft inside shoulder at structure columns (a minimum 7.4 ft shoulder is proposed) and the standard 8 ft outside shoulder at the Magic Mountain Parkway northbound on-ramp (a 4 to 8 ft shoulder is proposed).

In addition, an advisory design exception is required where the entrance and exit convergence/divergence geometry is not met under Alternative 2 at ramps at SR-14, Calgrove Boulevard, Pico Canyon Road/Lyons Avenue, and Hasley Canyon. This design exception is needed to avoid reverse curves along ramps to tie back into existing ramps, realignment of frontage roads, higher or increased retaining walls and/or existing ditch reconstruction.

Soil Balance

Alternative 2 would result in approximately 216,000 cubic yards (cy) of excess soil material that would require disposal.

Alternative 3 would result in approximately 296,000 cy of excess soil material that would require disposal.

The preference is that the contractor would be responsible for determining where the soil would be exported/imported. Excess material would be recycled into the project as feasible. In the worst case, the soil would be exported to a landfill. The nearest two landfills that accept construction material are in Sun Valley, California.

Cost

The estimated cost for Alternative 2 is $456 million and the estimated cost for Alternative 3 is $590 million.

Temporary Project Components

Construction

Under Alternative 3, the Biscailuz Drive/Honor Ranch Overcrossing would be constructed using a half width construction to maintain traffic flow on the overcrossing during construction. The three phases of a half width construction would be as follows: (1) Half of the new bridge would be constructed just north of the existing structure. Because the existing bridge structure is not impacted during this stage; it remains open to traffic. (2) The existing bridge would be removed and the remaining half of the proposed bridge would be constructed. Traffic would be shifted to the portion of the new bridge that was previously constructed. (3) The two halves of the newly constructed bridge would be joined.

1.4.2 No Build Alternative (Alternative 1)

The No Build Alternative would maintain the current configuration of the existing freeway. There would be no improvements to the mainline freeway, only approved/

pending local interchange improvements. Some of the known projects include the following:

- **Hasley Canyon Road/I-5 Interchange Improvements:** Construction ongoing, anticipated completion in 2009.
- **Rye Canyon Road/I-5 Southbound Ramp Improvements:** Construction anticipated to begin in 2009/2010 Fiscal Year.
- **Rye Canyon Road Widening:** Construction anticipated to begin in 2009/2010.
- **Magic Mountain Parkway/I-5 Interchange Improvements:** Phase 1 completed in April 2006. Phase 2 construction is ongoing and expected to be complete in 2009. Phase 3 currently has no funding.
- **The Old Road improvement projects (Widening of The Old Road from Magic Mountain Parkway to Turnberry Lane):** Draft Environmental Impact Report (EIR) anticipated for public review in early 2011. Phase I (Magic Mountain Parkway to Rye Canyon Road and replacement of the Santa Clara River Bridge) construction anticipated to begin in 2013. Phase II (Rye Canyon Road to Turnberry Lane) construction anticipated to begin as early as 2013.
- **The Old Road Widening (Parker Road to Hillcrest Parkway):** Project Study Report (PSR) equivalent approved January 25, 2007. Los Angeles County is currently performing environmental studies. Public review of the environmental document is tentatively scheduled for early 2010 . Schedule is contingent upon securing additional funding for the project.
- **I-5/SR-14 HOV Direct Connector Project:** Construction anticipated from 2008 to 2011.
- **I-5 HOV lanes from SR-118 to SR-14:** Construction completed. HOV lanes opened in April 2008.
- **I-5 Pavement Rehabilitation:** One project programmed with construction to begin in 2012/2013. Other projects to follow as funding becomes available.
- **Upgrade I-5 Median Barrier from South of Weldon Canyon Road to 530 ft north of Weldon Canyon:** Construction to begin in 2011.
- **Corridor ITS Improvements:** No project currently programmed. To be implemented with projects as appropriate until complete.
- **I-5 at Castaic Weight Station; Upgrade Weigh Station Facility:** Final Project Report/Environmental Document (PR/ED) approved in October 2008. Construction to begin in October 2010.

Under the No Build Alternative, the HOV and truck lanes would not be added and the congestion and operational problems in this segment would not be alleviated.

The No Build Alternative provides a baseline for comparing the impacts associated with the Build Alternatives since environmental reviews must consider the effects of not implementing the project.

1.4.3 TSM and Mass-Transit Alternatives

The Build Alternatives are part of a comprehensive strategy to address existing and forecast traffic congestion within north Los Angeles County. In June 2004, the North County Combined Highway Corridors Study was completed and provided a multimodal transportation plan for the northern portion of Los Angeles County, addressing both short- (2010) and long-range (2025) requirements to accommodate a variety of trip purposes, including travel (highways and transit) and goods movement (trucks) within and through the Study Area. This study was conducted by the Los Angeles Metropolitan Transportation Authority (Metro) in cooperation with the Cities of Lancaster, Los Angeles, Palmdale, and Santa Clarita and the County of Los Angeles.

The study developed a list of 11 conceptual alternatives for I-5 and SR-14 based on the results of a comprehensive scoping process conducted between October 2001 and March 2002. The process involved the study team, several dozen key study stakeholders, representatives from participating agencies, and a Technical Advisory Committee (TAC) composed of representatives of the sponsoring agencies, Caltrans, SCAG, and the FHWA and FTA.

The North County Transportation Coalition, composed of elected officials from Los Angeles County, north Los Angeles County cities, and the California State Legislature, provided policy oversight for the study.

Through a comprehensive public outreach process, the study identified and screened 11 conceptual scenarios to a short list of six feasible alternatives.

A locally preferred corridor strategy was developed through this process and includes both short-term and long-term recommendations.

The recommended short-term locally preferred strategy consists of:

- Adding an initial HOV lane in each direction between SR-14 and SR-126 and extending truck lanes north of SR-14 to Calgrove Avenue. This strategy increases capacity just north of the I-5/SR-14 interchange by nearly 50 percent.
- Increased Metrolink commuter rail and express bus services will be made available for I-5 travelers. The short-term strategy would triple the existing peak-hour express bus service and increase Metrolink commuter rail service from two peak-hour trains with a total of eight cars to three peak-hour trains with a total of 18 cars, more than doubling Metrolink commuter rail capacity in the corridor.

The recommended long-term locally preferred strategy as modified for corridor integration includes:

- Doubling the current four lanes to eight lanes in each direction between SR-14 and SR-126. This would provide two lanes for HOV use, two lanes for trucks and four lanes for general use. The increase in the number of lanes would accommodate the forecast for a doubling of I-5 travel demand by 2025.
- North of SR-126, one new HOV lane would be extended to Lake Hughes and a new truck lane would be added to the existing four lanes in each direction. Sizing of I-5 north of Lake Hughes was largely governed by anticipated through traffic rather than suburban development, and includes four general-purpose lanes and one truck climbing lane in each direction north to the Kern County Line.
- Transit service in the I-5 corridor would be tripled, with twice the number of Metrolink train departures and three times the number of commuter rail cars. Express bus departures in the peak period would increase fourfold over current levels.

This project proposes to complete portions of the identified highway improvements of the short- and long-range strategies consistent with other improvements in the corridor. The Transportation System Management (TSM) and transit elements of the locally preferred strategy within the corridor are being pursued and developed separately by Metro and other local agencies as part of the North County Combined Highway Corridor Study multimodal transportation plan.

Existing and Future Transit Opportunities

The study area contains a variety of public transit options, including fixed-route and express bus services, park-and-ride lots, dial-a-ride, paratransit services, and Metrolink commuter rail, to address existing demand for public transit. Amtrak bus service links the Antelope Valley to the rail system in Bakersfield, where the

Southwest Chief line leaves for Victorville, and eastward through Las Vegas, Kansas City, and Chicago.

Transit operators in North County are aggressively expanding services and facilities to meet short-term demand, especially for north/south commuter express service. However, funded improvements are insufficient to address transit's emerging long-range role (which could be significantly greater if increased transit capacity receives priority) as a cost-effective remedy to some of the regional mobility challenges. Congestion will continue, requiring public transportation to carry more of the burden. A comprehensive multimodal transit framework that is an appropriate mix of rail and bus services is needed to support future urban growth, provide a backup to travel by automobile, and support a lifestyle less dependent on the automobile.

Various rail and bus services currently serve the north Los Angeles County area and many short- and long-term improvements are planned and programmed. The transit infrastructure includes transit centers, maintenance facilities, park-and-ride facilities, and transportation coordination. Many improvements to facilities and the service are proposed. The following discussion identified existing and programmed/proposed transit facilities within the north Los Angeles County area.

Passenger Rail

The Southern California Regional Rail Authority (SCRRA) operates Metrolink, a five-county commuter rail network of over 400 mi. In the vicinity of the project area, Metrolink operates the Antelope Valley Line, which connects Palmdale/Lancaster and Santa Clarita to the Los Angeles Union Station and points in between, including San Fernando Valley, Burbank, and Glendale. Twelve weekday trains operate in each direction on the Antelope Valley Line. There are three Metrolink stations within the City of Santa Clarita: the Jan Heidt Newhall Metrolink Station, Santa Clarita Metrolink Station and Princessa Metrolink Station.

Metrolink's Short Range Plan includes improvements to the Antelope Valley line, which will allow more trains to serve the Newhall Metrolink Station and will also allow faster train travel (included in the 2008 RTIP). The Santa Clarita Transportation Development Plan indicates that Metrolink anticipates increasing the 24-train weekday schedule to 28 trains by 2010 and 32 trains by 2015. In addition, the number of cars and seats per trip will also expand. Track and facility improvements are proposed at the Sylmar, Santa Clarita, Vincent Grade, and Lancaster Metrolink stations. Signal upgrades are also proposed for the Antelope Valley Line. SCAG's

2008 RTP includes funding for the right of way procurement for additional land at the Santa Clarita Metrolink station and purchase of land and construction of a regional park-and-ride lot adjacent to the McBean Regional Transit Center park-and-ride.

Bus Services

Within the project area, various agencies provide regional express service and local bus service. The City of Santa Clarita operates 10 regional express routes between Santa Clarita and the San Fernando Valley, West Los Angeles, and Downtown Los Angeles. In addition to the Santa Clarita and Newhall Metrolink Stations, the McBean Transfer Station (MTS) was recently developed to provide a transfer point. Antelope Valley Transit operates three commuter routes and a commuter service to Los Angeles International Airport (LAX). Nine park-and-ride lots are provided within the study area.

Santa Clarita operates seven local routes connecting various attractors in the City. Metrolink Station Link Series 500 Feeder buses operate between the Metrolink Stations and Magic Mountain, Central Valencia, Valencia Industrial Center, and Valencia Commerce Center. In addition to the local service routes, a Commuter Express Service is available Monday through Friday. The Commuter Express Service operates between Santa Clarita, downtown Los Angeles, various cities within northern Los Angeles County, Lancaster, and Palmdale.

Transit use has greatly increased in the north Los Angeles County area, and thus a number of improvements are planned. Several buses would be purchased for Santa Clarita. Additions to the University of California at Los Angeles (UCLA)/Century City and Downtown service are proposed. Additionally, the City is considering a North Hollywood and Universal City route, which would connect Santa Clarita to Metro's Red and Orange Line Stations. New routes between Canyon Country and Castaic and Downtown Los Angeles are also proposed.

In Antelope Valley, there are proposals to expand the existing passenger service as well as add new routes to Universal City where riders could connect to the Metro Red Line or Metro Rapid and to Pasadena that would connect to the Metro Gold Line. An additional route to serve Westwood and Wilshire only and reserve the existing route to serve only Century City and West Hollywood have been identified..

In addition to providing additional service and coaches, a number of system improvements are planned, including bus maintenance facilities, advanced

communications and monitoring systems, a Universal Fare System, ITS enhancements, transit priority strategies, and computer-aided dispatching.

The City of Santa Clarita is proposing to expand the existing park-and-ride lots and to consider a new park-and-ride lot in the Castaic area.

Other TSM/TDM Improvements

Currently, there is existing ramp metering at the on-ramps at Valencia Boulevard and on the northbound ramps at Pico Canyon Road/Lyons Avenue. With construction of the approved/pending projects listed in Section 1.4.1.5, ramp metering would be added at Magic Mountain Parkway, Hasley Canyon Road, and the southbound ramp at Rye Canyon Road. The project would maintain the existing and planned ramp metering.

As described above, the proposed project is a component of an integrated strategy for addressing long-term transportation issues in north Los Angeles County that includes commuter rail, regional and local bus, and roadway/freeway improvements. The proposed HOV lane would enhance the existing, programmed, and planned transit service within the north Los Angeles County, consistent with the overall transportation plan for this portion of the County. Upon completion of the project, a continuous HOV lane in each direction would extend from Parker Road to SR-134. Commuter buses would be able to access these lanes, speeding their commute and reducing auto trips as they continue to attract more riders. HOV lanes enhance the commuter bus experience by reducing travel time and providing more reliability in meeting their schedules. Given that the Build Alternatives are part of an integrated transportation program that includes passenger rail, and regional and local bus service improvements to address projected travel demand within north Los Angeles County, evaluation of TSM/TDM improvements beyond those identified in the North County Study and the local planning efforts of METRO and City of Santa Clarita Transit are not appropriate.

1.4.4 Comparison of the Alternatives

Table 1.H provides a summary/comparison of the design features of the project alternatives.

Table 1.H Comparison of Alternatives

Feature	Alternative 1 (No Build)	Alternative 2 (Reduced Median Alternative) – Preferred Alternative	Alternative 3 (Full Median Alternative)
HOV Lanes	No addition of HOV lanes	One HOV lane in each direction from the I-5/SR-14 interchange to south of the Parker Road interchange	One HOV lane in each direction from the I-5/SR-14 interchange to south of the Parker Road interchange
Truck Lanes	No addition of truck lanes	One truck lane northbound from where the truck lanes currently merge with northbound I-5 near the Weldon Canyon Road/I-5 interchange to the Calgrove Boulevard/I-5 interchange. Southbound truck climbing lanes are proposed between the Weldon Canyon Road and Calgrove Boulevard interchanges (two truck lanes) and from Calgrove Boulevard to the Pico Canyon Road/Lyons Avenue interchange (one truck lane).	One truck lane northbound from where the truck lanes currently merge with northbound I-5 near the Weldon Canyon Road/I-5 interchange to the Calgrove Boulevard/I-5 interchange. Southbound climbing lanes are proposed between Weldon Canyon Road and Calgrove Boulevard interchanges (two truck lanes) and Calgrove Boulevard to the Pico/Lyons interchange (one truck lane).
Auxiliary Lanes	No additional auxiliary lanes	Northbound: • SR-14 to the northbound truck lane merge • Calgrove Boulevard to Pico Canyon Road/Lyons Avenue • Valencia Boulevard to Magic Mountain Parkway Southbound • SR-126 to Rye Canyon Road • Rye Canyon Road to Magic Mountain Parkway • Valencia Boulevard to McBean Parkway	Northbound: • SR-14 to the northbound truck lane merge • Calgrove Boulevard to Pico Canyon Road/Lyons Avenue • Valencia Boulevard to Magic Mountain Parkway Southbound: • SR-126 to Rye Canyon Road • Rye Canyon Road to Magic Mountain Parkway • Valencia Boulevard to McBean Parkway
Median and inside shoulder widths	No improvements	48 ft; less than 10 ft at structure columns	62 ft; 10 ft
CHP enforcement area	No improvements	Five individual enforcement areas within the median	One continuous enforcement area in the median
Stopping site distance	No improvements	Standard horizontal SSD on all mainline curves	Standard horizontal SSD on all mainline curves

Table 1.H Comparison of Alternatives

Feature	Alternative 1 (No Build)	Alternative 2 (Reduced Median Alternative) – Preferred Alternative	Alternative 3 (Full Median Alternative)
Bridges	No bridge replacement or widening	Replacement: • Weldon Canyon Bridge Widening: • Gavin Canyon • Calgrove • Butte Canyon • Magic Mountain (Route 5/126 Separation) • Santa Clara Overhead • Rye Canyon • Castaic Creek Standard vertical clearance at Pico/Lyons	Replacement: • Weldon Canyon Bridge • Biscailuz Drive Overcrossing Widening: • Gavin Canyon • Calgrove • Butte Canyon • Magic Mountain (Route 5/126 Separation) • Santa Clara Overhead • Rye Canyon • Castaic Creek • Santa Clara River Bridge Standard vertical clearance at Pico/Lyons
Drainage facilities	No modification of drainage facilities	• Gavin Canyon Tributary: Replace 30 in CMP with 30 in RCP • Gavin Canyon Culvert : Add one 12 x 12 ft RCB or three 36 in RCP • South Fork Santa Clara River Tributary: Add two 3 x 8 ft RCB or three 36 in RCP • Tributary to Santa Clara River: Add 48 in reinforced concrete pipe (RCP) • Tributary to Santa Clara River: Add 42 in RCP • Tributary to Santa Clara River: Add 42 in RCP • Tributary to Santa Clara River: Add two 8 x 6 ft RCB • Tributary to Castaic Creek: Replace 30 in RCP with 42 in RCP • Tributary to Castaic Creek: Replace 30 in RCP with	• Gavin Canyon Tributary: Replace 30 in CMP with 30 in RCP • Gavin Canyon Culvert : Add one 12 x 12 ft RCB or three 36 in RCP • S. Fork Santa Clara River Tributary: Add two 3 x 8 ft RCB or three 36 in RCP • Tributary to Santa Clara River: Add 48 in RCP • Tributary to Santa Clara River: Add 42 in RCP • Tributary to Santa Clara River: Add 42 in RCP • Tributary to Santa Clara River: Add two 8 x 6 ft RCB • Tributary to Castaic Creek: Replace 30 in RCP with 42 in RCP • Tributary to Castaic Creek: Replace 30 in RCP with

Table 1.H Comparison of Alternatives

Feature	Alternative 1 (No Build)	Alternative 2 (Reduced Median Alternative) – Preferred Alternative	Alternative 3 (Full Median Alternative)
		42 in RCP	42 in RCP
Water quality treatment	No water quality treatment	Vegetated swales, detention basins, gross solids removal device, Austin sand media filters, and possibly infiltration basins	Vegetated swales, detention basins, gross solids removal device, Austin sand media filters, and possibly infiltration basins
Retaining walls	No additional retaining walls	Median retaining walls between SR-14 and Valencia Boulevard and between SR-126 and Parker Road Retaining walls along outside shoulder (shown in Figure 2.1); height ranging from 2 ft to 39 ft	Median retaining walls between SR-14 and Valencia Boulevard and between SR-126 and Parker Road Retaining walls along outside shoulder (shown in Figure 2.1); height ranging from 2 ft to 39 ft
Sound walls	No additional soundwalls	Sound walls outside of Caltrans right-of-way adjacent to homes along Foxtail Court, Old Road, Los Arqueros and Playa Serena Drive, Baviera Way, Sycamore Meadow Drive, Silver Aspen Way, Altos Drive, Holmby Court, and Romeo Canyon Road. For Alt. 2 only, Desert Rose Drive.	Sound walls outside of Caltrans right-of-way adjacent to homes along Foxtail Court, Old Road, Los Arqueros and Playa Serena Drive, Baviera Way, Sycamore Meadow Drive, Silver Aspen Way, , Altos Drive, Holmby Court, and Romeo Canyon Road. For Alt. 3 only, Saquaro Street and Apache Court
Ramps	No improvements	Modification of all on- and off-ramps	Modification of all on- and off-ramps
Utilities	No utility relocation	Relocation of general telephone cable, water lines, communication conduits, sewer lines, gas pipes, electrical lines, and oil transmission pipes.	Relocation of general telephone cable, water lines, communication conduits, sewer lines, gas pipes, electrical lines, and oil transmission pipes.
ITS Facilities	No ITS facilities proposed	• 5 new Closed Circuit Television (CCTV) cameras • 9 new Traffic Monitoring Stations/Ramp Metering Stations (TMS/RMS) • New communication conduit throughout the project from SR-14 to Parker Road • Upgrading of 4 CCTV cameras • Upgrading of 19 TMS/RMS stations • Upgrading of 3 Changeable Message Signs (CMS)	• 5 new Closed Circuit Television (CCTV) cameras • 9 new Traffic Monitoring Stations/Ramp Metering Stations (TMS/RMS) • New communication conduit throughout the project from SR-14 to Parker Road • Upgrading of 4 CCTV cameras • Upgrading of 19 TMS/RMS stations • Upgrading of 3 Changeable Message Signs (CMS)
Landscaping and irrigation systems	No improvements	Landscaping and irrigation systems would be provided where necessary within the corridor to provide aesthetic treatment, replacement planting, or mitigation	Landscaping and irrigation systems would be provided where necessary within the corridor to provide aesthetic treatment, replacement planting, or

Table 1.H Comparison of Alternatives

Feature	Alternative 1 (No Build)	Alternative 2 (Reduced Median Alternative) – Preferred Alternative	Alternative 3 (Full Median Alternative)
		planting for the project.	mitigation planting for the project.
Construction	No construction activities	• Closure of southbound lanes at the westbound to southbound loop on-ramp at Pico Canyon Road/Lyons Avenue interchange • Construction staging areas • Nighttime construction lighting	• Closure of southbound lanes at the westbound to southbound loop on-ramp at Pico Canyon Road/Lyons Avenue interchange • Construction staging areas • Nighttime construction lighting
Temporary construction easements	No temporary construction easements	18 temporary construction easements for: • Construction of walls along the right of way • Extension of major drainage facilities • Bridge widening • Water quality improvements that extend outside the right of way	26 temporary construction easements for: • Construction walls along the right of way • Extension of major drainage facilities • Bridge widening • Water quality improvements that extend outside the right of way
Right of way acquisition	No right of way acquisition	• 1 partial parcel takes • 1 full parcel take	• 3 partial parcel takes • 1 full parcel take
Soil balance	No change in soil balance	Approximately 216,000 cy of exported material	Approximately 296,000 cy of exported material

1.4.5 Identification of the Preferred Alternative

The Draft EIR/EA was circulated for public review between December 17, 2008, and February 17, 2009. A public hearing was held on February 5, 2009. All comments from the public hearing and those received during the public review period were reviewed by Caltrans.

After comparing and weighing the benefits and impacts of all of the feasible alternatives, as summarized in Summary Table S.2, the project development team has identified Alternative 2 (Reduced Median Alternative) as the Preferred Alternative for the I-5 HOV/Truck Lanes project. Caltrans has made the final determination of the project's impact on the environment based on the comments and concerns expressed during the public review period and the results of the engineering and environmental technical analysis, and the Preferred Alternative would attain the purpose of the project.

Alternative 2 would achieve the project's purpose by providing the same operational benefits to the freeway as Alternative 3, but it would have fewer impacts because of its smaller environmental footprint. The design of Alternative 2 does not include widening of the Santa Clarita River Bridge, encroachment into the Castaic CVEF, or reconstruction of the Biscailuz Drive/Honor Ranch Overcrossing. All three of these components are part of Alternative 3 and would result in greater environmental and/or community impacts than Alternative 2.

With the construction of Alternative 2, the proposed truck climbing lanes would reduce the delays to vehicles caused by the slower-moving trucks; improve the operational and safety design features with the addition of the HOV lanes, which would allow traffic to use the lanes more efficiently; and facilitate the movement of people, freight, and goods in the project area. Alternative 2 would reduce traffic congestion because of the improved traffic flow and would accommodate the planned growth within the project area. The HOV lanes provided in Alternative 2 would also lead to other enhanced transit options, such as an express bus facility.

As shown in Table S.2, Summary of Impacts, Alternative 2 would have fewer impacts to environmental resources than Alternative 3 since it has a smaller footprint design. Substantial difference in impacts between Alternatives 2 and 3 are highlighted below:

- Reduced number of partial acquisitions (one parcel for Alternative 2 versus three parcels for Alternative 3).
- No impacts occurring to Farmlands with Alternative 2. Alternative 3 affects 3.02 ac of Prime Farmland or Farmland of Statewide Importance.
- Reduced community and law enforcement impacts, as Alternative 2 maintains the CVEF, operated by the CHP, in its existing configuration and does not include reconstruction of the Biscailuz Drive overcrossing (which provides access to the Pitchess Detention Center).
- Reduced permanent impacts to oak woodland and individual oaks with Alternative 2 compared to Alternative 3.
- Reduced permanent impacts to jurisdictional waters/wetlands with Alternative 2 compared to Alternative 3.
- Reduced cumulative impacts associated with the temporal loss of oak trees.

After careful consideration of all the aforementioned concerns, and in further consideration of all other environmental analyses contained in the EIR/EA, Alternative 2 (Reduced Median Alternative) has been selected as the Preferred Alternative.

1.4.6 Alternatives Considered but Eliminated from Further Discussion

During preliminary studies, four project alternatives were identified and studied in the Project Study Report/Project Development Support (PSR/PDS) and Preliminary Environmental Assessment Report (PEAR). The four alternatives included Alternative 1 (No Build Alternative), Alternative 2 (Reduced Median Alternative), Alternative 3 (Full Median Alternative), and Alternative 4 (Transportation Concept Report [TCR] Alternative). As discussed below, the TCR Alternative (Alternative 4) was considered but dropped from consideration.

TCR Alternative (Alternative 4)

Alternative 4 would build out this roadway section to full buildout as considered in the TCR approved by Caltrans in November of 1998. Alternative 4 proposed adding two HOV lanes in each direction from the I-5/SR-14 interchange to a transition point north of Valencia Boulevard and south of Magic Mountain Parkway. From there, up to the northern project limit at the Parker Road interchange, it proposed the addition of one HOV lane. Alternative 4 also proposed extending the existing truck lanes in each direction from the I-5/SR-14 interchange to the northern project limit at the

Parker Road interchange. Alternative 4 proposed standard median and shoulder widths and CHP enforcement areas. This widening would require substantially more property acquisitions than the other Build Alternatives, resulting in greater disruption to the local community.

Given the larger footprint, impacts to biological resources and jurisdictional waters would be greater than the other Build Alternatives due to the larger roadway width, grading requirements, structure widening, and utility extensions. As the two Build Alternatives can be implemented with minimal additional right of way, Alternative 4 would require additional right of way and have major impacts beyond the two Build Alternatives brought forward for review.

In addition to the community and resource impacts described above, Alternative 4 is inconsistent with the segment of I-5 to the south. Currently, HOV lanes are being constructed south and through the SR-14 interchange. The current I-5 HOV lane project, immediately south of SR-14, is constructing only one HOV lane in each direction. Without two HOV lanes in each direction south of the I-5/SR-14 interchange, the double HOV lanes to the north would be inconsistent with the corridor improvements and cause operational issues at the transitions.

Given the greater level of environmental impacts and inconsistency with corridor improvements to the south of the project study area, the TCR Alternative has been withdrawn from further consideration.

Truck Lanes Only

This alternative includes construction of one northbound and one southbound truck lane within the study corridor. These truck lanes would connect to the existing truck lanes located south of the project area. Implementation of this alternative would reduce the existing congestion that currently results from truck/vehicle conflicts (i.e., slow-moving vehicles and weaving limitations). Although congestion would be improved through the separation of trucks from mixed-flow traffic, construction of the truck lanes only would not completely address existing and forecast congestion within the study corridor previously described in Section 1.4.1, since the majority of vehicles are passenger cars, not trucks. As this alternative does not reduce congestion, it does not meet the purpose and need for the proposed project.

HOV Lanes Only

This alternative includes construction of one northbound and one southbound HOV lane within the study corridor. These HOV lanes would connect to the HOV lanes

currently under construction south of the I-5/SR-14 interchange. Implementation of this alternative would address existing and forecast traffic congestion by reducing the number of vehicles using the facility. Congestion associated with truck/vehicle conflicts (i.e., slow-moving vehicles and weaving limitations) would not be addressed by this alternative. Construction of the HOV lanes only would address existing and forecast congestion within the study corridor but not the truck/vehicle conflicts previously described in Section 1.4.1. As this alternative does not improve goods movement in the corridor, it does not meet the purpose and need for the proposed project.

HOV Lanes with One Northbound and Southbound Truck Lane

This alternative would construct two HOV lanes (one northbound and one southbound) and two truck lanes (one northbound and one southbound) within the project study area. Construction of the second truck lane from Calgrove Boulevard to SR-14 would be eliminated from the project. The construction of one versus two truck lanes was evaluated in the Traffic Analysis (October 2007).

As described in the Traffic Analysis, the operation of the truck lanes would be reduced by one Level of Service (LOS) (A to B) with the provision of one truck lane instead of two. Conversely, by providing two truck lanes, the LOS of the truck lanes improves by one LOS (from B to A).

A single truck lane in the uphill grade section is only able to accommodate the slowest trucks since the faster (e.g., unloaded) trucks, will use the outside mixed-flow lane to pass the slower trucks. Observed conditions indicate that due to the grade the faster trucks travel at a speed slower than the free-flow speed of passenger vehicles, thus reducing the average speeds in the mixed-flow lanes. Providing two truck lanes would allow the faster trucks to pass the slower trucks without impacting the adjacent mixed-flow lanes, and improved LOS for both the trucks and the vehicles in the mixed-flow lanes would result. The analysis indicates that providing two truck lanes improves the LOS of the mixed-flow lanes by one LOS from D to C. Since provision of one truck lane did not provide the same operational improvements identified for the Build Alternatives, it was determined to be less effective at achieving the purpose and need and was withdrawn from further consideration.

Mixed-Flow Lanes

This alternative would construct one northbound and one southbound mixed-flow lane within the study corridor. Construction of the mixed-flow lanes would result in a

cross section consisting of five mixed-flow lanes in each direction. South of the project area, I-5 has four mixed-flow lanes in each direction. North of the study area, I-5 has four mixed-flow lanes in each direction. Thus, construction of the mixed-flow lanes would result in bottlenecks at the northerly and southerly ends of the project area, where the widened mainline would have to merge with the smaller facility width. Currently, there are no plans to widen I-5 north and south of the project area. Given that chokepoints would be generated at the northern and southern termini of the project area due to the lane limitations, construction of mixed-flow lanes within the study corridor was determined not feasible.

Directional-Flow HOV Lane

This alternative provides for one HOV lane in the median of the freeway, which would allow traffic use in a southerly direction during the a.m. peak hour and a northerly direction in the p.m. peak hour, the general commuting pattern out of and into the Santa Clarita Valley. Provision of a directional-flow HOV lane would not be feasible given the topographic constraints within the existing median and the design of the existing bridge structures within the study corridor. Currently, the existing median is in a split-grade configuration in several areas, which would not be conducive to construction of a single HOV lane. Additionally, all of the bridges in the study area have center columns located in the median. To provide for a single HOV lane, these bridges would need to be redesigned to remove/alter the center column or the lane would have to weave through the bridges to avoid the columns. Given the existing topographic and structural constraints in the corridor, construction of a directional-flow HOV lane was determined not to be feasible.

1.5 Anticipated Permits and Approvals Needed

Table 1.I identifies the permits and/or approvals that are or may be required prior to or during construction of the project.

Table 1.I Permits and/or Approvals Needed

Permit/Approval	Agency	Status
Encroachment Permit	County of Los Angeles	Coordination will occur after environmental document approval.
Streambed Alteration Agreement (Section 1600)	California Department of Fish and Game (CDFG)	Application will be submitted after environmental document approval.
Section 402 NPDES (Construction Activity)	Los Angeles Regional Water Quality Control Board	Application will be submitted prior to construction.
Section 402 NPDES (Groundwater Dewatering)	Los Angeles Regional Water Quality Control Board	Application will be submitted prior to construction.
Section 401 Permit	Los Angeles Regional Water Quality Control Board	Application will be submitted after environmental document approval.
Section 404 Permit (Individual or Nationwide[1])	United States Army Corps of Engineers (ACOE)	Application will be submitted after environmental document approval.
Section 7 Informal Consultation for Threatened and Endangered Species	United States Fish and Wildlife Service	Completed
Flood Control Permit	County of Los Angeles	Coordination will occur after environmental document approval.

[1] After receipt of the Section 404 Permit application, the ACOE will determine whether an Individual or Nationwide Permit is applicable.

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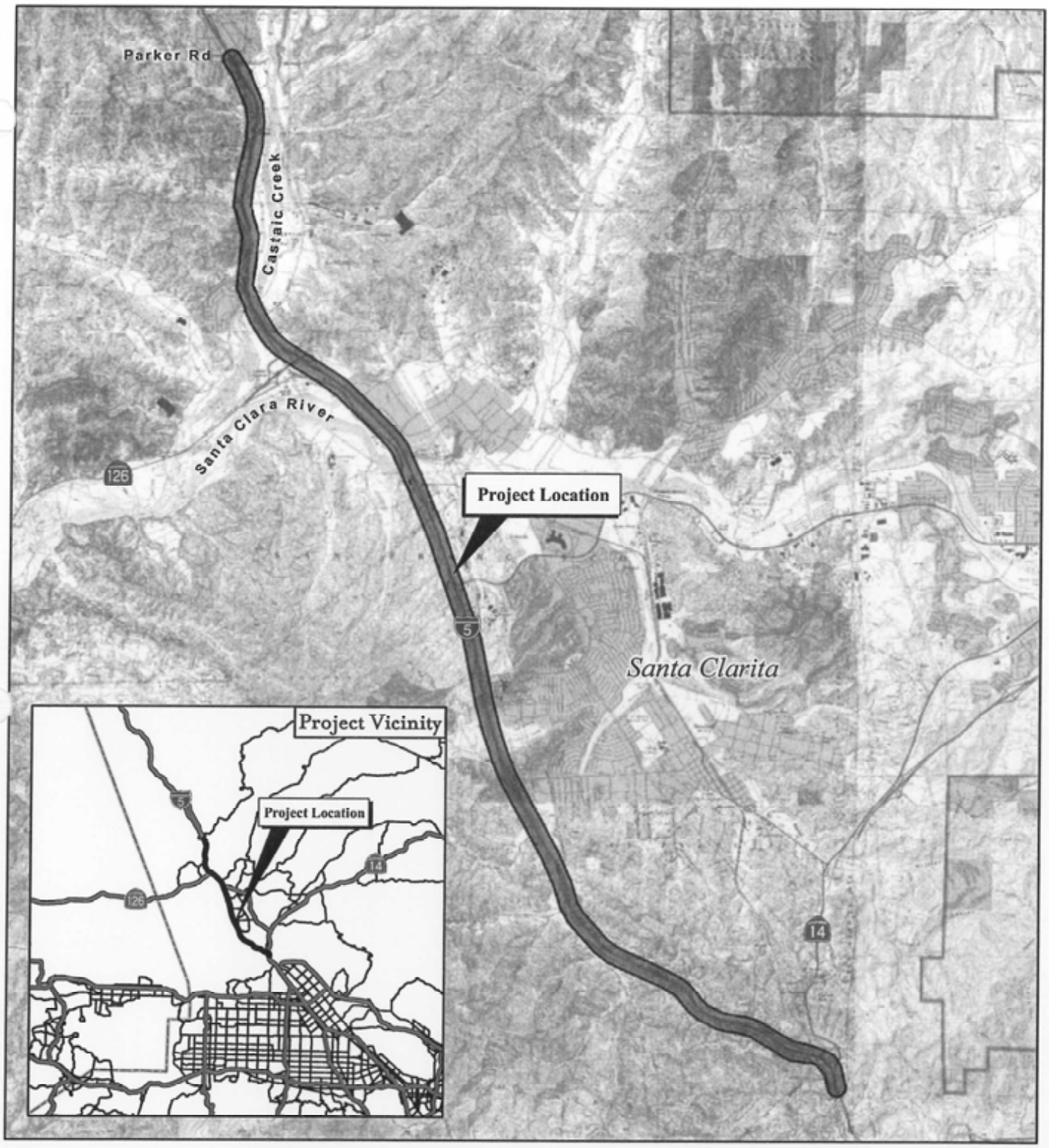

FIGURE 1.1

LEGEND

Project Location

N

0 3,750 7,500 Feet

I-5 HOV / Truck Lanes Project

Project Location

07-LA-5 PM R45.4/R59.0

EA 2332E0

SOURCE: USGS 7.5' QUAD, CALIF.

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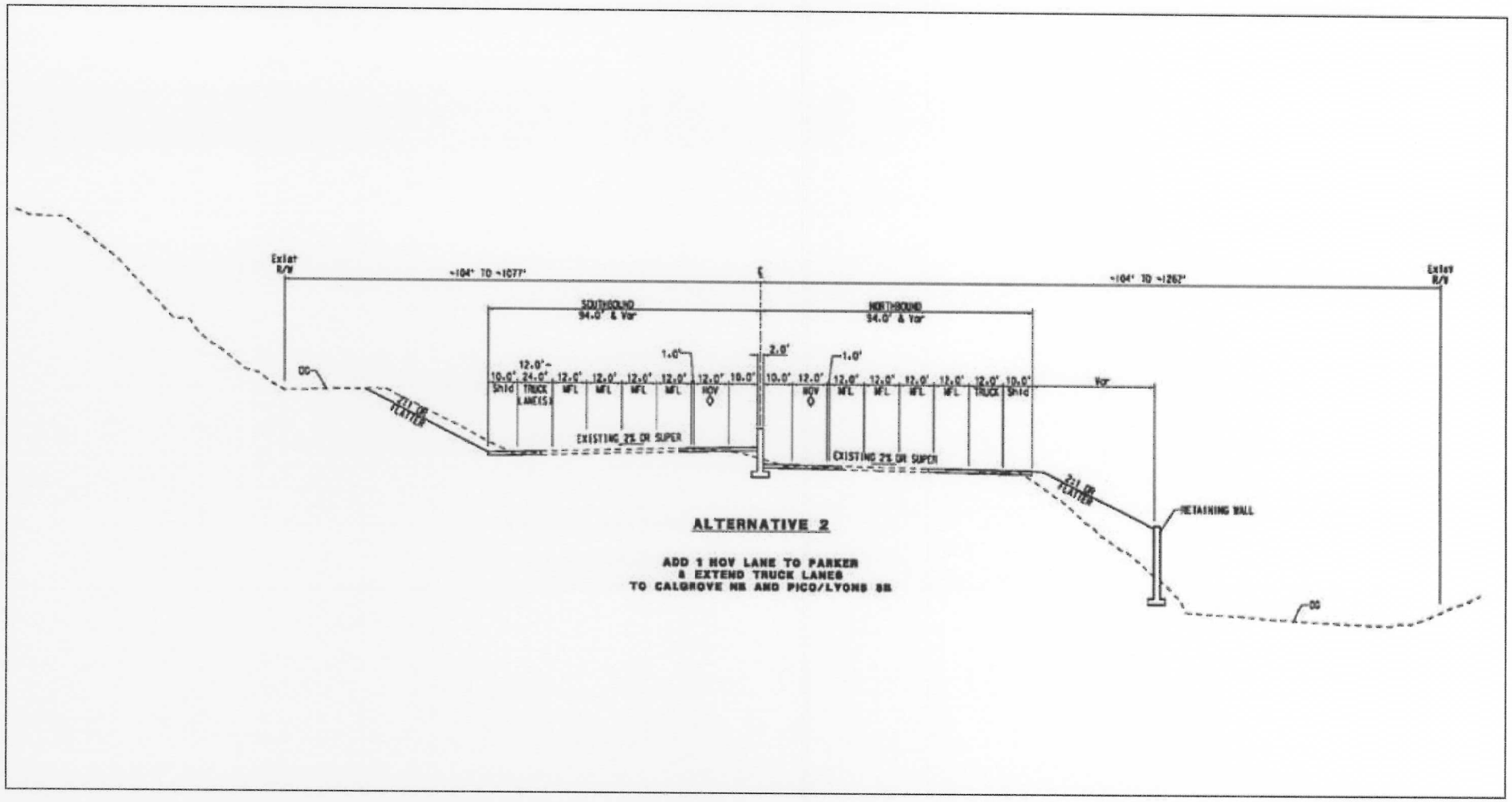

FIGURE 1.2

I-5 HOV / Truck Lanes Project

Alternative 2 Typical Cross Section

07-LA-5 PM R45.4/R59.0

EA 2332E0

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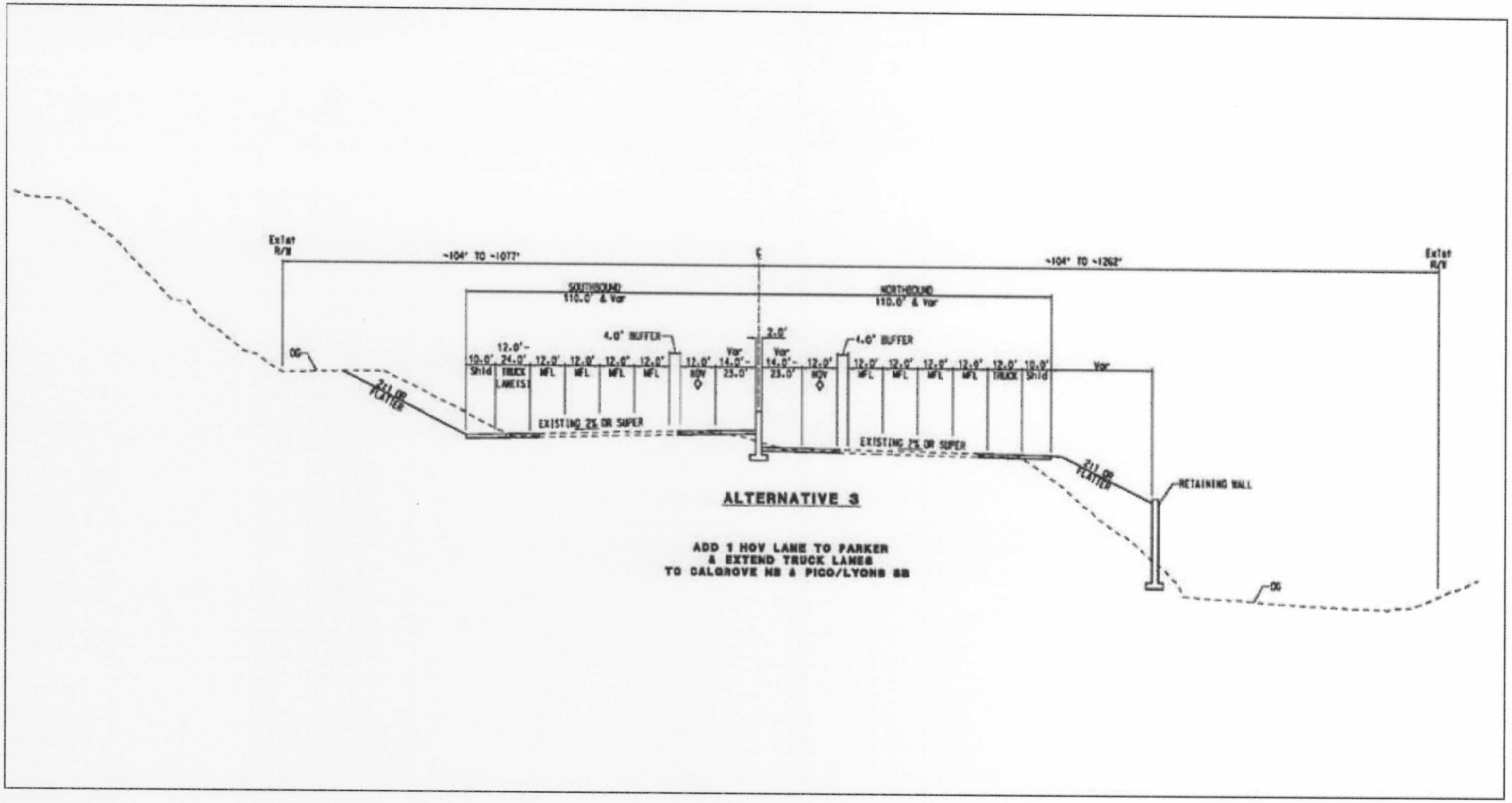

FIGURE 1.3

I-5 HOV / Truck Lanes Project
Alternative 3 Typical Cross Section
07-LA-5 PM R15.4/R59.0
EA 2332E0

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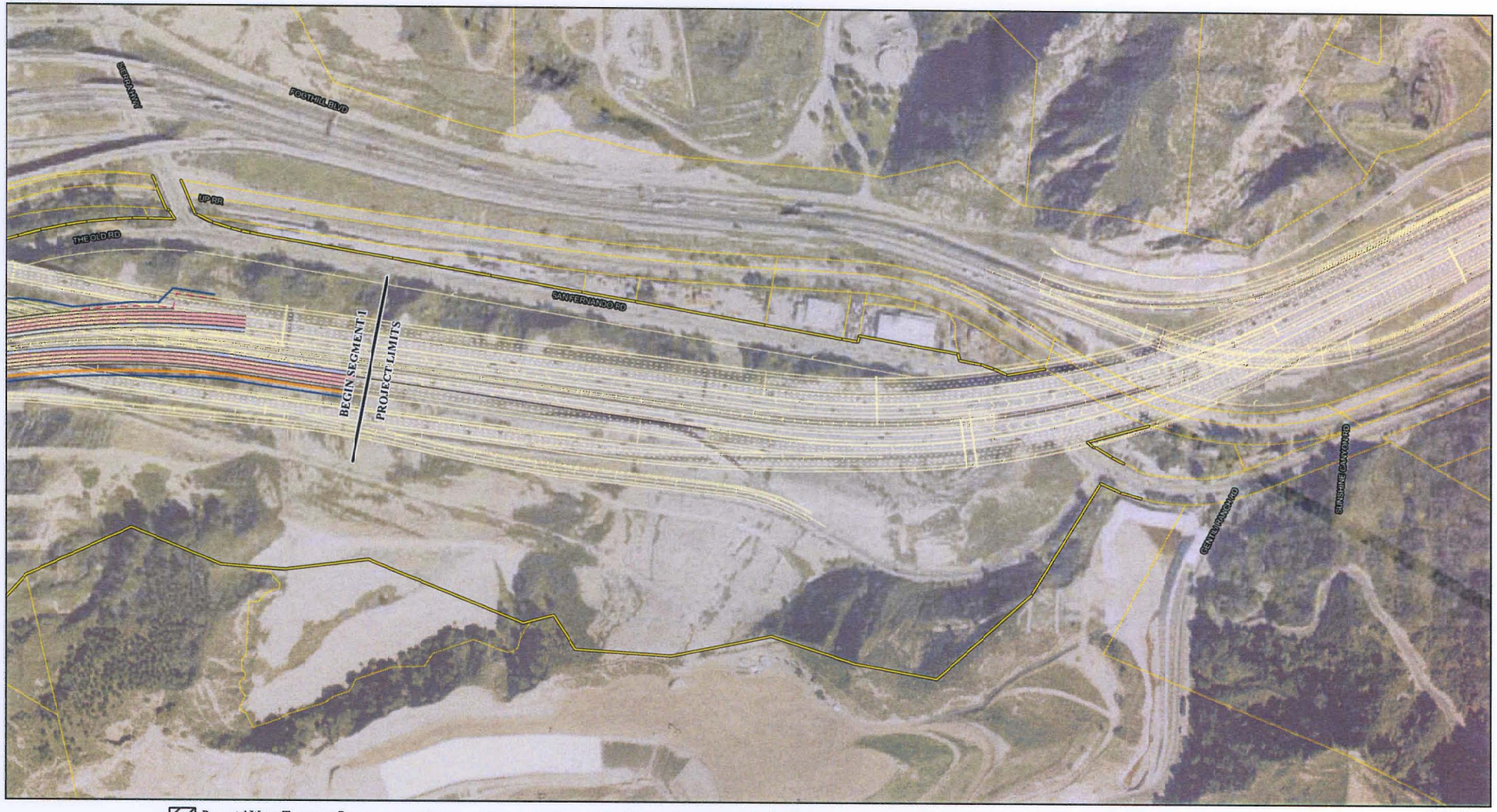

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
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Temporary Construction Easement (TCE)
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Top of Cut
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Existing Retaining Wall
Proposed Drainage Improvements
Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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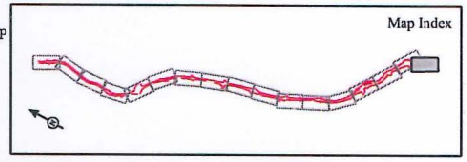
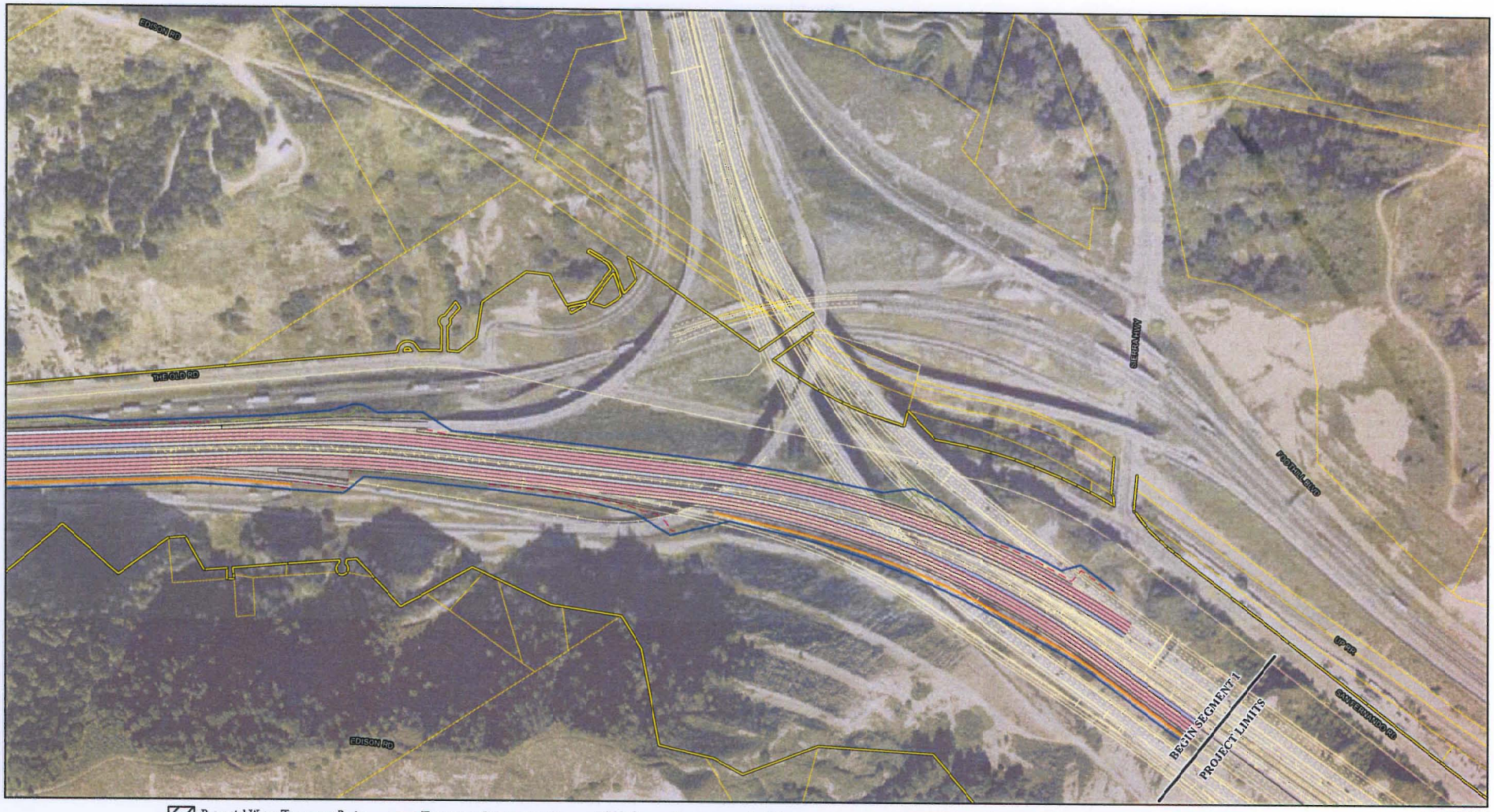


FIGURE 1.4
Sheet 1 of 17

I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



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Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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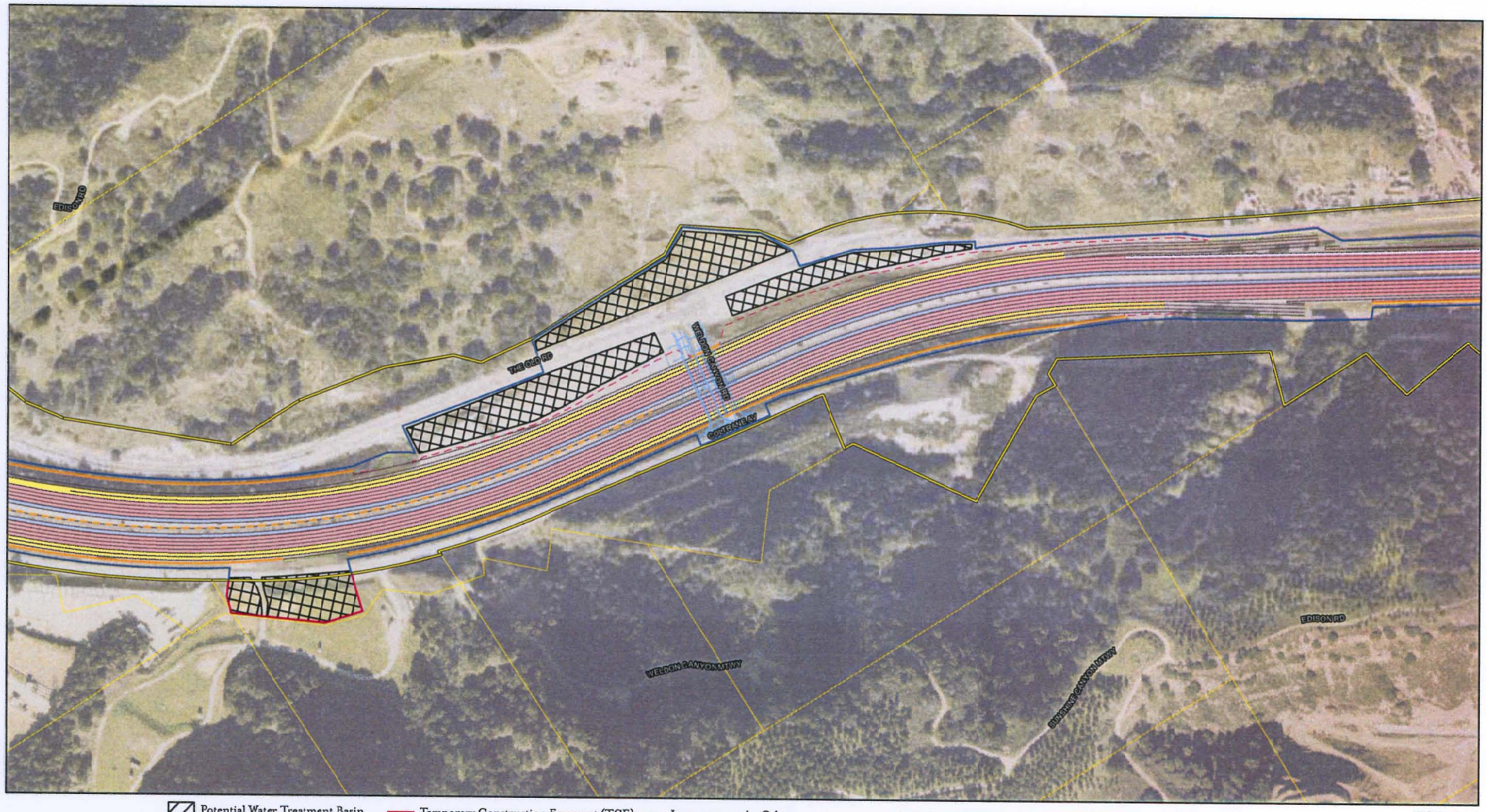
Map Index

FIGURE 1.4
Sheet 2 of 17

I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



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0 150 300 Feet

SOURCE: Psomas (2008).

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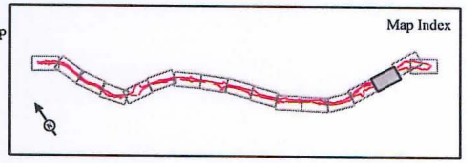
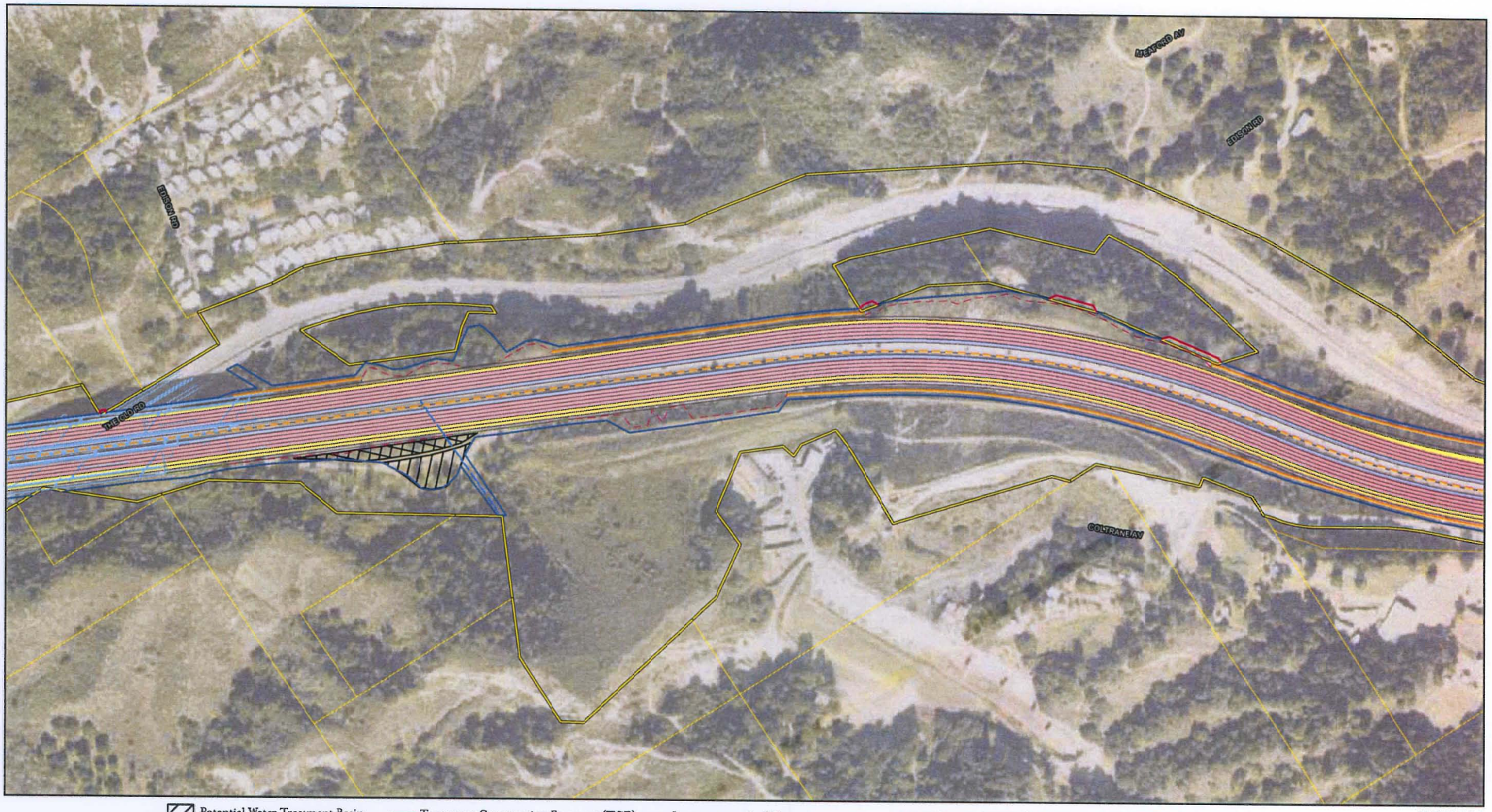


FIGURE 1.4
Sheet 3 of 17

I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



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0 150 300 Feet

SOURCE: Psomas (2008).

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Map Index

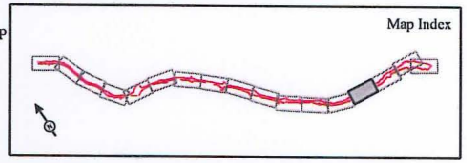
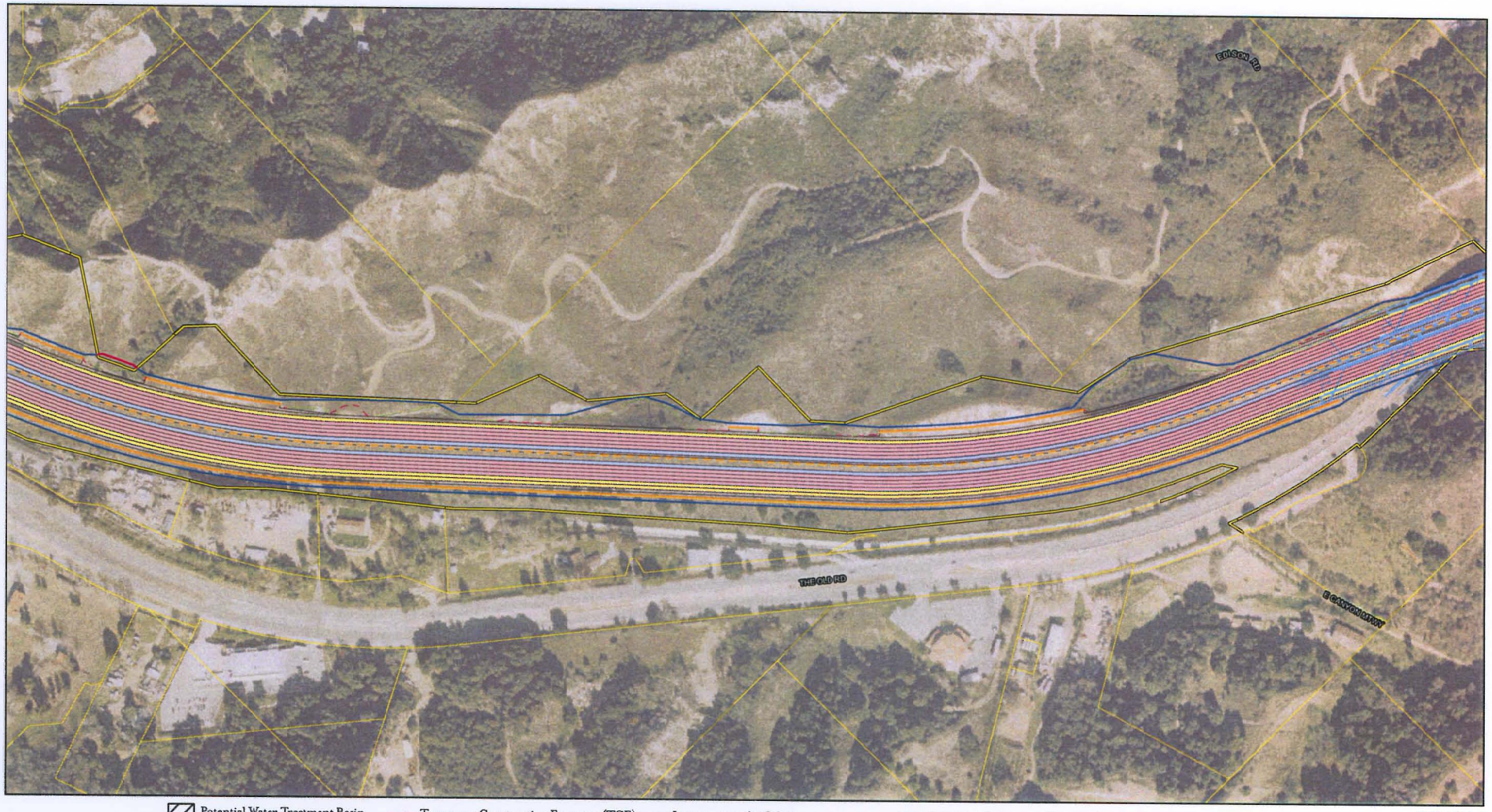


FIGURE 1.4
Sheet 4 of 17

I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



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0 150 300 Feet

SOURCE: Psomas (2008).

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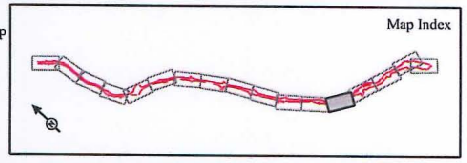

FIGURE 1.4
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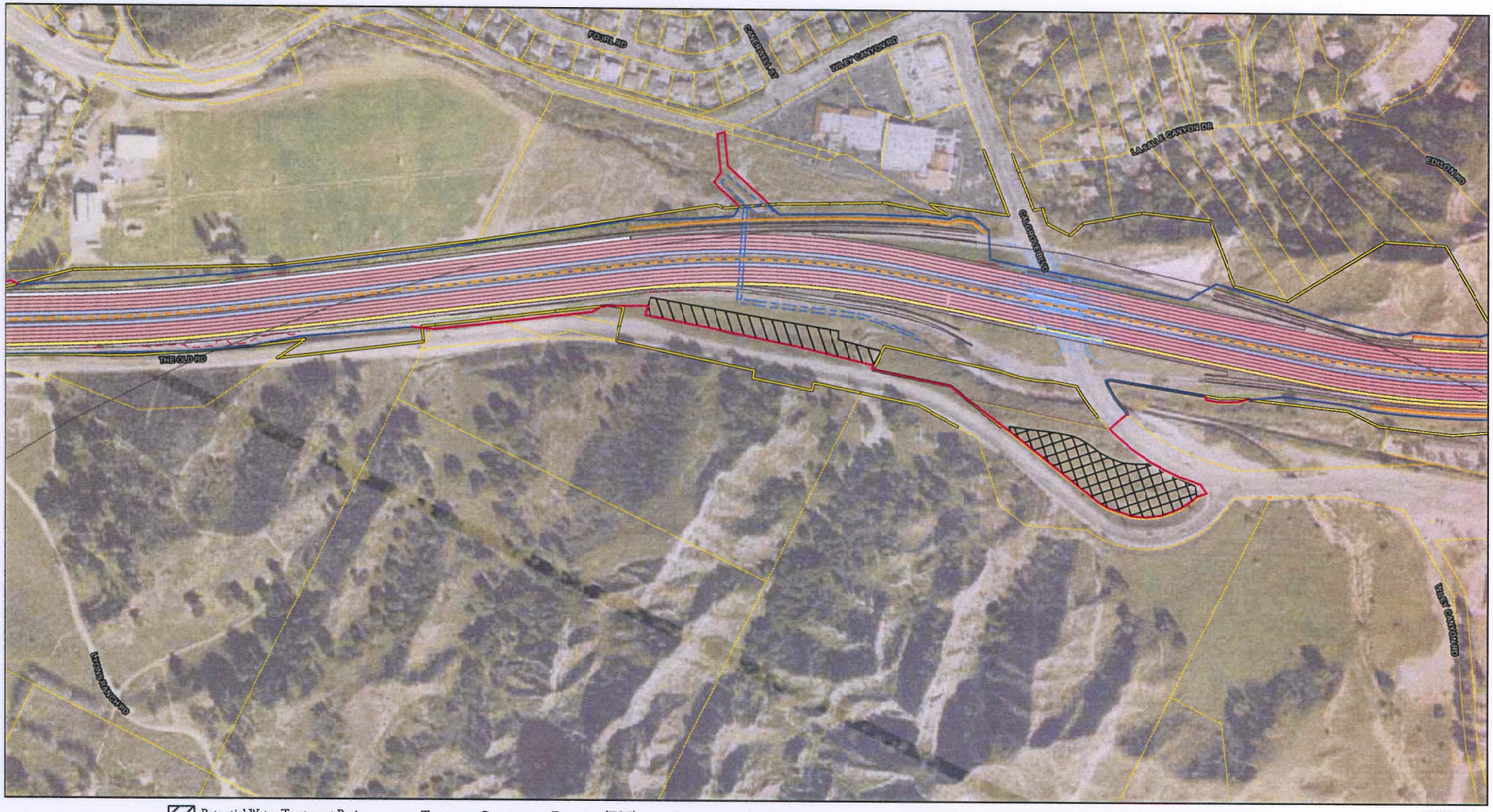
I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



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SOURCE: Psomas (2008).

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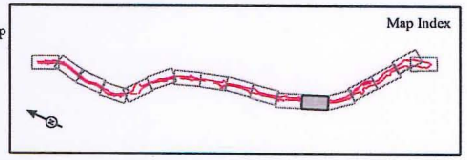

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
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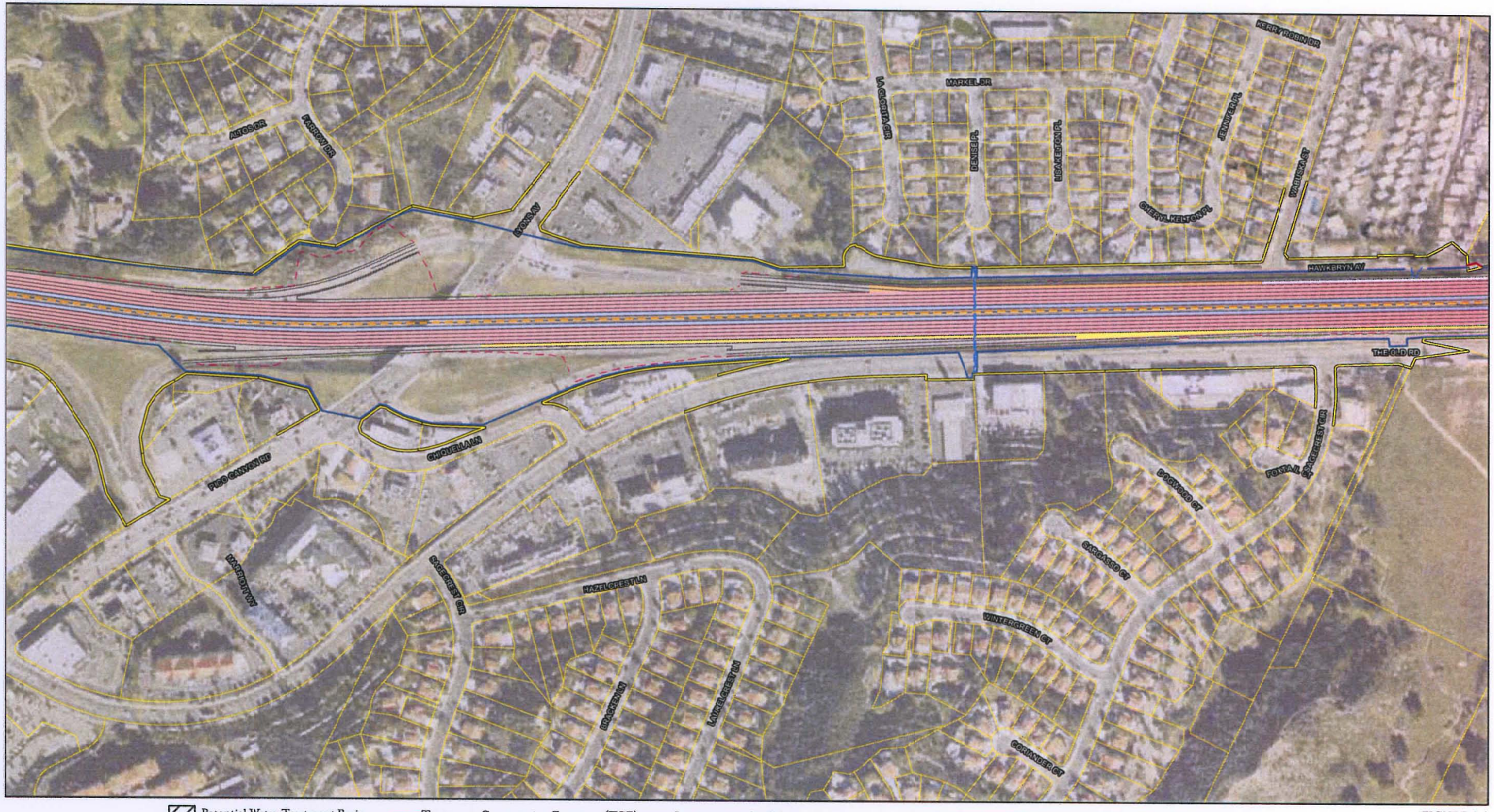

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0 150 300 Feet

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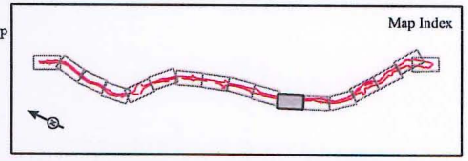

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
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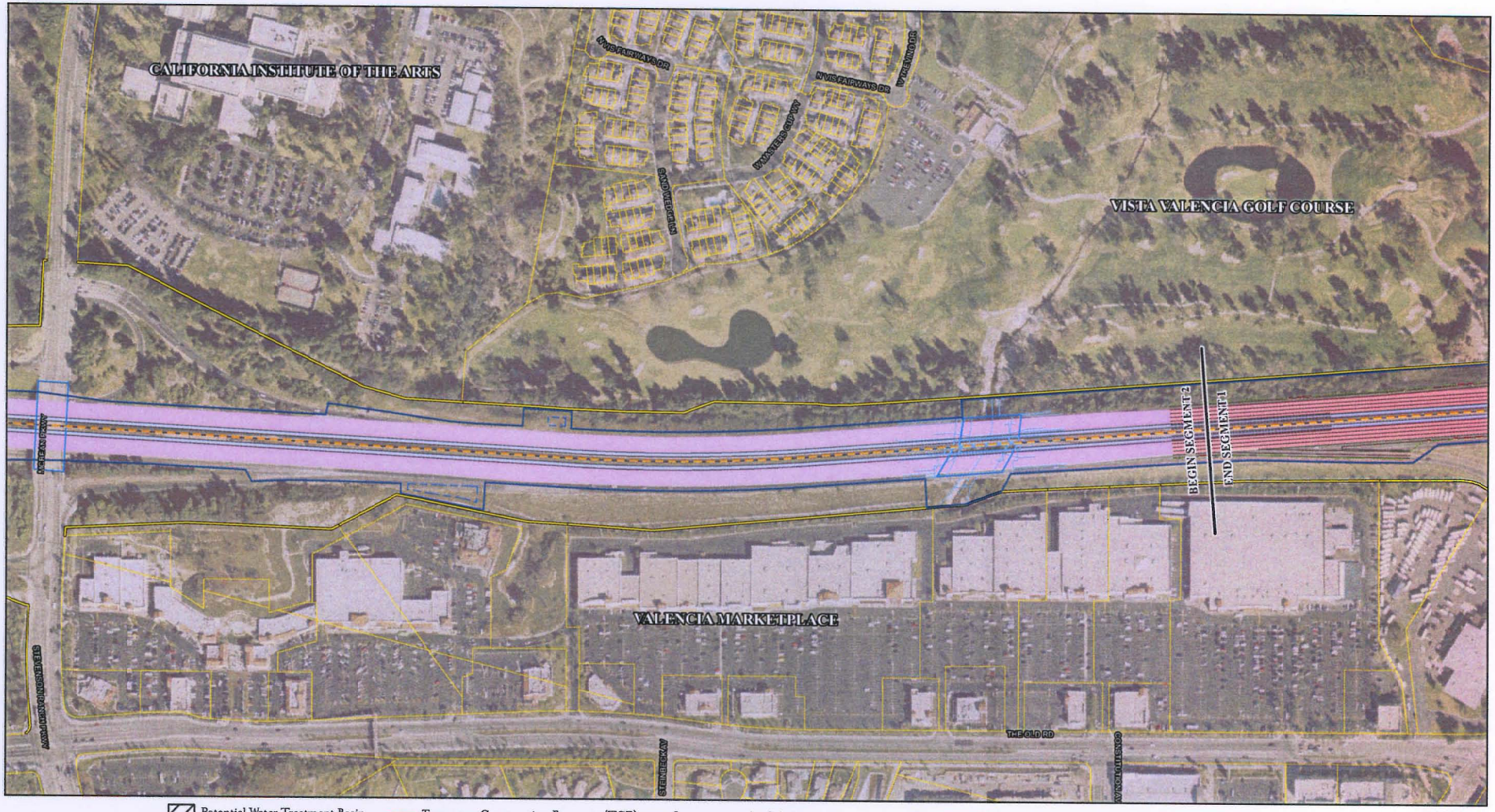

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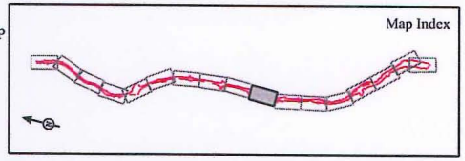

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
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0 150 300 Feet

SOURCE: Psomas (2008).

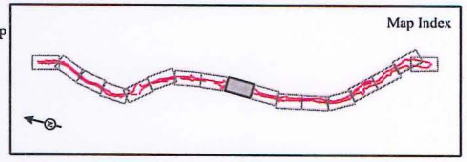

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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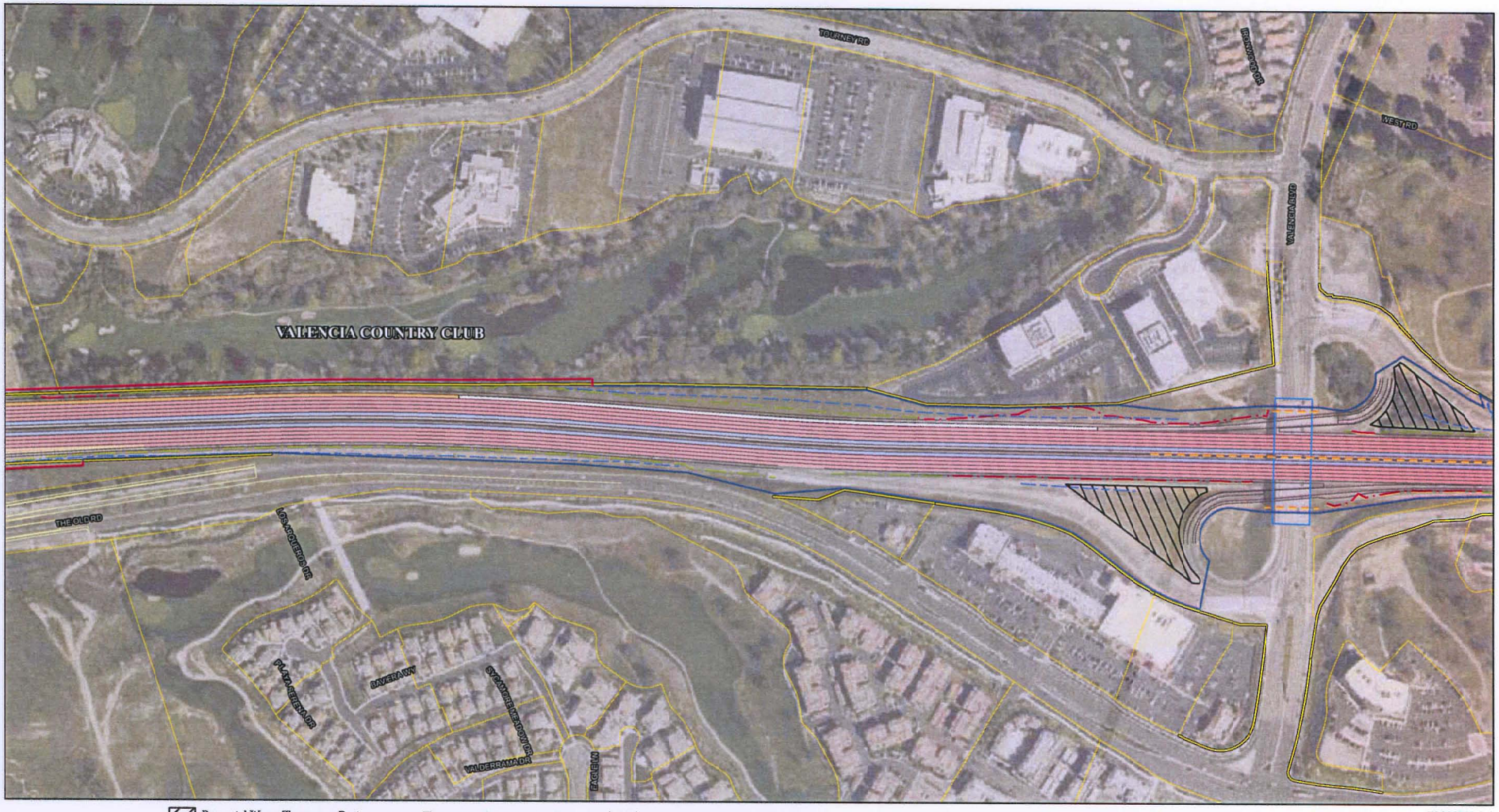

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Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

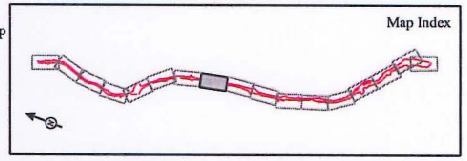

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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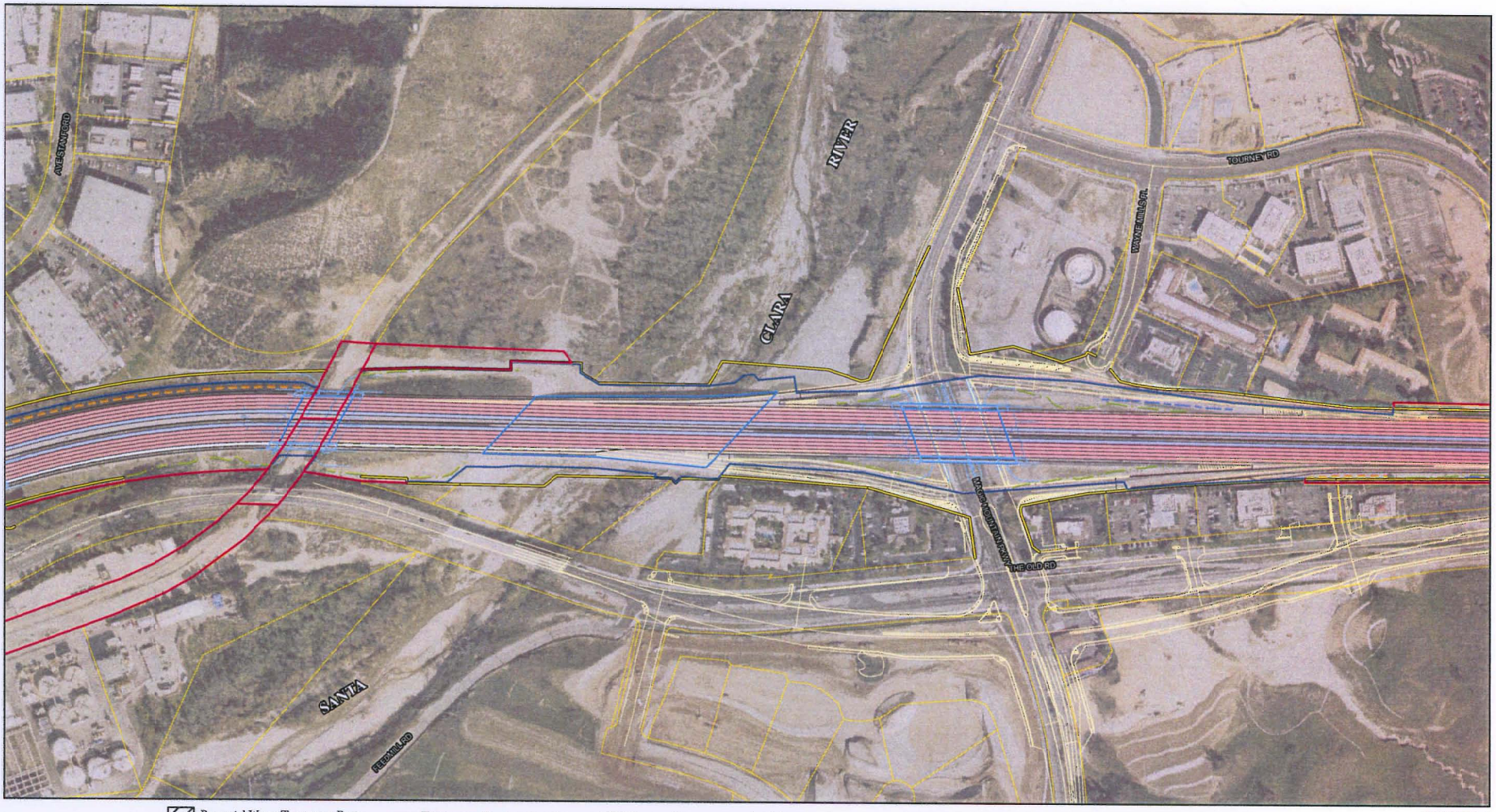

Potential Water Treatment Basin
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0 150 300 Feet

SOURCE: Psomas (2008).

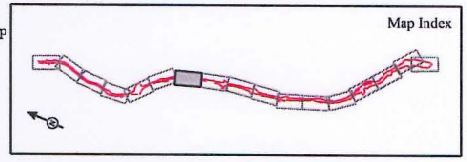

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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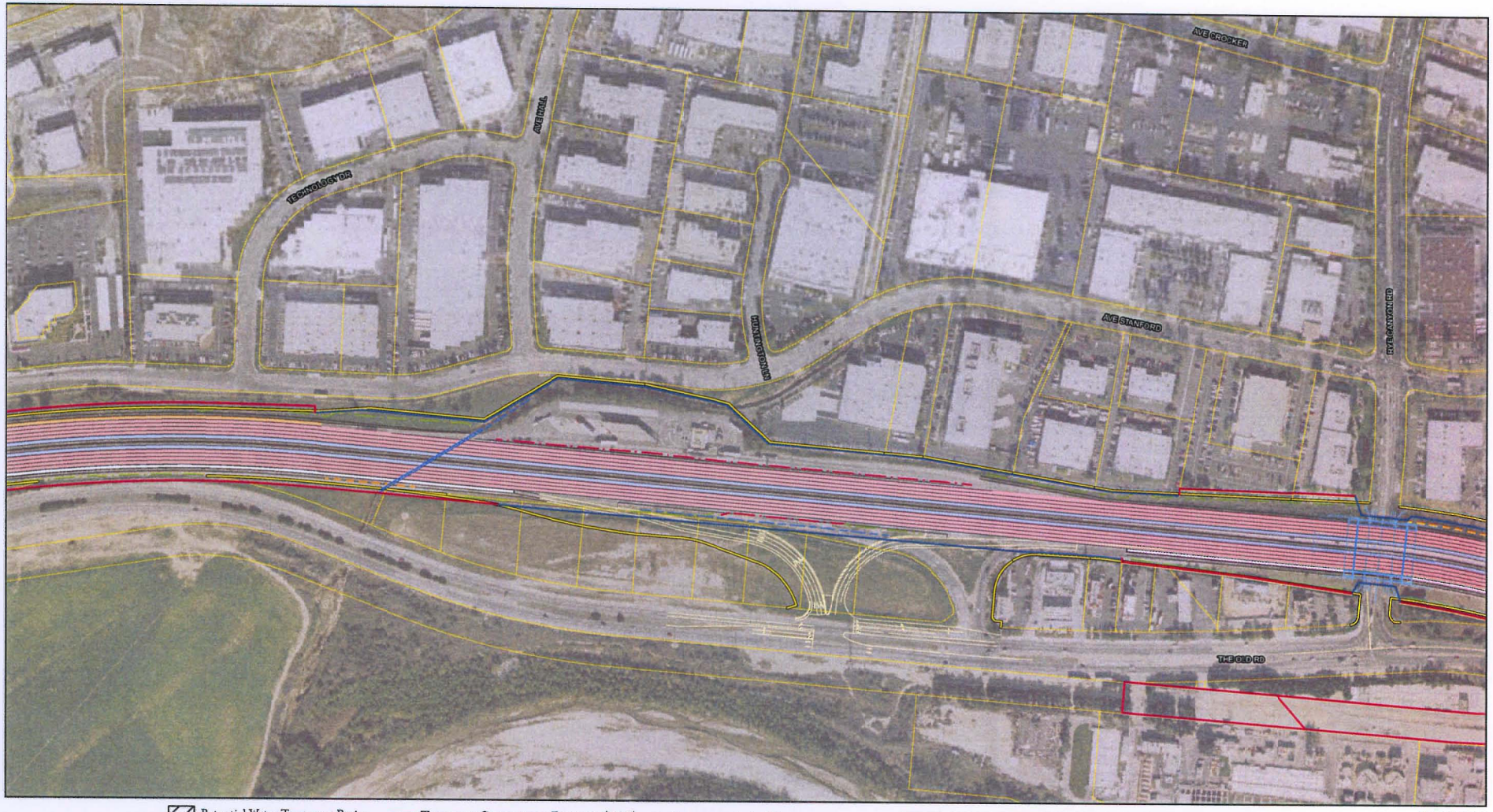


Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
Structure to be Widened or Replaced
Toe of Fill
Top of Cut
Potential Retaining Wall
Existing Retaining Wall
Proposed Drainage Improvements
Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

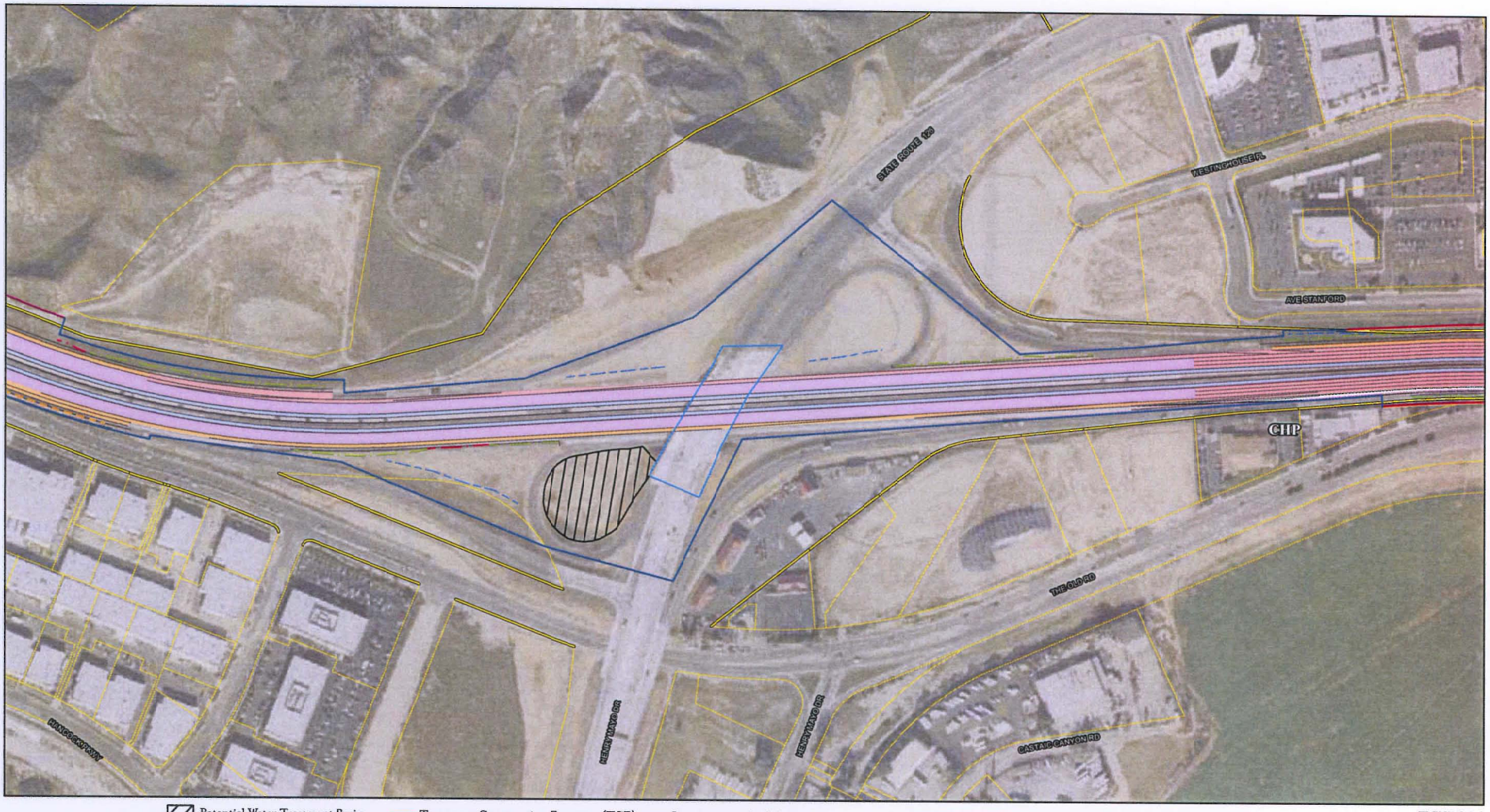
SOURCE: Psomas (2008).

I:\SIB0601\GIS\Project_Features_Alt2_Fig1-4.mxd (12/11/2008)

Map Index

FIGURE 1.4
Sheet 12 of 17

I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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Improvements by Others
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HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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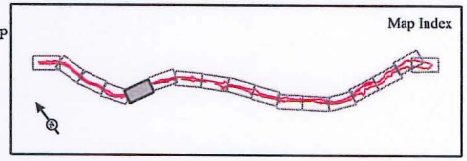
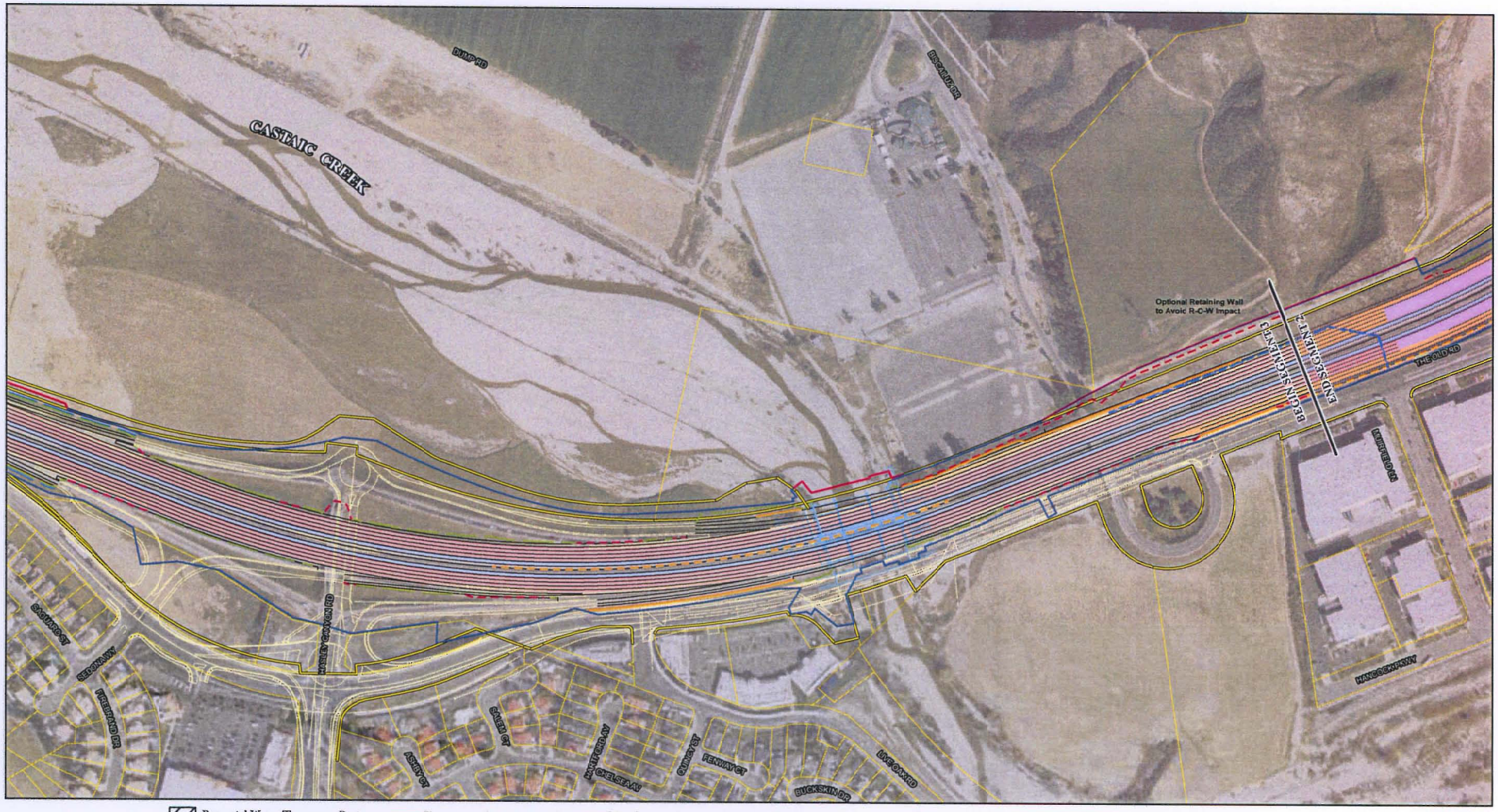


FIGURE 1.4
Sheet 13 of 17

I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R55.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
Structure to be Widened or Replaced
Toe of Fill
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Existing Retaining Wall
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Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

I:\SIB0601\GIS\Project_Features_Alt2_Fig1-4.mxd (12/11/2008)

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FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
Structure to be Widened or Replaced
Toe of Fill
Top of Cut
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Existing Retaining Wall
Proposed Drainage Improvements
Improvements by Others
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HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

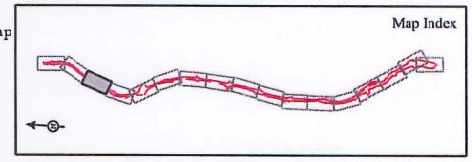

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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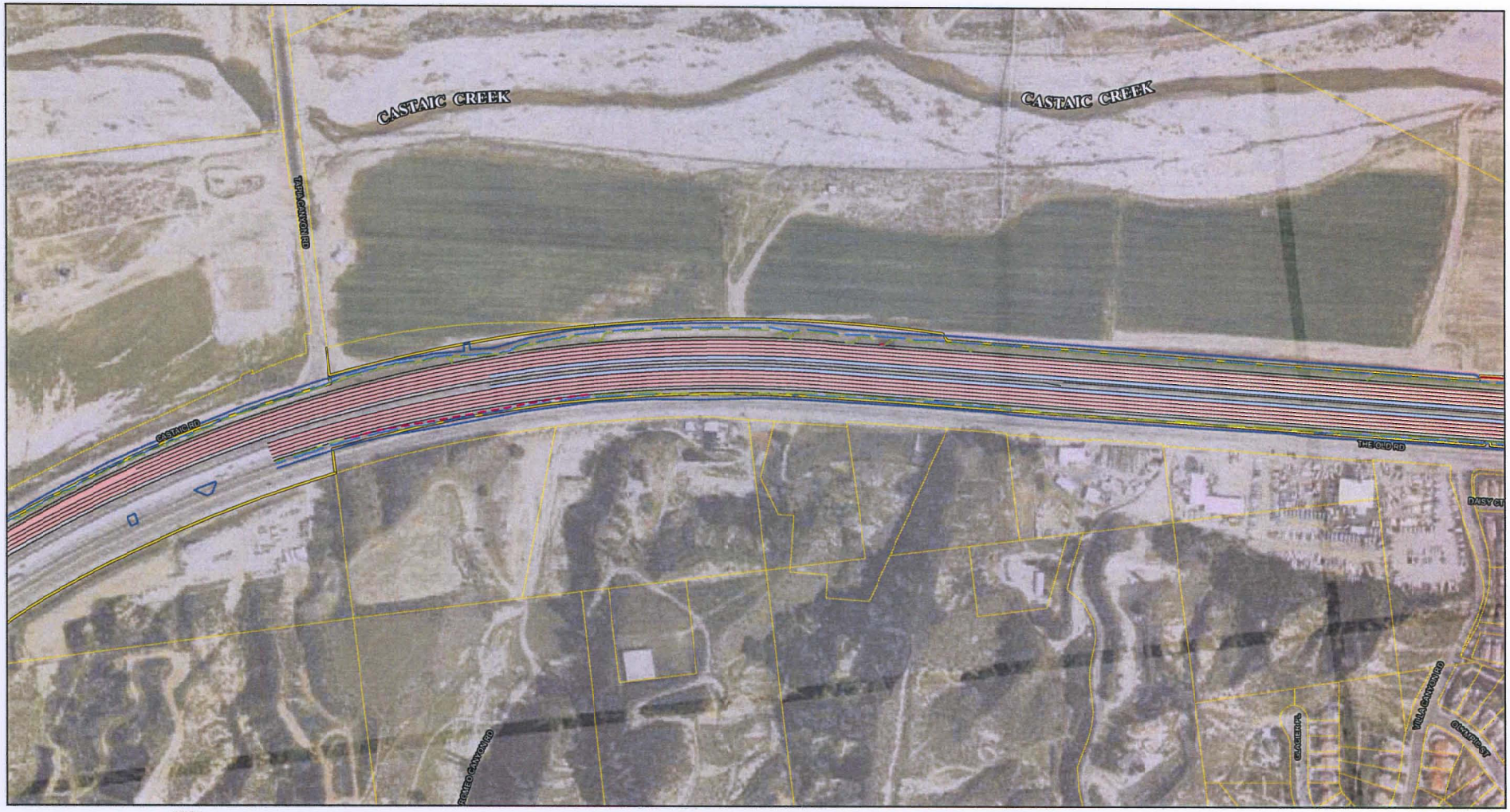

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
Structure to be Widened or Replaced
Toe of Fill
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Potential Retaining Wall
Existing Retaining Wall
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Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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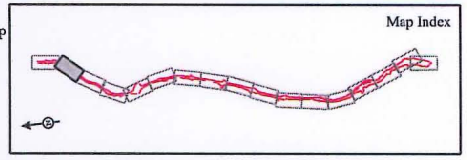

FIGURE 1.4
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I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 233230

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
Structure to be Widened or Replaced
Toe of Fill
Top of Cut
Potential Retaining Wall
Existing Retaining Wall
Proposed Drainage Improvements
Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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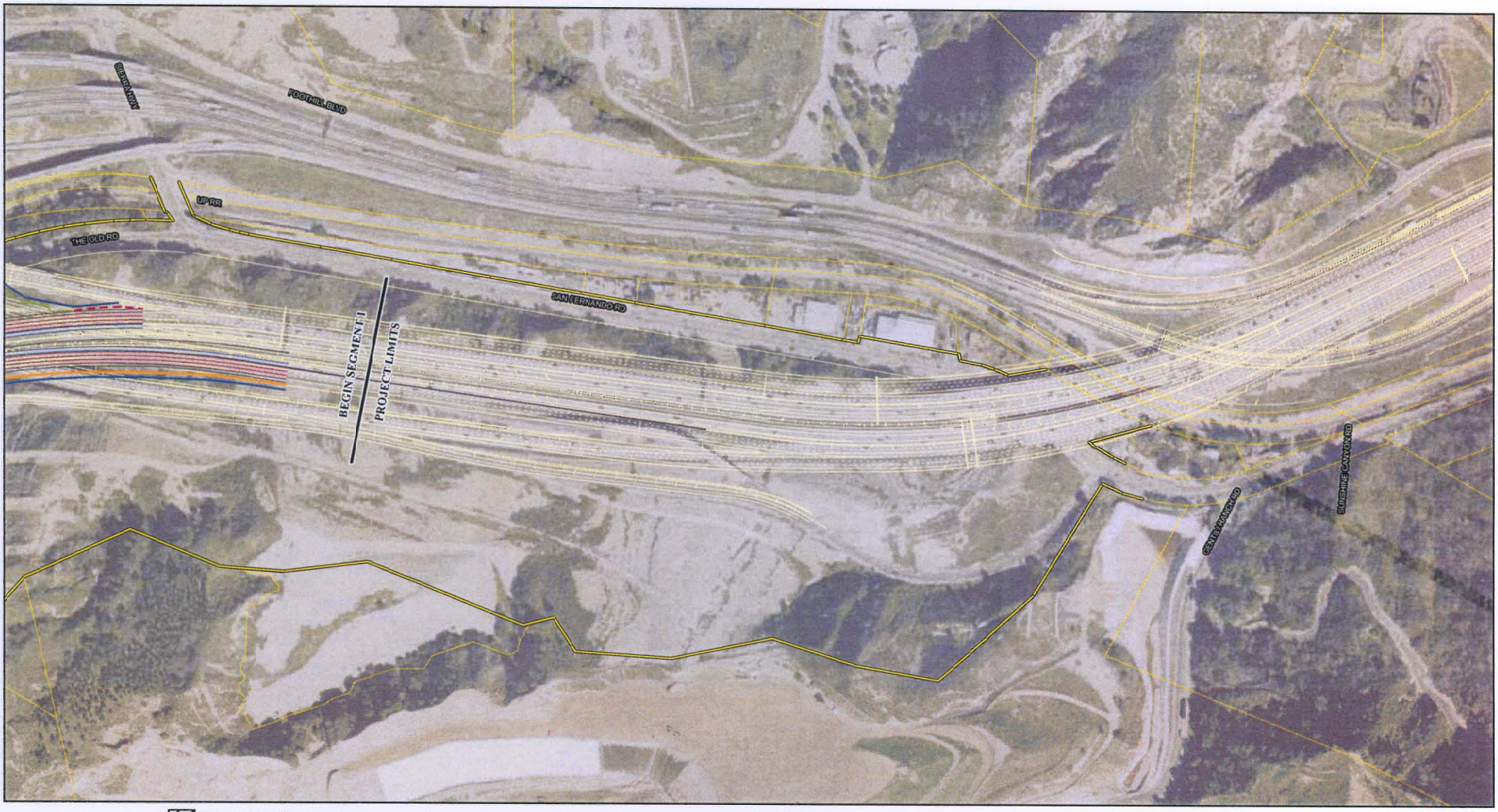
FIGURE 1.4
Sheet 17 of 17

I-5 HOV/Truck Lanes Project
Alternative 2 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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Existing Retaining Wall
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Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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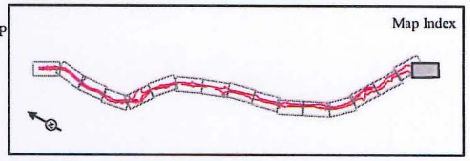

FIGURE 1.5
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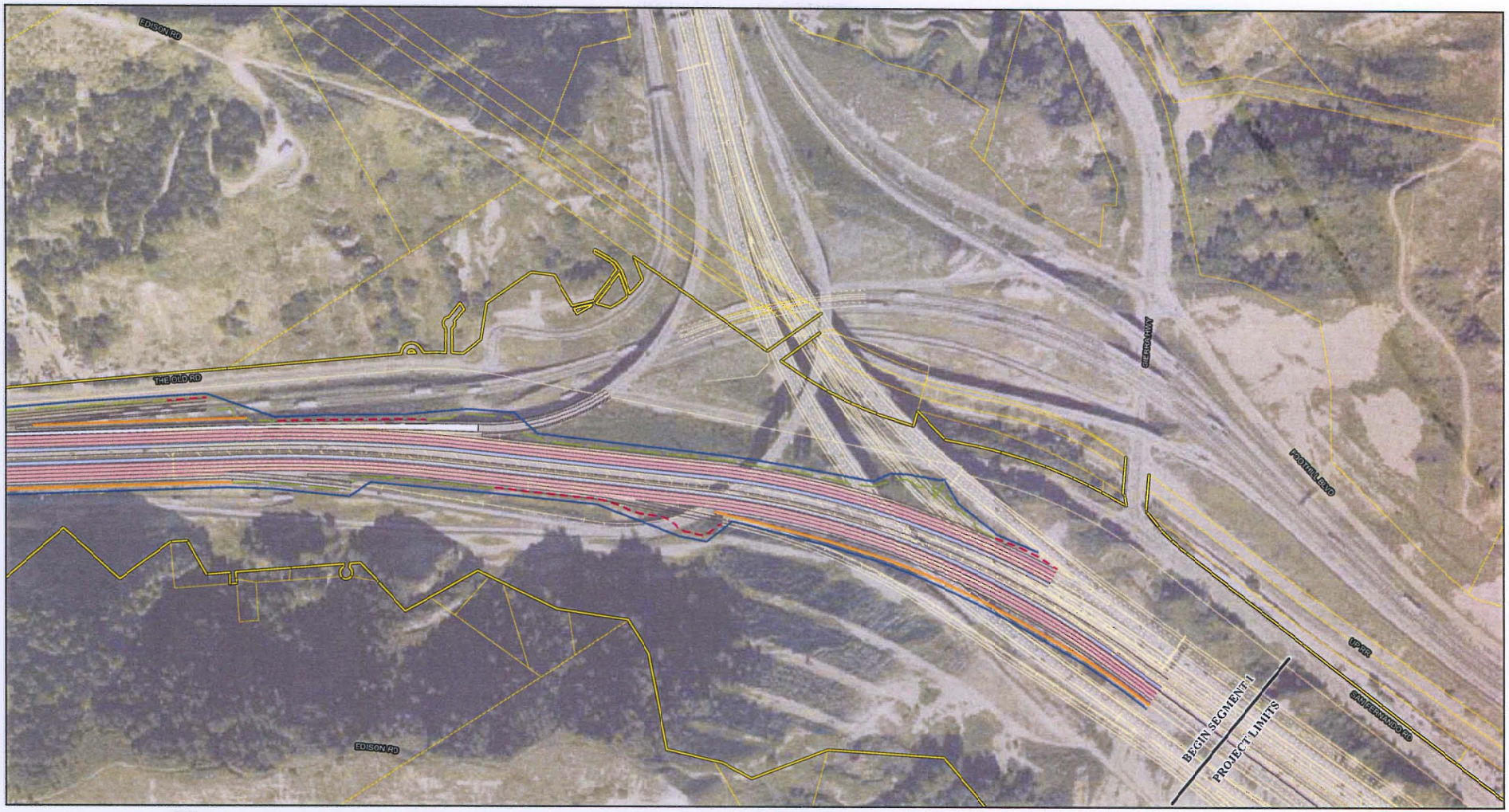
I-5 HOV/Truck Lanes Project

Alternative 3 - Project Features

07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

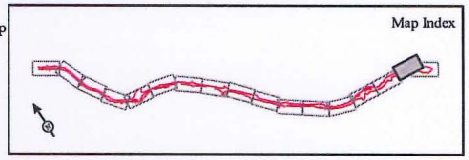

FIGURE 1.5
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I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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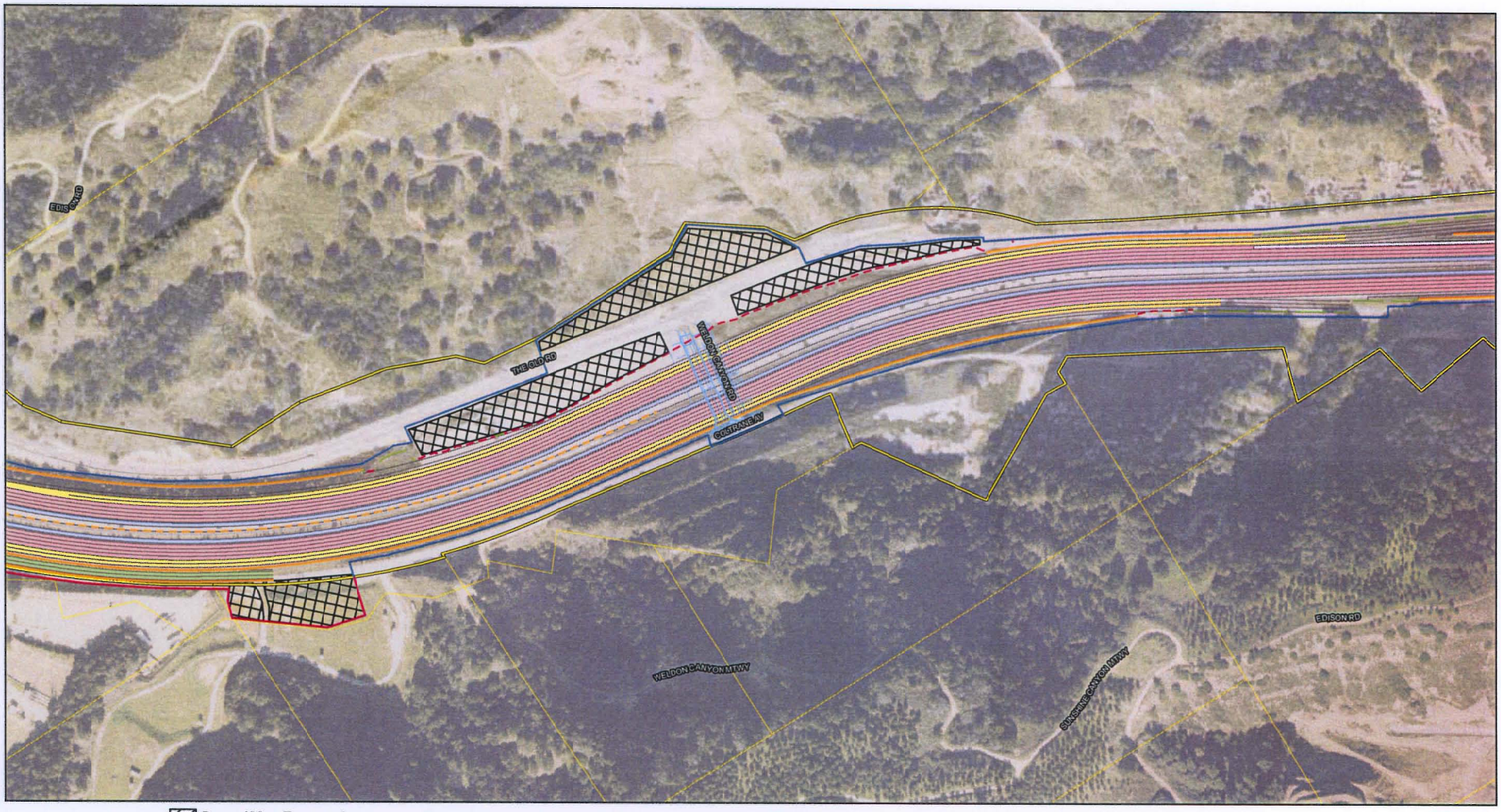

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

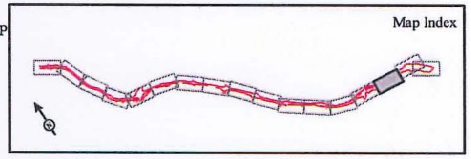

FIGURE 1.5
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I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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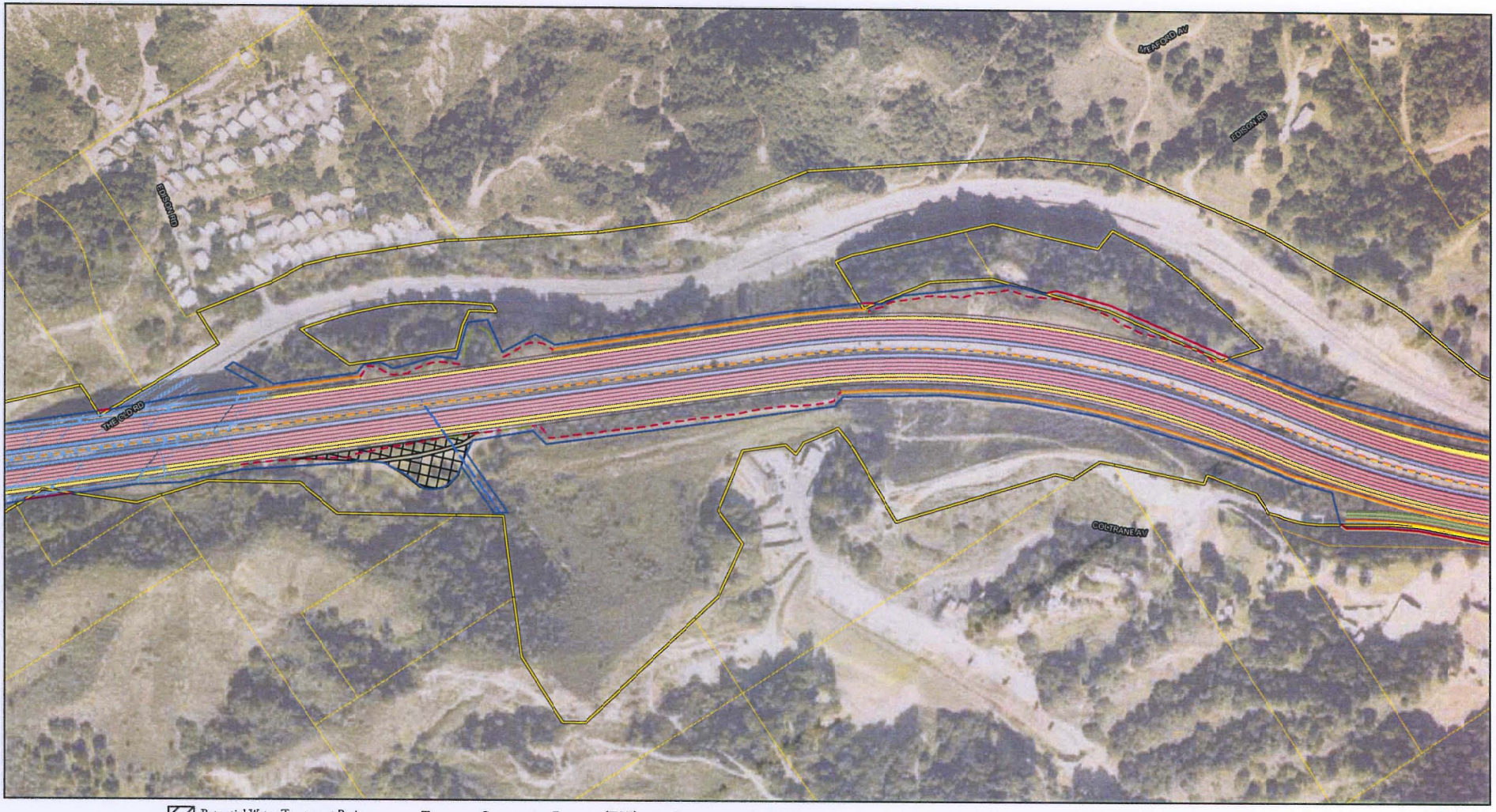

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

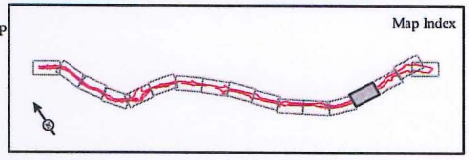

FIGURE 1.5
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I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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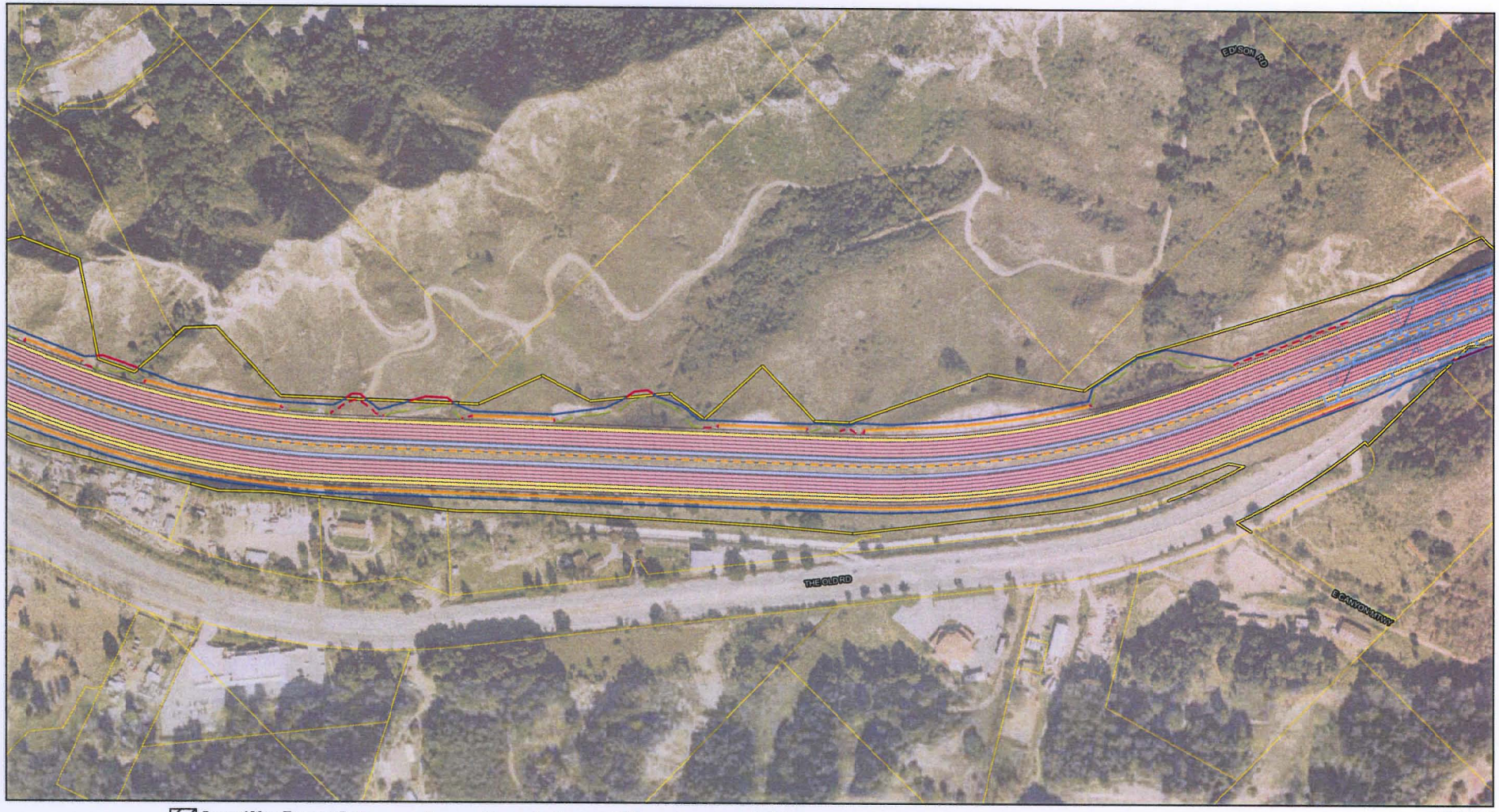

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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Existing Retaining Wall
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Improvements by Others
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HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

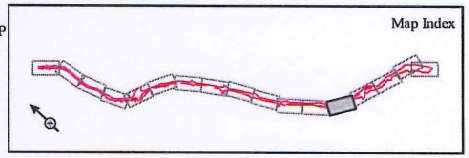

FIGURE 1.5
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I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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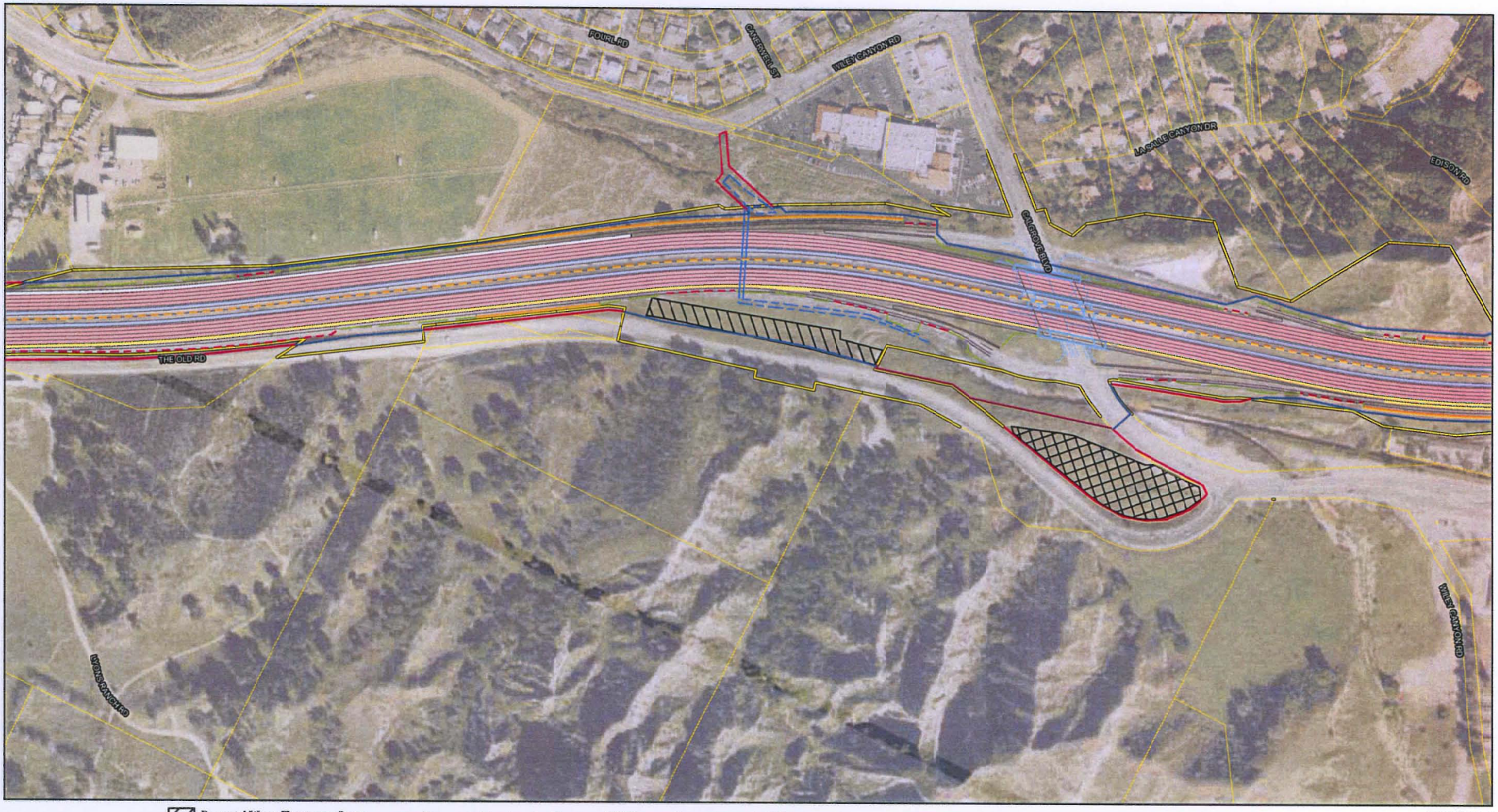

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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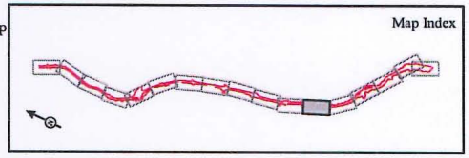

FIGURE 1.5
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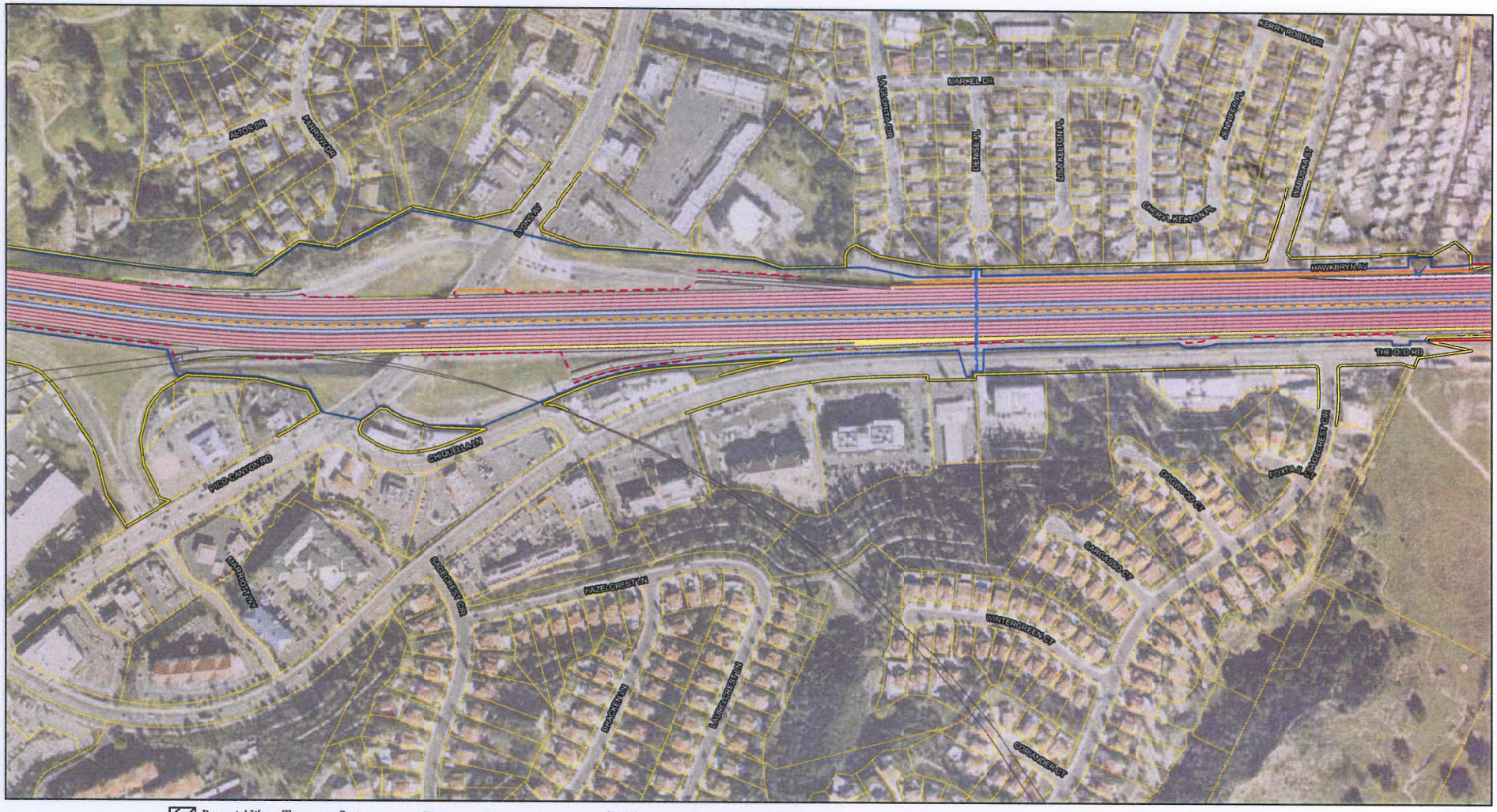
I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R55.0
EA 2332E0



SOURCE: Psomas (2008).

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FIGURE 1.5
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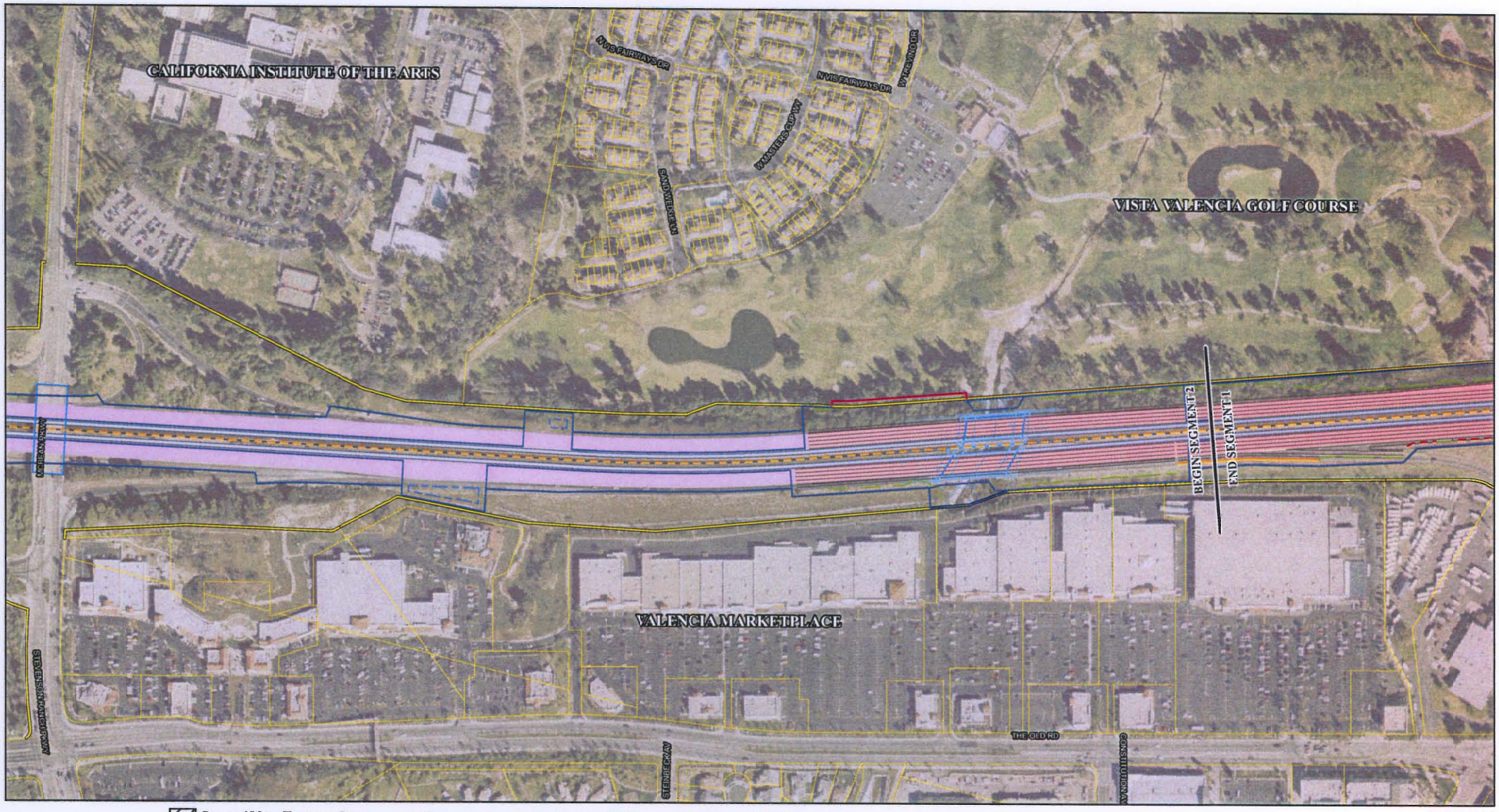
I-5 HOV/Truck Lanes Project

Alternative 3 - Project Features

07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
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Temporary Construction Easement (TCE)
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MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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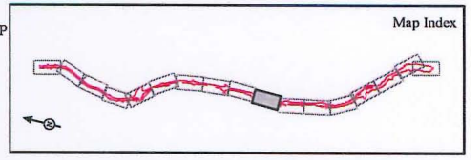

FIGURE 1.5
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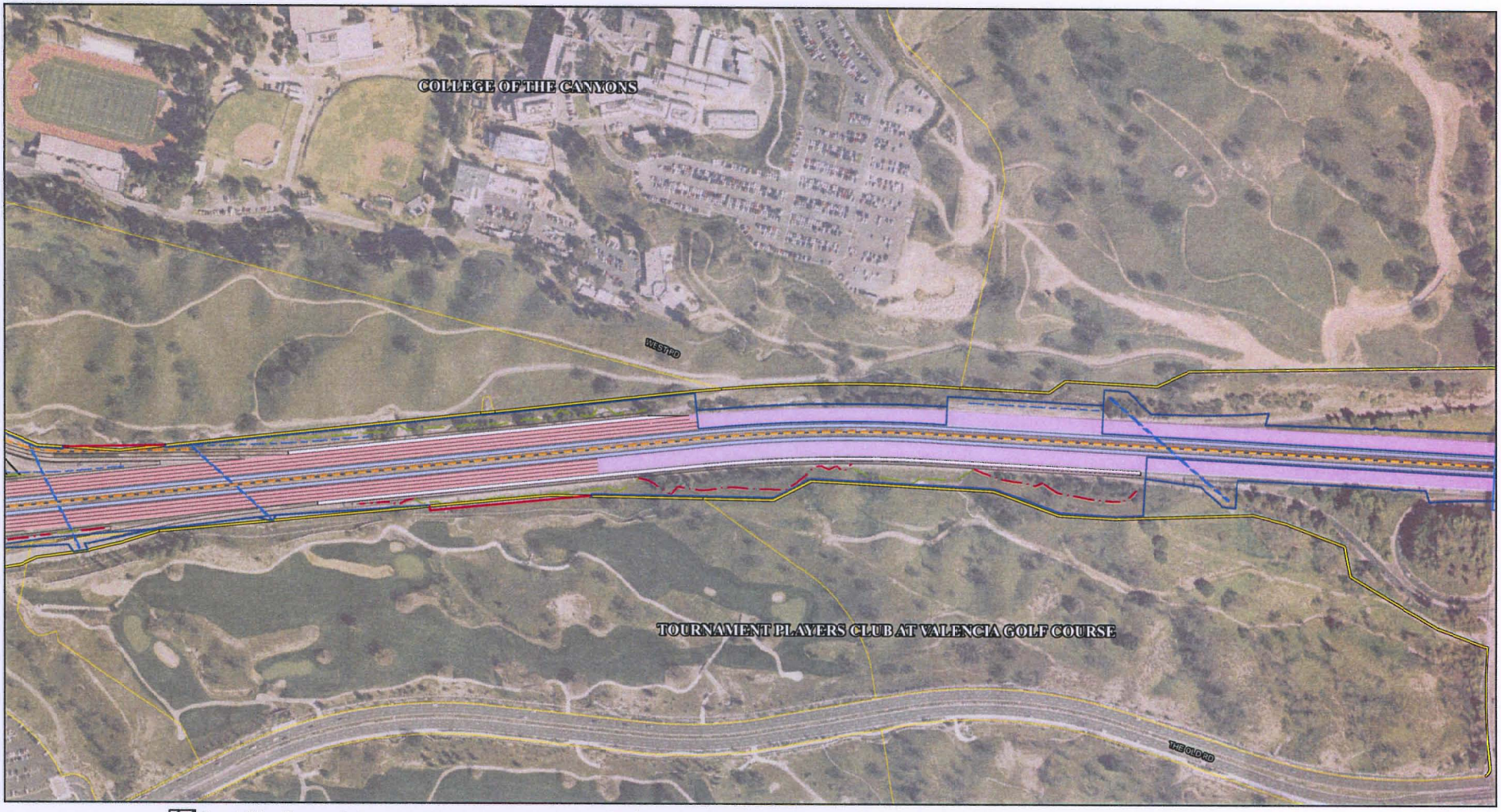
I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
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MFL Lanes
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Truck Lanes
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Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

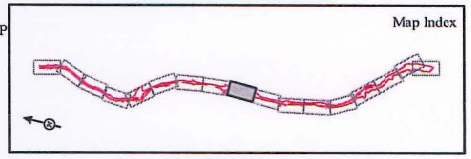

FIGURE 1.5
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I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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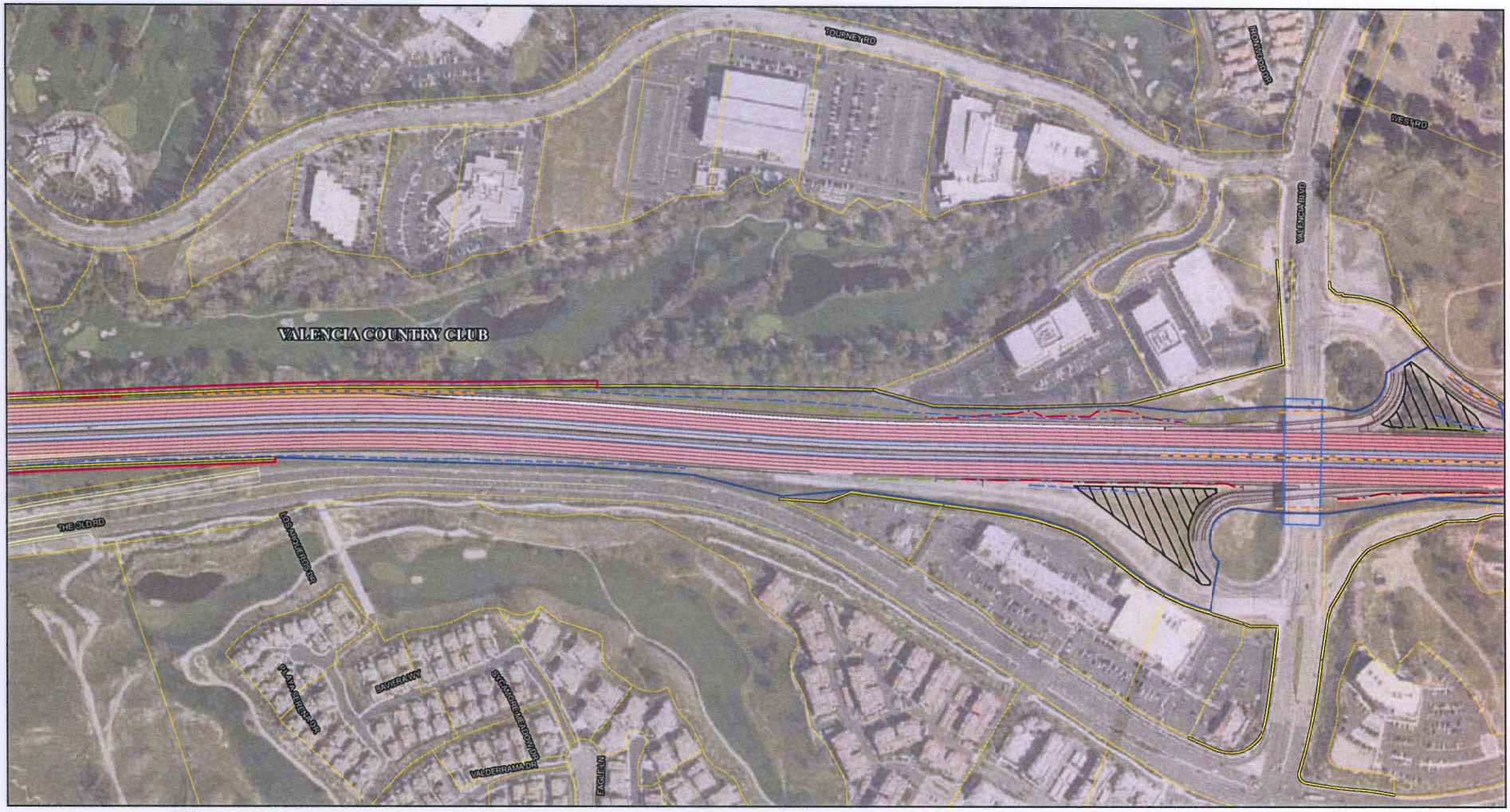

Potential Water Treatment Basin
Potential Construction Staging Area
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HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

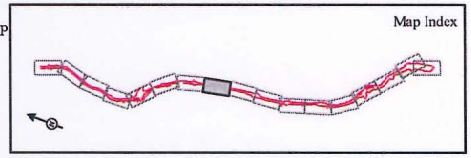

FIGURE 1.5
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I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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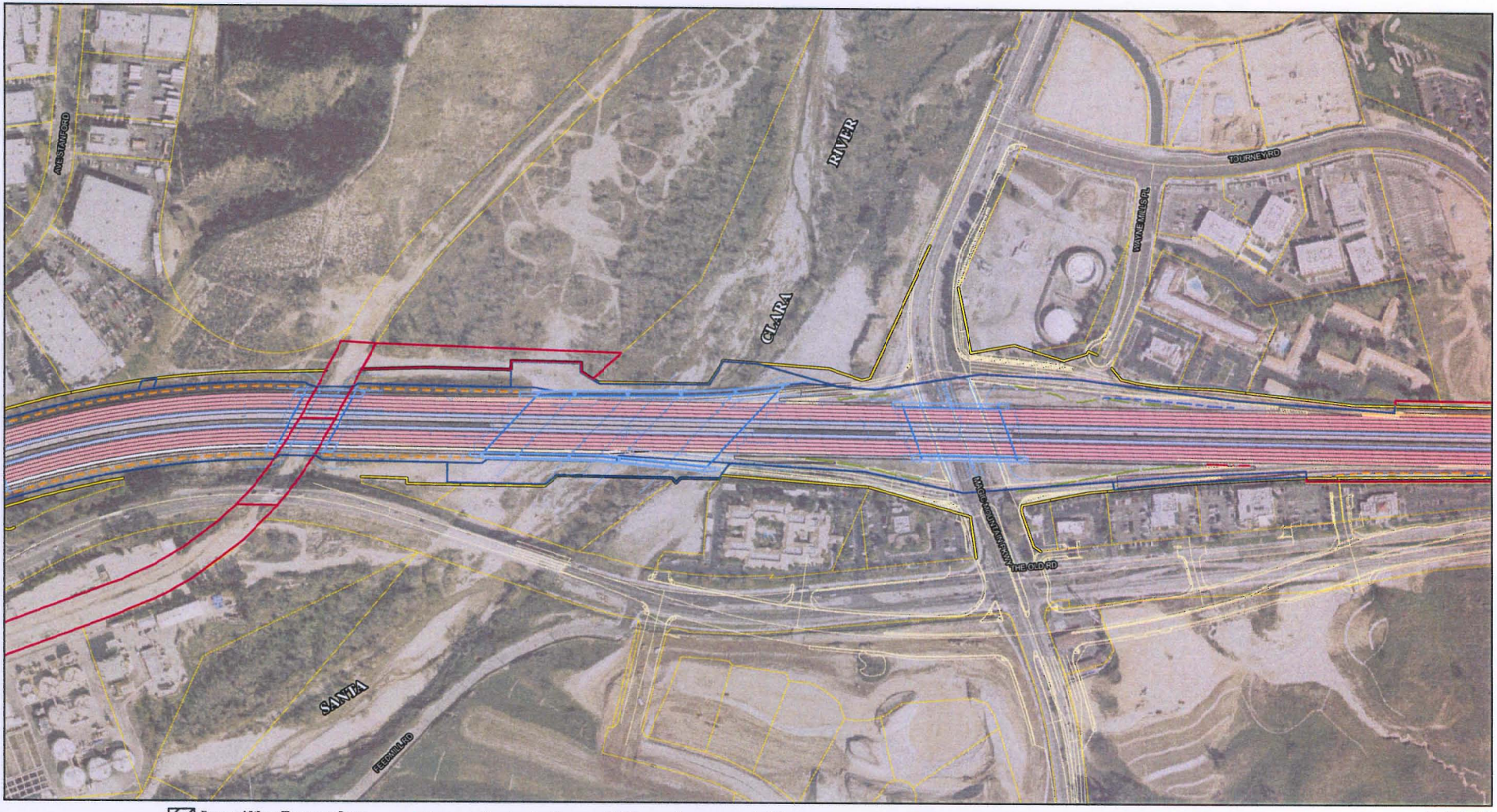

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
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Truck Lanes
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Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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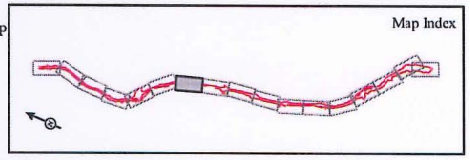

FIGURE 1.5
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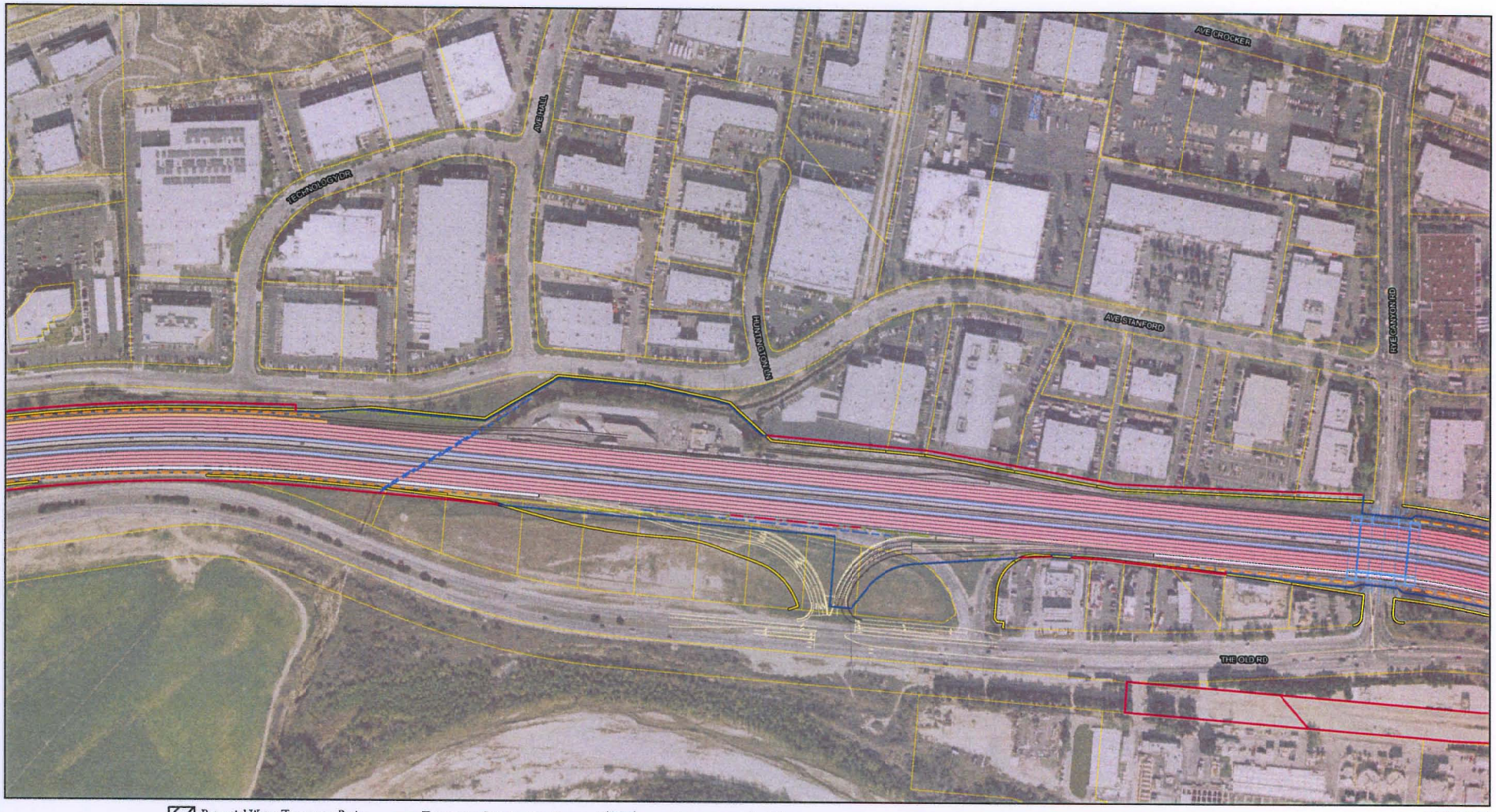
I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
Structure to be Widened or Replaced
Toe of Fill
Top of Cut
Proposed Retaining Wall
Existing Retaining Wall
Proposed Drainage Improvements
Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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Map Index

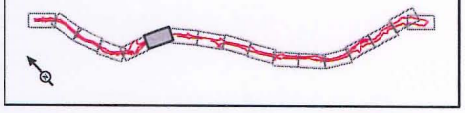
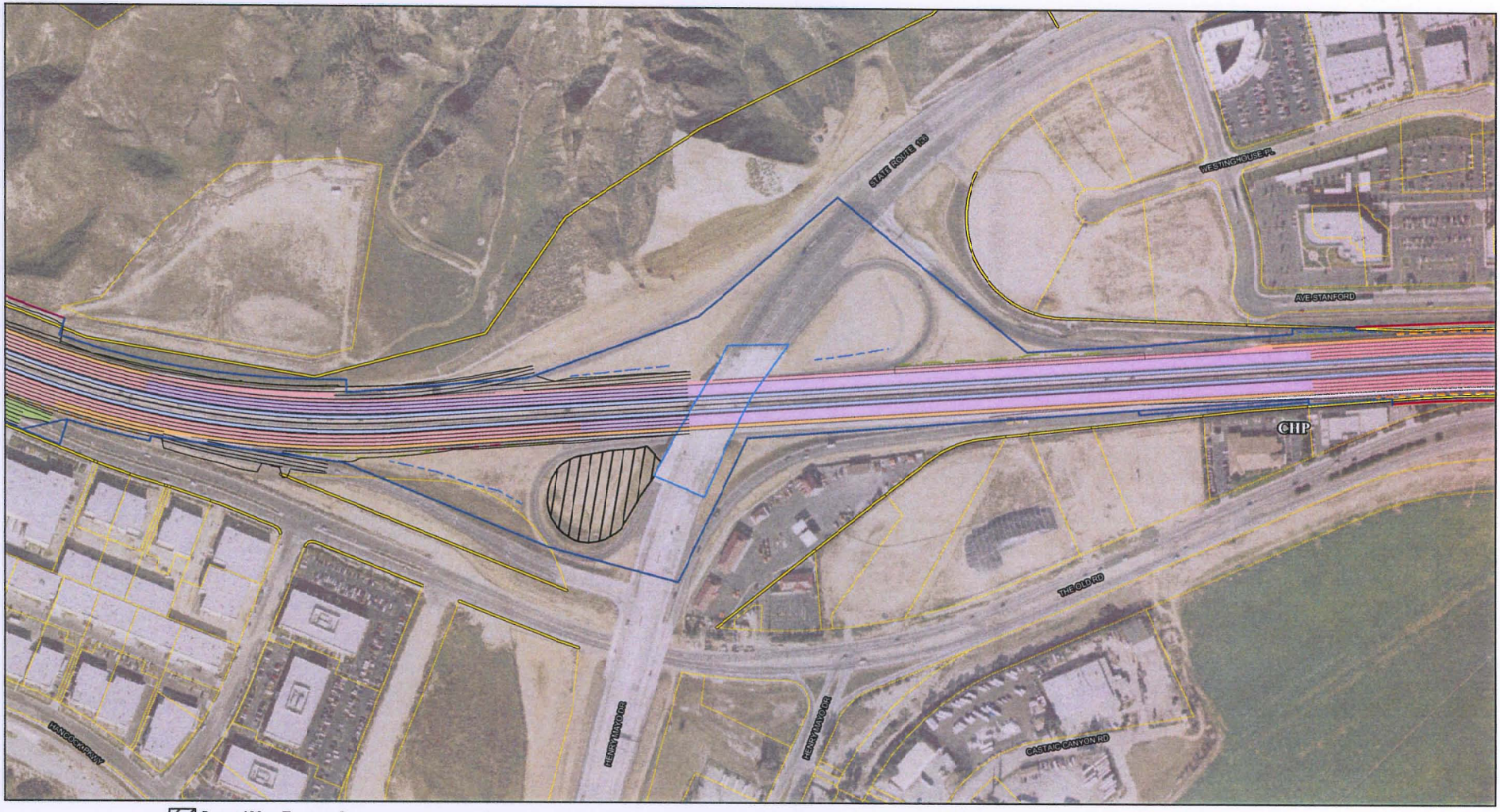


FIGURE 1.5
Sheet 12 of 17

I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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Improvements by Others
Existing Length of AUX Lane/ Extend Ramp
HOV Lanes
MFL Lanes
Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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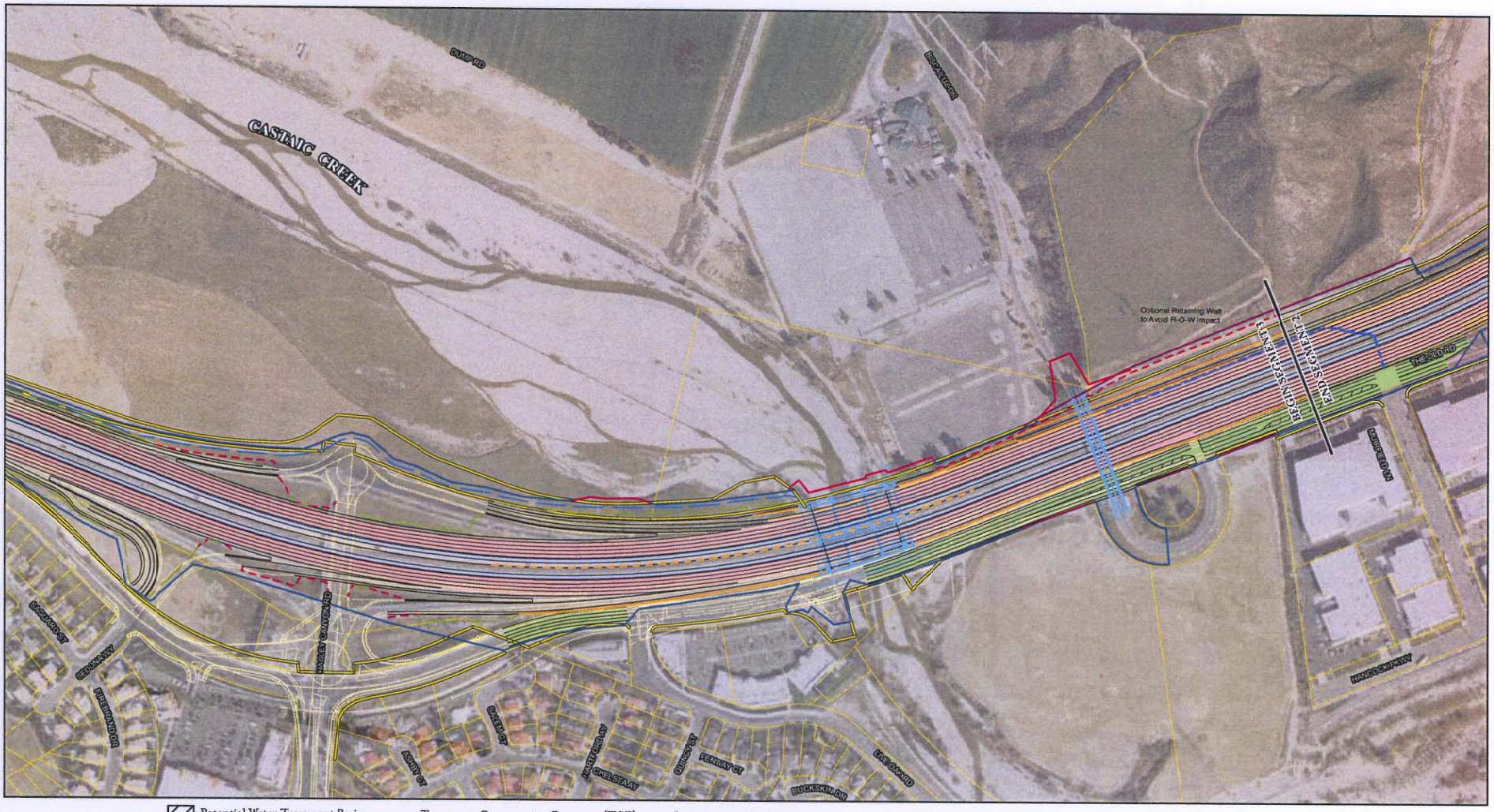
Map Index

FIGURE 1.5
Sheet 13 of 17

I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0



Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
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Proposed AUX Lanes
Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

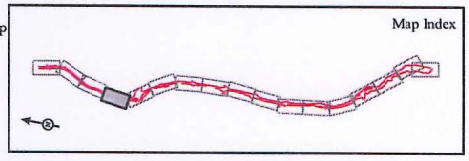

FIGURE 1.5
Sheet 14 of 17

I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

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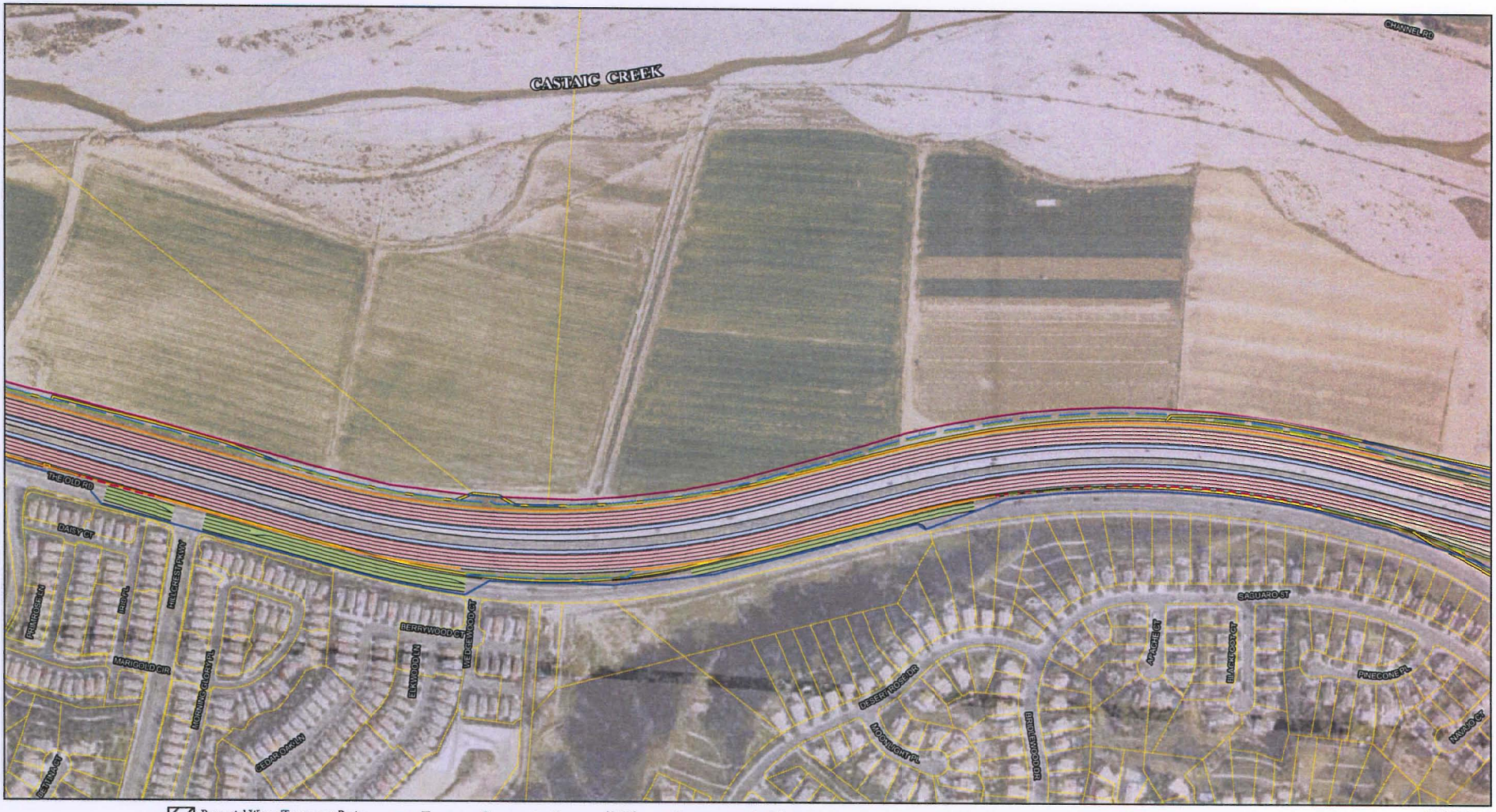

Potential Water Treatment Basin
Potential Construction Staging Area
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Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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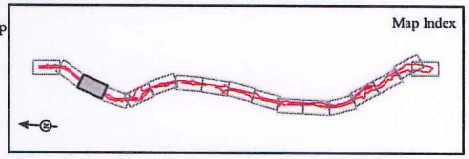

FIGURE 1.5
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I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignment
Existing Right-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
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Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

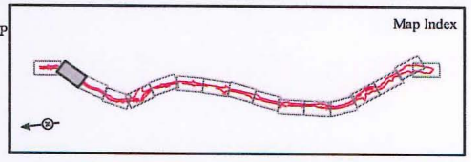

FIGURE 1.5
Sheet 16 of 17

I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
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Potential Water Treatment Basin
Potential Construction Staging Area
Proposed Alignmen:
Existing Righ:-of-Way
Proposed Right-of-Way
Parcel Boundary
Disturbance Line
Temporary Construction Easement (TCE)
Structure to be Widened or Replaced
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Truck Lanes
Unimproved Lanes/No Improvements
Frontage Road Improvements

0 150 300 Feet

SOURCE: Psomas (2008).

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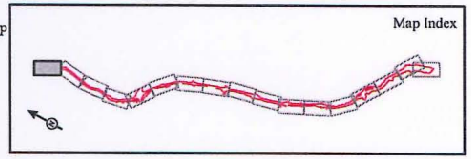

FIGURE 1.5
Sheet 17 of 17

I-5 HOV/Truck Lanes Project
Alternative 3 - Project Features
07-LA-5 PM R45.4/R59.0
EA 2332E0

Excerpt, Section 4.8, Traffic, Newhall Ranch Resource Management and Development Plan and Spineflower Conservation Plan Environmental Impact Statement/Environmental Impact Report (SCH No. 2000011025)

Table 4.8-26, Significantly Impacted Freeway Segments - Long-Range Build-Out Conditions - Volume Density Ratios, lists the volume density ratios for each of the significantly impacted freeway segments under long-range build-out conditions.

(Revised) Table 4.8-26
Significantly Impacted Freeway Segments -
Long-Range Build-Out Conditions - Volume Density Ratios

Location/County	Lanes	Volume Density by Alternative[1]						
		1	2	3	4	5	6	7
I-5 south of Parker/Los Angeles	8	<45	<45	<45	<45	<45	<45	<45
I-5 south of Hasley/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45
I-5 south of SR-126/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45
I-5 south of Rye Canyon/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45
I-5 south of Magic Mountain/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45
I-5 south of Valencia/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45
I-5 south of McBean/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45
I-5 south of Lyons/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45
I-5 south of Calgrove/Los Angeles	8	>45	>45	>45	>45	>45	>45	>45

Notes:

[1] The "45" reference in this table refers to either less than or more than 45 passenger vehicles per mile, per lane.

See Draft EIS/EIR, **Appendix 4.8**, December 2008 Traffic Report, for the complete listing of volume densities for all I-5 freeway segments.

Source: Austin-Foust Associates, Inc. - December 2008

4.8.9 MITIGATION MEASURES

4.8.9.1 Mitigation Measures Already Required by the Adopted Newhall Ranch Specific Plan EIR

The County of Los Angeles previously adopted mitigation measures to minimize traffic impacts within the Specific Plan area as part of its adoption of the Newhall Ranch Specific Plan and WRP. These measures are found in the previously certified Newhall Ranch Specific Plan Program EIR and the adopted Mitigation Monitoring Plans for the Specific Plan and WRP (May 2003), and are summarized above in **Table 4.8-1**. In addition, these mitigation measures (and related text) are set forth in full below, preceded by "SP," which stands for Specific Plan.

On-Site (Except SR-126 - See below)

The following mitigation is required relative to all on-site roadways and intersections except SR-126, which is discussed separately below:

SP-4.8-1 The applicants for future subdivision maps which permit construction shall be responsible for funding and constructing all on-site traffic improvements except as otherwise provided below. The obligation to construct improvements shall not preclude the applicants' ability to seek local, State or Federal funding for these facilities.

SP-4.8-2 Prior to the approval of each subdivision map which permits construction, the applicant for that map shall prepare a transportation performance evaluation which shall indicate the specific improvements for all on-site roadways which are necessary to provide adequate roadway and intersection capacity as well as adequate right-of-way for the subdivision and other expected traffic. Transportation performance evaluations shall be approved by Los Angeles County Department of Public Works according to standards and policies in effect at that time. The transportation performance evaluation shall form the basis for specific conditions of approval for the subdivision.

SP-4.8-3 The applicants for future subdivisions shall provide the traffic signals at the 15 locations labeled "B" through "P" in Figure 4.8-17 as well as any additional signals warranted by future subdivision design. Signal warrants shall be prepared as part of the transportation performance evaluations noted in Mitigation 4.8-2.

SP-4.8-4 All development within the Specific Plan shall conform to the requirements of the Los Angeles County Transportation Demand Management (TDM) Ordinance.

SP-4.8-5 The applicants for all future subdivision maps which permit construction shall consult with the local transit provider regarding the need for, and locations of, bus pull-ins on highways within the Specific Plan area. All bus pull-in locations shall be approved by the Department of Public Works, and approved bus pull-ins shall be constructed by the applicant.

Off-Site Arterials

SP-4.8-6 Prior to the recordation of the first subdivision map which permits construction, the applicant for that map shall prepare a transportation performance evaluation which shall determine the specific improvements needed to each off-site arterial and related costs in order to provide adequate roadway and intersection capacity for the expected Specific Plan and General Plan buildout traffic trips. The transportation performance evaluation shall be based on the Master Plan of Highways in effect at that time and shall be approved by the Los Angeles County Department of Public Works. The applicant shall be required to fund its fair share of improvements to these arterials, as stated on Table 4.8-18. The applicants total funding obligation shall be equitably distributed over the housing units and non-residential building square footage (*i.e.*, Business Park, Visitor-Serving, Mixed-Use, and Commercial) in the Specific Plan, and shall be a fee to be paid to the County and/or the City at each building permit. For off-site areas within the County unincorporated area, the applicant may construct improvements for credit against or in lieu of paying the fee.

Freeways and State Highways (I-5 and SR-126 in Los Angeles County)

SP-4.8-7 Each future performance evaluation which shows that a future subdivision map will create significant impacts on SR-126 shall analyze the need for additional travel lanes on SR-126. If

adequate lane capacity is not available at the time of subdivision, the applicant of the subdivision shall fund or construct the improvements necessary to serve the proposed increment of development. Construction or funding of any required facilities shall not preclude the applicant's ability to seek State, Federal or local funding for these facilities.

Congestion Management

SP-4.8-8 Project-specific environmental analysis for future subdivision maps which allow construction shall comply with the requirements of the Congestion Management Program in effect at the time that subdivision map is filed.

SR-126 in Ventura County

SP-4.8-9 Prior to the recordation of the first subdivision map which permits construction, the applicant for that map shall prepare a transportation evaluation including all of the Specific Plan land uses which shall determine the specific improvements needed to the following intersections with SR-126 in the City of Fillmore and community of Piru in Ventura County: "A", "B", "C", "D" and "E" Streets, Old Telegraph, Olive, Central, Santa Clara, Mountain View, El Dorado Road, and Pole Creek (Fillmore), and Main/Torrey and Center (Piru). The related costs of those intersection improvements and the project's fair share shall be estimated based upon the expected Specific Plan traffic volumes. The transportation performance evaluation shall be based on the Los Angeles County Master Plan of Highways in effect at that time and shall be approved by the Los Angeles County Department of Public Works. The applicant's total funding obligation shall be equitably distributed over the housing units and non-residential building square footage (*i.e.*, Business Park, Visitor Center, Mixed Use, and Commercial) in the Specific Plan, and shall be a fee to be paid to the City of Fillmore and the County of Ventura at each building permit.

Freeway/Highway Intersections and Interchanges

SP-4.8-10 The Specific Plan is responsible to construct or fund its fair-share of the intersections and interchange improvements indicated on Table 4.8-18. Each future transportation performance evaluation required by Mitigation Measure 4.8-2 which identifies a significant impact at these locations due to subdivision map-generated traffic shall address the need for additional capacity at each of these locations. If adequate capacity is not available at the time of subdivision map recordation, the performance evaluation shall determine the improvements necessary to carry Specific Plan generated traffic, as well as the fair share cost to construct such improvements. If the future subdivision is conditioned to construct a phase of improvements which results in an overpayment of the fair-share cost of the improvement, then an appropriate adjustment (offset) to the fees paid to Los Angeles County and/or City of Santa Clarita pursuant to Mitigation Measure 4.8-6 above shall be made.

SP-4.8-11 The applicant of the Newhall Ranch Specific Plan shall participate in an I-5 developer fee program, if adopted by the Board of Supervisors for the Santa Clarita Valley.

SP-4.8-12 The applicant of the Newhall Ranch Specific Plan shall participate in a transit fee program, if adopted for the entire Santa Clarita Valley by Los Angeles County and City of Santa Clarita.

SP-4.8-13 Prior to the approval of each subdivision map which permits construction, the applicant for that map shall prepare a traffic analysis approved by the Los Angeles County Department of Public Works. The analysis will assess project and cumulative development (including an existing plus cumulative development scenario under the County's Traffic Impact Analysis Report Guidelines (TIA) and its Development Monitoring System (DMS)). In response to the traffic analysis, the applicant may construct off-site traffic improvements for credit against, or in lieu of paying, the mitigation fees described in Mitigation Measure 4.8-6 above. If future subdivision maps are developed in phases, a traffic study for each phase of the subdivision map may be submitted to determine the improvements needed to be constructed with that phase of development.

Water Reclamation Plant

SP-5.0-36 If SR-126 is still a two-lane highway at the time of WRP construction, a construction traffic management plan shall be prepared and implemented. This plan shall address site access, staging and storage areas, hours of construction, work crew parking, warning and traffic control signs and devices, flag men, temporary detouring, *etc.*, as appropriate, to avoid a significant impact on SR-126.

SP-5.0-37 An encroachment permit shall be obtained from Caltrans, for access to the plant site from SR-126.

4.8.9.2 Mitigation Measures Already Required by the Adopted VCC EIR

The County of Los Angeles adopted mitigation measures to minimize traffic impacts within the VCC planning area as part of its approval of the VCC project. These measures are found in the previously certified VCC EIR (April 1990), and are summarized in **Table 4.8-2**, above. In addition, these mitigation measures are set forth in full below, preceded by "VCC-TR," which stands for Valencia Commerce Center - Traffic.

At the time of adoption, the VCC mitigation measures represented the best available mitigation imposed by Los Angeles County. As noted in **Subsection 4.8.1.2.1**, above, additional environmental review will be conducted by Los Angeles County with respect to the VCC planning area because the applicant recently submitted the last tentative parcel map for build-out of the VCC planning area. Implementation of the previously adopted, applicable VCC mitigation measures and additional mitigation requirements (*e.g.*, measures similar to those previously adopted for the Specific Plan area and/or recommended for the proposed Project) would ensure that significant impacts to traffic/access within the VCC planning area are reduced to the extent feasible.

VCC-TR-1 Participate in improvements to the Backer Road/I-5 Interchange.

VCC-TR-2 Improve Backer Rd. from the I-5 Freeway to Henry Mayo Dr. (SR-126).

VCC-TR-3 Improve Henry Mayo Drive from Backer Road to the I-5 Freeway with a minimum of two through lanes in each direction and additional turn lanes at Intersections.

VCC-TR-4 Provide full half-street improvements on SR-126 along project frontage to Expressway Standards.

VCC-TR-5 Provide detailed striping plans for Backer Rd. and The Old Road.

VCC-TR-6 Entering into a secured agreement with the Department of Public Works to contribute to the cost of installing signals at the following intersections as warrants indicate:

- The Old Road/Hasley Canyon Road;
- The Old Road/Backer Road;
- The Old Road/SB I-5 ramps (relocated);
- The Old Road/Sedona Way;
- The Old Road/SR-126 EB ramps;
- The Old Road/SR-126 WB ramps;
- Backer Road/I-5 NB ramps;
- Backer Road/I-5 SB ramps;
- Backer Road/Cambridge Drive;
- Backer Road/Hasley Canyon Road north;
- Backer Road/Hasley Canyon Road south;
- Backer Road/Henry Mayo Drive; and
- Backer Road/"C" Street

VCC-TR-7 Payment of appropriate Bridge and Thoroughfare District fees.

VCC-TR-8 Per Al Kelm of the Department of Public Works, Traffic and Lighting Division, occupancy permits shall not be issued until Backer Road is constructed from Hasley Canyon Road to SR-126 unless a traffic study shows, to the satisfaction of the Department of Public Works that adequate capacity is available for area traffic via an alternate access to SR-126.

VCC-TR-9 Supplemental traffic studies will be prepared as part of the individual tentative map processing.

VCC-TR-10 Backer Road will be realigned to the north a maximum distance of 50' and average distance of 25' to allow for the construction of an 11' combination berm and wall between the homes and the road.

VCC-TR-11 Pedestrian safety will be maintained through the construction of a paseo bridge across Backer Road, just west of the Cambridge intersection, and the placement of sidewalks along both sides of Backer Road.

VCC-TR-12 A noise study will be conducted subsequent to the completion of Backer Road from Hasley Creek to SR-126 to determine whether restrictions to nighttime truck traffic are warranted because of single event noise impacts to residents along Backer Road.

VCC-TR-13 Construction of 1/2 street improvements on The Old Road from Backer Rode to SR-126.

VCC-TR-14 Entering into a secured agreement with the Department of Public Works to contribute to the cost of installing signals at the following intersections:

- Backer Road/Biscailuz Drive;
- The Old Road/Biscailuz Drive;
- The Old Road/Hasley Canyon Road;
- I-5 southbound ramps/SR-126; and
- I-5 northbound ramps/SR-126

VCC-TR-15 Payment of appropriate Bridge and Thoroughfare District fees.

VCC-TR-16 Supplemental traffic studies will be prepared as part of the individual tentative map processing.

VCC-TR-17 Vacation of Hasley Canyon Road so that there is no through traffic between Backer and The Old Road.

4.8.9.3 Mitigation Measures Relating to the Entrada Planning Area

The County of Los Angeles has not yet prepared or released a draft EIR for the proposed development within the portion of the Entrada planning area that would be facilitated by approval of the SCP component of the proposed Project. As a result, there are no previously adopted mitigation measures for the Entrada planning area. However, the adoption and implementation of measures similar to those previously adopted for the Specific Plan area and/or recommended for the proposed Project would ensure that potential impacts to traffic/access within the Entrada planning area are reduced to the extent feasible.

4.8.9.4 Additional Mitigation Measures Proposed by this EIS/EIR

Based on the analysis presented above, the following mitigation measures, which are in addition to those previously adopted by the County of Los Angeles in connection with its approval of the Specific Plan, WRP, and VCC projects, are proposed to provide additional capacity at the impacted roadways throughout the Project study area. Additional capacity may be provided by constructing additional lanes, re-striping existing lanes, or implementing other roadway improvements. It should be noted that not all of the proposed mitigation measures are applicable to all of the Project alternatives. The applicability of each mitigation measure is noted in parentheses following the text of the mitigation measure. **Table 4.8-27**, Mitigation Measure Fair-Share Percentages, below, lists the applicable percentage contribution required of each Project alternative relative to each mitigation measure. The percentage is a calculation of the Project's share of the forecast increases in traffic at the identified location. (See **Appendix 4.8**, 2008 Traffic Report, Appendix E.) Each of the impacted locations is within an established (or in the case of the Westside, a proposed) bridge and thoroughfare assessment district, or within the limits of the planned I-5 improvement project. The additional measures are preceded by "TR," to designate that they are traffic-related mitigation.

Table 4.8-27
Mitigation Measure Fair-Share Percentages

Location/County	Fair-Share Percentages by Alternative					
	2	3	4	5	6	7
Magic Mtn west of Westridge/Los Angeles	n/a[1]	n/a[1]	n/a[1]	n/a[1]	100.0%	n/a[1]
Magic Mtn west of The Old Road/Los Angeles	n/a[1]	n/a[1]	n/a[1]	n/a[1]	55.6%	52.0%
The Old Road north of Rye Cyn/Los Angeles	n/a[1]	n/a[1]	n/a[1]	n/a[1]	33.3%	30.4%
The Old Road north of Magic Mtn/Los Angeles	33.3%	33.3%	n/a[1]	n/a[1]	61.0%	51.5%
Rye Cyn east of The Old Road/Los Angeles	37.5%	37.5%	33.3%	33.3%	44.4%	37.5%
Via Princessa east of Santa Clarita/Los Angeles	1.5%	1.5%	1.5%	1.5%	n/a[1]	n/a[1]
McBean south of Avenue Scott	n/a[1]	n/a[1]	n/a[1]	n/a[1]	33.3%	n/a[1]
I-5 south of Parker/Los Angeles	2.5%	2.5%	n/a[1]	n/a[1]	n/a[1]	n/a[1]
I-5 south of Hasley/Los Angeles	1.3%	1.3%	n/a[1]	n/a[1]	2.0%	0.7%
I-5 south of SR-126/Los Angeles	0.9%	1.8%	0.9%	n/a[1]	4.4%	0.9%
I-5 south of Rye Canyon/Los Angeles	4.1%	4.1%	n/a[1]	n/a[1]	n/a[1]	n/a[1]
I-5 south of Magic Mtn/Los Angeles	4.7%	4.7%	n/a[1]	n/a[1]	n/a[1]	n/a[1]
I-5 south of Valencia/Los Angeles	7.9%	7.9%	4.7%	n/a[1]	3.5%	n/a[1]
I-5 south of McBean/Los Angeles	6.4%	6.4%	4.3%	3.3%	3.3%	n/a[1]
I-5 south of Lyons/Los Angeles	15.9%	14.8%	12.7%	12.7%	11.5%	n/a[1]
I-5 south of Calgrove/Los Angeles	14.8%	14.8%	12.8%	10.7%	10.7%	5.1%

Notes:

[1] Not Applicable (no impact for this alternative at this location)

See Draft EIS/EIR, **Appendix 4.8**, December 2008 Traffic Report, for summary of ADT share calculation.

Source: Austin-Foust Associates, Inc. - December 2008

TR-1 The Project applicant shall design and construct Magic Mountain Parkway west of Westridge Parkway in a manner that increases the planned six-lane augmented roadway to an eight-lane roadway. (This mitigation measure is applicable to Alternative 6 only.)

TR-2 The Project applicant shall contribute its fair-share of the costs to add additional capacity to Magic Mountain Parkway west of The Old Road by increasing the planned eight-lane augmented roadway to a 10-lane roadway. (This mitigation measure is applicable to Alternative 7 only.)

TR-3 The Project applicant shall contribute its fair-share of the costs to add additional capacity to Magic Mountain Parkway west of The Old Road by increasing the planned eight-lane augmented roadway to a 10-lane augmented roadway. (This mitigation measure is applicable to Alternative 6 only.)

TR-4 The Project applicant shall contribute its fair-share of the costs to add additional capacity to The Old Road north of Rye Canyon Road by increasing the planned six-lane roadway to a six-lane augmented roadway. (This mitigation measure is applicable to Alternatives 6 and 7 only.)

TR-5 The Project applicant shall contribute its fair-share of the costs to add additional capacity to The Old Road north of Magic Mountain Parkway by increasing the planned six-lane roadway to a six-lane augmented roadway. (This mitigation measure is applicable to Alternatives 2, 3, and 7 only.)

TR-6 The Project applicant shall contribute its fair-share of the costs to add additional capacity to The Old Road north of Magic Mountain Parkway by increasing the planned six-lane roadway to an eight-lane augmented roadway. (This mitigation measure is applicable to Alternative 6 only.)

TR-7 The Project applicant shall contribute its fair-share of the costs to add additional capacity to Rye Canyon Road east of The Old Road by increasing the existing six-lane roadway to a six-lane augmented roadway. (This mitigation measure is applicable to Alternatives 2 through 7.)

TR-8 The Project applicant shall contribute its fair-share of the costs to add additional capacity to Via Princessa east of Santa Clarita Road by increasing the planned six-lane roadway to a six-lane roadway. (This mitigation measure is applicable to Alternatives 2, 3, 4 and 5 only.)

TR-9 The Project applicant shall contribute its fair-share of the costs to add additional capacity to McBean Parkway south of Avenue Scott by increasing the planned eight-lane roadway to an eight-lane augmented roadway. (This mitigation measure is applicable to Alternative 6 only.)

TR-10 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction to the segment of I-5 south of Parker. (This mitigation measure is applicable to Alternatives 2 and 3.)

TR-11 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction to the segment of I-5 south of Hasley. (This mitigation measure is applicable to Alternatives 2, 3, 6 and 7 only.)

TR-12 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction to the segment of I-5 south of SR-126. (This mitigation measure is applicable to Alternatives 2, 3, 4, 6 and 7 only.)

TR-13 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction to the segment of I-5 south of Rye Canyon. (This mitigation measure is applicable to Alternatives 2 and 3 only.)

TR-14 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction to the segment of I-5 south of Magic Mountain Parkway. (This mitigation measure is applicable to Alternatives 2 and 3 only.)

TR-15 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction to the segment of I-5 south of Valencia Boulevard. (This mitigation measure is applicable to Alternatives 2, 3, 4 and 6 only.)

TR-16 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction to the segment of I-5 south of McBean Parkway. (This mitigation measure is applicable to Alternatives 2, 3, 4, 5 and 6 only.)

TR-17 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction, and one truck lane in the southbound direction, to the segment of I-5 south of Lyons Avenue. (This mitigation measure is applicable to Alternatives 2, 3, 4, 5 and 6 only.)

TR-18 The Project applicant shall contribute its fair-share of the costs of adding one HOV lane in each direction, two truck lanes in the southbound direction, and one truck lane in the northbound direction to the segment of I-5 south of Calgrove Avenue. (This mitigation measure is applicable to Alternatives 2 through 7.)

With respect to Mitigation Measures TR-10 through TR-18, Caltrans presently is implementing the I-5 HOV + Truck Lanes - SR-14 to Parker Road project, which will add the identified HOV and truck lanes to I-5. Caltrans certified the Final EIR and approved the I-5 project in September 2009. ~~is undergoing~~ The preliminary engineering and environmental studies for the project have been completed, the project is fully funded and included in the 2008 Regional Transportation Plan, and construction is anticipated to begin in 2011 and be completed ~~between 2014 and~~ in 2015. For additional information, please see Final EIS/EIR, **Appendix F4.8**, I-5 HOV/Truck Lanes Project SR-14 to Parker Road, Final Environmental Impact Report/Environmental Assessment with Finding of No Significant Impact (September 2009). The selected Project alternative, and other cumulative development, would be required to contribute its fair-share to the I-5 project, which will add: (1) one HOV lane in each direction on I-5 from the SR-14 interchange north to Parker Road; (2) truck climbing lanes in each direction from the SR-14 interchange to Calgrove Boulevard (northbound) and Pico Canyon Road/Lyons Avenue (southbound); and (3) full auxiliary lanes within portions of the Project study area. (See **(Revised) Figure 4.8-40**, Long-Range Freeway System for the Los Angeles County Area, and Draft EIS/EIR, **Appendix 4.8**, 2007 I-5 Improvement Project Study, and Transportation Concept Report, Caltrans, November 1998.)

4.8.9.5 Existing Plus Project Impacts Mitigation

Based on the existing plus project analysis presented herein, 14 roadway segments and one freeway segment would be significantly impacted under the proposed Project; a subset of these road segments would be significantly impacted under each of the Project alternatives.

Each of the significantly impacted segments is located within the Santa Clarita Valley portion of the study area, and each would be mitigated with: (i) construction of the new and expanded roadways built as part of the city of Santa Clarita and County of Los Angeles highway plans through the applicable Bridge and Thoroughfare Districts; (ii) construction of the roads to be built as part of the access for the proposed Project (see Draft EIS/EIR, **Appendix 4.8**, 2008 Traffic Report, Appendix B); and (iii) implementation of the specific mitigation measures identified in **Subsection 4.8.9.4**, Additional Mitigation Measures Proposed by this EIS/EIR.

(Revised) Figure 4.8-40 Long-Range Freeway System for the Los Angeles County Area

(AF 2008 TA Fig. 29)

Future conditions with the new and expanded roadways in place are evaluated in the long-range impacts analysis conducted for the proposed Project and the alternatives and presented in **Subsection 4.8.8**, Impacts of the Proposed Project and Alternatives. **Subsection 4.8.10**, Summary of Significance Findings, illustrates that with implementation of the identified specific Project mitigation measures, the significant impacts identified under the long-range impacts analysis would be reduced to less than significant. Thus, the analysis shows that with build-out of the city of Santa Clarita and County of Los Angeles highway plans, in combination with the mitigation measures identified in this EIS/EIR, the significant impacts identified under the existing plus project scenario would be fully mitigated and no additional or other mitigation would be necessary.

4.8.10 SUMMARY OF SIGNIFICANCE FINDINGS

Table 4.8-28, Mitigated Arterial and Freeway Segments - Long-Range Build-out Conditions - Volume/ Capacity Ratios, depicts the individual roadway segments significantly impacted by the Project alternatives, the number of lanes that would result with implementation of the proposed mitigation, and the resulting v/c ratios. As shown on **Table 4.8-28**, implementation of the proposed mitigation measures, in combination with implementation of other roadway improvements made necessary by cumulative development, would result in each of the impacted roadway segments operating at acceptable v/c and volume density ratios under the proposed Project and each alternative as a result of the increased capacity attributable to the roadway improvement mitigation. The increased capacity would accommodate the increased traffic and, thereby, reduce impacts to a level below significant. The one exception is Alternative 1, the No Action/No Project Alternative. As discussed in **Subsection 4.8.8.1**, under Alternative 1, deficient roadway conditions would continue at the following twelve locations: Via Princessa east of Santa Clarita Road, I-5 south of Hasley (SB), I-5 south of SR-126 (SB), I-5 south of Rye Canyon (SB), I-5 south of Magic Mountain (SB), I-5 south of Valencia (NB and SB), I-5 south of McBean (NB and SB), I-5 south of Lyons (NB and SB), and I-5 south of Calgrove (SB).[511]

[511] The resulting v/c ratio for Via Princessa east of Santa Clarita Road is depicted on **Table 4.8-28** because this segment would be significantly impacted by the Project alternatives and, therefore, is included within the table; the other road segments that would operate under deficient conditions under the No Action/No Project Alternative are not significantly impacted by the Project alternatives and, accordingly, not included on the table. **Appendix 4.8** includes the complete listing of v/c ratios for all study area road segments, including those segments that would operate at deficient conditions under the No Action/No Project Alternative.

Los Angeles Daily News Article "Rail Plans Picking Up Steam Proposal Links Santa Clarita, Port Hueneme"
September 24, 2007

RAIL PLANS PICKING UP STEAM PROPOSAL LINKS SANTA CLARITA, PORT HUENEME.

Date: *Sep 24, 2007*
Words: *1247*
Publication: *Daily News (Los Angeles, CA)*
ISSN: *0279-8026*

Byline: PATRICIA FARRELL AIDEM

Staff Writer

SANTA CLARITA -- An ambitious plan to re-establish a passenger-rail line between Santa Clarita and the Ventura coast faces serious hurdles, although all sides agree an alternative is needed to the region's increasingly congested freeways.

A draft study commissioned in part by the Ventura County Transportation Commission recommends extending the existing east-west Santa Paula line to the north-south railroad that runs through Santa Clarita. There, planners hope to reclaim an abandoned rail corridor through the city's commercial and business hub.

"The most important thing is that we think about it and do some long- range planning so maybe in 30 years, if we start reserving the right-of-way now, we can do something," said Kerry Forsythe, the commission's deputy director.

For several months, commission executives have been talking up their plan with the various stakeholders to collect comments before delivering the results in October to the full panel.

The proposal got a lukewarm reception during a recent session with the Santa Clarita City Council, which objected to the route through the city's densely developed town center area.

"It's irrational," Councilwoman Laurene Weste said. "I support rail travel, but to wipe out a lifestyle, to literally impact hundreds of millions of dollars of real estate, I can't see it working."

Still, the city where commuters face a gridlocked Interstate 5 heading south to jobs joins Ventura County in its quest to study a new passenger rail spur to connect with its existing Metrolink line.

"Santa Clarita has some very important issues," said Bob Huddy, the transportation program manager for the Southern California Association of Governments. "When you put a new line in, it's a difficult proposition. Where does the alignment go? ... The grade crossings?

"Those are large issues that have to be overcome."

But what's at stake is far too important to drop because it's difficult to map an alignment, Huddy said. The rail line could carry up to 7,000 commuters a day who otherwise would head south through the Newhall Pass to the San Fernando Valley.

The line also would bolster commuter service to Ventura and Oxnard where jobs are plentiful but affordable housing scarce, said Mark Schneipp, chief economist of the California Economic Forecast at the University of California, Santa Barbara.

"You have a serious housing problem in Ventura County," Schneipp said. "We're looking at Santa Clarita to fill jobs in Ventura and Oxnard."

There are also some 60,000 homes planned in the greater region -- including the 21,000-home Newhall Ranch project, an even larger development near Gorman and smaller developments in Fillmore and Santa Paula, Schneipp said. Most of those residents will have to travel one way or the other to job centers.

$450 million project

The 211-page draft study, financed by the state Department of Transportation, urges preservation and maintenance of the right-of-way and plans for an extended rail.

The plan is to create a 52-mile corridor at an estimated cost of up to $450 million in 2005 dollars. That amounts to some $7.2 million per mile, said Ginger Gherardi, the VCTC's executive director.

Union Pacific currently operates three weekly round-trip freight trains on the line from Port Hueneme to Santa Paula.

Metrolink's Ventura County Line offers weekday commuter service from Ventura to Union Station in Los Angeles. Amtrak carries passengers through Ventura, another potential link that could entice Santa Clarita.

And in Fillmore, the Fillmore and Western Railway runs recreational excursion trains -- a murder-mystery series and holiday trips to a pumpkin patch and cut-your-own Christmas tree farm. That portion of the rail also is used frequently for filming.

The tracks now cross the farmland of Ventura County and roughly follow the bucolic Santa Clara River Valley. The VCTC has money this year to rebuild the line through Piru to the Ventura County line, where The Newhall Land and Farming Co. must reserve a 35-foot rail corridor through its Newhall Ranch project.

The main complication lies in extending tracks east across Interstate 5 and rebuilding a long-abandoned rail line through Santa Clarita to the city's main Metrolink station.

Weste suggested ending the line west of Santa Clarita -- perhaps near Newhall Ranch -- then using shuttles to transport passengers to the Metrolink station.

An elevated train "like a Disneyland tram" might also be a possibility, though extremely expensive, Councilman Frank Ferry said.

The refurbished line would be highlighted by a historic station in Saticoy -- now used as a lumber yard -- and a century-old rail bridge that was salvaged and returned to Piru by the late Scott Newhall.

Once the line is rehabilitated and extended, stops are planned in Oxnard, Ventura, the farm town of Saticoy, Santa Paula, Fillmore, Piru, Newhall Ranch and Valencia's mall before the Santa Clarita station.

Freight is an issue

Whether the rail line would carry freight trains is a sticking point. Santa Clarita, Los Angeles County and Newhall Land oppose running freight along their stretch of the line.

"No freight," Councilman Ferry said. "You can't have freight going by the mall, through the center of town." Restricting freight would be within the rights of the city or county jurisdiction, Forsythe said.

The report does peg the rail as suitable for up to three daily freight runs from Port Hueneme to Santa Clarita, but Forsythe said the focus will be on passenger service.

The final report, he said, will put less emphasis on freight. Yet much of the federal funding identified in the draft study would require the tracks be used for freight, a move Los Angeles County is eyeing carefully, said Michael Cano, transportation deputy for Supervisor Michael D. Antonovich.

"We support looking at the idea of a commuter-only rail on this line, but we're very wary of usage of this line for freight or entwining this project with any financial commitments that would open the door for freight," Cano said.

To fund acquisitions, development and maintenance, the study identified dozens of potential revenue sources, primarily federal, state and regional transportation money. It even included some unusual possibilities ranging from Defense Department funding should the line be used by the military and private naming rights for the system, its stations and individual cars.

SCAG and the VCTC say the pros of the system are multiple and center on planning to efficiently move an influx of commuters, travelers and possibly freight.

In northwestern Los Angeles County, some 50,000 more homes -- including the Newhall Ranch project -- are planned but no real solutions exist to ease traffic.

"Over time, once you get that corridor on a map, you can make decisions," Forsythe said. "We need to look at what's there today and maintain that, then look at what we can do to make this work."

pat.aidem(at)dailynews.com

(661) 257-5251

CAPTION(S):

6 photos, box, 2 maps

Photo:

(1 -- color) A train makes its way toward Ventura after leaving the Fillmore train depot. There is a proposal to upgrade the Santa Paula branch line, possibly extending it into the Santa Clarita Valley.

(2 -- color) A draft study proposes extending the existing east-west Santa Paula line to the north-south line that runs through Santa Clarita. The plan would include restoring historic bridges. An abandoned rail corridor would be reclaimed.

John Lazar/Staff Photographer

(3) Historic Saticoy Station

(4) Abandoned Santa Clara River trestle

(5) Santa Clarita MetroLink Station

(6) Fillmore Depot

Box/Map:

Proposed rail line

Source: Ventura County Transportation Commission

John Lazar/L.A. Daily News Staff Photographer

Warren Huskey/Staff Artist

Map:

Possible route

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Excerpt from the Mission Village Draft EIR –
Mitigation Measures, Section 4.5

MV 4.5-13~~9~~ The project applicant, or the current owner of the development, shall monitor the following intersections for the installation of traffic signals once the Mission Village elementary school is opened and every year thereafter for up to five years after the certificate of occupancy of the last residential unit of Mission Village (excluding age restricted/qualified residential units and residential units within the Saugus School District) is issued and the full planned occupancy of 900 students for the school is reached (or fewer students if official documentation from the Newhall School District shows no increase in student enrollment for five consecutive school years):

- A Street at B Street/CC Drive;
- Q1 Street at A Street; and
- HH Street/R Street at A Street.

The referenced monitoring shall include the submittal of annual traffic signal warrant analyses to the County Department of Public Works for review and approval. At the time, if any, traffic signals are warranted, the applicant shall enter into a secured agreement/bond with Public Works to guarantee the installation of traffic signals, design the necessary striping and signal plans, and construct the signals to the satisfaction of Public Works. Any security for the traffic signal construction submitted will be returned once the construction is completed to the satisfaction of Public Works or at the expiration of the referenced monitoring program.

MV 4.5-14~~0~~ The project shall install a traffic signal at the following location after detailed signing and striping plans and traffic signal plans have been reviewed and approved by the County Department of Public Works:

- Westridge Parkway at Old Rock Road.

MV 4.5-15~~1~~ Prior to recordation of the first tract map in Mission Village, a revised Westside Roadway Phasing Analysis (RPA), prepared and submitted by the project applicant, shall be reviewed and approved by the County Department of Public Works (DPW). This RPA shall update the previously approved RPA and identify the necessary improvements and residential unit thresholds (timing requirements) for those improvements for Mission Village based on then-current phasing assumptions. The revised RPA shall include actual traffic counts on newly constructed roadways and/or at intersections where traffic mitigation measures have been carried out. Subsequent updates of the RPA shall be prepared based on the following development thresholds:

i) 3,176 residential units and 13.17 million square feet non-residential uses;

ii) 6,066 residential units and 14.87 million square feet non-residential uses;

iii) 14,515 residential units and 16.00 million square feet non-residential uses;

iv) 21,373 residential units and 17.65 million square feet non-residential uses;

v) 25,001 residential units and 19.78 million square feet non-residential uses; and

vi) 27,615 residential units and 22.08 million square feet non-residential uses.

In addition, the applicant shall submit to DPW for review and approval an annual report, due January 30th for the prior year, identifying the number and type of residential and commercial building permits issued for Mission Village (and any other development within the Westside Santa Clarita area). The purpose of this annual report will be to track development progress against the thresholds identified in the AFA Traffic Impact Analysis and the then-current RPA.

c. Post-Mitigation Level of Significance

Table 4.5-21, ICU and LOS Summary – With Project Conditions with Mitigation, depicts the level of service for each of the significantly impacted intersections, before and after implementation of the recommended mitigation measures. **Table 4.5-21** shows that, under project buildout conditions, implementation of the mitigation measures would fully mitigate the project's impacts.

Specific to the Commerce Center Drive/SR-126 intersection (Intersection 94), which is to be re-constructed as a grade-separated interchange, a project report for the interchange has been completed and as of this writing final design plans are being prepared. The interchange project will reconstruct the following three intersections: (1) Commerce Center Drive at Henry Mayo Drive (Intersection 81); (2) Commerce Center Drive at SR-126 Eastbound Ramps (Intersection 82); and (3) Commerce Center Drive at SR-126 Westbound Ramps (Intersection 83). Once the interchange project is completed, each of the three intersections will operate at LOS D or better under long-range buildout conditions that include the proposed Mission Village project. (See EIR **Appendix 4.5**, AFA Traffic Impacts Analysis, Appendix A.)

10. LONG-RANGE (2035) CUMULATIVE IMPACTS

a. Introduction

As discussed in detail in this EIR, **Section 3.0, Cumulative Impact Analysis Methodology,** Section 15130(b) of the *State CEQA Guidelines* allows two methods for identifying the future projects to be considered when assessing cumulative impacts. These two methods involve:

> *(a) A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or*
>
> *(b) A summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document which has been adopted or certified which described or evaluated regional or areawide conditions contributing to the cumulative impact.*

Traffic Mitigation Agreement – Fair Share Payment Agreement Between Department of Transportation and Newhall Land

TRAFFIC MITIGATION AGREEMENT

FAIR SHARE PAYMENT

THIS AGREEMENT, entered into effective this ____ day of _____, 2011 by and between the State of California, acting by and through its Department of Transportation, hereinafter referred to as "Department," and Newhall Land, hereinafter referred to as "Developer," and collectively the "Parties" without regard for number or gender.

RECITALS

A. WHEREAS, Developer has proposed to develop VTTM 53108, Landmark Village, located in the County of Los Angeles, hereinafter referred to as "Proposed Development," which will be constructed on a piece of real property, which is more particularly described in Exhibit "A," attached hereto and incorporated herein by this reference; and

B. WHEREAS, the County of Los Angeles approved the Landmark Village Environmental Impact Report for the Proposed Development on , hereinafter referred to as "EIR," which determined that the Proposed Development would result in potential adverse cumulative impacts to Interstate 5 (I-5), hereinafter referred to as "Cumulative Impacts"; and

C. WHEREAS, the "EIR" has mitigation conditions, LV-4.7-17 through LV-4.7-20, that require "Developer" to contribute its fair-share of costs to "Department" to mitigate the "Cumulative Impacts"; and

D. WHEREAS, under those circumstances in which Developer will undertake mitigation improvements to Caltrans facilities (i.e., SR-126) relative to development of the Newhall Ranch Specific Plan, Department and Developer will enter into a Highway Improvement Agreement, as applicable; and

E. WHEREAS, Department will construct an improvement project for the I-5 freeway from State Route 14 (SR-14) to Parker Road, which improvements will add capacity to the freeway by adding high occupancy vehicle (HOV) lanes and truck lanes, hereinafter referred to as "Improvements"; and

F. WHEREAS, a Landmark Village (Newhall Ranch) I-5 Share Calculations memo was prepared on November 1, 2010 to determine the Proposed Development's Share of the unfunded portion of the Improvements (Shares Analysis); and

G. WHEREAS, based on that Shares Analysis, the Parties have calculated the Proposed Development's proportionate share of the unfunded portion of the total anticipated costs of Improvements, which share is estimated to be $625,661, hereinafter referred to as "Funds," as shown on the attached Exhibit "B"; and

H. WHEREAS, Developer desires to mitigate for the Proposed Development Cumulative Impacts by paying Funds to Department.

NOW THEREFORE, for good and valuable consideration, the receipt and adequacy of which are hereby acknowledged, the parties hereby agree as follows:

1. Developer agrees to pay to the Department, at time of issuance of building permit, the Funds which represent Developer's pro-rata share of the Improvements required to mitigate Cumulative Impacts to I-5 as determined in the Shares Analysis.

2. Department hereby acknowledges that upon payment in full of Funds by Developer at time of issuance of building permit, Developer will have satisfied its mitigation obligation to Department for Proposed Development Cumulative Impacts.

3. Said Funds shall remain in the State Highway Account assigned to Improvements until such time as the balance of other funds necessary to construct the required Improvements is secured.

4. Department agrees that the Funds paid by Developer pursuant to the terms of this Agreement shall be used for the purposes of constructing the required Improvements to I-5 between SR-14 and Parker Road.

5. All obligations of Department under the terms of this Agreement are subject to the appropriation of resources by the Legislature, State Budget Act authority, and the allocation of resources by the California Transportation Commission.

6. This Agreement may be executed in several counterparts and all counterparts so executed shall constitute one agreement that shall be binding on all of the parties, notwithstanding that all of the Parties are not signatory to the original or the same counterpart.

7. This Agreement shall expire upon completion of the subject Improvements to I-5.

IN WITNESS WHEREOF, THE Parties hereto have executed this Agreement as set forth below.

CALIFORNIA DEPARTMENT OF TRANSPORTATION

By: _____.
Designated District Official

THE NEWHALL LAND AND FARMING COMPANY, (A California Limited Partnership), a California limited partnership

By: NWHL GP LLC, a Delaware limited liability company, its General Partner

By: LandSource Holding Company, LLC, a Delaware limited liability company, its Sole Member

By: Newhall Land Development, LLC, a Delaware limited liability company, its Sole Member

By: Newhall Holding Company, LLC, a Delaware limited liability company, its Manager

By: _____
Name: Steven D. Zimmer
Title: Executive Vice President

Approved as to Form and Procedure

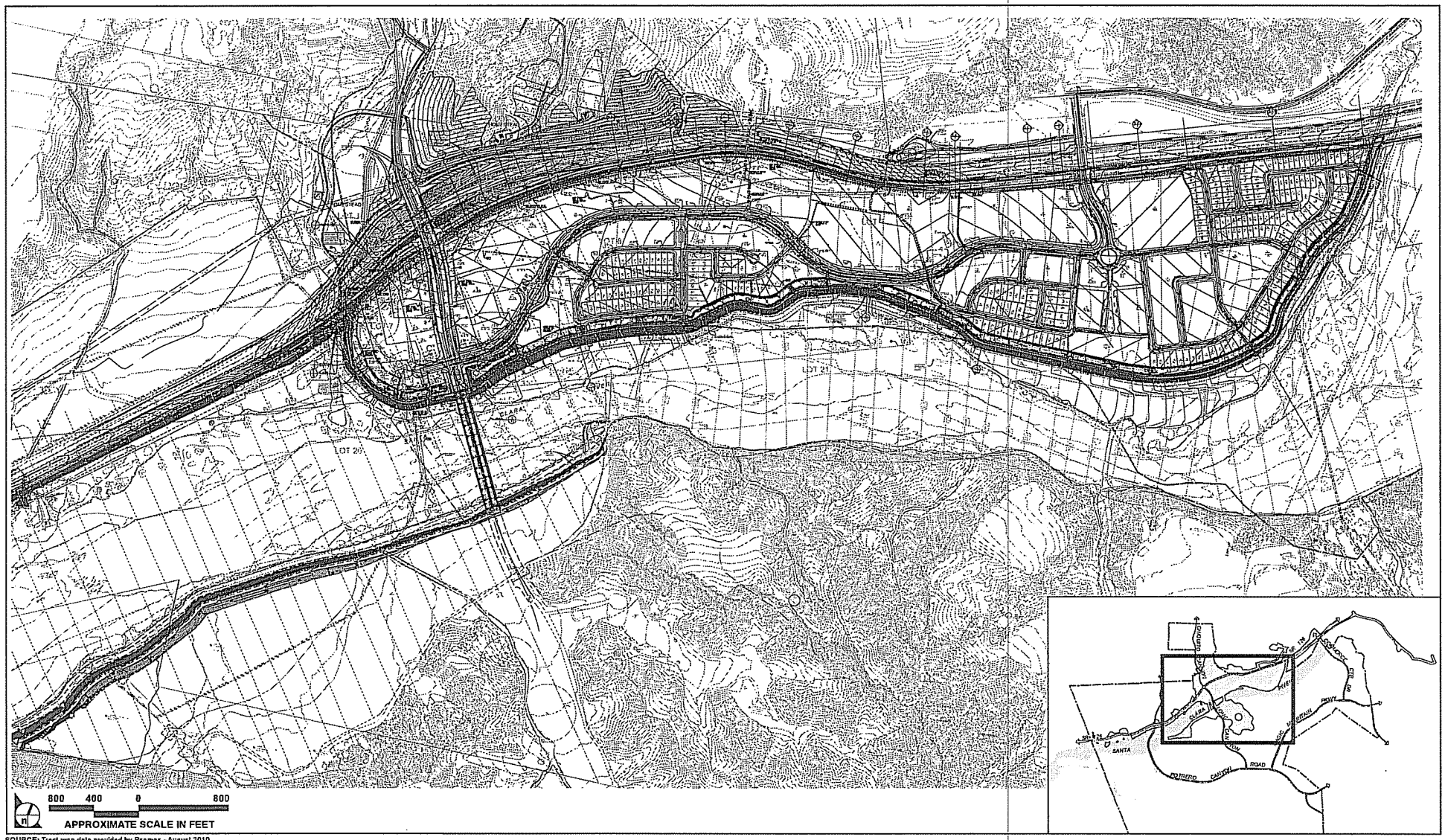
_____
Attorney, State of California
Department of Transportation

Exhibit "A"

Landmark Village

Parcels 8, 9, 10 and portions of Parcels 7, 20, 21 of Parcel Map No. 24500-01, PMB 293-34/67.

Exhibit "A" - Page 2



SOURCE: Tract map data provided by Psomas - August 2010
Graphics prepared by Impact Sciences, Inc. – August 2010

FIGURE F-2

Revised Landmark Village Vesting Tentative Tract Map

32-92-08/10

Exhibit "B"

Table 1: I-5 Freeway Mitigation Share Calculations for Landmark Village

Location	Total Project Volumes[1]	Net Change due to Project[2]	Project Trips Subject to Mitigation Cost[3]	Existing Volumes (2010)	Total Future Volumes (2035)	Net Increase (Net Future Trips)
	PM Peak Hour Traffic Volumes					
1. I-5 btwn Parker & Hasley Cyn	141	58	100	5,500	17,000	11,500
2. I-5 btwn Hasley Cyn & SR-126	142	52	97	7,100	18,600	11,500
3. I-5 btwn SR-126 & Rye Canyon	249	101	175	8,600	17,200	8,600
4. I-5 btwn Rye Canyon & Magic Mtn	249	55	152	9,800	18,400	8,600
5. I-5 btwn Magic Mtn & Valencia	191	31	111	10,800	18,000	7,200
6. I-5 btwn Valencia & McBean	167	22	95	12,400	19,300	6,900
7. I-5 btwn McBean & Pico/Lyons	144	10	77	13,000	18,400	5,400
8. I-5 btwn Pico/Lyons & Calgrove	193	29	111	13,300	18,900	5,600
9. I-5 btwn Calgrove & SR-14	206	94	150	13,300	19,200	5,900
Total			*1,067* (A)			*71,200* (B)

(C) Cost of Mitigation Measure (Unfunded Portion):	***$65,400,000.00***
(D) Cost per Future Trip (C/B):	***$918.54***
(E) Cost to Landmark Village (Gross) (A x D):	***$980,081.46***
(F) NLF Expenditures for I-5 PA/ED and PS&E:	***$4,400,000.00***
(G) Proportion Credited to Landmark Village (F X Landmark ADT/Total Newhall ADT = F X 41/509)[4]:	***$354,420.43***
Cost to Landmark Village (Net) (E – G):	***$625,661***

[1] Total project volumes obtained from a select-zone model run.
[2] Net change due to project obtained by subtracting a "no-project" model run from a "with-project" model run.
[3] Project Trips subject to mitigation cost = "Net Change due to Project" plus 1/2 of the remainder of total project volumes (2 + (1 – 2)/2).
[4] Landmark ADT = 41,000; Total Newhall Westside Project ADT = 509,000 (see Table 2).

2010 & 2035 Volume Source: Mission Village TIA (October 2010)

Los Angeles County Department of Public Works/City of Santa Clarita/Austin-Foust Associates, Inc., March 8, 2005, "Santa Clarita Valley Consolidated Traffic Model, 2004 Update and Validation"

SANTA CLARITA VALLEY CONSOLIDATED TRAFFIC MODEL

2004 Update and Validation

March 2005

Draft

SANTA CLARITA VALLEY CONSOLIDATED TRAFFIC MODEL

2004 Update and Validation

Prepared by:

County of Los Angeles Department of Public Works
in association with
City of Santa Clarita

Consulting Assistance:

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March 8, 2005

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Chapter 1.0
INTRODUCTION

This report describes the 2004 update and validation of the Santa Clarita Valley Consolidated Traffic Model (SCVCTM). The updates to the model are summarized, the results of a base year validation are presented, and examples of traffic forecast data are also given.

1.1 OVERVIEW

The SCVCTM is a traffic demand model for the Santa Clarita Valley area of Los Angeles County. Encompassing the City of Santa Clarita and surrounding portions of unincorporated County, it was designed as a sub-area extraction (from regional models) that could provide detailed traffic forecasting capability within its study area. The model has the capability for peak hour as well as average daily traffic (ADT) analysis, and is used by both the City and County as a forecasting tool for a variety of traffic studies in the valley. The model meets the consistency requirements of the Congestion Management Program (CMP).

The SCVCTM was originally prepared by the City and County in 1992 and has been used for a variety of applications since that time. A major update was made in 1995 and this 2004 update includes a number of enhancements as follows:

1. Updates to the land use databases (existing and future)
2. Updates to model relationships such as external trip distribution
3. Addition of post-processing procedures for link and intersection volumes

The third of these represents a significant enhancement to the modeling capability, substantially refining the peak hour intersection turn movement forecasting procedures.

As part of this update, a comprehensive validation was carried out to compare ADT and peak hour traffic forecasts for year 2004 against the corresponding ground counts. Statistical data is presented in this report to show the results of this 2004 model validation.

1.2 TRAFFIC MODEL OVERVIEW

Following the original model development work in 1992, an easily understandable guide to the model was prepared (Reference 1 at the end of this chapter). The material presented there is applicable to the updated model since no changes have been made to the overall model structure. The material contained in this update report is of a more technical nature, describing the modeling processes in some detail.

The SCVCTM model area is shown in Figure 1-1. For descriptive purposes, the modeling processes in the SCVCTM can be divided into five components:

1. Network Definition
2. Trip Generation
3. Trip Distribution
4. Traffic Assignment
5. Forecast Data Refinement (Post-Processing)

The network definition component of the model follows that of traditional traffic demand models with network definitions being designed to support the level of detail in the model area. The trip generation component uses land use data as input, with trips being generated by the application of ADT and peak hour trip generation rates. Trip generation is calculated in the form of vehicle trips and no specific mode choice capability is incorporated in the model at this time.

In the trip distribution component of the model, use is made of external cordon trips to forecast internal to external trips. Through trips are also added as part of the distribution process.

The traffic assignment component portion of the SCVCTM utilizes procedures that are sensitive to the capacity of the network. Both link and intersection capacity constraints are applied in the assignment process, and intersection turn movement penalties are also incorporated into the traffic assignment.

Material contained in the following chapter of this report focuses on the SCVCTM methodology, including descriptions of the procedures used for forecast data refinement. In Chapter 3.0, summary results from the base year validation run are given together with statistical comparisons between model and count data. Forecasts for the long-range version of the model are also presented, thereby providing an example of the SCVCTM forecasting capability.

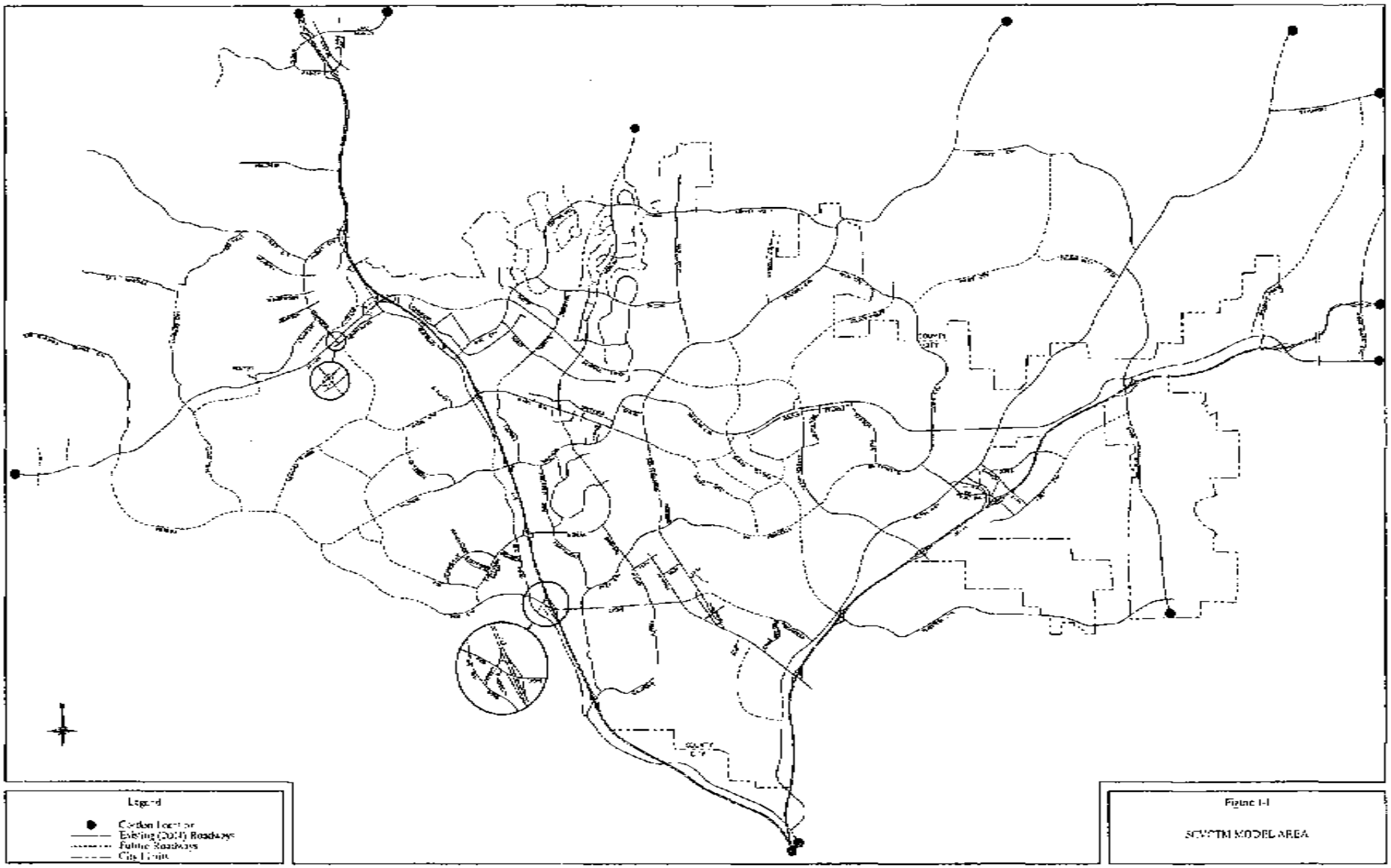


Figure 1-1

SCVCTM MODEL AREA

1.3 SCVCTM TECHNICAL NOTEBOOK

Detailed traffic model data pertaining to the SCVCTM, including traffic forecast results prepared from SCVCTM runs can be found in the SCVCTM Technical Notebook maintained by the County of Los Angeles Public Works Department and the City of Santa Clarita.

1.4 REFERENCES

1. "Santa Clarita Valley Consolidated Traffic Model Report," County of Los Angeles Department of Public Works, January, 1994.

2. "Santa Clarita Valley Consolidated Traffic Model, 1995 Update and Validation," Austin-Foust Associates, Inc., April 1995.

3. "National Cooperative Highway Research Program Technical Report 255 Highway Traffic Data for Urbanized Area Project Planning and Design," Transportation Research Board, 1982.

Chapter 2.0
TRAFFIC MODEL DESCRIPTION

This chapter contains a description of the SCVCTM. It is intended to provide an understanding of the model framework and of the principles and procedures embodied in the various model components.

2.1 MODEL STRUCTURE OVERVIEW

The overall model structure for the SCVCTM is illustrated in Figure 2-1 in flow chart form. Illustrated here are the five model components (highway network processing, trip generation, trip distribution, assignment, post-processing) and the interrelationships between each component.

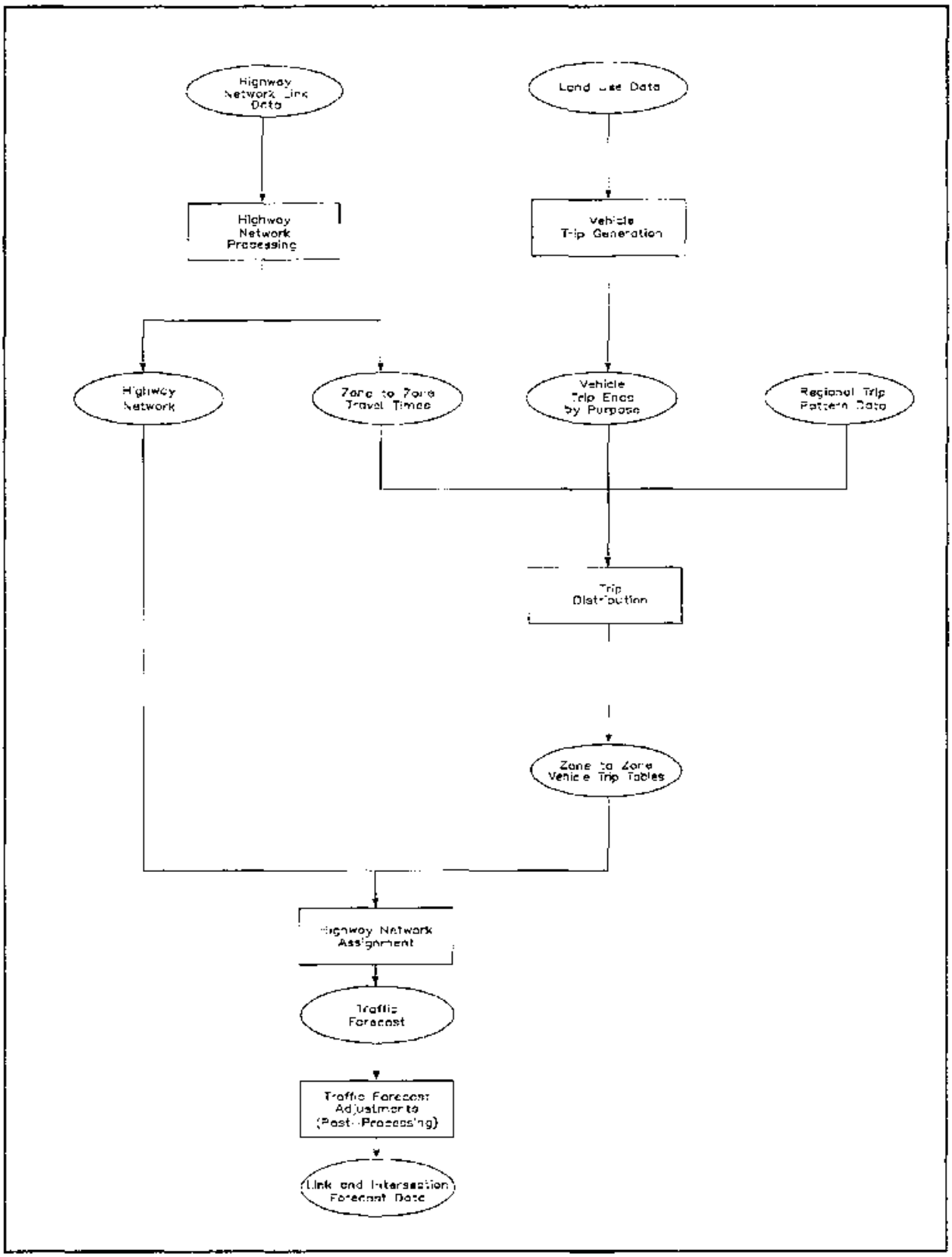
The trip generation procedure in the SCVCTM uses land use data as input. This is comprised of detailed information by floor area or acreage for various uses, and numbers of dwelling units by density classification. Trip generation rates are applied to the land use data to generate average daily traffic (ADT) tripends by trip purpose. The trip generation also creates peak hour trip generation tripends which are used after trip distribution to create peak hour trips.

The trip distribution process develops geographically defined travel patterns from the zonal trip generation estimates. The result is a set of zone-to-zone trips for the analysis area, including internal to external trips and through trips. The next part of the forecasting process consists of trip assignment in which the geographically defined travel patterns are assigned to the highway network and the final step processes the raw model output into refined forecast data. The results are in the form of both ADT link volumes and peak hour intersection turn movements.

The following sections describe the basic relationships and steps in each of these five model components.

2.2 THE LINK-NODE NETWORK SYSTEM

Specially coded networks provide descriptions of the highway system in the traffic forecasting area. Coding of geographic link-node networks for the SCVCTM follows the general methodology used in traffic modeling work and the following explains the various procedures involved in network preparation.



Legend

Input and Output Data

Processing Step

Figure 2-1

SCVCTM MODEL STRUCTURE

2.2.1 Link Attributes

In addition to the basic link attributes such as distance and speed, each link is assigned a facility type designation and a link speed classification. The facility types are as follows:

1. Freeway
2. Major Highway
3. Secondary Highway (Rural)
4. Secondary Highway (Urban)
5. Limited Secondary Highway
6. Centroid Collector
7. Expressway
8. Freeway Ramp

The link speed classification attribute is used to differentiate between links of a particular facility type that may have different speed attributes because of signal spacing or other local differences. Five classifications are available for this speed differentiation purpose, and they are allocated according to such features as number of signalized intersections, side friction (e.g., driveways), and speed limits. The following section shows how speed differences are incorporated into these speed attribute categories.

2.2.2 Speeds and Capacities

Link speeds and capacities are allocated according to the link attributes noted above. They are assigned to the network links during the network processing component of the SCVCTM. A speed and capacity table is used to specify the link speed and capacity for each facility type, number of lanes, and speed classification combination.

The SCVCTM assignment procedure uses a separate assignment for each of three time periods: AM peak hour, PM peak hour, and off-peak. Capacity values hence represent the equivalent time represented by the particular time period. The SCVCTM speed and capacity table is shown in Table 2-1. Within each facility type, the link classifications have speed differentials of five miles per hour to enable locations with non-average speed characteristics to be coded as such (examples are rural areas with high speeds, and urban high side friction areas with low speeds).

Table 2-1

SCVCTM NETWORK SPEED AND CAPACITY TABLE

Facility Type	# of Lanes	Speed By Link Classifications					One Hour Capacity	Off Peak Capacity
		1	2	3	4	5		
1	1-6	65	60	55	50	65	2,200	22,500
2	1-3	40	35	30	45	50	1,000	9,000
3	1-3	35	30	25	40	45	850	8,000
4	1-3	30	25	20	35	40	750	7,000
5	1-3	25	20	15	30	35	750	7,000
6	1	15	15	15	15	15	9,999[1]	99,999[1]
7	1-4	45	40	35	50	55	1,400	14,000
8	1-2	30	30	30	30	30	1,500	12,000

Facility Types:
1. Freeway
2. Major Highway
3. Secondary Highway (Rural)
4. Secondary Highway (Urban)
5. Limited Secondary Highway
6. Centroid Connector
7. Expressway
8. Freeway Ramp

Note: Capacities are per lane and are for one direction

[1] Centroid connector capacities are unrestricted

2.2.3 Intersections

The SCVCTM derives peak hour turn movement volumes for selected intersections. These intersections are entered into the model by means of an intersection specification file which denotes the network links on each leg of the intersection. Lane configurations for these intersections are also specified for use in the intersection volume/capacity feature of the SCVCTM (see discussion later in this chapter).

The coding specification for intersections is that the north-south street is named first, followed by the east-west street. This convention follows through into the post processing and level of service calculations so that turn movement references (northbound left, eastbound through, etc.) are clearly understood.

2.3 TRIP GENERATION

The SCVCTM generates trips from specific land use data tabulated for each traffic zone. Two sets of tripends are produced. One gives AM and PM peak hour by direction and the other gives ADT trips according to the following five trip purposes:

1. Home to Work (H-W)
2. Home to Shopping (H-S)
3. Home to Other (H-O)
4. Other to Work (O-W)
5. Other to Other (O-O)

The trip generation for each purpose is in the form of ADT vehicle "tripends" separated into "productions" and "attractions". Productions represent the trip generation at the resident end of home-based trips or the origins of non-home-based trips. Attractions represent the non-resident end of home-based trips or the destination end of non-home-based trips. Productions are often denoted as "P's" and attractions as "A's." The interaction between P's and A's creates the travel patterns that, in turn, produce the traffic demand on the circulation system. Productions and attractions are not the same as origins and destinations, and conversion to the latter is carried out in a later stage of the model.

Table 2-2 lists the land use trip rates for AM and PM peak hours together with the total ADT rate. Table 2-3 lists the factors used to split the ADT trip generation into productions and attractions by purpose.

Table 2-2

ADT AND PEAK HOUR TRIP RATE SUMMARY

Land Use	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
1. Single Family (<1du/ac)	DU	.29	.67	.96	.84	.36	1.20	9.90
2. Single Family (1-5du/ac)	DU	.19	.56	.75	.64	.37	1.01	9.90
3. Single Family (6-10du/ac)	DU	.19	.56	.75	.64	.37	1.01	9.90
4. Condominium/Townhouse	DU	.10	.48	.58	.47	.26	.73	8.00
5. Apartment	DU	.08	.43	.51	.41	.21	.62	6.90
6. Mobile Home	DU	.08	.32	.40	.35	.21	.56	6.90
7. Senior (Active)	DU	.08	.12	.20	.16	.10	.26	3.71
10. Commercial Center (>30ac)	TSF	.47	.30	.77	1.64	1.78	3.42	40.06
11. Commercial Center (10-30a)	TSF	.73	.47	1.20	2.38	2.58	4.96	54.06
12. Commercial Center (<10ac)	TSF	1.09	.69	1.78	3.32	3.60	6.92	85.06
13. Commercial Shops	TSF	.72	.48	1.20	1.80	1.80	3.60	37.06
14. Hotel	ROOM	.34	.22	.56	.32	.29	.61	8.23
15. Sit-Down Restaurant	TSF	4.82	4.45	9.27	6.52	4.34	10.86	130.34
16. Fast Food Restaurant	TSF	25.43	24.43	49.86	17.41	16.07	33.48	496.12
17. Movie Theater	SEAT	.00	.00	.00	.05	.02	.07	1.76
18. Health Club	TSF	.96	.64	1.60	2.16	1.44	3.60	40.00
19. Car Dealership	TSF	1.61	.60	2.21	1.12	1.68	2.80	37.5
20. Elementary/Middle School	STU	.26	.20	.46	.08	.09	.17	1.45
21. High School	STU	.32	.14	.46	.06	.09	.15	1.79
22. College	STU	.13	.01	.14	.07	.14	.21	1.54
23. Hospital	TSF	.71	.26	.97	.22	.70	.92	16.8
24. Library	TSF	.76	.30	1.06	3.40	3.69	7.09	84.98
25. Church	TSF	.39	.33	.72	.36	.30	.66	9.30
26. Day Care	STU	.43	.38	.81	.40	.46	.86	4.52
30. Industrial Park	TSF	.55	.10	.65	.13	.52	.65	6.00
31. Business Park	TSF	1.20	.23	1.43	.30	.99	1.29	10.20
32. Manufacturing/Warehouse	TSF	.56	.17	.73	.27	.47	.74	5.10
33. Science/Research	TSF	1.03	.21	1.24	.16	.92	1.08	10.20
34. Utilities	TSF	.00	.00	.00	.00	.00	.00	2.38
35. Regional Post Office	TSF	.20	.15	.35	.15	.15	.30	5.00
40. Commercial Office	TSF	1.55	.19	1.74	.21	1.29	1.50	11.56
41. High-Rise Office	TSF	1.37	.19	1.56	.25	1.24	1.49	10.88
42. Medical Office	TSF	1.94	.49	2.43	.99	2.67	3.66	34.20
43. Post Office	TSF	4.17	3.85	8.02	5.50	5.29	10.79	108.19
50. Golf Course	AC	.15	.06	.21	.10	.20	.30	7.96
51. Developed Park	AC	.00	.00	.00	.03	.04	.07	2.60
52. Undeveloped Park	AC	.00	.00	.00	.00	.00	.00	.50

(continued)

Table 2-2 (continued)
ADT AND PEAK HOUR TRIP RATE SUMMARY

Land Use	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
53. Wayside Honor Ranch	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
54. Six Flags Magic Mtn	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
55. Travel Village	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
56. CHP Office	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
57. Agua Dulce Airport	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
58. Landfill	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
59. Cemex	SG	3.60	3.75	7.35	2.00	2.25	4.25	100.00

Abbreviations:
DU – dwelling unit
TSF – thousand square feet
Stu – student
AC – acre
SG – special generator

Table 2-3

ADT TRIP RATE AND P&A SPLITTING FACTOR SUMMARY

Land Use Type	Units	ADT Tripend Rate	Productions/ Attractions	Splitting Factors H-W	H-S	H-O	O-W	O-O	Total	P&A Total
1. Single Family (<1du/ac)	DU	9.9	P's	.22	.15	.27	.02	.11	.77	
			A's	.00	.00	.10	.02	.11	.23	1.00
2. Single Family (1-5du/ac)	DU	9.9	P's	.22	.15	.27	.02	.11	.77	
			A's	.00	.00	.10	.02	.11	.23	1.00
3. Single Family (6-10du/ac)	DU	9.9	P's	.22	.15	.27	.02	.11	.77	
			A's	.00	.00	.10	.02	.11	.23	1.00
4. Condominium/ Townhouse	DU	8	P's	.20	.17	.34	.02	.09	.82	
			A's	.00	.00	.07	.02	.09	.18	1.00
5. Apartment	DU	6.9	P's	.20	.17	.34	.02	.09	.82	
			A's	.00	.00	.07	.02	.09	.18	1.00
6. Mobile Home	DU	6.9	P's	.20	.17	.34	.02	.09	.82	
			A's	.00	.00	.07	.02	.09	.18	1.00
7. Senior (Active)	DU	3.71	P's	.05	.22	.41	.02	.10	.80	
			A's	.00	.00	.08	.02	.10	.20	1.00
10. Commercial Center (>30ac)	TSF	40.06	P's	.00	.00	.00	.03	.25	.28	
			A's	.09	.20	.15	.03	.25	.72	1.00
11. Commercial Center (10-30a)	TSF	54.06	P's	.00	.00	.00	.03	.25	.28	
			A's	.09	.20	.15	.03	.25	.72	1.00
12. Commercial Center (<10ac)	TSF	85.06	P's	.00	.00	.00	.03	.30	.33	
			A's	.06	.15	.13	.03	.30	.67	1.00
13. Commercial Shops	TSF	37.06	P's	.00	.00	.00	.03	.30	.33	
			A's	.06	.15	.13	.03	.30	.67	1.00
14. Hotel	Room	8.23	P's	.00	.00	.00	.06	.18	.24	
			A's	.12	.00	.40	.06	.18	.76	1.00
15. Sit-Down Restaurant	TSF	130.34	P's	.00	.00	.00	.06	.24	.30	
			A's	.04	.00	.36	.06	.24	.70	1.00
16. Fast Food Restaurant	TSF	496.12	P's	.00	.00	.00	.07	.31	.38	
			A's	.01	.00	.23	.07	.31	.62	1.00
17. Movie Theater	Seat	1.76	P's	.00	.00	.00	.00	.31	.31	
			A's	.08	.00	.30	.00	.31	.69	1.00
18. Health Club	TSF	40	P's	.00	.00	.00	.01	.25	.26	
			A's	.06	.00	.42	.01	.25	.74	1.00
19. Car Dealership	TSF	37.5	P's	.00	.00	.00	.03	.25	.28	
			A's	.08	.21	.15	.03	.25	.72	1.00
20. Elementary/ Middle School	STU	1.45	P's	.00	.00	.00	.00	.03	.03	
			A's	.10	.58	.26	.00	.03	.97	1.00
21. High School	STU	1.79	P's	.00	.00	.00	.00	.03	.03	
			A's	.10	.40	.44	.00	.03	.97	1.00
22. College	STU	1.54	P's	.00	.00	.00	.00	.23	.23	
			A's	.06	.00	.48	.00	.23	.77	1.00

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Table 2-3 (continued)
ADT TRIP RATE AND P&A SPLITTING FACTOR SUMMARY

Land Use Type	Units	ADT Tripend Rate	Productions/ Attractions	Splitting Factors H-W	H-S	H-O	O-W	O-O	Total	P&A Total
23. Hospital	TSF	16.8	P's	.00	.00	.00	.00	.05	.05	
			A's	.32	.00	.58	.00	.05	.95	1.00
24. Library	TSF	84.98	P's	.00	.00	.00	.09	.17	.26	
			A's	.16	.00	.32	.09	.17	.74	1.00
25. Church	TSF	9.3	P's	.00	.00	.00	.05	.10	.15	
			A's	.35	.00	.35	.05	.10	.85	1.00
26. Day Care	STU	4.52	P's	.00	.00	.00	.00	.03	.03	
			A's	.10	.00	.84	.00	.03	.97	1.00
30. Industrial Park	TSF	6	P's	.00	.00	.00	.07	.21	.28	
			A's	.39	.00	.05	.07	.21	.72	1.00
31. Business Park	TSF	10.2	P's	.00	.00	.00	.07	.21	.28	
			A's	.39	.00	.05	.07	.21	.72	1.00
32. Manufacturing/ Warehouse	TSF	5.1	P's	.00	.00	.00	.07	.21	.28	
			A's	.39	.00	.05	.07	.21	.72	1.00
33. Science/Research	TSF	10.2	P's	.00	.00	.00	.07	.21	.28	
			A's	.39	.00	.05	.07	.21	.72	1.00
34. Utilities	TSF	2.38	P's	.00	.00	.00	.09	.17	.26	
			A's	.19	.00	.29	.09	.17	.74	1.00
35. Regional Post Office	TSF	5	P's	.00	.00	.00	.07	.21	.28	
			A's	.39	.00	.05	.07	.21	.72	1.00
40. Commercial Office	TSF	11.56	P's	.00	.00	.00	.11	.18	.29	
			A's	.27	.00	.15	.11	.18	.71	1.00
41. High-Rise Office	TSF	10.88	P's	.00	.00	.00	.11	.18	.29	
			A's	.27	.00	.15	.11	.18	.71	1.00
42. Medical Office	TSF	34.2	P's	.00	.00	.00	.03	.26	.29	
			A's	.14	.00	.28	.03	.26	.71	1.00
43. Post Office	TSF	108.19	P's	.00	.00	.00	.09	.22	.31	
			A's	.15	.00	.23	.09	.22	.69	1.00
50. Golf Course	AC	7.96	P's	.00	.00	.00	.00	.27	.27	
			A's	.08	.00	.38	.00	.27	.73	1.00
51. Developed Park	AC	2.6	P's	.00	.00	.00	.00	.12	.12	
			A's	.01	.00	.75	.00	.12	.88	1.00
52. Undeveloped Park	AC	0.5	P's	.00	.00	.00	.00	.12	.12	
			A's	.01	.00	.75	.00	.12	.88	1.00
53. Wayside Honor Ranch	SG	100	P's	.00	.00	.00	.00	.17	.17	
			A's	.33	.00	.33	.00	.17	.83	1.00
54. Six Flags Magic Mtn	SG	100	P's	.00	.00	.00	.01	.18	.19	
			A's	.15	.00	.47	.01	.18	.81	1.00
55. Travel Village	SG	100	P's	.00	.00	.00	.01	.25	.26	
			A's	.06	.00	.42	.01	.25	.74	1.00

(continued)

Table 2-3 (continued)
ADT TRIP RATE AND P&A SPLITTING FACTOR SUMMARY

Land Use Type	Units	ADT Tripend Rate	Productions/ Attractions	Splitting Factors H-W	H-S	H-O	O-W	O-O	Total	P&A Total
56. CHP Office	SG	100	P's	.00	.00	.00	.11	.18	.29	
			A's	.27	.00	.15	.11	.18	.71	1.00
57. Agua Dulce Airport	SG	100	P's	.00	.00	.00	.04	.18	.22	
			A's	.16	.00	.40	.04	.18	.78	1.00
58. Landfill	SG	100	P's	.00	.00	.00	.11	.18	.29	
			A's	.27	.00	.15	.11	.18	.71	1.00
59. Cemex	SG	100	P's	.00	.00	.00	.11	.18	.29	
			A's	.27	.00	.15	.11	.18	.71	1.00

Abbreviations: DU – dwelling unit
TSF – thousand square feet
Stu – student
AC – acre
SG – special generator

The base trip generation rates have been compiled from sources such as the Institute of Transportation Engineers (ITE) Trip Generation Manual, the County's Guidelines for the Preparation of Traffic Impact Studies, and case studies for uses unique to the area.

External trips in the SCVCTM are estimated by means of external cordon trip generation estimates. The cordon P's and A's are derived from travel pattern data and form one part of the zonal tripends by purpose derived as part of the trip generation component. After totaling the P's and A's for the complete model area, any differences between the total P's and A's for each purpose are balanced by adjusting the cordon values.

2.4 TRIP DISTRIBUTION

In this component of the travel forecasting model, the zonal trip productions and attractions by purpose are geographically distributed into zone-to-zone trip interchanges. The trip distribution process uses a statistical probability formula to calculate the interchange of trips between zones. This distribution formula is based upon behavioral tendencies of travelers and postulates the trip interchange between zones as being directly proportional to the relative attraction of each of the zones and inversely proportional to some function of the spatial separation (commonly called the gravity model). The measure of spatial separation is zone to zone network travel time. The relationship can be expressed as follows:

$$T_{ij} = \frac{P_i A_j F(tij)}{\sum A_j F(tij)}$$

where T_{ij} = Trips from zone i to zone j
P_i = Trip productions in zone i
A_j = Trip attractions in zone j
tij = Travel time from zone i to zone j
F(tij) = Distribution function value for tij

Trip productions and attractions are input from the trip generation component of the model. The output from this process comprises five zone to zone "trip tables," one for each purpose. The trips in each row of each trip table represent the production to attraction trips for that zone to zone interchange.

The distribution functions (or "friction factors" as they are sometimes called) were derived from the Southern California Association of Governments (SCAG) Regional Transportation Plan (RTP) regional model, and were specially calibrated for the SCVCTM which is a land use based model (vs. the socioeconomic based SCAG RTP regional model). For trip distribution, travel times are derived from the network zone to zone times using designated network speeds. Special cordon links are coded into the network to simulate the longer distances associated with external trips. The distribution functions used in the SCVCTM are listed in Appendix B.

The production to attraction trip tables do not have any directional meaning as far as actual trips are concerned. A conversion to origin-destination trips takes place to provide the necessary directionality, and at the same time to combine the five trip purposes. The process involves deriving origin-destination trips for the following three time periods:

1. AM Peak Hour
2. PM Peak Hour
3. Off-peak Period (remainder of the day)

Five attraction-production trip tables are first produced by "inverting" the five production-attraction trip tables into attraction-production format. Conversion factors are then used for deriving the peak period trip tables from the production-attraction trip tables as shown in Table 2-4.

Table 2-4

ORIGIN-DESTINATION CONVERSION FACTORS

	AM Peak			PM Peak			Off-Peak			Total		
Trip Purpose	**P-A**	**A-P**	**Total**	**P-A**	**A-P**	**Total**	**P-A**	**A-P**	**Total**	**P-A**	**A-P**	**Total**
Home to Work	.300	.004	.304	.030	.305	.335	.170	.191	.361	.500	.500	1.000
Home to Shopping	.060	.010	.070	.100	.140	.240	.340	.350	.690	.500	.500	1.000
Home to Other	.060	.010	.070	.100	.140	.240	.340	.350	.690	.500	.500	1.000
Other to Work	.030	.030	.060	.120	.120	.240	.350	.350	.700	.500	.500	1.000
Other to Other	.030	.030	.060	.120	.120	.240	.350	.350	.700	.500	.500	1.000

As a result of this time period separation process, the ADT volumes comprise a combination of the three individual time period assignments, thereby depicting the different travel patterns that occur during different times of the day.

The final step is to perform a matrix balancing process for each origin-destination trip table to ensure that the peak hour tripends for each zone exactly match the original peak hour trip generation estimates.

2.5 TRAFFIC ASSIGNMENT

The traffic assignment methodology used in the SCVCTM involves special procedures that respond to the detailed analysis needs of the study area. These include an incremental capacity constraint loading technique which adjusts link speeds in response to volume/capacity (V/C) ratios.

The network loading procedure is responsive to the effect of increased traffic on any part of the network and simulates the manner in which different drivers use different routes to travel from any given origin to destination. The assignment procedure involves incrementally loading portions of the total trip table during successive iterations and then adjusting network link speeds after each increment is loaded. In calculating the new link speeds, the cumulative loaded volumes are artificially expanded for the purpose of calculating the applicable V/C ratios. For example, the peak hour assignment uses eight iterations with a varying percentage of the trip table being assigned in each iteration. The incremental proportions used in the eight peak hour iterations and the five off-peak iterations are shown in Table 2-5.

Table 2-5

SCVCTM INCREMENTAL TRAFFIC ASSIGNMENT PARAMETERS

AM and PM Assignments			Off-Peak Assignments		
Iteration	Increment [1]	V/C Basis [2]	Iteration	Increment [1]	V/C Basis [2]
1	25%	65%	1	20%	80%
2	20%	75%	2	20%	90%
3	15%	85%	3	20%	100%
4	10%	95%	4	20%	100%
5	10%	100%	5	20%	100%
6	10%	100%	--	--	--
7	5%	100%	--	--	--
8	5%	100%	--	--	--

[1] Proportion of the total trips (overall trip table) assigned during this iteration.
[2] Inflated proportion of assigned total trips assumed for the purpose of calculating link V/C ratios.

In the SCVCTM, the speed assumptions reflect the V/C ratios on individual links. During the assignment procedure, speeds are adjusted according to link V/C ratios during each assignment iteration. In addition, individual intersection turn movement penalties are applied. The values used were derived during model calibration which involved calculating each intersection V/C value, examining the capacity

utilization of each turn movement, and then assigning a turn movement penalty. The set of turn penalties are then used as the basis for all forecasting runs of the model.

2.6 FORECAST DATA REFINEMENT

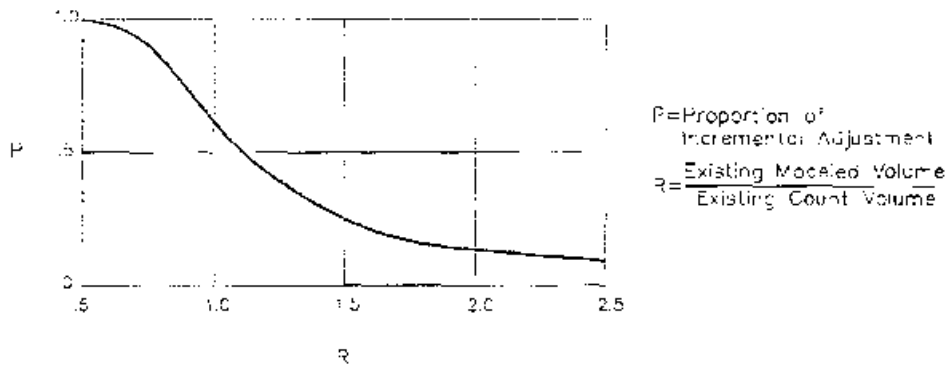
A special set of procedures is used in the SCVCTM to refine raw traffic assignment output data for a forecast year based on the methodology outlined in the National Cooperative Highway Research Program Report 255 (NCHRP 255) published by the Transportation Research Board (see Reference 3 in Section 1.4). Often referred to as "post-processing," the procedures for refining raw traffic model data as set out in NCHRP 255 are to utilize existing counts, existing model data, and future model data in the forecasting process. Essentially, the forecast data is modified based on comparing existing model data and existing counts. The basic assumption is that some of the inaccuracies in the future modeled volumes would be reflected in the existing modeled volumes and hence can be compensated for by utilizing existing count data together with the two sets (existing and future) of modeled volumes.

The NCHRP 255 procedures recognize two methods of adjustment which are referred to as the "incremental" and the "ratio" method. The incremental method takes the difference between the existing model and future model volumes and adds that difference to the existing volumes, whereas the ratio method takes the ratio of the future model to the existing model volumes and applies that ratio to the existing volumes. No guidance is given in NCHRP 255 as to which of these methods is preferable. Hence while the basic approach is described, the actual application is left to the user.

The methodology applied in the SCVCTM features a combination of the incremental and ratio methods, but with an emphasis on the incremental. It recognizes that, in general, traffic models have a better ability to estimate incremental changes rather than absolute volumes. Strict adherence to an incremental approach would imply that the additive method should be used at all times. However, in cases where the existing modeled volume is lower than a corresponding traffic count and where the future modeled volume is lower again (perhaps for legitimate reasons such as traffic diversion to another facility), then such a method can result in negative forecasted volumes.

In the SCVCTM, the proportion of incremental versus ratio adjustment is determined from the following curve:

INCREMENTAL VERSUS RATIO ADJUSTMENT CURVE



When the modeled existing volume is lower than the corresponding traffic count, the approach is largely an additive one. When the existing model volume is higher than the count, then there is a combination of the additive and ratio method. Essentially, the larger the difference between the existing modeled volume and the existing count, the less the incremental adjustment. In this manner, the ability to always include some incremental volume adjustment is retained regardless of the existing count versus modeled volume comparison.

For link volumes such as ADT forecasts, existing modeled volumes are compared with existing counts to determine a forecast volume adjustment in the manner described above. For adjusting intersection forecast data, a two step approach is applied. In the first step, adjustments are determined for each individual turn movement at the intersection in the same manner that link volume adjustments are determined. A second step then calculates adjusted entering and exiting leg volume forecasts based on existing count and modeled leg volumes, giving a set of "control volumes" for each leg. Finally, a balancing process is carried out to refine the turn movement volumes so that the entering and exiting volumes match the control values. Table 2-6 provides a sample summary of roadway and intersection forecast refinements using the methodology described here.

2.7 MODEL PROCESSING

The SCVCTM is run with the Citilabs (formerly Urban Analysis Group) TRANPLAN modeling package, augmented with some utility modules to assist in trip generation and the post-processing.

Table 2-6

FORECAST DATA REFINEMENT SAMPLES

Sample of Forecast ADT Roadway Volume Adjustments

	Existing Count	Existing Modeled Volume	Forecast Volume	Adjusted Forecast Volume
A St east of First St	21,000	23,700	31,300	28,000
B St west of Second St	17,000	14,300	24,100	27,000
C St south of Third St	14,000	15,800	14,300	13,000

Sample of Forecast Peak Hour Intersection Volume Adjustments

NORTH LEG

	SB Left	SB Through	SB Right	Entering Total	Exiting Total
Existing Count	50	500	200	750	800
Existing Modeled Volume	70	580	220	870	860
Forecast Volume	90	650	300	1,040	1,230
Adjusted Forecast Volume	60	570	280	910	1,150

EAST LEG

	WB Left	WB Through	WB Right	Entering Total	Exiting Total
Existing Count	100	450	50	600	550
Existing Modeled Volume	130	520	90	740	730
Forecast Volume	180	1,070	160	1,410	1,060
Adjusted Forecast Volume	140	950	90	1,180	820

SOUTH LEG

	NB Left	NB Through	NB Right	Entering Total	Exiting Total
Existing Count	150	600	50	800	750
Existing Modeled Volume	230	580	120	930	850
Forecast Volume	320	890	150	1,360	1,000
Adjusted Forecast Volume	210	920	60	1,190	890

WEST LEG

	EB Left	EB Through	EB Right	Entering Total	Exiting Total
Existing Count	150	450	150	750	800
Existing Modeled Volume	190	540	140	870	970
Forecast Volume	180	820	170	1,170	1,690
Adjusted Forecast Volume	140	700	180	1,020	1,440

Abbreviations: SB – southbound
WB – westbound
NB – northbound
EB – eastbound

Chapter 3.0
TRAFFIC MODEL FORECASTS

A base year version of the SCVCTM was prepared for model validation purposes. Existing (2004) land use data was used as input to the model, and the resulting assigned volumes compared with actual ground counts. This chapter summarizes the results of that validation run and also summarizes a set of long-range forecasts.

3.1 TRIP GENERATION

The base year input data contains 2004 land use data and 2004 cordon volumes. Detailed information on the base year SCVCTM land use and the peak hour and ADT trip generation for the model area can be found in the SCVCTM Technical Notebook. The long-range version of the model represents buildout of the General Plans of the City and County and can be generally considered a 2030 time frame, although buildout of the Valley could occur either earlier or later depending on realized growth rates.

As discussed in the trip generation section of the SCVCTM model description, two sets of tripends are prepared in the trip generation component of the model, peak hour inbound and outbound and ADT production-attraction trips by purpose. The productions and attractions are calculated for the total model area (including cordons), and then adjusted so that total productions equal total attractions.

A trip generation summary for 2004 and 2030 is given in Table 3-1. Included here are the peak hour trips by direction and the productions and attractions by purpose. As described in the trip generation section of Chapter 2.0, both sets of tripends are used in the modeling process.

3.2 CORDON VOLUMES

The 2004 and 2030 cordon volumes are listed in Table 3-2. The 2004 volumes are obtained from existing counts and the 2030 volumes from regional traffic data and demographic growth projections. The cordon volumes show an average increase of around 85 percent, somewhat higher to the north and lower to the south. The through trip component of the cordon trips show a growth of around 123 percent and the external component about 63 percent. These increases reflect the growth in regional traffic and the growth in the Santa Clarita Valley, respectively.

Table 3-1

TRIP GENERATION SUMMARY

I. ORIGIN-DESTINATION TRIPS BY TIME PERIOD

	AM Peak Hour			PM Peak Hour			
	In	Out	Total	In	Out	Total	ADT
2004							
Internal	51,846	59,531	111,377	78,479	71,993	150,472	1,570,034
External	17,850	11,310	29,160	12,330	17,840	30,170	331,200
TOTAL	69,696	70,841	140,537	90,809	89,833	180,642	1,901,234
2030							
Internal	109,644	108,285	217,929	149,542	150,624	300,166	3,094,424
External	22,350	23,430	45,780	23,930	23,020	46,950	539,700
TOTAL	131,994	131,715	263,709	173,472	173,644	347,116	3,634,124

II. ADT TRIPS BY PURPOSE

	H-W	H-S	H-O	O-W	O-O	Total
2004						
P's	160,003	144,520	262,616	55,158	328,289	950,586
A's	160,016	144,478	262,707	55,158	328,289	950,648
TOTAL	320,019	288,998	525,323	110,316	656,578	1,901,234
2030						
P's	323,023	269,406	460,254	113,852	650,527	1,817,062
A's	323,024	269,343	460,316	113,852	650,527	1,817,062
TOTAL	646,047	538,749	920,570	227,704	1,301,054	3,634,124

Note: Purposes are as follows:

H-W – Home to Work
H-S – Home to Shopping
H-O – Home to Other
O-W – Other to Work
O-O – Other to Other

Table 3-2

SCVCTM CORDON VOLUMES

	AM Peak Hour						PM Peak Hour						ADT		
	From Cordon			To Cordon			From Cordon			To Cordon					
Cordon Location	Ext.	Thru	Total	Ext.	Thru	Total	Ext.	Thru	Total	Ext.	Thru	Total	Ext.	Thru	Total
1. I-5 NORTH															
2004	360	800	1160	280	700	980	460	1450	1910	520	1300	1820	23000	36000	59000
2030	770	2350	3120	480	1800	2280	780	4000	4780	890	3500	4390	39000	103000	142000
Increase (%)	**114**	**194**	**169**	**71**	**157**	**133**	**70**	**176**	**150**	**71**	**169**	**141**	**70**	**186**	**141**
2. LAKE HUGHES ROAD															
2004	120	0	120	80	0	80	100	0	100	120	0	120	2800	0	2800
2030	230	0	230	110	0	110	130	0	130	230	0	230	4600	0	4600
Increase (%)	**92**		**92**	**38**		**38**	**30**		**30**	**92**		**92**	**64**		**64**
3. SAN FRANCISQUITO															
2004	90	0	90	70	0	70	90	0	90	100	0	100	2400	0	2400
2030	180	0	180	100	0	100	120	0	120	190	0	190	3900	0	3900
Increase (%)	**100**		**100**	**43**		**43**	**33**		**33**	**90**		**90**	**63**		**63**
4. BOUQUET CANYON ROAD															
2004	140	0	140	130	0	130	150	0	150	170	0	170	4000	0	4000
2030	270	0	270	180	0	180	210	0	210	330	0	330	6200	0	6200
Increase (%)	**93**		**93**	**38**		**38**	**40**		**40**	**94**		**94**	**55**		**55**
5. SIERRA HIGHWAY															
2004	350	0	350	250	0	250	320	0	320	380	0	380	8200	0	8200
2030	650	0	650	350	0	350	470	0	470	690	0	690	13000	0	13000
Increase (%)	**86**		**86**	**40**		**40**	**47**		**47**	**82**		**82**	**59**		**59**
6. ESCONDIDO CANYON ROAD															
2004	100	0	100	60	0	60	90	0	90	100	0	100	2400	0	2400
2030	190	0	190	90	0	90	120	0	120	190	0	190	3700	0	3700
Increase (%)	**90**		**90**	**50**		**50**	**33**		**33**	**90**		**90**	**54**		**54**
7. SR-14 NORTH															
2004	1690	2650	4340	740	1050	1790	1300	850	2150	2090	2150	4240	36000	64000	100000
2030	5390	7320	12710	1100	1650	2750	1820	1300	3120	6190	5810	12000	85000	117000	202000
Increase (%)	**219**	**176**	**193**	**49**	**57**	**54**	**40**	**53**	**45**	**196**	**170**	**183**	**136**	**83**	**102**

(continued)

Table 3-2 (continued)
SCVCTM CORDON VOLUMES

	AM Peak Hour						PM Peak Hour						ADT		
	From Cordon			To Cordon			From Cordon			To Cordon					
Cordon Location	Ext.	Thru	Total	Ext.	Thru	Total	Ext.	Thru	Total	Ext.	Thru	Total	Ext.	Thru	Total
8. SOLEDAD CANYON ROAD															
2004	120	0	120	90	0	90	120	0	120	120	0	120	4100	0	4100
2030	250	0	250	130	0	130	170	0	170	230	0	230	6300	0	6300
Increase (%)	**108**		**108**	**44**		**44**	**42**		**42**	**92**		**92**	**54**		**54**
9. SAND CANYON ROAD															
2004	60	0	60	40	0	40	50	0	50	70	0	70	1300	0	1300
2030	210	0	210	60	0	60	70	0	70	130	0	130	2000	0	2000
Increase (%)	**250**		**250**	**50**		**50**	**40**		**40**	**86**		**86**	**54**		**54**
10. I-5 SOUTH															
2004	7350	1250	8600	14730	2950	17680	13570	2950	16520	7710	1800	9510	215000	83000	298000
2030	12410	2700	15110	17910	8920	26830	16980	8560	25540	12180	4550	16730	317000	198000	515000
Increase (%)	**69**	**116**	**76**	**22**	**202**	**52**	**25**	**190**	**55**	**58**	**153**	**76**	**47**	**139**	**73**
11. SAN FERNANDO ROAD															
2004	480	0	480	880	0	880	1040	0	1040	500	0	500	18000	0	18000
2030	2060	0	2060	1160	0	1160	1440	0	1440	1870	0	1870	38000	0	38000
Increase (%)	**329**		**329**	**32**		**32**	**38**		**38**	**274**		**274**	**111**		**111**
12. SR-126 WEST															
2004	450	300	750	500	300	800	550	400	950	450	400	850	14000	11000	25000
2030	850	450	1300	650	450	1100	700	550	1250	820	550	1370	21000	14000	35000
Increase (%)	**89**	**50**	**73**	**30**	**50**	**38**	**27**	**38**	**32**	**82**	**38**	**61**	**50**	**27**	**40**
TOTAL															
2004	11310	5000	16310	17850	5000	22850	17840	5650	23490	12330	5650	17980	331200	194000	525200
2030	23460	12820	36280	22320	12820	35140	23010	14410	37420	23940	14410	38350	539700	432000	971700
Increase (%)	**107**	**156**	**122**	**25**	**156**	**54**	**29**	**155**	**59**	**94**	**155**	**113**	**63**	**123**	**85**
FROM/TO DIFFERENCE															
2004						**6540**						**-5510**			
2030						**-1140**						**930**			

3.3 2004 VALIDATION

Figure 3-1 illustrates the 2004 ADT volumes produced by the SCVCTM for the study area together with corresponding observed volumes. Observed volumes were collected throughout the first half of 2004 and the latter half of 2003. A statistical summary of the comparison between observed and modeled link volumes is presented later in this chapter.

A screenline comparison was also carried out by comparing modeled volumes and traffic count totals for screenlines within the SCVCTM study area. A screenline is a hypothetical boundary drawn across a series of somewhat parallel roadways for the purposes of comparing trip distribution patterns. The seven screenlines utilized for this purpose are illustrated in Figure 3-2 and the total ADT modeled volumes and observed counts for each screenline are summarized in Table 3-3. The general standard used in assessing screenlines is a maximum desirable deviation of 10 percent, which is met by all of the seven screenlines analyzed. Just over half of the screenlines have a deviation of less than five percent.

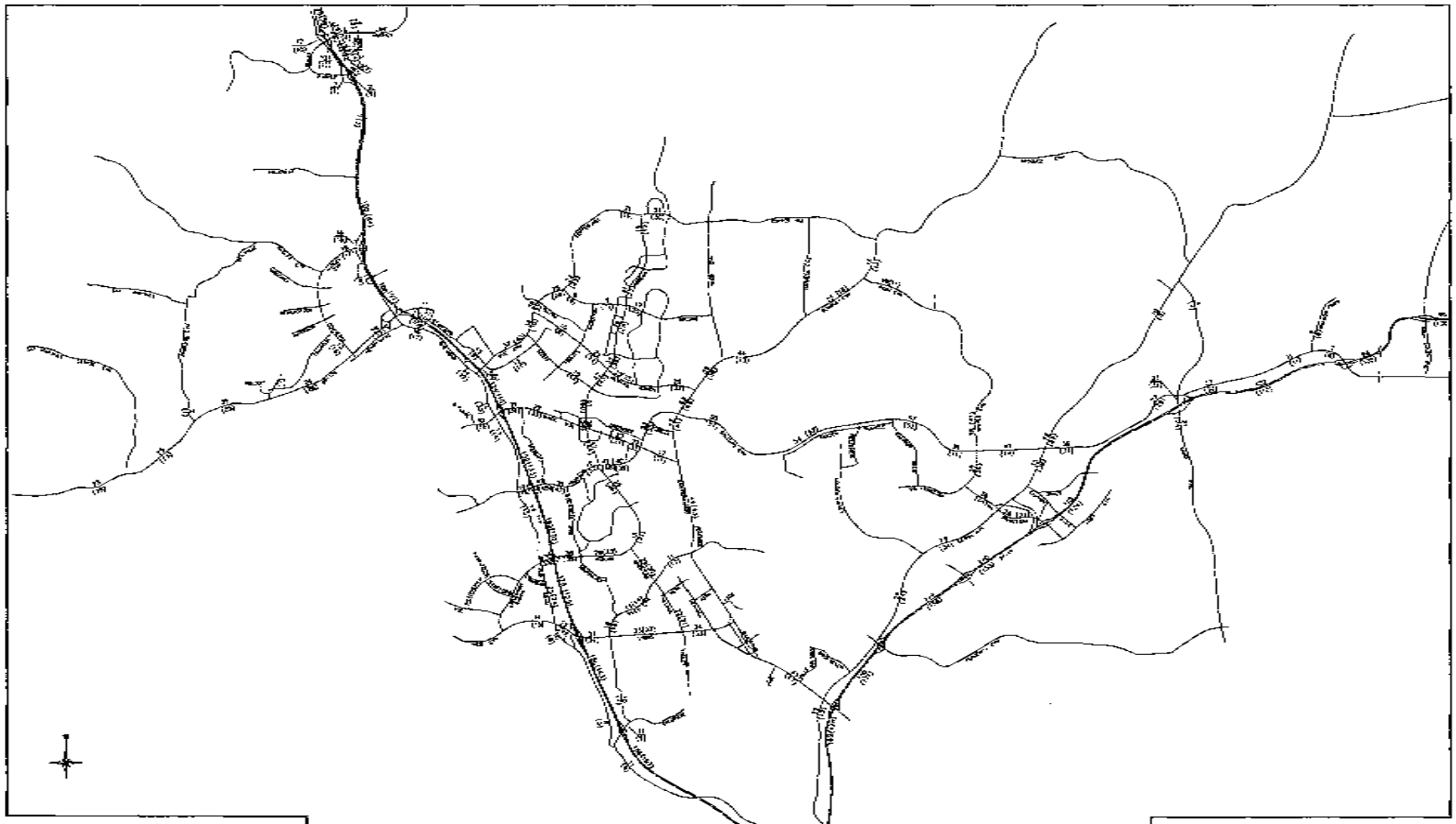
As noted in Chapter 2.0, the SCVCTM has the ability to forecast peak hour intersection turn movement volumes. Intersection capacity utilization (ICU) results from data produced by the model are summarized in Table 3-4 together with the corresponding observed results. Intersection locations are illustrated in Figure 3-3, and detailed ICU calculations are contained in the SCVCTM Technical Notebook. In the next section, statistical summaries are made for the ADT and peak hour data comparisons.

3.3.1 Statistical Analysis

The comparison between observed and modeled volumes allows statistical measures of variation to be calculated. The variable used for these calculations is as follows:

$$V = m - c$$

where V = difference between modeled and count volumes
m = modeled volume
c = count volume



Legend

xx Observed ADT Volumes (000s)
(yy) Modeled ADT Volumes (000s)

Figure 3-1

BASE YEAR OBSERVED AND MODELED ADT VOLUMES

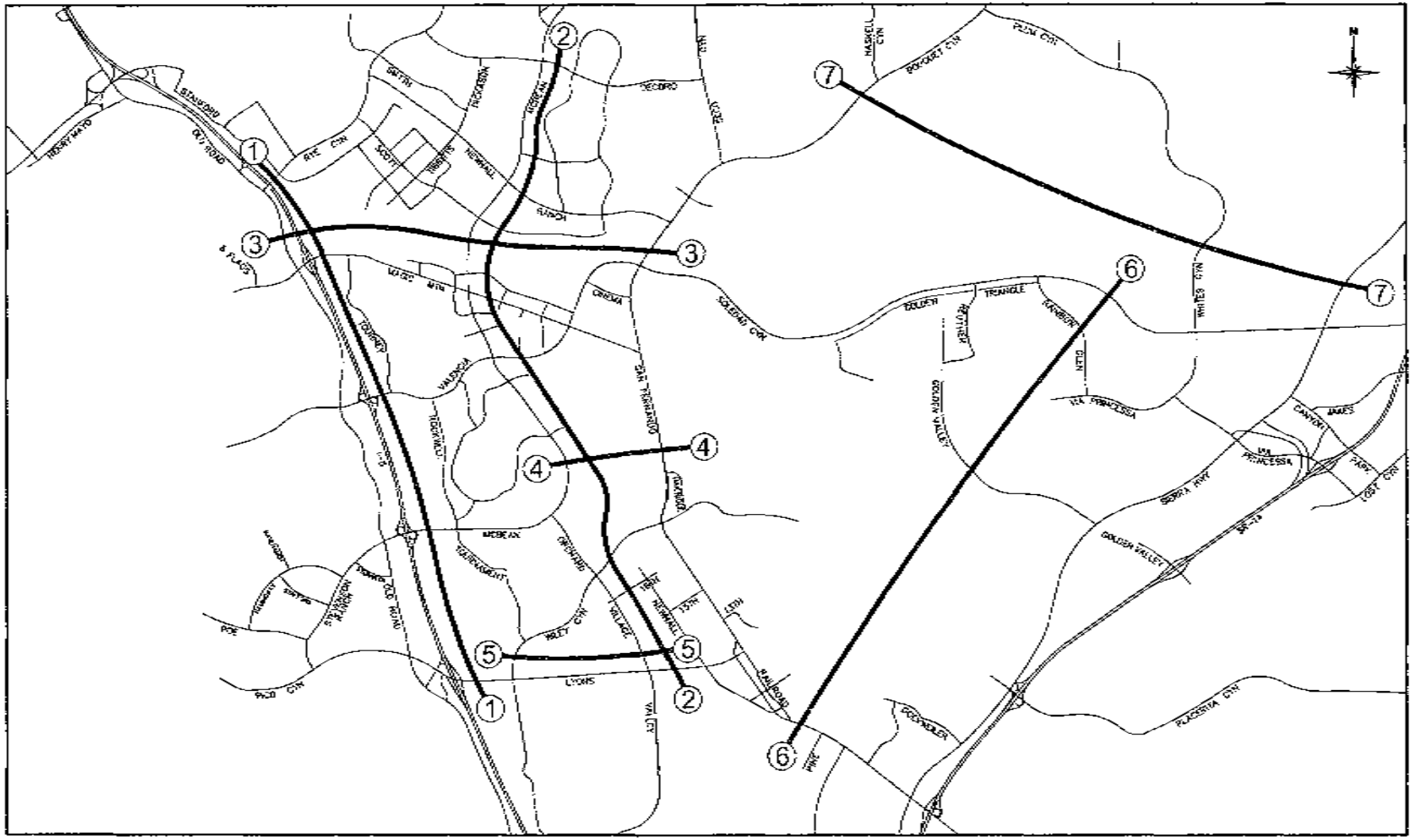


Figure 3-2

SCVCTM SCREENLINE LOCATIONS

Table 3-3

2004 SCVCTM ADT SCREENLINE SUMMARY

	Observed Count	Modeled Volume	Difference	Percent Difference
Screenline #1	179,414	194,192	14,778	8.2
Screenline #2	159,400	165,806	6,406	4.0
Screenline #3	157,354	158,614	1,260	0.8
Screenline #4	78,697	73,692	-5,005	-6.4
Screenline #5	40,073	39,627	-446	-1.1
Screenline #6	91,879	98,433	6,554	7.1
Screenline #7	104,000	105,703	1,703	1.6

Note: Volumes exclude freeway trips

Table 3-4

BASE YEAR PEAK HOUR ICU COMPARISON

Location	AM Peak Hour			PM Peak Hour		
	Count	Modeled	Difference	Count	Modeled	Difference
1. Old Road & I-5 SB Ramps	.33	.32	-.01	.37	.40	.03
2. I-5 NB Ramps & Lake Hughes	.27	.25	-.02	.47	.39	-.08
3. I-5 SB Ramps & Parker	.61	.63	.02	.65	.63	-.02
4. I-5 NB Ramps & Ridge Route	.40	.43	.03	.46	.52	.06
5. I-5 SB & Hasley Cyn	.45	.65	.20	.54	.57	.03
6. I-5 NB & Hasley Cyn	.51	.68	.17	.66	.72	.06
7. I-5 SB Ramps & SR-126	.37	.37	.00	.33	.32	-.01
8. I-5 NB Ramps & SR-126	.65	.80	.15	.71	.77	.06
9. The Old Rd & I-5 SB Ramps	.46	.50	.04	.52	.51	-.01
10. I-5 SB Ramps & Magic Mtn	.51	.61	.10	.48	.50	.02
11. I-5 NB Ramps & Magic Mtn	.68	.71	.03	.69	.67	-.02
12. I-5 SB Ramps & Valencia	.37	.30	-.07	.43	.45	.02
13. I-5 NB Ramps & Valencia	.48	.45	-.03	.48	.49	.01
14. I-5 SB Ramps & Stevenson Rch	.37	.43	.06	.59	.65	.06
15. I-5 NB Ramps & McBean	.34	.42	.08	.54	.63	.09
16. I-5 SB/Marriott & Pico/Lyons	.53	.45	-.08	.60	.62	.02
17. I-5 NB On/Off & Lyons Ave	.53	.65	.12	.70	.75	.05
18. I-5 SB Ramps & Calgrove	.47	.69	.22	.64	.55	-.09
19. I-5 NB Ramps & Calgrove	.64	.77	.13	.50	.53	.03
20. I-5 SB On Ramp & Pico/Lyons	.35	.39	.04	.46	.44	-.02
21. Calgrove Blvd & The Old Rd	.40	.26	-.14	.45	.35	-0.1
25. The Old Rd & Rye Canyon	1.10	1.05	-.05	1.10	1.01	-.09
26. The Old Rd & Magic Mountain	.70	.63	-.07	.69	.71	.02
27. The Old Rd & Valencia	.28	.32	.04	.39	.48	.09
29. The Old Rd & Pico Canyon	.51	.39	-.12	.56	.54	-.02
30. Ave Stanford & Rye Canyon	.61	.55	-.06	.80	.74	-.06
32. Ave Scott & Rye Canyon	.70	.63	-.07	.71	.68	-.03
33. Rye/Copper Hill & NRR	.59	.56	-.03	.58	.46	-.12
35. Copper Hill & Decoro	.58	.54	-.04	.49	.44	-.05
36. Tourney & Valencia	.50	.55	.05	.47	.49	.02
37. Tourney & Magic Mountain	.43	.51	.08	.57	.60	.03
39. Ave Tibbits/Dickason & NRR	.40	.36	-.04	.36	.46	.10
41. Dickason & Decoro	.37	.34	-.03	.25	.35	.10
44. McBean & Valencia	.61	.70	.09	.72	.76	.04
45. McBean & Magic Mtn	.55	.64	.09	.88	.89	.01
47. McBean & Scott/Bridgeport	.68	.77	.09	.57	.56	-.01
48. McBean & Newhall Ranch	.65	.74	.09	.72	.77	.05
49. McBean Pkwy & Decoro Dr	.54	.59	.05	.50	.61	.11

Table 3-4 (cont)
BASE YEAR PEAK HOUR ICU COMPARISON

	AM Peak Hour			PM Peak Hour		
Location	Count	Modeled	Difference	Count	Modeled	Difference
50. McBean Pkwy & Copper Hill	.62	.54	-.08	.80	.60	-.20
51. Wiley Cyn & Lyons	.43	.63	.20	.74	.64	-.10
52. Tournament & Wiley Cyn	.37	.43	.06	.45	.37	-.08
53. Orchard Village & Lyons	.49	.48	-.01	.6	.61	.01
54. Orchard Village & Wiley Cyn	.38	.49	.11	.57	.61	.04
55. Orchard Village & McBean	.57	.50	-.07	.78	.73	-.05
57. Valencia & Magic Mtn	.62	.62	.00	.72	.87	.15
59. Valencia & Cinema	.53	.56	.03	.73	.73	.00
65. Bouquet & Soledad	.78	.70	-.08	.99	1.02	.03
66. Bouquet & Newhall Ranch	.87	.83	-.04	.85	.71	-.14
80. Wolcott & SR-126	.32	.34	.02	.39	.38	-.01
89. Old Road & SR-126 WB Ramps	.31	.32	.01	.30	.25	-.05
91. Old Road & Hasley Cyn	.70	.67	-.03	.63	.66	.03
94. Commerce Center & SR-126	.47	.61	.14	.60	.66	.06
95. The Old Rd & Sedona Way	.57	.39	-.18	.37	.40	.03
96. San Martinez Cyn & SR-126	.29	.33	.04	.38	.37	-.01
110. Chiquito Cyn & SR-126	.34	.33	-.01	.41	.37	-.04
117. SR-126 EB Ramp & Henry Mayo	.18	.34	.16	.20	.35	.15
148. SR-14 NB & Via Princessa	.46	.42	-.04	.68	.87	.19
149. SR-14 SB & Via Princessa	.64	1.02	.38	.49	.61	.12
151. Sand Cyn & SR-14 NB Ramps	.39	.59	.20	.66	.92	.26
152. SR-14 SB Rmps & Soledad Cyn	.54	1.00	.46	.59	.65	.06
153. Sand Cyn & Soledad Cyn	.64	.69	.05	.67	.72	.05
170. Sierra Hwy & Via Princessa	.59	.65	.06	.62	.74	.12
171. Whites Cyn & Via Princessa	.50	.47	-.03	.63	.48	-.15
172. Whites Cyn & Soledad Canyon	.86	.84	-.02	.92	.87	-.05
173. Santa Catarina/GVR & Plum	.71	.39	-.32	.66	.45	-.21
174. Bouquet Canyon & Plum Cyn	.69	.33	-.36	.58	.38	-.20
176. Sierra Hwy & Soledad Cyn	.70	.80	.10	.85	.93	.08
177. SR-14 SB On & Via Princessa	.37	.36	-.01	.46	.45	-.01
178. Sierra Hwy & SR-14 NB Off	.46	.44	-.02	.54	.43	-.11
180. Old Road & Sloan/Lake Hughes	.27	.23	-.04	.33	.35	.02
181. Old Road & Parker	.43	.33	-0.1	.53	.35	-.18
182. Castaic & Lake Hughes	.30	.28	-.02	.37	.30	-.07
183. Ridge Route & Lake Hughes	.29	.20	-.09	.18	.15	-.03
184. Castaic & Ridge Route	.29	.30	.01	.38	.37	-.01
191. Sierra Hwy & Sand Cyn	.47	.39	-.08	.45	.50	.05
194. Shadow Pines & Soledad Cyn	.27	.35	.08	.35	.43	.08
195. Soledad Cyn & SR-14 SB	.19	.25	.06	.15	.20	.05
196. Soledad Cyn & SR-14 NB	.24	.41	.17	.26	.45	.19
205. Cambridge & Hasley Cyn	.46	.55	.09	.34	.33	-.01

Table 3-4 (cont)
BASE YEAR PEAK HOUR ICU COMPARISON

	AM Peak Hour			PM Peak Hour		
Location	Count	Modeled	Difference	Count	Modeled	Difference
301. Mall Entrance & Valencia	.40	.48	.08	.54	.61	.07
303. Auto Center & Magic Mtn	.28	.28	.00	.45	.41	-.04
304. Citrus & Magic Mtn	.36	.33	-.03	.48	.54	.06
322. McBean & So Mall Entrance	.38	.42	.04	.59	.71	.12
323. Citrus & Valencia	.48	.47	-.01	.65	.48	-.17
324. Chiquella & Pico Cyn	.47	.49	.02	.52	.43	-.09
325. Marriott Wy & The Old Rd	.32	.13	-.19	.50	.36	-.14
326. Chiquella & The Old Rd	.32	.47	.15	.58	.57	-.01
327. Wiley Cyn & Calgrove	.48	.45	-.03	.51	.47	-.04

AM SAMPLE SIZE	= 88	PM SAMPLE SIZE	= 88
AVERAGE COUNT	= .48	AVERAGE COUNT	= .55
AVERAGE MODELED	= .50	AVERAGE MODELED	= .55
AVERAGE DIFFERENCE	= .02	AVERAGE DIFFERENCE	.00
STANDARD DEVIATION	= .12	STANDARD DEVIATION	= .09

Note: All ICUs calculated using the methodology of the City of Santa Clarita for this statistical comparison

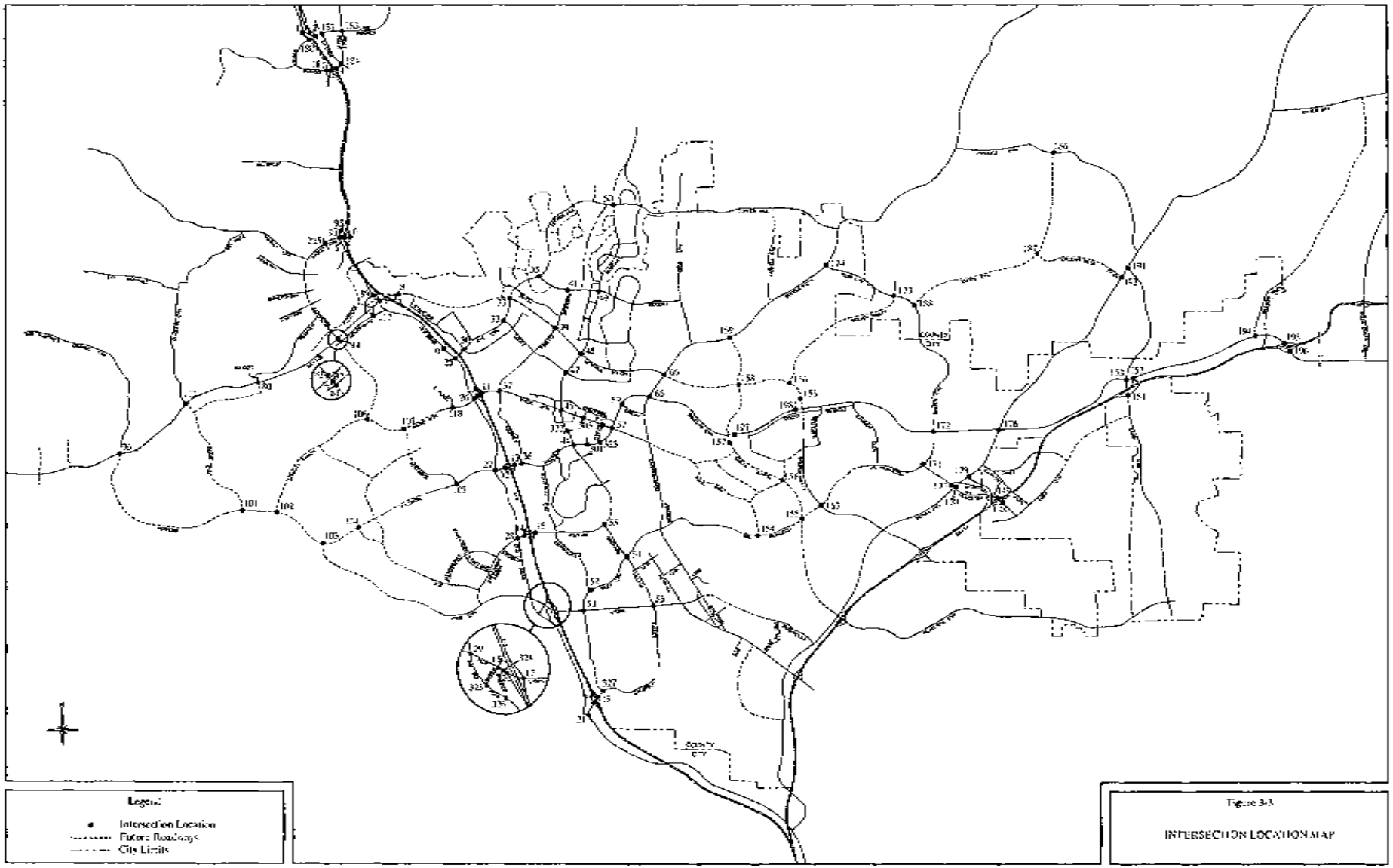


Figure 3-3

INTERSECTION LOCATION MAP

The results of this statistical analysis for a set of links and intersections in the study area are summarized as follows (detailed statistical analysis summaries can be found in Appendix D):

	Sample Size	Average Observed	Average Modeled	Difference	Standard Deviation
ADT	122	24,677	25,142	465	3,666
AM Peak Hour	326	1,311	1,330	19	305
PM Peak Hour	324	1,584	1,593	9	303
ICUs: AM Peak Hour	88	.48	.50	.02	.12
PM Peak Hour	88	.55	.55	.00	.09

The ADT results do not include freeway volumes, and are intended to show statistical variation on the study area arterial system. The peak hour statistical analysis utilizes midblock volumes derived from observed and modeled intersection approach volumes, and the ICU analysis uses the ICU comparison data presented earlier. The statistical summary indicates that the average modeled results are close to the observed and hence the total amount of traffic on the arterial roadway system appears to realistically match the counts. Statistical variation is well within acceptable limits for models of this type (5,000 - 10,000 ADT standard deviation).

The general order of magnitude of variation indicated from these results can be expressed in the form of confidence limits as follows:

ADT	67% confidence limits	+/- 3,700 ADT
	90% confidence limits	+/- 5,900 ADT
Peak Hour	67% confidence limits	300 VPH
	90% confidence limits	480 VPH
ICU	67% confidence limits	+/- .10
	90% confidence limits	+/- .16

The 90 percent confidence limits represent the volume range within which 90 percent of the link volumes would fall (i.e., only 10 percent of the links would have volumes outside this range). Both the two-thirds and 90 percent confidence limits are commonly used in evaluating the reliability of data that is subject to statistical variation.

3.4 LONG-RANGE TRAFFIC FORECASTS

This section presents SCVCTM forecasts for the long-range version of the model. The results are based on specific land use and circulation assumptions used in a baseline version of the model. As noted earlier in this chapter, the long-range land use represents buildout of the General Plans of the City and County and can generally be considered a 2030 timeframe. Subsequent runs of SCVCTM will address individual development applications, as well as the combined (cumulative) effect of multiple proposals, and forecast data contained in technical reports for those applications will not necessarily correspond to the data presented here. Appendix E contains summaries of existing and long-range land use data by traffic zone.

Figure 3-4 shows long-range ADT traffic volumes on the circulation system. These are based on the current Master Plan of Highways for this area, and reflect the land use and external trip inputs summarized in the respective appendices.

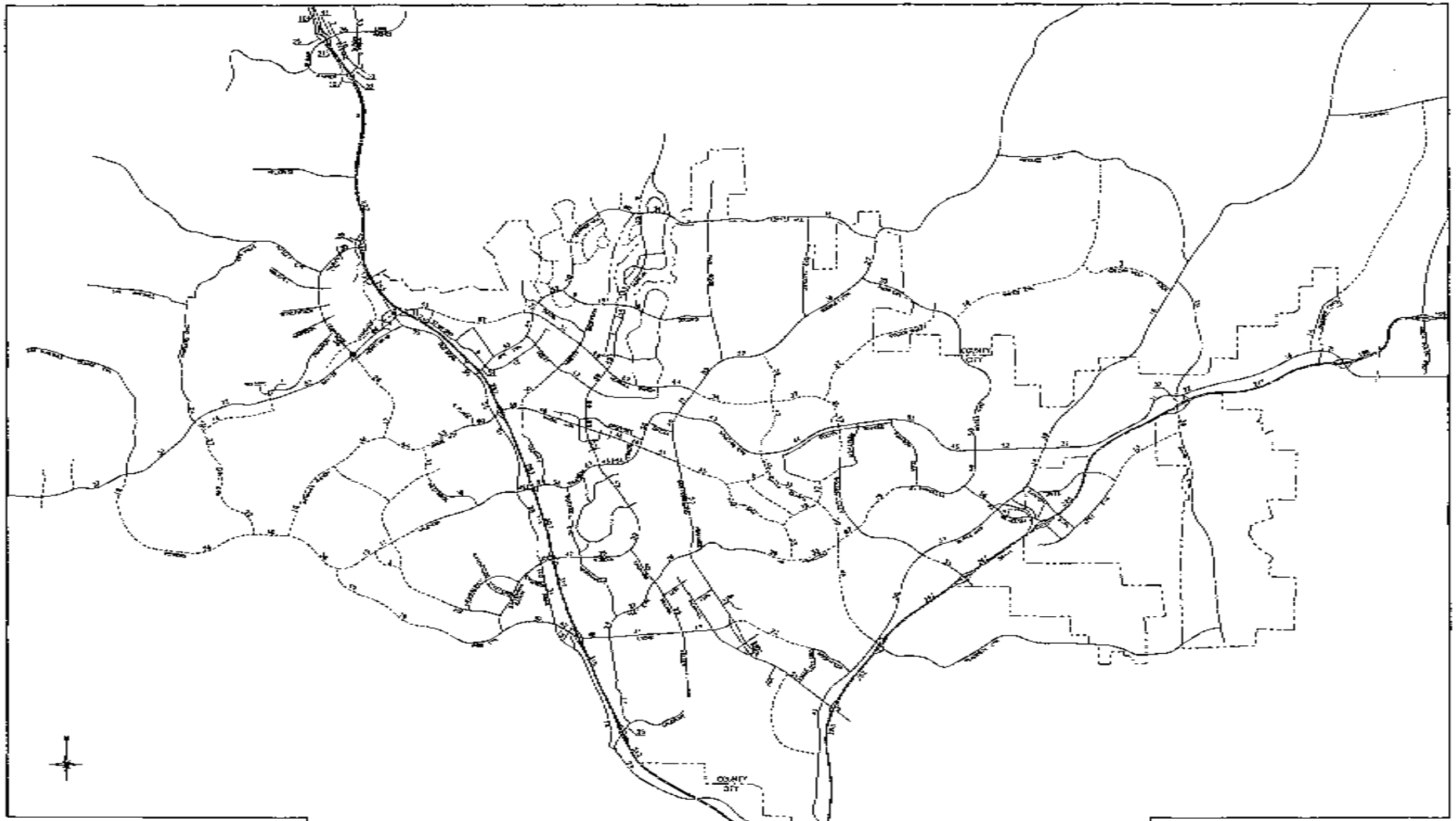


Figure 3-4

LONG-RANGE GENERAL PLAN ADT VOLUMES

Appendix A
TRIP GENERATION

This appendix summarizes the trip generation rates used in the Santa Clarita Valley Consolidated Traffic Model (SCVCTM), and summarizes the total model area trip generation and cordon volume summaries for the two model versions described in this report (2004 and long-range General Plan). The following tables are included in this appendix:

Table A-1	ADT and Peak Hour Trip Rate Summary
Table A-2	Land Use and Trip Generation Summaries
Table A-3	ADT Trip Rate and P&A Splitting Factor Summary
Table A-4	Land Use and P&A Trip Generation Summaries
Table A-5	Cordon Through Trips

Table A-1

ADT AND PEAK HOUR TRIP RATE SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
1.	Single Family (<1du/ac)	DU	0.29	0.67	0.96	0.84	0.35	1.20	9.90
2.	Single Family (1-5du/ac)	DU	0.19	0.56	0.75	0.64	0.37	1.01	9.90
3.	Single Family (6-10du/ac)	DU	0.19	0.56	0.75	0.64	0.37	1.01	9.90
4.	Condominium/Townhouse	DU	0.10	0.48	0.58	0.47	0.26	0.73	8.00
5.	Apartment	DU	0.08	0.43	0.51	0.41	0.21	0.62	6.90
6.	Mobile Home	DU	0.08	0.32	0.40	0.35	0.21	0.56	6.90
7.	Senior (Active)	DU	0.08	0.12	0.20	0.16	0.10	0.26	3.71
10.	Commercial Center (>30ac)	TSF	0.47	0.30	0.77	1.64	1.78	3.42	40.06
11.	Commercial Center(10-30a)	TSF	0.73	0.47	1.20	2.38	2.58	4.96	54.06
12.	Commercial Center (<10ac)	TSF	1.09	0.69	1.78	3.32	3.60	6.92	85.06
13.	Commercial Shops	TSF	0.72	0.48	1.20	1.80	1.80	3.60	37.06
14.	Hotel	ROOM	0.34	0.22	0.56	0.32	0.29	0.61	8.23
15.	Sit-Down Restaurant	TSF	4.82	4.45	9.27	6.52	4.34	10.86	130.34
16.	Fast Food Restaurant	TSF	25.43	24.43	49.86	17.41	16.07	33.48	496.12
17.	Movie Theater	SEAT	0.00	0.00	0.00	0.05	0.02	0.07	1.76
18.	Health Club	TSF	0.96	0.64	1.60	2.16	1.44	3.60	40.00
19.	Car Dealership	TSF	1.61	0.60	2.21	1.12	1.68	2.80	37.50
20.	Elementary/Middle School	STU	0.26	0.20	0.46	0.08	0.09	0.17	1.45
21.	High School	STU	0.32	0.14	0.46	0.06	0.09	0.15	1.79
22.	College	STU	0.13	0.01	0.14	0.07	0.14	0.21	1.54
23.	Hospital	TSF	0.71	0.26	0.97	0.22	0.70	0.92	16.80
24.	Library	TSF	0.76	0.30	1.06	3.40	3.69	7.09	84.98
25.	Church	TSF	0.39	0.33	0.72	0.36	0.30	0.66	9.33
26.	Day Care	STU	0.43	0.38	0.81	0.40	0.46	0.86	4.52
30.	Industrial Park	TSF	0.55	0.10	0.65	0.13	0.52	0.65	6.00
31.	Business Park	TSF	1.20	0.23	1.43	0.30	0.99	1.29	10.20
32.	Manufacturing/Warehouse	TSF	0.56	0.17	0.73	0.27	0.47	0.74	5.10
33.	Science/Research	TSF	1.03	0.21	1.24	0.16	0.92	1.08	10.20
34.	Utilities	TSF	0.00	0.00	0.00	0.00	0.00	0.00	2.38
35.	Regional Post Office	TSF	0.20	0.15	0.35	0.15	0.15	0.30	5.00
40.	Commercial Office	TSF	1.55	0.19	1.74	0.21	1.29	1.50	11.56
41.	High-Rise Office	TSF	1.37	0.19	1.56	0.25	1.24	1.49	10.88
42.	Medical Office	TSF	1.94	0.49	2.43	0.99	2.67	3.66	34.20
43.	Post Office	TSF	4.17	3.85	8.02	5.50	5.29	10.79	108.19
50.	Golf Course	AC	0.15	0.06	0.21	0.10	0.20	0.30	7.96
51.	Developed Park	AC	0.00	0.00	0.00	0.03	0.04	0.07	2.60
52.	Undeveloped Park	AC	0.00	0.00	0.00	0.00	0.00	0.00	0.50
53.	Wayside Honor Ranch	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
54.	Six Flags Magic Mtn	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
55.	Travel Village	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00

Table A-1 (cont.)

ADT AND PEAK HOUR TRIP RATE SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
56. CHP Office	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
57. Agua Dulce Airport	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
58. Landfill	SG	3.00	2.00	5.00	4.00	6.00	10.00	100.00
59. Cemex	SG	3.60	3.75	7.35	2.00	2.25	4.25	100.00

Table A-2

SCVCTM 4.0 2004 LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
1.	Single Family (<1du/ac)	300.00	DU	87	201	288	253	108	361	2970
2.	Single Family (1-5du/ac)	42731.00	DU	8126	23922	32048	27350	15811	43161	423044
3.	Single Family (6-10du/ac)	5812.00	DU	1104	3256	4360	3718	2152	5870	57538
4.	Condominium/Townhouse	23519.00	DU	2350	11287	13637	11055	6119	17174	188152
5.	Apartment	2108.00	DU	169	907	1076	863	442	1305	14545
6.	Mobile Home	2464.00	DU	197	789	986	865	519	1384	17002
10.	Commercial Center (>30ac)	2675.04	TSF	1258	803	2061	4386	4762	9148	107153
11.	Commercial Center(10-30a)	4203.47	TSF	3071	1973	5044	10003	10844	20847	227240
12.	Commercial Center (<10ac)	1307.47	TSF	1425	905	2330	4340	4706	9046	111212
13.	Commercial Shops	1168.87	TSF	840	561	1401	2104	2104	4208	43318
14.	Hotel	985.00	ROOM	334	216	550	316	286	602	8107
15.	Sit-Down Restaurant	210.92	TSF	1017	938	1955	1376	915	2291	27493
16.	Fast Food Restaurant	47.58	TSF	1210	1162	2372	829	763	1592	23606
17.	Movie Theater	3300.00	SEAT	0	0	0	165	66	231	5808
18.	Health Club	125.00	TSF	120	80	200	270	180	450	5000
19.	Car Dealership	330.50	TSF	533	199	732	370	555	925	12395
20.	Elementary/Middle School	32506.00	STU	8453	6501	14954	2602	2929	5531	47140
21.	High School	13228.00	STU	4233	1852	6085	794	1191	1985	23678
22.	College	18379.00	STU	2390	184	2574	1286	2573	3859	28303
23.	Hospital	222.80	TSF	158	58	216	49	156	205	3743
24.	Library	53.73	TSF	41	16	57	183	199	382	4567
25.	Church	512.89	TSF	202	171	373	183	154	337	4770
26.	Day Care	460.00	STU	199	175	374	184	212	396	2079
30.	Industrial Park	15517.43	TSF	8536	1551	10087	2019	8069	10088	93103
31.	Business Park	1017.92	TSF	1221	236	1457	306	1008	1314	10383
32.	Manufacturing/Warehouse	1970.77	TSF	1103	336	1439	534	926	1460	10052
34.	Utilities	1121.24	TSF	0	0	0	0	0	0	2668
35.	Regional Post Office	764.00	TSF	153	115	268	115	115	230	3820
40.	Commercial Office	1170.75	TSF	1816	223	2039	246	1510	1756	13533
42.	Medical Office	133.73	TSF	259	65	324	133	357	490	4573
43.	Post Office	50.00	TSF	209	193	402	275	265	540	5410
50.	Golf Course	753.00	AC	114	45	159	76	151	227	5994
51.	Developed Park	250.90	AC	0	0	0	7	11	18	652
52.	Undeveloped Park	745.00	AC	0	0	0	0	0	0	373
53.	Wayside Honor Ranch	20.00	SG	60	40	100	80	120	200	2000
54.	Six Flags Magic Mtn	160.00	SG	480	320	800	640	960	1600	16000
55.	Travel Village	26.20	SG	79	52	131	105	157	262	2620
56.	CHP Office	55.74	SG	167	111	278	223	334	557	5574
57.	Agua Dulce Airport	34.06	SG	102	68	170	136	204	340	3406
58.	Landfill	10.00	SG	30	20	50	40	60	100	1030
	TOTAL			51846	59531	111377	78479	71993	150472	1570034

Table A-2 (cont.)

SCVCTM 4.0 LONG RANGE GP LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
1.	Single Family (<1du/ac)	1817.00	DU	527	1218	1745	1526	655	2181	17988
2.	Single Family (1-5du/ac)	68913.00	DU	13098	38590	51688	44105	25494	69599	682252
3.	Single Family (6-10du/ac)	17629.00	DU	3352	9873	13225	11281	6524	17805	174529
4.	Condominium/Townhouse	39509.00	DU	3947	18962	22909	18570	10274	28844	316072
5.	Apartment	8510.00	DU	683	3660	4343	3488	1785	5273	58720
6.	Mobile Home	2565.00	DU	205	821	1026	900	540	1440	17699
10.	Commercial Center (>30ac)	8003.69	TSF	3763	2402	6165	13126	14245	27371	320629
11.	Commercial Center(10-30a)	8518.44	TSF	6223	4004	10227	20276	21975	42251	460507
12.	Commercial Center (<10ac)	2615.78	TSF	2854	1808	4662	8687	9418	18105	222499
13.	Commercial Shops	1656.71	TSF	1190	798	1986	2983	2983	5966	61396
14.	Hotel	1406.00	ROOM	477	309	786	451	408	859	11572
15.	Sit-Down Restaurant	290.19	TSF	1399	1291	2690	1892	1259	3151	37625
16.	Fast Food Restaurant	53.08	TSF	1350	1296	2646	925	851	1776	26335
17.	Movie Theater	3300.00	SEAT	0	0	0	165	66	231	5808
18.	Health Club	125.00	TSF	120	80	200	270	180	450	5000
19.	Car Dealership	441.50	TSF	712	266	978	494	741	1235	16558
20.	Elementary/Middle School	48591.00	STU	12634	9718	22352	3889	4378	8267	70465
21.	High School	23274.00	STU	7448	3258	10706	1397	2095	3492	41661
22.	College	25236.00	STU	3281	253	3534	1766	3533	5299	39863
23.	Hospital	222.80	TSF	158	58	216	49	156	205	3743
24.	Library	71.40	TSF	54	21	75	243	264	507	6068
25.	Church	635.89	TSF	250	211	461	227	191	418	5914
26.	Day Care	540.00	STU	233	205	438	216	249	465	2441
30.	Industrial Park	40298.54	TSF	22165	4031	26196	5241	20955	26196	241791
31.	Business Park	9113.92	TSF	10937	2098	13035	2732	9025	11757	92962
32.	Manufacturing/Warehouse	4043.66	TSF	2263	688	2951	1094	1901	2995	20625
34.	Utilities	1150.24	TSF	0	0	0	0	0	0	2737
35.	Regional Post Office	764.00	TSF	153	115	268	115	115	230	3820
40.	Commercial Office	5186.12	TSF	8046	988	9034	1089	6694	7783	59973
42.	Medical Office	212.29	TSF	411	103	514	211	567	778	7260
43.	Post Office	50.00	TSF	209	193	402	275	265	540	5410
50.	Golf Course	1233.00	AC	187	74	261	124	247	371	9815
51.	Developed Park	583.80	AC	0	0	0	17	24	41	1318
52.	Undeveloped Park	762.50	AC	0	0	0	0	0	0	382
53.	Wayside Honor Ranch	30.00	SG	90	60	150	120	180	300	3000
54.	Six Flags Magic Mtn	240.00	SG	720	480	1200	960	1440	2400	24000
55.	Travel Village	26.20	SG	79	52	131	105	157	262	2620
56.	CHP Office	55.74	SG	167	111	278	223	334	557	5574
57.	Agua Dulce Airport	51.09	SG	153	102	255	204	307	511	5109
58.	Landfill	20.00	SG	60	40	100	80	120	200	2000
59.	Cemex	12.84	SG	46	48	94	26	29	55	1284
	TOTAL			109644	108285	217929	149542	150624	300166	3094424

Table A-3

ADT TRIP RATE AND P&A SPLITTING FACTOR SUMMARY

Land Use Type	Units	ADT Tripend Rate	Productions/ Attractions	Splitting Factors H-W	H-S	H-O	O-W	O-O	Total	P&A Total
1. Single Family (<1du/ac)	DU	9.90	P's	0.22	0.15	0.27	0.02	0.11	0.77	
			A's	0.00	0.00	0.10	0.02	0.11	0.23	1.00
2. Single Family (1-5du/ac)	DU	9.90	P's	0.22	0.15	0.27	0.02	0.11	0.77	
			A's	0.00	0.00	0.10	0.02	0.11	0.23	1.00
3. Single Family (6-10du/ac)	DU	9.90	P's	0.22	0.15	0.27	0.02	0.11	0.77	
			A's	0.00	0.00	0.10	0.02	0.11	0.23	1.00
4. Condominium/Townhouse	DU	8.00	P's	0.20	0.17	0.34	0.02	0.09	0.82	
			A's	0.00	0.00	0.07	0.02	0.09	0.18	1.00
5. Apartment	DU	6.90	P's	0.20	0.17	0.34	0.02	0.09	0.82	
			A's	0.00	0.00	0.07	0.02	0.09	0.18	1.00
6. Mobile Home	DU	6.90	P's	0.20	0.17	0.34	0.02	0.09	0.82	
			A's	0.00	0.00	0.07	0.02	0.09	0.18	1.00
7. Senior (Active)	DU	3.71	P's	0.05	0.22	0.41	0.02	0.10	0.80	
			A's	0.00	0.00	0.08	0.02	0.10	0.20	1.00
10. Commercial Center (>30ac)	TSF	40.06	P's	0.00	0.00	0.00	0.03	0.25	0.28	
			A's	0.09	0.20	0.15	0.03	0.25	0.72	1.00
11. Commercial Center(10-30a)	TSF	54.06	P's	0.00	0.00	0.00	0.03	0.25	0.28	
			A's	0.09	0.20	0.15	0.03	0.25	0.72	1.00
12. Commercial Center (<10ac)	TSF	85.06	P's	0.00	0.00	0.00	0.03	0.30	0.33	
			A's	0.06	0.15	0.13	0.03	0.30	0.67	1.00
13. Commercial Shops	TSF	37.06	P's	0.00	0.00	0.00	0.03	0.30	0.33	
			A's	0.06	0.15	0.13	0.03	0.30	0.67	1.00
14. Hotel	ROOM	8.23	P's	0.00	0.00	0.00	0.06	0.18	0.24	
			A's	0.12	0.00	0.40	0.06	0.18	0.76	1.00
15. Sit-Down Restaurant	TSF	130.34	P's	0.00	0.00	0.00	0.06	0.24	0.30	
			A's	0.04	0.00	0.36	0.06	0.24	0.70	1.00
16. Fast Food Restaurant	TSF	496.12	P's	0.00	0.00	0.00	0.07	0.31	0.38	
			A's	0.01	0.00	0.23	0.07	0.31	0.62	1.00
17. Movie Theater	SEAT	1.76	P's	0.00	0.00	0.00	0.00	0.31	0.31	
			A's	0.08	0.00	0.30	0.00	0.31	0.69	1.00
18. Health Club	TSF	40.00	P's	0.00	0.00	0.00	0.01	0.25	0.26	
			A's	0.06	0.00	0.42	0.01	0.25	0.74	1.00
19. Car Dealership	TSF	37.60	P's	0.00	0.00	0.00	0.03	0.25	0.28	
			A's	0.08	0.21	0.15	0.03	0.25	0.72	1.00
20. Elementary/Middle School	STU	1.45	P's	0.00	0.00	0.00	0.00	0.03	0.03	
			A's	0.10	0.58	0.26	0.00	0.03	0.97	1.00
21. High School	STU	1.79	P's	0.00	0.00	0.00	0.00	0.03	0.03	
			A's	0.10	0.40	0.44	0.00	0.03	0.97	1.00
22. College	STU	1.54	P's	0.00	0.00	0.00	0.00	0.23	0.23	
			A's	0.06	0.00	0.48	0.00	0.23	0.77	1.00

Table A-3 (cont.)

ADT TRIP RATE AND P&A SPLITTING FACTOR SUMMARY

Land Use Type	Units	ADT Tripend Rate	Productions/ Attractions	Splitting Factors H-W	H-S	H-O	O-W	O-O	Total	P&A Total
23. Hospital	TSF	16.80	P's	0.00	0.00	0.00	0.00	0.05	0.05	
			A's	0.32	0.00	0.58	0.00	0.05	0.95	1.00
24. Library	TSF	84.98	P's	0.00	0.00	0.00	0.09	0.17	0.26	
			A's	0.16	0.00	0.32	0.09	0.17	0.74	1.00
25. Church	TSF	9.30	P's	0.00	0.00	0.00	0.05	0.10	0.15	
			A's	0.35	0.00	0.35	0.05	0.10	0.85	1.00
26. Day Care	STU	4.52	P's	0.00	0.00	0.00	0.00	0.03	0.03	
			A's	0.10	0.00	0.84	0.00	0.03	0.97	1.00
30. Industrial Park	TSF	6.00	P's	0.00	0.00	0.00	0.07	0.21	0.28	
			A's	0.39	0.00	0.05	0.07	0.21	0.72	1.00
31. Business Park	TSF	10.20	P's	0.00	0.00	0.00	0.07	0.21	0.28	
			A's	0.39	0.00	0.05	0.07	0.21	0.72	1.00
32. Manufacturing/Warehouse	TSF	5.10	P's	0.00	0.00	0.00	0.07	0.21	0.28	
			A's	0.39	0.00	0.05	0.07	0.21	0.72	1.00
33. Science/Research	TSF	10.20	P's	0.00	0.00	0.00	0.07	0.21	0.28	
			A's	0.39	0.00	0.05	0.07	0.21	0.72	1.00
34. Utilities	TSF	2.38	P's	0.00	0.00	0.00	0.09	0.17	0.26	
			A's	0.19	0.00	0.29	0.09	0.17	0.74	1.00
35. Regional Post Office	TSF	5.00	P's	0.00	0.00	0.00	0.07	0.21	0.28	
			A's	0.39	0.00	0.05	0.07	0.21	0.72	1.00
40. Commercial Office	TSF	11.56	P's	0.00	0.00	0.00	0.11	0.18	0.29	
			A's	0.27	0.00	0.15	0.11	0.18	0.71	1.00
41. High-Rise Office	TSF	10.88	P's	0.00	0.00	0.00	0.11	0.18	0.29	
			A's	0.27	0.00	0.15	0.11	0.18	0.71	1.00
42. Medical Office	TSF	34.20	P's	0.00	0.00	0.00	0.03	0.26	0.29	
			A's	0.14	0.00	0.28	0.03	0.26	0.71	1.00
43. Post Office	TSF	108.19	P's	0.00	0.00	0.00	0.09	0.22	0.31	
			A's	0.15	0.00	0.23	0.09	0.22	0.69	1.00
50. Golf Course	AC	7.96	P's	0.00	0.00	0.00	0.00	0.27	0.27	
			A's	0.08	0.00	0.38	0.00	0.27	0.73	1.00
51. Developed Park	AC	2.60	P's	0.00	0.00	0.00	0.00	0.12	0.12	
			A's	0.01	0.00	0.75	0.00	0.12	0.88	1.00
52. Undeveloped Park	AC	0.50	P's	0.00	0.00	0.00	0.00	0.12	0.12	
			A's	0.01	0.00	0.75	0.00	0.12	0.88	1.00
53. Wayside Honor Ranch	SG	100.00	P's	0.00	0.00	0.00	0.00	0.17	0.17	
			A's	0.33	0.00	0.33	0.00	0.17	0.83	1.00
54. Six Flags Magic Mtn	SG	100.00	P's	0.00	0.00	0.00	0.01	0.18	0.19	
			A's	0.15	0.00	0.47	0.01	0.18	0.81	1.00
55. Travel Village	SG	100.00	P's	0.00	0.00	0.00	0.01	0.25	0.26	
			A's	0.06	0.00	0.42	0.01	0.25	0.74	1.00

Table A-3 (cont.)

ADT TRIP RATE AND P&A SPLITTING FACTOR SUMMARY

Land Use Type	Units	ADT Tripend Rate	Productions/ Attractions	Splitting Factors H-W	H-S	H-O	O-W	O-O	Total	P&A Total
56. CHP Office	SG	100.00	P's	0.00	0.00	0.00	0.11	0.18	0.29	
			A's	0.27	0.00	0.15	0.11	0.18	0.71	1.00
57. Agua Dulce Airport	SG	100.00	P's	0.00	0.00	0.00	0.04	0.18	0.22	
			A's	0.16	0.00	0.40	0.04	0.18	0.78	1.00
58. Landfill	SG	100.00	P's	0.00	0.00	0.00	0.11	0.18	0.29	
			A's	0.27	0.00	0.15	0.11	0.18	0.71	1.00
59. Cemex	SG	100.00	P's	0.00	0.00	0.00	0.11	0.18	0.29	
			A's	0.27	0.00	0.15	0.11	0.18	0.71	1.00

Table A-4

SCVCTM 4.0 2004 LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
1.	Single Family (<1du/ac)	300.00 DU	P's	552	445	802	60	327	2286	
			A's	0	0	297	60	327	684	2970
2.	Single Family (1-5du/ac)	42731.00 DU	P's	93671	63460	114211	8462	45533	325737	
			A's	0	0	42312	8462	45533	97307	423044
3.	Single Family (6-10du/ac)	5612.00 DU	P's	12656	8632	15532	1154	6329	44303	
			A's	0	0	5752	1154	6329	13235	57538
4.	Condominium/Townhouse	23519.00 DU	P's	37628	31989	63974	3763	16932	154286	
			A's	0	0	13171	3763	16932	33866	188152
5.	Apartment	2108.00 DU	P's	2908	2474	4944	292	1309	11927	
			A's	0	0	1017	292	1309	2618	14545
6.	Mobile Home	2464.00 DU	P's	3398	2890	5783	341	1530	13942	
			A's	0	0	1189	341	1530	3060	17002
10.	Commercial Center (>30ac)	2675.04 TSF	P's	0	0	0	3215	26791	30006	
			A's	9645	21431	16075	3215	26791	77157	107163
11.	Commercial Center(10-30a)	4203.47 TSF	P's	0	0	0	6818	56813	63631	
			A's	20455	45437	34086	6818	56813	163609	227240
12.	Commercial Center (<10ac)	1307.47 TSF	P's	0	0	0	3337	33363	36700	
			A's	6672	16683	14457	3337	33363	74512	111212
13.	Commercial Shops	1168.87 TSF	P's	0	0	0	1299	12994	14293	
			A's	2598	6500	5634	1299	12994	29025	43318
14.	Hotel	985.00 ROOM	P's	0	0	0	486	1458	1944	
			A's	973	0	3246	486	1458	6163	8107
15.	Sit-Down Restaurant	210.92 TSF	P's	0	0	0	1649	6597	8246	
			A's	1100	0	9901	1649	6597	19247	27493
16.	Fast Food Restaurant	47.58 TSF	P's	0	0	0	1654	7317	8971	
			A's	236	0	5428	1654	7317	14635	23606
17.	Movie Theater	3300.00 SEAT	P's	0	0	0	0	1800	1800	
			A's	465	0	1743	0	1800	4008	5808
18.	Health Club	125.00 TSF	P's	0	0	0	50	1250	1300	
			A's	300	0	2100	50	1250	3700	5000
19.	Car Dealership	330.50 TSF	P's	0	0	0	372	3098	3470	
			A's	992	2604	1859	372	3098	8925	12395
20.	Elementary/Middle School	32506.00 STU	P's	0	0	0	0	1416	1416	
			A's	4714	27342	12252	0	1416	45724	47140
21.	High School	13228.00 STU	P's	0	0	0	0	710	710	
			A's	2369	9471	10418	0	710	22968	23678
22.	College	18379.00 STU	P's	0	0	0	0	6510	6510	
			A's	1698	0	13585	0	6510	21793	28303
23.	Hospital	222.80 TSF	P's	0	0	0	0	187	187	
			A's	1197	0	2172	0	187	3556	3743

Table A-4 (cont.)

SCVCTM 4.0 2004 LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
24. Library	53.73 TSF	P's	0	0	0	411	777	1188	
		A's	730	0	1461	411	777	3379	4567
25. Church	512.89 TSF	P's	0	0	0	240	479	719	
		A's	1661	0	1671	240	479	4051	4770
26. Day Care	460.00 STU	P's	0	0	0	0	62	62	
		A's	209	0	1746	0	62	2017	2079
30. Industrial Park	15517.43 TSF	P's	0	0	0	6519	19554	26073	
		A's	36300	0	4657	6519	19554	67030	93103
31. Business Park	1017.92 TSF	P's	0	0	0	727	2180	2907	
		A's	4050	0	519	727	2180	7476	10383
32. Manufacturing/warehouse	1970.77 TSF	P's	0	0	0	704	2110	2814	
		A's	3921	0	503	704	2110	7238	10052
34. Utilities	1121.24 TSF	P's	0	0	0	240	452	692	
		A's	506	0	778	240	452	1976	2668
35. Regional Post Office	764.00 TSF	P's	0	0	0	267	802	1069	
		A's	1491	0	191	267	802	2751	3820
40. Commercial Office	1170.75 TSF	P's	0	0	0	1489	2438	3927	
		A's	3648	0	2031	1489	2438	9606	13533
42. Medical Office	133.73 TSF	P's	0	0	0	137	1189	1326	
		A's	640	0	1281	137	1189	3247	4573
43. Post Office	50.00 TSF	P's	0	0	0	487	1190	1677	
		A's	811	0	1245	487	1190	3733	5410
50. Golf Course	753.00 AC	P's	0	0	0	0	1618	1618	
		A's	480	0	2278	0	1618	4376	5994
51. Developed Park	250.90 AC	P's	0	0	0	0	78	78	
		A's	3	0	493	0	78	574	652
52. Undeveloped Park	745.00 AC	P's	0	0	0	0	45	45	
		A's	4	0	279	0	45	328	373
53. Wayside Honor Ranch	20.00 SG	P's	0	0	0	0	340	340	
		A's	660	0	660	0	340	1660	2000
54. Six Flags Magic Mtn	160.00 SG	P's	0	0	0	160	2880	3040	
		A's	2430	0	7529	160	2880	12960	16000
55. Travel Village	26.20 SG	P's	0	0	0	26	655	681	
		A's	157	0	1101	26	655	1939	2620
56. CHP Office	55.74 SG	P's	0	0	0	613	1003	1616	
		A's	1506	0	836	613	1003	3958	5574
57. Agua Dulce Airport	34.06 SG	P's	0	0	0	136	613	749	
		A's	545	0	1363	136	613	2657	3406
58. Landfill	10.00 SG	P's	0	0	0	110	180	290	
		A's	270	0	150	110	180	710	1000
TOTAL		P's	150313	109800	205246	45218	271909	782576	
		A's	113406	129468	227457	45218	271909	787458	1570034

Table A-4

SCVCTM 4.0 LONG RANGE GP LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
1.	Single Family (<1du/ac)	1817.00 DU	P's	3969	2697	4859	360	1977	13852	
			A's	0	0	1799	360	1977	4136	17988
2.	Single Family (1-5du/ac)	68913.00 DU	P's	150096	102341	184204	13649	75043	525333	
			A's	0	0	68227	13649	75043	156919	682252
3.	Single Family (6-10du/ac)	17629.00 DU	P's	38399	26180	47117	3494	19196	134386	
			A's	0	0	17453	3494	19196	40143	174529
4.	Condominium/Townhouse	39509.00 DU	P's	63209	53735	107466	6322	28446	259178	
			A's	0	0	22126	6322	28446	56894	316072
5.	Apartment	8510.00 DU	P's	11743	9985	19968	1173	5284	48153	
			A's	0	0	4110	1173	5284	10567	58720
6.	Mobile Home	2565.00 DU	P's	3537	3008	6020	355	1593	14513	
			A's	0	0	1238	355	1593	3186	17699
10.	Commercial Center (>30ac)	8003.69 TSF	P's	0	0	0	9618	80157	89775	
			A's	28857	64129	48093	9618	80157	230854	320629
11.	Commercial Center(10-30a)	8518.44 TSF	P's	0	0	0	13812	115130	128942	
			A's	41449	92097	69077	13812	115130	331565	460507
12.	Commercial Center (<10ac)	2615.78 TSF	P's	0	0	0	6679	66750	73429	
			A's	13350	33369	26922	6679	66750	149070	222499
13.	Commercial Shops	1656.71 TSF	P's	0	0	0	1842	18418	20260	
			A's	3682	9210	7984	1842	18418	41136	61396
14.	Hotel	1406.00 ROOM	P's	0	0	0	694	2081	2775	
			A's	1388	0	4634	694	2081	8797	11572
15.	Sit-Down Restaurant	290.19 TSF	P's	0	0	0	2268	9078	11346	
			A's	1513	0	13620	2268	9078	26479	37825
16.	Fast Food Restaurant	53.08 TSF	P's	0	0	0	1845	8163	10008	
			A's	263	0	6056	1845	8163	16327	26335
17.	Movie Theater	3300.00 SEAT	P's	0	0	0	0	1800	1800	
			A's	465	0	1743	0	1800	4008	5808
18.	Health Club	125.00 TSF	P's	0	0	0	50	1250	1300	
			A's	300	0	2100	50	1250	3700	5000
19.	Car Dealership	441.50 TSF	P's	0	0	0	497	4139	4636	
			A's	1325	3478	2483	497	4139	11922	16558
20.	Elementary/Middle School	48591.00 STU	P's	0	0	0	0	2116	2116	
			A's	7049	40866	18318	0	2116	68349	70465
21.	High School	23274.00 STU	P's	0	0	0	0	1249	1249	
			A's	4168	16664	18331	0	1249	40412	41661
22.	College	25236.00 STU	P's	0	0	0	0	8939	8939	
			A's	2332	0	18653	0	8939	29924	38863
23.	Hospital	222.80 TSF	P's	0	0	0	0	187	187	
			A's	1197	0	2172	0	187	3556	3743

Table A-4 (cont.)

SCVCTM 4.0 LONG RANGE GP LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
24. Library	71.40 TSF	P's	0	0	0	546	1032	1578	
		A's	971	0	1941	546	1032	4490	6068
25. Church	635.89 TSF	P's	0	0	0	297	592	889	
		A's	2065	0	2071	297	592	5025	5914
26. Day Care	540.00 STU	P's	0	0	0	0	73	73	
		A's	245	0	2050	0	73	2368	2441
30. Industrial Park	40298.54 TSF	P's	0	0	0	16927	50779	67706	
		A's	94289	0	12090	16927	50779	174085	241791
31. Business Park	9113.92 TSF	P's	0	0	0	6510	19522	26032	
		A's	36249	0	4649	6510	19522	66930	92962
32. Manufacturing/Warehouse	4043.66 TSF	P's	0	0	0	1444	4330	5774	
		A's	8045	0	1032	1444	4330	14851	20625
34. Utilities	1150.24 TSF	P's	0	0	0	246	464	710	
		A's	519	0	798	246	464	2027	2737
35. Regional Post Office	764.00 TSF	P's	0	0	0	267	802	1069	
		A's	1491	0	191	267	802	2751	3820
40. Commercial Office	5188.12 TSF	P's	0	0	0	6598	10797	17395	
		A's	16186	0	8997	6598	10797	42578	59973
42. Medical Office	212.29 TSF	P's	0	0	0	218	1888	2106	
		A's	1016	0	2032	218	1888	5154	7260
43. Post Office	50.00 TSF	P's	0	0	0	487	1190	1677	
		A's	811	0	1245	487	1190	3733	5410
50. Golf Course	1233.00 AC	P's	0	0	0	0	2649	2649	
		A's	787	0	3730	0	2649	7166	9815
51. Developed Park	583.80 AC	P's	0	0	0	0	188	188	
		A's	11	0	1131	0	188	1330	1518
52. Undeveloped Park	762.50 AC	P's	0	0	0	0	46	46	
		A's	4	0	286	0	46	336	382
53. Wayside Honor Ranch	30.00 SG	P's	0	0	0	0	510	510	
		A's	990	0	990	0	510	2490	3000
54. Six Flags Magic Mtn	240.00 SG	P's	0	0	0	240	4320	4560	
		A's	3600	0	11280	240	4320	19440	24000
55. Travel Village	26.20 SG	P's	0	0	0	26	655	681	
		A's	157	0	1101	26	655	1939	2620
56. CHP Office	55.74 SG	P's	0	0	0	613	1003	1616	
		A's	1506	0	836	613	1003	3958	5574
57. Agua Dulce Airport	51.09 SG	P's	0	0	0	204	920	1124	
		A's	817	0	2044	204	920	3985	5109
58. Landfill	20.00 SG	P's	0	0	0	220	360	580	
		A's	540	0	300	220	360	1420	2000

Table A-4 (cont.)

SCVCTM 4.0 LONG RANGE GP LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	Productions/ Attractions	H-W	H-S	H-O	O-W	O-O	Total	P&A Total
59. Comex	12.84 SG	P's	0	0	0	141	231	372	
		A's	347	0	193	141	231	912	1284
TOTAL		P's	270943	197946	369634	97642	553347	1489512	
		A's	277984	259813	415126	97642	553347	1604912	3094424

Table A-5

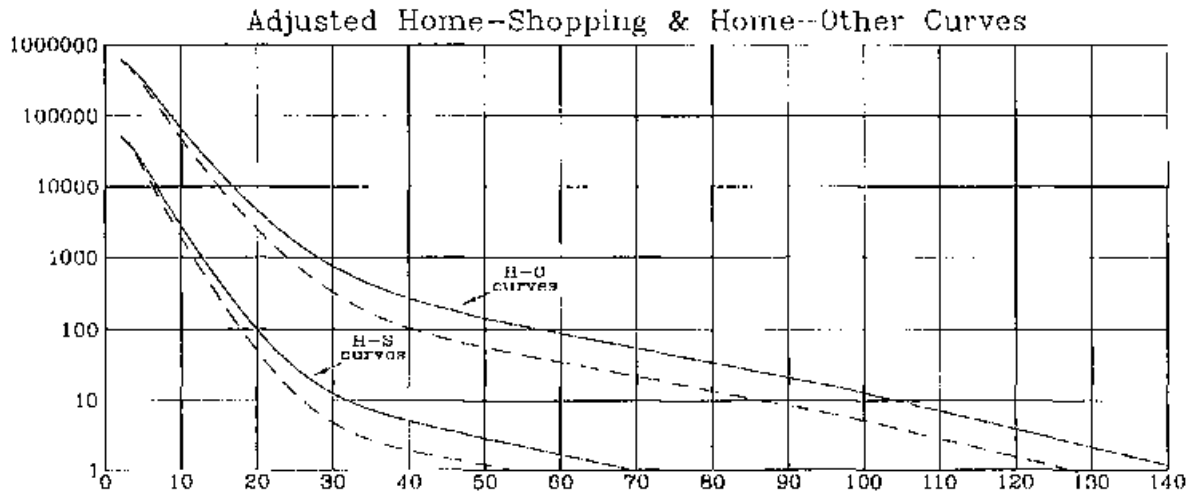
SCVCTM THROUGH-TRIPS

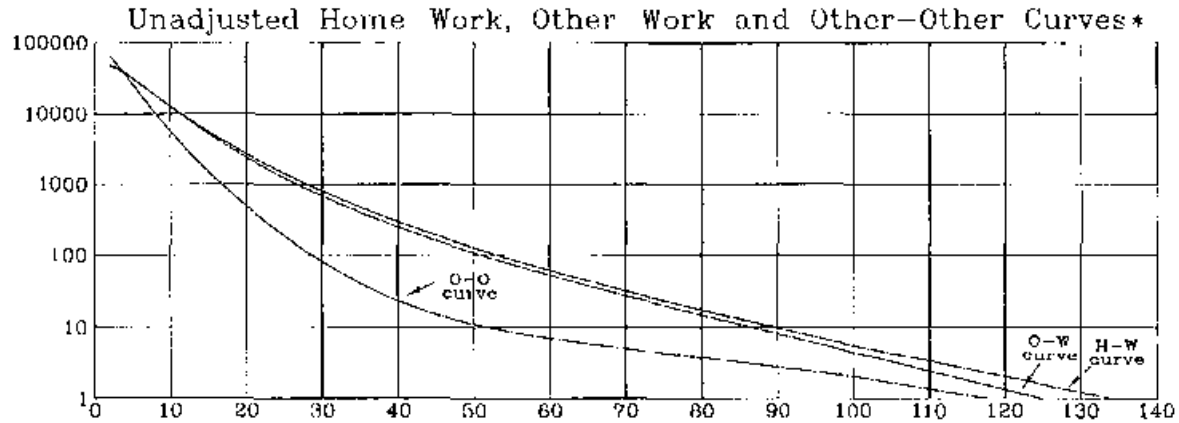
Cordon Zones		2004 AM	2004 PM	2004 Off-Peak	2004 Total	2030 AM	2030 PM	2030 Off-Peak	2030 Total
495	489	300	200	2,929	4,000	400	300	3,476	5,000
489	495	200	300	2,810	4,000	300	400	3,357	5,000
498	489	300	950	8,786	12,000	1,250	3,000	33,345	44,000
489	498	500	1,000	8,310	12,000	1,900	3,400	31,119	44,000
498	495	800	1,800	20,524	27,000	1,250	5,310	34,745	52,000
495	498	2,300	600	21,452	27,000	6,820	900	38,062	52,000
500	489	100	150	1,405	2,000	150	200	1,679	2,500
489	500	100	150	1,405	2,000	150	200	1,679	2,500
500	495	50	50	774	1,000	100	100	1,048	1,500
495	500	50	50	774	1,000	100	100	1,048	1,500
500	498	150	200	1,679	2,500	200	250	1,952	3,000
498	500	150	200	1,679	2,500	200	250	1,952	3,000

Note: Cordon locations are as follows:
489 I-5 (north)
495 SR-14
498 I-5 (south)
500 SR-126 (west)

Appendix B
TRIP DISTRIBUTION FUNCTIONS

The trip distribution functions used in the SCVCTM are illustrated in Figure B-1 and are listed in Table B-1.





* SCAG RTP functional curves for H-W, O-W and O-O are applied in the SCVCTM

Legend

SCAG RTP Functional Curve
SCVCTM Functional Curve

Figure B-1

SCAG RTP AND SCVCTM TRIP DISTRIBUTION FUNCTIONS

Table B-1

SCVCTM DISTRIBUTION FUNCTIONS

Interval*	H-W	H-S	H-O	O-W	O-O
1	43500	46000	54000	46000	72000
2	35500	40500	50860	39900	44500
3	27800	17890	27280	30400	28300
4	21250	7220	13450	23500	17750
5	15300	2970	6670	17450	10800
6	10650	1270	3400	11100	5300
7	8000	570	1798	7400	2750
8	5800	269	983	5000	1550
9	4100	132	557	3450	900
10	3050	68	326	2390	560
11	2300	37	197	1775	360
12	1800	21	124	1340	235
13	1400	13	80	1060	165
14	1085	8.1	54	810	120
15	880	5.6	38	650	90
16	700	4.1	28	530	69
17	580	3.3	21	420	55
18	490	2.7	17	346	44
19	405	2.3	14	285	36
20	340	2.0	11	235	30
21	280	1.8	9.7	200	25
22	235	1.6	8.4	165	22
23	195	1.5	7.4	140	19
24	165	1.3	6.6	123	16
25	140	1.2	5.9	106	14
26	118	1.1	5.4	95	12
27	100	1.0	4.9	84	11
28	87	.9	4.4	73	10
29	75	.9	4.0	65	9
30	66	.8	3.7	58	8
31	55	.7	3.3	51	7
32	49	.7	3.0	46	7
33	43	.6	2.8	41	6
34	37	.6	2.5	36	5
35	33	.5	2.3	31	5
36	28	.5	2.1	28	5
37	25	.4	1.9	25	4
38	22	.4	1.7	22	4
39	19	.4	1.6	19	4

Table B-1 (cont)
SCVCTM DISTRIBUTION FUNCTIONS

Interval*	H-W	H-S	H-O	O-W	O-O
40	17	.3	1.4	18	3
41	15	.3	1.3	16	3
42	14	.3	1.2	14	3
43	12	.2	1.1	12	3
44	11	.2	1.0	11	3
45	10	.2	.9	10	3
46	9	.2	.8	9	2
47	8	.2	.7	9	2
48	7	.1	.7	8	2
49	7	.1	.6	7	2
50	6	.1	.5	6	2
51	6	.1	.5	6	2
52	5	.1	.4	5	2
53	5	.1	.4	4	2
54	4	.1	.3	4	2
55	4	.1	.3	3	2
56	3	.1	.3	3	2
57	3	.1	.2	2	1
58	3	0	.2	2	1
59	3	0	.2	2	1
60	2	0	.2	1	1
61	2	0	.2	1	1
62	2	0	.2	0	1
63	2	0	.1	0	1
64	1	0	.1	0	0
65	1	0	.1	0	0
66	1	0	.1	0	0
67	1	0	.1	0	0
68	1	0	.1	0	0
69	0	0	.1	0	0
70	0	0	.08	0	0
71	0	0	.06	0	0
72	0	0	.04	0	0

* Two minutes per interval

Abbreviations: H-W – Home to Work; H-S – Home to Shopping; H-O – Home to Other; O-W – Other to Work; O-O – Other to Other

Appendix C
SCVCTM PROCESSING

This appendix describes the general processing involved in running the SCVCTM. It is not intended as a users manual, but as a guide to understanding how various software programs are used to carry out individual processing steps.

Tables C-1 through C-5 (and associated flow charts in Figures C-1 through C-5) list the software programs and related functions for components of the SCVCTM. The procedures utilize Austin-Foust Associates (AFA) VOLPAC and CITILABS/UAG TRANPLAN programs. Both VOLPAC and TRANPLAN programs are listed where appropriate. Certain steps such as assignment post-processing (VOLPAC) do not have direct TRANPLAN equivalents, and several VOLPAC steps are required to carry out the processing. VOLPAC processing steps are easily incorporated into a typical TRANPLAN batch run setup.

Table C-1

NETWORK DEVELOPMENT*

SOFTWARE (UAG TRANPLAN)	PROGRAM OPERATIONS
MACNET	Edits highway network file or loaded highway network history file (large-scale editing).
HNIS	Edits highway network link and node coordinate data files (on-screen editing).
HWYNET	Builds a highway network or updates an existing one.
PLOTNET	Produces a highway network link attribute (assignment group, link group, distance, lanes, speed, time, or area type) plotter code file.
DATA FILES	DESCRIPTION
LINK FILE	Produced by editing programs and used as input to network build program
NETWORK FILE	Produced by network build program and input to plotting program, skim file preparation (see distribution component) and assignment program (see assignment component)

* Figure C-1 provides a flowchart for the model's network development component.

Table C-2

TRIP GENERATION*

SOFTWARE (AFA VOLPAC)	PROGRAM OPERATIONS
TRIPGEN	Generates peak hour and production and attraction (P&A) trips based on input land use and trip rates. Also summarizes peak hour and ADT cordon volumes, balances internal and cordon peak hour volumes, derives P&A cordon volumes, and balances internal and cordon P&A volumes.
DATA FILES	DESCRIPTION
TRIPENDS	Trip ends by zone for input to trip distribution.

* Figure C-2 provides a flowchart for the model's trip generation component.

Table C-3

TRIP DISTRIBUTION*

SOFTWARE (UAG TRANPLAN)	PROGRAM OPERATIONS
GMODEL	Distributes zonal trip productions and attractions by trip purpose into zone-to-zone trip interchanges.
TRNSPS	Transposes trip tables.
MTABLE,UTABLE	Factors and adds trip tables.
COMPRESS	Compresses a trip table to a sub-area trip table.
FRATAR	Factors rows and columns of a trip table using a fratar matrix balancing algorithm.
DATA FILES	DESCRIPTION
SKIM	Travel time skim trees
TRIPENDS	Zonal productions and attractions by trip purpose
FRICTION FACTORS	Travel time impedance factors
TRIPTAB	Output zone-to-zone trip interchanges for input to trip assignment

* Figure C-3 provides a flowchart for the model's trip distribution component.

Table C-4

ASSIGNMENT*

SOFTWARE (UAG TRANPLAN)	PROGRAM OPERATIONS
HWYLOD,EQUILB	Assigns intrazonal highway trips onto a network created by **HNIS, NWYNET, MACNET**, or by any of the loading programs (**HWYLOD, EQUILB**). Also performs select link analysis.
HWYLOD, EQUILB, UTABLE	Loads trips to and from a group of selected zones onto a network based on saved capacity restraint/incremental loading speeds from a full assignment.
TURNS	Extracts intersection volumes.
DATA FILES	DESCRIPTION
NETWORK FILE	Input highway network
TRIP TABLE FILE	Input highway trip table
INTERSECTION DATA	Intersection and turn penalty specifications
LOADED NETWORK DATA	Output loaded network with assigned volumes
INTERSECTION DATA FILE	Output intersection volumes

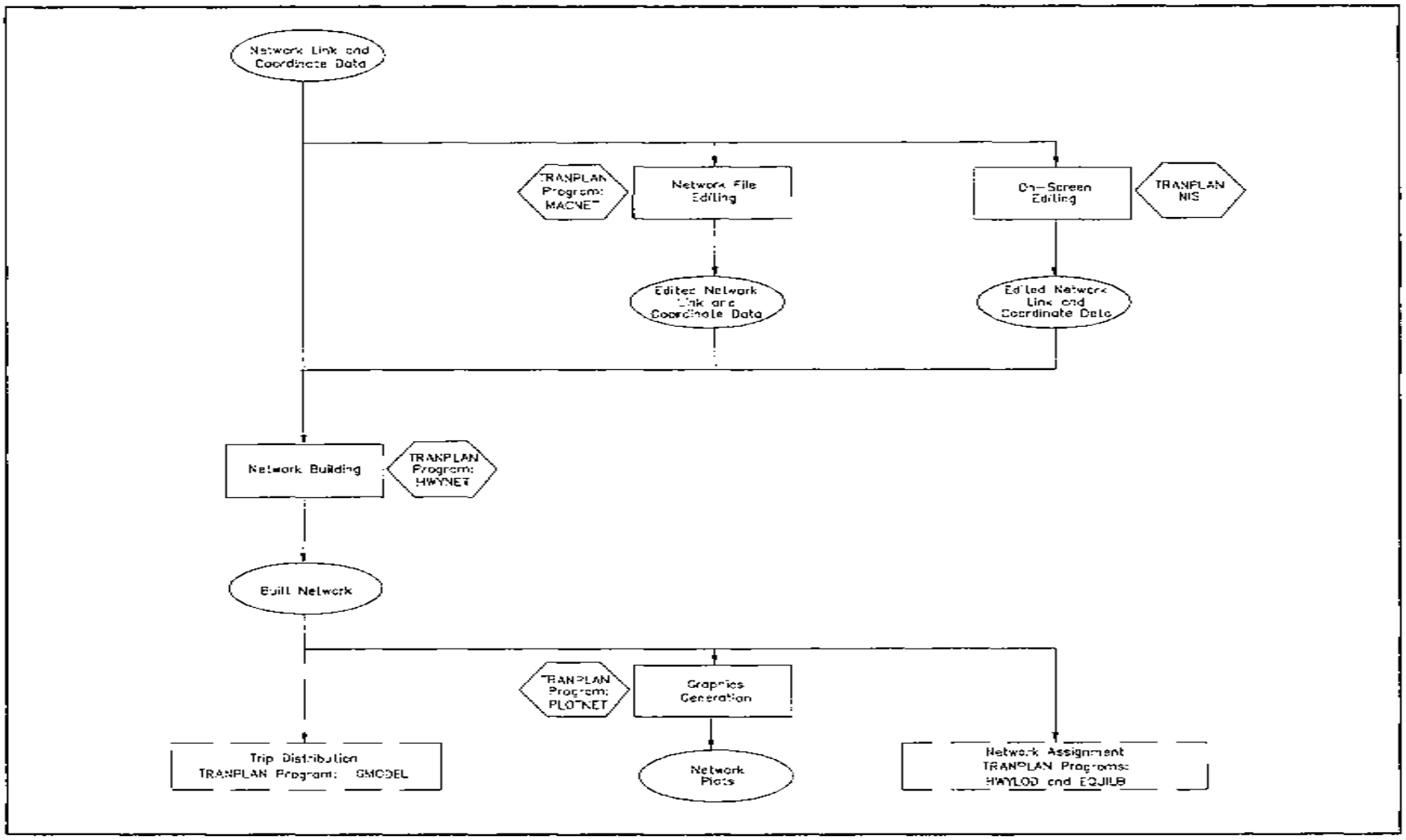
* Figure C-4 provides a flowchart for the model's network assignment component.

Table C-5

ASSIGNMENT POST-PROCESSING*

SOFTWARE (AFA VOLPAC)	PROGRAM OPERATIONS
TURNCNVT	Combines AM and PM intersection turn volume data from the traffic assignment component with intersection lane configurations to produce a standard format intersection data file (IDF).
ICUCOMP	Calculates intersection capacity utilization (ICU) values and produces ICU calculation summaries.
VOLMOD	Factors and/or adds and/or subtracts standard format intersection data files (IDF's) or standard format link volume data files.
LANEMOD	Revises intersection lane configurations contained in a standard format intersection data file (IDF).
SCRNLINE	Combines standard format link volume data sets into screenline tabular summarizes along with link number of lanes, capacity, and volume-to-capacity (V/C) ratios.
IVOL	Adjusts forecasted intersection turn volumes based on a comparison of base year modeled volumes and base year count data.
LVOL	Adjusts forecasted link volumes based on a comparison of base year modeled volumes and base year count data.
DATA FILES	DESCRIPTION
INTERSECTION DATA FILE	AM and PM intersection turn movement volumes and lane configurations
LINK DATA FILE	ADT volumes for designated links

* Figure C-5 provides a flowchart for the model's assignment post-processing component.

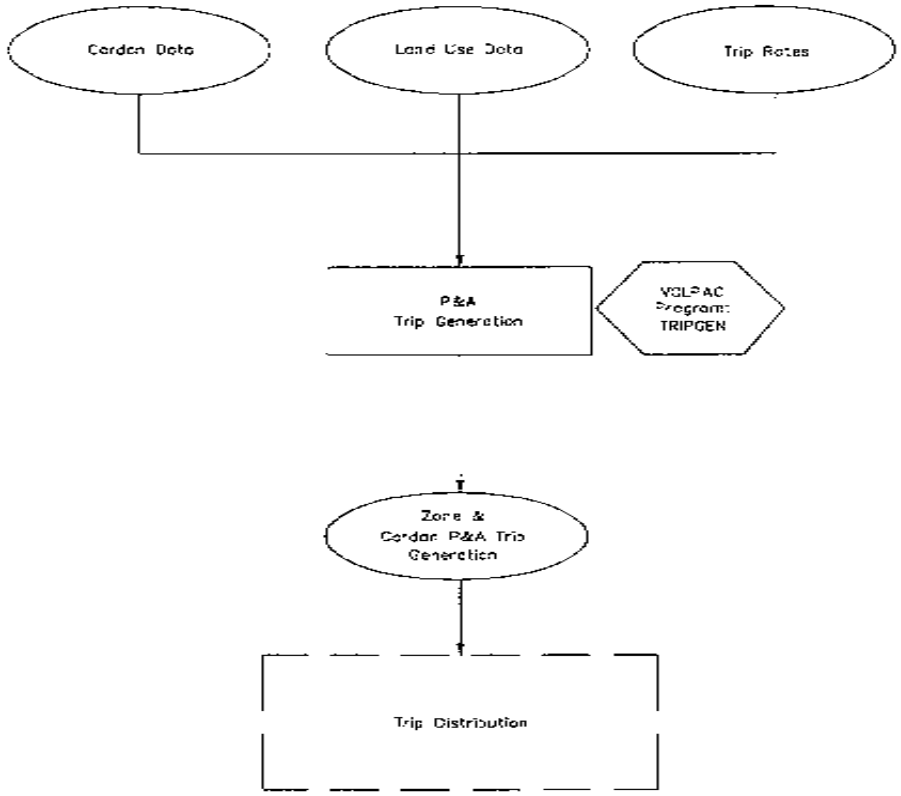


Legend

- Input and Output
- Processing Step
- Software/Program Used

Figure C-1

NETWORK DEVELOPMENT COMPONENT

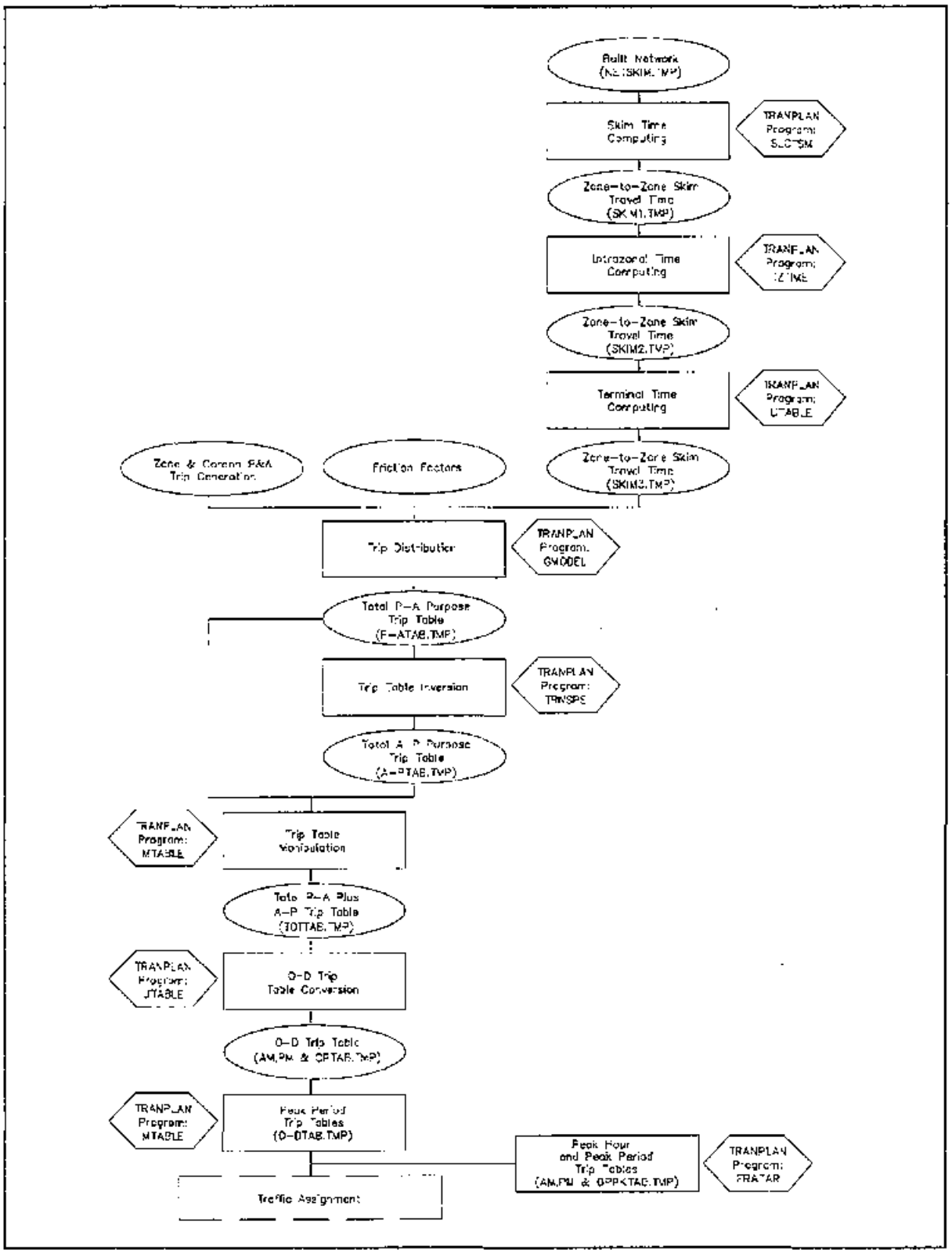


Legend

- Input and Output
- Processing Step
- Software/Program Used

Figure C-2

TRIP GENERATION COMPONENT

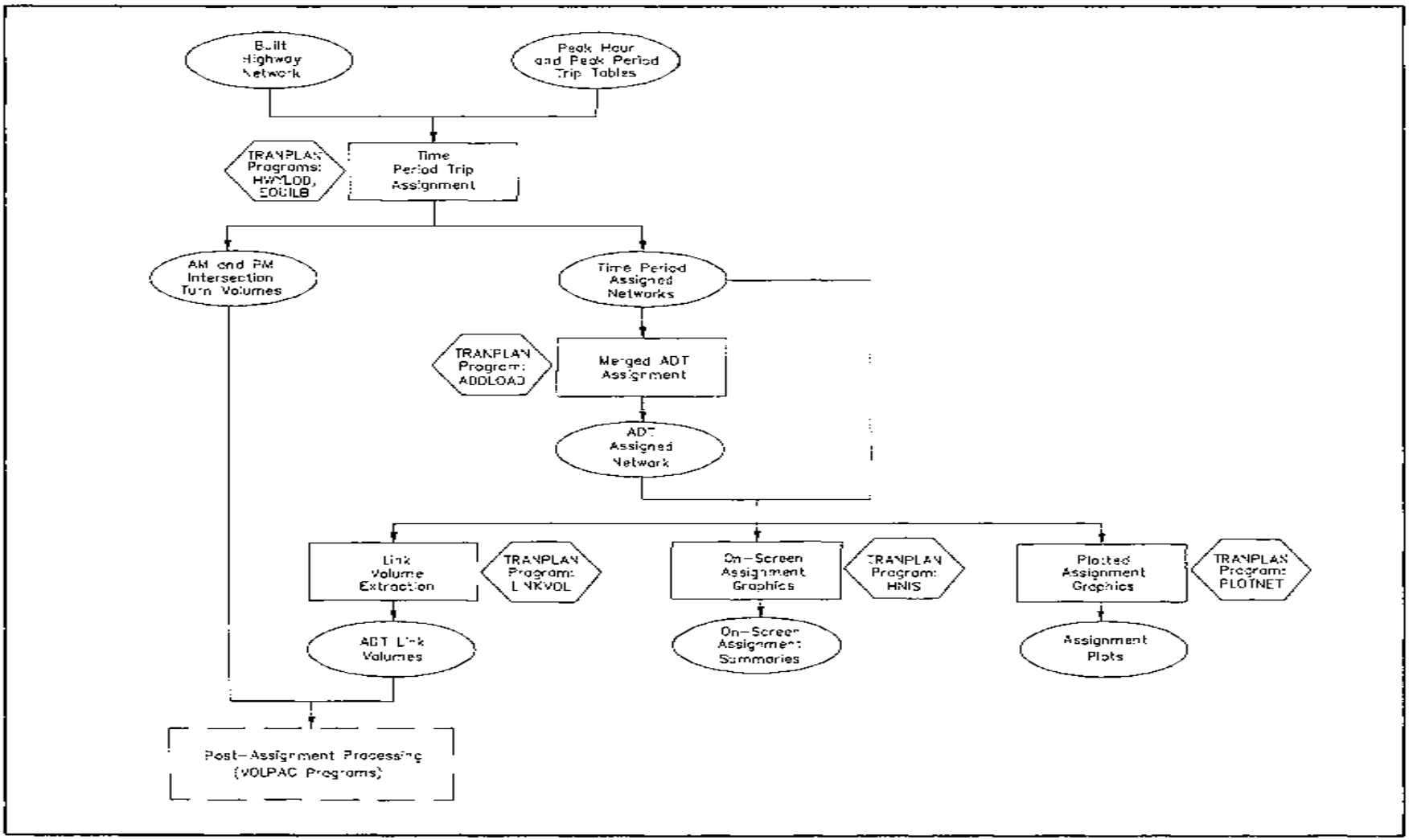


Legend

- Input and Output with Sample File Name in Parentheses
- Processing Step
- Software/Program used

Figure C-3

TRIP DISTRIBUTION COMPONENT

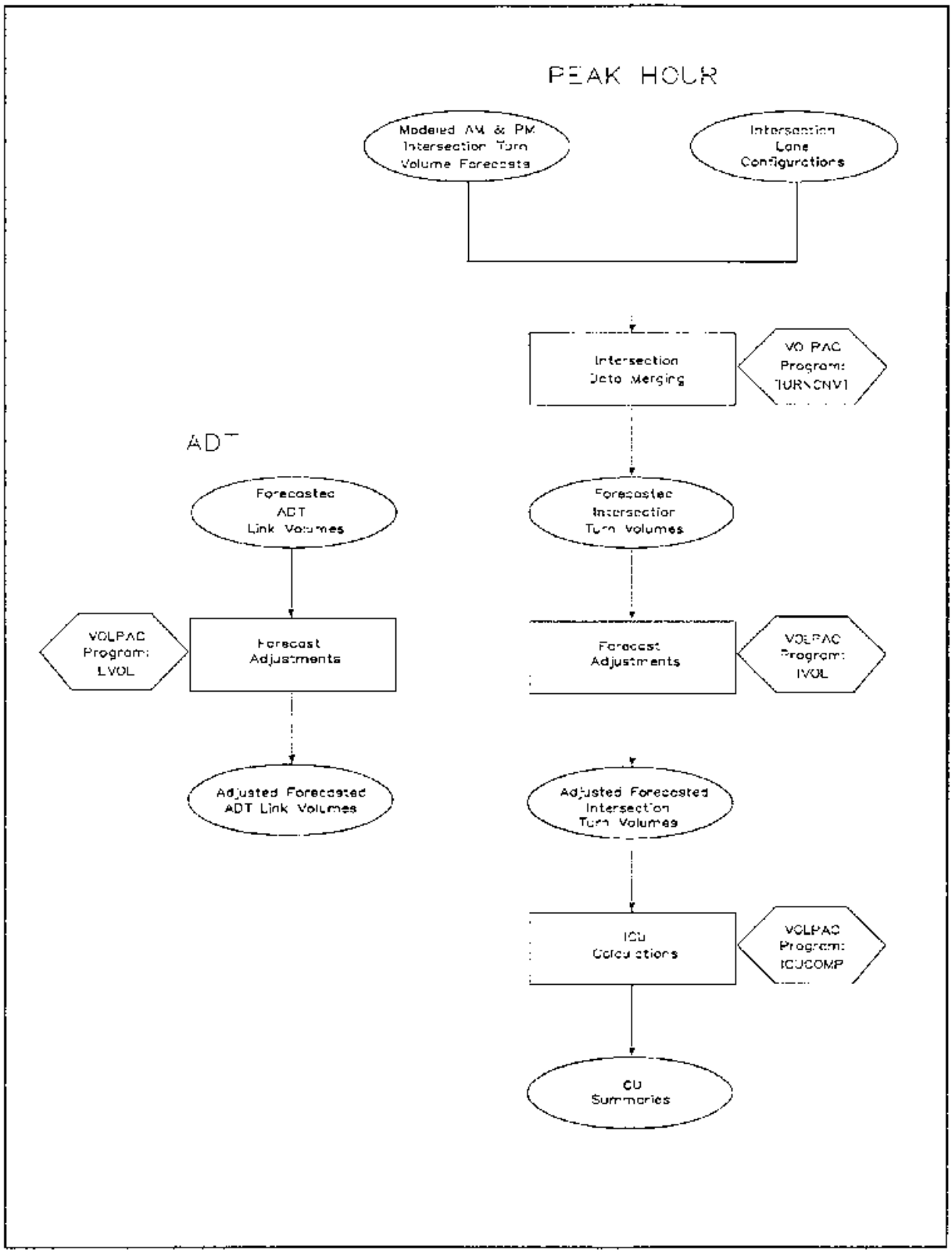


Legend

- Input and Output
- Processing Step
- Software/Program Used

Figure C-4

TRAFFIC ASSIGNMENT COMPONENT



Legend

- Input and Output
- Processing Step
- Software/Program used

Figure C-5

POST-ASSIGNMENT PROCESSING COMPONENT

Appendix D
COUNT VERSUS MODEL STATISTICS

The appendix summarizes the results of the statistical analyses performed on traffic forecasts produced by the base year version of the Santa Clarita Valley Consolidated Traffic Model (SCVCTM). Modeled volumes were compared with observed counts based on calculations using the following variable:

$$V = m - c$$

where V = difference between modeled and count volumes
m = modeled volume
c = count volume

The resulting statistical measures of variation (i.e., average difference and standard deviation) serve as a guideline for evaluating the accuracy and reliability of traffic forecast data produced using the SCVCTM.

Table D-1 summarizes the statistical analysis that compares observed and modeled mid-block ADT volumes, and Table D-2 lists the statistical analysis summary that compares observed and modeled peak hour intersection approach volumes. In Table D-3, peak hour ICU values based on observed and modeled intersection volumes are compared. The average difference and standard deviation between the two data sets is listed at the end of each summary table, together with the sample size of each data set.

Table D-1

SCVCTM 2004 - ADT STATISTICAL SUMMARY

LOCATION	COUNT	MODELED	DIFF	%DIFF
6. Chiquito Cyn n/o SR-126	1942	279	-1663	-86%
10. Hasley Cyn w/o The Old Rd	15622	17083	1461	9%
12. Commerce Ctr s/o Franklin Pk	13377	16497	3120	23%
19. Valencia e/o The Old Rd	19286	15561	-3725	-19%
22. Magic Mtn w/o Old Road	10000	15703	5703	57%
23. The Old Rd n/o Hasley Cyn	15512	15550	-62	-0%
24. The Old Rd s/o Hasley Cyn	10659	9400	-1259	-12%
26. The Old Rd s/o Henry Mayo	16226	17145	919	6%
27. The Old Rd n/o Rye Cyn	32302	38662	6360	20%
28. The Old Rd n/o Magic Mtn	33862	32626	-1236	-4%
29. The Old Rd s/o Magic Mtn	14257	13621	-636	-4%
30. The Old Rd s/o Valencia	17481	15252	-2229	-13%
31. The Old Rd s/o Stevenson Rch	25189	24287	-902	-4%
32. The Old Rd s/o Pico Cyn	10315	8292	-2023	-20%
34. Pico Cyn w/o The Old Rd	14282	15499	1217	9%
36. McBean w/o Rockwell	38003	37559	-444	-1%
37. McBean e/o Rockwell	26000	22627	-3373	-13%
38. McBean s/o Valencia	39063	36083	-2980	-8%
39. McBean s/o Town Center	42040	43921	1881	4%
40. McBean n/o Magic Mtn	56000	53614	-2386	-4%
41. McBean s/o Newhall Ranch	47000	45182	-1818	-4%
42. McBean n/o Newhall Ranch	33646	31554	-2092	-6%
43. McBean n/o Decoro	21000	22470	1470	7%
45. SR-126 w/o San Martinez	25000	25043	43	0%
47. SR-126 e/o Chiquito Cyn	25000	24852	-148	-1%
48. SR-126 w/o Commerce Center	26000	27655	1655	6%
49. SR-126 w/o Old Road	29000	32549	3549	12%
50. Newhall Ranch e/o I-5	11310	13208	1892	17%
52. Newhall Ranch e/o Rye	9672	8402	-1270	-13%
53. Newhall Ranch w/o Baywood	21802	24257	2455	11%
54. Newhall Ranch e/o McBean	32000	27962	-4038	-13%
62. Rye Cyn e/o The Old Rd	40522	38975	-1547	-4%
63. Rye Cyn w/o Ave Scott	37136	40386	3250	9%
64. Rye e/o Scott	36000	38705	2705	8%
65. Copper Hill n/o Newhall Rnch	27707	32007	4300	16%
66. Copper Hill n/o Decoro	22000	21548	-452	-2%
67. Copp H btwn McBr/Canterbury	29461	29799	338	1%
70. Decoro e/o Copper Hill	6000	8902	2902	48%
71. Decoro e/o Dickason	9260	11372	2112	23%
72. Decoro e/o McBean Pkwy	17179	19976	2797	16%
76. Bouquet e/o Haskell	25000	16029	-8971	-36%
78. Bouquet Cyn w/o Seco	59090	57977	-1113	-2%
79. Bouquet Cyn s/o Newhall Rnch	62672	66248	3576	6%
81. San Fernando s/o Magic Mtn	43697	43007	-690	-2%
87. Ave Scott w/o Channel	14578	14492	-86	-1%
88. Magic Mtn e/o I-5	21394	31095	9701	45%
89. Magic Mtn e/o Tourney	27780	32602	4822	17%
90. Magic Mtn w/o Citrus	22546	24420	1874	8%
91. Magic Mtn w/o Bouquet	16810	21036	4226	25%
96. Valencia e/o I-5 NB Ramps	42432	47571	5139	12%
97. Valencia e/o Tourney	38741	47042	8301	21%
98. Valencia w/o McBean	46000	52387	6387	14%
99. Valencia w/o Citrus	40001	38687	-1314	-3%
100. Valencia w/o Cinema	52771	55344	2573	5%
101. Soledad e/o Bouquet Cyn	55417	57320	1903	3%
103. Wiley Cyn Rd n/o Lyons	18099	18395	296	2%
104. Wiley Cyn Rd e/o Tournament	14967	13778	-1189	-8%
105. Wiley Cyn Rd e/o Orch Villg	11205	12176	971	9%
111. San Fernando n/o Valle Oro	44879	46543	1664	4%
112. Orchard Village s/o McBean	29474	29716	242	1%
115. Lyons e/o I-5 NB Ramps	37063	38992	1929	5%
116. Lyons e/o Wiley Cyn	33081	32566	-515	-2%
117. Lyons e/o Orchard Village	34470	32962	-1508	-4%
119. McBean n/o Orchard Village	35000	30685	-4315	-12%
126. Bouquet e/o Seco	44000	42524	-1476	-3%
127. Bouquet e/o Plum Cyn	16000	12556	-3444	-22%
128. Newhall Ranch w/o Bouquet	28464	31859	3395	12%
143. Soledad w/o Golden Valley	54000	57100	3100	6%
144. Soledad w/o Whites Cyn	39000	44460	5460	14%
145. Soledad e/o Whites Cyn	41000	44297	3297	8%
146. Soledad e/o Sierra Hwy	36000	36593	593	2%
147. Plum Cyn s/o Bouquet	19000	10563	-8437	-44%
149. Whites Cyn n/o Soledad	38000	41048	3048	8%
150. Whites Cyn s/o Soledad	29000	25658	-3342	-12%
153. Princessa s/o Whites Cyn	36000	33763	-2237	-6%
154. Princessa s/o Sierra Hwy	28000	27362	-638	-2%
160. Sierra Hwy s/o Golden Vally	24335	24191	-144	-1%
161. Sierra s/o Princessa	29000	33905	4906	17%
162. Sierra s/o Soledad	35000	37700	2700	8%
163. Sierra n/o Soledad	22000	22131	131	1%
164. Sierra btw Romsen/San Fern	11755	11995	240	2%
170. Ave Stanford n/o Rye Cyn	12012	9091	-2921	-24%
194. Copper Hill w/o McBean	20741	18638	-2103	-10%
220. Orchard Village n/o Lyons	21974	21232	-742	-3%
227. Soledad e/o Rainbow Glen	47000	51890	4890	10%
230. Pico Cyn e/o The Old Rd	29345	38948	9603	33%
231. McBean e/o The Old Rd	27302	32750	5448	20%
233. Ave Stanford se/o Rye Cyn	11964	9685	-2278	-19%
240. Wolcott n/o SR-126	277	420	143	52%
249. Calgrove e/o The Old Road	10753	9414	-1339	-12%
254. Wiley Cyn n/o Calgrove	9623	6859	-2764	-29%
257. The Old Rd n/o Calgrove	8291	5290	-3001	-36%
258. McBean s/o Ave Scott	60800	59740	-1060	-2%
260. Soledad Cyn w/o Sand Cyn	27000	28533	1533	6%
267. Sierra Hwy s/o Crusa Mesa	10000	3249	-6751	-68%
269. Sand Cyn s/o Sierra Hwy	4000	7419	3419	85%
270. Sand Cyn s/o SR-14	21000	23615	2615	12%
277. Soledad Cyn e/o Shadow Pine	7000	8014	1014	14%
279. Shadow Pine n/o Soledad	8000	5915	-2085	-26%
300. Sloan Cyn e/o The Old Road	12163	9615	-2548	-21%

Table D-1 (cont.)

SCVCTM 2004 - ADT STATISTICAL SUMMARY

LOCATION	COUNT	MODELED	DIFF	%DIFF	LOCATION	COUNT	MODELED	DIFF	%DIFF
301. Lake Hughes w/o Castaic	20394	11959	-8435	-41%	313. The Old Rd n/o Hillcrest	6519	3036	-3483	-53%
302. Lake Hughes w/o Diamond	5753	3526	-2227	-39%	314. The Old Rd s/o Calgrove	11339	7684	-3655	-32%
303. The Old Rd n/o Sloan Cyn	10221	9615	-606	-6%	316. Soledad Cyn e/o SR-14 SB Rp	23000	19982	-3018	-13%
305. Ridge Route n/o Lake Hughes	4086	1846	-2240	-55%	317. Soledad Cyn w/o Shadow Pine	11000	10513	-487	-4%
306. Ridge Route n/o Castaic	4961	4131	-830	-17%	318. Sand Cyn s/o Soledad Cyn	23000	32227	9227	40%
307. Ridge Route e/o I-5 NB Ramp	15559	12123	-3436	-22%	319. Valencia e/o Mcbean	42000	48310	6310	15%
308. Ridge Route btwn I-5 Ramps	11319	9310	-2009	-18%	320. Magic Mountain w/o Valencia	22000	32531	10531	48%
309. Parker w/o I-5 SB Ramp	7358	5848	-1510	-21%	321. Bouquet cyn s/o Soledad	42000	40602	-1398	-3%
310. Castaic n/o Lake Hughes	6242	9261	3019	48%	322. Mcbean s/o Copper Hill	15000	16597	1597	11%
311. Castaic s/o Lake Hughes	10970	2212	-8758	-80%	323. Copper Hill s/o Decoro	25000	27907	2907	12%
312. Castaic s/o Ridge Route	1726	6970	5244	304%	324. Mcbean s/o Decoro	26000	27983	1983	8%

SAMPLE SIZE = 122 AVERAGE COUNT = 24677 AVERAGE VOLUME = 25142

AVERAGE DIFFERENCE = 465

STANDARD DEVIATION = 3666.1

Table D-2

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
1. Old Road & I-5 SB Ramps									
	COUNT	425	526	645	0	438	409	733	0
	MODELED	406	596	454	0	530	449	697	0
	DIFF	-19	70	-191	--	92	40	-36	--
	% DIFF	-4%	13%	-30%	--	21%	10%	-5%	--
2. I-5 NB Ramps & Lake Hughes									
	COUNT	148	784	197	609	316	1244	649	949
	MODELED	42	602	244	500	60	888	660	778
	DIFF	-106	-182	47	-109	-256	-356	11	-171
	% DIFF	-72%	-23%	24%	-18%	-81%	-29%	2%	-18%
3. I-5 SB Ramps & Parker									
	COUNT	0	636	576	544	0	863	388	661
	MODELED	0	606	785	455	0	792	519	543
	DIFF	--	-30	209	-89	--	-71	131	-118
	% DIFF	--	-5%	36%	-16%	--	-8%	34%	-18%
4. I-5 NB Ramps & Ridge Route									
	COUNT	0	844	372	636	0	1091	570	867
	MODELED	0	838	370	606	0	1030	848	792
	DIFF	--	-6	-2	-30	--	-61	278	-75
	% DIFF	--	-1%	-1%	-5%	--	-6%	49%	-9%
5. I-5 SB & Hasley Cyn									
	COUNT	173	702	936	1793	111	974	605	1662
	MODELED	199	1018	848	2065	102	1087	717	1906
	DIFF	26	316	-88	272	-9	113	112	244
	% DIFF	15%	45%	-9%	15%	-8%	12%	19%	15%
6. I-5 NB & Hasley Cyn									
	COUNT	98	0	606	702	206	0	770	974
	MODELED	72	0	946	1018	269	0	818	1087
	DIFF	-26	--	340	316	63	--	48	113
	% DIFF	-27%	--	56%	45%	31%	--	6%	12%
7. I-5 SB Ramps & SR-126									
	COUNT	147	1247	639	2033	132	1247	1058	2437
	MODELED	133	1332	499	1964	184	1208	1146	2538
	DIFF	-14	85	-140	-69	52	-39	88	101
	% DIFF	-10%	7%	-22%	-3%	39%	-3%	8%	4%
8. I-5 NB Ramps & SR-126									
	COUNT	0	832	1039	1247	0	709	1112	1247
	MODELED	0	927	1503	1330	0	975	1379	1206
	DIFF	--	95	464	83	--	266	267	-41
	% DIFF	--	11%	45%	7%	--	38%	24%	-3%
9. The Old Rd & I-5 SB Ramps									
	COUNT	1234	1249	2506	29	1516	1171	2678	29
	MODELED	1479	1092	2571	0	1575	1179	2746	0
	DIFF	245	-157	65	-29	59	8	70	-29
	% DIFF	20%	-13%	3%	-100%	4%	1%	3%	-100%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
10. I-5 SB Ramps & Magic Mtn									
	COUNT	0	2270	794	2034	0	2059	734	2051
	MODELED	0	2439	889	1972	0	2234	764	2344
	DIFF	--	169	95	-62	--	165	30	293
	% DIFF	--	7%	12%	-3%	--	8%	4%	14%
11. I-5 NB Ramps & Magic Mtn									
	COUNT	0	1571	1487	2270	0	2094	1549	2069
	MODELED	0	2131	1279	2440	0	2467	1457	2234
	DIFF	--	560	-208	170	--	373	-92	165
	% DIFF	--	36%	-14%	7%	--	18%	-6%	8%
12. I-5 SB Ramps & Valencia									
	COUNT	1664	2373	291	1145	1710	2437	357	1670
	MODELED	1770	2362	212	856	1529	2512	119	1282
	DIFF	106	-11	-79	-290	-181	75	-238	-388
	% DIFF	6%	-0%	-27%	-25%	-11%	3%	-67%	-23%
13. I-5 NB Ramps & Valencia									
	COUNT	0	3125	1524	2373	0	3541	1612	2437
	MODELED	0	3411	1437	2362	0	3690	1756	2512
	DIFF	--	286	-87	-11	--	149	144	75
	% DIFF	--	9%	-6%	-0%	--	4%	9%	3%
14. I-5 SB Ramps & Stevenson Rch									
	COUNT	875	1865	424	1646	924	2823	236	2423
	MODELED	999	2190	532	1965	1113	3155	237	2659
	DIFF	124	325	108	319	189	332	1	236
	% DIFF	14%	17%	25%	19%	20%	12%	0%	10%
15. I-5 NB Ramps & McBean									
	COUNT	105	2240	866	1865	108	3128	1319	2823
	MODELED	302	2870	1041	2191	201	3725	1459	3153
	DIFF	197	630	175	326	93	597	140	330
	% DIFF	188%	28%	20%	17%	86%	19%	11%	12%
16. I-5 SB/Marriott & Pico/Lyons									
	COUNT	940	2381	307	1608	846	2932	250	2330
	MODELED	1036	2501	0	1583	1055	2914	88	2475
	DIFF	96	120	-307	-25	209	-18	-162	145
	% DIFF	10%	5%	-100%	-2%	25%	-1%	-65%	6%
17. I-5 NB On/Off & Lyons Ave									
	COUNT	485	2445	586	2194	628	3188	1330	2966
	MODELED	736	2690	761	2365	514	3202	1498	2985
	DIFF	251	245	175	171	-114	14	168	20
	% DIFF	52%	10%	30%	8%	-18%	0%	13%	1%
18. I-5 SB Ramps & Calgrove									
	COUNT	277	947	518	766	229	1083	196	1074
	MODELED	171	1140	848	667	325	830	369	920
	DIFF	-106	193	330	-99	96	-253	173	-154
	% DIFF	-38%	20%	64%	-13%	42%	-23%	88%	-14%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
19. I-5 NB Ramps & Calgrove									
	COUNT	129	955	119	946	365	981	387	1083
	MODELED	228	1050	272	1138	266	1139	802	829
	DIFF	99	94	153	192	-99	158	415	-254
	% DIFF	77%	10%	129%	20%	-27%	16%	107%	-23%
20. I-5 SB On Ramp & Pico/Lyons									
	COUNT	0	2194	591	2785	0	2966	332	3298
	MODELED	0	2364	555	2919	0	2986	467	3453
	DIFF	--	170	-35	134	--	20	135	155
	% DIFF	--	8%	-6%	5%	--	1%	41%	5%
21. The Old Rd & Calgrove Blvd									
	COUNT	496	704	910	0	768	1073	1427	0
	MODELED	396	668	528	0	527	920	785	0
	DIFF	-100	-36	-332	--	-241	-153	-642	--
	% DIFF	-20%	-5%	-42%	--	-31%	-14%	-45%	--
25. The Old Rd & Rye Canyon									
	COUNT	2569	3667	2887	0	2885	3296	2657	0
	MODELED	2592	3318	2160	0	2822	3319	2477	0
	DIFF	24	-349	-727	--	-63	23	-180	--
	% DIFF	1%	-10%	-25%	--	-2%	1%	-7%	--
26. The Old Rd & Magic Mountain									
	COUNT	2631	1984	983	102	2690	2038	1269	157
	MODELED	2207	1972	949	676	2528	2343	1263	1326
	DIFF	-424	-12	-34	574	-162	305	-6	1169
	% DIFF	-16%	-1%	-3%	563%	-6%	15%	-0%	745%
27. The Old Rd & Valencia									
	COUNT	1136	1146	997	717	1657	1670	1774	685
	MODELED	924	858	850	466	1335	1284	1367	644
	DIFF	-212	-288	-147	-251	-322	-386	-407	-41
	% DIFF	-19%	-25%	-15%	-35%	-19%	-23%	-23%	-6%
28. The Old Rd & McBean									
	COUNT	858	1646	995	1427	1516	2423	2379	1718
	MODELED	850	1963	710	2101	1367	2658	1856	2411
	DIFF	-8	317	-285	674	-149	236	-523	693
	% DIFF	-1%	19%	-29%	47%	-10%	10%	-22%	40%
29. The Old Rd & Pico Canyon									
	COUNT	1121	1642	787	1180	1792	2102	826	1064
	MODELED	819	1581	84	1108	1722	2478	667	1013
	DIFF	-302	-61	-703	-72	-70	376	-159	-51
	% DIFF	-27%	-4%	-89%	-6%	-4%	18%	-19%	-5%
30. Ave Stanford & Rye Canyon									
	COUNT	661	2851	811	3463	1616	3096	964	3272
	MODELED	428	2832	904	3322	731	3048	902	3319
	DIFF	-233	-19	93	-141	-885	-48	-62	47
	% DIFF	-35%	-1%	11%	-4%	-55%	-2%	-6%	1%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR				PM PEAK HOUR			
		NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
32. Ave Scott & Rye Canyon									
	COUNT	24	3304	798	3294	27	2758	700	2999
	MODELED	0	3108	664	3140	0	2912	700	3288
	DIFF	-24	-196	-134	-154	-27	154	0	289
	% DIFF	-100%	-6%	-17%	-5%	-100%	6%	0%	10%
33. Rye/Copper Hill & NRR									
	COUNT	3281	826	3573	0	2626	845	2945	0
	MODELED	2554	722	3134	0	2573	645	3078	0
	DIFF	-727	-104	-439	--	-53	-200	133	--
	% DIFF	-22%	-13%	-12%	--	-2%	-24%	5%	--
35. Copper Hill & Decoro									
	COUNT	2075	633	2282	0	1595	363	1882	0
	MODELED	1557	619	2130	0	1682	605	2285	0
	DIFF	-518	-14	-152	--	87	242	403	--
	% DIFF	-25%	-2%	-7%	--	5%	67%	21%	--
36. Tourney & Valencia									
	COUNT	510	3033	0	3125	497	3448	0	3541
	MODELED	476	3372	0	3412	426	3628	0	3592
	DIFF	-34	339	--	287	-71	180	--	151
	% DIFF	-7%	11%	--	9%	-14%	5%	--	4%
37. Tourney & Magic Mountain									
	COUNT	0	1787	382	1571	0	2285	463	2094
	MODELED	0	2345	510	2131	0	2714	539	2467
	DIFF	--	558	128	560	--	429	75	373
	% DIFF	--	31%	34%	36%	--	19%	16%	18%
39. Ave Tibbits/Dickason & NRR									
	COUNT	1483	2003	781	811	771	1604	842	763
	MODELED	1278	2209	906	721	1063	2026	1041	646
	DIFF	-205	206	125	-90	292	422	199	-117
	% DIFF	-14%	10%	16%	-11%	38%	26%	24%	-15%
41. Dickason & Decoro									
	COUNT	137	1189	920	768	49	725	422	472
	MODELED	0	1342	839	773	0	1218	704	822
	DIFF	-137	153	-81	5	-49	493	282	350
	% DIFF	-100%	13%	-9%	1%	-100%	68%	67%	74%
44. McBean & Valencia									
	COUNT	2984	2630	2344	3058	3882	3620	3430	3790
	MODELED	3025	2705	2257	3559	3902	3501	3442	4203
	DIFF	41	75	-87	501	20	-119	12	413
	% DIFF	1%	3%	-4%	20%	1%	-3%	0%	11%
45. McBean & Magic Mtn									
	COUNT	3962	1348	2994	1674	5311	1978	4371	2252
	MODELED	4589	1282	3047	2262	5268	2085	3879	2786
	DIFF	627	-66	53	588	-43	107	-492	534
	% DIFF	16%	-5%	2%	35%	-1%	5%	-11%	24%

Table 0-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
47. McBean & Scott/Bridgeport									
	COUNT	3505	316	4529	1330	4560	294	5672	1394
	MODELED	3979	176	5040	1351	4673	227	5769	1317
	DIFF	474	-140	511	21	113	-67	97	-77
	% DIFF	14%	-44%	11%	2%	2%	-23%	2%	-6%
48. McBean & Newhall Ranch									
	COUNT	2646	2455	3460	2107	2988	2791	4407	1816
	MODELED	2561	2580	3929	2205	3018	2718	4595	2023
	DIFF	-85	125	469	99	30	-73	188	207
	% DIFF	-3%	5%	14%	5%	1%	-3%	4%	11%
49. McBean Pkwy & Decoro Dr									
	COUNT	1571	1407	2001	1099	1885	1311	2399	769
	MODELED	2099	1833	2376	1344	2462	1808	2764	1216
	DIFF	528	426	375	245	577	497	365	457
	% DIFF	34%	30%	19%	22%	31%	38%	15%	60%
50. McBean Pkwy & Copper Hill									
	COUNT	0	3050	1515	2517	0	3648	1903	2127
	MODELED	0	2460	1288	1444	0	2775	1576	1445
	DIFF	--	-590	-227	-1073	--	-873	-327	-682
	% DIFF	--	-19%	-15%	-43%	--	-24%	-17%	-32%
51. Wiley Cyn & Lyons									
	COUNT	990	1482	697	1695	1762	2737	1384	2985
	MODELED	1197	2122	830	2529	1496	2582	938	3188
	DIFF	207	640	133	834	-266	-155	-446	203
	% DIFF	21%	43%	19%	49%	-15%	-6%	-32%	7%
52. Tournament & Wiley Cyn									
	COUNT	403	821	40	996	626	1185	110	1405
	MODELED	337	848	215	1124	439	1114	236	1383
	DIFF	-66	27	175	128	-187	-71	126	-22
	% DIFF	-16%	3%	438%	13%	-30%	-6%	115%	-2%
53. Orchard Village & Lyons									
	COUNT	946	1953	514	1809	1456	2655	729	2672
	MODELED	1036	2143	505	1816	1418	2801	726	2219
	DIFF	90	190	-9	7	-38	146	-3	-453
	% DIFF	10%	9%	-2%	0%	-3%	5%	-0%	-17%
54. Orchard Village & Wiley Cyn									
	COUNT	1428	580	1289	827	2038	1005	2053	1066
	MODELED	1701	724	1707	946	2415	982	2223	1166
	DIFF	273	144	418	119	377	-23	170	100
	% DIFF	19%	25%	32%	14%	18%	-2%	8%	9%
55. Orchard Village & McBean									
	COUNT	180	2390	2053	1883	281	3386	2617	2390
	MODELED	0	1990	1980	1940	0	3017	2589	2624
	DIFF	-180	-400	-73	57	-281	-369	-28	234
	% DIFF	-100%	-17%	-4%	3%	-100%	-11%	-1%	10%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
57. Valencia & Magic Mtn									
	COUNT	2954	1015	2762	1213	3596	1338	3083	1693
	MODELED	2535	1419	2495	1293	3660	1917	3034	2105
	DIFF	-419	404	-267	80	64	579	-49	412
	% DIFF	-14%	40%	-10%	7%	2%	43%	-2%	24%
59. Valencia & Cinema									
	COUNT	2771	197	2862	0	3455	687	3872	0
	MODELED	2843	151	2954	0	3521	540	3944	1
	DIFF	72	-46	92	--	66	-147	72	--
	% DIFF	3%	-23%	3%	--	2%	-21%	2%	--
65. Bouquet & Soledad									
	COUNT	4326	3724	2815	3345	5045	5172	3317	4204
	MODELED	4148	3887	2534	2851	5166	4731	3228	3573
	DIFF	-178	163	-281	-494	121	-441	-89	-631
	% DIFF	-4%	4%	-10%	-15%	2%	-9%	-3%	-15%
66. Bouquet & Newhall Ranch									
	COUNT	4036	463	4625	2692	5165	1047	5176	3134
	MODELED	4076	71	4110	2499	4604	354	5137	2753
	DIFF	40	-392	-515	-193	-561	-693	-39	-381
	% DIFF	1%	-85%	-11%	-7%	-11%	-66%	-1%	-12%
80. Wolcott & SR-126									
	COUNT	22	1399	9	1418	26	2037	0	2059
	MODELED	20	1534	0	1554	59	1918	0	1879
	DIFF	-2	135	-9	136	33	-119	--	-180
	% DIFF	-9%	10%	-100%	10%	127%	-6%	--	-9%
89. Old Road & SR-126 WB Ramps									
	COUNT	698	0	918	230	1063	0	1211	184
	MODELED	718	0	898	220	903	0	898	5
	DIFF	20	--	-20	-10	-160	--	-313	-179
	% DIFF	3%	--	-2%	-4%	-15%	--	-26%	-97%
91. Old Road & Hasley Cyn									
	COUNT	1483	1793	1064	1310	1339	1652	1065	1062
	MODELED	1303	2069	726	1646	1390	1906	980	1342
	DIFF	-180	276	-338	336	51	244	-85	280
	% DIFF	-12%	15%	-32%	26%	4%	15%	-8%	26%
94. Commerce Center & SR-126									
	COUNT	1184	2273	315	1412	1061	2613	337	1913
	MODELED	1384	2183	570	1621	1462	2674	551	2093
	DIFF	200	-90	255	205	401	61	214	180
	% DIFF	17%	-4%	81%	15%	38%	2%	64%	9%
95. The Old Rd & Seagna Way									
	COUNT	1291	0	1483	444	1156	0	1339	307
	MODELED	1209	0	1302	131	1128	0	1391	309
	DIFF	-82	--	-181	-313	-28	--	52	2
	% DIFF	-6%	--	-12%	-70%	-2%	--	4%	1%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
96. San Martinez Cyn & SR-126									
	COUNT	8	1314	0	1312	15	1884	0	1873
	MODELED	0	1550	0	1550	0	1790	0	1790
	DIFF	-8	236	--	238	-15	-94	--	-83
	% DIFF	-100%	18%	--	18%	-100%	-5%	--	-4%
110. Chiquito Cyn & SR-126									
	COUNT	111	1470	7	1398	159	1998	1	1886
	MODELED	18	1536	0	1550	20	1778	0	1790
	DIFF	-93	66	-7	152	-139	-220	-1	-96
	% DIFF	-84%	4%	-100%	11%	-87%	-11%	-100%	-5%
117. SR-126 EB Ramp & Henry Mayo									
	COUNT	26	242	0	230	62	346	0	316
	MODELED	0	569	0	569	128	679	0	551
	DIFF	-26	327	--	339	66	333	--	235
	% DIFF	-100%	135%	--	147%	106%	96%	--	74%
148. SR-14 NB & Via Princessa									
	COUNT	367	655	422	1184	553	509	977	1701
	MODELED	217	550	520	1087	772	475	1121	1972
	DIFF	-150	-105	98	-97	219	-34	144	271
	% DIFF	-41%	-16%	23%	-8%	40%	-7%	15%	16%
149. SR-14 SB & Via Princessa									
	COUNT	479	1184	913	2226	384	1721	542	2523
	MODELED	486	1087	1580	2603	571	1971	800	3138
	DIFF	7	-97	667	377	187	250	258	615
	% DIFF	1%	-8%	73%	17%	49%	15%	48%	24%
151. Sand Cyn & SR-14 NB Ramps									
	COUNT	1436	237	1496	469	2168	535	1933	1267
	MODELED	1779	241	1583	601	2697	699	1974	1764
	DIFF	343	4	87	132	529	163	41	497
	% DIFF	24%	2%	6%	28%	24%	30%	2%	39%
152. SR-14 SB Ramps & Soledad Cyn									
	COUNT	0	1709	1159	2258	0	1842	795	2341
	MODELED	0	1774	2312	2804	0	1503	1426	2497
	DIFF	--	65	1153	546	--	-339	631	156
	% DIFF	--	4%	99%	24%	--	-18%	79%	7%
153. Sand Cyn & Soledad Cyn									
	COUNT	523	2168	1558	2103	668	2211	1828	2067
	MODELED	681	2805	1735	2187	822	2497	2497	2132
	DIFF	158	637	179	84	154	286	669	65
	% DIFF	30%	29%	12%	4%	23%	13%	37%	3%
170. Sierra Hwy & Via Princessa									
	COUNT	1946	2047	2316	3163	2780	2640	2480	3482
	MODELED	1972	1912	2543	3391	2462	2527	3053	3672
	DIFF	26	-135	227	228	-318	-113	573	190
	% DIFF	1%	-7%	10%	7%	-11%	-4%	23%	5%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
171. Whites Cyn & Via Princessa									
	COUNT	1874	2389	1397	0	2896	3602	1586	0
	MODELED	1859	2272	641	0	2399	2999	698	0
	DIFF	-15	-117	-756	--	-497	-703	-888	--
	% DIFF	-1%	-5%	-54%	--	-17%	-20%	-56%	--
172. Whites Cyn & Soledad Canyon									
	COUNT	2892	3254	2183	2827	3423	3559	2640	3652
	MODELED	3134	3107	1860	2821	3374	3322	2401	3705
	DIFF	242	-147	-323	-6	-49	-237	-239	53
	% DIFF	8%	-5%	-15%	-0%	-1%	-7%	-9%	1%
173. Santa Catarina/GVR & Plum									
	COUNT	572	1445	30	1703	200	1789	0	1815
	MODELED	423	705	65	747	321	905	91	1005
	DIFF	-149	-740	35	-955	121	-884	--	-810
	% DIFF	-26%	-51%	117%	-56%	61%	-49%	--	-45%
174. Bouquet Canyon & Plum Cyn									
	COUNT	1532	2230	2620	152	1346	1788	2496	124
	MODELED	826	775	1125	0	1065	1006	1395	0
	DIFF	-706	-1455	-1495	-152	-281	-782	-1101	-124
	% DIFF	-46%	-65%	-57%	-100%	-21%	-44%	-44%	-100%
176. Sierra Hwy & Soledad Cyn									
	COUNT	1555	2556	2134	3697	2029	2921	2331	3699
	MODELED	1380	2751	2663	3918	1849	3356	3193	4728
	DIFF	-175	195	529	221	-180	435	862	1029
	% DIFF	-11%	8%	25%	6%	-9%	15%	37%	28%
177. SR-14 SB On & Via Princessa									
	COUNT	869	3163	0	2294	383	3482	0	3099
	MODELED	940	3393	0	2453	431	3669	0	3238
	DIFF	71	230	--	159	48	187	--	139
	% DIFF	8%	7%	--	7%	13%	5%	--	4%
178. Sierra Hwy & SR-14 NB Off									
	COUNT	2158	443	1951	86	2904	1333	2785	142
	MODELED	2419	490	1971	0	2813	1433	2462	0
	DIFF	261	47	20	-86	-91	100	-323	-142
	% DIFF	12%	11%	1%	-100%	-3%	8%	-12%	-100%
180. Old Road & Sloan/Lake Hughes									
	COUNT	614	609	317	118	720	949	341	158
	MODELED	454	501	92	17	697	778	111	36
	DIFF	-160	-108	-225	-101	-23	-171	-230	-122
	% DIFF	-26%	-18%	-71%	-86%	-3%	-18%	-67%	-77%
181. Old Road & Parker									
	COUNT	284	455	628	467	350	691	597	468
	MODELED	92	456	182	376	111	543	185	499
	DIFF	-192	1	-446	-91	-239	-148	-412	31
	% DIFF	-68%	0%	-71%	-19%	-68%	-21%	-69%	7%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR				PM PEAK HOUR			
		NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG	NORTH LEG	EAST LEG	SOUTH LEG	WEST LEG
182. Castaic & Lake Hughes									
	COUNT	515	353	277	823	976	488	570	1244
	MODELED	244	364	50	602	858	120	160	888
	DIFF	-271	11	-227	-221	-118	-368	-410	-356
	% DIFF	-53%	3%	-82%	-27%	-12%	-75%	-72%	-29%
183. Ridge Route & Lake Hughes									
	COUNT	636	93	359	460	274	116	248	238
	MODELED	419	220	276	371	89	233	203	141
	DIFF	-217	127	-83	-89	-185	117	-45	-97
	% DIFF	-34%	137%	-23%	-19%	-68%	101%	-18%	-41%
184. Castaic & Ridge Route									
	COUNT	313	448	140	711	536	403	335	934
	MODELED	184	424	372	838	364	401	499	1030
	DIFF	-129	-24	232	127	-172	-2	164	96
	% DIFF	-41%	-5%	166%	18%	-32%	-0%	49%	10%
191. Sierra Hwy & Sand Cyn									
	COUNT	1009	359	822	0	809	325	808	0
	MODELED	576	464	254	14	713	657	303	19
	DIFF	-433	105	-568	--	96	332	-505	--
	% DIFF	-43%	29%	-69%	--	-12%	102%	-63%	--
194. Shadow Pines & Soledad Cyn									
	COUNT	607	402	0	723	695	469	0	845
	MODELED	749	1035	0	968	955	927	0	655
	DIFF	142	633	--	245	260	458	--	-190
	% DIFF	23%	157%	--	34%	37%	98%	--	-22%
195. Soledad Cyn & SR-14 SB									
	COUNT	379	82	302	225	446	87	323	64
	MODELED	1033	268	612	263	927	113	672	248
	DIFF	654	186	310	38	481	26	349	184
	% DIFF	173%	227%	103%	17%	108%	30%	108%	288%
196. Soledad Cyn & SR-14 NB									
	COUNT	260	56	169	95	332	84	194	230
	MODELED	613	301	218	142	671	199	247	363
	DIFF	353	245	49	47	339	115	53	133
	% DIFF	136%	438%	29%	49%	102%	137%	27%	58%
205. Cambridge & Hasley Cyn									
	COUNT	417	1310	373	1020	267	1062	221	796
	MODELED	419	1644	248	1429	446	1345	114	1203
	DIFF	2	334	-125	409	179	283	-107	407
	% DIFF	0%	25%	-34%	40%	67%	27%	-48%	51%
301. Mall Entrance & Valencia									
	COUNT	144	2590	254	2630	412	3527	373	3620
	MODELED	205	2496	166	2701	529	3057	374	3502
	DIFF	61	-94	-88	71	117	-470	1	-118
	% DIFF	42%	-4%	-35%	3%	28%	-13%	0%	-3%

Table D-2 (cont.)

SCVCTM 2004 - TWO-WAY PEAK HOUR VOLUME STATISTICAL SUMMARY

LOCATION		AM PEAK HOUR NORTH LEG	AM PEAK HOUR EAST LEG	AM PEAK HOUR SOUTH LEG	AM PEAK HOUR WEST LEG	PM PEAK HOUR NORTH LEG	PM PEAK HOUR EAST LEG	PM PEAK HOUR SOUTH LEG	PM PEAK HOUR WEST LEG
303. Auto Center & Magic Mtn									
	COUNT	212	1252	236	1108	619	1797	532	1682
	MODELED	232	1217	164	1163	462	1581	326	1637
	DIFF	20	-35	-72	55	-157	-216	-206	-45
	% DIFF	9%	-3%	-31%	5%	-25%	-12%	-39%	-3%
304. Citrus & Magic Mtn									
	COUNT	0	1207	223	1252	0	1773	620	1797
	MODELED	0	1292	231	1217	0	2103	805	1578
	DIFF	--	85	8	-35	--	330	185	-219
	% DIFF	--	7%	4%	-3%	--	19%	30%	-12%
322. McBean & So Mall Entrance									
	COUNT	2962	163	3089	117	3791	607	3942	146
	MODELED	3111	87	3024	0	4000	684	3902	0
	DIFF	149	-73	-65	-117	209	77	-40	-146
	% DIFF	5%	-46%	-2%	-100%	6%	13%	-1%	-100%
323. Citrus & Valencia									
	COUNT	238	2550	186	2590	641	3299	493	3527
	MODELED	145	2331	28	2494	223	2686	162	3057
	DIFF	-93	-219	-158	-96	-418	-613	-331	-470
	% DIFF	-39%	-9%	-85%	-4%	-65%	-19%	-67%	-13%
324. Chiquella & Pico Cyn									
	COUNT	0	2785	540	2529	0	3298	640	2942
	MODELED	0	2918	597	2501	0	3455	540	2915
	DIFF	--	133	57	-28	--	157	-100	-27
	% DIFF	--	5%	11%	-1%	--	5%	-16%	-1%
325. Marriott Wy & The Old Rd									
	COUNT	98	502	0	456	213	966	0	887
	MODELED	0	85	0	85	88	755	0	667
	DIFF	-98	-417	--	-371	-125	-211	--	-220
	% DIFF	-100%	-83%	--	-81%	-59%	-22%	--	-25%
326. Chiquella & The Old Rd									
	COUNT	167	493	0	440	360	937	0	869
	MODELED	597	682	0	85	540	1295	0	755
	DIFF	430	189	--	-355	180	358	--	-114
	% DIFF	257%	38%	--	-81%	50%	38%	--	-13%
327. Wiley Cyr & Calgrove									
	COUNT	835	186	11	910	899	358	20	941
	MODELED	760	170	0	930	810	216	0	1026
	DIFF	-75	-16	-11	20	-89	-142	-20	85
	% DIFF	-9%	-9%	-100%	2%	-10%	-40%	-100%	9%

AM SAMPLE SIZE = 326
AVERAGE COUNT = 1311 AVERAGE MODELED = 1330
AVERAGE DIFFERENCE = 19
STANDARD DEVIATION = 305.0

PM SAMPLE SIZE= 324
AVERAGE COUNT = 1584 AVERAGE MODELED = 1593
AVERAGE DIFFERENCE = 9
STANDARD DEVIATION = 303.0

Table D-3

SCVCTM 2004 - PEAK HOUR ICU STATISTICAL SUMMARY

LOCATION	AM PEAK HOUR COUNT	AM PEAK HOUR MODELED	AM PEAK HOUR DIFFERENCE	PM PEAK HOUR COUNT	PM PEAK HOUR MODELED	PM PEAK HOUR DIFFERENCE
1. Old Road & I-5 SB Ramps	.33	.32	-.01	.37	.40	.03
2. I-5 NB Ramps & Lake Hughes	.27	.25	-.02	.47	.39	-.08
3. I-5 SB Ramps & Parker	.61	.63	.02	.65	.63	-.02
4. I-5 NB Ramps & Ridge Route	.40	.43	.03	.46	.52	.06
5. I-5 SB & Hasley Cyn	.45	.65	.20	.54	.57	.03
6. I-5 NB & Hasley Cyn	.51	.68	.17	.66	.72	.06
7. I-5 SB Ramps & SR-126	.37	.37	.00	.33	.32	-.01
8. I-5 NB Ramps & SR-126	.65	.80	.15	.71	.77	.06
9. The Old Rd & I-5 SB Ramps	.46	.50	.04	.52	.51	-.01
10. I-5 SB Ramps & Magic Mtn	.51	.61	.10	.48	.50	.02
11. I-5 NB Ramps & Magic Mtn	.68	.71	.03	.69	.67	-.02
12. I-5 SB Ramps & Valencia	.37	.30	-.07	.43	.45	.02
13. I-5 NB Ramps & Valencia	.48	.45	-.03	.48	.49	.01
14. I-5 SB Ramps & Stevenson Rch	.37	.43	.06	.59	.65	.06
15. I-5 NB Ramps & McBean	.34	.42	.08	.54	.63	.09
16. I-5 SB/Marriott & Pico/Lyons	.53	.45	-.08	.60	.62	.02
17. I-5 NB On/Off & Lyons Ave	.53	.65	.12	.70	.75	.05
18. I-5 SB Ramps & Calgrove	.47	.69	.22	.64	.55	-.09
19. I-5 NB Ramps & Calgrove	.64	.77	.13	.50	.53	.03
20. I-5 SB On Ramp & Pico/Lyons	.35	.39	.04	.46	.44	-.02
21. The Old Rd & Calgrove Blvd	.40	.26	-.14	.45	.35	-.10
25. The Old Rd & Rye Canyon	1.10	1.05	-.05	1.10	1.01	-.09
26. The Old Rd & Magic Mountain	.70	.63	-.07	.69	.71	.02
27. The Old Rd & Valencia	.28	.32	.04	.39	.48	.09
29. The Old Rd & Pico Canyon	.51	.39	-.12	.56	.54	-.02
30. Ave Stanford & Rye Canyon	.61	.55	-.06	.80	.74	-.06
32. Ave Scott & Rye Canyon	.70	.63	-.07	.71	.68	-.03
33. Rye/Copper Hill & NRR	.59	.56	-.03	.58	.46	-.12
35. Copper Hill & Decoro	.58	.54	-.04	.49	.44	-.05
36. Tourney & Valencia	.50	.55	.05	.47	.49	.02
37. Tourney & Magic Mountain	.43	.51	.08	.57	.60	.03
39. Ave Tibbits/Dickason & NRR	.40	.36	-.04	.36	.46	.10
41. Dickason & Decoro	.37	.34	-.03	.25	.35	.10
44. McBean & Valencia	.61	.70	.09	.72	.76	.04
45. McBean & Magic Mtn	.55	.64	.09	.88	.89	.01
47. McBean & Scott/Bridgeport	.68	.77	.09	.57	.56	-.01
48. McBean & Newhall Ranch	.65	.74	.09	.72	.77	.05
49. McBean Pkwy & Decoro Dr	.54	.59	.05	.50	.61	.11
50. McBean Pkwy & Copper Hill	.62	.54	-.08	.80	.60	-.20
51. Wiley Cyn & Lyons	.43	.63	.20	.74	.64	-.10
52. Tournament & Wiley Cyn	.37	.43	.06	.45	.37	-.08
53. Orchard Village & Lyons	.49	.48	-.01	.60	.61	.01
54. Orchard Village & Wiley Cyn	.38	.49	.11	.57	.61	.04
55. Orchard Village & McBean	.57	.50	-.07	.78	.73	-.05
57. Valencia & Magic Mtn	.62	.62	.00	.72	.87	.15
59. Valencia & Cinema	.53	.56	.03	.73	.73	.00
65. Bouquet & Soledad	.78	.70	-.08	.99	1.02	.03
66. Bouquet & Newhall Ranch	.87	.83	-.04	.85	.71	-.14
80. Wolcott & SR-126	.32	.34	.02	.39	.38	-.01

Table D-3 (cont.)

SCVCTM 2004 - PEAK HOUR ICU STATISTICAL SUMMARY

LOCATION	AM PEAK HOUR COUNT	AM PEAK HOUR MODELED	AM PEAK HOUR DIFFERENCE	PM PEAK HOUR COUNT	PM PEAK HOUR MODELED	PM PEAK HOUR DIFFERENCE
89. Old Road & SR-126 WB Ramps	.31	.32	.01	.30	.25	-.05
91. Old Road & Hasley Cyn	.70	.67	-.03	.63	.66	.03
94. Commerce Center & SR-126	.47	.61	.14	.60	.66	.06
95. The Old Rd & Sedona Way	.57	.39	-.18	.37	.40	.03
96. San Martinez Cyn & SR-126	.29	.33	.04	.38	.37	-.01
110. Chiquito Cyn & SR-126	.34	.33	-.01	.41	.37	-.04
117. SR-126 EB Ramp & Henry Mayo	.18	.34	.16	.20	.35	.15
148. SR-14 NB & Via Princessa	.46	.42	-.04	.68	.87	.19
149. SR-14 SB & Via Princessa	.64	1.02	.38	.49	.61	.12
151. Sand Cyn & SR-14 NB Ramps	.39	.59	.20	.66	.92	.26
152. SR-14 SB Rmps & Soledad Cyn	.54	1.00	.46	.59	.65	.06
153. Sand Cyn & Soledad Cyn	.64	.69	.05	.67	.72	.05
170. Sierra Hwy & Via Princessa	.59	.65	.06	.62	.74	.12
171. Whites Cyn & Via Princessa	.50	.47	-.03	.63	.48	-.15
172. Whites Cyn & Soledad Canyon	.86	.84	-.02	.92	.87	-.05
173. Santa Catarina/GVR & Plum	.71	.39	-.32	.66	.45	-.21
174. Bouquet Canyon & Plum Cyn	.69	.33	-.36	.58	.38	-.20
176. Sierra Hwy & Soledad Cyn	.70	.80	.10	.85	.93	.08
177. SR-14 SB On & Via Princessa	.37	.36	-.01	.46	.45	-.01
178. Sierra Hwy & SR-14 NB Off	.46	.44	-.02	.54	.43	-.11
180. Old Road & Sloan/Lake Hughe	.27	.23	-.04	.33	.35	.02
181. Old Road & Parker	.43	.33	-.10	.53	.35	-.18
182. Castaic & Lake Hughes	.30	.28	-.02	.37	.30	-.07
183. Ridge Route & Lake Hughes	.29	.20	-.09	.18	.15	-.03
184. Castaic & Ridge Route	.29	.30	.01	.38	.37	-.01
191. Sierra Hwy & Sand Cyn	.47	.39	-.08	.45	.50	.05
194. Shadow Pines & Soledad Cyn	.27	.35	.08	.35	.43	.08
195. Soledad Cyn & SR-14 SB	.19	.25	.06	.15	.20	.05
196. Soledad Cyn & SR-14 NB	.24	.41	.17	.26	.45	.19
205. Cambridge & Hasley Cyn	.46	.55	.09	.34	.33	-.01
301. Mall Entrance & Valencia	.40	.48	.08	.54	.61	.07
303. Auto Center & Magic Mtn	.28	.28	.00	.45	.41	-.04
304. Citrus & Magic Mtn	.36	.33	-.03	.48	.54	.06
322. McBean & So Mall Entrance	.38	.42	.04	.59	.71	.12
323. Citrus & Valencia	.48	.47	-.01	.65	.48	-.17
324. Chiquella & Pico Cyn	.47	.49	.02	.52	.43	-.09
325. Marriott Wy & The Old Rd	.32	.13	-.19	.50	.36	-.14
326. Chiquella & The Old Rd	.32	.47	.15	.58	.57	-.01
327. Wiley Cyn & Calgrove	.48	.45	-.03	.51	.47	-.04

AM SAMPLE SIZE = 88
AVERAGE COUNT = .48 AVERAGE MODELED = .50
AVERAGE DIFFERENCE = .02
STANDARD DEVIATION = .12

PM SAMPLE SIZE= 88
AVERAGE COUNT = .55 AVERAGE MODELED = .55
AVERAGE DIFFERENCE = .00
STANDARD DEVIATION = .09

Appendix E
LAND USE SUMMARIES

A zone map for the SCVCTM is shown in Figure E-1. The model system has a total of 455 internal zones and 12 cordon zones.

Table E-1 lists the 2004 and long-range General Plan land use data by traffic zone as used in the corresponding versions of the SCVCTM described in this report.

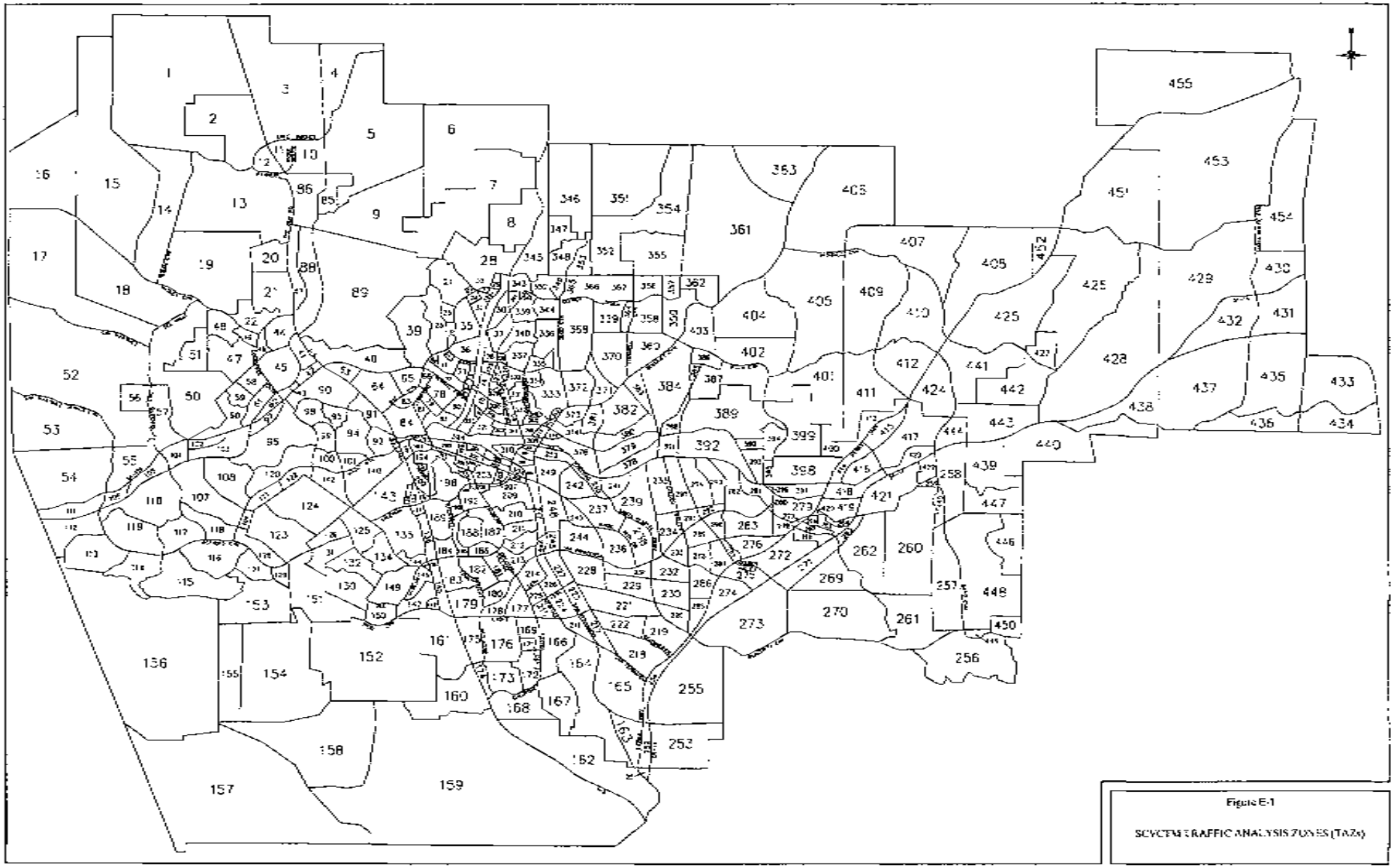


Figure E-1

SCVCEM TRAFFIC ANALYSIS ZONES (TAZs)

Table E-1
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
1	2.	Single Family (1-5du/ac)	DU	145.00	1,436	367.00	3,633
	3.	Single Family (6-10du/ac)	DU	200.00	1,980	200.00	1,980
		SUB-TOTAL			3,416		5,613
2	2.	Single Family (1-5du/ac)	DU	336.00	3,326	535.00	5,297
		SUB-TOTAL			3,326		5,297
3	2.	Single Family (1-5du/ac)	DU	641.00	6,346	3,703.00	36,660
	4.	Condominium/Townhouse	DU	--	--	648.00	5,184
	11.	Commercial Center(10-30a)	TSF	150.00	8,109	320.00	17,299
	20.	Elementary/Middle School	STU	610.00	885	3,400.00	4,930
	21.	High School	STU	--	--	2,800.00	5,012
	30.	Industrial Park	TSF	--	--	256.79	1,641
	32.	Manufacturing/Warehouse	TSF	77.49	395	77.49	395
		SUB-TOTAL			15,735		71,021
4	30.	Industrial Park	TSF	--	--	389.00	2,334
		SUB-TOTAL			--		2,334
5	2.	Single Family (1-5du/ac)	DU	1.00	10	651.00	6,445
	4.	Condominium/Townhouse	DU	--	--	100.00	800
	12.	Commercial Center (<10ac)	TSF	--	--	25.00	2,127
	13.	Commercial Shops	TSF	2.01	74	2.01	74
	25.	Church	TSF	25.00	233	25.00	233
		SUB-TOTAL			317		9,679
6	2.	Single Family (1-5du/ac)	DU	10.00	99	330.00	3,267
	4.	Condominium/Townhouse	DU	--	--	141.00	1,128
		SUB-TOTAL			99		4,395
7	2.	Single Family (1-5du/ac)	DU	1.00	10	321.00	3,178
	3.	Single Family (6-10du/ac)	DU	--	--	480.00	4,752
	4.	Condominium/Townhouse	DU	--	--	134.00	1,072
	20.	Elementary/Middle School	STU	--	--	1,848.00	2,680
		SUB-TOTAL			10		11,682
8	2.	Single Family (1-5du/ac)	DU	10.00	99	70.00	693
		SUB-TOTAL			99		693
9	2.	Single Family (1-5du/ac)	DU	1.00	10	166.00	1,643
		SUB-TOTAL			10		1,643
10	2.	Single Family (1-5du/ac)	DU	12.00	119	12.00	119
	4.	Condominium/Townhouse	DU	184.00	1,472	184.00	1,472
	12.	Commercial Center (<10ac)	TSF	20.86	1,774	20.86	1,774
	15.	Sit-Down Restaurant	TSF	12.78	1,666	12.78	1,666
		SUB-TOTAL			5,031		5,031
11	2.	Single Family (1-5du/ac)	DU	23.00	228	24.00	238

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
11	3.	Single Family (6-10du/ac)	DU	--	--	84.00	832
	4.	Condominium/Townhouse	DU	138.00	1,104	165.00	1,320
	5.	Apartment	DU	--	--	72.00	497
	12.	Commercial Center (<10ac)	TSF	19.46	1,655	52.76	4,488
	13.	Commercial Shops	TSF	2.46	91	2.46	91
	15.	Sit-Down Restaurant	TSF	7.75	1,010	7.75	1,010
	30.	Industrial Park	TSF	--	--	41.82	251
	40.	Commercial Office	TSF	1.23	14	1.23	14
	51.	Developed Park	AC	--	--	2.00	5
		SUB-TOTAL			4,102		8,746
12	2.	Single Family (1-5du/ac)	DU	213.00	2,109	213.00	2,109
	3.	Single Family (6-10du/ac)	DU	--	--	39.00	386
	14.	Hotel	ROOM	--	--	121.00	996
		SUB-TOTAL			2,109		3,491
13	2.	Single Family (1-5du/ac)	DU	464.00	4,594	641.00	6,346
	4.	Condominium/Townhouse	DU	54.00	432	54.00	432
	11.	Commercial Center(10-30a)	TSF	--	--	114.56	6,193
	30.	Industrial Park	TSF	--	--	32.93	198
	40.	Commercial Office	TSF	--	--	21.82	252
		SUB-TOTAL			5,026		13,421
14	2.	Single Family (1-5du/ac)	DU	19.00	188	291.00	2,881
	50.	Golf Course	AC	--	--	150.00	1,194
		SUB-TOTAL			188		4,075
15	2.	Single Family (1-5du/ac)	DU	78.00	772	294.00	2,911
		SUB-TOTAL			772		2,911
16	2.	Single Family (1-5du/ac)	DU	--	--	14.00	139
		SUB-TOTAL			--		139
17	2.	Single Family (1-5du/ac)	DU	146.00	1,445	248.00	2,455
		SUB-TOTAL			1,445		2,455
18	2.	Single Family (1-5du/ac)	DU	75.00	743	230.00	2,277
	6.	Mobile Home	DU	113.00	780	113.00	780
		SUB-TOTAL			1,523		3,057
19	2.	Single Family (1-5du/ac)	DU	1,306.00	12,929	1,577.00	15,612
	20.	Elementary/Middle School	STU	2,205.00	3,198	2,205.00	3,198
	50.	Golf Course	AC	--	--	150.00	1,194
		SUB-TOTAL			16,127		20,004
20	2.	Single Family (1-5du/ac)	DU	245.00	2,425	245.00	2,426
	4.	Condominium/Townhouse	DU	136.00	1,088	136.00	1,088
	30.	Industrial Park	TSF	50.00	300	174.00	1,044
		SUB-TOTAL			3,814		4,558

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
21	2. Single Family (1-5du/ac)	DU	620.00	6,138	620.00	6,138
	3. Single Family (6-10du/ac)	DU	--	--	35.00	347
	12. Commercial Center (<10ac)	TSF	--	--	70.00	5,954
	SUB-TOTAL			6,138		12,439
22	2. Single Family (1-5du/ac)	DU	350.00	3,465	350.00	3,465
	SUB-TOTAL			3,465		3,465
23	2. Single Family (1-5du/ac)	DU	--	--	373.00	3,693
	SUB-TOTAL			--		3,693
24	2. Single Family (1-5du/ac)	DU	--	--	422.00	4,178
	SUB-TOTAL			--		4,178
25	20. Elementary/Middle School	STU	--	--	500.00	725
	SUB-TOTAL			--		725
26	13. Commercial Shops	TSF	--	--	72.90	2,702
	SUB-TOTAL			--		2,702
27	5. Apartment	DU	--	--	256.00	1,766
	SUB-TOTAL			--		1,766
28	3. Single Family (6-10du/ac)	DU	91.00	901	400.00	3,960
	4. Condominium/Townhouse	DU	--	--	457.00	3,656
	SUB-TOTAL			901		7,616
29	5. Apartment	DU	--	--	115.00	794
	SUB-TOTAL			--		794
30	4. Condominium/Townhouse	DU	--	--	275.00	2,200
	SUB-TOTAL			--		2,200
31	3. Single Family (6-10du/ac)	DU	--	--	65.00	644
	4. Condominium/Townhouse	DU	--	--	200.00	1,600
	20. Elementary/Middle School	STU	800.00	1,160	1,500.00	2,175
	SUB-TOTAL			1,160		4,419
32	4. Condominium/Townhouse	DU	--	--	94.00	752
	SUB-TOTAL			--		752
33	12. Commercial Center (<10ac)	TSF	--	--	61.00	5,189
	SUB-TOTAL			--		5,189
34	12. Commercial Center (<10ac)	TSF	--	--	107.10	9,110
	SUB-TOTAL			--		9,110
35	3. Single Family (6-10du/ac)	DU	--	--	616.00	6,098
	4. Condominium/Townhouse	DU	--	--	60.00	480
	5. Apartment	DU	--	--	200.00	1,380
	SUB-TOTAL			--		7,958

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
36	2.	Single Family (1-5du/ac)	DU	190.00	1,881	190.00	1,881
	3.	Single Family (6-10du/ac)	DU	293.00	2,901	293.00	2,901
	4.	Condominium/Townhouse	DU	268.00	2,144	268.00	2,144
		SUB-TOTAL			6,926		6,926
37	2.	Single Family (1-5du/ac)	DU	212.00	2,099	212.00	2,099
	4.	Condominium/Townhouse	DU	128.00	1,024	128.00	1,024
	25.	Church	TSF	20.00	186	20.00	186
		SUB-TOTAL			3,309		3,309
38	4.	Condominium/Townhouse	DU	--	--	105.00	840
	5.	Apartment	DU	--	--	226.00	1,559
	12.	Commercial Center (<10ac)	TSF	--	--	50.00	4,253
		SUB-TOTAL			--		6,652
39	11.	Commercial Center(10-30a)	TSF	--	--	134.00	7,244
	30.	Industrial Park	TSF	35.40	212	4,016.00	24,096
		SUB-TOTAL			212		31,340
40	2.	Single Family (1-5du/ac)	DU	--	--	45.00	445
	31.	Business Park	TSF	--	--	116.70	1,190
	34.	Utilities	TSF	10.00	24	10.00	24
		SUB-TOTAL			24		1,659
41	30.	Industrial Park	TSF	91.90	551	730.00	4,380
		SUB-TOTAL			551		4,380
42	30.	Industrial Park	TSF	--	--	275.00	1,650
		SUB-TOTAL			--		1,650
43	30.	Industrial Park	TSF	--	--	273.90	1,643
		SUB-TOTAL			--		1,643
44	2.	Single Family (1-5du/ac)	DU	445.00	4,406	445.00	4,406
	12.	Commercial Center (<10ac)	TSF	--	--	25.00	2,127
	13.	Commercial Shops	TSF	10.00	371	10.00	371
	20.	Elementary/Middle School	STU	500.00	725	500.00	725
	26.	Day Care	STU	--	--	80.00	362
		SUB-TOTAL			5,502		7,991
45	30.	Industrial Park	TSF	--	--	1,960.20	11,761
		SUB-TOTAL			--		11,761
46	13.	Commercial Shops	TSF	77.00	2,854	77.00	2,854
	30.	Industrial Park	TSF	161.65	970	445.80	2,675
		SUB-TOTAL			3,824		5,529
47	30.	Industrial Park	TSF	2,403.65	14,422	4,254.10	25,525
		SUB-TOTAL			14,422		25,525

Table E-1
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
48	30. Industrial Park	TSF	--	--	720.00	4,320
	SUB-TOTAL			--		4,320
49	30. Industrial Park	TSF	600.20	3,601	764.30	4,586
	SUB-TOTAL			3,601		4,586
50	2. Single Family (1-5du/ac)	DU	100.00	990	133.00	1,317
	58. Landfill	SG	10.00	1,000	20.00	2,000
	SUB-TOTAL			1,990		3,317
51	30. Industrial Park	TSF	--	--	1,300.00	7,800
	SUB-TOTAL			--		7,800
52	2. Single Family (1-5du/ac)	DU	10.00	99	211.00	2,089
	SUB-TOTAL			99		2,089
53	1. Single Family (<1du/ac)	DU	--	--	250.00	2,475
	SUB-TOTAL			--		2,475
54	2. Single Family (1-5du/ac)	DU	--	--	210.00	2,079
	3. Single Family (6-10du/ac)	DU	--	--	370.00	3,663
	SUB-TOTAL			--		5,742
55	2. Single Family (1-5du/ac)	DU	--	--	100.00	990
	3. Single Family (6-10du/ac)	DU	--	--	330.00	3,267
	4. Condominium/Townhouse	DU	--	--	470.00	3,760
	12. Commercial Center (<10ac)	TSF	--	--	25.00	2,127
	51. Developed Park	AC	--	--	15.00	39
	SUB-TOTAL			--		10,183
56	2. Single Family (1-5du/ac)	DU	--	--	60.00	594
	SUB-TOTAL			--		594
57	12. Commercial Center (<10ac)	TSF	--	--	25.00	2,127
	31. Business Park	TSF	--	--	1,100.00	11,220
	40. Commercial Office	TSF	--	--	180.00	2,081
	SUB-TOTAL			--		15,428
58	30. Industrial Park	TSF	850.20	5,101	1,051.50	6,309
	SUB-TOTAL			5,101		6,309
59	35. Regional Post Office	TSF	764.00	3,820	764.00	3,820
	SUB-TOTAL			3,820		3,820
60	30. Industrial Park	TSF	--	--	411.60	2,470
	SUB-TOTAL			--		2,470
61	30. Industrial Park	TSF	--	--	744.90	4,469
	SUB-TOTAL			--		4,469

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2000 Amount	2000 ADT	Long-Range GP Amount	Long-Range GP ADT
62	30. Industrial Park	TSF	--	--	627.30	3,764
	SUB-TOTAL			--		3,764
63	30. Industrial Park	TSF	250.00	1,500	575.00	3,450
	SUB-TOTAL			1,500		3,450
64	30. Industrial Park	TSF	2,742.00	16,452	3,161.48	18,969
	SUB-TOTAL			16,452		18,969
65	10. Commercial Center (>30ac)	TSF	--	--	150.00	6,009
	30. Industrial Park	TSF	329.00	1,974	329.00	1,974
	SUB-TOTAL			1,974		7,983
66	10. Commercial Center (>30ac)	TSF	102.60	4,110	170.45	6,828
	30. Industrial Park	TSF	329.00	1,974	329.00	1,974
	SUB-TOTAL			6,084		8,802
67	3. Single Family (6-10du/ac)	DU	--	--	163.00	1,614
	4. Condominium/Townhouse	DU	--	--	90.00	720
	SUB-TOTAL			--		2,334
68	5. Apartment	DU	156.00	1,076	208.00	1,435
	SUB-TOTAL			1,076		1,435
69	3. Single Family (6-10du/ac)	DU	--	--	76.00	752
	SUB-TOTAL			--		752
70	11. Commercial Center(10-30a)	TSF	67.00	3,622	147.00	7,947
	18. Health Club	TSF	71.00	2,840	71.00	2,840
	26. Day Care	STU	150.00	678	150.00	678
	30. Industrial Park	TSF	397.00	2,382	529.00	3,174
	32. Manufacturing/Warehouse	TSF	75.00	383	75.00	383
	SUB-TOTAL			9,905		15,022
71	21. High School	STU	3,500.00	6,265	2,500.00	4,475
	SUB-TOTAL			6,265		4,475
72	13. Commercial Shops	TSF	--	--	60.00	2,224
	20. Elementary/Middle School	STU	350.00	508	350.00	508
	SUB-TOTAL			508		2,732
74	3. Single Family (6-10du/ac)	DU	--	--	153.00	1,515
	4. Condominium/Townhouse	DU	--	--	147.00	1,176
	SUB-TOTAL			--		2,691
75	4. Condominium/Townhouse	DU	--	--	149.00	1,192
	52. Undeveloped Park	AC	--	--	17.50	9
	SUB-TOTAL			--		1,201
76	5. Apartment	DU	--	--	188.00	1,297

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
76	12.	Commercial Center (<10ac)	TSF	--	--	11.00	936
		SUB-TOTAL			--		2,233
78	30.	Industrial Park	TSF	1,615.00	9,690	1,776.00	10,656
		SUB-TOTAL			9,690		10,656
79	30.	Industrial Park	TSF	685.00	4,110	685.00	4,110
		SUB-TOTAL			4,110		4,110
80	30.	Industrial Park	TSF	828.00	4,968	880.00	5,280
		SUB-TOTAL			4,968		5,280
81	30.	Industrial Park	TSF	711.00	4,266	711.00	4,266
		SUB-TOTAL			4,266		4,266
82	30.	Industrial Park	TSF	714.00	4,284	1,007.55	6,045
		SUB-TOTAL			4,284		6,045
83	30.	Industrial Park	TSF	876.00	5,256	876.00	5,256
		SUB-TOTAL			5,256		5,256
84	30.	Industrial Park	TSF	333.00	1,998	333.00	1,998
		SUB-TOTAL			1,998		1,998
86	2.	Single Family (1-5du/ac)	DU	11.00	109	346.00	3,425
	10.	Commercial Center (>30ac)	TSF	--	--	20.50	821
	12.	Commercial Center (<10ac)	TSF	15.00	1,276	15.00	1,276
	14.	Hotel	ROOM	36.00	296	36.00	296
	15.	Sit-Down Restaurant	TSF	47.26	6,160	47.26	6,160
		SUB-TOTAL			7,841		11,978
87	30.	Industrial Park	TSF	--	--	1,274.13	7,645
		SUB-TOTAL			--		7,645
89	53.	Wayside Honor Ranch	SG	20.00	2,000	30.00	3,000
		SUB-TOTAL			2,000		3,000
90	11.	Commercial Center(10-30a)	TSF	--	--	135.00	7,298
	12.	Commercial Center (<10ac)	TSF	--	--	65.29	5,554
	30.	Industrial Park	TSF	63.98	383	1,611.20	9,667
	31.	Business Park	TSF	--	--	533.68	5,444
		SUB-TOTAL			383		27,963
91	11.	Commercial Center(10-30a)	TSF	43.38	2,345	247.38	13,373
		SUB-TOTAL			2,345		13,373
92	10.	Commercial Center (>30ac)	TSF	--	--	800.00	32,048
	14.	Hotel	ROOM	--	--	300.00	2,469
	40.	Commercial Office	TSF	--	--	420.00	4,855
		SUB-TOTAL			--		39,372

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
93	13.	Commercial Shops	TSF	11.00	408	20.00	741
	14.	Hotel	ROOM	169.00	1,391	169.00	1,391
		SUB-TOTAL			1,799		2,132
94	54.	Six Flags Magic Mtn	SG	160.00	16,000	240.00	24,000
		SUB-TOTAL			16,000		24,000
96	1.	Single Family (<1du/ac)	DU	--	--	73.00	723
	2.	Single Family (1-5du/ac)	DU	--	--	73.00	723
	4.	Condominium/Townhouse	DU	--	--	1,574.00	12,592
	5.	Apartment	DU	--	--	370.00	2,553
	11.	Commercial Center(10-30a)	TSF	--	--	133.65	7,225
	13.	Commercial Shops	TSF	--	--	41.00	1,519
	20.	Elementary/Middle School	STU	--	--	900.00	1,305
	40.	Commercial Office	TSF	--	--	75.00	867
		SUB-TOTAL			--		27,507
97	55.	Travel Village	SG	26.20	2,620	26.20	2,620
		SUB-TOTAL			2,620		2,620
98	12.	Commercial Center (<10ac)	TSF	--	--	6.20	527
	31.	Business Park	TSF	--	--	691.50	7,053
		SUB-TOTAL			--		7,580
99	4.	Condominium/Townhouse	DU	--	--	193.00	1,544
	5.	Apartment	DU	--	--	292.00	2,015
	51.	Developed Park	AC	--	--	25.00	65
		SUB-TOTAL			--		3,624
100	12.	Commercial Center (<10ac)	TSF	--	--	18.00	1,531
	40.	Commercial Office	TSF	--	--	225.00	2,601
		SUB-TOTAL			--		4,132
101	1.	Single Family (<1du/ac)	DU	--	--	20.00	198
		SUB-TOTAL			--		198
102	3.	Single Family (6-10du/ac)	DU	--	--	168.00	1,663
	4.	Condominium/Townhouse	DU	--	--	434.00	3,472
	5.	Apartment	DU	--	--	159.00	1,097
	12.	Commercial Center (<10ac)	TSF	--	--	49.00	4,168
	13.	Commercial Shops	TSF	--	--	9.50	352
	20.	Elementary/Middle School	STU	--	--	750.00	1,088
	40.	Commercial Office	TSF	--	--	9.50	110
	51.	Developed Park	AC	--	--	20.90	54
		SUB-TOTAL			--		12,004
103	3.	Single Family (6-10du/ac)	DU	--	--	140.00	1,386
	4.	Condominium/Townhouse	DU	--	--	251.00	2,008
	5.	Apartment	DU	--	--	148.00	1,021
		SUB-TOTAL			--		4,415

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
104	11.	Commercial Center(10-30a)	TSF	--	--	252.00	13,523
	40.	Commercial Office	TSF	--	--	370.00	4,277
		SUB-TOTAL			--		17,800
105	5.	Apartment	DU	--	--	144.00	994
	12.	Commercial Center (<10ac)	TSF	--	--	27.10	2,305
	40.	Commercial Office	TSF	--	--	315.90	3,652
		SUB-TOTAL			--		6,951
106	12.	Commercial Center (<10ac)	TSF	--	--	90.00	7,655
		SUB-TOTAL			--		7,655
107	2.	Single Family (1-5du/ac)	DU	--	--	240.00	2,376
	3.	Single Family (6-10du/ac)	DU	--	--	993.00	9,831
	20.	Elementary/Middle School	STU	--	--	1,200.00	1,740
	21.	High School	STU	--	--	2,230.00	3,992
		SUB-TOTAL			--		17,939
108	3.	Single Family (6-10du/ac)	DU	--	--	840.00	8,316
	4.	Condominium/Townhouse	DU	--	--	710.00	5,680
	12.	Commercial Center (<10ac)	TSF	--	--	50.00	4,253
	20.	Elementary/Middle School	STU	--	--	800.00	1,160
	51.	Developed Park	AC	--	--	5.00	13
		SUB-TOTAL			--		19,422
109	3.	Single Family (6-10du/ac)	DU	--	--	60.00	594
		SUB-TOTAL			--		594
110	2.	Single Family (1-5du/ac)	DU	--	--	40.00	396
	3.	Single Family (6-10du/ac)	DU	--	--	610.00	6,039
	20.	Elementary/Middle School	STU	--	--	800.00	1,160
	51.	Developed Park	AC	--	--	15.30	40
		SUB-TOTAL			--		7,635
111	12.	Commercial Center (<10ac)	TSF	--	--	70.00	5,954
	31.	Business Park	TSF	--	--	630.00	6,426
		SUB-TOTAL			--		12,380
113	2.	Single Family (1-5du/ac)	DU	--	--	70.00	693
	3.	Single Family (6-10du/ac)	DU	--	--	450.00	4,455
	51.	Developed Park	AC	--	--	28.00	73
		SUB-TOTAL			--		5,221
114	2.	Single Family (1-5du/ac)	DU	--	--	40.00	396
	3.	Single Family (6-10du/ac)	DU	--	--	370.00	3,663
		SUB-TOTAL			--		4,059
115	2.	Single Family (1-5du/ac)	DU	--	--	240.00	2,376
	3.	Single Family (6-10du/ac)	DU	--	--	750.00	7,425
	51.	Developed Park	AC	--	--	5.00	13
		SUB-TOTAL			--		9,814

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
116	3.	Single Family (6-10du/ac)	DU	--	--	1,167.00	11,553
	4.	Condominium/Townhouse	DU	--	--	1,780.00	14,240
	11.	Commercial Center(10-30a)	TSF	--	--	650.00	35,139
	40.	Commercial Office	TSF	--	--	312.35	3,611
	50.	Golf Course	AC	--	--	180.00	1,433
		SUB-TOTAL			--		65,976
117	3.	Single Family (6 10du/ac)	DU	--	--	220.00	2,178
	51.	Developed Park	AC	--	--	20.00	52
		SUB-TOTAL			--		2,230
118	3.	Single Family (6-10du/ac)	DU	--	--	330.00	3,267
		SUB-TOTAL			--		3,267
119	3.	Single Family (6-10du/ac)	DU	--	--	200.00	1,980
	4.	Condominium/Townhouse	DU	--	--	2,640.00	21,120
	12.	Commercial Center (<10ac)	TSF	--	--	60.00	5,104
	51.	Developed Park	AC	--	--	5.00	13
		SUB-TOTAL			--		28,217
120	3.	Single Family (6-10du/ac)	DU	--	--	217.00	2,148
	4.	Condominium/Townhouse	DU	--	--	1,574.00	12,592
	5.	Apartment	DU	--	--	369.00	2,546
	11.	Commercial Center(10-30a)	TSF	--	--	133.65	7,225
		SUB-TOTAL			--		24,511
122	2.	Single Family (1-5du/ac)	DU	--	--	143.00	1,416
		SUB-TOTAL			--		1,416
123	1.	Single Family (<1du/ac)	DU	--	--	250.00	2,475
		SUB-TOTAL			--		2,475
124	1.	Single Family (<1du/ac)	DU	--	--	250.00	2,475
		SUB-TOTAL			--		2,475
125	20.	Elementary/Middle School	STU	--	--	1,200.00	1,740
	21.	High School	STU	--	--	2,400.00	4,296
	51.	Developed Park	AC	--	--	12.20	32
		SUB-TOTAL			--		6,068
126	1.	Single Family (<1du/ac)	DU	--	--	60.00	594
		SUB-TOTAL			--		594
127	3.	Single Family (6-10du/ac)	DU	--	--	450.00	4,455
	20.	Elementary/Middle School	STU	--	--	800.00	1,160
		SUB-TOTAL			--		5,515
128	2.	Single Family (1-5du/ac)	DU	--	--	10.00	99
		SUB-TOTAL			--		99

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
129	3. Single Family (6-10du/ac)	DU	--	--	330.00	3,267
	SUB-TOTAL			--		3,267
130	2. Single Family (1-5du/ac)	DU	708.00	7,009	708.00	7,009
	SUB-TOTAL			7,009		7,009
131	1. Single Family (<1du/ac)	DU	--	--	70.00	693
	SUB-TOTAL			--		693
132	2. Single Family (1-5du/ac)	DU	436.00	4,316	436.00	4,316
	20. Elementary/Middle School	STU	900.00	1,305	900.00	1,305
	51. Developed Park	AC	16.00	42	16.00	42
	SUB-TOTAL			5,663		5,663
133	11. Commercial Center(10-30a)	TSF	27.00	1,460	27.00	1,460
	SUB-TOTAL			1,460		1,460
134	2. Single Family (1-5du/ac)	DU	482.00	4,772	482.00	4,772
	SUB-TOTAL			4,772		4,772
135	2. Single Family (1-5du/ac)	DU	20.00	198	174.00	1,723
	4. Condominium/Townhouse	DU	172.00	1,376	172.00	1,376
	50. Golf Course	AC	208.00	1,656	208.00	1,656
	SUB-TOTAL			3,230		4,755
137	40. Commercial Office	TSF	--	--	72.00	832
	SUB-TOTAL			--		832
138	11. Commercial Center(10-30a)	TSF	100.00	5,406	120.00	6,487
	SUB-TOTAL			5,406		6,487
139	5. Apartment	DU	96.00	662	474.00	3,271
	SUB-TOTAL			662		3,271
140	2. Single Family (1-5du/ac)	DU	--	--	73.00	723
	10. Commercial Center (>30ac)	TSF	--	--	1,445.66	57,913
	SUB-TOTAL			--		58,636
141	15. Sit-Down Restaurant	TSF	20.30	2,646	20.30	2,646
	16. Fast Food Restaurant	TSF	10.10	5,011	10.10	5,011
	SUB-TOTAL			7,657		7,657
142	3. Single Family (6-10du/ac)	DU	--	--	72.00	713
	4. Condominium/Townhouse	DU	--	--	381.00	3,048
	SUB-TOTAL			--		3,761
143	2. Single Family (1-5du/ac)	DU	77.00	762	96.00	950
	3. Single Family (6-10du/ac)	DU	407.00	4,029	482.00	4,772
	4. Condominium/Townhouse	DU	80.00	640	160.00	1,280
	20. Elementary/Middle School	STU	--	--	850.00	1,233

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
143	51.	Developed Park	AC	--	--	7.00	18
		SUB-TOTAL			5,431		8,253
144	2.	Single Family (1-5du/ac)	DU	--	--	6.00	59
		SUB-TOTAL			--		59
145	10.	Commercial Center (>30ac)	TSF	778.00	31,167	778.00	31,167
	12.	Commercial Center (<10ac)	TSF	36.00	3,062	36.00	3,062
	13.	Commercial Shops	TSF	45.74	1,695	45.74	1,695
	15.	Sit-Down Restaurant	TSF	7.80	1,017	7.80	1,017
	16.	Fast Food Restaurant	TSF	6.68	3,314	6.68	3,314
	32.	Manufacturing/Warehouse	TSF	74.50	380	74.50	380
		SUB-TOTAL			40,635		40,635
146	2.	Single Family (1-5du/ac)	DU	314.00	3,109	314.00	3,109
	4.	Condominium/Townhouse	DU	296.00	2,368	296.00	2,368
		SUB-TOTAL			5,477		5,477
147	3.	Single Family (6-10du/ac)	DU	46.00	455	140.00	1,386
	4.	Condominium/Townhouse	DU	--	--	100.00	800
	5.	Apartment	DU	--	--	567.00	3,912
	20.	Elementary/Middle School	STU	850.00	1,233	850.00	1,233
	51.	Developed Park	AC	--	--	5.00	13
		SUB-TOTAL			1,688		7,344
148	11.	Commercial Center(10-30a)	TSF	183.88	9,941	183.88	9,941
	15.	Sit-Down Restaurant	TSF	7.70	1,004	7.70	1,004
	16.	Fast Food Restaurant	TSF	5.00	2,481	5.00	2,481
		SUB-TOTAL			13,426		13,426
149	2.	Single Family (1-5du/ac)	DU	535.00	5,297	535.00	5,297
	4.	Condominium/Townhouse	DU	500.00	4,000	500.00	4,000
	12.	Commercial Center (<10ac)	TSF	34.85	2,964	34.85	2,964
		SUB-TOTAL			12,261		12,261
150	2.	Single Family (1-5du/ac)	DU	114.00	1,129	114.00	1,129
		SUB-TOTAL			1,129		1,129
151	2.	Single Family (1-5du/ac)	DU	--	--	274.00	2,713
		SUB-TOTAL			--		2,713
152	2.	Single Family (1-5du/ac)	DU	279.00	2,762	279.00	2,762
	51.	Developed Park	AC	--	--	18.00	47
		SUB-TOTAL			2,762		2,809
153	2.	Single Family (1-5du/ac)	DU	--	--	30.00	297
	51.	Developed Park	AC	--	--	5.00	13
		SUB-TOTAL			--		310
158	2.	Single Family (1-5du/ac)	DU	--	--	100.00	990
		SUB-TOTAL			--		990

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
159	2.	Single Family (1-5du/ac)	DU	4.00	40	4.00	40
		SUB-TOTAL			40		40
160	1.	Single Family (<1du/ac)	DU	--	--	106.00	1,049
		SUB-TOTAL			--		1,049
161	1.	Single Family (<1du/ac)	DU	--	--	60.00	594
	2.	Single Family (1-5du/ac)	DU	533.00	5,277	607.00	6,009
	4.	Condominium/Townhouse	DU	531.00	4,248	650.00	5,200
	11.	Commercial Center(10-30a)	TSF	--	--	48.00	2,595
	12.	Commercial Center (<10ac)	TSF	5.26	447	54.22	4,612
	13.	Commercial Shops	TSF	12.50	463	12.50	463
	14.	Hotel	ROOM	283.00	2,329	283.00	2,329
	15.	Sit-Down Restaurant	TSF	21.10	2,750	21.10	2,750
	16.	Fast Food Restaurant	TSF	16.00	7,938	16.00	7,938
	40.	Commercial Office	TSF	61.66	713	282.41	3,265
	56.	CHP Office	SG	55.74	5,574	55.74	5,574
		SUB-TOTAL			29,739		41,329
162	2.	Single Family (1-5du/ac)	DU	83.00	822	248.00	2,455
	11.	Commercial Center(10-30a)	TSF	--	--	102.42	5,537
	30.	Industrial Park	TSF	--	--	240.00	1,440
		SUB-TOTAL			822		9,432
163	30.	Industrial Park	TSF	--	--	2,567.08	15,402
		SUB-TOTAL			--		15,402
164	2.	Single Family (1-5du/ac)	DU	100.00	990	204.00	2,020
	50.	Golf Course	AC	145.00	1,154	145.00	1,154
		SUB-TOTAL			2,144		3,174
165	2.	Single Family (1-5du/ac)	DU	36.00	356	36.00	356
	4.	Condominium/Townhouse	DU	80.00	640	80.00	640
	12.	Commercial Center (<10ac)	TSF	30.23	2,571	30.23	2,571
	13.	Commercial Shops	TSF	7.60	282	7.60	282
	15.	Sit-Down Restaurant	TSF	23.95	3,122	23.95	3,122
	23.	Hospital	TSF	24.66	414	24.66	414
	30.	Industrial Park	TSF	12.24	73	1,890.89	11,345
	32.	Manufacturing/Warehouse	TSF	2.47	13	2.47	13
	40.	Commercial Office	TSF	13.81	160	13.81	160
		SUB-TOTAL			7,631		18,903
166	2.	Single Family (1-5du/ac)	DU	431.00	4,267	431.00	4,267
	4.	Condominium/Townhouse	DU	217.00	1,736	217.00	1,736
	12.	Commercial Center (<10ac)	TSF	48.64	4,137	48.64	4,137
	13.	Commercial Shops	TSF	1.38	51	1.38	51
	15.	Sit-Down Restaurant	TSF	4.34	566	4.34	566
	23.	Hospital	TSF	38.58	648	38.58	648
	32.	Manufacturing/Warehouse	TSF	11.00	56	11.00	56
	40.	Commercial Office	TSF	30.10	348	30.10	348
		SUB-TOTAL			11,809		11,809

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
167	2.	Single Family (1-5du/ac)	DU	180.00	1.782	327.00	3.237
		SUB-TOTAL			1.782		3.237
168	2.	Single Family (1-5du/ac)	DU	247.00	2.445	247.00	2.445
		SUB-TOTAL			2.445		2.445
169	2.	Single Family (1-5du/ac)	DU	127.00	1.257	127.00	1.257
	4.	Condominium/Townhouse	DU	94.00	752	94.00	752
	10.	Commercial Center (>30ac)	TSF	200.00	8.012	200.00	8.012
		SUB-TOTAL			10.021		10.021
170	2.	Single Family (1-5du/ac)	DU	163.00	1.614	163.00	1.614
		SUB-TOTAL			1.614		1.614
171	2.	Single Family (1-5du/ac)	DU	32.00	317	32.00	317
	20.	Elementary/Middle School	STU	675.00	979	675.00	979
		SUB-TOTAL			1.296		1.296
172	2.	Single Family (1-5du/ac)	DU	185.00	1.831	185.00	1.831
		SUB-TOTAL			1.831		1.831
173	2.	Single Family (1-5du/ac)	DU	336.00	3.326	386.00	3.821
		SUB-TOTAL			3.326		3.821
174	11.	Commercial Center(10-30a)	TSF	35.00	1.892	337.20	18.229
		SUB-TOTAL			1.892		18.229
175	2.	Single Family (1-5du/ac)	DU	162.00	1.604	162.00	1.604
	4.	Condominium/Townhouse	DU	160.00	1.280	160.00	1.280
	11.	Commercial Center(10-30a)	TSF	98.01	5.298	98.01	5.298
	20.	Elementary/Middle School	STU	800.00	1.160	800.00	1.160
	34.	Utilities	TSF	87.12	207	87.12	207
		SUB-TOTAL			9.549		9.549
176	2.	Single Family (1-5du/ac)	DU	686.00	6.791	762.00	7.544
	4.	Condominium/Townhouse	DU	135.00	1.080	135.00	1.080
	10.	Commercial Center (>30ac)	TSF	196.02	7.853	196.02	7.853
	13.	Commercial Shops	TSF	141.57	5.247	141.57	5.247
		SUB-TOTAL			20.971		21.724
177	2.	Single Family (1-5du/ac)	DU	477.00	4.722	477.00	4.722
	3.	Single Family (6-10du/ac)	DU	--	--	65.00	644
	4.	Condominium/Townhouse	DU	264.00	2.112	264.00	2.112
	11.	Commercial Center(10-30a)	TSF	97.57	5.275	97.57	5.275
	20.	Elementary/Middle School	STU	535.00	776	535.00	776
		SUB-TOTAL			12.885		13.529
178	2.	Single Family (1-5du/ac)	DU	333.00	3.297	333.00	3.297
	11.	Commercial Center(10-30a)	TSF	21.78	1.177	21.78	1.177
	13.	Commercial Shops	TSF	6.53	242	6.53	242

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
178	40.	Commercial Office	TSF	14.81	171	50.81	587
		SUB-TOTAL			4,887		5,303
179	2.	Single Family (1-5du/ac)	DU	167.00	1,653	167.00	1,653
	11.	Commercial Center(10-30a)	TSF	--	--	24.47	1,323
	13.	Commercial Shops	TSF	21.78	807	21.78	807
	34.	Utilities	TSF	87.12	207	87.12	207
	42.	Medical Office	TSF	24.83	849	24.83	849
		SUB-TOTAL			3,516		4,839
180	2.	Single Family (1-5du/ac)	DU	428.00	4,237	428.00	4,237
		SUB-TOTAL			4,237		4,237
181	3.	Single Family (6-10du/ac)	DU	282.00	2,792	282.00	2,792
	20.	Elementary/Middle School	STU	775.00	1,124	775.00	1,124
		SUB-TOTAL			3,916		3,916
182	3.	Single Family (6-10du/ac)	DU	276.00	2,732	276.00	2,732
	4.	Condominium/Townhouse	DU	229.00	1,832	229.00	1,832
	6.	Mobile Home	DU	238.00	1,642	238.00	1,642
	11.	Commercial Center(10-30a)	TSF	76.23	4,121	76.23	4,121
	20.	Elementary/Middle School	STU	83.00	120	83.00	120
	25.	Church	TSF	17.25	160	17.25	160
		SUB-TOTAL			10,607		10,607
183	4.	Condominium/Townhouse	DU	634.00	5,072	634.00	5,072
	12.	Commercial Center (<10ac)	TSF	--	--	3.50	298
	22.	College	STU	3,274.00	5,042	3,274.00	5,042
	50.	Golf Course	AC	100.00	796	100.00	796
		SUB-TOTAL			10,910		11,208
184	40.	Commercial Office	TSF	--	--	250.00	2,890
		SUB-TOTAL			--		2,890
185	2.	Single Family (1-5du/ac)	DU	133.00	1,317	133.00	1,317
	3.	Single Family (6-10du/ac)	DU	211.00	2,089	211.00	2,089
		SUB-TOTAL			3,406		3,406
186	3.	Single Family (6-10du/ac)	DU	150.00	1,485	150.00	1,485
	23.	Hospital	TSF	125.24	2,104	125.24	2,104
	42.	Medical Office	TSF	108.90	3,724	108.90	3,724
		SUB-TOTAL			7,313		7,313
187	2.	Single Family (1-5du/ac)	DU	111.00	1,099	111.00	1,099
	4.	Condominium/Townhouse	DU	307.00	2,456	307.00	2,456
	34.	Utilities	TSF	217.80	518	217.80	518
	51.	Developed Park	AC	14.00	36	14.00	36
		SUB-TOTAL			4,109		4,109
188	2.	Single Family (1-5du/ac)	DU	72.00	713	72.00	713

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
188	4.	Condominium/Townhouse	DU	216.00	1,728	216.00	1,728
		SUB-TOTAL			2,441		2,441
189	22.	College	STU	13,543.00	20,856	20,000.00	30,800
	40.	Commercial Office	TSF	--	--	28.44	329
		SUB-TOTAL			20,856		31,129
190	2.	Single Family (1-5du/ac)	DU	171.00	1,693	171.00	1,693
		SUB-TOTAL			1,693		1,693
191	42.	Medical Office	TSF	--	--	78.56	2,687
		SUB-TOTAL			--		2,687
192	2.	Single Family (1-5du/ac)	DU	164.00	1,624	164.00	1,624
	4.	Condominium/Townhouse	DU	660.00	5,280	660.00	5,280
		SUB-TOTAL			6,904		6,904
193	31.	Business Park	TSF	250.00	2,550	250.00	2,550
		SUB-TOTAL			2,550		2,550
194	50.	Golf Course	AC	100.00	796	100.00	796
		SUB-TOTAL			796		796
195	3.	Single Family (6-10du/ac)	DU	76.00	752	76.00	752
		SUB-TOTAL			752		752
196	13.	Commercial Shops	TSF	--	--	16.00	593
		SUB-TOTAL			--		593
197	31.	Business Park	TSF	--	--	400.00	4,080
		SUB-TOTAL			--		4,080
198	2.	Single Family (1-5du/ac)	DU	179.00	1,772	179.00	1,772
	3.	Single Family (6-10du/ac)	DU	152.00	1,505	152.00	1,505
		SUB-TOTAL			3,277		3,277
199	14.	Hotel	ROOM	237.00	1,951	237.00	1,951
	15.	Sit-Down Restaurant	TSF	5.00	652	5.00	652
		SUB-TOTAL			2,603		2,603
200	31.	Business Park	TSF	385.10	3,928	578.00	5,896
		SUB-TOTAL			3,928		5,896
201	31.	Business Park	TSF	--	--	250.00	2,550
		SUB-TOTAL			--		2,550
202	5.	Apartment	DU	50.00	345	560.00	3,864
	13.	Commercial Shops	TSF	13.00	482	22.00	815
	14.	Hotel	ROOM	250.00	2,058	250.00	2,058
	18.	Health Club	TSF	54.00	2,160	54.00	2,160

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
202	40.	Commercial Office	TSF	13.00	150	13.00	150
		SUB-TOTAL			5,195		9,047
203	10.	Commercial Center (>30ac)	TSF	742.00	29,725	1,539.00	61,652
	40.	Commercial Office	TSF	--	--	90.00	1,040
		SUB-TOTAL			29,725		62,692
204	13.	Commercial Shops	TSF	62.00	2,298	62.00	2,298
	17.	Movie Theater	SEAT	3,300.00	5,808	3,300.00	5,808
	40.	Commercial Office	TSF	400.00	4,624	400.00	4,624
		SUB-TOTAL			12,730		12,730
205	11.	Commercial Center(10-30a)	TSF	47.30	2,557	47.30	2,557
	24.	Library	TSF	20.00	1,700	20.00	1,700
	40.	Commercial Office	TSF	198.89	2,299	198.89	2,299
		SUB-TOTAL			6,556		6,556
206	11.	Commercial Center(10-30a)	TSF	126.26	6,826	166.11	8,980
	15.	Sit-Down Restaurant	TSF	15.73	2,050	21.50	2,802
		SUB-TOTAL			8,876		11,782
207	40.	Commercial Office	TSF	230.00	2,659	230.00	2,659
		SUB-TOTAL			2,659		2,659
208	4.	Condominium/Townhouse	DU	234.00	1,872	234.00	1,872
		SUB-TOTAL			1,872		1,872
209	2.	Single Family (1-5du/ac)	DU	414.00	4,099	414.00	4,099
	4.	Condominium/Townhouse	DU	352.00	2,816	352.00	2,816
	20.	Elementary/Middle School	STU	800.00	1,160	800.00	1,160
		SUB-TOTAL			8,075		8,075
210	2.	Single Family (1-5du/ac)	DU	205.00	2,029	205.00	2,029
	4.	Condominium/Townhouse	DU	208.00	1,664	208.00	1,664
	11.	Commercial Center(10-30a)	TSF	148.10	8,006	148.10	8,006
		SUB-TOTAL			11,699		11,699
211	2.	Single Family (1-5du/ac)	DU	167.00	1,653	167.00	1,653
		SUB-TOTAL			1,653		1,653
212	2.	Single Family (1-5du/ac)	DU	252.00	2,495	252.00	2,495
	4.	Condominium/Townhouse	DU	272.00	2,176	272.00	2,176
	25.	Church	TSF	18.03	168	18.03	168
	51.	Developed Park	AC	4.20	11	4.20	11
		SUB-TOTAL			4,850		4,850
213	2.	Single Family (1-5du/ac)	DU	275.00	2,723	275.00	2,723
	25.	Church	TSF	25.09	233	25.09	233
		SUB-TOTAL			2,956		2,956

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
214	5.	Apartment	DU	107.00	738	307.00	2,118
		SUB-TOTAL			738		2,118
215	2.	Single Family (1-5du/ac)	DU	105.00	1,040	105.00	1,040
	4.	Condominium/Townhouse	DU	52.00	416	52.00	416
	11.	Commercial Center(10-30a)	TSF	100.00	5,406	100.00	5,406
	13.	Commercial Shops	TSF	43.56	1,514	43.56	1,514
	21.	High School	STU	2,928.00	5,241	2,928.00	5,241
	25.	Church	TSF	50.18	467	50.18	467
	34.	Utilities	TSF	47.92	114	47.92	114
		SUB-TOTAL			14,298		14,298
216	3.	Single Family (5-10du/ac)	DU	22.00	218	22.00	218
	4.	Condominium/Townhouse	DU	128.00	1,024	128.00	1,024
	11.	Commercial Center(10-30a)	TSF	149.96	8,107	149.96	8,107
	40.	Commercial Office	TSF	10.45	121	10.45	121
		SUB-TOTAL			9,470		9,470
217	2.	Single Family (1-5du/ac)	DU	202.00	2,000	202.00	2,000
	4.	Condominium/Townhouse	DU	16.00	128	28.00	224
	11.	Commercial Center(10-30a)	TSF	65.75	3,554	65.75	3,554
	13.	Commercial Shops	TSF	--	--	3.27	121
	14.	Hotel	ROOM	10.00	82	10.00	82
	30.	Industrial Park	TSF	22.44	135	22.44	135
	40.	Commercial Office	TSF	22.44	259	22.44	259
		SUB-TOTAL			6,158		6,375
218	2.	Single Family (1-5du/ac)	DU	307.00	3,039	360.00	3,564
	4.	Condominium/Townhouse	DU	641.00	5,128	641.00	5,128
	6.	Mobile Home	DU	151.00	1,042	151.00	1,042
	10.	Commercial Center (>30ac)	TSF	--	--	327.00	13,100
	11.	Commercial Center(10-30a)	TSF	--	--	166.52	9,007
	13.	Commercial Shops	TSF	64.25	2,381	64.25	2,381
	25.	Church	TSF	9.41	88	9.41	88
		SUB-TOTAL			11,678		34,310
219	2.	Single Family (1-5du/ac)	DU	40.00	396	160.00	1,584
		SUB-TOTAL			396		1,584
220	2.	Single Family (1-5du/ac)	DU	2.00	20	8.00	79
	34.	Utilities	TSF	566.28	1,348	566.28	1,348
		SUB-TOTAL			1,368		1,427
221	2.	Single Family (1-5du/ac)	DU	279.00	2,762	408.00	4,039
	4.	Condominium/Townhouse	DU	6.00	48	6.00	48
	6.	Mobile Home	DU	30.00	207	30.00	207
	22.	College	STU	362.00	557	362.00	557
	25.	Church	TSF	92.52	860	92.52	860
	30.	Industrial Park	TSF	144.40	865	144.40	865
		SUB-TOTAL			5,300		6,577

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
222	2.	Single Family (1-5du/ac)	DU	33.00	327	105.00	1,040
	4.	Condominium/Townhouse	DU	--	--	112.00	896
	20.	Elementary/Middle School	STU	750.00	1,088	750.00	1,088
	22.	College	STU	1,200.00	1,848	1,600.00	2,464
	25.	Church	TSF	16.70	155	16.70	155
	30.	Industrial Park	TSF	--	--	124.15	745
		SUB-TOTAL			3,418		6,388
223	2.	Single Family (1-5du/ac)	DU	19.00	188	29.00	287
	11.	Commercial Center(10-30a)	TSF	43.38	2,345	43.38	2,345
	23.	Hospital	TSF	4.32	73	4.32	73
	30.	Industrial Park	TSF	70.36	422	70.36	422
	31.	Business Park	TSF	--	--	437.12	4,459
	40.	Commercial Office	TSF	0.36	4	0.36	4
		SUB-TOTAL			3,032		7,590
224	2.	Single Family (1-5du/ac)	DU	230.00	2,277	326.00	3,227
	4.	Condominium/Townhouse	DU	500.00	4,000	500.00	4,000
	6.	Mobile Home	DU	30.00	207	30.00	207
	13.	Commercial Shops	TSF	81.68	3,027	81.68	3,027
	20.	Elementary/Middle School	STU	722.00	1,047	722.00	1,047
	24.	Library	TSF	16.73	1,422	34.40	2,923
		SUB-TOTAL			11,980		14,431
225	2.	Single Family (1-5du/ac)	DU	156.00	1,544	156.00	1,544
	4.	Condominium/Townhouse	DU	151.00	1,208	151.00	1,208
	20.	Elementary/Middle School	STU	1,608.00	2,332	1,608.00	2,332
	51.	Developed Park	AC	14.00	36	14.00	36
		SUB-TOTAL			5,120		5,120
226	2.	Single Family (1-5du/ac)	DU	300.00	2,970	300.00	2,970
	4.	Condominium/Townhouse	DU	292.00	2,336	292.00	2,336
	11.	Commercial Center(10-30a)	TSF	--	--	15.68	848
	13.	Commercial Shops	TSF	69.70	2,583	69.70	2,583
	25.	Church	TSF	--	--	8.00	74
		SUB-TOTAL			7,889		8,811
227	2.	Single Family (1-5du/ac)	DU	172.00	1,703	172.00	1,703
	4.	Condominium/Townhouse	DU	184.00	1,472	184.00	1,472
	31.	Business Park	TSF	--	--	563.56	5,748
		SUB-TOTAL			3,175		8,923
228	2.	Single Family (1-5du/ac)	DU	358.00	3,544	358.00	3,544
		SUB-TOTAL			3,544		3,544
229	1.	Single Family (<1du/ac)	DU	74.00	733	74.00	733
	2.	Single Family (1-5du/ac)	DU	--	--	104.00	1,030
		SUB-TOTAL			733		1,763
230	1.	Single Family (<1du/ac)	DU	1.00	10	10.00	99
		SUB-TOTAL			10		99

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
231	2.	Single Family (1-5du/ac)	DU	--	--	5.00	50
	4.	Condominium/Townhouse	DU	--	--	51.00	408
	34.	Utilities	TSF	--	--	29.00	69
		SUB-TOTAL			--		527
232	1.	Single Family (<1du/ac)	DU	--	--	10.00	99
		SUB-TOTAL			--		99
233	31.	Business Park	TSF	--	--	569.47	5,809
		SUB-TOTAL			--		5,809
234	11.	Commercial Center(10-30a)	TSF	--	--	100.00	5,406
	31.	Business Park	TSF	--	--	470.24	4,796
		SUB-TOTAL			--		10,202
235	11.	Commercial Center(10-30a)	TSF	60.20	3,254	20.00	1,081
	31.	Business Park	TSF	24.00	245	130.00	1,326
		SUB-TOTAL			3,499		2,407
236	2.	Single Family (1-5du/ac)	DU	--	--	204.00	2,020
	3.	Single Family (6-10du/ac)	DU	--	--	200.00	1,980
	20.	Elementary/Middle School	STU	--	--	647.00	938
	51.	Developed Park	AC	--	--	5.00	13
		SUB-TOTAL			--		4,951
237	2.	Single Family (1-5du/ac)	DU	--	--	225.00	2,228
	5.	Apartment	DU	--	--	570.00	3,933
	40.	Commercial Office	TSF	--	--	99.00	1,144
	51.	Developed Park	AC	--	--	24.40	63
		SUB-TOTAL			--		7,368
238	2.	Single Family (1-5du/ac)	DU	--	--	163.00	1,614
	3.	Single Family (6-10du/ac)	DU	--	--	236.00	2,336
	4.	Condominium/Townhouse	DU	--	--	124.00	992
	10.	Commercial Center (>30ac)	TSF	--	--	32.00	1,282
	11.	Commercial Center(10-30a)	TSF	--	--	54.45	2,944
	12.	Commercial Center (<10ac)	TSF	--	--	50.00	4,253
	15.	Sit-Down Restaurant	TSF	--	--	20.00	2,607
	30.	Industrial Park	TSF	--	--	175.00	1,050
	31.	Business Park	TSF	--	--	227.00	2,315
	40.	Commercial Office	TSF	--	--	86.16	996
	51.	Developed Park	AC	--	--	25.90	67
		SUB-TOTAL			--		20,456
239	13.	Commercial Shops	TSF	87.12	3,229	337.29	12,500
	21.	High School	STU	500.00	895	500.00	895
	30.	Industrial Park	TSF	110.00	650	387.07	2,322
	32.	Manufacturing/Warehouse	TSF	352.84	1,799	1,552.60	7,918
	40.	Commercial Office	TSF	17.42	201	262.87	3,039
		SUB-TOTAL			6,784		26,674

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
240	10.	Commercial Center (>30ac)	TSF	--	--	126.00	5.048
	12.	Commercial Center (<10ac)	TSF	--	--	40.00	3.402
	15.	Sit-Down Restaurant	TSF	--	--	9.50	1.238
	16.	Fast Food Restaurant	TSF	--	--	5.50	2.729
		SUB-TOTAL			--		12.417
241	10.	Commercial Center (>30ac)	TSF	--	--	34.00	1,362
	15.	Sit-Down Restaurant	TSF	--	--	10.00	1.303
		SUB-TOTAL			--		2.665
242	40.	Commercial Office	TSF	--	--	115.00	1.329
		SUB-TOTAL			--		1,329
243	2.	Single Family (1-5du/ac)	DU	--	--	211.00	2.089
	4.	Condominium/Townhouse	DU	--	--	426.00	3.408
	5.	Apartment	DU	--	--	496.00	3,422
	10.	Commercial Center (>30ac)	TSF	--	--	75.00	3,005
	12.	Commercial Center (<10ac)	TSF	--	--	20.00	1,701
	15.	Sit-Down Restaurant	TSF	--	--	34.00	4.432
	40.	Commercial Office	TSF	--	--	164.00	1,896
		SUB-TOTAL			--		19,953
244	1.	Single Family (<1du/ac)	DU	95.00	940	95.00	940
	2.	Single Family (1-5du/ac)	DU	322.00	3.188	322.00	3,188
	3.	Single Family (5-10du/ac)	DU	95.00	940	95.00	940
	4.	Condominium/Townhouse	DU	157.00	1.256	157.00	1.256
		SUB-TOTAL			6,324		6,324
245	4.	Condominium/Townhouse	DU	148.00	1.184	148.00	1,184
	30.	Industrial Park	TSF	--	--	345.58	2,073
	32.	Manufacturing/Warehouse	TSF	61.16	312	61,16	312
		SUB-TOTAL			1.496		3.569
246	12.	Commercial Center (<10ac)	TSF	--	--	36.00	3,052
	32.	Manufacturing/Warehouse	TSF	58.81	300	58.81	300
		SUB-TOTAL			300		3,352
247	11.	Commercial Center(10-30a)	TSF	71.37	3.858	71.37	3,858
		SUB-TOTAL			3,858		3,858
248	2.	Single Family (1-5du/ac)	DU	2.00	20	2.00	20
	4.	Condominium/Townhouse	DU	4.00	32	4.00	32
	30.	Industrial Park	TSF	882.09	5.293	882.09	5,293
		SUB-TOTAL			5.345		5.345
249	32.	Manufacturing/Warehouse	TSF	291.68	1,488	291.68	1.488
	40.	Commercial Office	TSF	--	--	150.00	1.734
		SUB-TOTAL			1.488		3,222
250	11.	Commercial Center(10-30a)	TSF	--	--	90.66	4.901

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
250	13. Commercial Shops	TSF	58.00	2,149	58.00	2,149
	SUB-TOTAL			2,149		7,050
252	31. Business Park	TSF	--	--	858.00	8,752
	SUB-TOTAL			--		8,752
253	1. Single Family (<1du/ac)	DU	--	--	84.00	832
	SUB-TOTAL			--		832
254	11. Commercial Center(10-30a)	TSF	--	--	107.50	5,811
	13. Commercial Shops	TSF	8.71	323	8.71	323
	SUB-TOTAL			323		6,134
255	1. Single Family (<1du/ac)	DU	2.00	20	69.00	683
	SUB-TOTAL			20		683
256	2. Single Family (1-5du/ac)	DU	20.00	198	20.00	198
	SUB-TOTAL			198		198
257	2. Single Family (1-5du/ac)	DU	103.00	1,020	266.00	2,633
	3. Single Family (6-10du/ac)	DU	--	--	38.00	376
	4. Condominium/Townhouse	DU	11.00	88	11.00	88
	SUB-TOTAL			1,108		3,097
258	2. Single Family (1-5du/ac)	DU	54.00	535	97.00	960
	32. Manufacturing/Warehouse	TSF	--	--	125.00	638
	SUB-TOTAL			535		1,598
259	3. Single Family (6-10du/ac)	DU	--	--	14.00	139
	4. Condominium/Townhouse	DU	--	--	237.00	1,896
	SUB-TOTAL			--		2,035
260	2. Single Family (1-5du/ac)	DU	27.00	267	402.00	3,980
	SUB-TOTAL			267		3,980
261	2. Single Family (1-5du/ac)	DU	10.00	99	295.00	2,921
	SUB-TOTAL			99		2,921
262	2. Single Family (1-5du/ac)	DU	220.00	2,178	596.00	5,900
	3. Single Family (6-10du/ac)	DU	126.00	1,247	194.00	1,921
	20. Elementary/Middle School	STU	750.00	1,088	750.00	1,088
	SUB-TOTAL			4,513		8,909
263	4. Condominium/Townhouse	DU	--	--	140.00	1,120
	SUB-TOTAL			--		1,120
264	3. Single Family (6-10du/ac)	DU	63.00	624	63.00	624
	SUB-TOTAL			624		624
265	4. Condominium/Townhouse	DU	1,338.00	10,704	1,338.00	10,704
	SUB-TOTAL			10,704		10,704

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
266	11.	Commercial Center(10-30a)	TSF	101.04	5,462	101.04	5,462
		SUB-TOTAL			5,462		5,462
267	11.	Commercial Center(10-30a)	TSF	100.00	5,406	100.00	5,406
		SUB-TOTAL			5,406		5,406
268	4.	Condominium/Townhouse	DU	400.00	3,200	400.00	3,200
	11.	Commercial Center(10-30a)	TSF	182.33	9,857	182.33	9,857
	32.	Manufacturing/Warehouse	TSF	75.00	383	75.00	383
		SUB-TOTAL			13,440		13,440
269	2.	Single Family (1-5du/ac)	DU	173.00	1,713	671.00	5,643
	3.	Single Family (6-10du/ac)	DU	--	--	16.00	158
	20.	Elementary/Middle School	STU	--	--	500.00	725
	21.	High School	STU	--	--	1,116.00	1,998
	51.	Developed Park	AC	3.00	8	4.50	12
		SUB-TOTAL			1,721		9,536
270	1.	Single Family (<1du/ac)	DU	8.00	79	8.00	79
		SUB-TOTAL			79		79
271	5.	Apartment	DU	--	--	155.00	1,070
	10.	Commercial Center (>30ac)	TSF	--	--	690.66	27,668
		SUB-TOTAL			--		28,738
272	2.	Single Family (1-5du/ac)	DU	665.00	6,583	665.00	6,583
	3.	Single Family (6-10du/ac)	DU	154.00	1,525	302.00	2,990
	4.	Condominium/Townhouse	DU	823.00	6,584	823.00	6,584
	12.	Commercial Center (<10ac)	TSF	8.12	691	8.12	691
	20.	Elementary/Middle School	STU	750.00	1,088	750.00	1,088
		SUB-TOTAL			16,471		17,936
273	2.	Single Family (1-5du/ac)	DU	6.00	59	101.00	1,000
		SUB-TOTAL			59		1,000
274	2.	Single Family (1-5du/ac)	DU	--	--	362.00	3,584
	31.	Business Park	TSF	--	--	110.06	1,123
		SUB-TOTAL			--		4,707
275	2.	Single Family (1-5du/ac)	DU	225.00	2,226	225.00	2,228
		SUB-TOTAL			2,228		2,228
276	3.	Single Family (6-10du/ac)	DU	75.00	743	75.00	743
	4.	Condominium/Townhouse	DU	539.00	4,312	539.00	4,312
	12.	Commercial Center (<10ac)	TSF	98.01	8,337	98.01	8,337
	25.	Church	TSF	7.84	73	7.84	73
		SUB-TOTAL			13,465		13,465
277	12.	Commercial Center (<10ac)	TSF	4.91	418	4.91	418
	15.	Sit-Down Restaurant	TSF	3.00	391	3.00	391
		SUB-TOTAL			809		809

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	----- 2004 ----- Amount	ADT	-Long-Range GP-- Amount	ADT
278	4.	Condominium/Townhouse	DU	757.00	6,056	757.00	6,056
	12.	Commercial Center (<10ac)	TSF	81.89	6,966	81.89	6,966
	50.	Golf Course	AC	50.00	398	50.00	398
		SUB-TOTAL			13,420		13,420
279	6.	Mobile Home	DU	313.00	2,160	313.00	2,160
	12.	Commercial Center (<10ac)	TSF	19.33	1,644	26.33	2,240
	30.	Industrial Park	TSF	--	--	58.00	348
	40.	Commercial Office	TSF	0.20	2	0.20	2
		SUB-TOTAL			3,806		4,750
280	31.	Business Park	TSF	--	--	38.18	389
		SUB-TOTAL			--		389
281	31.	Business Park	TSF	--	--	215.62	2,199
		SUB-TOTAL			--		2,199
282	4.	Condominium/Townhouse	DU	486.00	3,888	486.00	3,888
	11.	Commercial Center(10-30a)	TSF	17.90	968	17.90	968
		SUB-TOTAL			4,856		4,856
283	2.	Single Family (1-5du/ac)	DU	161.00	1,594	161.00	1,594
	4.	Condominium/Townhouse	DU	400.00	3,200	400.00	3,200
	20.	Elementary/Middle School	STU	1,116.00	1,618	1,116.00	1,618
		SUB-TOTAL			6,412		6,412
284	2.	Single Family (1-5du/ac)	DU	2.00	20	46.00	455
	6.	Mobile Home	DU	346.00	2,387	346.00	2,387
		SUB-TOTAL			2,407		2,842
285	2.	Single Family (1-5du/ac)	DU	--	--	80.00	792
	10.	Commercial Center (>30ac)	TSF	--	--	246.99	9,894
		SUB-TOTAL			--		10,686
286	2.	Single Family (1-5du/ac)	DU	--	--	82.00	812
		SUB-TOTAL			--		812
287	3.	Single Family (6-10du/ac)	DU	--	--	111.00	1,099
		SUB-TOTAL			--		1,099
288	21.	High School	STU	--	--	2,500.00	4,475
		SUB-TOTAL			--		4,475
289	2.	Single Family (1-5du/ac)	DU	--	--	55.00	545
	31.	Business Park	TSF	--	--	57.17	583
		SUB-TOTAL			--		1,128
290	2.	Single Family (1-5du/ac)	DU	64.00	634	64.00	634
	4.	Condominium/Townhouse	DU	93.00	744	93.00	744
		SUB-TOTAL			1,378		1,378

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
291	2.	Single Family (1-5du/ac)	DU	--	--	74.00	733
	31.	Business Park	TSF	8.60	88	181.63	1,853
		SUB-TOTAL			88		2,586
292	2.	Single Family (1-5du/ac)	DU	161.00	1,594	161.00	1,594
		SUB-TOTAL			1,594		1,594
293	2.	Single Family (1-5du/ac)	DU	133.00	1,317	133.00	1,317
	4.	Condominium/Townhouse	DU	368.00	2,944	368.00	2,944
		SUB-TOTAL			4,261		4,261
294	5.	Apartment	DU	--	--	191.00	1,318
	11.	Commercial Center(10-30a)	TSF	124.35	6,722	364.30	19,678
	30.	Industrial Park	TSF	210.00	1,260	210.00	1,260
	31.	Business Park	TSF	294.22	3,001	349.98	3,570
	51.	Developed Park	AC	--	--	38.00	99
		SUB-TOTAL			10,983		25,925
295	32.	Manufacturing/Warehouse	TSF	372.45	1,899	1,020.58	5,205
	40.	Commercial Office	TSF	--	--	56.00	647
	51.	Developed Park	AC	21.50	56	21.50	56
		SUB-TOTAL			1,955		5,908
298	5.	Apartment	DU	830.00	5,727	830.00	5,727
		SUB-TOTAL			5,727		5,727
299	11.	Commercial Center(10-30a)	TSF	184.00	9,947	184.00	9,947
		SUB-TOTAL			9,947		9,947
300	10.	Commercial Center (>30ac)	TSF	272.00	10,896	272.00	10,896
		SUB-TOTAL			10,896		10,896
301	13.	Commercial Shops	TSF	49.24	1,825	49.24	1,825
	19.	Car Dealership	TSF	66.50	2,494	66.50	2,494
	43.	Post Office	TSF	50.00	5,410	50.00	5,410
		SUB-TOTAL			9,729		9,729
302	10.	Commercial Center (>30ac)	TSF	384.42	15,400	384.42	15,400
	12.	Commercial Center (<10ac)	TSF	--	--	30.00	2,552
	19.	Car Dealership	TSF	31.00	1,163	31.00	1,163
		SUB-TOTAL			16,563		19,115
303	19.	Car Dealership	TSF	150.00	5,625	150.00	5,625
		SUB-TOTAL			5,625		5,625
304	11.	Commercial Center(10-30a)	TSF	33.00	1,784	33.00	1,784
	15.	Sit-Down Restaurant	TSF	15.00	1,955	15.00	1,955
	19.	Car Dealership	TSF	83.00	3,113	83.00	3,113
		SUB-TOTAL			6,852		6,852

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
305	11. Commercial Center(10-30a)	TSF	197.29	10,665	197.29	10,665
	15. Sit-Down Restaurant	TSF	5.36	699	5.36	699
	32. Manufacturing/Warehouse	TSF	--	--	100.00	510
	SUB-TOTAL			11,364		11,874
306	11. Commercial Center(10-30a)	TSF	80.50	4,352	143.90	7,779
	25. Church	TSF	36.10	336	36.10	336
	SUB-TOTAL			4,688		8,115
307	11. Commercial Center(10-30a)	TSF	128.00	6,920	128.00	6,920
	16. Fast Food Restaurant	TSF	4.80	2,381	4.80	2,381
	SUB-TOTAL			9,301		9,301
308	5. Apartment	DU	245.00	1,691	245.00	1,691
	12. Commercial Center (<10ac)	TSF	175.11	14,895	175.11	14,895
	15. Sit-Down Restaurant	TSF	5.40	704	5.40	704
	32. Manufacturing/Warehouse	TSF	29.40	150	29.40	150
	SUB-TOTAL			17,440		17,440
309	13. Commercial Shops	TSF	3.00	111	3.00	111
	SUB-TOTAL			111		111
310	19. Car Dealership	TSF	--	--	111.00	4,163
	51. Developed Park	AC	17.20	45	17.20	45
	SUB-TOTAL			45		4,208
311	3. Single Family (6-10du/ac)	DU	132.00	1,307	132.00	1,307
	4. Condominium/Townhouse	DU	63.00	504	63.00	504
	SUB-TOTAL			1,811		1,811
312	11. Commercial Center(10-30a)	TSF	164.40	8,887	180.00	9,731
	34. Utilities	TSF	84.00	200	84.00	200
	SUB-TOTAL			9,087		9,931
313	4. Condominium/Townhouse	DU	264.00	2,112	264.00	2,112
	SUB-TOTAL			2,112		2,112
314	11. Commercial Center(10-30a)	TSF	178.00	9,623	178.00	9,623
	SUB-TOTAL			9,623		9,623
315	4. Condominium/Townhouse	DU	582.00	4,656	582.00	4,656
	SUB-TOTAL			4,656		4,656
316	2. Single Family (1-5du/ac)	DU	121.00	1,198	121.00	1,198
	SUB-TOTAL			1,198		1,198
317	20. Elementary/Middle School	STU	924.00	1,340	924.00	1,340
	51. Developed Park	AC	18.00	47	18.00	47
	SUB-TOTAL			1,387		1,387

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
318	2.	Single Family (1-5du/ac)	DU	21.00	208	21.00	208
	4.	Condominium/Townhouse	DU	252.00	2,016	252.00	2,016
		SUB-TOTAL			2,224		2,224
319	13.	Commercial Shops	TSF	--	--	2.00	74
	20.	Elementary/Middle School	STU	--	--	250.00	363
	25.	Church	TSF	--	--	80.00	744
	40.	Commercial Office	TSF	--	--	240.00	2,774
		SUB-TOTAL			--		3,955
320	2.	Single Family (1-5du/ac)	DU	125.00	1,238	125.00	1,238
		SUB-TOTAL			1,238		1,238
321	3.	Single Family (6-10du/ac)	DU	155.00	1,535	155.00	1,535
	4.	Condominium/Townhouse	DU	66.00	528	66.00	528
		SUB-TOTAL			2,063		2,063
322	3.	Single Family (6-10du/ac)	DU	87.00	861	87.00	861
		SUB-TOTAL			861		861
323	3.	Single Family (6-10du/ac)	DU	161.00	1,594	161.00	1,594
	4.	Condominium/Townhouse	DU	132.00	1,056	132.00	1,056
		SUB-TOTAL			2,650		2,650
325	3.	Single Family (6-10du/ac)	DU	--	--	205.00	2,029
		SUB-TOTAL			--		2,029
326	2.	Single Family (1-5du/ac)	DU	101.00	1,000	101.00	1,000
		SUB-TOTAL			1,000		1,000
327	2.	Single Family (1-5du/ac)	DU	105.00	1,040	105.00	1,040
		SUB-TOTAL			1,040		1,040
328	2.	Single Family (1-5du/ac)	DU	110.00	1,089	110.00	1,089
		SUB-TOTAL			1,089		1,089
329	2.	Single Family (1-5du/ac)	DU	50.00	495	50.00	495
	20.	Elementary/Middle School	STU	924.00	1,340	924.00	1,340
		SUB-TOTAL			1,835		1,835
330	2.	Single Family (1-5du/ac)	DU	143.00	1,416	143.00	1,416
		SUB-TOTAL			1,416		1,416
331	2.	Single Family (1-5du/ac)	DU	167.00	1,653	167.00	1,653
		SUB-TOTAL			1,653		1,653
332	2.	Single Family (1-5du/ac)	DU	114.00	1,129	114.00	1,129
	4.	Condominium/Townhouse	DU	102.00	816	102.00	816
		SUB-TOTAL			1,945		1,945

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
333	2. Single Family (1-5du/ac)	DU	803.00	7,950	803.00	7,950
	4. Condominium/Townhouse	DU	360.00	2,880	360.00	2,880
	13. Commercial Shops	TSF	25.05	926	25.05	928
	20. Elementary/Middle School	STU	924.00	1,340	924.00	1,340
	SUB-TOTAL			13,098		13,098
334	2. Single Family (1-5du/ac)	DU	164.00	1,624	164.00	1,624
	SUB-TOTAL			1,624		1,624
335	2. Single Family (1-5du/ac)	DU	194.00	1,921	194.00	1,921
	SUB-TOTAL			1,921		1,921
336	2. Single Family (1-5du/ac)	DU	589.00	5,831	589.00	5,831
	20. Elementary/Middle School	STU	924.00	1,340	924.00	1,340
	51. Developed Park	AC	7.30	19	7.30	19
	SUB-TOTAL			7,190		7,190
337	2. Single Family (1-5du/ac)	DU	390.00	3,861	390.00	3,861
	SUB-TOTAL			3,861		3,861
338	11. Commercial Center(10-30a)	TSF	92.00	4,974	92.00	4,974
	SUB-TOTAL			4,974		4,974
339	2. Single Family (1-5du/ac)	DU	128.00	1,267	128.00	1,267
	3. Single Family (6-10du/ac)	DU	161.00	1,594	161.00	1,594
	20. Elementary/Middle School	STU	924.00	1,340	924.00	1,340
	51. Developed Park	AC	7.00	18	7.00	18
	SUB-TOTAL			4,219		4,219
340	2. Single Family (1-5du/ac)	DU	270.00	2,673	270.00	2,673
	3. Single Family (6-10du/ac)	DU	124.00	1,228	124.00	1,228
	4. Condominium/Townhouse	DU	264.00	2,112	264.00	2,112
	SUB-TOTAL			6,013		6,013
341	5. Apartment	DU	325.00	2,243	325.00	2,243
	26. Day Care	STU	260.00	1,175	260.00	1,175
	SUB-TOTAL			3,418		3,418
342	4. Condominium/Townhouse	DU	168.00	1,344	168.00	1,344
	SUB-TOTAL			1,344		1,344
343	2. Single Family (1-5du/ac)	DU	90.00	891	90.00	891
	3. Single Family (6-10du/ac)	DU	89.00	881	89.00	881
	4. Condominium/Townhouse	DU	132.00	1,056	132.00	1,056
	SUB-TOTAL			2,828		2,828
344	2. Single Family (1-5du/ac)	DU	415.00	4,109	415.00	4,109
	11. Commercial Center(10-30a)	TSF	--	--	40.00	2,162
	SUB-TOTAL			4,109		6,271

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
345	2. Single Family (1-5du/ac)	DU	23.00	228	23.00	228
	SUB-TOTAL			228		228
347	2. Single Family (1-5du/ac)	DU	313.00	3,099	313.00	3,099
	SUB-TOTAL			3,099		3,099
348	2. Single Family (1-5du/ac)	DU	517.00	5,118	517.00	5,118
	SUB-TOTAL			5,118		5,118
349	4. Condominium/Townhouse	DU	83.00	664	83.00	664
	12. Commercial Center (<10ac)	TSF	8.00	680	8.00	680
	26. Day Care	STU	50.00	226	50.00	226
	SUB-TOTAL			1,570		1,570
350	25. Church	TSF	108.61	1,010	108.61	1,010
	SUB-TOTAL			1,010		1,010
352	2. Single Family (1-5du/ac)	DU	440.00	4,356	592.00	5,861
	SUB-TOTAL			4,356		5,861
353	2. Single Family (1-5du/ac)	DU	259.00	2,564	259.00	2,564
	SUB-TOTAL			2,564		2,564
355	2. Single Family (1-5du/ac)	DU	--	--	500.00	4,950
	20. Elementary/Middle School	STU	--	--	750.00	1,088
	51. Developed Park	AC	--	--	5.00	13
	SUB-TOTAL			--		6,051
356	2. Single Family (1-5du/ac)	DU	385.00	3,811	385.00	3,811
	SUB-TOTAL			3,811		3,811
357	2. Single Family (1-5du/ac)	DU	--	--	90.00	891
	SUB-TOTAL			--		891
358	2. Single Family (1-5du/ac)	DU	105.00	1,040	421.00	4,168
	4. Condominium/Townhouse	DU	140.00	1,120	255.00	2,040
	20. Elementary/Middle School	STU	650.00	943	650.00	943
	51. Developed Park	AC	10.50	27	19.20	50
	SUB-TOTAL			3,130		7,201
359	2. Single Family (1-5du/ac)	DU	570.00	5,643	570.00	5,643
	4. Condominium/Townhouse	DU	192.00	1,536	192.00	1,536
	SUB-TOTAL			7,179		7,179
360	2. Single Family (1-5du/ac)	DU	538.00	5,326	538.00	5,326
	4. Condominium/Townhouse	DU	248.00	1,984	248.00	1,984
	12. Commercial Center (<10ac)	TSF	119.00	10,122	119.00	10,122
	20. Elementary/Middle School	STU	647.00	938	647.00	938
	SUB-TOTAL			18,370		18,370

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
361	2. Single Family (1-5du/ac)	DU	188.00	1,861	376.00	3,722
	SUB-TOTAL			1,861		3,722
362	2. Single Family (1-5du/ac)	DU	173.00	1,713	173.00	1,713
	11. Commercial Center(10-30a)	TSF	--	--	68.28	3,691
	SUB-TOTAL			1,713		5,404
363	2. Single Family (1-5du/ac)	DU	6.00	59	44.00	436
	SUB-TOTAL			59		436
364	3. Single Family (6-10du/ac)	DU	199.00	1,970	199.00	1,970
	SUB-TOTAL			1,970		1,970
365	2. Single Family (1-5du/ac)	DU	201.00	1,990	201.00	1,990
	4. Condominium/Townhouse	DU	102.00	816	102.00	816
	12. Commercial Center (<10ac)	TSF	40.28	3,426	40.28	3,426
	SUB-TOTAL			6,232		6,232
366	2. Single Family (1-5du/ac)	DU	600.00	5,940	600.00	5,940
	SUB-TOTAL			5,940		5,940
367	3. Single Family (6-10du/ac)	DU	437.00	4,326	437.00	4,326
	SUB-TOTAL			4,326		4,326
368	2. Single Family (1-5du/ac)	DU	1,070.00	10,593	1,070.00	10,593
	20. Elementary/Middle School	STU	675.00	979	675.00	979
	25. Church	TSF	21.00	195	56.00	521
	SUB-TOTAL			11,767		12,093
369	2. Single Family (1-5du/ac)	DU	202.00	2,000	202.00	2,000
	SUB-TOTAL			2,000		2,000
370	2. Single Family (1-5du/ac)	DU	1,080.00	10,692	1,080.00	10,692
	21. High School	STU	2,800.00	5,012	2,800.00	5,012
	SUB-TOTAL			15,704		15,704
371	2. Single Family (1-5du/ac)	DU	673.00	6,663	673.00	6,663
	20. Elementary/Middle School	STU	687.00	996	687.00	996
	SUB-TOTAL			7,659		7,659
372	2. Single Family (1-5du/ac)	DU	287.00	2,841	287.00	2,841
	4. Condominium/Townhouse	DU	230.00	1,840	230.00	1,840
	11. Commercial Center(10-30a)	TSF	153.55	8,301	153.55	8,301
	SUB-TOTAL			12,982		12,982
373	2. Single Family (1-5du/ac)	DU	236.00	2,336	236.00	2,336
	20. Elementary/Middle School	STU	462.00	670	462.00	670
	25. Church	TSF	23.52	219	23.52	219
	SUB-TOTAL			3,225		3,225

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
374	5.	Apartment	DU	--	--	324.00	2,236
	11.	Commercial Center(10-30a)	TSF	150.00	8,109	150.00	8,109
		SUB-TOTAL			8,109		10,345
375	12.	Commercial Center (<10ac)	TSF	--	--	40.00	3,402
	16.	Fast Food Restaurant	TSF	5.00	2,481	5.00	2,481
		SUB-TOTAL			2,481		5,883
376	3.	Single Family (6-10du/ac)	DU	--	--	225.00	2,228
	51.	Developed Park	AC	--	--	5.00	13
		SUB-TOTAL			--		2,241
377	13.	Commercial Shops	TSF	57.50	2,131	57.50	2,131
		SUB-TOTAL			2,131		2,131
378	6.	Mobile Home	DU	332.00	2,291	332.00	2,291
	10.	Commercial Center (>30ac)	TSF	--	--	500.00	20,330
	13.	Commercial Shops	TSF	41.00	1,519	56.00	2,075
	31.	Business Park	TSF	56.00	571	56.00	571
	40.	Commercial Office	TSF	--	--	110.00	1,272
		SUB-TOTAL			4,381		26,239
379	3.	Single Family (6-10du/ac)	DU	--	--	214.00	2,119
		SUB-TOTAL			--		2,119
380	5.	Apartment	DU	--	--	420.00	2,898
		SUB-TOTAL			--		2,898
381	51.	Developed Park	AC	50.00	130	50.00	130
		SUB-TOTAL			130		130
382	34.	Utilities	TSF	21.00	50	21.00	50
	51.	Developed Park	AC	50.00	130	50.00	130
		SUB-TOTAL			180		180
383	2.	Single Family (1-5du/ac)	DU	231.00	2,287	257.00	2,544
	13.	Commercial Shops	TSF	8.71	323	8.71	323
		SUB-TOTAL			2,610		2,867
384	2.	Single Family (1-5du/ac)	DU	354.00	3,505	354.00	3,505
	12.	Commercial Center (<10ac)	TSF	23.07	1,962	23.07	1,962
		SUB-TOTAL			5,467		5,467
385	2.	Single Family (1-5du/ac)	DU	--	--	75.00	743
		SUB-TOTAL			--		743
386	2.	Single Family (1-5du/ac)	DU	162.00	1,604	162.00	1,604
		SUB-TOTAL			1,604		1,604
387	2.	Single Family (1-5du/ac)	DU	142.00	1,406	1,015.00	10,049

Table 5-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
387	4.	Condominium/Townhouse	DU	180.00	1,440	954.00	7,632
		SUB-TOTAL			2,846		17,681
388	1.	Single Family (<1du/ac)	DU	--	--	208.00	2,059
		SUB-TOTAL			--		2,059
389	2.	Single Family (1-5du/ac)	DU	1,061.00	10,594	1,078.00	10,672
	3.	Single Family (6-10du/ac)	DU	126.00	1,247	126.00	1,247
	20.	Elementary/Middle School	STU	528.00	766	528.00	766
		SUB-TOTAL			12,517		12,685
390	2.	Single Family (1-5du/ac)	DU	150.00	1,485	150.00	1,485
		SUB-TOTAL			1,485		1,485
391	13.	Commercial Shops	TSF	16.33	605	16.33	605
	30.	Industrial Park	TSF	--	--	70.00	420
	32.	Manufacturing/Warehouse	TSF	376.36	1,919	376.36	1,919
		SUB-TOTAL			2,524		2,944
392	2.	Single Family (1-5du/ac)	DU	323.00	3,198	323.00	3,198
	6.	Mobile Home	DU	400.00	2,760	400.00	2,760
	11.	Commercial Center(10-30a)	TSF	--	--	81.68	4,416
	13.	Commercial Shops	TSF	20.80	771	20.80	771
	20.	Elementary/Middle School	STU	1,000.00	1,450	1,000.00	1,450
		SUB-TOTAL			8,179		12,595
393	3.	Single Family (6-10du/ac)	DU	162.00	1,604	162.00	1,604
	4.	Condominium/Townhouse	DU	100.00	800	100.00	800
	12.	Commercial Center (<10ac)	TSF	52.27	4,446	52.27	4,446
	25.	Church	TSF	37.64	350	37.64	350
		SUB-TOTAL			7,200		7,200
394	2.	Single Family (1-5du/ac)	DU	325.00	3,217	325.00	3,217
	20.	Elementary/Middle School	STU	720.00	1,044	720.00	1,044
	21.	High School	STU	3,500.00	6,265	3,500.00	6,265
	51.	Developed Park	AC	3.20	8	3.20	8
		SUB-TOTAL			10,534		10,534
395	3.	Single Family (6-10du/ac)	DU	185.00	1,831	185.00	1,831
	11.	Commercial Center(10-30a)	TSF	165.53	8,949	165.53	8,949
	20.	Elementary/Middle School	STU	1,505.00	2,182	1,505.00	2,182
		SUB-TOTAL			12,962		12,962
396	12.	Commercial Center (<10ac)	TSF	76.23	6,484	76.23	6,484
		SUB-TOTAL			6,484		6,484
397	3.	Single Family (6-10du/ac)	DU	49.00	485	49.00	485
	4.	Condominium/Townhouse	DU	512.00	4,096	512.00	4,096
	5.	Apartment	DU	67.00	462	67.00	462
	6.	Mobile Home	DU	171.00	1,180	171.00	1,180

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
397	11. Commercial Center(10-30a)	TSF	310.98	16,812	310.98	16,812
	12. Commercial Center (<10ac)	TSF	--	--	74.00	6,294
	SUB-TOTAL			23,035		29,329
398	2. Single Family (1-5du/ac)	DU	1,120.00	11,088	1,120.00	11,088
	4. Condominium/Townhouse	DU	120.00	960	120.00	960
	12. Commercial Center (<10ac)	TSF	250.00	21,265	250.00	21,265
	13. Commercial Shops	TSF	2.68	99	2.68	99
	15. Sit-Down Restaurant	TSF	8.45	1,101	8.45	1,101
	20. Elementary/Middle School	STU	820.00	1,189	820.00	1,189
	24. Library	TSF	17.00	1,445	17.00	1,445
	SUB-TOTAL			37,147		37,147
399	2. Single Family (1-5du/ac)	DU	779.00	7,712	779.00	7,712
	3. Single Family (6-10du/ac)	DU	80.00	792	80.00	792
	20. Elementary/Middle School	STU	545.00	790	545.00	790
	SUB-TOTAL			9,294		9,294
400	2. Single Family (1-5du/ac)	DU	--	--	12.00	119
	SUB-TOTAL			--		119
401	2. Single Family (1-5du/ac)	DU	--	--	900.00	8,910
	4. Condominium/Townhouse	DU	--	--	482.00	3,856
	SUB-TOTAL			--		12,766
402	2. Single Family (1-5du/ac)	DU	300.00	2,970	1,129.00	11,177
	11. Commercial Center(10-30a)	TSF	--	--	150.00	8,109
	20. Elementary/Middle School	STU	656.00	951	656.00	951
	SUB-TOTAL			3,921		20,237
403	2. Single Family (1-5du/ac)	DU	111.00	1,099	111.00	1,099
	12. Commercial Center (<10ac)	TSF	12.00	1,021	46.00	3,913
	SUB-TOTAL			2,120		5,012
404	2. Single Family (1-5du/ac)	DU	10.00	99	170.00	1,683
	SUB-TOTAL			99		1,683
405	2. Single Family (1-5du/ac)	DU	24.00	238	296.00	2,930
	SUB-TOTAL			238		2,930
406	2. Single Family (1-5du/ac)	DU	38.00	376	353.00	3,495
	SUB-TOTAL			376		3,495
407	2. Single Family (1-5du/ac)	DU	--	--	47.00	465
	SUB-TOTAL			--		465
408	2. Single Family (1-5du/ac)	DU	47.00	465	648.00	6,415
	SUB-TOTAL			465		6,415
409	2. Single Family (1-5du/ac)	DU	--	--	154.00	1,525
	SUB-TOTAL			--		1,525

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
410	2. Single Family (1-5du/ac)	DU	25.00	247	248.00	2,455
	6. Mobile Home	DU	--	--	101.00	697
	30. Industrial Park	TSF	--	--	44.00	264
	SUB-TOTAL			247		3,416
411	2. Single Family (1-5du/ac)	DU	--	--	800.00	7,920
	20. Elementary/Middle School	STU	--	--	800.00	1,160
	SUB-TOTAL			--		9,080
412	1. Single Family (<1du/ac)	DU	120.00	1,188	120.00	1,188
	SUB-TOTAL			1,188		1,188
413	2. Single Family (1-5du/ac)	DU	29.00	287	106.00	1,049
	4. Condominium/Townhouse	DU	246.00	1,968	614.00	4,912
	12. Commercial Center (<10ac)	TSF	26.94	2,292	44.60	3,794
	30. Industrial Park	TSF	--	--	48.54	291
	32. Manufacturing/Warehouse	TSF	45.21	231	45.21	231
	40. Commercial Office	TSF	36.59	423	36.59	423
	SUB-TOTAL			5,201		10,700
414	2. Single Family (1-5du/ac)	DU	15.00	149	40.00	396
	4. Condominium/Townhouse	DU	1,358.00	10,864	1,358.00	10,864
	6. Mobile Home	DU	250.00	1,725	250.00	1,725
	13. Commercial Shops	TSF	95.83	3,551	95.83	3,551
	40. Commercial Office	TSF	--	--	125.00	1,445
	SUB-TOTAL			16,289		17,981
415	2. Single Family (1-5du/ac)	DU	206.00	2,039	211.00	2,089
	11. Commercial Center(10-30a)	TSF	--	--	63.71	3,444
	30. Industrial Park	TSF	--	--	125.46	753
	32. Manufacturing/Warehouse	TSF	27.80	142	27.80	142
	SUB-TOTAL			2,181		5,428
416	2. Single Family (1-5du/ac)	DU	579.00	5,732	579.00	5,732
	4. Condominium/Townhouse	DU	148.00	1,184	148.00	1,184
	13. Commercial Shops	TSF	15.00	556	15.00	556
	51. Developed Park	AC	15.00	39	15.00	39
	SUB-TOTAL			7,511		7,511
417	2. Single Family (1-5du/ac)	DU	579.00	5,732	579.00	5,732
	4. Condominium/Townhouse	DU	149.00	1,192	149.00	1,192
	20. Elementary/Middle School	STU	760.00	1,102	760.00	1,102
	SUB-TOTAL			8,026		8,026
418	4. Condominium/Townhouse	DU	474.00	3,792	474.00	3,792
	5. Apartment	DU	232.00	1,601	232.00	1,601
	6. Mobile Home	DU	90.00	621	90.00	621
	11. Commercial Center(10-30a)	TSF	128.43	6,943	128.43	6,943
	SUB-TOTAL			12,957		12,957

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	----- 2004 ----- Amount	ADT	-Long-Range GP-- Amount	ADT
419	2.	Single Family (1-5du/ac)	DU	--	--	1,018.00	10,078
	4.	Condominium/Townhouse	DU	1,834.00	14,672	1,834.00	14,672
		SUB-TOTAL			14,672		24,750
420	4.	Condominium/Townhouse	DU	40.00	320	40.00	320
		SUB-TOTAL			320		320
421	4.	Condominium/Townhouse	DU	752.00	6,016	752.00	6,016
	30.	Industrial Park	TSF	--	--	300.00	1,800
	31.	Business Park	TSF	--	--	300.00	3,060
		SUB-TOTAL			6,016		10,876
422	2.	Single Family (1-5du/ac)	DU	74.00	733	76.00	752
	4.	Condominium/Townhouse	DU	80.00	640	80.00	640
	11.	Commercial Center(10-30a)	TSF	--	--	132.00	7,136
	12.	Commercial Center (<10ac)	TSF	4.00	340	4.00	340
	20.	Elementary/Middle School	STU	817.00	1,185	817.00	1,185
		SUB-TOTAL			2,898		10,053
423	2.	Single Family (1-5du/ac)	DU	353.00	3,495	353.00	3,495
	3.	Single Family (6-10du/ac)	DU	--	--	21.00	208
	12.	Commercial Center (<10ac)	TSF	98.01	8,337	98.01	8,337
	40.	Commercial Office	TSF	10.89	126	10.89	126
		SUB-TOTAL			11,958		12,166
424	2.	Single Family (1-5du/ac)	DU	2.00	20	114.00	1,129
	4.	Condominium/Townhouse	DU	84.00	672	194.00	1,552
		SUB-TOTAL			692		2,681
425	2.	Single Family (1-5du/ac)	DU	39.00	386	241.00	2,386
	4.	Condominium/Townhouse	DU	--	--	80.00	640
	51.	Developed Park	AC	--	--	31.00	81
		SUB-TOTAL			386		3,107
426	2.	Single Family (1-5du/ac)	DU	30.00	297	560.00	5,544
	3.	Single Family (6-10du/ac)	DU	70.00	693	70.00	693
	32.	Manufacturing/Warehouse	TSF	39.60	202	39.60	202
		SUB-TOTAL			1,192		6,439
427	2.	Single Family (1-5du/ac)	DU	249.00	2,465	249.00	2,465
		SUB-TOTAL			2,465		2,465
428	2.	Single Family (1-5du/ac)	DU	540.00	5,346	2,124.00	21,028
	11.	Commercial Center(10-30a)	TSF	--	--	47.40	2,562
	12.	Commercial Center (<10ac)	TSF	--	--	39.20	3,334
		SUB-TOTAL			5,346		26,924
429	2.	Single Family (1-5du/ac)	DU	42.00	416	55.00	545
		SUB-TOTAL			416		545

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
430	2. Single Family (1-5du/ac)	DU	2.00	20	2.00	20
	SUB-TOTAL			20		20
431	2. Single Family (1-5du/ac)	DU	3.00	30	3.00	30
	SUB-TOTAL			30		30
433	2. Single Family (1-5du/ac)	DU	8.00	79	55.00	545
	SUB-TOTAL			79		545
434	2. Single Family (1-5du/ac)	DU	25.00	247	25.00	247
	SUB-TOTAL			247		247
437	2. Single Family (1-5du/ac)	DU	6.00	59	250.00	2,475
	4. Condominium/Townhouse	DU	--	--	13.00	104
	59. Cemex	SG	--	--	12.84	1,284
	SUB-TOTAL			59		3,863
438	4. Condominium/Townhouse	DU	--	--	13.00	104
	SUB-TOTAL			--		104
439	2. Single Family (1-5du/ac)	DU	164.00	1,624	170.00	1,683
	3. Single Family (6-10du/ac)	DU	660.00	6,534	660.00	6,534
	11. Commercial Center(10-30a)	TSF	--	--	41.65	2,252
	SUB-TOTAL			8,158		10,469
440	2. Single Family (1-5du/ac)	DU	--	--	568.00	5,623
	SUB-TOTAL			--		5,623
441	2. Single Family (1-5du/ac)	DU	150.00	1,485	284.00	2,812
	20. Elementary/Middle School	STU	360.00	522	360.00	522
	SUB-TOTAL			2,007		3,334
442	2. Single Family (1-5du/ac)	DU	72.00	713	336.00	3,326
	3. Single Family (6-10du/ac)	DU	216.00	2,138	216.00	2,138
	SUB-TOTAL			2,851		5,464
443	2. Single Family (1-5du/ac)	DU	499.00	4,940	763.00	7,554
	20. Elementary/Middle School	STU	985.00	1,428	985.00	1,428
	23. Hospital	TSF	30.00	504	30.00	504
	40. Commercial Office	TSF	108.90	1,259	108.90	1,259
	SUB-TOTAL			8,131		10,745
444	2. Single Family (1-5du/ac)	DU	775.00	7,672	775.00	7,672
	4. Condominium/Townhouse	DU	19.00	152	19.00	152
	11. Commercial Center(10-30a)	TSF	--	--	298.95	16,161
	25. Church	TSF	4.00	37	4.00	37
	SUB-TOTAL			7,861		24,022
445	2. Single Family (1-5du/ac)	DU	29.00	287	41.00	406
	SUB-TOTAL			287		406

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone	Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
446	2. Single Family (1-5du/ac)	DU	231.00	2,287	231.00	2,287
	SUB-TOTAL			2,287		2,287
447	50. Golf Course	AC	150.00	1,194	150.00	1,194
	SUB-TOTAL			1,194		1,194
448	2. Single Family (1-5du/ac)	DU	395.00	3,910	691.00	6,841
	SUB-TOTAL			3,910		6,841
449	2. Single Family (1-5du/ac)	DU	20.00	198	20.00	198
	SUB-TOTAL			198		198
450	2. Single Family (1-5du/ac)	DU	--	--	27.00	267
	SUB-TOTAL			--		267
451	2. Single Family (1-5du/ac)	DU	40.00	396	67.00	663
	30. Industrial Park	TSF	--	--	47.00	282
	SUB-TOTAL			396		945
452	2. Single Family (1-5du/ac)	DU	6.00	59	38.00	376
	SUB-TOTAL			59		376
453	2. Single Family (1-5du/ac)	DU	172.00	1,703	225.00	2,228
	10. Commercial Center (>30ac)	TSF	--	--	16.00	641
	20. Elementary/Middle School	STU	490.00	711	490.00	711
	SUB-TOTAL			2,414		3,580
454	2. Single Family (1-5du/ac)	DU	116.00	1,148	125.00	1,238
	11. Commercial Center(10-30a)	TSF	--	--	34.14	1,846
	13. Commercial Shops	TSF	6.14	228	6.14	228
	52. Undeveloped Park	AC	745.00	373	745.00	373
	57. Agua Dulce Airport	SG	34.06	3,406	51.09	5,109
	SUB-TOTAL			5,155		8,794
455	2. Single Family (1-5du/ac)	DU	80.00	792	80.00	792
	SUB-TOTAL			792		792

Table E-1 (cont.)
LAND USE AND TRIP GENERATION SUMMARY

Zone		Land Use Category	Units	2004 Amount	2004 ADT	Long-Range GP Amount	Long-Range GP ADT
TOTAL	1.	Single Family (<1du/ac)	DU	300.00	2,970	1,817.00	17,988
	2.	Single Family (1-5du/ac)	DU	42,731.00	423,044	68,913.00	682,252
	3.	Single Family (6-10du/ac)	DU	6,812.00	57,538	17,629.00	174,529
	4.	Condominium/Townhouse	DU	23,519.00	188,152	39,509.00	316,072
	5.	Apartment	DU	2,108.00	14,546	8,510.00	58,720
	6.	Mobile Home	DU	2,464.00	17,002	2,565.00	17,699
	10.	Commercial Center (>30ac)	TSF	2,675.04	107,163	8,003.69	320,629
	11.	Commercial Center(10-30a)	TSF	4,203.47	227,240	8,518.44	460,507
	12.	Commercial Center (<10ac)	TSF	1,307.47	111,212	2,615.78	222,499
	13.	Commercial Shops	TSF	1,168.87	43,318	1,656.71	61,396
	14.	Hotel	ROOM	985.00	8,107	1,406.00	11,572
	15.	Sit-Down Restaurant	TSF	210.92	27,493	290.19	37,825
	16.	Fast Food Restaurant	TSF	47.58	23,606	53.08	26,335
	17.	Movie Theater	SEAT	3,300.00	5,808	3,300.00	5,808
	18.	Health Club	TSF	125.00	5,000	125.00	5,000
	19.	Car Dealership	TSF	330.50	12,395	441.50	16,558
	20.	Elementary/Middle School	STU	32,506.00	47,140	48,591.00	70,465
	21.	High School	STU	13,228.00	23,678	23,274.00	41,661
	22.	College	STU	18,379.00	28,303	25,236.00	38,863
	23.	Hospital	TSF	222.80	3,743	222.80	3,743
	24.	Library	TSF	53.73	4,567	71.40	6,068
	25.	Church	TSF	512.89	4,770	635.89	5,914
	26.	Day Care	STU	460.00	2,079	540.00	2,441
	30.	Industrial Park	TSF	15,517.43	93,103	40,298.54	241,791
	31.	Business Park	TSF	1,017.92	10,383	9,113.92	92,952
	32.	Manufacturing/Warehouse	TSF	1,970.77	10,052	4,043.66	20,625
	34.	Utilities	TSF	1,121.24	2,568	1,190.24	2,737
	35.	Regional Post Office	TSF	764.00	3,820	764.00	3,820
	40.	Commercial Office	TSF	1,170.75	13,533	5,188.12	59,973
	42.	Medical Office	TSF	133.73	4,573	212.29	7,260
	43.	Post Office	TSF	50.00	5,410	50.00	5,410
	50.	Golf Course	AC	753.00	5,994	1,233.00	9,815
	51.	Developed Park	AC	250.90	652	583.80	1,518
	52.	Undeveloped Park	AC	745.00	373	762.50	382
	53.	Wayside Honor Ranch	SG	20.00	2,000	30.00	3,000
	54.	Six Flags Magic Mtn	SG	160.00	16,000	240.00	24,000
	55.	Travel Village	SG	26.20	2,620	26.20	2,620
	56.	CHP Office	SG	55.74	5,574	55.74	5,574
	57.	Agua Dulce Airport	SG	34.06	3,406	51.09	5,109
	58.	Landfill	SG	10.00	1,000	20.00	2,000
	59.	Cemex	SG	--	--	12.84	1,284
		TOTAL			1,570,034		3,094,424

Ventura County
Transit Investment Study

Final Report

December 4, 2009

JACOBS

Ventura County Transit Investment Study

Submitted to

Ventura County Transportation Commission (VCTC)

950 County Square Drive, Suite 207

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Ventura County Transit Investment Study

Purpose of the Study

The Ventura County Transportation Commission conducted this study to determine how to best allocate funds for projects that would enhance transit services for county residents. Initially seen as providing a methodology for prioritizing state funds that were anticipated to be available from Prop 1B, the study was modified slightly over time. Potential projects for funding under Prop 1B were incorporated into applications for federal funds available through the American Recovery and Reinvestment Act early in 2009. Accordingly, the prioritization process was modified to ensure its applicability to other funding sources.

The process for identifying and prioritizing needs was conducted by Jacobs Engineering (Jacobs) in close cooperation with the members of VCTC's Transit Operators Advisory Committee (TRANSCOM). Members not only assured the accuracy of study inputs and provided insights into numerous issues, but were critical to developing the prioritizing criteria that they will subsequently use when competing projects must be ranked. Additionally, comments on needs and priorities were sought from elected officials and the public. ***An important finding of the study is the consistent desire among all participants for better coordinated and linked transit services that largely ignore jurisdictional boundaries.***

Study Process Overview

The study began by documenting the current services of the nine transit agencies serving the county, as well as interviewing key agency staff of the seven agencies that are based in Ventura County. These interviews gathered information about current services, known areas of need, planned improvements, and other issues affecting how service is provided. The results of these interviews are reported in an Existing Conditions Report (Appendix A).

One of the recurring themes from agency interviews and comments from elected officials and the public was a basic need to improve linkages among the various transit systems. An analysis of current connections was conducted to identify opportunities for improvement. The result of this assessment is a Transit Gaps Analysis (Appendix B), which looked at four types of shortfalls in transit service: corridors between localities when no transit is operated today; geographic areas with densities that appear high enough to warrant service but that are not served today; gaps in service on different bus lines; and places where transit routes come together, but arrival and departure times are not optimal to enable convenient transfers. In combination, these captured a high-level picture of the overall availability and shortfalls of transit service from a county-wide perspective.

The Gaps Analysis provided one of the main bases for developing projects and other recommendations for an improved transit system. It also fed into the development of two

tools for use by the transit operators and VCTC: a prioritization methodology (Appendix C) and a transit forecasting methodology to test changes in service frequency (Appendix D).

Validation of the goal for more connected transit service in the county, compared with the technical perspective of the study, was garnered through a public outreach effort. In addition to one-on-one interviews with elected officials, public comments were sought through two public workshops and from an on-line survey on the VCTC website. The overarching message from across the spectrum of respondents (Appendix E) was that transit services needed to be more extensive in areas served and in hours of operation, and seamlessly connected, with more convenient and reliable transfers.

Summary of Findings and Recommendations

There is a basic need to improve linkages among the various transit systems. This was a recurring issue raised from agency interviews, input from elected officials, and from a variety of public groups.

There is an expressed willingness to cooperate among the existing service agencies, evidenced in their common commitment to serving patrons, a desire to provide improved services to their constituents, to addressing issues in a coordinated manner when possible, and an interest in exploring opportunities for how to provide improved service.

Near-term transit improvements can most readily be made in increments, with an overarching goal to ignore jurisdictional boundaries whenever possible. Near-term improvements should be identified by way of a detailed evaluation of schedules and development of a better-linked, cross-jurisdictional operating plan that serves areas of high transit demand and high transit potential.

There is interest in modifying organization structures or exploring new organizational structures to provide transit on a countywide or an areawide basis, with the underlying goal of creating a comprehensive and seamless network. A long-term plan for transit should be undertaken that defines levels of service goals, explores options for system management, analyzes upcoming and possible funding sources, and develops strategic options for reaching the service goals.

There is a broad public awareness that transit services must compete for limited funds from local jurisdictions, offset by a desire to identify dedicated or focused funds to create the envisioned comprehensive and seamless network. VCTC and the operating agencies and their management should take advantage of this public support for transit by improving communication tools and building partnerships.

Study Results

A. Existing Conditions

Transit Services: Public transportation serving Ventura County is fragmented, with seven fixed-route bus operations, five public dial-a-ride operations, and four paratransit services restricted to disabled or senior riders. There are also two Los Angeles-based bus operators, two rail operations, and several private carriers that serve portions of the county. While in some cases the fares and schedules of connecting systems are coordinated, this is more the exception than the rule. There are even instances where adjacent systems don't connect at all; this situation is not unique to Ventura County and is understandable given the evolution of transit over time. Local transit service was established over the past 40 years incrementally, as each community developed enough density to justify it. One bus carrier, VISTA, serves primarily as in intercity connector within the County, even extending services north into Santa Barbara County and South into Los Angeles County.

Nine public agencies operate fixed-route bus service in the county at this time:

- Camarillo Area Transit (CAT): 1 route administered by the City of Camarillo
- Gold Coast Transit: the largest local operator, with 17 routes operated through a JPA with Ojai, Oxnard, Port Hueneme, Ventura, and the County of Ventura
- Los Angeles County Metropolitan Transportation Authority (Metro): 1 route operated into Ventura County
- Los Angeles Department of Transportation (LADOT): 3 weekday peak routes operated into Ventura County
- Moorpark City Transit: 2 routes administered by the Moorpark Public Transit Division
- Ojai Trolley: 2 routes operated by the Ojai Public Works Department
- Simi Valley Transit: 4 routes operated by the Simi Valley Department of Community Services
- Thousand Oaks Transit (TOT): 4 routes administered by the City of Thousand Oaks
- Ventura Intercity Service Transit Authority (VISTA): 7 routes administered by VCTC.

Together, these nine agencies operate over 40 distinct routes. All but Gold Coast Transit, Ojai Trolley, Simi Valley Transit and LA Metro utilize contracts with private companies to actually operate and/or maintain their buses.

Most of the systems in the list above operate exclusively within Ventura County, with a few exceptions. Simi Valley Transit offers weekday service into Chatsworth in Los Angeles County, while VISTA operates weekday service into Woodland Hills in Los Angeles County and daily service into Santa Barbara County. The two Los Angeles-based operators, LA Metro and LADOT, extend service into the eastern portion of Ventura County. (They are not listed in Table 1 because they would not be the recipient of transit funds anticipated to flow to Ventura

County). In addition to these nine public operators, private bus carriers serve various parts of the county. These include Greyhound and Transportes Intercalifornias, two intercity carriers whose only stops in Ventura County are located in Oxnard; and various small private operators serving airports or employment centers. Since the focus of this study is on publicly-funded improvements to publicly-operated systems, these private carriers are mentioned only in passing to give a full picture of the transit options available.

Service throughout the county tends to be offered at a low frequency, with headways of 30 to 60 minutes the most common. About a third of the lines operate only during weekdays, with a span of service from about 6:00 AM to 8:00 PM. While two thirds of the lines operate on Saturdays, only about one third is in service on Sundays. This means that many residents without access to their own automobiles must rely upon friends or taxis to drive them to their destinations when public transportation is not offered. Many probably defer such trips to those times when service is available.

There are some notable exceptions to the low frequency service described below in corridors with higher ridership. For example, Gold Coast's Route 6 offers headways as short as 20 minutes in between Oxnard and Ventura; VISTA's shuttle between the Camarillo Metrolink Station and CSUCI (California State University Channel Islands) operates 15-minute service on weekday afternoons and evenings.

Operator	Monday-Friday	Saturday	Sunday
Camarillo Area Transit	8:19 AM – 4:30 PM	no service	no service
Gold Coast Transit	H 5:00 AM -10:00 PM	5:30 AM – 9:00 PM	5:30 AM – 8:45 PM
	L 6:00 AM – 8:00 PM	6:30 AM – 8:00 PM	6:30 AM – 8:00 PM
Moorpark City Transit	6:00 AM -- 6:00 PM	no service	no service
Ojai Trolley	7:00 AM – 5:30 PM	9:00 AM – 5:15 PM	9:00 AM – 5:15 PM
Simi Valley Transit	5:15 AM – 7:30 PM	H5:00 AM – 8:00 PM	no service
		L 8:00 AM – 7:00 PM	no service
Thousand Oaks Transit	6:00 AM – 6:45 PM	no service	no service
VISTA	H 4:15 AM – 9:00 PM	6:45 AM – 7:30 PM	6:45 AM – 7:30 PM
	L 6:00 AM – 7:30 PM	7:00 AM – 6:00 PM	8:00 AM – 6:00 PM*

*Highway 126 service only

Note: the table above represents an approximate average of the spans of service of the individual lines of each operator. Many lines do not operate on weekends. H = higher service lines L = lower service lines

An examination of the structure of all the fixed routes described above indicates a series of generally radial networks. Most are centered on one node of activity in the community, such as

a civic center or shopping mall. Coverage of the urbanized areas of the county by these networks, as depicted in Figure 1, appears adequate at first glance. However, without a thorough analysis of how the networks coincide with areas of high density and the location of major trip attractors, it is difficult to confirm this supposition. If the low frequency of much of this network is considered, along with restricted hours of service in many instances, then it must be concluded that much of the urbanized area has only minimal transit service. Moreover, the numerous connecting points between the lines shown on the map belie the fact that transfers may be difficult to make. This is because the schedules of the connecting lines are rarely synchronized, and the costs to make such transfers may be prohibitive for many potential users. Thus, while the map in Figure 1 gives the impression of good transit coverage, that quality exists in few parts of the county.

In addition to the bus services discussed above, there are two rail operations serving the county: both Metrolink and Amtrak share portions of the railroad network established in the 1800s. Metrolink commuter rail service is operated by the Southern California Regional Rail Authority (SCRRA), a JPA of five regional agencies including VCTC. Metrolink offers 10 trips each weekday on its Ventura County Line. This service operates into and out of Los Angeles, serving Montalvo, Oxnard, Camarillo, Moorpark, and Simi Valley in Ventura County. An 11th weekday trip in each direction is offered by Amtrak at these same stations (except for Montalvo). The frequency offered is relatively low due both to funding shortfalls and to constraints placed on rail service by the single track available for use north of the City of Moorpark.

Amtrak, with funding support from Caltrans, operates Pacific Surfliner service between San Louis Obispo and San Diego. This service provides four additional train trips in each direction at many of the Metrolink stations, plus one outbound and two inbound Motorcoach Throughway bus trips each weekday. On weekends when Metrolink is not in service, these same Amtrak trips are available to passengers at the stations served in Ventura County. Metrolink monthly pass holders can ride them free of charge, while others must pay standard Amtrak fares. Amtrak also provides intercity service to other parts of the state and the country. One Coast Starlight train in each direction serves the Oxnard and Simi Valley stations. The Amtrak station in Ventura is served by 5 daily Pacific Surfliner trains in each direction, but not by Metrolink. Since Amtrak is not eligible for the funds that would be available for local transit operators in the county, only Metrolink will be considered further in this study.

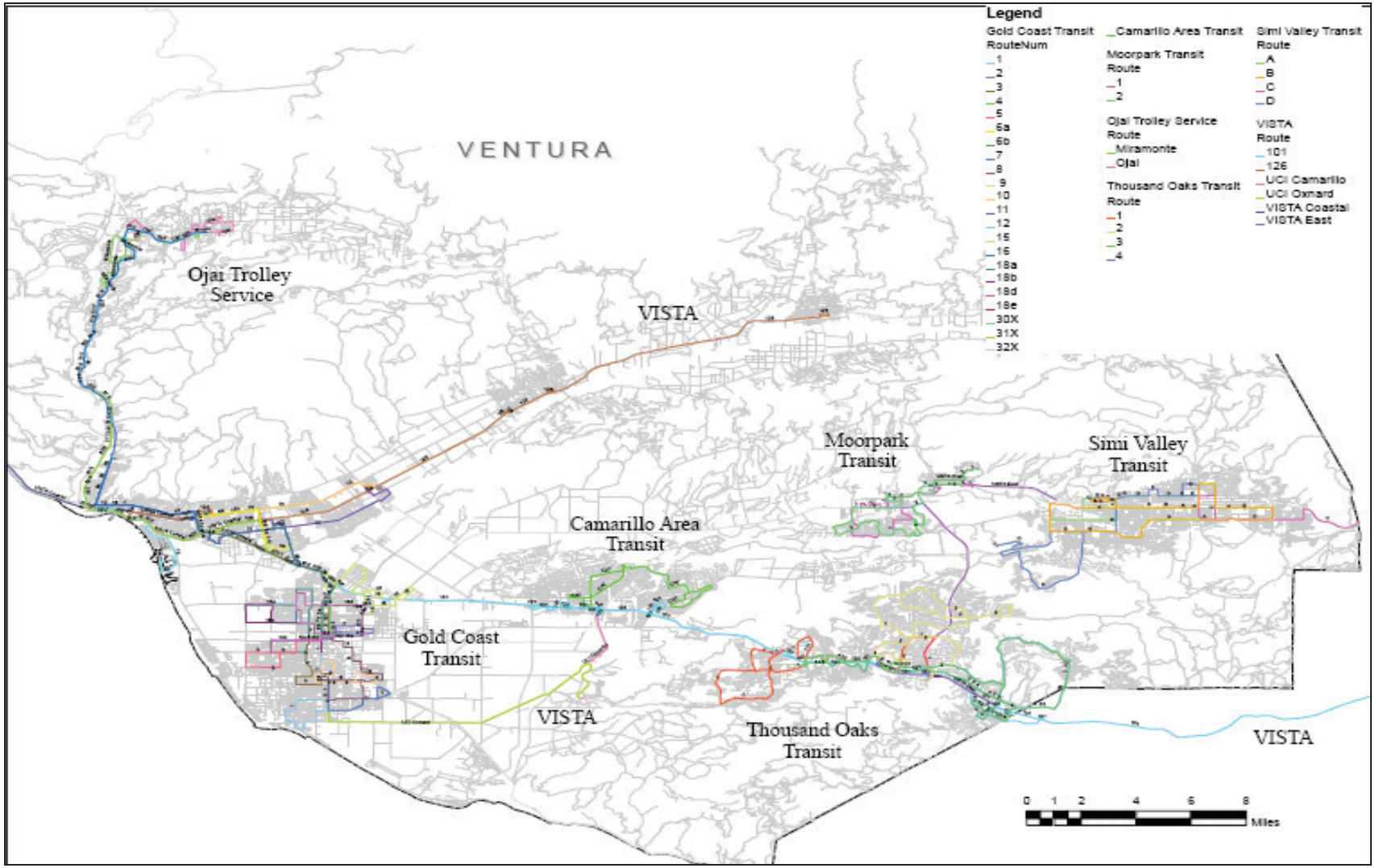


Figure 1: Ventura County Fixed-Route Transit Lines

The fixed-route bus and rail lines in Ventura County are complemented by general public Dial-A-Ride and paratransit operations that use vans or small cutaway buses in demand-responsive services. These services generally have no fixed routes or schedules, but rather pick up and drop off passengers within specific geographic areas. Trip requests are made by phone in advance, though some of the services allow ongoing reservations or subscription services for recurring journeys. These services are essential for those physically unable to access fixed-route transit and are useful for others to reach areas not well served by the fixed routes. There are eleven such paratransit operations. Seven of these serve the general public (condensed in Table 1 as the five principal operations listed below):

- Camarillo Department of Public Works administers CAT service for intra-city dial-a-ride trips
- Oxnard operates the Harbors and Beaches Dial-a-Ride serving the westernmost section of the city
- Thousand Oaks is served by a dial-a-ride administered by the City of Thousand Oaks, with some areas outside the city served by a County-administered dial-a-ride
- Ventura County Public Works Agency administers two smaller services:
    - Juvenile Center service uses a contract with a taxi company to serve the County Juvenile Facility near El Rio on Vineyard Avenue
    - Service in Oak Park, Newbury Park, and Lynn Ranch
- VISTA administers two public dial-a-rides:
    - Fillmore Dial-a-Ride serves the communities of Fillmore and Piru
    - Santa Paula Dial-a-Ride serves the community of Santa Paula.

The remaining four public paratransit operations transport only senior or disabled passengers:

- ACCESS: a senior/disabled service operated by Gold Coast Transit to serve the cities of Ojai, Oxnard, Port Hueneme, Ventura and unincorporated areas of Ventura County between these cities.
- Moorpark Dial-A-Ride: administered by the Moorpark Public Transportation Division, with a senior dial-a-ride serving Moorpark and a disabled dial-a-ride serving Moorpark intra-city trips, as well as those destined to Thousand Oaks, Camarillo and Oak Park.
- Simi Valley Transit: operated by the Simi Valley Department of Community Services to serve both intra-city trips and connecting trips to adjacent communities.
- Thousand Oaks Dial-a-Ride: administered by the City of Thousand Oaks and serving the City of Thousand Oaks, plus the unincorporated county areas of Ventu Park, Rolling Oaks, and Lynn Ranch.

As with the fixed-route operators, there are numerous privately-operated paratransit services not eligible for the transit funding contemplated as the focus of this study. These include those operated by Arc of Ventura County, Camarillo Care-A-Van, and Help of Ojai, as well as numerous taxi companies and airport shuttles. Paratransit operations are generally quite expensive in terms of the cost per rider, on the order of 10 times higher per trip than fixed-route transit. On the other hand, they are often less expensive overall than providing fixed-route service in some areas. In

places with difficult terrain or discontinuous street patterns, they may offer the only practical way that public transportation can be provided.

Transit Facilities: The transit facilities of note in the county include passenger stations and maintenance bases. Railroad stations in Oxnard, Camarillo, Moorpark, and Simi Valley are shared by Metrolink and Amtrak. The station in Montalvo is off the main line and is used only by Metrolink, while that in Ventura is used only by Amtrak. Several of these stations have associated bus stops, such as Oxnard and Simi Valley. However, as mentioned earlier, timed transfers between bus and rail rarely occur.

The Oxnard Transportation Center, contiguous with the Oxnard railroad station, is a major facility with timed meets between different bus lines. A similar arrangement occurs at the Thousand Oaks Community Transportation Center, a free-standing facility just off Highway 101. A smaller bus transit center is located in Ventura at the Pacific View Mall. Several park-and-ride lots are scattered throughout the county. With the exception of those at the railroad stations, however, most are oriented to carpooling rather than transit use. Smaller physical amenities, like bus stop signs, benches, and shelters, are located with considerable inconsistency. Shelters are overseen by jurisdictions, not the operators, and few stops are so equipped. Even bus stop signs are not always found at the regular stopping points of certain bus lines, and there is no uniform countywide standard.

Most of the maintenance facilities and storage yards for the county's transit and paratransit services are owned and operated by private contractors. The exceptions are those facilities operated by Gold Coast Transit in Oxnard, and by the public works departments of Ojai, Simi Valley, and Thousand Oaks. Most of these were said to be reaching their capacities and the need for larger or newer facilities were anticipated in the near future.

Fleets operated by the county's fixed-route services range from standard transit buses and over-the-road coaches, to rubber-tired trolleys and cutaways. Paratransit vehicles use mainly cutaways and vans. By and large, the fleets are relatively new, and many are powered by CNG. Ojai, Simi Valley, and VISTA would like some replacements soon.

Planned Changes (as reported in October 2008): Regarding near-term plans, a few systems, like Simi Valley Transit, had recently restructured routes and felt no need for more changes at the present time. Others, like Ojai Trolley, had some restructuring plans in mind, and Moorpark mentioned an upcoming consultant study of its service. Innovations in equipment appeared to be underway. Many of the bus fleets, such as Gold Coast's, Thousand Oaks', and Simi Valley's, are 100% CNG-fueled. In fact, Thousand Oaks and Gold Coast were among the first to use CNG buses. Nearly all systems were taking advantage of advanced technologies provided by VCTC. These technologies included NextBus for passenger information and operations management, as well as

the Go Ventura smart card for easier fare payment. Most the systems not currently using these technologies expressed the desire to do so. The fact that numerous metropolitan areas around the country still do not employ these technologies demonstrates the receptivity of local county operators to innovation.

Operators' Perspective: Transit personnel that were interviewed in each community were uniformly committed to making improvements to their systems and interested in the prospects of new funding (e.g., Prop1 B). However, most are part of very small staffs dedicated to transit, in many cases only one or two people. Their focus is, by necessity, their current systems. Several freely admitted that there was little or no long-range transit planning, since the maintenance of the existing lines took up all of their time. The County of Ventura adopted a transit vision statement in 2005, calling for creation of a seamless system. However, there has been no consensus on how to implement that vision, nor adequate funding for systematic improvements. It was hoped by many of those interviewed that this Transit Investment Study would be a first step toward that vision.

The consensus of most of the operators was that increases in the intensity of service on their existing routes would take precedent over extensions of these routes or infill with new services. This is a clear reflection of the low frequencies that typify most of the fixed-route lines in the county. Still, there was some interest in future innovation. Gold Coast and Oxnard mentioned the desirability of some form of bus rapid transit on the more heavily traveled corridors, albeit at a lower intensity of service than typically found in larger urban areas. VISTA discussed the need for limited-stop runs in the 101 corridor, as well as between Simi Valley, Moorpark, Thousand Oaks, and Ventura, which has too many time-consuming local stops. Capital needs identified for the short term varied from replacement buses to expanded maintenance bases. Feelings regarding current bus stop signs and shelters were mixed; some operators said that they had sufficient facilities, others expressed interest in upgrades, and still others were neutral.

A number of challenges were identified in the course of the interviews. Among them, the following are notable:

- There are few concentrated employment areas in most of the jurisdictions, making it difficult to focus transit services;
- The county has "too many operators and not enough coordination"; cross-county trips that require a transfer are especially onerous in terms of a passenger's time, money, and comfort;
- Though originally established to fund public transportation, the state Transit Development Act (TDA) funds allocated to Ventura County seem to be coveted for road projects; hearings on unmet needs did not necessarily result in greater allocations for transit. This is evidenced by that fact that only 58.5% of TDA is used for transit countywide;
- The agencies' governing boards seemed interested in maintaining transit service but not necessarily in expanding it. Most of these boards wish to live within the funding limits

currently available for transit and are not able to allocate additional funds because of other competing needs.

See Appendix A for additional information on Existing Conditions.

B. Transit Gaps Analysis

An analysis of gaps in service that was conducted on the existing fixed-route bus transit systems operating in the county. It is based on field surveys, examination of travel and demographic data, and analysis of operating schedules at selected points in the county. Four principal forms of "gaps" were defined:

1. Corridors between service areas where no service is operated today
2. Geographic areas with densities that would warrant transit service but are unserved today
3. Gaps in the hours of service on different bus lines
4. Places where transit routes (or modes, like local bus and commuter rail) come together, but whose arrival and departure times are not coordinated; this results in sometimes lengthy waits for those wishing to make transfers or, in more extreme cases, no practical transfer opportunities at all.

This analysis was conducted as a high-level overview and identified numerous apparent gaps in transit service that later, operational studies that are beyond the scope of this study, should investigate in more detail. Among them are corridor gaps between existing transit services. Several of these may be problematic to fill because of terrain or low travel demand. Out of nine corridors evaluated, five corridors, shown on Figure 2, are recommended for further study: Fillmore-Santa Clarita, Camarillo-Moorpark (two alternate routes), Simi Valley-Thousand Oaks, and Western Oxnard-Ventura. Filling these gaps is important not to serve the land uses in between the end points (as there is little in most cases to serve), but rather to connect areas that already have transit service.

To determine the potential transit demand of each corridor for through travel, countywide travel data were sought. Total trips from one transit service area to another (even if made by automobile) could be used to judge the general magnitude of ridership that would result if transit service were available in that corridor. The 2000 U.S. Census Journey to Work data (see Table 1) were used in conjunction with daily traffic counts obtained from Ventura County and Caltrans to provide a general idea of existing trip making in each corridor. Daily traffic volumes less than 10,000 were considered a sign of relatively low demand, volumes above 30,000 as relatively high, and those in between as moderate. Of course, observed usage of a road is dependent, to an extent, on its capacity.

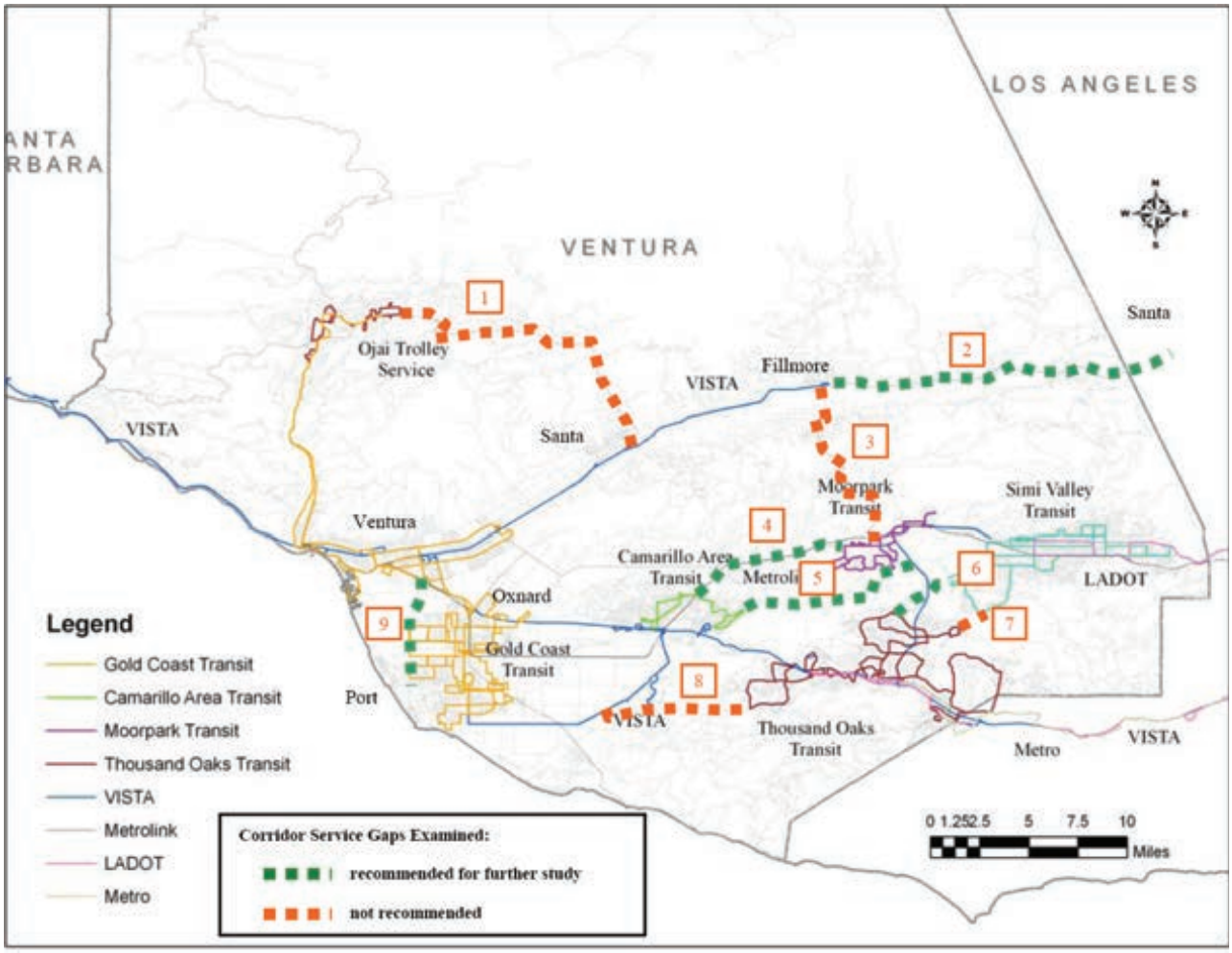


Figure 2. Ventura County Fixed-Route Bus Lines and Corridor Service Gaps

Table 1: 2000 U.S. Census Local Journey to Work Data

	Camarillo	Casa Conejo	Channel Islands Beach	El Rio	Fillmore	Meiners Oaks	Mira Monte	Moorpark	Oak View	Ojai	Outside of County	Oxnard	Port Hueneme	Remainder of County	City of Ventura	Santa Paula	Simi Valley	Thousand Oaks	**Grand Total**
Camarillo	8,910	15	10	15	75	10	4	470		40	4,149	2,905	815	2,435	2,740	120	695	2,895	**26,303**
Casa Conejo	165	65						40			452	90	10	95	75	4	110	415	**1,521**
Channel Islands Beach	110		235		4			20		10	398	375	70	75	350	15	25	120	**1,807**
El Rio	225			170				10		10	187	765	80	280	320	45	75	130	**2,297**
Fillmore	310			10	1,270		10	170		15	701	370	50	595	660	390	320	290	**5,161**
Meiners Oaks	80			10	15	225	40	4	40	540	204	120	25	110	285	35	40	45	**1,818**
Mira Monte	180				15	55	265	10	60	610	309	225	55	255	735	40	25	105	**2,944**
Moorpark	570	15		10	30		4	2,725		10	4,941	545	30	745	525	55	1,765	2,770	**14,740**
Oak View	40					10	30		175	275	368	110	20	200	660	30	35	25	**1,978**
Ojai	80				10	140	20	15	10	1,550	256	220	30	285	480	25	35	90	**3,246**
Oxnard	7,465	25	60	450	265	15	40	560	30	215	5,341	26,175	3,695	7,995	10,090	840	1,505	4,315	**69,081**
Port Hueneme	955		10	25	35		10	120		15	638	2,510	2,480	985	1,380	70	175	370	**9,778**
Remainder of County	1,860	4	10	25	275	20	40	475	55	680	9,728	1,740	435	6,960	2,850	580	850	3,195	**29,782**
San Buenaventura (Ventura)	2,765		40	110	170	50	110	275	50	605	6,494	5,460	1,030	3,490	24,295	720	710	2,300	**48,674**
Santa Paula	605			25	180			150	10	45	884	1,255	140	1,710	1,960	3,375	195	415	**10,949**
Simi Valley	1,310	4	10	25	35		4	1,480		65	24,154	1,055	125	1,290	1,355	115	19,335	5,440	**55,802**
Thousand Oaks	2,300	60		15	60	20		955	4	115	21,242	1,630	235	2,470	1,650	190	2,415	24,640	**58,001**
Grand Total	27,930	188	375	890	2,439	545	577	7,479	434	4,800	80,446	45,550	9,325	29,975	50,410	6,649	28,310	47,560	**343,882**

A winding two-lane highway may limit a large number of drivers from using it. However, observations in the field indicated that these roadways had generally free-flowing conditions, often at Level of Service A. While some motorists may be discouraged from using them due to grades and alignment, it did not appear that roads themselves were metering the number of cars that possibly could use them. The conclusions from both the travel demand and physical analyses of the corridors are summarized below (keyed to the numbers shown in Figure 2):

- Fillmore-Santa Clarita via State Route 126: Following Telegraph Road through the Santa Clara River Valley, this 22-mile east-west corridor avoids the mountains both north and south of it, providing a level pathway east to I-5 in Santa Clarita, as well as to several employment centers there. There were 701 work trips from Fillmore to locations outside of the county and traffic volumes of 24,000 per day indicate moderate ridership potential, and a demand-responsive service currently connects the communities of Piru and Fillmore. *Recommendation: This corridor shows some promise as a possible bus route, most likely the final leg of service that originates in Ventura.*
- Camarillo-Moorpark via Highway 118: This 12-mile east-west corridor would close the gap in transit service between Moorpark and Camarillo. It is situated on flat terrain, adjacent to farmland and railroad tracks, utilizing Somis Road and West Los Angeles Ave (Highway 118). There are 1040 work trips that occur between Camarillo and Moorpark with Daily traffic Volumes of 19,000. *Recommendation: this corridor shows potentially viable transit patronage.*
- Camarillo-Moorpark via Santa Rosa Road: This 12-mile east-west corridor passes though largely flat land, with some residential development on streets branching off its easterly portion. Again, there are 1040 work trips that occur between Camarillo and Moorpark but more significantly here, 5665 work trips that occur between Camarillo and thousand Oaks with daily traffic volumes of about 19,000 are similar to those via highway 118. *Recommendation: This corridor offers an alternative to Camarillo-Moorpark via Highway 118, above, for bus service between these communities.*
- Simi Valley-Thousand Oaks via E. Olsen Road: This is a 4-mile east-west corridor centered on Olsen and Madera roads. A bus line here would provide a shorter trip for many riders than the current transfer to VISTA's East County Service using the more circuitous routing on Highways 23 and 101. There are 7855 work trips that occur between Simi Valley and Thousand Oaks but traffic data are not available for this corridor to gauge possible transit demand; former VISTA fixed-route service here was not very successful. *Recommendation: This corridor could be retained for consideration in future analyses to determine if conditions have changed sufficiently to make it more promising to reinstate regular transit service.*
- Oxnard-Ventura via Victoria Avenue: Victoria is a wide north-south street on flat terrain. This 6-mile segment skirts the western fringe of Oxnard and Port Hueneme, and portions of it are served by terminal loops of Gold Coast Transit east-west lines. The segment between Highway 101 and W. 5th Street passes through agricultural uses, but areas to the south are rapidly developing with dense residential and some retail development. Should development occur along the more northerly segments, consideration should be made for using Victoria Avenue as an artery for a new north-south transit service to Ventura. There

are 15,550 work trips that occur between Oxnard and Ventura and the current traffic volumes are a high 44,000 per day, underscoring the potential for strong transit demand. *Recommendation: This corridor should be considered further for possible transit service.*

In addition, ten unserved areas appear to have the population density to justify regular fixed-route service. Many are already served by dial-a-ride operations, which may be the most cost-effective way to provide transit service there. Nonetheless, attracting "choice" riders will likely require the establishment of fixed-route service to negate the need to make reservations and shorten the time it takes to make a trip. The ten areas highlighted on Figure 3 are reasonable starting points for at least considering new or modified fixed-route (or flex-route) bus service.

1. Ventura, east of Ventura Avenue, along Seneca Street
2. Ventura, south of Telephone Road, on either side of the railroad tracks
3. Oxnard, west of Ventura Avenue, north of Gonzales Street
4. Oxnard, west of Victoria Avenue and along Silver Strand, Hollywood Beach, and along Harbor Boulevard
5. Camarillo, south of Highway 101 and north of Pleasant Valley Road (this area does not show up on the density maps but aerial photos reveal extensive residential development)
6. Camarillo, along Lewis and Flynn roads
7. Camarillo, along Upland Road
8. Thousand Oaks, along Pederson Road (currently served by just 2 morning and 2 afternoon trips of TOT Route 2B)
9. Unincorporated County at Oak Park
10. Santa Susana Knolls, near the southeast boundary of Simi Valley

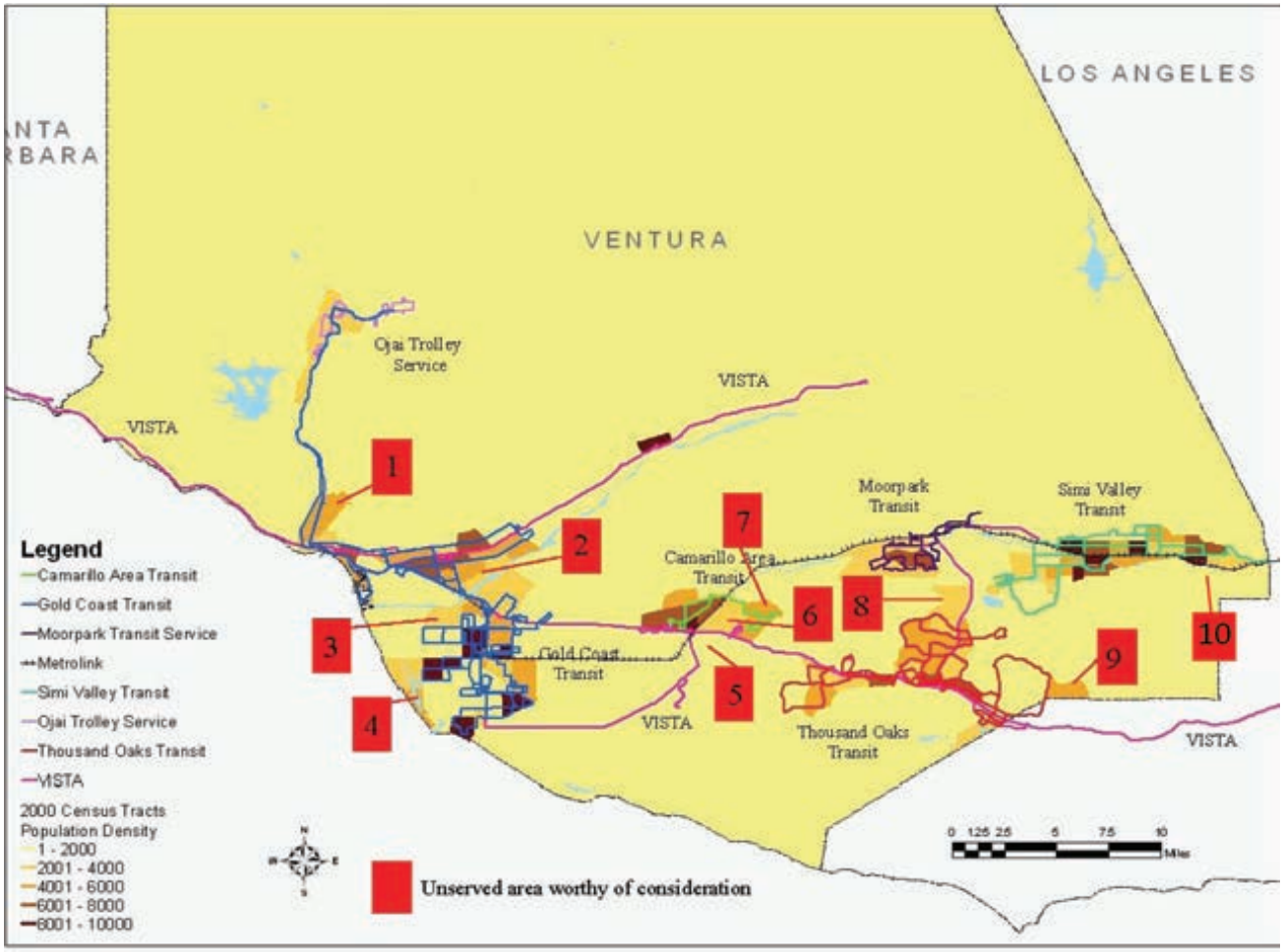


Figure 3. Population Density of Ventura County in Relation to Bus Service

All of these areas, except for number 10, are served by various senior/disabled dial-a-rides. In addition, areas 4, 5, and 7 offer general public Dial-a-Ride service for the general population. In at least one instance, area 4, the transit operator reported that the Beaches and Harbor Shuttle dial-a-ride service is considerably more cost-effective and attracts more ridership than previous fixed-route service in this location. There are no doubt other areas included in the list that have similar histories. Nevertheless, fixed-route transit service has not yet caught up with much of the new residential and commercial development. Such service, with its regularity of schedules, usually proves more attractive to discretionary riders. The ten areas discussed here should be among the first considered for such service enhancements in the future.

It must be noted that a weakness of this gaps analysis is that it assumes that a location within a quarter mile walk of a bus line is "served by transit", regardless of the level of service of that bus line. In fact, many lines, like those in Camarillo and Moorpark, offer service frequencies of an hour or greater, and several do not operate in evenings or on weekends. When considered in this light,

there are likely many more “gaps” in service than appear at first glance on Figure 2. This issue should be investigated in more depth if and when an operations analysis is conducted on countywide transit services.

A trip that appears possible by looking at a transit map may not be in reality if a transfer is involved; if one of the lines in question has not yet started for the day or has already ended service, then a traveler would not be able to complete their trip. To get an idea of the magnitude of this gap, the spans of service of the 38 lines in the county’s fixed-route bus network were laid out in charts for weekdays, Saturdays, and Sundays. The lack of service on many lines during weekends or early mornings creates a gap of a different sort than the physical gaps identified above. Transit is simply unavailable at these times unless users have access to demand-responsive service. There are gaps midday when certain peak-hour routes are not running. When considering that much of the county’s fixed-route transit service is operated at relatively low frequencies, the “gap” created by low service levels could be much greater than revealed by the initial analysis. The analysis of the timing of transfers at key points in the network indicates plenty of room for improvement. At most, only 20% of bus-to-bus transfers could be considered convenient. In many cases, departing buses miss arriving buses by mere seconds. In other cases, the buses of many routes occupy bays at a transit center simultaneously, but long layovers increase the actual time it takes a transferee to continue a trip.

Riders with a choice of travel modes will want to make their transfers as expeditiously as possible, and transfer times greater than 5 to 10 minutes for bus-to-bus and 10 to 12 minutes for bus-to-rail will not be attractive to them. Improving this situation will require a new approach to how transit vehicles are scheduled throughout the county. This may, in many cases, result in higher operating costs but is sure to result in higher ridership. This, at least, is the experience elsewhere, when conversion to timed-transfers was almost always followed by an increase in riders. Ironically, building in layover time to allow for better timed meets would result in a more attractive service, likely leading to greater ridership and an increase in the overall effectiveness of the system. This is, perhaps, the single most effective measure to increase ridership among the county’s transit providers. To help transit agencies assess how changes in frequency of service might affect ridership, a simple forecasting model was developed as part of this study. The model uses current schedules and ridership as a base, and applies factors gathered from national examples and research to test the effect of changing frequency of service on a route-by-route basis (Appendix D).

Passenger surveys from 2008 provided input from actual users of the transit services and reinforce a widespread desire for better connectivity. For instance, of the 146 results gathered for the Highway 101/Conejo Connection, 25 percent asked for more frequent buses, and 18 percent wanted later service. From this survey group, 61 percent did not have cars and 44 percent were using Saturday service.

For the Highway 126 service, 89 percent did not have cars. Of the 148 persons surveyed, 69 percent lived in Fillmore and 21 percent in Santa Paula. One-third were using transit for school trips; one-fourth for work; and one-fourth for shopping. Seventeen percent planned to transfer—primarily to Gold Coast Transit, VISTA Santa Paula and Fillmore Dial-a-Rides (in that order).

For service in the East County, 61 surveys showed that 67 percent of riders surveyed used the weekday bus to get to school (14% for Saturday service), and 25 per percent traveled to work (57% on Saturday). Twenty six percent of weekday riders and 12 percent of Saturday passengers had a car available for the trip. Passengers requested later service, Sunday service, better on-time performance and more frequent buses during the day.

For the Coastal Express, 73 percent of weekday riders use the bus four or more days and week and an additional 20 percent ride 2 to 4 days a week. In addition to weekday service, the most popular reasons for taking the weekend Coastal Express are 29 percent for trips to/from work and 24 percent for. While 21 percent of weekday riders had no car, 81 percent of weekend riders did not.

Also, input from the Unmet Needs public hearing should be considered. Although some of the following did not meet the feasibility or technical criteria of the Unmet Needs program, this February 2009 data provides important information about users' perspectives on the range and types of transit improvements they desire and can be segregated into three general categories, greater frequency, additional areas and general service improvements:

GREATER FREQUENCY

- Better/faster bus service from South Oxnard to north Oxnard
- Express bus service between Ojai and Ventura and/or Oxnard
- Gold Coast Transit Service after 10 pm to Ojai from Oxnard/Ventura
- Increased frequency on Gold Coast Transit Route 6, including later 6B bus service
- Gold Coast Transit Route 5 to operate later
- Weekend Service to Woodland Hills
- Earlier southbound Conejo Connection to connect with the LA Metro Orange line at 6 am; more and later Conejo Connection service
- Sunday service on the VISTA 101
- Non-stop VISTA 101 Service between "Centers" of Ventura, Oxnard, and Thousand Oaks
- More frequent VISTA EAST service between Simi Valley and City of Westlake Village
- Later morning service to UCSB, later evening service, later weekend service, more service overall
- Increased reverse commute service on the VISTA Coastal Express
- Earlier VISTA 126 Service to Fillmore

- Later VISTA 126 Service on weekends
- Weekend service on Camarillo Area Transit
- Sunday service on the Dial-A-Ride
- Thousand Oaks Transit to operate on the weekends
- Additional evening services on the Dial-A-Ride
- More frequent service on Thousand Oaks Blvd. and Moorpark Road
- Better transit services between Santa Paula and Oxnard for daily work trips
- Earlier and later VISTA 101 service to Pardee Plaza
- Mid-day service on Thousand Oaks Transit
- Increased service on Thousand Oaks Blvd. between the Oaks and Westlake Blvd.
- Either a direct bus from Camarillo to Moorpark College or Metrolink service to Moorpark with start times of 7 or 8 AM
- Additional train service between Ventura and Simi Valley
- More rail service to Santa Barbara; improved rail speeds to Santa Barbara.
- Expansion of Surfliner services
- Mid-day and weekend Metrolink Service from Montalvo to Los Angeles;
- Hourly Metrolink service
- Late night rail service from Los Angeles to Ventura County.
- Earlier bus service countywide

ADDITIONAL AREAS

- Bus service to Valentine Road area (Tech Development Center and Adult Ed school)
- Bus service at or near Gonzales and Victoria, with increased service to Oxnard High School
- Bus service at or near Lombard and Sturgis in Oxnard.
- Transit service from Oxnard to Ventura using the Victoria Corridor, to various destinations in Ventura
- Fixed route transit service on Channel Islands between Center Point Mall and Channel Islands Harbor/County Beach Communities or intermediate points
- Transit service on the Vineyard Corridor, including fixed route service to the Juvenile Justice Center and direct service from El Rio to Saticoy
- Gold Coast Transit Service from Valmore/Preble to Pacific View Mall
- Transit service from East Ventura (on Foothill corridor) to County Hospital
- Transit service to the Oxnard Airport
- Additional stop of Gold Coast Transit route 16
- Transit service to Villa Cesar Chavez
- Direct transit service from the area of Gonzales and Rose to Oxnard College

- Stops added to existing VISTA 101 service, including new stops and additional stops made by existing trips
- VISTA service from Thousand Oaks to Santa Barbara (VISTA 101 connection to Coastal Express)
- VISTA EAST service to Moorpark College
- An added Coastal Express stop at Ventura College
- VISTA Coastal Express to stop at the Santa Barbara Airport
- VISTA CSUCI service extended to the Oxnard Transportation Center (OTC)
- VISTA CSUCI service to connect Oxnard and Camarillo.
- Wants the TOT number 3 (Blue) and/or the number 4 (Red) come out a little farther like the number 3 (Blue) does in the mornings
- Thousand Oaks Transit to provide more direct service from Newbury Park to the Oaks and Westlake
- Wants bus stops at major business parks
- Bus service between Ventura and Point Mugu
- Direct commuter transit service from East Ventura to Moorpark
- Direct transit service from Moorpark to Ventura County Hospital
- Direct transit service from Moorpark to hospitals in Los Angeles County
- Weekend transit service from Thousand Oaks to soccer fields in Calabasas, Simi Valley, Camarillo, Oxnard, Ventura, and Santa Barbara.
- Commuter bus service from Thousand Oaks to Century City
- Direct (non-stop) shuttle service from central locations in each city to Oxnard, Moorpark, and Ventura Colleges
- Bus service from Fillmore to Santa Clarita
- Transit service for Somis and Santa Rosa Valley
- Direct transit service from Ventura to Agoura Hills
- An additional train stop at Haas Automation in Oxnard

SERVICE IMPROVEMENTS

- Increased bike capacity on buses
- Fare transfers between Gold Coast Transit and VISTA services
- Better connections between VISTA Coastal Express and Gold Coast Transit
- Improve reliability of VISTA 101 service
- Increased VISTA marketing
- Increased/improved signage at bus stops
- Better coordination VISTA and CAT

- Changes in the way Thousand Oaks Transit delivers service including turning all two way loops into one way loops, moving all bus lines to arterials and collectors, and using smaller buses.
- Hybrid or electric shuttles connecting rail stations, universities, parks, medical facilities, and shopping centers
- Better shelter from elements at the Ventura Transit Center
- A permanent train station at Montalvo
- An improved train station in downtown Ventura
- Better information regarding transit on website and at bus stops
- Improved ADA connections between Simi Valley and LA ACCESS

While the above comments often represent individual needs and issues, in combination they clearly underscore the public desire for improved transit. They also show a general consistency with possible projects identified by the study team and the TRANSCOM.

Rail-to-Bus Transfers were also reviewed. The focus was on buses arriving in time to meet southbound trains heading for Los Angeles. The results are summarized below:

Montalvo Station:	Of 2 southbound rail departures during this period, none were conveniently served. There was only one bus arrival (of Route 6A on Bristol Road) during the hour when the two morning rail trips departed.
Oxnard Transit Center	Of 4 southbound rail departures during this period, 3 were conveniently served: the 6:59 train was served by 6 bus arrivals, the 7:37 train by 3 bus arrivals, and the 10:11 train by 2 bus arrivals (a total of 11 bus arrivals out of 37 bus arrivals during the hours when trains departed). [Neither of the 2 northbound rail arrivals during this period was conveniently served by a bus departure.]
Camarillo Station	Of 4 southbound rail departures during this period, 1 was conveniently served: the 6:30 train was served by 1 bus arrival (out of 14 bus arrivals during the hours when trains departed). [One of the 2 northbound rail arrivals during this period was conveniently served by 1 bus departure.]
Moorpark Station	Of 5 southbound rail departures during this period (excluding the 6:03, which would have been fed by buses in the previous time slot),

	2 were conveniently served: the 6:41 and 8:26 trains each were served by a single bus arrival (a total of 2 bus arrivals out of 18 possible bus arrivals during the hours when trains departed). [None of the 3 northbound rail arrivals during this period was conveniently served by a bus departure.]
Simi Valley Station	Of 7 southbound rail departures during this period, 4 were conveniently served: the 6:53 and 7:32 trains each were served by a single bus arrival, while the 8:22 and 8:39 trains each were served by 2 bus arrivals (a total of 6 bus arrivals out of 31 possible bus arrivals during the hours when trains departed). [Each of the 3 northbound rail arrivals during this period was conveniently served by a single bus departure.]

Additional information on the Transit Gaps Analysis process is included in Appendix B.

C. Prioritizing Projects

Given that there are rarely enough funds to meet all of the needs for transit services, a means for evaluating and ranking competing projects is needed. Working closely with members of VCTC's TRANSCOM, evaluation and prioritization criteria were developed and tested. While a key premise of the evaluation process was to maintain current levels of service, relationships between transit and other jurisdictional priorities was also accounted for. The work of the committee resulted in a two-level ranking template, each with weighted criteria that reflect their views on the importance of a specific criterion. The template, shown below, was incorporated into an evaluation procedure (Appendix C). Key features of the procedure are that a proposed project is ranked by its proponents, and then is reviewed by the TRANSCOM members to reach concurrence on its priority on a county-wide basis. The process basically enables the proponent to develop strong justifications of needs and benefits so that a proposal will rank well in a priorities list; the information needed also fosters defining a project in a manner that would be very competitive for grant or other funds. Another feature of the ranking process is that projects which benefit multiple jurisdictions receive bonus points. The evaluation procedure spells out how criteria and weightings can be modified.

EVALUATION MATRIX TEMPLATE

Table 2: Primary Evaluation Criteria				
PRIMARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-3)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** (***choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
1. Mandated Improvements	1	Required for ADA compliance		
	2	Required for air quality compliance		
	3	Necessary to support legislative mandates or contractual obligations		
	1	Desirable to support legislative mandates		
	3	Fulfills unmet transit needs		
	1	Required safety improvements		
		Other		
2. Preservation of Current Levels of Service	3	For transit arterials, provides new improvements or maintenance at bus stops/rail stations		
	2	Addresses scheduled replacements or vehicles.		
	1	Transportation control devices along transit routes/rail lines		
	1	Improves the condition of the sidewalks and streets within 250 feet of a bus stop or rail station.		
	1	Supports projects already designated for improvement.		
	1	Reduces the backlog of deferred maintenance of sidewalks and streets used for		

Table 2: Primary Evaluation Criteria				
PRIMARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-3)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** ***(choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
		transit.		
		Other		
3. Expansion of Transit Service (including shorter headways)	3	Improves current access to and from local and/or regional transit stops and rail stations.		
	3	Serves/Connects current activity centers (e.g., employment, educational facilities, medical centers, shopping hubs, sporting venues, etc.).		
	3	Adds or improves connectivity to other local and/or regional transit services.		
	1	Serves anticipated growth in transit demand (e.g., in a specific region) - what time horizon?		
	2	Improves speed and reliability of transit vehicles.		
	2	Improves bus stop/rail station performance for buses, such as reducing transfer time.		
	3	Likely to increase the percentage of trips made by transit and reduce the percentage by automobile.		
	3	Provides new/improved service during peak hours.		
	2	Provides new/improved service during off-peak hours.		

Table 2: Primary Evaluation Criteria				
PRIMARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-3)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** ***(choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
	3	Fulfills a new, unmet transit need.		
	2	Meets needs of special population group		
		Other		
4. Financial Sustainability	3	Provides matching funds		
	3	Effects on fares and operating costs.		
	2	Availability of ongoing operating funds.		
	1	Likelihood for additional operating funds.		
	2	Availability of ongoing staff to implement.		
	1	Likelihood for additional staff.		
	1	Degree to which need for other funding is increased.		
	1	Degree to which need for other funding is decreased.		
		Other		
5. Readiness	2	Ability to procure in a timely manner.		
	1	Status of design (if applicable).		
	1	Need to implement in phases		
		Other		
			TOTAL PRIMARY SCORE	

Table 3: Secondary Criteria				
SECONDARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-2)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** (***choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
6. Non-transit influences	1	Critical to other city projects/ priorities		
	1	Supportive/desirable for other city projects/priorities.		
		Other		
7. Other	1	Criteria specified by funding program (if applicable and not listed elsewhere above)		
8. Bonus Points	2	1 point for each additional operating agency that would be served		
		Other		
			TOTAL SECONDARY SCORE	

Table 4: Other Considerations				
CRITERIA *(no priority order)*	**WEIGHTS** *(Optional; suggested range: (1-2)*	**SAMPLE CRITERIA/ THINGS TO CONSIDER** (*choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)*	**POINTS** **0-5** *(modify as appropriate)*	**SCORE** *(Weight multiplied by Points for those criteria chosen for use in an evaluation)*
Improvements to Ride Quality		Improves quality of transit stops, including comfort and convenience.		
		Improves information provided to users.		
Safety/Security		Eliminates or reduces a specific safety/security hazard.		
		Supports general or systemwide safety/security improvements.		
Community Impacts		Negative and positive effects, including air quality, noise, traffic, property acquisitions, and “going green”.		
		Community support/opposition.		
Compatibility /conflict with Regional and Local Plans		Part of an adopted transportation plan (e.g., congestion management, etc.).		
		Supports an adopted or pending transportation plan.		
		Supports community and economic development, business functionality, and creation or retention of employment.		
		Provides or increases access to business districts and/or employers.		
		Provides infrastructure or service to support new employment.		
		Is a required mitigation measure.		

Table 4: Other Considerations				
		Supports local land use or transit-oriented development.		
Strategic		Necessary predecessor for subsequent projects.		
		Desirable predecessor for subsequent projects.		
			TOTAL SCORE	

D. Projects

Transit operating agencies provided listings for desired projects during the interviews conducted in October 2008. These included new and replacement vehicles for both paratransit and fixed routes, additional or upgrade passenger stops/stations, and new or upgraded maintenance facilities. Desired improvements addressed maintaining current levels of service, improving reliability and creating the ability to expand service.

Projects from these categories were submitted for ARRA funding in early 2009. As of June 10, VCTC had received funding notices for the following 25 transit projects.

Table 5: Candidate Projects for ARRA Funding		
Project	**Amount**	**Responsible Agency**
Bus Transfer Facility at Central and Del Norte	$ 24,000	Camarillo
Two Type II Buses and Three Type I Buses	$ 258,514	Camarillo Health Care District
Replacement Supervisory Vehicles and Related Equipment	$ 185,000	Gold Coast Transit
Eight CNG-fueled Transit Buses	$ 3,608,000	Gold Coast Transit
Upgraded Farebox System	$ 600,000	Gold Coast Transit
Operations Facility Modernization	$ 2,091,257	Gold Coast Transit
Transit Enhancements	$ 101,723	Gold Coast Transit
ADA Paratransit Operations	$ 1,000,000	Gold Coast Transit
Track/Structure Restoration	$ 1,146,535	Metrolink
Positive Train Control Design	$ 2,480,000	Metrolink
Central Maintenance Facility Improvements & Keller Yard	$ 960,000	Metrolink
Metrolink Operating Assistance	$ 582,000	Metrolink
Three CNG-fueled Transit Buses	$ 1,260,000	Moorpark
ADA Paratransit Operations	$ 52,175	Moorpark

Table 5: Candidate Projects for ARRA Funding		
Project	**Amount**	**Responsible Agency**
Three LPG-fueled Buses	$ 465,970	Ojai
Replace/upgrade Deteriorated Transit Shelters	$ 484,000	Simi Valley
Modernization of Transit Garage	$ 867,349	Simi Valley
Three CNG-fueled Transit Buses	$ 1,380,000	Simi Valley
ADA Paratransit Operations	$ 303,400	Simi Valley
Five 12 passenger CNG-fueled Cutaway Vehicles	$ 425,000	Thousand Oaks
Bus Stop Enhancements	$ 39,511	Thousand Oaks
ADA Paratransit Operations	$ 111,240	Thousand Oaks
Particulate Traps for 40 VISTA Buses	$ 400,000	VCTC
Smart Card Upgrade	$ 168,000	VCTC
Scales for ADA Certification	$ 10,000	VCTC
Total for Transit	$6,548,645	*14,5% of total award*
Highway Projects	$38,515,826	*85.5% of total award*
Total ARRA Funding	$45,064,481	

Some Remainder Projects

From the desired listings of projects originally identified by operating agencies, the following are examples of some of the needs over the next few years that were not addressed by the ARRA funding. This list is not intended to be comprehensive, but rather to illustrate the breadth of needs across the county and magnitude of costs. This range of identified needs also underscores the need for the prioritization process to help assure that projects are funded in a logical and complementary manner. It also underscores the desirability for improvements in the planning process discussed elsewhere.

Table 6: Near-Term Project Needs Not Addressed by ARRA		
Agency	**Project**	**Estimated Cost**
Camarillo	14 to 20- passenger vehicles for Dial-A-Ride (35-40 vehicles)	$ 4.0 to 6.0 M
Camarillo	26 to30 passenger fixed route vehicles (5-6 vehicles)	$ 1.0 to 2.0 M
Camarillo	Benches/shelters/ schedules improvements	$ 250,000
Camarillo	Metrolink station improvements	$ 1.0 M
Camarillo	Pedestrian grade separation at Metrolink station	$17.0 M
Gold Coast Transit	Replacement vehicles for fixed routes and paratransit	$ 2.0 to 4.0 M
Moorpark	Replacement vehicles for fixed routes and paratransit	$ 2.0 to 4.0 M

Table 6: Near-Term Project Needs Not Addressed by ARRA		
Agency	**Project**	**Estimated Cost**
Moorpark	Bus Stop Enhancements	$ 200,000
Ojai	Maintenance Facility	$ 500,000
Ojai	Transit stop enhancements	$ 75,000
Simi Valley	Replacement vehicles for fixed routes and paratransit	$ 4.0 to 6.0 M
Simi Valley	Farebox replacements	$ 1.0 M
Simi Valley	Additional Metrolink parking	$ 1.0 to 2.0 M
Simi Valley	Safety improvements	$ 500,000
Oxnard	Bus Stop Enhancements	$ 500,000
Thousand Oaks	Replacement vehicles for fixed routes and paratransit	$ 2.0 to 3.0 M
Thousand Oaks	Safety improvements	$ 500,000

Consultant Recommendations Regarding Projects

Near Term

As a precursor to specific projects beyond those that are now funded by ARRA, Jacobs recommends additional studies to build upon the issues raised and work conducted in the study. These studies are intended to more fully evaluate issues which have been looked at only from a high level.

A recurring comment from study participants was that service across jurisdictional boundaries needed to be better coordinated. This study considered this issue at a high level view in the Gaps Analysis, which documented the sensitivity of coordinating schedules at points where transit services connect. The arrival, waiting and departure times at such points are critical for patrons to make trips in which they must use multiple transit services. The ability of the transit operators to make these interconnections is complicated by sometimes competing needs to them to ensure timely service at other locations. In order to allow VCTC and the operators to begin to explore how schedule changes could affect both individual services and the connection points, a simple modeling technique was developed (Appendix D). However, to develop schedules that take into account the needs for all components of the individual systems and ensure effective interconnections, Jacobs recommends that a detailed analysis of schedules for each jurisdiction and from a system wide basis be conducted.

Closely related to developing a more effective schedule, Jacobs recommends that opportunities for enhancing interagency coordination and cooperative efforts be further explored. One of the potential outcomes of improved scheduling could well be that some trips would be much better for patrons if they did not have to make transfers. The need for transfers is driven in many cases by operating agencies not being able to cross jurisdictional boundaries. One way to optimize the trips for patrons would be to enable transit services to be focused on serving entire routes that fully link destinations without regard to geographic boundaries. Implementing this type of service could be accomplished through inter-local agreements among adjoining cities, or other means. The latter might include organizing the transit providers as operating units that serve travel demand markets, rather than being geographically focused; new or additional service-sharing on a subarea basis; or new or additional shared maintenance.

Consideration should also be given to consolidation of several existing services within sub-areas of the county, perhaps east and west. Inter-local agreements could be formed between neighboring cities with common transit needs. These inter-local agreements might take the form of combined paratransit operations, combined fixed route services, shared maintenance, shared purchasing, or other activities where better efficiencies could be realized.

During the public outreach efforts for this study, many participants lauded VCTC for inviting comment on plans and issues in a workshop setting that was accessible in terms of location and used interactive formats. The methods for invitation included both mailings and individual phone contacts, to help be sure that individuals became aware of meetings, rather than relying only on newspaper advertisements. There were also commendations for using the internet to distribute information and to seek comment. Jacobs recommends that VCTC, and the operating agencies continue and expand their public communications efforts beyond the typical public hearings on specific programs. Consideration should be given to:

- Presentations at community events
- Speakers bureau including transit agency board members
- Using social communication tools (such as Facebook and Twitter) to provide timely messages on issues and to direct recipients to the websites for more details
- Using the websites to solicit comments
- Conducting electronic town hall meetings, which are capable of accommodating thousands of listeners simultaneously at very low cost.

Long Term

Given the size of Ventura County and its ongoing change into a suburbanized county, creation of countywide transit service should also be considered. Additionally, the potential for a countywide

sales tax underscores the need for development of a comprehensive approach and a long-term transit plan. Both would be important to garnering voter support. Creating a countywide service could occur in a variety of ways: phased consolidation of existing operators; designation of one of the existing operators as a master operating agency to guide creating of a countywide service; change VCTC 's role to become an operating agency; create a new operating agency; or other approaches or combinations.

A long term transit plan should evaluate internal circulation in communities and across the county over time, the provision of transit connections to other parts of the region, options for operating the system elements, options for financing, and the myriad and interconnected issues needed to create a comprehensive and cost-effective service for the residents and businesses of Ventura County. There are two basic approaches to developing a long term plan—determine what incremental increases would be needed to continue current (and relatively low) levels of service, or to define high levels of transit mobility for all areas of the county and lay out the process for achieving more robust service.

The benefits of a well-crafted long term plan are not only for transit users, but have also been shown to be a critical element in attracting and retaining jobs. The availability of good transit is a top-level, "must-have" component in the ever-increasing competition among communities to attract desirable employers.

E. Community Outreach

In addition to the outreach for this study, comments from the 2008 passenger surveys and the Unmet Needs public hearing held February 2, 2009 provided another validation of desires for improved transit. The Findings Report from those hearings noted "most of the testimony fell into several broad categories: expanded and/or more frequent bus service; better coordination among bus systems; improved bus service for seniors and the disabled; and increased train service."

Several efforts were undertaken to help assure that this Transit Investment Study included public comment. These included:

- Development of a survey instrument to solicit and track issues
- Development of a countywide database and organizations to be contacted regarding surveys and meetings
- One-on-one or telephone interviews with elected officials

- Development of an on-line survey of transportation issues that was posted on the VCTC website
- Published notices and made individual calls regarding public meetings
- Conducted two public outreach workshops.

Results

Key results of these efforts are summarized below. Additional information is contained in Appendix E.

Survey Tool: The survey instrument sought information using the following questions:

1. *What Ventura County city do you reside?*

2. *Which specific issues concern you regarding the existing public transportation services and/or infrastructure?*

3. *In your opinion, what are the most commonly cited transportation infrastructure deficiencies?*

4. *In Ventura County, which areas/communities do you believe have insufficient public transit options?*

5. *Should Ventura County be focused on pursuing local or regional transit solutions?*

6. *Which public transit projects do you believe are a priority?*

7. *In your city, do you believe there is adequate funding for public transportation? Which projects do you believe should receive funding?*

8. *Would you and/or your friends and family support a regional tax measure devoted to expanding transportation infrastructure?*

9. *In your opinion, what can VCTC do to encourage cooperation between cities to form a cohesive transportation vision?*

10. *Please identify any current issues or concerns that you are aware of in your community that may affect future transportation improvements.*

11. *What can VCTC do in their public outreach and/or information materials to encourage community members to participate in this study?*

12. *What key stakeholders/organizations would you suggest meeting with that would be interested in participating in this study?*

13. *Are there any additional transportation improvements that are needed that we have not discussed?*

Database: The database includes more than 550 individuals and organizations. Not only was this used for the study, but it provides useful information for future public outreach efforts by VCTC and the operating agencies.

Interviews with Elected Officials: One-on-one interviews were conducted with 16 elected officials about their perspectives on the transportation needs of the County. In addition to the one-on-one interviews, the surveys were used to solicit input at the January 29, 2009 meeting for elected officials hosted by the Ventura County of Governments. The most important issues with regard to the current and future transportation needs for Ventura County were (in order of prevalence):

1. Frequency of transit thereby reducing headways

2. Connectivity between east and west Ventura County

3. Accessibility to transit via more strategically based bus stops and increasing weekend/evening service

4. Service deficiencies throughout Ventura County especially in Santa Paula, Fillmore and Ojai

5. Lack of funding throughout Ventura County creating transportation challenges on both the local and regional level; however, participants largely agreeing that constituents would not support a tax measure to increase funding.

Public Meeting Notifications: Meeting notices were mailed to all persons in database, as well as others. Approximately 800 notices were mailed. The workshops were publicized in the Ventura County Star and The Acorn newspapers. Leading up to each workshop, reminder phone calls were placed to leading business groups, transportation-oriented groups, and community-based organizations to encourage attendance and participation. Several of these groups committed to distribute the workshop invitation to their membership, post the workshop information on their

membership calendar, announce the workshop at their board meeting, post the workshop information on their website, and mention the workshop in their newsletters.

On-Line Surveys: The meeting notices identified how to provide comments via the VCTC website; this has become an industry standard for enabling those who cannot attend meetings to participate. Twelve on-line surveys were submitted via the VCTC website, which ran during the entire notification process and public workshops. The on-line input is combined with the results of the workshops, below.

Public Workshops: Two workshops on this Transit Investment Study were held - April 9, 2009 in Camarillo and April 15, 2009 in Thousand Oaks. At each of these an overview of the study process was presented and visitors were provided several opportunities to provide comments. These included the questionnaire, posting of specific areas of concern on large aerial maps, and to talk with the project study team and representatives of VCTC and the operating agencies. ***There was a very favorable reaction to the workshop format and several participants asked that there be more such outreach.*** Participants represented various cities including: Ventura (15), Camarillo (14), Oxnard (5), Newbury Park (5), Ojai (3), Port Hueneme (3), Santa Paula (2), Simi Valley (2), Somis (2) and 1 each from Oak Park, Thousand Oaks, Moorpark and Buenaventura. What is noteworthy is the distances that people were willing to travel to participate

Key Findings from the Public Workshops and On-Line Surveys

Overall, respondents feel that public transit is slow and inconvenient. There is an overwhelming sense that connectivity around the County needs to be improved whether it is by bus, train, or bike paths. Generally residents feel that it is easier to get in their car and drive to their destination.

Regional Issues

1. Frequency- More frequent service would minimize the amount of time riders spend on the bus and would help promote transit as a viable transportation alternative.

2. Connectivity- Lack of connectivity and coordination between cities makes it difficult for transit riders to travel from one side of the County to the other, whether east to west or north to south. Stronger transit connections between cities need to exist to create accessibility to jobs, educational centers, government centers, etc.
3. Accessibility- Enhance accessibility by providing more busses, additional strategic bus stops and improving service during evenings and weekends. Identify job access areas that should be transit accessible.

4. Multi-modal transit center- Create a transit hub in downtown Ventura that ties

Metrolink, Amtrak, Greyhound, VISTA and future rail service.

5. Regional bus service- Combine existing transit services into one regional bus service managed by a regional authority. Respondents said this would increase the effectiveness of funding and service throughout Ventura County.

6. Expansion- Work to expand Gold Coast in the west and work on a regional system for the east County; integrate services with VISTA.

7. VCOG/VCTC- Merge VCOG and VCTC into a true regional planning and transportation agency; give the new agency power to create the Sustainable Communities Strategy required under SB 375.

Local Issues

1. Transit deficiencies
   a. Increase transit options specifically VISTA service in East County cities such as Ojai, Fillmore, Santa Paula, and Piru not only to connect between cities but enhance accessibility to the rest of the County.
   b. Currently, unincorporated areas outside of Ojai city limits do not have sufficient public transit options.
   c. Northwest Port Hueneme and Hueneme Bay do not have mass transit especially for seniors who reside in that region.
   d. Improve transit west of Victoria Avenue, beach communities, and Oxnard Transportation Center.
   e. No public transit from Simi Valley to Oxnard.
   f. Bus service is lacking in Port Hueneme, Thousand Oaks, and Camarillo.
   g. Cal State Channel Islands buses are too large and limited to only a few of the campus roadways.
   h. VISTA is the only option from Ventura to Santa Barbara.
   i. Increased daytime/evening and night connections with VISTA Coastal Express.

2. Dial-A-Ride programs- Protect transportation options for the aging and disabled population who depend on dial-a-ride and paratransit programs to travel throughout Ventura County.

3. Metrolink- Expand Metrolink service in Ventura County by providing a station in downtown Ventura and Thousand Oaks.

4. Bike paths- Create more bike paths and increase pedestrian pathways in every city.

5. Bus shelters- Provide more bus shelters in every city.

6. Funding- Provide funding for Ojai Trolley, Gold Coast Transit, and HELP Ojai's van service.

7. Street paving- Improve both streets and highways by repaving existing roads.

8. SR-101/ SR-23 interchange- Upgrade existing interchange to reduce bottlenecks and increase the flow of traffic.

9. SR- 118- Widen and landscape SR-118 to increase flow of traffic in Simi Valley, Thousand Oaks and Moorpark region.

10. Improvements- Improve bypass on Highway 33 through Casitas Springs to increase safety and reduce traffic.

Funding
The general consensus is that there is not enough funding on both the local and regional levels and there is an ongoing struggle to find resources to fund projects. Cities are faced with difficult challenges when prioritizing projects based on limited federal financial support. Furthermore, Ventura County lacks funding for both capital projects and ongoing maintenance and operations.

Potential Tax Measure
While more than half of those that responded at the VCOG meeting said that their constituents would not support a tax measure devoted to transportation infrastructure, more than 60% of the attendees from the community workshops said they would support a tax measure.

F. Other Consultant Recommendations

Near Term

During the public outreach efforts for this study, many participants lauded VCTC for inviting comment on plans and issues in a workshop setting that was accessible in terms of location and presentation. The methods for invitation included both mailings and individual phone contacts. There were also commendations for using the internet to distribute information and to seek comment. Jacobs recommends that VCTC, and the operating agencies continue and expand their public communications efforts beyond the typical public hearings on specific programs. Consideration should be given to:

- Presentations at community events
- Using social communication tools (such as Facebook and Twitter) to provide timely messages on issues and to direct recipients to the websites for more details
- Using the websites to solicit comments
- Conducting electronic town hall meetings, which are capable of accommodating thousands of listeners simultaneously at very low cost.

Increased public communications should become a hallmark for transportation planning and services. As was evident in the 2008 ridership survey and 2009 Unmet Needs public hearing, members who now use transit are willing to express their views on current services and desired improvements. The input received for this Transit Investment Study are indicative of the overall support for transit as a baseline public service that should be expanded to support the quality of life throughout Ventura County. A robust communication process is a cost-effective way to create and maintain the numerous partnerships among governments, businesses, organizations, transit advocates, and the general public that are needed to build a transit system that supports economic vitality and makes Ventura a desirable play to live, work and play.

As a way to underscore the importance that the general population places on quality transit, even during economically challenging times, consider that a recent poll in Los Angeles County indicated that, despite a worse economy than in November 2008, voters would still overwhelmingly vote for Measure R, the self-imposed transportation tax.

Appendix A

Existing Conditions Technical Memorandum

JACOBS™

Technical Memorandum

600 Wilshire Boulevard
Suite 1000
Los Angeles, CA 90017

Date	January 20, 2009
To	Steve DeGeorge
From	Jacobs Engineering
Subject	VCTC Transit Investment Study Task 1 Deliverable: Existing Conditions Report

Introduction

This memorandum is the first of several being prepared for the Ventura County Transit Investment Study. This study is designed to identify and prioritize projects that could benefit public transportation in Ventura County. Information collected for this effort will be utilized to allocate funds for both short- and long-term transit needs of the County's many public transit operators. The study is sponsored by the Ventura County Transportation Commission (VCTC). Jacobs is the consulting firm chosen to carry out the technical work.

This memorandum summarizes information on existing public transportation operations in the county. It is based upon data submitted by each of the local transit operators. This material has been supplemented by face-to-face interviews with personnel from the affected public agencies and transit operators. In addition, limited field surveys were conducted to view the maintenance and station facilities used by many of these operators.

Summary of Observations

Public transportation serving Ventura County is fragmented, with seven fixed-route bus operations, five public dial-a-ride operations, and four paratransit services restricted to disabled or senior riders. There are also two Los Angeles-based bus operators, two rail operations, and several private carriers that serve portions of the county. While in some cases the fares and schedules of connecting systems are coordinated, this is more the exception than the rule. There are even instances where adjacent systems don't connect at all, a subject that will be discussed in a subsequent technical memo analyzing gaps in the network. This situation is not unique to Ventura County and is understandable given the evolution of transit here. The area was, until relatively recently, rural in nature. Indeed, much of the county is still devoted to agriculture, and the northern half is occupied by forest reserves. Local transit service was established over the past 40

years incrementally, as each community developed enough density to justify it. One bus carrier, VISTA, serves primarily as in intercity connector within the County, even extending services north into Santa Barbara County and South into Los Angeles County.

Transit personnel that we spoke to in each community were uniformly committed to making improvements to their systems and interested in the prospects of new funding. However, most are part of very small staffs dedicated to transit--in many cases only one or two people. Their focus is, by necessity, their current systems. Several freely admitted that there was little or no long-range transit planning, since the maintenance of the existing lines took up all of their time. The County of Ventura adopted a transit vision statement in 2005, calling for creation of a seamless system. However, there has been no consensus on how to implement that vision, nor adequate funding for systematic improvements. It was hoped by many of those interviewed that this Transit Investment Study would be a first step toward that vision.

Setting for the Study

Ventura County is located along the southwest coast of California, bounded by Los Angeles, Kern, and Santa Barbara counties (Fig. 1). At 1,845 square miles, it is only a mid-size county by California standards, but it nonetheless encompasses a vast area for local travel. Much of this area—over half—is uninhabited land comprising the Los Padres National Forest. The settled areas are along the coast, or adjacent to the principal highways: US Route 101, and State Routes 33, 118, and 126. The county's population was estimated at about 831,600 in January 2008. Its incorporated cities are Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Simi Valley, Thousand Oaks, and Ventura (the county seat). These cities (see Fig. 2) are the foci of the county's many public transportation systems.

Figure 1. Location of Ventura County

Topographically, the Santa Monica Mountains divide the county into a smaller eastern and larger western portion. This divide has socio-economic implications, as well, as in the eastern portion—which includes the cities of Simi Valley, Moorpark, and Thousand Oaks—incomes and auto ownership rates tend to be higher and housing more expensive than in the western portion.

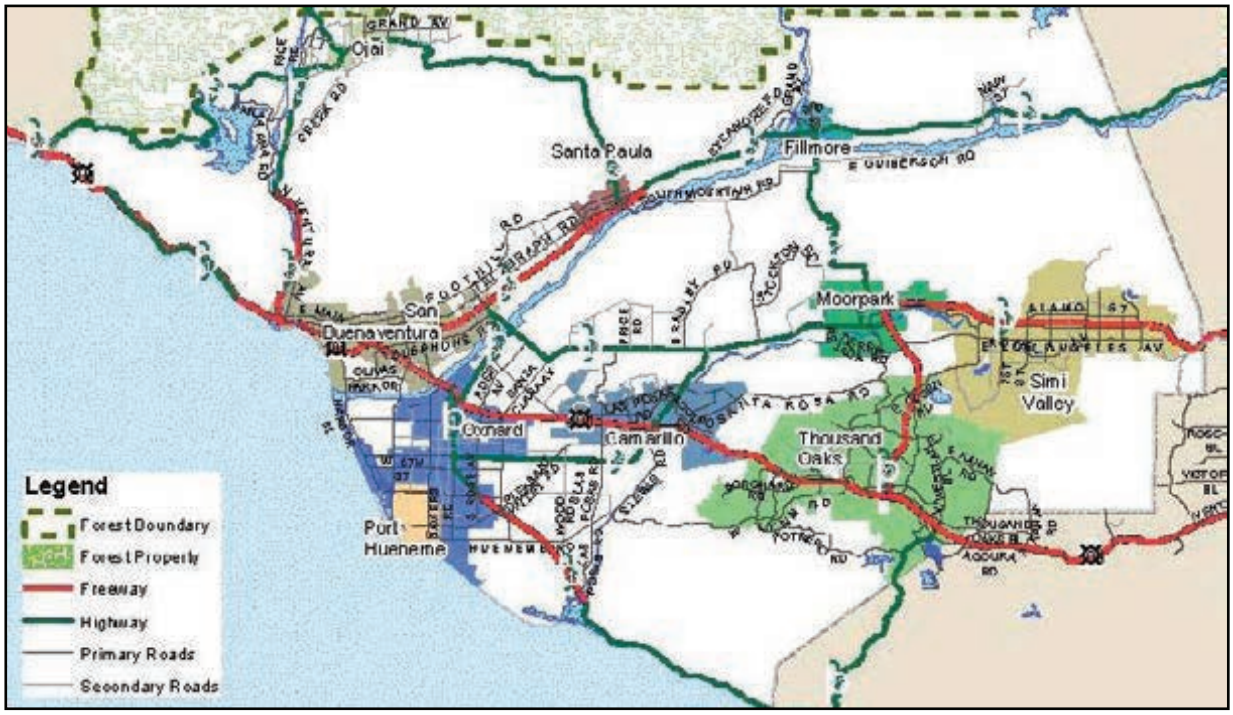


Figure 2. Cities and Major Highways of Ventura County

The earliest form of public transportation to serve the county was the railroad. Lines built in the nineteenth century to export the county's agricultural produce also provided passenger service. Trains operated to Los Angeles and points east and south, as well as to northerly destinations in California and beyond. To this network was added long-distance bus transportation in the first half of the twentieth century. These early transport systems were oriented to long-distance travel, and few locations in the county were served. Local transit got its start here in the latter half of the twentieth century, when large numbers of people began migrating to Ventura County, especially from the Los Angeles area. It was during this time that the County initiated bus service along US 101 and SR 23 to link together the communities located on these corridors. The City of Fillmore provided a similar service along SR 126 to Ventura. In 1973, several cities banded together through a joint powers agreement (JPA) to establish their own area-wide bus service, called South Coast Area Transit (SCAT). In 2007, SCAT changed its name to Gold Coast Transit; it remains the largest transit operator in the county. In 1994, the Ventura Intercity Service Transit Authority (VISTA) was established by the VCTC to provide greater connectivity throughout the county, replacing the Ventura County Interconnect operated by the County of Ventura. VCTC is responsible for the oversight and management of VISTA service.

In addition to these two operators, local public transportation services were started by various cities over time. Some of these consist of smaller bus services; others are demand-responsive (dial-a-ride) paratransit services, oriented either to senior or disabled passengers or available to the public at large. In a few cases, these public transportation services are operated by municipal departments. In most others, the municipality administers services provided under contract to a private company. VCTC serves as oversight agency for general issues related to public transportation throughout the county. Table 1 summarizes the basic operating characteristics of the local transit operators; Figure 3 provides an overall map of the fixed-route services.

Existing Fixed-Route Bus Operations

Nine public agencies operate fixed-route bus service in the county at this time:

- Camarillo Area Transit (CAT): 1 route administered by the City of Camarillo
- Gold Coast Transit: the largest local operator, with 17 routes operated through a JPA with Ojai, Oxnard, Port Hueneme, Ventura, and the County of Ventura
- Los Angeles County Metropolitan Transportation Authority (Metro): 1 route operated into Ventura County
- Los Angeles Department of Transportation (LADOT): 3 weekday peak routes operated into Ventura County
- Moorpark City Transit: 2 routes administered by the Moorpark Public Transit Division
- Ojai Trolley: 2 routes operated by the Ojai Public Works Department
- Simi Valley Transit: 4 routes operated by the Simi Valley Department of Community Services
- Thousand Oaks Transit (TOT): 4 routes administered by the City of Thousand Oaks
- Ventura Intercity Service Transit Authority (VISTA): 7 routes administered by VCTC

Together, these nine agencies operate over 40 distinct routes. All but Gold Coast Transit, Ojai Trolley, Simi Valley Transit and LA Metro utilize contracts with private companies to actually operate and/or maintain their buses.

Table 1. VCTC Transit Investment Study
Fixed-Route and Paratransit Data for FY 2007-2008

Mode and Operator	Rolling Stock < 35 feet	Rolling Stock 35 feet or more	Adult Base Fare	Annual Riders	Annual Revenue Hours	Annual Revenue Miles	Annual Operating Cost	Annual Fare Revenue	Cost/ Revenue Hour	Cost/ Revenue Mile	Cost/ Rider	Riders/ Revenue Mile
Fixed-Route Bus												
Camarillo Area Transit	1	0	$1.00	17,864	2,105	37,159	$89,439	$3,606	$42.49	$2.41	$5.01	0.48
Gold Coast Transit	0	46	$1.25	3,495,875	140,057	1,610,734	$12,287,553	$2,681,149	$87.73	$7.63	$3.51	2.17
Moorpark City Transit	5	0	$1.00	65,539	5,610	91,724	$172,331	$56,852	$30.72	$1.88	$2.63	0.71
Ojai Trolley	6	0	$0.50	88,325	6,513	84,647	$720,812	$37,953	$110.68	$8.52	$8.16	1.04
Simi Valley Transit	0	13	$1.25	454,440	30,768	477,005	$2,514,702	$422,819	$81.73	$5.27	$5.53	0.95
Thousand Oaks Transit	2	5	$1.00	178,502	13,070	187,407	$738,416	$109,286	$56.50	$3.94	$4.14	0.95
VISTA (1)	0	26	$1.00	634,965	47,191	1,341,099	$2,067,714	$658,436	$43.82	$1.54	$3.26	0.47
Rail												
Metrolink	N/A	N/A	$1.00	1,039,005	6,304 (2)	255,673 (3)	N/A	N/A	N/A	N/A	N/A	4.06
	Rolling Stock Vans	Rolling Stock Cutaways										
General Public Dial-a-Ride												
Camarillo	0	4	$2.00	56,911	8,626	122,162	$615,014	$75,868	$71.30	$5.03	$10.81	0.47
Oak Park (Ventura County)	0	6	$1.50	19,990	5,229	93,615	N/A	$33,232	N/A	N/A	N/A	0.21
Oxnard		2	$2.00	9,320	2,866	N/A	$72,500	$16,539	$25.30	N/A	$7.78	N/A
Thousand Oaks (4)	(5)	(5)	$1.50	70,382	187,407	411,518	$1,068,476	$94,026	$5.70	$2.60	$15.18	0.17
VISTA	0	15	$1.50	210,277	32,076	352,086	$1,072,413	$156,747	$33.43	$3.05	$5.10	0.60
Senior/Disabled Dial-a-Ride												
Gold Coast Access	10	11	$2.50	79,686	35,636	528,336	$1,772,320	$162,457	$49.73	$3.35	$22.24	0.15
Moorpark Paratransit	(5)	(5)	$1.50	2,108	N/A	22,342	$54,575	$5,720	N/A	$2.44	$25.89	0.09
Simi Valley Transit	3	9	$1.50	43,457	17,976	199,570	$1,267,361	$97,708	$70.50	$6.35	$29.16	0.22
Thousand Oaks (Ventura County) (6)	(5)	(5)	$1.50	3,434	503	17,616	N/A	$5,154	N/A	N/A	N/A	0.19

(1) Includes CSU shuttle routes.
(2) Annual revenue hours for Metrolink are annual revenue train hours (not car hours) for FY 2006-2007.
(3) Annual revenue miles for Metrolink are annual revenue train miles (not car miles) for FY 2006-2007.
(4) Includes data for general public DAR, senior DAR, and ADA paratransit DAR.
(5) Vehicles are shared among Moorpark, Thousand Oaks, and Westlake. Typical daily assignment is 10 vans and 3 cutaways.
(6) Data pertains only to service provided to unincorporated areas outside Thousand Oaks' city limits; for DAR within Thousands Oaks, see note (4).

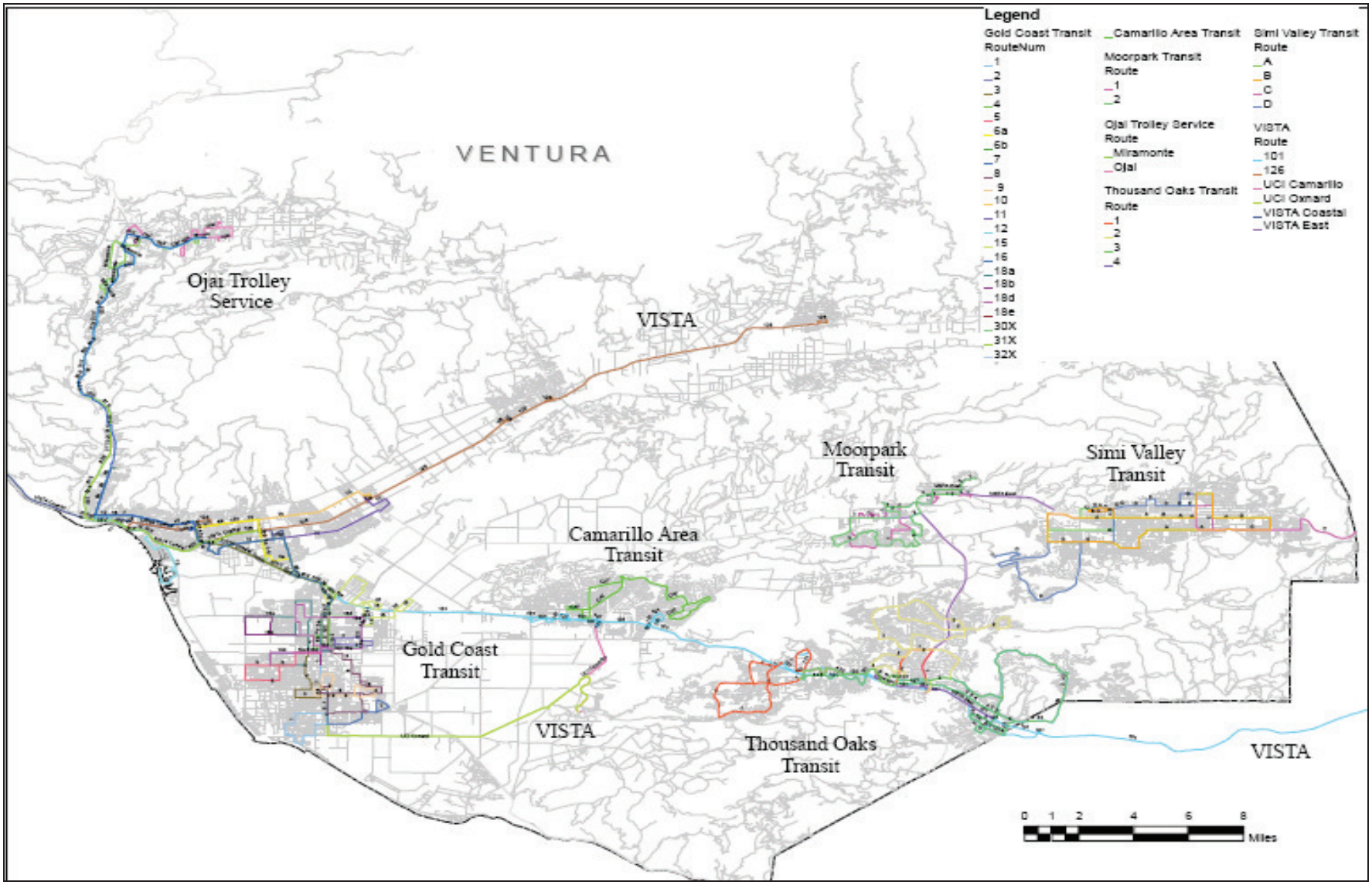


Figure 3. Ventura County Fixed-Route Transit Lines

Most of the systems in the list above operate exclusively within Ventura County, with a few exceptions. Simi Valley Transit offers weekday service into Chatsworth in Los Angeles County, while VISTA operates weekday service into Woodland Hills in Los Angeles County and daily service into Santa Barbara County. The two Los Angeles-based operators, LA Metro and LADOT, extend service into the eastern portion of Ventura County. (They are not listed in Table 1 because they would not be the recipient of transit funds anticipated to flow to Ventura County).

In addition to these nine public operators, private bus carriers serve various parts of the county. These include Greyhound and Transportes Intercalifornias, two intercity carriers whose only stops in Ventura County are located in Oxnard; and various small private operators serving airports or employment centers. Since the focus of this study is on publicly-funded improvements to publicly-operated systems, these private carriers are mentioned only in passing to give a full picture of the transit options available.

Service throughout the county tends to be offered at a low frequency, with headways of 30 to 60 minutes the most common. About a third of the lines operate only during weekdays, with a span of service from about 6:00 AM to 8:00 PM. While two thirds of the lines operate on Saturdays, only about one third is in service on Sundays. This means that many residents without access to their own automobiles must rely upon friends or taxis to drive them to their destinations when public transportation is not offered. Many probably defer such trips to those times when service is available.

Table 2. VCTC Transit Investment Study

Average Fixed-Route Operating Hours

Operator	Monday-Friday	Saturday	Sunday
Camarillo Area Transit	8:19 AM – 4:30 PM	no service	no service
Gold Coast Transit	H 5:00 AM – 10:00 PM	5:30 AM – 9:00 PM	5:30 AM – 8:45 PM
	L 6:00 AM – 8:00 PM	6:30 AM – 8:00 PM	6:30 AM – 8:00 PM
Moorpark City Transit	6:00 AM – 6:00 PM	no service	no service
Ojai Trolley	7:00 AM – 5:30 PM	9:00 AM – 5:15 PM	9:00 AM – 5:15 PM
Simi Valley Transit	5:15 AM – 7:30 PM	H 5:00 AM – 8:00 PM	no service
		L 8:00 AM – 7:00 PM	no service
Thousand Oaks Transit	6:00 AM – 6:45 PM	no service	no service
VISTA	H 4:15 AM – 9:00 PM	6:45 AM – 7:30 PM	6:45 AM – 7:30 PM
	L 6:00 AM – 7:30 PM	7:00 AM – 6:00 PM	8:00 AM – 6:00 PM*

*Highway 126 service only

Note: the table above represents an approximate average of the spans of service of the individual lines of each operator. Many lines do not operate on weekends. H = higher service lines L = lower service lines

There are some notable exceptions to the low frequency service described above in corridors with higher ridership. For example, Gold Coast's Route 6 offers headways as short as 15 minutes in Ventura, while its Route 1 between Oxnard and Port Hueneme operates at 20 minutes most of the day; VISTA's shuttle between the Camarillo Metrolink Station and CSUCI (California State University Channel Islands) operates 15-minute service on weekday afternoons and evenings.

Existing Rail Operations

In addition to the bus services discussed above, there are two rail operations serving the county: both Metrolink and Amtrak share portions of the railroad network established in the 1800s. Metrolink is operated by the Southern California Regional Rail Authority (SCRRA), a JPA of five regional agencies: the Los Angeles County Metropolitan Transportation Authority (Metro), the Orange County Transportation Authority, the Riverside County Transportation Commission, San Bernardino Associated Governments, and the Ventura County Transportation Commission. Passenger rail service is also provided. Metrolink offers 10 trips each weekday on its Ventura County Line. This service operates into and out of Los Angeles, serving Montalvo, Oxnard, Camarillo, Moorpark, and Simi Valley in Ventura County. An 11th weekday trip in each direction is offered by Amtrak at these same stations (except for Montalvo). The frequency offered is relatively low due both to funding shortfalls and to constraints placed on rail service by the single track available for use north of the City of Moorpark.

Amtrak itself, with funding support from Caltrans, operates Pacific Surfliner service between San Louis Obispo and San Diego. This service provides four additional train trips in each direction at many of the Metrolink stations, plus one outbound and two inbound Motorcoach Throughway bus trips each weekday. On weekends when Metrolink is not in service, these same Amtrak trips are available to passengers at the stations served in Ventura County. Metrolink monthly pass holders can ride them free of charge, while others must pay standard Amtrak fares. Amtrak also provides intercity service to other parts of the state and the country. One Coast Starlight train in each direction serves the Oxnard and Simi Valley stations. The Amtrak station in Ventura is served by 5 daily Pacific Surfliner trains in each direction, but not by Metrolink. Since Amtrak is not eligible for the funds that would be available for local transit operators in the county, only Metrolink will be considered further in this study.

As discussed later in this memorandum, several Metrolink stations serve as anchors for local bus lines in the vicinity. However, Metrolink does not function as the rail spine of the Ventura transit network, as its connections with buses are generally haphazard. This is due at least partly to the irregular headways on Metrolink that result from its sharing of tracks with freight and Amtrak trains. Such irregular headways do not lend themselves to timed transfers with the local bus systems.

Existing Paratransit Operations

The fixed-route bus and rail lines in Ventura County are complemented by paratransit operations that use vans or small cutaway buses in demand-responsive services. These services generally have no fixed routes or schedules, but rather pick up and drop off passengers within specific geographic areas. Trip requests are

made by phone in advance, though some of the services allow ongoing reservations or subscription services for recurring journeys. These services are essential for those physically unable to access fixed-route transit and are useful for others to reach areas not well served by the fixed routes. There are eleven such paratransit operations. Seven of these serve the general public (condensed in Table 1 as the five principal operations listed below):

- Camarillo Department of Public Works administers CAT service for intra-city dial-a-ride trips
- Oxnard operates the Harbors and Beaches Dial-a-Ride serving the westernmost section of the city
- Thousand Oaks is served by a dial-a-ride administered by the City of Thousand Oaks, with some areas outside the city served by a County-administered dial-a-ride

- Ventura County Public Works Agency administers two smaller services:
    - Juvenile Center service uses a contract with a taxi company to serve the County Juvenile Facility near El Rio on Vineyard Avenue
    - Service in Oak Park, Newbury Park, and Lynn Ranch
- VISTA administers two public dial-a-rides:
    - Fillmore Dial-a-Ride serves the communities of Fillmore and Piru
    - Santa Paula Dial-a-Ride serves the community of Santa Paula.

The remaining four public paratransit operations transport only senior or disabled passengers:

- ACCESS: a senior/disabled service operated by Gold Coast Transit to serve the cities of Ojai, Oxnard, Port Hueneme, Ventura and unincorporated areas of Ventura County between these cities.
- Moorpark Dial-A-Ride: administered by the Moorpark Public Transportation Division, with a senior dial-a-ride serving Moorpark and a disabled dial-a-ride serving Moorpark intra-city trips, as well as those destined to Thousand Oaks, Camarillo and Oak Park.
- Simi Valley Transit: operated by the Simi Valley Department of Community Services to serve both intra-city trips and connecting trips to adjacent communities.
- Thousand Oaks Dial-a-Ride: administered by the City of Thousand Oaks and serving the City of Thousand Oaks, plus the unincorporated county areas of Ventu Park, Rolling Oaks, and Lynn Ranch.

As with the fixed-route operators, there are numerous privately operated paratransit services not eligible for the transit funding contemplated as the focus of this study. These include those operated by Arc of Ventura County, Camarillo Care-A-Van, and Help of Ojai, as well as numerous taxi companies and airport shuttles.

As indicated in Table 1, paratransit operations are generally quite expensive in terms of the cost per rider, on the order of 10 times higher per trip than fixed-route transit. On the other hand, they are often less expensive overall than providing fixed-route service in some areas. In places with difficult terrain or discontinuous street patterns, they may offer the only practical way that public transportation can be provided.

The Transit Network

While a full analysis of the connectivity of the systems described above is the subject of a subsequent report in this series, a few general observations can be made at this time. First, an examination of the structure of

all the fixed routes described above indicates a series of generally radial networks. Most are centered on one node of activity in the community, such as a civic center or shopping mall. Coverage of the urbanized areas of the county by these networks, as depicted in Figure 3, appears adequate at first glance. However, without a thorough analysis of how the networks coincide with areas of high density and the location of major trip attractors, it is difficult to confirm this supposition. If the low frequency of much of this network is considered, along with restricted hours of service in many instances, then it must be concluded that much of the urbanized area has only minimal transit service. Moreover, the numerous connecting points between the lines shown on the map belie the fact that transfers may be difficult to make. This is because the schedules of the connecting lines are rarely synchronized, and the costs to make such transfers may be prohibitive for many potential users. Thus, while the map in Figure 3 gives the impression of good transit coverage, that quality exists in few parts of the county.

Capital Facilities and Equipment

The transit facilities of note in the county include passenger stations and maintenance bases. Perhaps most obvious are the railroad stations: those in Oxnard, Camarillo, Moorpark, and Simi Valley are shared by Metrolink and Amtrak. The station in Montalvo is off the main line and is used only by Metrolink, while that in Ventura is used only by Amtrak. Several of these stations have associated bus stops, such as Oxnard and Simi Valley. However, as mentioned earlier, timed transfers between bus and rail rarely occur.

The Oxnard Transportation Center, contiguous with the Oxnard railroad station, is a major facility with timed meets between different bus lines. A similar arrangement occurs at the Thousand Oaks Community Transportation Center, a free-standing facility just off Highway 101. A smaller bus transit center is located in Ventura at the Pacific View Mall. Several park-and-ride lots are scattered throughout the county. With the exception of those at the railroad stations, however, most are oriented to carpooling rather than transit use. Smaller physical amenities, like bus stop signs, benches, and shelters, are located with considerable inconsistency. Shelters are overseen by jurisdictions, not the operators, and few stops are so equipped. Even bus stop signs are not always found at the regular stopping points of certain bus lines, and there is no uniform countywide standard.

Most of the maintenance facilities and storage yards for the county's transit and paratransit services are owned and operated by private contractors. The exceptions are those facilities operated by Gold Coast Transit in Oxnard, and by the public works departments of Ojai, Simi Valley, and Thousand Oaks. Most of these were said to be reaching their capacities, and the need for larger or newer facilities were anticipated in the near future.

Fleets operated by the county's fixed-route services range from standard transit buses and over-the-road coaches, to rubber-tired trolleys and cutaways. Paratransit vehicles use mainly cutaways and vans. By and large, the fleets are relatively new, and many are powered by CNG. Ojai, Simi Valley, and VISTA would like some replacements soon, and VISTA is also interested in double-deck buses to cope with crowding on its Santa Barbara runs.

Operator Interviews

Requests were sent to each of the public transportation operators within the county for certain basic information on their systems, such as revenue hours and miles of service provided, and details of the operation of each line in their fixed-route network. In addition to collecting this objective data, it was desired to interview staff from each of the operators for information of a more subjective nature. Problems they were encountering, ideas for improvement, and insights on the future of public transportation were all elicited. Nine such interviews were held on October 27-29, 2008, conducted jointly by a representative of VCTC and of the Consultant. The overall impression given by these interviews was of earnest staffs that wish to make the most of their current systems but are limited by scarce resources and/or lack of political priority in their communities.

Staffing is small in most of these operations. VISTA, for example, has just one full-time and one part-time employee dedicated to transit operations for its sprawling cross-county system. Camarillo and Oxnard have equally small staffs. Only at Gold Coast Transit, the largest operator in terms of routes and riders, and Simi Valley Transit were multiple staff members involved in various aspects of transit administration. One reason is that except for Gold Coast, Simi Valley, and Ojai, day-to-day service matters are left to private operating companies. This allows the jurisdictions to

minimize their staffing for transit, since the contractor deals with daily operations. There are downsides to this arrangement, however. One mentioned by several of the operators is insufficient oversight of the quality and quantity of transit being provided. There is typically too few staff from a jurisdiction to monitor whether buses consistently run on time or that a sufficient level of maintenance is being provided. Lack of personnel also affects the operating agencies' ability to determine how best to maximize services or investments

Another problem mentioned was the lack of time to consider future transit planning. The efforts of most transit personnel are consumed with immediate issues, such as customer complaints, fleet replacement, and negotiating operating contracts. Even those with the luxury of long-term vision were focusing on a five- or ten-year horizon, rather than one further out. Gold Coast and Oxnard did mention the need to coordinate transit and land use planning, particularly with potential Transit Oriented Developments (TODs) and the pedestrian orientation of new developments; Gold Coast also discussed the value of Transportation Demand Management (TDM) as a tool for working with jurisdictions. For most other operators, however, the focus is on current administrative matters.

Regarding near-term plans, a few systems, like Simi Valley Transit, had recently ~~been~~ restructured its routes and felt no need for more changes at the present time. Others, like Ojai Trolley, had some restructuring plans in mind, and Moorpark mentioned an upcoming consultant study of its service. The consensus of most of the operators was that increases in the intensity of service on their existing routes would take precedent over extensions of these routes or infill with new services. This is a clear reflection of the low frequencies that typify most of the fixed-route lines in the county.

Still, there was some interest in future innovation. Gold Coast and Oxnard mentioned the desirability of some form of bus rapid transit on the more heavily traveled corridors, albeit at a lower intensity of service than typically found in larger urban areas. VISTA discussed the need for limited-stop runs in the 101

corridor, as well as between Simi Valley, Moorpark, Thousand Oaks, and Ventura, which has too many time-consuming local stops.

Innovations in equipment appeared to be underway. Many of the bus fleets, such as Gold Coast's, Thousand Oaks', and Simi Valley's, are 100% CNG-fueled. In fact, Thousand Oaks and Gold Coast were among the first to use CNG buses, and Gold Coast had even experimented with a hydrogen fuel cell bus. Nearly all systems were taking advantage of advanced technologies provided by VCTC. These technologies included NextBus for passenger information and operations management, as well as the Go Ventura smart card for easier fare payment. Many systems not currently using these technologies expressed the desire to do so. The fact that numerous metropolitan areas around the country still do not employ these technologies demonstrates the receptivity of local county operators to innovation. Capital needs in the short term varied from replacement buses to expanded maintenance bases. Feelings regarding bus stop signs and shelters were mixed; some operators said that they had sufficient facilities, others expressed interest, and still others were indifferent.

The possible consolidation of transit services was often a point of discussion, particularly in the eastern part of the county, but no consensus has been reached. Consolidation was also mentioned by operators in the western part of the county, either in the form of a west county system or as a single, county-wide transit operation but again there was no consensus on the issue.

The ridership base for most of the operators consists primarily of those without access to automobiles: students, seniors, the disabled, and lower-income workers. Certain services do attract commuter "choice riders", such as those traveling to work in Los Angeles and Santa Barbara counties. However, even on these services, a large portion of reverse commute trips are apparently made by domestics and low-income workers coming in to jobs in Ventura County.

A number of challenges were identified in the course of the interviews. Among them, the following are notable:

- There are few concentrated employment areas in most of the jurisdictions, making it difficult to focus transit services;
- The county has "too many operators and not enough coordination"; cross-county trips that require a transfer are especially onerous in terms of a passenger's time, money, and comfort;
- Though originally established to fund public transportation, the state Transit Development Act (TDA) funds allocated to Ventura County seem to be coveted for road projects; hearings on unmet needs did not necessarily result in greater allocations for transit. This is evidenced by that fact that only 58.5% of TDA is used for transit countywide;
- In most instances, transit management described governing boards (principally city councils and the county board of supervisors) that are interested in maintaining transit service but not necessarily in expanding it; most of these boards wish to live within the funding limits currently available for transit and not allocate additional funds that will compete with their other needs.

Review of Transit Plans and Policies

In addition to reviewing existing transit operations, the Consultant was charged with reviewing current transit plans and policies which can affect future transit operations. A brief synopsis of those plans is presented here.

According to the Ventura County General Plan, from 2000 to 2007 the County grew 10 percent from 750,500 to 825,512 residents. Most growth occurred within the existing cities as opposed to unincorporated areas of the County. By 2020, the plan predicts another 10 percent growth to 906,479 residents. By 2035, the Southern California Association of Governments forecasts Ventura County's population to increase to 1,014,000, or approximately 23 percent from 2007.

Major increases in population bring new transportation challenges. In the text below, the transit-related strategies of the county and regional plans are summarized.

Ventura County Transportation Vision (January 2006). The Ventura County Transportation Vision was proposed by two county supervisors in January 2006. The proposal was for the Board of Supervisor to "adopt a Transportation Vision that emphasizes alternative transportation modes and include that vision in the Goals of the County's General Plan will help move the County on a path toward greater mobility, less congestion, and reduced dependency on single occupancy vehicles." The supporting supervisors explained that the county cannot build its way out of congestion problems, even if funds to build more roads are available.

Below are the original goals for the Transportation Vision. Some elements of the vision were incorporated into the General Plan Update of September 2008 and are marked with an asterisk (*).

- Transit Vision
    - Enhance transit services
    - Increase ridership*
    - Encourage a county-wide, seamless system
- Rail Vision
    - Increase rail connectivity with transit, feeder lines, and between Los Angeles and Santa Barbara counties
- Bicycle Vision
    - Establish a system of bicycle lanes/trails linking all county cities*
    - Establish bicycle trail connections to CSUCI*
    - Establish adequate bicycle lanes on well-used bicycle routes
    - Provide adequate bicycle carrying capacity on public transit vehicles
    - Encourage provision of adequate bicycle racks and lockers*

2008 Regional Transportation Plan (May 2008). The 2008 Regional Transportation Plan (RTP) was produced by the Southern California Association of Governments (SCAG). Ventura County is one of six counties that form the scope of the plan. The RTP details major strategies for overcoming the transportation challenges of the region. According to the plan, the transit strategies in particular "target improving customer service and system reliability, achieving financial stability for operators, and enhancing the safety and security of the system for all riders and operators." The RTP goes on to expanding the transit system to close critical gaps in service and reach a greater number of potential passengers. Specific transportation measures pertain to transportation security measures and management approaches. Transit policies are interwoven throughout.

Security

SCAG has formed strategies to prepare for major human-caused or natural disasters. Related to transit, the plan encourages transit operators to use ITS technology for security and emergency-preparedness, educate transit-dependent groups in evacuation procedures, coordinate projects with the Department of Homeland Security, and possibly participate in a Transportation Security Working Group.

Managing Transportation

The RTP puts forth multiple strategies to manage transportation, forming the "mobility pyramid" (Figure 4). Three layers of the pyramid contain strategies related to transit.

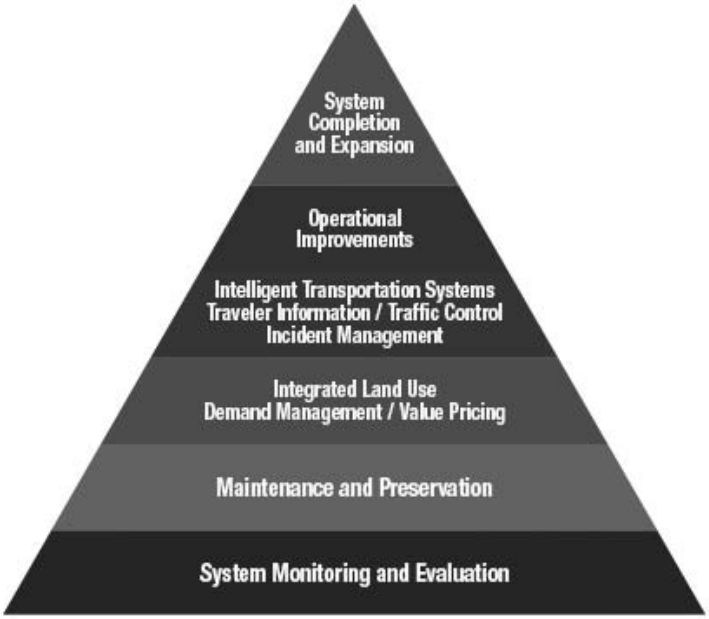


Figure 4. 2008 Regional Transportation Plan Mobility Pyramid

Within Integrated Land Use, the plan offers advisory policies to "encourage changes to the urban form that improve accessibility to transit and create more compact development, which yields a number of transportation benefits to the region, including reductions in travel time, vehicle miles traveled, vehicle hours traveled, and vehicle hours of delay, as well as increased transit use and mode share." These include:

- Identify regional strategic areas for infill and investment, including transit-oriented-development
- Develop nodes on a corridor. Many existing corridors lack the residential and commercial concentration to adequately support non-auto transit uses, without which the existing transit system cannot fully realize its potential for accommodating additional trips and relieving the transportation system. These nodes along the corridor also create vibrant, walkable communities with localized access to amenities, further reducing reliance on the automobile for a variety of trips.
- Plan for additional housing and jobs near transit. Pedestrian-friendly environments and more compact development patterns in close proximity to transit serve to support and improve transit use and ridership. Focusing housing and employment growth in transit-accessible locations through this transit-oriented development approach will serve to reduce auto use and support more multimodal travel behavior.

Within Operational Improvements and Intelligent Transportation Systems, transit operations form a key strategy for managing transportation. The RTP recommends that regional transit operators work towards the following:

- Address significant challenges to achieve better operational efficiency
- Maintain a discipline of cost recovery through a consistent fare policy

- Embrace the use of performance metrics to better serve the existing customer base
- Attract new transit users
- Work cooperatively to offer complementary services with ease of transfer between modes and operators
- Utilize new intelligent transportation system (ITS) technologies that measure system performance and offer customers reliable "on-time" performance and real-time information

Ventura County Congestion Management Plan (October 2008 Draft). The Ventura County Congestion Management Plan (CPMC) is currently being drafted by VCTC. Some elements of the plan are still being developed, such as transit performance monitoring and evaluation measures. However, the guiding policies and objectives of the plan have been created by VCTC. Transit related policies and goals come under two categories – Land Use and Transit Service. They include:

- Land Use
  - Encourage land use and transportation policies that promote transit use, bicycling, ridesharing and walking.
  - Include those agencies/departments responsible for transit, bicycle and pedestrian planning and services in the review cycle for new developments and specific plans.
- Transit Service
  - Encourage public transit services that meet local and regional mobility needs.
  - Provide, where feasible, transit service along major commute corridors and to areas of high employment.
  - Support making public transit services as convenient and easy to use as possible.
  - Further the benefits of increased transit use by supporting the conversion to clean fuel bus fleets and support facilities as part of regular vehicle replacement programs.
  - Improve the ability of passengers to transfer from one transit service to another, using technology such as Smart Card and NextBus.
  - Preserve potential and identified future transportation corridors to the maximum extent feasible.

A Compact for a Sustainable Ventura County (February 2008). The Compact for a Sustainable Ventura County is a project aimed at creating a region-wide, voluntary agreement on principles and actions to build a sustainable future. Extensive public outreach efforts were completed in order to gain the community's input on the future of their cities. The results of these efforts are detailed in this report.

Workshop participants also identified four key topics concerning the region's future: 1) managing future growth, 2) protecting its environmental and agricultural heritage, 3) preserving housing affordability and choice, and 4) maintaining an efficient and equitable transportation system. Subsequently, "building an effective multi-modal transportation system" was one of the six key goals identified by the public.

In a survey performed for the study, 69 percent of respondents "preferred a transportation system that brought people to the places they need to go by all modes and supports downtowns, even if it meant commuters continue to face congestion." To support this desire, the Compact recommended the following strategies:

- Coordination and cooperation between jurisdictions
- Form a "Livable Street" Program with established design guidelines, so that transportation investments are seamlessly integrated with the land uses they serve
- Establish a Transportation Options Fund, financed with a voter approved local sales or property tax, that would prioritize transit, bicycle, and pedestrian investments countywide

The Compact also promotes a strong relationship between housing and transit. The report states that "housing affordability could be addressed by…expedited permitting for mixed-use and affordable housing near transit…" It goes on to say that "jobs-housing balance issues can be addressed by encouraging close collaboration between transit providers, housing builders, and employers."

Overall, the sustainable future envisioned by the Compact contains denser, mixed-use communities with access to transit. The Compact also recommends that VCTC could "take a leading role in promulgating pedestrian- and bike-friendly street design standards countywide."

Conclusions

Transit in Ventura County is vital to many residents. Some of them use it for most of their daily trip-making, while others rely on it to commute to work outside the county. The demand for transit has been growing over time, as traffic congestion and the cost of operating an automobile increase. Even with this growth, however, transit faces some significant challenges if it is to increase its share of travel in the county. The distances to be traversed and the county's relatively low-density land use patterns both favor the automobile. The lack of coordination among operators, which will be documented in a later gaps analysis, only adds to the difficulties in using transit. On the positive side, most of the transit vehicles in use are relatively new, and transit staffs seem dedicated to making improvements. With the possibility of new funding, services and facilities can be made more attractive. As the jurisdictions become more interested in coordinating land use and transportation, the value of transit in reinforcing sustainability will become more obvious. The analyses to follow in this study will identify an array of improvements to attract more riders, as well as a way to prioritize such improvements.

Our outreach efforts will continue. The Consultant team will be interviewing governing boards and elected officials. The objective is to add their visions of transit and how to expand, manage, and fund it. This information will be combined with that already collected to present the full picture of transit's current situation in the county and its prospects for change.

Appendix B

Transit Gaps Analysis Technical Memorandum

JACOBS

Technical Memorandum

600 Wilshire Boulevard
Suite 1000
Los Angeles, CA 90017

Date	June 18, 2009
To	Steve DeGeorge
From	William Lieberman
Subject	VCTC Transit Investment Study Task 2 Deliverable: Transit Gaps Analysis

Introduction

This memorandum is the second of several being prepared for the Ventura County Transit Investment Study. This study is designed to identify and prioritize projects that could benefit public transportation in Ventura County. Information collected for this effort will be utilized to allocate funds for both short- and long-term transit needs of the County's many public transit operators. The study is sponsored by the Ventura County Transportation Commission (VCTC). Jacobs is the consulting firm chosen to carry out the technical work.

This memorandum summarizes an analysis of gaps in service that was conducted on the existing fixed-route bus transit systems operating in the county. It is based on field surveys, examination of travel and demographic data, and analysis of operating schedules at selected points in the county. Four principal forms of "gaps" were defined:

5. Corridors between service areas where no service is operated today;
6. Geographic areas with densities that would warrant transit service but are unserved today;
7. Gaps in the hours of service on different bus lines; and,
8. Places where transit routes (or modes, like local bus and commuter rail) come together, but whose arrival and departure times are not coordinated; this results in sometimes lengthy waits for those wishing to make transfers or, in more extreme cases, no practical transfer opportunities at all.

Summary of Observations

This study was conducted as a high-level overview. As a result, it has identified numerous apparent gaps in transit service that later, operational studies should investigate in more detail. Among them are corridor gaps between existing transit services. Several of these may be problematic to fill because of terrain or low travel demand. Nonetheless, there are five corridors that we recommend to be studied further: Fillmore-Santa Clarita, Camarillo-Moorpark (two alternate routes), Simi Valley-Thousand Oaks, and Western Oxnard-

Ventura. Filling these gaps is important not to serve the land uses in between the end points (as there is little in most cases to serve), but rather to connect areas that already have transit service.

In addition, ten unserved areas appear to have the population density to justify regular fixed-route service. Many are already served by dial-a-ride operations, which may be the most cost-effective way to provide transit service there. Nonetheless, attracting "choice" riders will likely require the establishment of fixed-route service to negate the need to make reservations and shorten the time it takes to make a trip. The ten areas highlighted are reasonable starting points for at least considering new or modified fixed-route (or flex-route) bus service.

The lack of service on many lines during weekends or early mornings creates a gap of a different sort. Transit is simply unavailable at these times unless users have access to demand-responsive service. Moreover, when considering that much of the county's fixed-route transit service is operated at relatively low frequencies, the "gap" created by low service levels could be much greater than revealed by this initial analysis.

Finally, an analysis of the timing of transfers at key points in the network indicates plenty of room for improvement. At most, only 20% of bus-to-bus transfers could be considered convenient. In many cases, departing buses miss arriving buses by mere seconds. In other cases, the buses of many routes occupy bays at a transit center simultaneously, but long layovers increase the actual time it takes a transferee to continue a trip. Riders with a choice of travel modes will want to make their transfers as expeditiously as possible, and transfer times greater than 5 to 10 minutes for bus-to-bus and 10 to 12 minutes for bus-to-rail will not be attractive to them. Improving this situation will require a new approach to how transit vehicles are scheduled throughout the county. This may, in many cases, result in higher operating costs but is sure to result in higher ridership. This, at least, is the experience elsewhere, when conversion to timed-transfers was almost always followed by an increase in riders.

Corridor Service Gaps

Current transit bus lines in Ventura County are arrayed on the map shown in Figure 1. It is apparent that most of them are clustered into discrete service areas in the more populated parts of the county. In many instances, there are no transit lines connecting these service areas with each other. As a result, transit patrons must sometimes resort to very circuitous routings. To address this issue, the more obvious geographical gaps between the service areas were identified, classified into nine travel corridors, and analyzed for their transit potential. This analysis consisted of two steps: (1) physical examination of the corridors themselves and (2) review of potential travel demand in those corridors.

The physical examination of each corridor began with a remote analysis using aerial photos, followed by an on-site "windshield survey." Of particular interest was the suitability of the roadway itself for accommodating regular bus service (particularly in terms of steepness and pavement width and condition). Some of these roadways were said in advance to be unsuitable for buses, but a brief reconnaissance of them was conducted anyway to give a fresh perspective. In fact, although some steep roadway sections were

encountered, most could probably be negotiated by at least a small bus, and the condition of the roadways themselves was generally good. However, it must be said that regular bus service on the steeper roads would likely be slow and would also take its toll on the buses; it could be harrowing during periods of inclement weather and at night. Use of such corridors would have to be justified by very strong transit demand.

To gauge potential demand, the nature of abutting land uses was examined. Most of the potential corridors are in rather desolate areas, surrounded by farmland or land that is undeveloped. There are few activities in the immediate vicinity that would attract or generate transit ridership. However, it's possible that there is enough travel demand at either end of each corridor for people to want to pass through it in order to bridge the gap and access destinations in the adjacent transit service area.

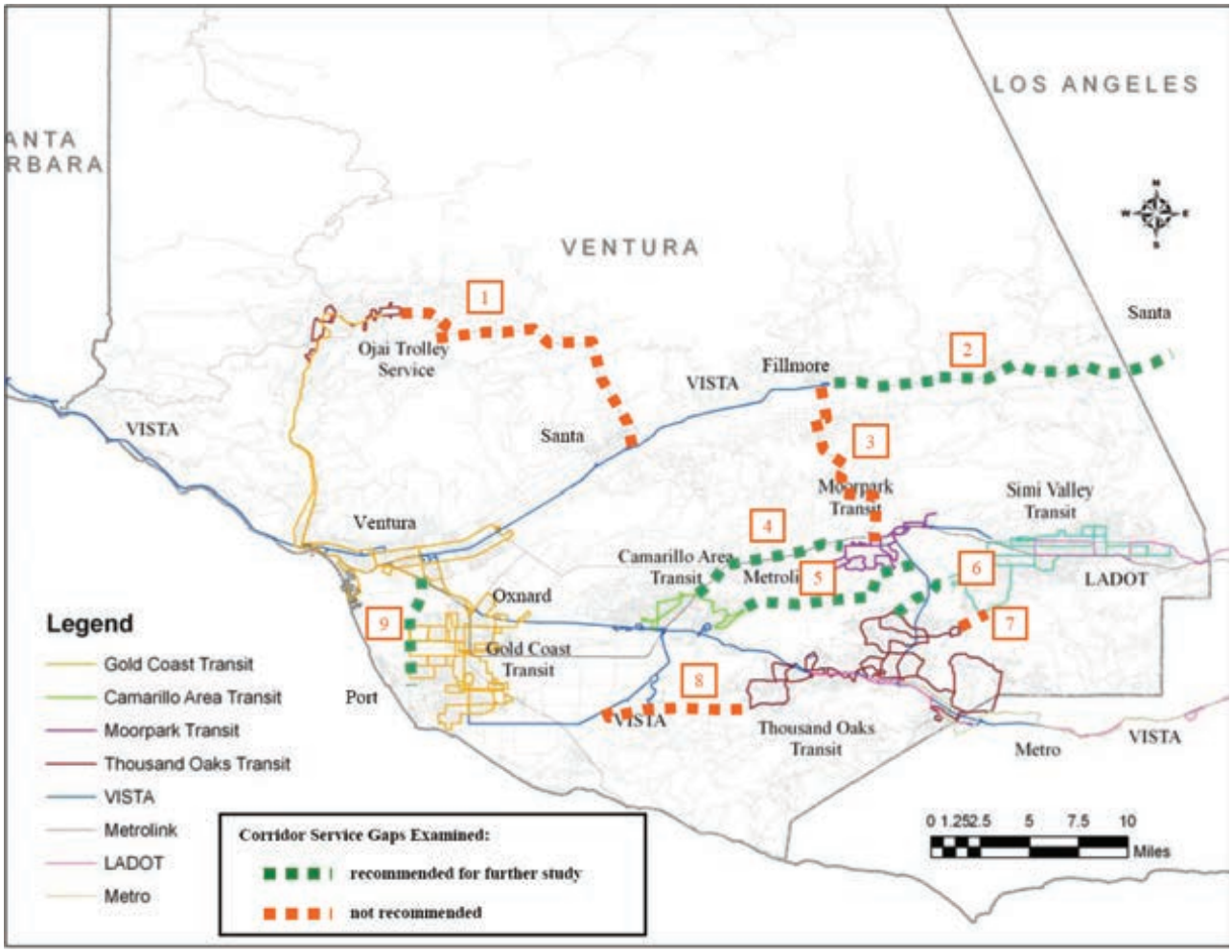


Figure 1. Ventura County Fixed-Route Bus Lines and Corridor Service Gaps

To determine the potential transit demand of each corridor for through travel, countywide travel data were sought. Total trips from one transit service area to another (even if made by automobile) could be used to judge the general magnitude of ridership that would result if transit service were available in that corridor.

Unfortunately, such data (even that from the census) were hard to come by. As a surrogate, daily traffic counts were obtained from Ventura County and Caltrans to provide a general idea of existing trip making in each corridor. Daily traffic volumes less than 10,000 were considered a sign of relatively low demand, volumes above 30,000 as relatively high, and those in between as moderate. Of course, observed usage of a road is dependent, to an extent, on its capacity. A winding two-lane highway may limit a large number of drivers from using it. However, observations in the field indicated that these roadways had generally free-flowing conditions, often at Level of Service A. While some motorists may be discouraged from using them due to grades and alignment, it did not appear that roads themselves were metering the number of cars that possibly could use them.

The conclusions from both the travel demand and physical analyses of the corridors are summarized below (keyed to the numbers shown in Figure 1):

1. Ojai-Santa Paula via State Route 150: This is a 20-mile corridor using the Ojai Santa Paula Road (some parts are called the Santa Paula Ojai Road). It traverses areas that include both flat, agricultural land, and winding, mountainous terrain. Regular operation of buses in this segment would be possible but difficult, given the grades and switchbacks involved. Daily traffic volumes of 2800 are low, indicating probable low transit demand, as well. *Recommendation: This route is one of several that were examined cursorily in spite of obvious flaws and is not recommended for further consideration.*

2. Fillmore-Santa Clarita via State Route 126: Following Telegraph Road through the Santa Clara River Valley, this 22-mile east-west corridor avoids the mountains both north and south of it, providing a level pathway east to I-5 in Santa Clarita, as well as to several employment centers there. Traffic volumes of 24,000 per day indicate moderate ridership potential, and a demand-responsive service currently connects the communities of Piru and Fillmore. *Recommendation: This corridor shows some promise as a possible bus route.*

3. Fillmore-Moorpark via State Route 23: This is a 12-mile route forming the shortest link between Fillmore/Santa Clara River Valley to the north and Moorpark/Simi Valley to the south. The terrain involves steep grades and sharp turns that are not desirable for regular transit service. Traffic volumes are relatively low, at about 7700 per day. A demand-responsive service formerly operating on this road attracted very few riders. *Recommendation: As with the first corridor examined, this route has obvious flaws and is not recommended for further analysis.*

4. Camarillo-Moorpark via Highway 118: This 12-mile east-west corridor would close the gap in transit service between Moorpark and Camarillo. It is situated on flat terrain, adjacent to farmland and railroad tracks, utilizing Somis Road and West Los Angeles Ave (Highway 118). *Recommendation: Daily traffic volumes of about 19,000 indicate potentially viable transit patronage.*

5. Camarillo-Moorpark via Santa Rosa Road: This 12-mile east-west corridor passes though largely flat land, with some residential development on streets branching off its easterly portion. Daily traffic volumes of about 19,000 are similar to those in Corridor 4. *Recommendation: This corridor offers an alternative to Corridor 4, above, for bus service between these communities.*

6. Simi Valley-Thousand Oaks via E. Olsen Road: This is a 4-mile east-west corridor centered on Olsen and Madera roads. A bus line here would provide a shorter trip for many riders than the current transfer to VISTA's East County Service using the more circuitous routing on Highways 23 and 101. Unfortunately, traffic data are not available for this corridor to gauge possible transit demand; former VISTA fixed-route service here was not very successful. *Recommendation: This corridor could be retained for consideration in future analyses to determine if conditions have changed sufficiently to make it more promising to reinstate regular transit service.*

7. Simi Valley-Thousand Oaks via North Westlake Boulevard and Circle Knoll Drive: While these areas at first appear to be connected, they are, in fact, separated by a short gap between the closest two streets (Sunset Hills Blvd in Thousand Oaks and Winncastle Street in Simi Valley). Moreover, the roadways that do exist are narrow residential streets not appropriate for standard transit buses. Given these problems, Corridor 6 (described above) would be a workable alternative to any demand for travel between these two communities. *Recommendation: This corridor need not be considered further for transit service.*

8. Oxnard-Thousand Oaks via Potrero Road: This 8-mile east-west corridor is served by a narrow roadway with some steep terrain. There are few abutting activities. Daily traffic volumes of 5200 indicate relatively low demand, and Highway 101 offers faster travel time between the two city centers of Oxnard and Thousand Oaks. *Recommendation: This corridor need not be considered further.*

9. Oxnard-Ventura via Victoria Avenue: Victoria is a wide north-south street on flat terrain. This 6-mile segment skirts the western fringe of Oxnard and Port Hueneme, and portions of it are served by terminal loops of Gold Coast Transit east-west lines. The segment between Highway 101 and W. 5th Street passes through agricultural uses, but areas to the south are rapidly developing with dense residential and some retail development. Should development occur along the more northerly segments, consideration should be made for using Victoria Avenue as an artery for a new north-south transit service to Ventura. Current traffic volumes are a high 44,000 per day, underscoring the potential for strong transit demand. *Recommendation: This corridor should be considered further for possible transit service.*

While the above analyses are not based on a highly-refined methodology, they do give an overview of the corridors holding the most promise for filling the gaps in transit service between communities. Until such time as better data are available, we recommend that corridors 2,4,5,6 and 9 be considered reasonable candidates for possible transit service. They can be a starting point for any region-wide operational study that might follow.

Unserved Areas Worthy of Consideration

A second type of gap in service is found in areas where the levels of population density are sufficient to support fixed-route transit but none is offered at the present time. There could be numerous reasons for this, such as high income levels among residents of the area, or the fact that service had been tried in the past but was unsuccessful. For the purposes of this study, a summary analysis was conducted to highlight areas where more investigation should be undertaken in the future. The results are arrayed on the map in Figure 2. It indicates that most of the higher density areas of the county are currently served (that is, within a quarter mile of a fixed bus route). There are a number of exceptions, however, indicated by the numbers on the map:

11. Ventura, east of Ventura Avenue, along Seneca Street
12. Ventura, south of Telephone Road, on either side of the railroad tracks
13. Oxnard, west of Ventura Avenue, north of Gonzales Street
14. Oxnard, west of Victoria Avenue and along Silver Strand, Hollywood Beach, and along Harbor Boulevard
15. Camarillo, south of Highway 101 and north of Pleasant Valley Road (this area does not show up on the density maps but aerial photos reveal extensive residential development)
16. Camarillo, along Lewis and Flynn roads
17. Camarillo, along Upland Road
18. Thousand Oaks, along Pederson Road (currently served by just 2 morning and 2 afternoon trips of TOT Route 2B)
19. Unincorporated County at Oak Park
20. Santa Susana Knolls, near the southeast boundary of Simi Valley (this area does not show up on the density maps but was suggested by one of the operators)

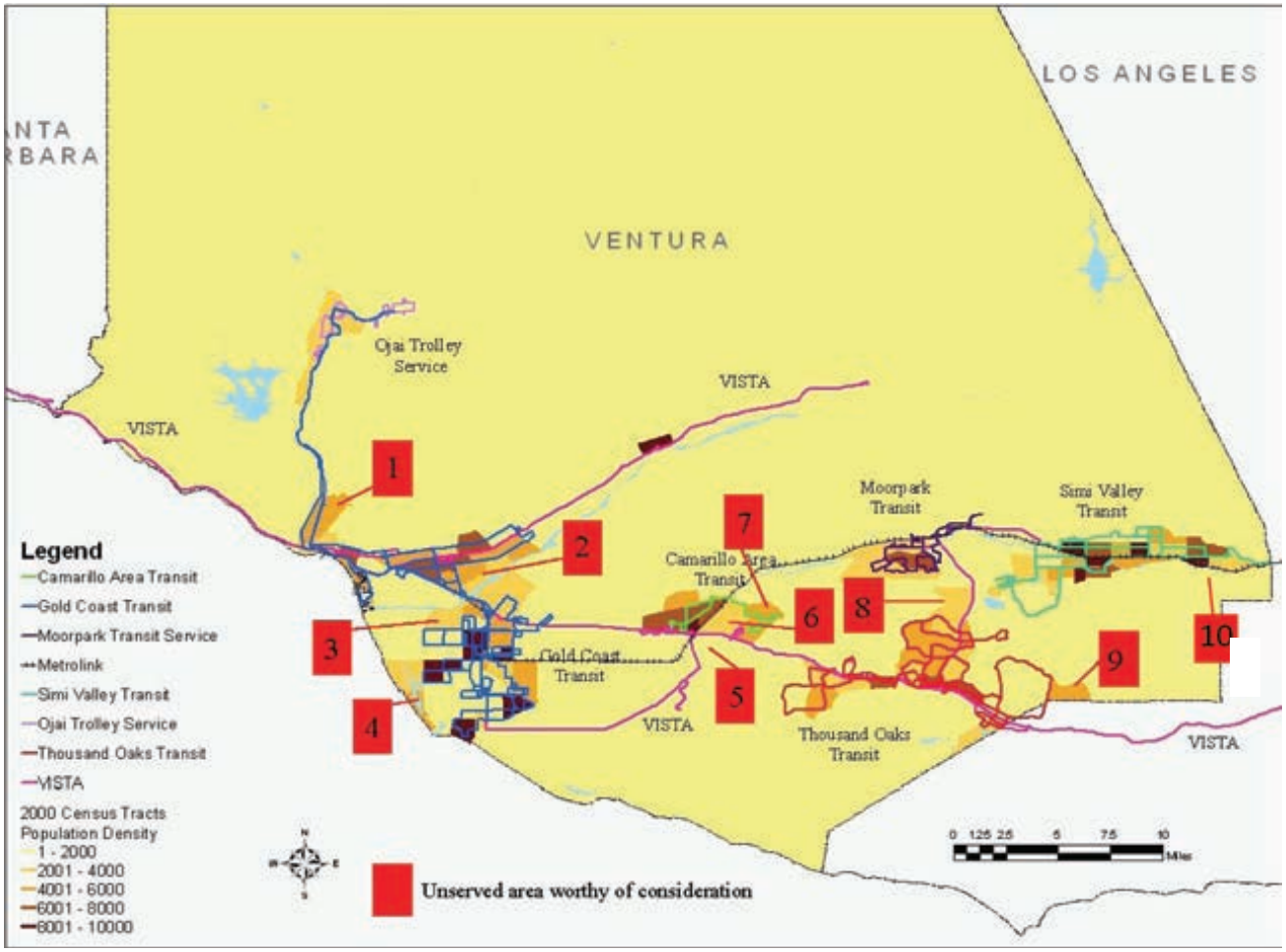


Figure 2. Population Density of Ventura County in Relation to Bus Service

All of these areas, except for 10, are served by various senior/disabled dial-a-rides. In addition, areas 4, 5, and 7 offer paratransit service for the general population. In at least one instance, area 4, the transit operator reported that the Beaches and Harbor Shuttle dial-a-ride service is considerably more cost-effective and attracts more ridership than previous fixed-route service in this location. There are no doubt other areas included in the list that have similar histories. Nevertheless, fixed-route transit service has not yet caught up with much of the new residential and commercial development. Such service, with its regularity of schedules, usually proves more attractive to discretionary riders. The ten areas discussed here should be among the first considered for such service enhancements in the future.

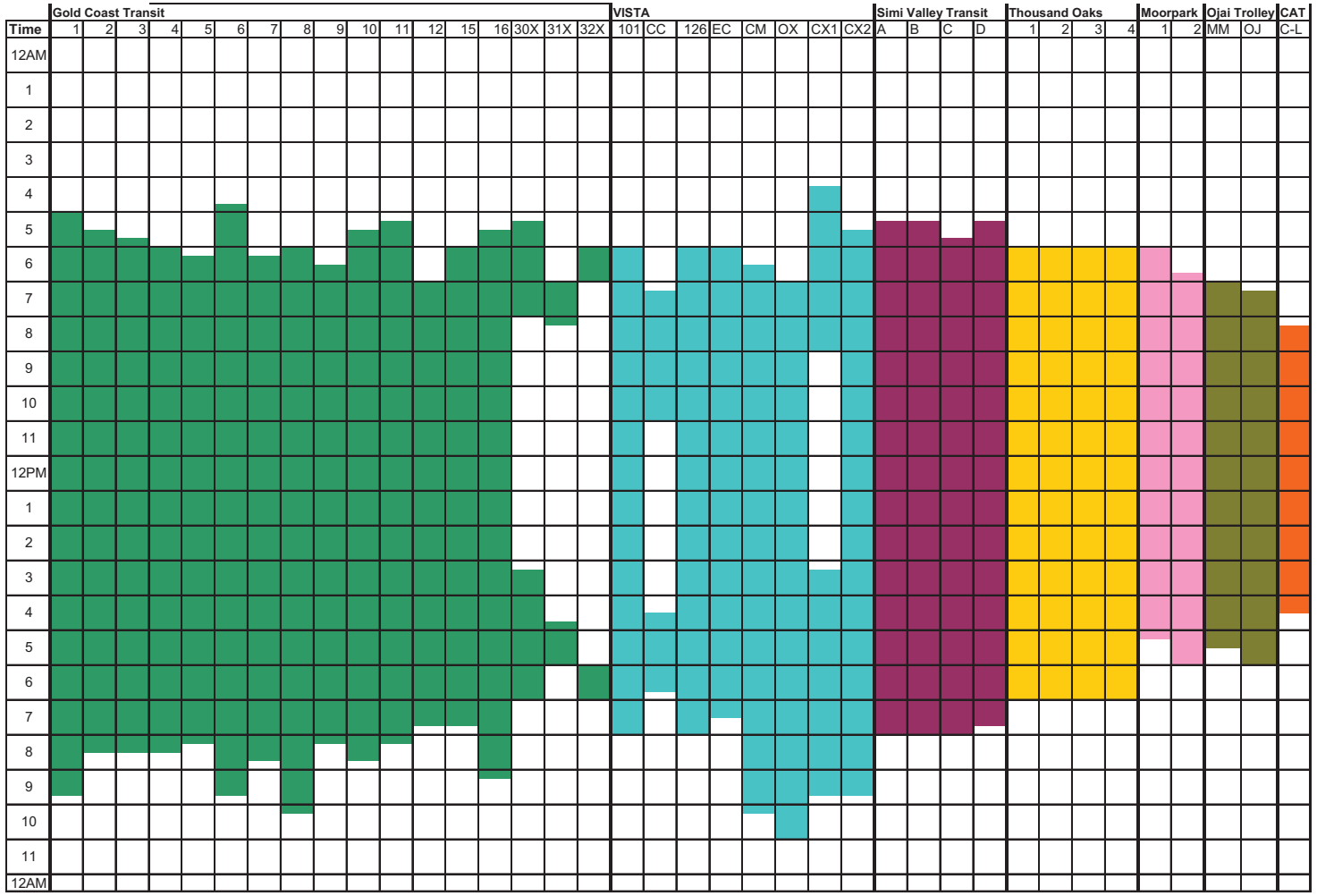
It must be noted that a weakness of this analysis is that it assumes that a location within a quarter mile walk of a bus line is "served by transit", regardless of the level of service of that bus line. In fact, many lines, like those in Camarillo and Moorpark, offer service frequencies of an hour or greater, and several do not operate in evenings or on weekends. When considered in this light, there are likely many more "gaps" in service than appear at first glance on Figure 2. This issue should be investigated in more depth if and when an operations analysis is conducted on countywide transit services.

Gaps in Span of Service

A third type of transit gap occurs when some transit lines are in service during hours that others are not. A trip that appears possible by looking at a transit map may not be in reality if a transfer is involved; if one of the lines in question has not yet started for the day or has already ended service, then a traveler would not be able to complete their trip. To get an idea of the magnitude of this gap, the spans of service of the 38 lines in the county's fixed-route bus network were laid out in charts for weekdays, Saturdays, and Sundays. As can be seen from Figures 3a through 3c, the beginning and ending of the services form a "ragged" edge, showing that not all lines are in operation simultaneously. Moreover, there are gaps midday when certain peak-hour routes are not running. On weekends, the large spaces between the bars emphasize the gaps resulting from the lack of any service at all on certain lines. (Note that each bar in these figures represents the time from the first pick-up in the morning to the last drop-off at night and, therefore, exaggerate somewhat the actual time a traveler could transfer from one line to the next. Towards the end of the day, the bus on a line shown as being in service may have already left its point of transfer with another bus, making the transfer impossible.)

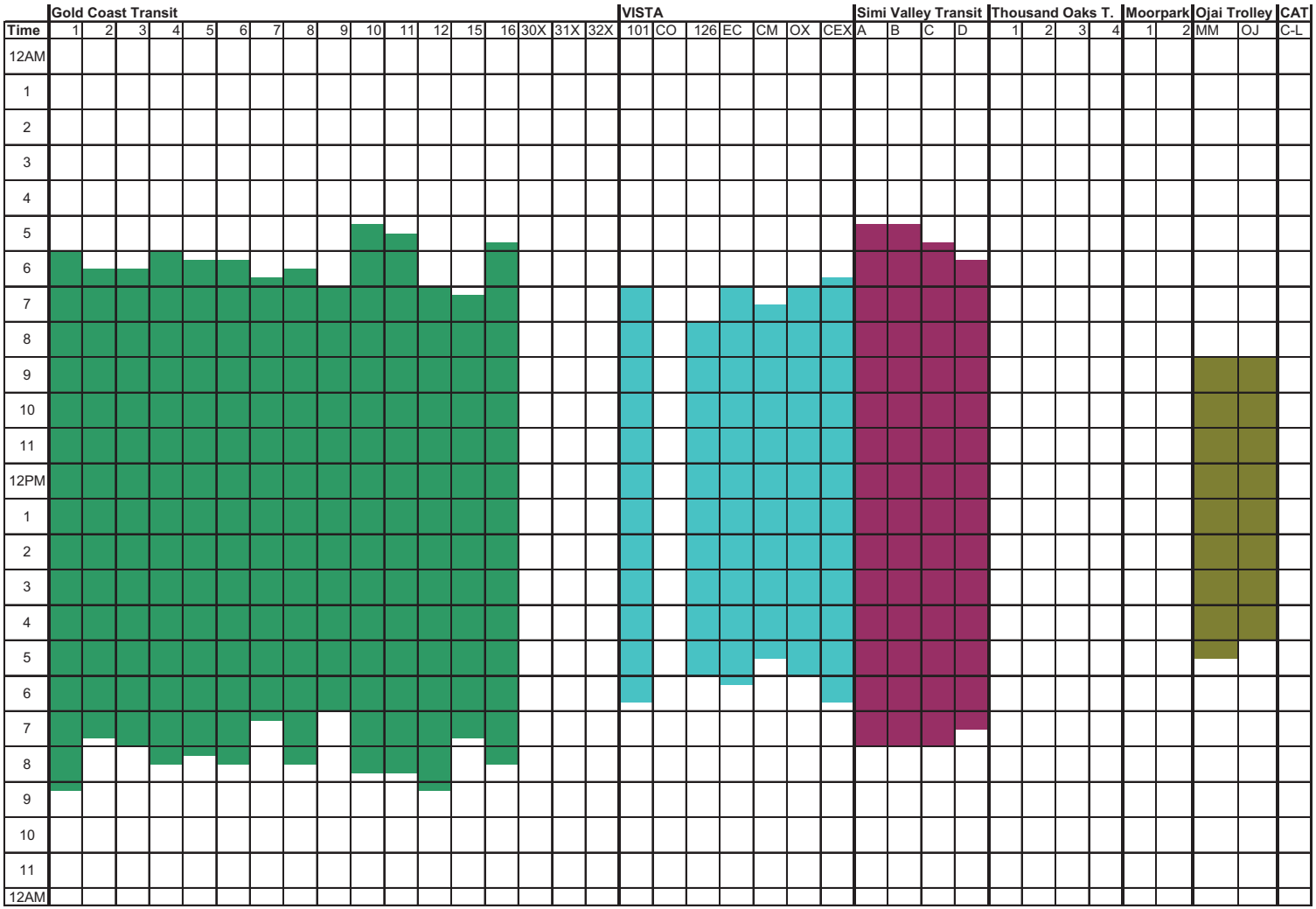
The number of lines in service at any one time is summarized in Figure 4. This figure arrays the information from Figures 3a through 3c as a cumulative total for each hour of the day. For example, at 5 AM on a weekday, only 3 lines are in service. This jumps to 26 lines by 6 AM and rises to a peak of 36 lines by 8 AM. The number of lines midday hovers around 33 to 34 until a peak of 36 lines is reached again at 5 PM, after which the number drops precipitously to 16 lines at 8 PM and 3 lines at 10 PM. On Saturdays, the maximum lines in service is only 26, and the rise and fall of service occurs over a longer period. On Sundays, only 18 lines are in service midday, with an even longer rise and fall in service.

None of these situations is unusual by themselves, as transit systems typically start and end service at different times, depending on the passenger demand on the line in question. Moreover, weekend service generally differs from that operated during weekdays. What is noticeable about Ventura County's situation is the lack of service available during the early hours when many commuters must begin their trips, and the great reduction in service on weekends. It is customary to reduce frequency during weekends, but in Ventura County, many lines are eliminated, as well. This results in no alternative for transit dependent populations unless demand-responsive service is available.



Notes:
Gold Coast Transit Route 12 ends at 9:10 during the summer.
VISTA routes include Highway 101 (101), Conejo Connection (CC), Highway 126 (126), CSUCI Camarillo (CM), CSUCI Oxnard (OX), and Coastal Express (CX).
VISTA Coastal Express (CX) 1 signifies Routes originating in Ventura and terminating in Goleta, or vice versa.
VISTA Coastal Express (CX) 2 signifies Routes originating in Ventura and terminating in Santa Barbara, or vice versa.
Ojai Trolley routes include Miramonte (MM) and Ojai (OJ).
Cabrillo Area Transit (CAT) route is the Community Center-Leisure Village (C-L) connection.

Figure 3a. Span of Service of Ventura County Bus Lines on Weekdays



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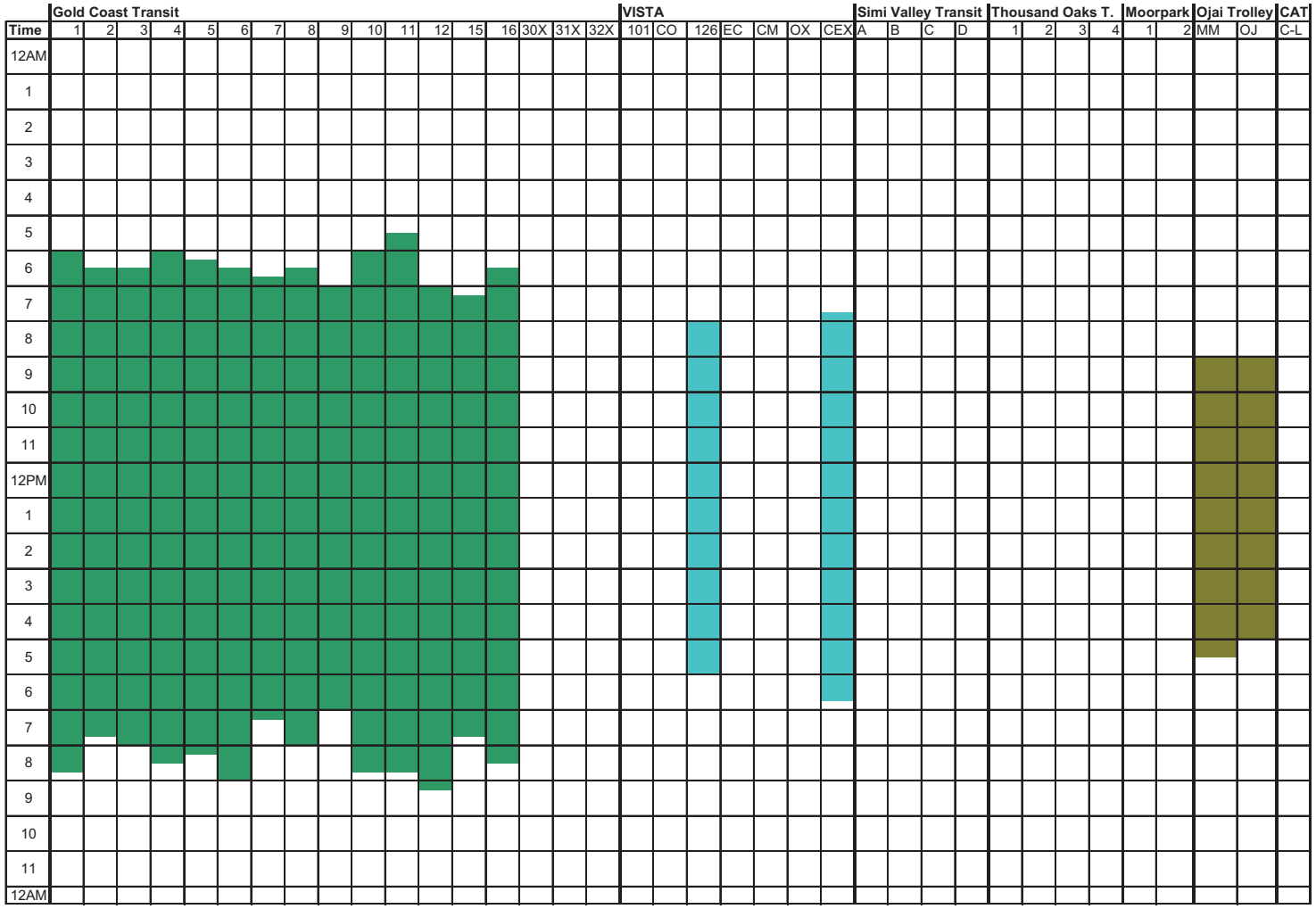
Cabrillo Area Transit (CAT) route is the Community Center-Leisure Village (C-L) connection.

Figure 3b. Span of Service of Ventura County Bus Lines on Saturdays



Notes:
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Figure 3c. Span of Service of Ventura County Bus Lines on Sundays

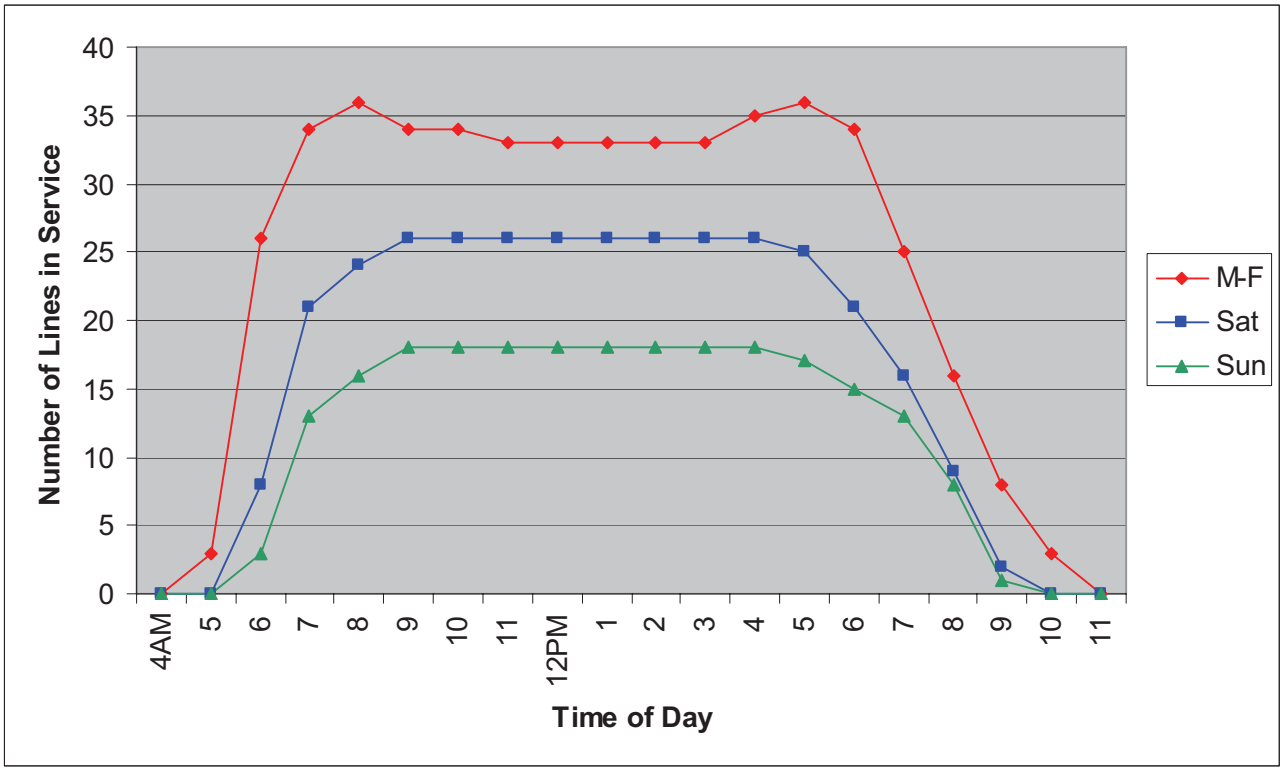

Figure 4. Cumulative Number of Bus Lines in Service at One Time in Ventura County

Gaps in Service Coordination

The fourth and final form of service gap examined by this study is that occurring when transit lines that operate to the same point do not offer convenient schedules for passengers transferring among them. While there are numerous points in the county's transit network where two or more lines cross or meet, the focus of this examination was at defined transit centers, where transfers between routes are encouraged and are most likely to occur. Three were singled out for detailed analysis: Oxnard Transit Center, Thousand Oaks Transportation Center, and Ventura Transit Center. In addition, the county's five Metrolink stations were examined to determine the degree of coordination between local buses and commuter rail. These consisted of the stations at Montalvo, Oxnard, Camarillo, Moorpark, and Simi Valley.

The results of these analyses are arrayed graphically in Figures 5a through 5h. These diagrams illustrate with colored squares or bars when different lines, bus or rail, are scheduled to be present at the station in question on a weekday from 6 AM through 12 PM or 1 PM. The diagrams are divided vertically into 5-minute intervals. Where the bars or squares overlap, it's assumed that vehicles of the lines involved are in the station simultaneously. Separate analyses were conducted for bus-to-bus and bus-to-rail transfers.

Bus-to-Bus Transfers. After the schedules were arrayed graphically, the figures were analyzed to determine which transfers could be made within a 10-minute period, as measured from the time of arrival of one bus and the time of departure of another. Ten minutes was chosen as the limit of what most passengers would

consider a "convenient" transfer (5-minutes being even more desirable but not tested). The number of convenient transfers was then divided by the number of possible transfers at the center between any two routes during that hour to derive an index of transfer convenience. (Excluded from this index were connections between an inbound and outbound bus on the same line.)

The five-minute intervals on the figures admittedly mask situations where one bus pulls out of a transit center before another bus shown in that same interval arrives. However, most bus lines have layovers at these centers, which increase their chances of overlapping with others and facilitating passenger transfers. Along this same line, some transfers may be too tight, with one bus arriving just seconds before another departs. It was assumed in the case of bus-to-bus transfers that passengers could flag drivers that were about to depart and still make their transfer. Comparisons of transfers made during the peak (6:00 AM-8:59 AM) versus off-peak portions of the survey period revealed no significant difference in transfer convenience.

The portion of bus-to-bus transfers at the three transit centers that could be considered convenient, using the technique described above, is summarized below:

Oxnard Transit Center	107 out of 432 possible transfer movements (about 25%)
Thousand Oaks Transportation Ctr.	48 out of 298 possible transfer movements (about 16%)
Ventura Transit Center	92 out of 481 possible transfer movements (about 19%)

Overall, approximately one fifth of the possible route-to-route transfers at these centers can be considered convenient. This figure should be considered optimistic, as it was based on the assumption that a passenger could transfer between two routes with very close arrival and departure times. Moreover, a 10-minute maximum transfer wait was assumed. In reality, transit systems employing timed transfers aim for a 3- to 6-minute window for transfers, as waits much longer than these are felt to be time wasted by riders with a choice of mode. This point is critical for understanding why ridership levels are not higher today and how to attract choice riders to the county's transit system in the future.

A couple of caveats about this analysis are in order. First, there may be locations on the network other than transit centers where certain bus lines make more convenient transfers. For example, several bus operators reported that connections between VISTA and TOT buses were better at The Oaks shopping mall than at the Thousand Oaks Transit Center. There are no doubt other areas where this kind of situation prevails. Travelers would have to learn this information by careful analysis of timetables, consultation with transit information operators, or word-of-mouth from other bus riders. Otherwise, transit centers are the most likely places where new or infrequent riders would choose to make transfers. Secondly, more detailed study should be performed in the future that prioritizes transfers, with those serving major and intercity trip movements receiving greater emphasis.

<u>Bus-to-Rail Transfers</u>. For bus-to-rail transfers, somewhat different parameters were used. This is because these transfers generally require more time on the part of passengers. The distance between bus and train platforms involves a somewhat longer walk than the bus-to-bus transfers at the transit centers listed above.

A transferring passenger's pathway across the tracks may be blocked while a train is in the station. Moreover, infrequent rail riders may have to purchase a ticket before boarding the train. For these reasons, a more precise schedule analysis was undertaken. In this case, a bus arrival (its scheduled time, not the 5-minute interval on the figure) had to occur no more than 12 minutes and no less than 4 minutes in advance of a train departure. The period examined was 6:00 AM to 11:59 AM, as there are no trains scheduled during the period from noon to 12:59 PM. Since this analysis included only the morning period, the focus was on buses arriving in time to meet southbound trains heading for Los Angeles. The results are summarized below:

Montalvo Station	Of 2 southbound rail departures during this period, none were conveniently served. There was only one bus arrival (of Route 6A on Bristol Road) during the hour when the two morning rail trips departed.
Oxnard Transit Center	Of 4 southbound rail departures during this period, 3 were conveniently served: the 6:59 train was served by 6 bus arrivals, the 7:37 train by 3 bus arrivals, and the 10:11 train by 2 bus arrivals (a total of 11 bus arrivals out of 37 bus arrivals during the hours when trains departed). [Neither of the 2 northbound rail arrivals during this period was conveniently served by a bus departure.]
Camarillo Station	Of 4 southbound rail departures during this period, 1 was conveniently served: the 6:30 train was served by 1 bus arrival (out of 14 bus arrivals during the hours when trains departed). [One of the 2 northbound rail arrivals during this period was conveniently served by 1 bus departure.]
Moorpark Station	Of 5 southbound rail departures during this period (excluding the 6:03, which would have been fed by buses in the previous time slot), 2 were conveniently served: the 6:41 and 8:26 trains each were served by a single bus arrival (a total of 2 bus arrivals out of 18 possible bus arrivals during the hours when trains departed). [None of the 3 northbound rail arrivals during this period was conveniently served by a bus departure.]
Simi Valley Station	Of 7 southbound rail departures during this period, 4 were conveniently served: the 6:53 and 7:32 trains each were served by a single bus arrival, while the 8:22 and 8:39 trains each were served by 2 bus arrivals (a total of 6 bus arrivals out of 31 possible bus arrivals during the hours when trains departed). [Each of the 3 northbound rail arrivals during this period was conveniently served by a singe bus departure.]

Conclusions

A number of gaps in Ventura County's transit network have been identified. These should be examined in more depth in a future study. At the present time, there are at least five corridors with the potential to

close service gaps between areas already served by transit. Within the served areas, ten sub-areas show promise for fixed-route bus service, though further study may justify dial-a-ride or flex-route service instead.

At strategic points in the network where services converge, such as transit centers and commuter rail stations, most lines are not scheduled to provide convenient transfers. This is likely due to (a) the need to schedule meets elsewhere on a particular line or (b) the desire by operators to maximize the efficiency of each bus by minimizing layovers. Ironically, building in layover time to allow for better timed meets would result in a more attractive service, likely leading to greater ridership and an increase in the overall effectiveness of the system. This is, perhaps, the single most effective measure to increase ridership among the county's transit providers.

Finally, it must be noted that there are always trade-offs in transit planning between increasing the efficiency of a service and increasing its effectiveness. Some actions can increase both, but more often choices have to be made in one direction or the other. Much of today's transit service in Ventura County is the result of these kinds of decisions made incrementally over the years. It is wise to revisit such decisions periodically to determine if a change in direction is warranted. This high-level analysis of gaps has pointed out some areas in which there is potential for improvement, but it should be followed by a detailed analysis of routing and scheduling to develop more definitive recommendations.

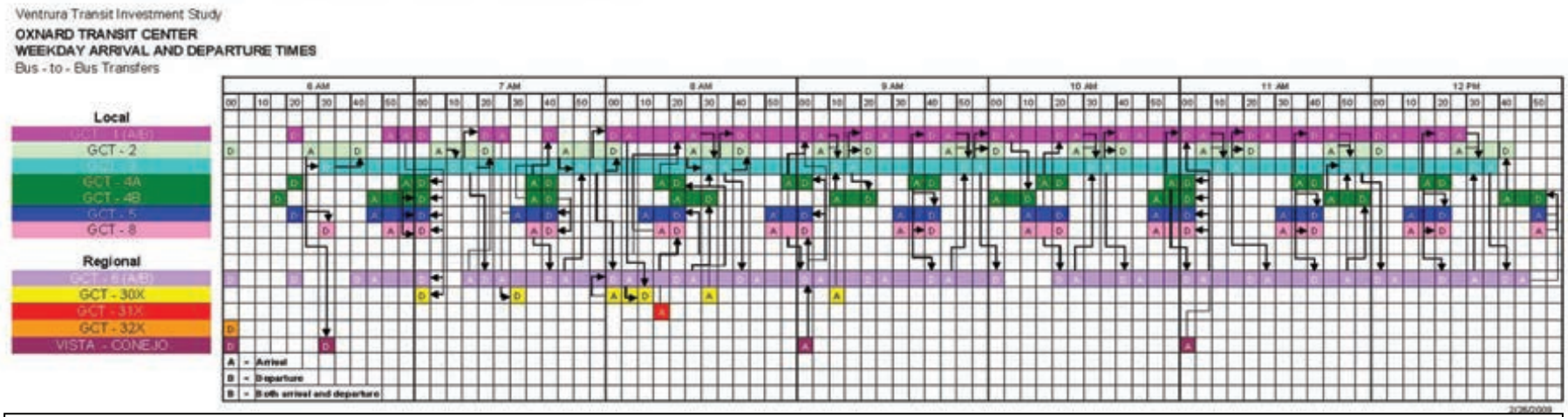

Figure 5a. Bus-to-Bus Transfers: Oxnard Transit Center

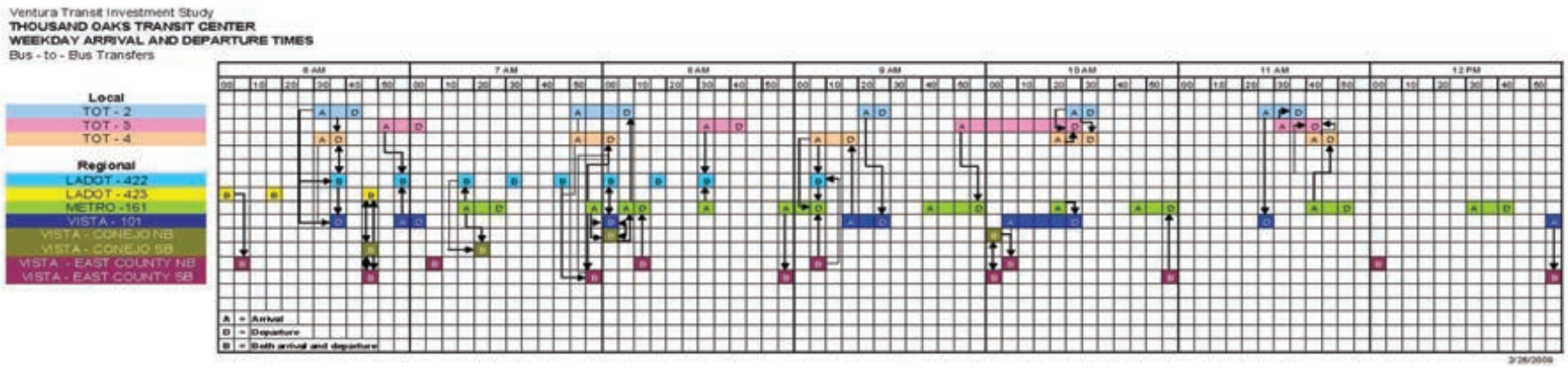

Figure 5b. Bus-to-Bus Transfers: Thousand Oaks Transportation Center

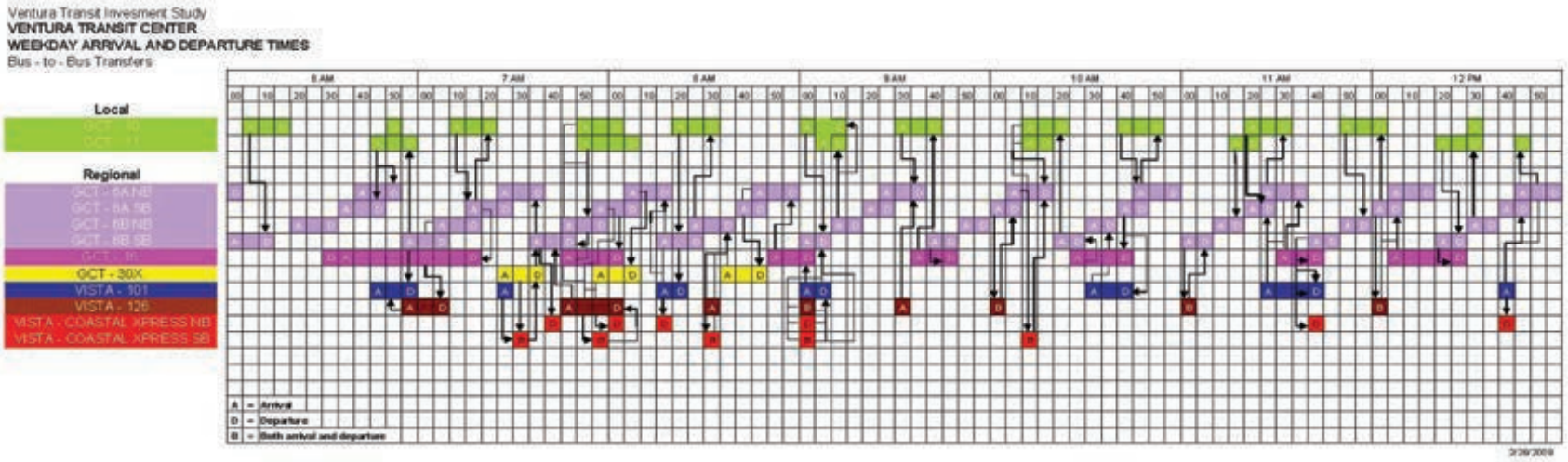

Figure 5c. Bus-to-Bus Transfers: Ventura Transit Center

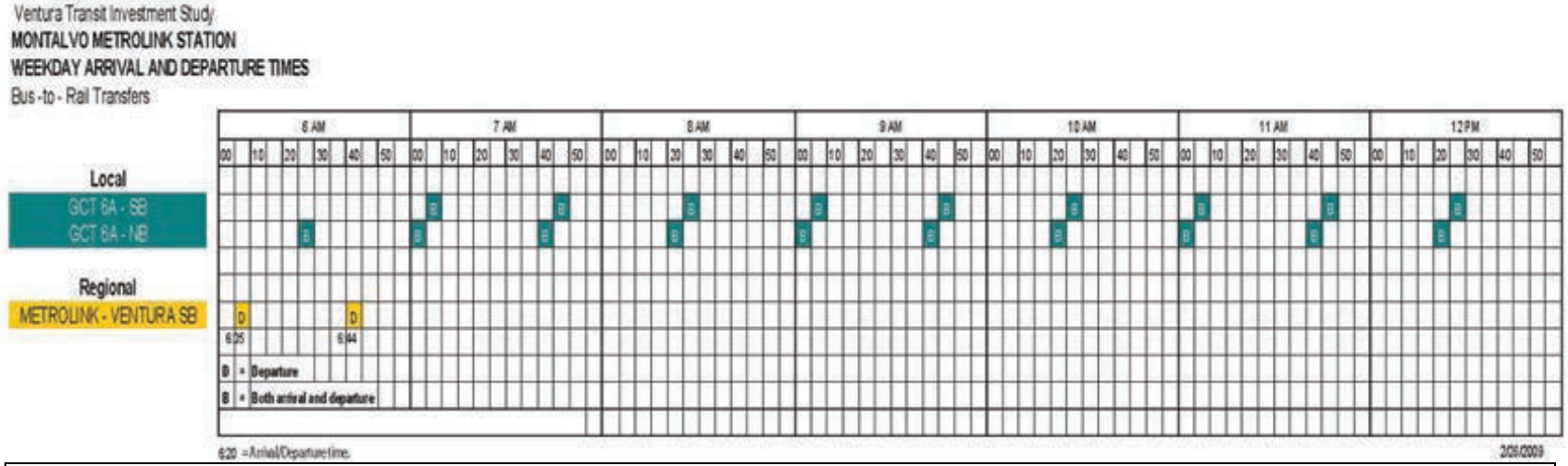

Figure 5d. Bus-to-Rail Transfers: Montalvo Station

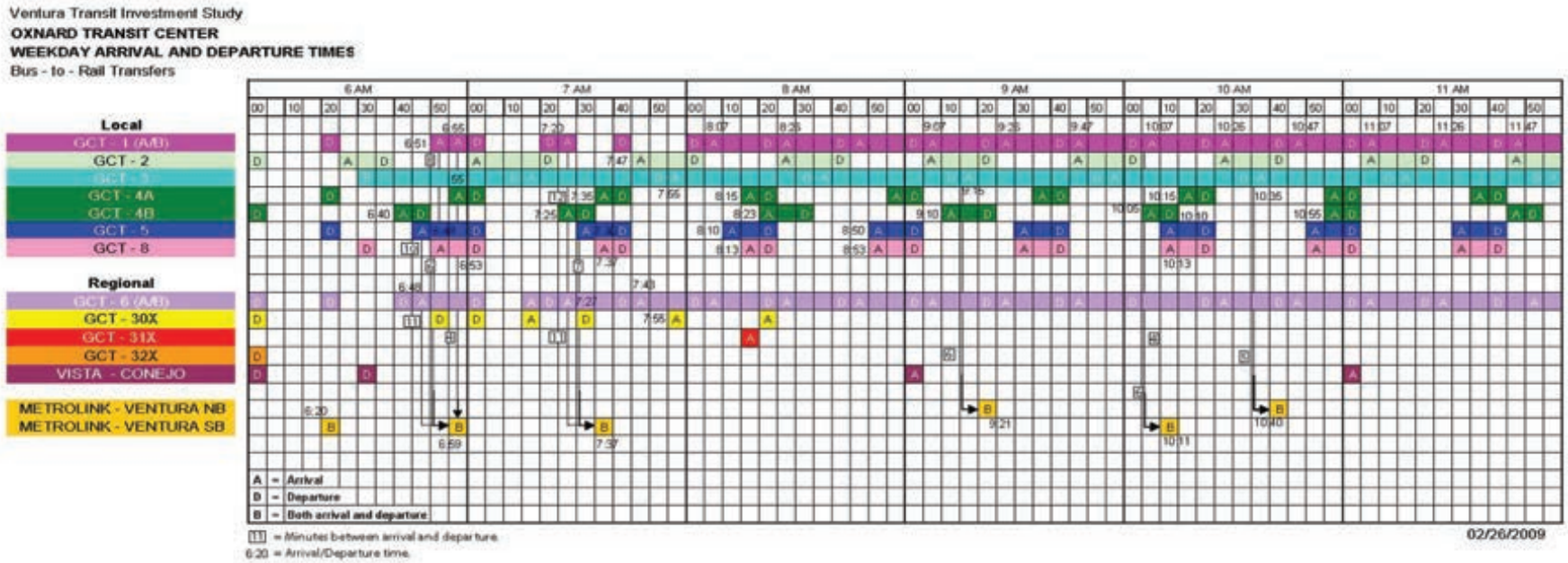

Figure 5e. Bus-to-Rail Transfers: Oxnard Station

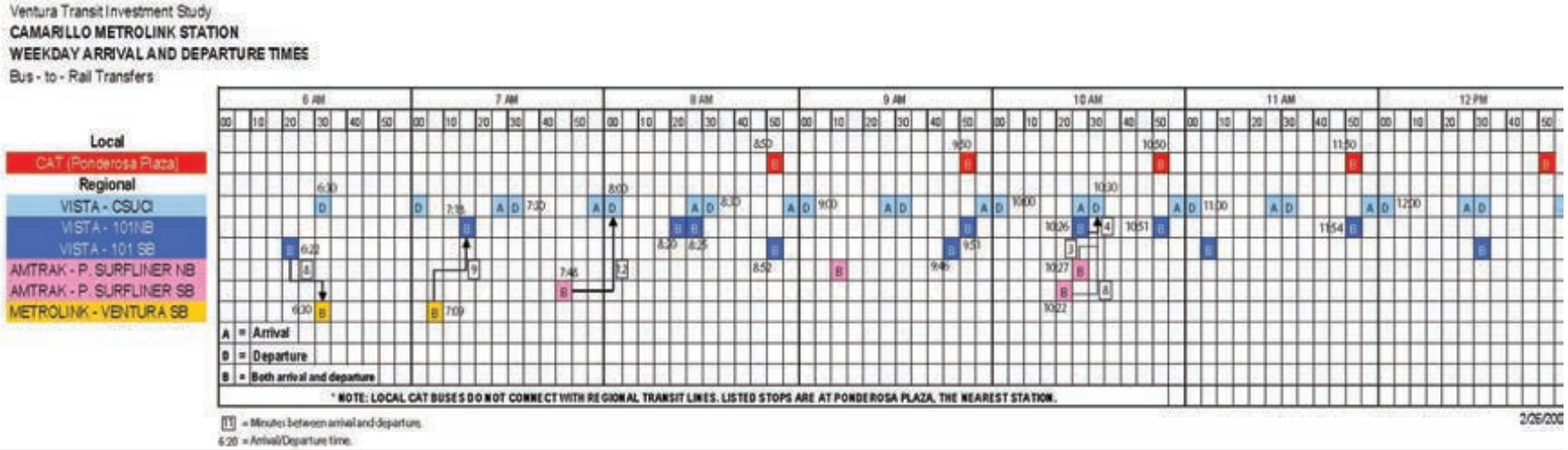

Figure 5f. Bus-to-Rail Transfers: Camarillo Station

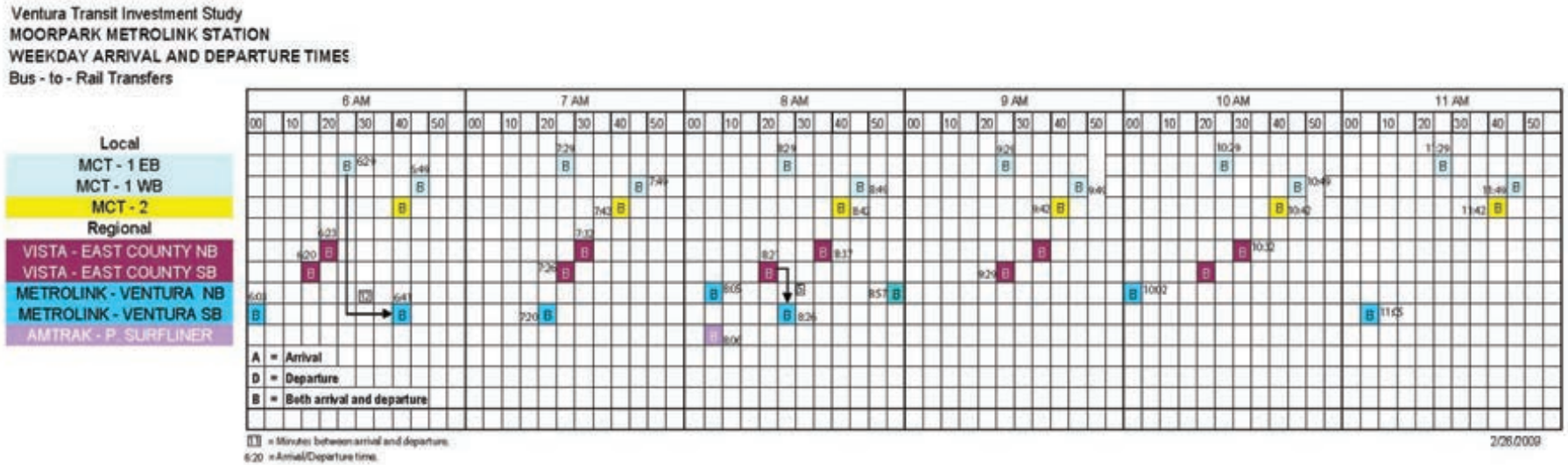

Figure 5g. Bus-to-Rail Transfers: Moorpark Station

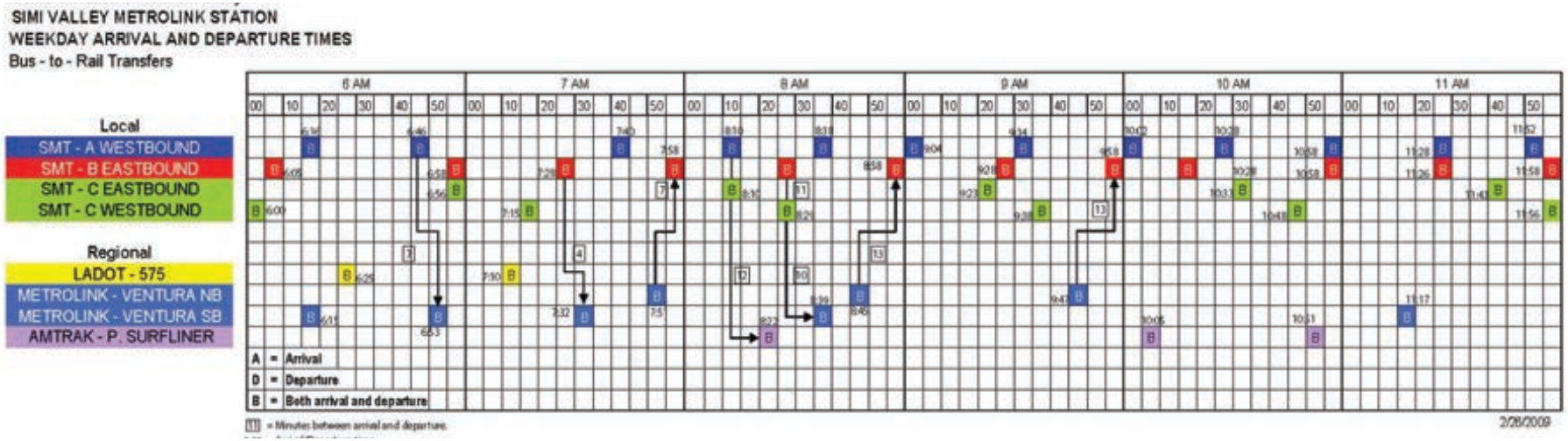

Figure 5h. Bus-to-Rail Transfers: Simi Valley Station

Appendix C

Project Evaluation Process

PROCEDURE FOR EVALUATING PROPOSED CAPITAL PROJECTS BY THE VENTURA COUNTY TRANSPORTATION COMMISSION'S TRANSPORTATION OPERATORS ADVISORY COMMITTEE (TRANSCOM)

The intent of this procedure is to lay out the process of evaluating potential capital improvement projects for the various transit agencies in Ventura County. The procedure outlines the steps for defining a proposed project to enable a structured evaluation, the criteria for evaluation, and the means for conducting the evaluation. At the heart of the procedure is building consensus among the transit operating agencies on priorities for capital funding that will not only affect their particular jurisdictions, but will also contribute to improved service and mobility for all residents of the county.

STEP 1. Defining a Proposed Project

In order for the evaluation criteria (described in Step 2) to be applied, a proposed project must be adequately defined. Proponents should use the criteria as a guideline for describing the needs to be met, features of a proposed capital investment, specific benefits for the local jurisdiction and other jurisdictions in maintaining or improving transit services, etc., much as one would do for a grant application or for a new budget item. Keep in mind that in Step 3, the proposed project will be reviewed by other transit operating agencies and that the project proponent will need to verbally "defend" their proposal. The more clearly the project description spells out what and why capital funds are being sought, as well as the expected results, the easier it will be for TRANSCOM members to conduct the evaluation and reach consensus on funding priorities. This consensus position will like give more weight to recommendations from TRANSCOM to the VCTC Board and other agencies.

STEP 2. Evaluation Criteria

A three-level set of evaluation criteria was developed in consultation with TRANSCOM members in December 2008 and January 2009. Within the following template, these have been organized based on the priorities established by TRANSCOM as: Table 1, Primary Evaluation Criteria, Table 2 Secondary Evaluation Criteria, and Table 3 Other Considerations. The first two table focus on transit benefits and issues, while Table 3 is useful in defining the relationship between a proposed project and other issues. For Table 3, weightings are optional and can be assigned if needed to help proponents address local issues and advocate for a project.

While initially developed to prioritize applications for state funding under Proposition 1B, the criteria can be applied for other types of funding. The issues/examples listed for each of the criteria are not intended to be limited, but to provide a frame of reference for assessing a proposed project's characteristics, benefits, and constraints. Any of the cells in the criteria matrix can be modified as appropriate. For example, criteria wording can be modified or added to by proponents to more clearly respond to specific requirements for a particular source of funds. The weightings for the individual criteria and the point range shown in the template can be modified by the TRANSCOM as needed.

Responses to the criteria can be qualitative, based on professional judgment. Quantitative data to support rankings should be provided, or referenced, if available.

TEMPLATE: BASELINE EVALUATION MATRIX

TABLE 1: PRIMARY EVALUATION CRITERIA				
PRIMARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-3)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** ***(choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
1. Mandated Improvements	1	Required for ADA compliance		
	2	Required for air quality compliance		
	3	Necessary to support legislative mandates or contractual obligations		
	1	Desirable to support legislative mandates		
	3	Fulfills unmet transit needs		
	1	Required safety improvements		
		Other		
2. Preservation of Current Levels of Service	3	For transit arterials, provides new improvements or maintenance at bus stops/rail stations		
	2	Addresses scheduled replacements or vehicles.		
	1	Transportation control devices along transit routes/rail lines		
	1	Improves the condition of the sidewalks and streets within 250 feet of a bus stop or rail station.		
	1	Supports projects already designated for improvement.		

TABLE 1: PRIMARY EVALUATION CRITERIA				
PRIMARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-3)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** (***choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
	1	Reduces the backlog of deferred maintenance of sidewalks and streets used for transit.		
		Other		
3. Expansion of Transit Service (including shorter headways)	3	Improves current access to and from local and/or regional transit stops and rail stations.		
	3	Serves/Connects current activity centers (e.g., employment, educational facilities, medical centers, shopping hubs, sporting venues, etc.).		
	3	Adds or improves connectivity to other local and/or regional transit services.		
	1	Serves anticipated growth in transit demand (e.g., in a specific region) - what time horizon?		
	2	Improves speed and reliability of transit vehicles.		
	2	Improves bus stop/rail station performance for buses, such as reducing transfer time.		
	3	Likely to increase the percentage of trips made by transit and reduce the percentage by automobile.		
	3	Provides new/improved service during peak hours.		
	2	Provides new/improved		

TABLE 1: PRIMARY EVALUATION CRITERIA				
PRIMARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-3)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** (***choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
		service during off-peak hours.		
	3	Fulfills a new, unmet transit need.		
	2	Meets needs of special population group		
		Other		
4. Financial Sustainability	3	Provides matching funds		
	3	Effects on fares and operating costs.		
	2	Availability of ongoing operating funds.		
	1	Likelihood for additional operating funds.		
	2	Availability of ongoing staff to implement.		
	1	Likelihood for additional staff.		
	1	Degree to which need for other funding is increased.		
	1	Degree to which need for other funding is decreased.		
		Other		
5. Readiness	2	Ability to procure in a timely manner.		
	1	Status of design (if applicable).		
	1	Need to implement in phases		
		Other		
			TOTAL PRIMARY SCORE	

TABLE 2: SECONDARY CRITERIA				
SECONDARY CRITERIA ***(initially ranked in order of importance by TRANSCOM in December 2008; modify as appropriate)***	**WEIGHTS** ***(Optional; suggested range: 1-2)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** (***choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
6. Non-transit influences	1	Critical to other city projects/ priorities		
	1	Supportive/desirable for other city projects/priorities.		
		Other		
7. Other	1	Criteria specified by funding program (if applicable and not listed elsewhere above)		
8. Bonus Points	2	1 point for each additional operating agency that would be served		
		Other		
			TOTAL SECONDARY SCORE	

TABLE 3: OTHER CONSIDERATIONS				
CRITERIA ***(no priority order)***	**WEIGHTS** ***(Optional; suggested range: (1-2)***	**SAMPLE CRITERIA/ THINGS TO CONSIDER** **(*choose from among these as appropriate for the types of projects/ funding being evaluated; add other criteria as needed)***	**POINTS** **0-5** ***(modify as appropriate)***	**SCORE** ***(Weight multiplied by Points for those criteria chosen for use in an evaluation)***
Improvements to Ride Quality		Improves quality of transit stops, including comfort and convenience.		
		Improves information provided to users.		
Safety/Security		Eliminates or reduces a specific safety/security hazard.		
		Supports general or systemwide safety/security improvements.		
Community Impacts		Negative and positive effects, including air quality, noise, traffic, property acquisitions, and "going green".		
		Community support/opposition.		
Compatibility /conflict with Regional and Local Plans		Part of an adopted transportation plan (e.g., congestion management, etc.).		
		Supports an adopted or pending transportation plan.		
		Supports community and economic development, business functionality, and creation or retention of employment.		
		Provides or increases access to business districts and/or employers.		
		Provides infrastructure or service to support new employment.		

TABLE 3: OTHER CONSIDERATIONS				
		Is a required mitigation measure.		
		Supports local land use or transit-oriented development.		
Strategic		Necessary predecessor for subsequent projects.		
		Desirable predecessor for subsequent projects.		
			TOTAL SCORE	

This template should be reviewed for its applicability to a proposed funding source, and adjustments made to address any specific requirements of that source. The list of sample criteria is broad enough that such adjustments should be readily accommodated within the “Sample Criteria/Things to Consider” cells. Similarly, any specific priorities or weightings accompanying a funding source can be reflected in adjustments within the “Weight” or “Points” cells. Criteria that are not applicable or appropriate for the specific evaluation being undertaken could be struck out or marked as ‘not applicable’.

STEP 3. Conducting the Evaluation

Here are the steps for carrying out a typical evaluation.

1. Review the eligibility and evaluation requirements for the source of funds. Develop a checklist of all items that need to be included in the project description. Modify the evaluation matrix as appropriate. Define the timeline and other ground rules for completing the prioritization process. *Responsible party: VCTC Staff*

2. Prepare a project description and complete an evaluation form; label this set as Proponent's Initial Request for Funding and Self-Evaluation. Include any support information that will facilitate the TRANSCOM review. This is the opportunity for the proponent to test their proposed project against the criteria and to perhaps make adjustments to increase the score. *Responsible party: Project Proponent*

3. Submit the Initial Request for Funding, supporting materials, Self-Evaluation and a blank evaluation form to other members of TRANSCOM. *Responsible parties: Project Proponent submits the Initial Request for Funding and supporting materials to VCTC staff for distribution, along with blank evaluation forms, to TRANSCOM.*

4. Review the proponent's package and score it against the evaluation criteria. *Responsible party: TRANSCOM members.*

5. Meet to review the scorings of the proponent and TRANSCOM members. Working in consultation, TRANSCOM will reach consensus on point scoring for the proposed projects. If projects must be prioritized, TRANSCOM members will use the consensus score as the initial ranking. The initial rankings will be reviewed and discussed and TRANSCOM will determine a final ranking. *Responsible parties: TRANSCOM with VCTC staff assistance.*

6. Prepare a recommendation to the VCTC Board (or other agency as appropriate) covering the prioritization of projects for specific funding sources. As appropriate, describe or summarize this procedure to explain how priorities were established. *Responsible party: VCTC staff, with TRANSCOM concurrence.*

7. Periodically conduct a review of this procedure and revise it accordingly. *Responsible parties: TRANSCOM and VCTC staff.*

Appendix D

Spreadsheet Transit Model Documentation

VCTC Simple Ridership Forecast Model

Instructions

RIDERSHIP ESTIMATE SHEET

User Inputs:

User can change and provide inputs in all areas shaded in yellow.

The User needs to enter data on the following characteristics for each route:
- Column A: Name of Transit Agency administering route
- Column B: Route name
- Column C: Route Day Type service days associated with this route breakdown
- Column D: Current ridership consistent with Route Day Type - *Required*
- Column E: Current headway in minutes - *Required*
- Column F: New headway in minutes - *Required*

The required fields must be completed before model can produce an outputs.

The User needs to answer Yes or No to the following questions for each route:
- Column G: Will majority of the route serve a growing economic environment?
- Column H: Will majority of the route serve middle and high income areas?
- Column I: Will majority of the route serve walkable areas?
- Column J: Will the route have timed transfers at major transfer points?

SHEET PROTECTION

All sheets are sheet protected to prevent from changing assumptions, formulas and formats. If details need to be changed please contact the Ventura County Transportation Commission.

Data Type	Average Daily Passenger Boardings	User can only complete areas shaded in yellow.
Current Data Month	March	* indicates field required for output calculation.
Current Data Year	2009	

Operator	Route Name	Day Type	Current Boardings *	Current Headway *	New Headway *	Med/high Income ?	Growing Economy?	Walkable?	Timed Transfers?	Potential Ridership	Potential % Change
Sample Transit	*Sample Route*	*Sun*	*200*	*60*	*15*	*Yes*	*Yes*	*No*	*Yes*	***626***	***213%***
Gold Coast Transit	GCT 10-11: SATICOY	Sun	145	30	20	Yes	Yes	Yes	No	**178**	**23%**
Gold Coast Transit	GCT 10-11: SATICOY	Sat	168	30	20	Yes	Yes	Yes	Yes	**216**	**29%**
Gold Coast Transit	GCT 10-11: SATICOY	M-F	380	30		Yes			No		
Gold Coast Transit	GCT 11-10: SATICOY	Sun	167	30		Yes	Yes	Yes	Yes		
Gold Coast Transit	GCT 11-10: SATICOY	Sat	182	30	20	Yes	No	Yes	No	**214**	**18%**
Gold Coast Transit	GCT 11-10: SATICOY	M-F	350	30	20	No	Yes	Yes	Yes	**431**	**23%**
Gold Coast Transit	GCT 12: VENTURA HARBOR	Sun	18	45	30	Yes	No	Yes	No	**23**	**26%**
Gold Coast Transit	GCT 12: VENTURA HARBOR	Sat	62	45	30	Yes	Yes	Yes	Yes	**90**	**47%**
Gold Coast Transit	GCT 12: VENTURA HARBOR	M-F	46	45	30	Yes	No	Yes	No	**58**	**26%**
Gold Coast Transit	GCT 15: EL RIO/NORTHEAST	Sun	90	35	30	Yes	Yes	Yes	No	**100**	**11%**
Gold Coast Transit	GCT 15: EL RIO/NORTHEAST	Sat	106	35	30	No	No	Yes	Yes	**124**	**17%**
Gold Coast Transit	GCT 15: EL RIO/NORTHEAST	M-F	170	35	30	Yes	Yes	Yes	No	**189**	**11%**
Gold Coast Transit	GCT 16N: OJAI-MAIN ST (NB)	Sun	375	20	30	No	No	Yes	No	**359**	**-4%**
Gold Coast Transit	GCT 16N: OJAI-MAIN ST (NB)	Sat	366	20	15	Yes	Yes	Yes	Yes	**397**	**9%**
Gold Coast Transit	GCT 16N: OJAI-MAIN ST (NB)	M-F	569	20	15	No	No	No	No	**583**	**2%**
Gold Coast Transit	GCT 16S: OJAI-MAIN ST (SB)	Sun	157	20	30	Yes	No	Yes	No	**147**	**-6%**
Gold Coast Transit	GCT 16S: OJAI-MAIN ST (SB)	Sat	289	20	150	Yes	No	Yes	No	**245**	**-15%**
Gold Coast Transit	GCT 16S: OJAI-MAIN ST (SB)	M-F	256	20	150	Yes	No	Yes	No	**217**	**-15%**
Gold Coast Transit	GCT 18AA - Oxnard High Tripper	M-F	56	1440	1440	Yes	Yes	yes	Yes	**64**	**15%**
Gold Coast Transit	GCT 18AB - Oxnard High Tripper	M-F	25	1440	1440	Yes	No	yes	No	**25**	**0%**
Gold Coast Transit	GCT 18BA - Oxnard High Tripper	M-F	25	1440	1440					**25**	**0%**
Gold Coast Transit	GCT 18BB - Oxnard High Tripper	M-F	15	1440	1440					**15**	**0%**
Gold Coast Transit	GCT 18CA - Oxnard High Tripper	M-F	12	1440	1440					**12**	**0%**
Gold Coast Transit	GCT 18CB - Oxnard High Tripper	M-F	14	1440	1440	Yes	No	Yes	Yes	**16**	**15%**
Gold Coast Transit	GCT 18DA - Oxnard High Tripper	M-F	25	1440	1440					**25**	**0%**
Gold Coast Transit	GCT 18DB - Oxnard High Tripper	M-F	16	1440	1440					**16**	**0%**
Gold Coast Transit	GCT 18EA - Oxnard High Tripper	M-F	5	1440	1440					**5**	**0%**
Gold Coast Transit	GCT 18EB - Oxnard High Tripper	M-F	10	1440	1440					**10**	**0%**
Gold Coast Transit	GCT 18FA - Oxnard High Tripper	M-F	30	1440	1440					**30**	**0%**
Gold Coast Transit	GCT 18FB - Oxnard High Tripper	M-F	24	1440	1440					**24**	**0%**
Gold Coast Transit	GCT 1A - PORT HUENEME-OTC	Sun	291	20							
Gold Coast Transit	GCT 1A - PORT HUENEME-OTC	Sat	470	20							
Gold Coast Transit	GCT 1A - PORT HUENEME-OTC	M-F	769	20							
Gold Coast Transit	GCT 1B: PORT HUENEME-OTC	Sun	615	20							
Gold Coast Transit	GCT 1B: PORT HUENEME-OTC	Sat	749	20							

Data Type	Average Daily Passenger Boardings	User can only complete areas shaded in yellow.
Current Data Month	March	* indicates field required for output calculation.
Current Data Year	2009	

Operator	Route Name	Day Type	Current Boardings *	Current Headway *	New Headway *	Med/high Income ?	Growing Economy?	Walkable?	Timed Transfers?	Potential Ridership	Potential % Change
Sample Transit	*Sample Route*	*Sun*	*200*	*60*	*15*	*Yes*	*Yes*	*No*	*Yes*	***626***	***213%***
Gold Coast Transit	GCT 1B: PORT HUENEME-OTC	M-F	801	20							
Gold Coast Transit	GCT 2-3: COLONIA & SOUTHSIDE	Sun	275	40							
Gold Coast Transit	GCT 2-3: COLONIA & SOUTHSIDE	Sat	348	40							
Gold Coast Transit	GCT 2-3: COLONIA & SOUTHSIDE	M-F	502	40							
Gold Coast Transit	GCT 4A - 5: NTH OXNARD - PARKWEST	Sun	171	40							
Gold Coast Transit	GCT 4A - 5: NTH OXNARD - PARKWEST	Sat	201	40							
Gold Coast Transit	GCT 4A - 5: NTH OXNARD - PARKWEST	M-F	681	40							
Gold Coast Transit	GCT 4B: NORTH OXNARD	Sun	176	40							
Gold Coast Transit	GCT 4B: NORTH OXNARD	Sat	338	40							
Gold Coast Transit	GCT 4B: NORTH OXNARD	M-F	433	40							
Gold Coast Transit	GCT 6AN: OXNARD-VENTURA (NB)	Sun	406	20							
Gold Coast Transit	GCT 6AN: OXNARD-VENTURA (NB)	Sat	542	20							
Gold Coast Transit	GCT 6AN: OXNARD-VENTURA (NB)	M-F	830	20							
Gold Coast Transit	GCT 6AS: OXNARD-VENTURA (SB)	Sun	300	20							
Gold Coast Transit	GCT 6AS: OXNARD-VENTURA (SB)	Sat	187	20							
Gold Coast Transit	GCT 6AS: OXNARD-VENTURA (SB)	M-F	687	20							
Gold Coast Transit	GCT 6BN: OXNARD-VENTURA (NB)	Sun	236	20							
Gold Coast Transit	GCT 6BN: OXNARD-VENTURA (NB)	Sat	369	20							
Gold Coast Transit	GCT 6BN: OXNARD-VENTURA (NB)	M-F	533	20							
Gold Coast Transit	GCT 6BS: OXNARD-VENTURA (SB)	Sun	298	20							
Gold Coast Transit	GCT 6BS: OXNARD-VENTURA (SB)	Sat	417	20							
Gold Coast Transit	GCT 6BS: OXNARD-VENTURA (SB)	M-F	657	20							
Gold Coast Transit	GCT 7: SOUTH OXNARD	Sun	32	40							
Gold Coast Transit	GCT 7: SOUTH OXNARD	Sat	44	40							
Gold Coast Transit	GCT 7: SOUTH OXNARD	M-F	34	40							
Gold Coast Transit	GCT 8N: OTC	Sun	119	40							
Gold Coast Transit	GCT 8N: OTC	Sat	101	40							
Gold Coast Transit	GCT 8N: OTC	M-F	102	40							
Gold Coast Transit	GCT 8S: OXNARD COLLEGE	Sun	156	40							
Gold Coast Transit	GCT 8S: OXNARD COLLEGE	Sat	93	40							
Gold Coast Transit	GCT 8S: OXNARD COLLEGE	M-F	467	40							
Gold Coast Transit	GCT 9: GISLER/ELM	Sun	27	40							
Gold Coast Transit	GCT 9: GISLER/ELM	Sat	80	40							
Gold Coast Transit	GCT 9: GISLER/ELM	M-F	21	40							
Gold Coast Transit	GCT EXP 30XN - OTC/VCT (NB)	Sat	0	40							

Data Type	Average Daily Passenger Boardings	User can only complete areas shaded in yellow.
Current Data Month	March	* indicates field required for output calculation.
Current Data Year	2009	

Operator	Route Name	Day Type	Current Boardings *	Current Headway *	New Headway *	Med/high Income ?	Growing Economy?	Walkable?	Timed Transfers?	Potential Ridership	Potential % Change
Sample Transit	*Sample Route*	*Sun*	*200*	*60*	*15*	*Yes*	*Yes*	*No*	*Yes*	***626***	***213%***
Gold Coast Transit	GCT EXP 30XN - OTC/VCT (NB)	M-F	156	40							
Gold Coast Transit	GCT EXP 30XS - VTC/OTC (SB)	M-F	39	40							
Gold Coast Transit	GCT EXP 31XN - OJAI/GVT CENTER (NB)	M-F	12	2							
Gold Coast Transit	GCT EXP 31XS - OJAI /GVT CENTER (SB)	M-F	8	2							
Gold Coast Transit	GCT EXP 32XN - OJAI/OTC (NB)	M-F	10	2							
Gold Coast Transit	GCT EXP 32XS - OJAI/OTC (SB)	M-F	3	2							
Gold Coast Transit	GCT EXP 617N: C ST - OTC ESPLANADE (NB)	M-F	10	2							
Gold Coast Transit	GCT EXP 617S: ESPLANADE - OTC (SB)	M-F	2	2							
VISTA	VISTA COASTAL EXPRESS LOOPED	Sun	49	15							
VISTA	VISTA COASTAL EXPRESS LOOPED	Sat	82	15							
VISTA	VISTA COASTAL EXPRESS LOOPED	M-F	398	15							
VISTA	VISTA COASTAL EXPRESS Sat LOOPED	Sun	134	60							
VISTA	VISTA COASTAL EXPRESS Sat LOOPED	Sat	111	60							
VISTA	VISTA CONEJO LOOPED	Sat	0	4							
VISTA	VISTA CONEJO LOOPED	M-F	33	4							
VISTA	VISTA CSUCI SHUTTLE (CAMARILLO)	Sat	42	15							
VISTA	VISTA CSUCI SHUTTLE (CAMARILLO)	M-F	100	15							
VISTA	VISTA CSUCI SHUTTLE (OXNARD ROUTE)	Sat	18	60							
VISTA	VISTA CSUCI SHUTTLE (OXNARD ROUTE)	M-F	101	60							
VISTA	VISTA EAST COUNTY MON-FRI LOOPED	Sat	55	60							
VISTA	VISTA EAST COUNTY MON-FRI LOOPED	M-F	206	60							
VISTA	VISTA HIGHWAY 101 LOOPED	Sun	1	30							
VISTA	VISTA HIGHWAY 101 LOOPED	Sat	12	30							
VISTA	VISTA HIGHWAY 101 LOOPED	M-F	397	30							
VISTA	VISTA HIGHWAY 101 Sat LOOPED	Sat	61	60							
VISTA	VISTA HIGHWAY 101 Sat LOOPED	M-F	36	60							
VISTA	VISTA HIGHWAY 126 LOOPED	Sun	179	60							
VISTA	VISTA HIGHWAY 126 LOOPED	Sat	167	60							
VISTA	VISTA HIGHWAY 126 LOOPED	M-F	378	60							
VISTA	VISTA HIGHWAY 126 Sat LOOPED	Sun	75	60							
VISTA	VISTA HIGHWAY 126 Sat LOOPED	Sat	291	60							
VISTA	VISTA SANTA PAULA COMMUTER	M-F	44	2							
Simi Valley Transit	SIMI VALLEY A	Sat	394	30							
Simi Valley Transit	SIMI VALLEY A	M-F	773	30							
Simi Valley Transit	SIMI VALLEY B	Sat	348	30							

Data Type	Average Daily Passenger Boardings	User can only complete areas shaded in yellow.
Current Data Month	March	* indicates field required for output calculation.
Current Data Year	2009	

Operator	Route Name	Day Type	Current Boardings *	Current Headway *	New Headway *	Med/high Income ?	Growing Economy?	Walkable?	Timed Transfers?	Potential Ridership	Potential % Change
Sample Transit	*Sample Route*	*Sun*	*200*	*60*	*15*	*Yes*	*Yes*	*No*	*Yes*	***626***	***213%***
Simi Valley Transit	SIMI VALLEY B	M-F	623	30							
Simi Valley Transit	SIMI VALLEY C	Sat	165	60							
Simi Valley Transit	SIMI VALLEY C	M-F	258	60							
Simi Valley Transit	SIMI VALLEY D	Sat	59	90							
Simi Valley Transit	SIMI VALLEY D	M-F	104	90							
Thousand Oaks Transit	Thousand Oaks Route 1 - GOLD	M-F	231	45							
Thousand Oaks Transit	Thousand Oaks Route 2 - GREEN	M-F	190	20							
Thousand Oaks Transit	Thousand Oaks Routes 3 & 4 - RED	M-F	135	45							
Camarillo Area Transit	CAMARILLO 1 TO COMMUNITY CENTER	M-F	66	60							
Moorpark Transit	MOORPARK ROUTE 1	M-F	10	60							
Moorpark Transit	MOORPARK ROUTE 2	M-F	123	60							

Please Contact Kim Chan at Jacobs Engineering if you need more lines.

Model Assumptions

A route-by-route model that factors up current ridership based on the elasticity factors from the TCRP report for service frequency changes. The factors vary depending on important route characteristics, as indicated by the literature. Similarly, factors for timed transfers are used to account for bus meet improvements, scaled based on headway.

IMPORTANT NOTE: This model is very limited as it uses factors that are interpolations or averages of a few case studies. It is also not able to estimate ridership on new routes; it can only estimate new ridership on existing routes given changes in service levels. Similarly, this model should not be used to assess dramatic changes in route service level, such as peak-only commuter service with 1 or 2 buses per day upgraded to all-day service. Service changes like these are outside the ability of this model to assess.

In contrast, actual ridership depends on specific local characteristics, including but not limited to:
- Origin and destination trip patterns
- Travel time to key activity centers
- Competing transit service availability
- Population & employment densities
- Parking costs
- Transit system connectivity
- Frequency

Since this model does not directly account for any of these important factors, its results must be viewed cautiously. However, it should produce a rough order-of-magnitude estimate of ridership given service frequency changes. The model assumptions include the following five factors, based on observations of the route and the area it serves:

(1) A base elasticity of 0.3 for service improvements in a suburban environment.
(2) If the majority of the route serve a healthy and growing economic environment, then an additional elasticity of 0.2
(3) If the majority of the route serves middle and high income areas, then an additional elasticity of 0.2
(4) If the majority of the route serves walkable areas, then an additional elasticity of 0.2
(5) - For routes with a current headway of 60 minutes or greater, assume a 100% factor.
- For routes with a current headway of 31-59 minutes, assume a 75% factor.
- For routes with a current headway of 30 minutes, then assume a 50% factor
- For routes with a current headway of 16-29 minutes, then assume a 25% factor
- For routes with a current headway of 15 minutes or less, then assume a 10% factor.

To account for ridership gains with the scheduling of timed transfers for the route's major transit centers, regardless of other improvements, the following scale is proposed:
- For routes with a new headway of 60 minutes or greater, then assume a 15% factor.
- For routes with a new headway of 31-60 minutes, then assume a 12% factor.
- For routes with a new headway of 30 minutes, then assume a 10% factor.
- For routes with a new headway of 16-29 minutes, then assume a 5% factor.
- For routes with a new headway of 15 minutes or less, then assume a 1% factor.

Finally, assume a maximum cap to the system ridership increase of 300%.
These assumptions are based on our interpretation of the available research.

Model Input Factors

The User has no need to change these factors. These are only changed if the model assumptions change.

Factor Name	Input	Description
General Service Improvements		
Base Elasticity	0.30	Improvements in a suburban environment
Increase Factor due to Route Conditions		
Economic Growth	0.20	Majority of route serves a growing economic environment
Middle / High Income	0.20	Majority of route serves middle and high income areas
Walkable	0.20	Majority of route serves walkable areas
Increase Factor for Decreased Headways		
60 minutes plus	1.00	Current headway is 60 minutes or more
31-59 minutes	0.75	Current headway is 31-59 minutes
30 minutes	0.50	Current headway is 30 minutes
16-29 minutes	0.25	Current headway is 16-29 minutes
15 minutes or less	0.10	Current headway is 15 minutes or less
Increase Factor for Timed Transfers		
60 minutes plus	0.15	New headway is 60 minutes or more
31-59 minutes	0.12	New headway is 31-59 minutes
30 minutes	0.10	New headway is 30 minutes
16-29 minutes	0.05	New headway is 16-29 minutes
15 minutes or less	0.01	New headway is 15 minutes or less

Maximum Increase		
300%	4	

Appendix E

Public Involvement Documentation

November 10, 2009

Mr. Steve DeGeorge
Ventura County Transportation Committee
950 County Square Drive, Suite 207
Ventura, CA 93003

Dear Steve:

The following is a detailed description/documentation of our work on behalf of the Ventura County Transportation Commissions' Transit Investment Study.

Introduction
Consensus Planning Group, Inc. (Consensus) was retained by Jacobs Engineering Group, Inc. to facilitate a community outreach program on behalf of the Ventura County Transportation Committee's Transit Investment Study.

The goals of the Public Participation Plan were to:

- Communicate proactively with stakeholders about the Transit Investment Study and how their participation is important in the planning process
- Ensure that Ventura County Transportation Commission (VCTC) Board Members and Elected Officials were kept apprised of the planning process and key milestones
- Educate and engage a broad-based group of stakeholders
- Elicit feedback from stakeholders regarding key transportation needs

The objectives of the Public Participation Plan were to:

- Utilize a variety of outreach techniques that make it easy for stakeholders to be informed and participate at whatever level of interest or time available
- Develop public information materials that are engaging through design and function while conveying complex technical information in clear and concise language
- Communicate with stakeholders and document the entire outreach effort

Following is a detailed report of the activities accomplished by Consensus:

- Created Public Participation Plan (Appendix 1) for the project:
  - Developed and refined draft public participation plan, including samples of an interview questionnaire and interview request letter
  - Presented and followed up with Transcom members to elicit their thoughts and obtain recommendations on who to involve in this process within their respective jurisdictions
  - Updated public participation plan based on feedback by Transcom members
  - Finalized public participation plan

- Created key stakeholders database to distribute information about the Transit Investment Study (Appendix 2) that included:
  - Ventura County of Governments study participants
  - Ventura County Transportation Commission Board members
  - Transportation-oriented groups
  - Elected officials
  - Business groups
  - Community-based organizations
  - Political organizations
  - Neighborhood associations
  - Institutions
  - Top employers
  - City Transportation/Planning Commissions

- Participated in January 29, 2009 Ventura County of Governments' (VCOG) meeting
  - Developed questionnaire for January 29 VCOG meeting (Appendix 3)
  - Staffed meeting and engaged participants to complete survey
  - Conducted follow-up calls to meeting attendees to encourage study participation
  - Prepared technical report to summarize responses from VCOG members (Appendix 4)

- Established feedback mechanism for Transit Investment Study on www.goventura.org
  - Created architecture for inclusion of Transit Investment Study on website (Appendix 5)
  - Developed web-based survey form for visitors to complete online

- Planned two community workshops to officially seek comments and feedback regarding transit needs within the county
  - Identified and secured dates and venues for workshops in Camarillo and Thousand Oaks
  - Developed community workshop strategy and format (Appendix 6)
  - Created mailing invite and printed and conducted mailing to more than 500 contacts (Appendix 7)
  - Noticed all community-based organizations and neighborhood associations, transportation-oriented groups, and local libraries in Ventura County to distribute community workshop invitation to their memberships and post invitation in public gathering sites
  - Designed and purchased Ventura County Star and Acorn advertisements in advance of the workshops (Appendix 8)
  - Revised questionnaire for community workshops (Appendix 9)
  - Drafted funding board for Funding station at workshop
  - Prepared materials for the workshops including sign-in sheets, team name tags, and VCTC commission name tags
  - Organized and staffed April 9th workshop in Camarillo and April 15th workshop in Thousand Oaks

Organizations contacted and results achieved include:

- Cabrillo Economic Development Corporation
  Resulted in distribution of invite to all offices and properties they own
- Ventura County Visitors and Convention Bureau
  Resulted in calendar section of website and on upcoming events banner on the home page
- Camarillo Council on Aging
  Resulted in the transportation committee chair making an announcement at their committee meeting and forwarding the invite to the rest of the council
- Ventura Agricultural Association
  Resulted in forwarding of invite to board members and general membership of the Association
- Ventura County Civic Alliance
  Resulted in forwarding of invite to membership
- Filipino American Council of Ventura County
  Resulted in announcement at March 31 board meeting and distribution of invite to Council membership via email
- Wilson Senior Center
  Resulted in posting of invite in event bulletin
- Lions Club
  Resulted in posting of information on website
- LULAC
  Resulted in forwarding invite to board and announcement at upcoming meeting
- Rotary District Office
  Resulted in distribution of invite at all district offices
- Senior Concerns
  Resulted in forwarding of invite to staff and members
- Ventura County Regional Energy Alliance
  Resulted in forwarding of invite to staff
- Ventura Senior Recreation Center
  Resulted in forwarding of invite to centers and staff
- City of Thousand Oaks Council on Aging
  Resulted in an e-blast to more than 600 people
- Ventura County Area Council on Aging
  Resulted in forwarding of invite to all staff
- Ventura County Parks Department
  Resulted in forwarding of invite to all staff
- Camarillo Library
  Resulted in posting of invite on library's bulletin
- Fillmore Library
  Resulted in posting of invite on library's bulletin
- Moorpark Library
  Resulted in posting of invite on library's bulletin
- Santa Paula Public Library/Blanchard Community Library
  Resulted in posting of invite on library's bulletin

- Grant R. Brimhall Library
  Resulted in posting on invite on library's bulletin
- Oxnard Public Library
  Resulted in distribution of invite to all Oxnard libraries
- Ventura County Library
  Resulted in distribution of invite to 14 libraries in County
- Help of Ojai
  Resulted in posting of invite at center
- Port Hueneme Community Center
  Resulted in posting of invite at center
- Moorpark Active Adult Center
  Resulted in posting of invite on event's bulletin and forwarding of invite to all staff
- Ojai Valley Green Coalition
  Resulted in mention in April newsletter

- Managed daily and weekly activities for the project including:
  - Participating in weekly team conference calls and discussions regarding community outreach activities
  - Checking the project hotline daily for inquiries about the study and workshop RSVPs

- Media relations:
  - Consensus secured an interview with the Ventura County Star showcasing the study and the workshops. Consensus created a media brief with key themes and messages and staffed the interview with Darren Kettle, VCTC Executive Director. The interview resulted in an article in the paper prior to the April 9th community workshop in Camarillo.

Conclusion and Next Steps

In today's politically sensitive and competitive funding environment, broad public participation and support is critical to the success of any major public infrastructure project. However, getting the general public to participate in the development of a project is getting ever more challenging as stakeholders spend more and more time commuting to/from work and engaged in essential daily activities. We witnessed this challenge first hand.

In order to obtain the sought-after feedback from the community and to ensure that any plans the Commission puts forth for the future of transit in the county encompass the thoughts of the residents, we recommend hosting additional workshops throughout the county. Our budget only allowed for two workshops, this limited the number of participants because of travel limitations and time constraints.

In addition, to raise awareness about the Commission throughout the county with the goal of greater participation in determining the future of transit, we suggest individual meetings with stakeholder organizations throughout the county including Chambers of Commerce, major employers, business groups, homeowner associations, community-based and social service organizations, and schools, colleges, and universities. While these groups were contacted to

participate in the study, they did not contribute in a significant way. Attending their monthly meetings or meeting with them in their locales will generate additional feedback desired for the study.

Please do not hesitate to contact me at (213) 438-1755 ext. 117 with any questions.

Sincerely,

Sara M. Costin
Director

Ventura County Transportation Commission Transit Investment Study

Questionnaire Report

March 2009

Executive Summary

Consensus Planning Group, Inc. (CPG), worked with the Ventura County Transportation Commission (VCTC) to solicit feedback from key stakeholders in Ventura County to help identify current and future transportation needs throughout the County.

At the Ventura County Council of Governments' monthly meeting on January 29, 2009 a survey was given to elected officials and other city representatives representing the ten cities of Ventura County. The survey serves as one component of VCTC's Transit Investment Study (TIS). Due to their intimate understanding of constituent issues, especially those relating to local and regional transportation issues, their feedback is critical for the TIS.

The **most important issues** to the participants with regard to the current and future transportation needs for Ventura County are (in order of prevalence):

1. Frequency of transit thereby reducing headways.
2. Connectivity between east and west Ventura County.
3. Accessibility to transit via more strategically based bus stops and increasing weekend/evening service.
4. Service deficiencies throughout Ventura County especially in Santa Paula, Fillmore and Ojai.
5. Lack of funding throughout Ventura County creating transportation challenges on both the local and regional level; however, participants largely agreeing that constituents would not support a tax measure to increase funding.

Key Issues

Key Issues Summary
Based on questionnaires submitted to date, the following are the key issues raised by stakeholders:

Regional

1. **Frequency-** More frequent service would minimize the amount of time riders spend on the bus and would help promote transit as a viable transportation alternative.
2. **Connectivity-** Lack of connectivity and coordination between cities makes it difficult for transit riders to travel from one side of the county to the other, whether east to west or north to south. Stronger transit connections between cities need to exist to create accessibility to jobs, educational centers, government centers, etc.
3. **Accessibility**- Enhance accessibility by providing more busses, additional strategic bus stops and improving service during evenings and weekends.
4. **Multi-modal transit center**- Create a transit hub in downtown Ventura that ties Metrolink, Amtrak, Greyhound, VISTA and future rail service.
5. **Regional bus service-** Combine existing transit services into one regional bus service managed by a regional authority. Respondents said this would increase the effectiveness of funding and service throughout Ventura County.

Local

1. **Transit deficiencies-**
    a. Increase transit options specifically VISTA service in East County cities such as Ojai, Fillmore, Santa Paula, and Piru not only to connect between cities but enhance accessibility to the rest of the county.
    b. Currently, unincorporated areas outside of Ojai city limits do not have sufficient public transit options.
    c. Northwest Port Hueneme and Hueneme Bay do not have mass transit especially for seniors who reside in that region.
    d. Improve transit west of Victoria Avenue, beach communities, and Oxnard Transportation Center.
    e. Bus routes in Thousand Oaks are inefficient.
2. **SR-101/ SR-23 interchange**- Upgrade existing interchange to reduce bottlenecks and increase the flow of traffic.
3. **Dial-A-Ride programs**- Protect transportation options for the aging and disabled population who depend on dial-a-ride and paratransit programs to travel throughout Ventura County.
4. **SR- 118-** Widen and landscape SR-118 to increase flow of traffic in Simi Valley, Thousand Oaks and Moorpark region.

5. **Metrolink**- Expand Metrolink service in Ventura County by providing a station in downtown Ventura and Thousand Oaks.
6. **Bike paths-** Create more bike paths and increase pedestrian pathways in every city.
7. **Bus shelters-** Provide more bus shelters in every city.
8. **Funding-** Provide funding for Ojai Trolley, Gold Coast Transit, and HELP Ojai's van service.
9. **Improvements-** Improve bypass on Highway 33 through Casitas Springs to increase safety and reduce traffic.
10. **Street paving**- Improve both streets and highways by repaving existing roads.

Funding

The general consensus is that there is not enough funding on both the local and regional levels and there is an ongoing struggle to find resources to fund projects. Cities are faced with difficult challenges when prioritizing projects based on limited federal financial support. Furthermore, Ventura County lacks funding for both capital projects and ongoing maintenance and operations.

1. **Tax Measure**
    a. More than half of the participants said that their constituents would not support a tax measure devoted to transportation infrastructure. Reasons cited include the state of the economy as well as increasing taxes on the State level, and for cities like Oxnard and Port Hueneme a ½ cent sales tax is already in place to fund transportation improvements.
    b. Those who thought their constituents would support a county wide tax measure said it would require an extensive public relations effort to educate stakeholders on the necessity and benefits of implementing such a measure. Benefits to emphasize would include increasing support for transit operations, improving transportation services for workers in the county, and highlighting how the measure will improve quality of life.

Other concerns

1. **Geography**- The geography of Ventura County makes it difficult to develop a cohesive county wide transportation system because the region is extremely large and spread out (about 1,800 square miles) and is divided by the Conejo grade.
2. **Light rail-** Although transit is important, various participants mentioned the pursuit of light rail as a viable transportation option for the future. The Conejo grade poses an impediment to light rail, so other routes such as Highway 126 should be considered for future light rail development to transport East County residents to the Santa Clarita Valley and Ventura government and employment centers.

Conclusion

Participants who advocated the pursuit of both regional and local transit solutions believe that by addressing both issues concurrently the most effective transportation vision will be created that tackles local and county-wide transit needs. However, participants who favored regional transit planning as Ventura County's priority believe we need to solve current deficiencies first and develop a comprehensive transportation plan for the future on a regional scale. As noted, participants sited frequency, connectivity and accessibility to transit on both a regional and local level as the largest impediment to the use of transit throughout Ventura County. Only by addressing these current and future needs will Ventura County be able to increase ridership and create a transit system that is convenient and viable. Locally, East County cities are the least connected to the rest of Ventura County and other areas such as Santa Barbara, Los Angeles and Santa Clarita. Transit service in these cities needs to be improved on a large scale by providing more routes, more buses and higher frequency of service. Although the future transportation vision of Ventura County depends largely on the availability of funding resources, participants were reluctant to advocate the implementation of a regional tax measure devoted to expanding transportation infrastructure, citing the state of the economy and increasing taxes throughout the state as existing obstacles; however, participants noted that a strategic public relations campaign that educated voters on the needs and benefits could be effective in swaying voters.

Questionnaire Participants

Questionnaire/Interview Participant	Organization
Linda Parks	Supervisor, Ventura County 2nd District
Donald J. Katz	Staff Member, Ventura County 2nd Supervisorial District
Kathy Long	Supervisor, Ventura County 3rd District
Kristy Weir	Mayor, City of Buenaventura
Don Waunch	Mayor, City of Camarillo
Kevin Kildee	Vice Mayor, City of Camarillo
Jennifer Herrera	City of Camarillo
Mark Van Dam	Mayor Pro Tem, City of Moorpark
Joe DeVito	Mayor, City of Ojai
Sylvia Muñoz-Schnopp	Councilmember, City of Port Hueneme
Tony Volante	Former Mayor, City of Port Hueneme
Judy Rice	City Clerk, City of Santa Paula
Fred Robinson	Councilmember, City of Santa Paula
John Procter	Former Councilmember, City of Santa Paula
Steven Sojka	Councilmember, City of Simi Valley
Carl Morehouse	Councilmember, City of Ventura

Ventura County Transportation Commission
Transit Investment Study
Community Outreach Findings
May 2009

I. Executive Summary

The Ventura County Transportation Commission (VCTC) commissioned a study to identify issues concerning existing public transportation needs and service deficiencies in Ventura County. VCTC hired Consensus Planning Group, Inc. (Consensus) to solicit feedback from stakeholders in Ventura County. Consensus utilized a variety of outreach techniques to ensure stakeholders throughout the County were informed and participated in the study. Specifically Consensus,

- Solicited elected officials to participate in one-on-one or telephone interviews.
- Created a key stakeholders database of more than 550 to distribute information about the study.
- Participated in the January 29, 2009 Ventura County of Governments' (VCOG) meeting for newly-elected officials.
- Established a feedback mechanism for the study on www.goventura.org.
- Planned two community workshops (on April 9 and April 15) to seek comments and feedback regarding transit needs within the County. Outreach for these events included a direct mail/return request piece to more than 550 residents and local/regional organizations and (2) follow-up phone calls to remind organizations about the workshops and obtain commitments.

Of the 56 surveys received at the workshops and on-line, the two most discussed issues among respondents were (1) reliability, accessibility, and frequency of transit options throughout Ventura County and (2) the need for connectivity between east and west Ventura County.

Participants at the community workshops expressed their appreciation and support for such venues to provide comments, and encouraged VCTC to host additional events throughout the County. Our sense is that many attendees had not previously participated in transportation meetings held by VCTC or the transit operating agencies.

II. Methodology

The questionnaire was used at three stakeholder meetings:

(1) January 29, 2009 Ventura County of Governments' monthly meeting,

(2) April 9, 2009 VCTC Community Workshop in Camarillo and

(3) April 15, 2009 VCTC Community Workshop in Thousand Oaks.

The questionnaire was also available on the VCTC website (www.goventura.org). The workshops were publicized in the *Ventura County Star* and *The Acorn* newspapers. Leading up to each workshop, Consensus conducted reminder phone calls to leading business groups, transportation-oriented groups, and community-based organizations to encourage attendance and participation. Several of these groups committed to distribute the workshop invitation to their membership, post the workshop information on their membership calendar, announce the workshop at their board meeting, post the workshop information on their website, and mention the workshop in their newsletters.

Fifty-six surveys were collected from two community workshops (April 9, 2009 in Camarillo and April 15, 2009 in Thousand Oaks), at the Ventura County Council of Governments' monthly meeting on January 29, 2009, and via the www.goventura.org website.

Participants who attended the community workshops were key stakeholders, community group leaders and Ventura County residents. The participants represented various cities including:

Ventura	15
Camarillo	14
Oxnard	5
Newbury Park	5
Ojai	3
Port Hueneme	3
Santa Paula	3
Simi Valley	2
Somis	2
Oak Park	1
Thousand Oaks	1
Moorpark	1
Buenaventura	1

III. Questions Asked

1. What Ventura County city do you reside?
2. Which specific issues concern you regarding the existing public transportation services and/or infrastructure?
3. In your opinion, what are the most commonly cited transportation infrastructure deficiencies?
4. In Ventura County, which areas/communities do you believe have insufficient public transit options?
5. Should Ventura County be focused on pursuing local or regional transit solutions?
6. Which public transit projects do you believe are a priority?
7. In your city, do you believe there is adequate funding for public transportation? Which projects do you believe should receive funding?
8. Would you and/or your friends and family support a regional tax measure devoted to expanding transportation infrastructure?
9. In your opinion, what can VCTC do to encourage cooperation between cities to form a cohesive transportation vision?
10. Please identify any current issues or concerns that you are aware of in your community that may affect future transportation improvements.
11. What can VCTC do in their public outreach and/or information materials to encourage community members to participate in this study?
12. What key stakeholders/organizations would you suggest meeting with that would be interested in participating in this study?
13. Are there any additional transportation improvements that are needed that we have not discussed?

IV. Key Findings from the Public

Overall, respondents feel that public transit is slow and inconvenient. There is an overwhelming sense that connectivity around the County needs to be improved whether it is by bus, train, or bike paths. Generally residents feel that it is easier to get in their car and drive to their destination.

Regional

1. **Frequency-** More frequent service would minimize the amount of time riders spend on the bus and would help promote transit as a viable transportation alternative.
2. **Connectivity-** Lack of connectivity and coordination between cities makes it difficult for transit riders to travel from one side of the County to the other, whether east to west or north to south. Stronger transit connections between cities need to exist to create accessibility to jobs, educational centers, government centers, etc.
3. **Accessibility**- Enhance accessibility by providing more busses, additional strategic bus stops and improving service during evenings and weekends. Identify job access areas that should be transit accessible.
4. **Multi-modal transit center**- Create a transit hub in downtown Ventura that ties Metrolink, Amtrak, Greyhound, VISTA and future rail service.
5. **Regional bus service-** Combine existing transit services into one regional bus service managed by a regional authority. Respondents said this would increase the effectiveness of funding and service throughout Ventura County.
6. **Expansion-** Work to expand Gold Coast in the west and work on a regional system for the east County; integrate services with VISTA.
7. **VCOG/VCTC-** Merge VCOG and VCTC into a true regional planning and transportation agency; give the new agency power to create the Sustainable Communities Strategy required under SB 375.

Local

1. **Transit deficiencies-**
    a. Increase transit options specifically VISTA service in East County cities such as Ojai, Fillmore, Santa Paula, and Piru not only to connect between cities but enhance accessibility to the rest of the County.
    b. Currently, unincorporated areas outside of Ojai city limits do not have sufficient public transit options.
    c. Northwest Port Hueneme and Hueneme Bay do not have mass transit especially for seniors who reside in that region.

d. Improve transit west of Victoria Avenue, beach communities, and Oxnard Transportation Center.
e. No public transit from Simi Valley to Oxnard.
f. Bus service is lacking in Port Hueneme, Thousand Oaks, and Camarillo.
g. Cal State Channel Islands buses are too large and limited to only a few of the campus roadways.
h. VISTA is the only option from Ventura to Santa Barbara.
i. Increased daytime/evening and night connections with VISTA Coastal Express.

2. **Dial-A-Ride programs**- Protect transportation options for the aging and disabled population who depend on dial-a-ride and paratransit programs to travel throughout Ventura County.
3. **Metrolink**- Expand Metrolink service in Ventura County by providing a station in downtown Ventura and Thousand Oaks.
4. **Bike paths-** Create more bike paths and increase pedestrian pathways in every city.
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Funding

The general consensus is that there is not enough funding on both the local and regional levels and there is an ongoing struggle to find resources to fund projects. Cities are faced with difficult challenges when prioritizing projects based on limited federal financial support. Furthermore, Ventura County lacks funding for both capital projects and ongoing maintenance and operations.

Potential Tax Measure

While more than half of those that responded at the VCOG meeting said that their constituents would not support a tax measure devoted to transportation infrastructure, more than 60% of the attendees from the community workshops said they would support a tax measure.

V. Key Findings from Elected Officials

One-on-one interviews were conducted with 16 elected officials about their perspectives on the transportation needs of the County. The most important issues with regard to the current and future transportation needs for Ventura County were (in order of prevalence):

1. Frequency of transit thereby reducing headways.
2. Connectivity between east and west Ventura County.
3. Accessibility to transit via more strategically based bus stops and increasing weekend/evening service.
4. Service deficiencies throughout Ventura County especially in Santa Paula, Fillmore and Ojai.
5. Lack of funding throughout Ventura County creating transportation challenges on both the local and regional level; however, participants largely agreeing that constituents would not support a tax measure to increase funding.

WESTSIDE SANTA CLARITA VALLEY

Roadway Phasing Analysis

NOVEMBER 2006

AUSTIN-FOUST ASSOCIATES, INC.

DRAFT

WESTSIDE SANTA CLARITA VALLEY
Roadway Phasing Analysis

Prepared by:

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November 14, 2006

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WESTSIDE SANTA CLARITA VALLEY
Roadway Phasing Analysis

The purpose of this analysis is to evaluate the phased construction of new roadways within the Westside area of the Santa Clarita Valley. Traffic volume forecasts are presented and are utilized to evaluate the proposed phasing plan.

1.0 BACKGROUND

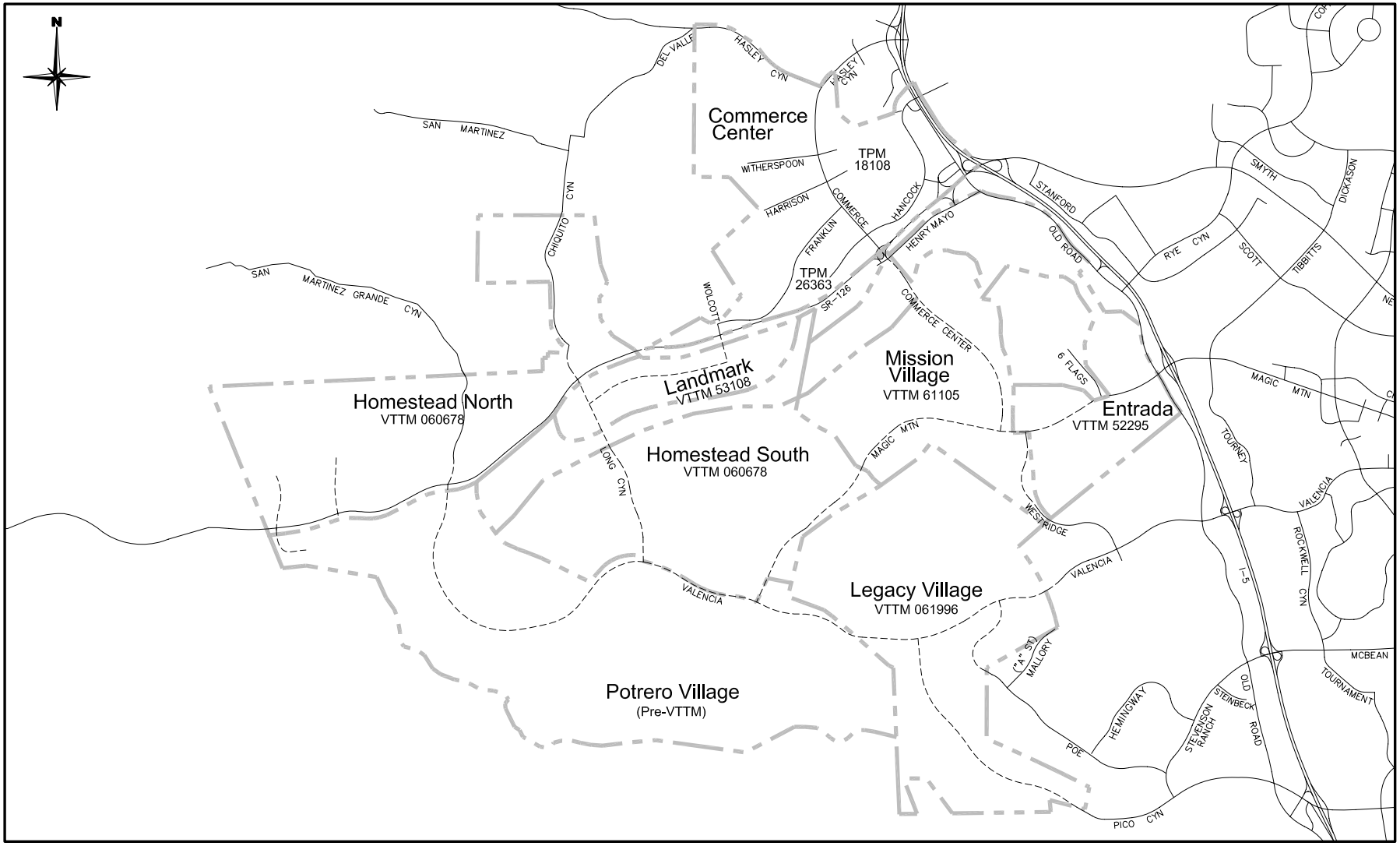
The Westside of the Santa Clarita Valley is defined for the purpose of this analysis as the general area west of the Interstate 5 freeway, north of the existing Stevenson Ranch area, south of the Hasley Canyon/Val Verde area, and east of the Ventura County line, as depicted in Figure 1. It includes the Newhall Ranch Specific Plan area and the entire area is generally under a single ownership. The Newhall Ranch Specific Plan along with Entrada, Legacy Village and the buildout of the Commerce Center represent all the projects that will build out this area over the next 25 years.

As the land development occurs, new roadway infrastructure will be constructed to serve the Westside area. New highways, which include three bridge crossings of the Santa Clara River, as well as extensions of existing highways such as Magic Mountain Parkway, Valencia Boulevard, Pico Canyon Road, and Commerce Center Drive, will provide the backbone highway system for the Westside. This analysis evaluates the phasing of that infrastructure in relation to the projected development.

2.0 METHODOLOGY

The timing and order of roadway construction is primarily based on the land development of the areas served by the roads. A draft master land use phasing plan has been prepared by the land owner for use with this analysis, and the plan provides the basis for the trip generation characteristics (amount and location) within the area being studied.

Several milestone years are modeled using versions of the Santa Clarita Valley Consolidated Traffic Model (SCVCTM) specially prepared for this analysis. These horizon years start at year 2011 and



Legend

- Westside Planning Area Boundaries
- Existing Roadway
- Future Roadway

Figure 1

WESTSIDE PROJECT AREA

continue through the year 2030. Detailed land use projections for the Westside area are utilized for the trip generation estimates for each of the horizon years. Outside the Westside area, trip generation estimates are interpolated using the SCVCTM Interim Year setting and Long-range Cumulative setting as the basis for the interpolation.

Figure 2 illustrates how the land use for the Westside area is projected to increase over time. Also shown in the figure is the corresponding trip generation for the same time period. Note that the Westside area as used in this analysis includes the Commerce Center, which accounts for the majority of the non-residential development of the initial years of the land use plan.

Figure 3 provides the corresponding information for the non-Westside portion of the Santa Clarita Valley. Details of the land use projections for the Westside area are provided in the following section.

3.0 WESTSIDE LAND USE

With the exception of the Commerce Center area, which currently has around 6.5 MSF of occupied industrial park uses, the existing condition of the Westside area is largely undeveloped. A summary of the Westside land use by development area is provided in Table 1, which shows the estimated dates for first occupancy and buildout.

Table 2 provides a summary of occupancy projections for the Westside area. Detailed land use and trip generation estimates for each planning area are provided in Appendix A for each of the horizon years selected for analysis.

4.0 ROADWAY PHASING PLAN

A master phasing plan for Westside area roadways has been developed to serve the areas listed in the previous section. A total of seven distinct stages have been identified and are illustrated in Figure 4 through Figure 10.

The figures are organized such that roadway construction is identified by the years in which the construction needs to take place, which will tie in with the issuance of Certificates of Occupancy.

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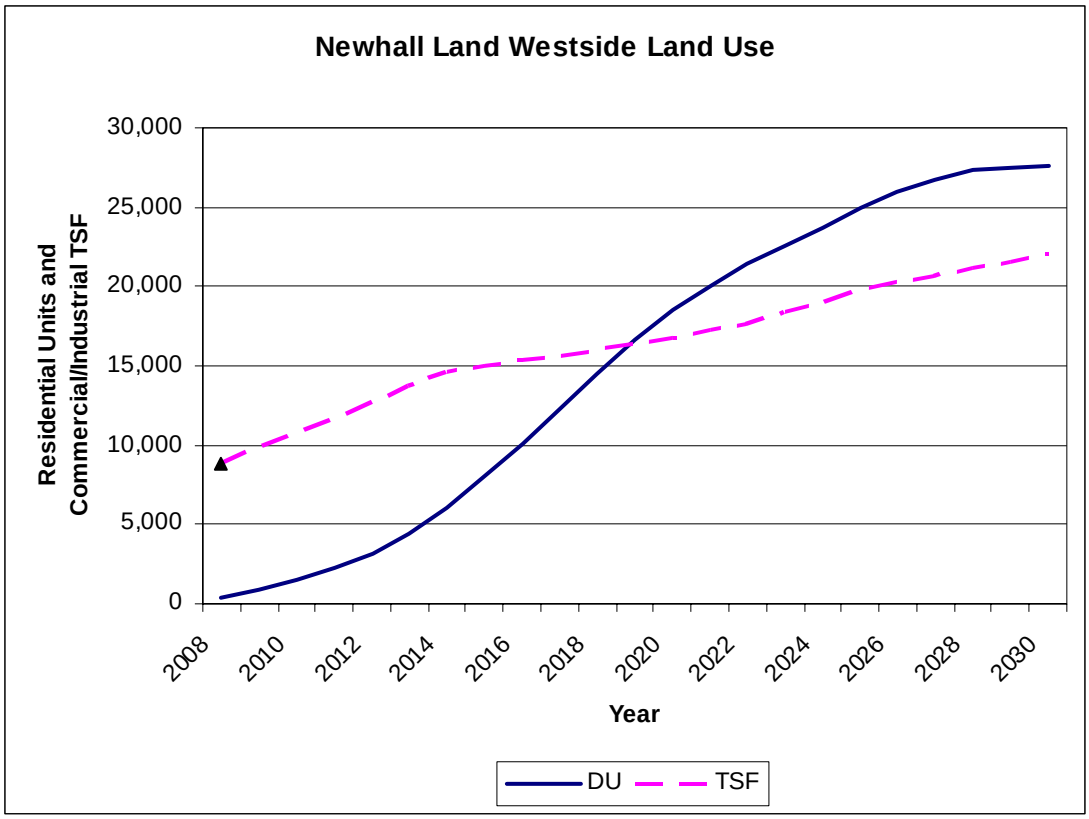


▲Initial 9 MSF includes the existing Commerce Center plus estimated Commerce Center occupancies through 2008.

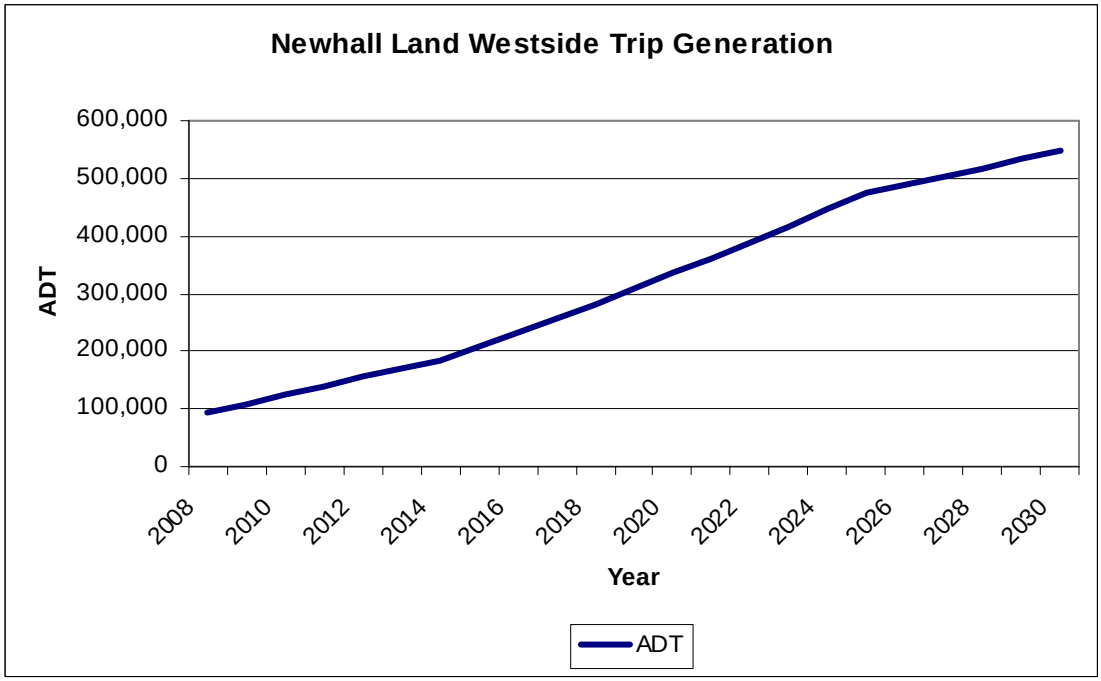
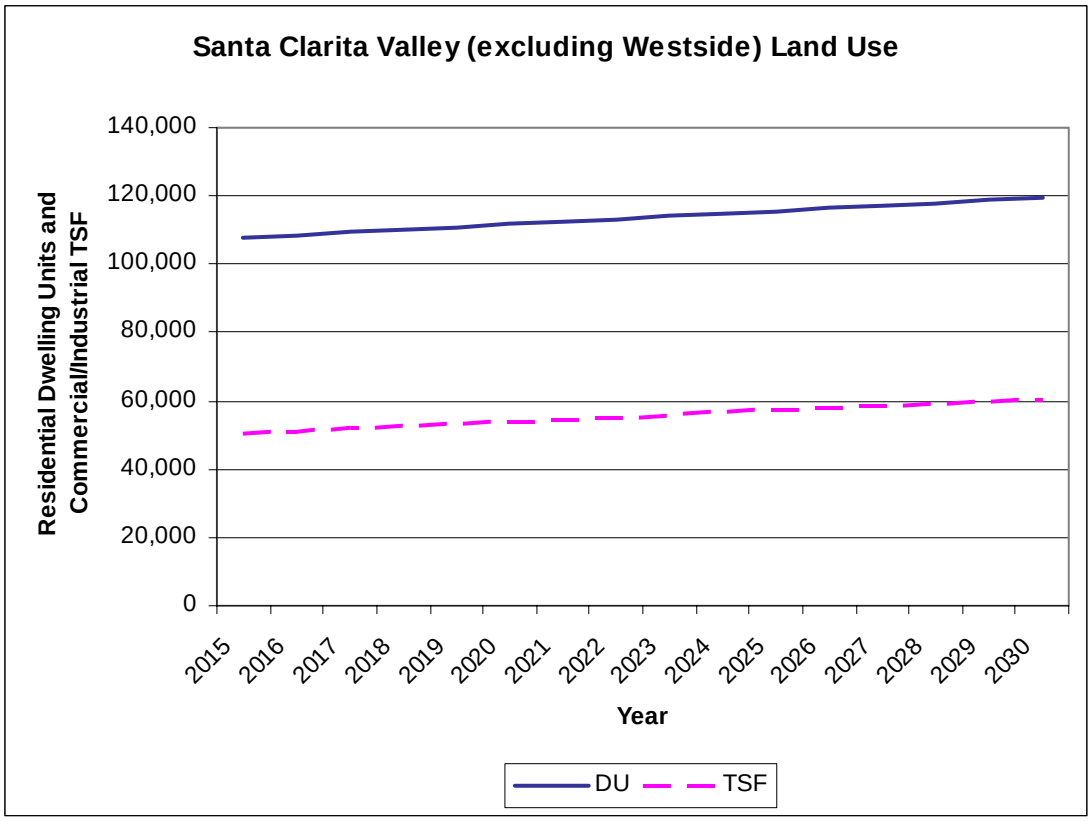


Figure 2: Westside Land Use and ADT Growth Trends



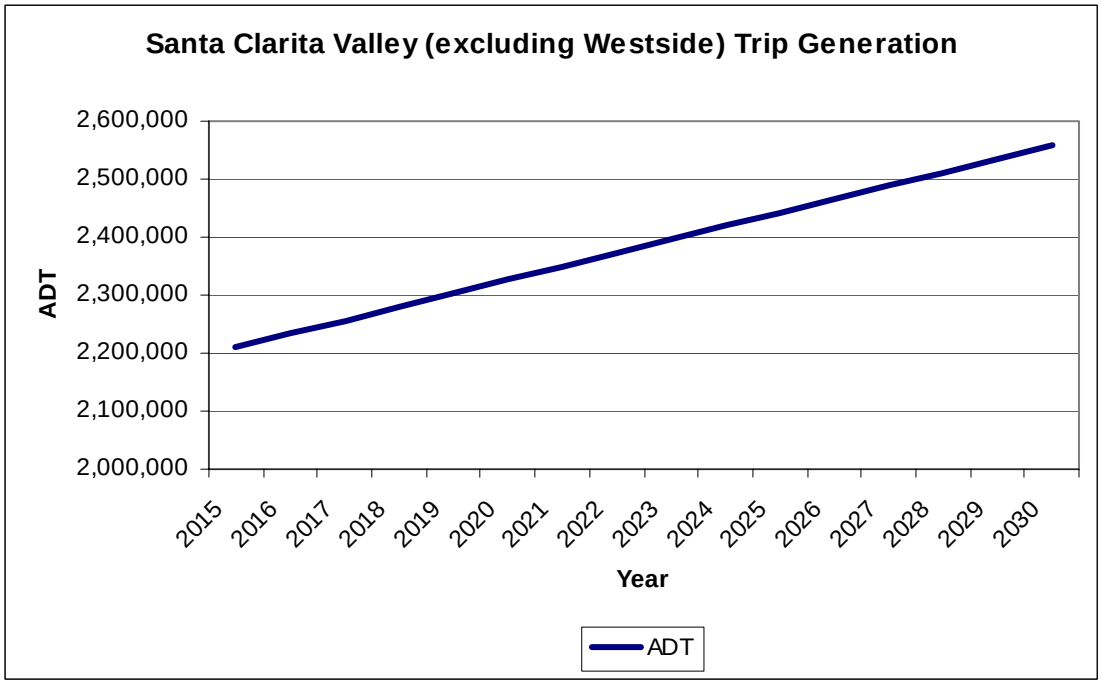


Figure 3: Santa Clarita Valley (excluding Westside) Growth Trends

Table 1: Westside Land Use by Development Area

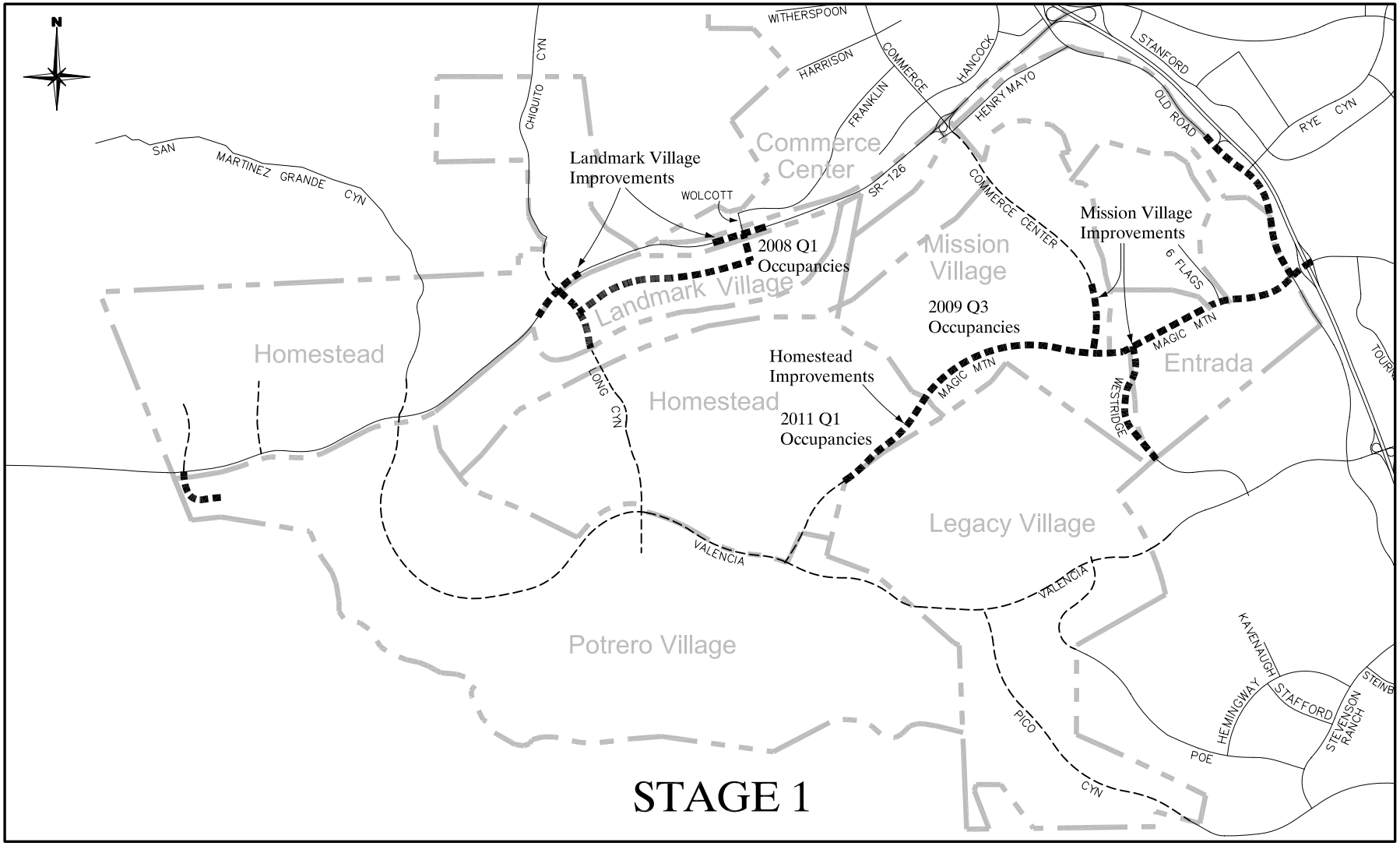
Area/Land Use	Amount	First Occupancy	Buildout
LANDMARK VILLAGE (NEWHALL RANCH)			
Residential	1,444 DU	2008	2011
Commercial	1,033 TSF	2008	2011
MISSION VILLAGE (NEWHALL RANCH)			
Residential	5,331 DU	2009	2023
Commercial	1,299 TSF	2009	2023
HOMESTEAD (NEWHALL RANCH)			
Residential	5,686 DU	2011	2025
Commercial	1,330 TSF	2023	2030
ENTRADA			
Residential	3,230 DU	2011	2019
Commercial	3,285 TSF[1]	2008	2030
Hotel	300 Room	2023	2023
LEGACY VILLAGE (STEVENSON RANCH)			
Residential	3,500 DU	2012	2020
Commercial	375 TSF	2019	2022
POTRERO VILLAGE (NEWHALL RANCH)			
Residential	8,424 DU	2013	2030
Commercial	1,257 TSF[2]	2019	2030
COMMERCE CENTER			
Commercial	13,100 TSF[3,4]	existing	2014
TOTAL			
Residential	27,615 DU	2008	2030
Commercial	21,679 TSF	existing	2030
Hotel	300 Room	2023	2023

[1]VTTM 52295 only. Excludes other development by others that is part of the same traffic analysis zone.
[2]Excludes water reclamation plant.
[3]Includes existing development in the Commerce Center.
[4]Sterling Project (approximately 1.3 MSF) is not included in the above total but traffic forecasts include full occupancy of the Sterling site by 2011.

Table 2: Westside Area Occupancy Projections

	Cumulative Occupancy Projections by Year													
	2008-2011		2012		2013-2014		2015-2018		2019-2022		2023-2025		2026-2030	
Location	**DU**	***MSF***	**DU**	***MSF***	**DU**	***MSF***	**DU**	***MSF***	**DU**	***MSF***	**DU**	***MSF***	**DU**	***MSF***
Landmark Village	1,444	*1.03*	1,444	*1.03*	1,444	*1.03*	1,444	*1.03*	1,444	*1.03*	1,444	*1.03*	1,444	*1.03*
Mission Village	531	*.29*	932	*.29*	1,874	*.31*	3,930	*.64*	5,297	*.96*	5,331	*1.30*	5,331	*1.30*
Homestead (No.)	--	--	--	--	--	--	--	--	479	--	1,779	*.60*	1,779	*1.33*
Homestead (So.)	112	--	312	--	851	--	2,289	--	3,907	--	3,907	--	3,907	--
Potrero Village	--	--	--	--	114	--	1,169	--	3,516	*.50*	5,810	*.90*	8,424	*1.36*
Legacy Village	--	--	97	--	597	--	2,586	--	3,500	*.38*	3,500	*.38*	3,500	*.38*
Entrada	150	*.43*[1]	391	*.43*	1,186	*.43*	3,097	*1.23*	3,230	*1.68*	3,230	*2.47*	3,230	*3.58*
Commerce Center	--	*10.46*[2]	--	*11.42*	--	*13.10*	--	*13.10*	--	*13.10*	--	*13.10*	--	*13.10*
Total	2,237	*12.21*	3,176	*13.17*	6,066	*14.87*	14,515	*16.00*	21,373	*17.65*	25,001	*19.78*	27,615	*22.08*
Net Increase from Previous Period	--	--	939	*.96*	2,890	*1.70*	8,449	*1.13*	6,858	*1.65*	3,628	*2.13*	2,614	*2.30*

[1]Includes existing Castaic Junction area development and anticipated occupancies between existing and 2011.
[2]Includes existing Commerce Center development and anticipated occupancies between existing and 2011.

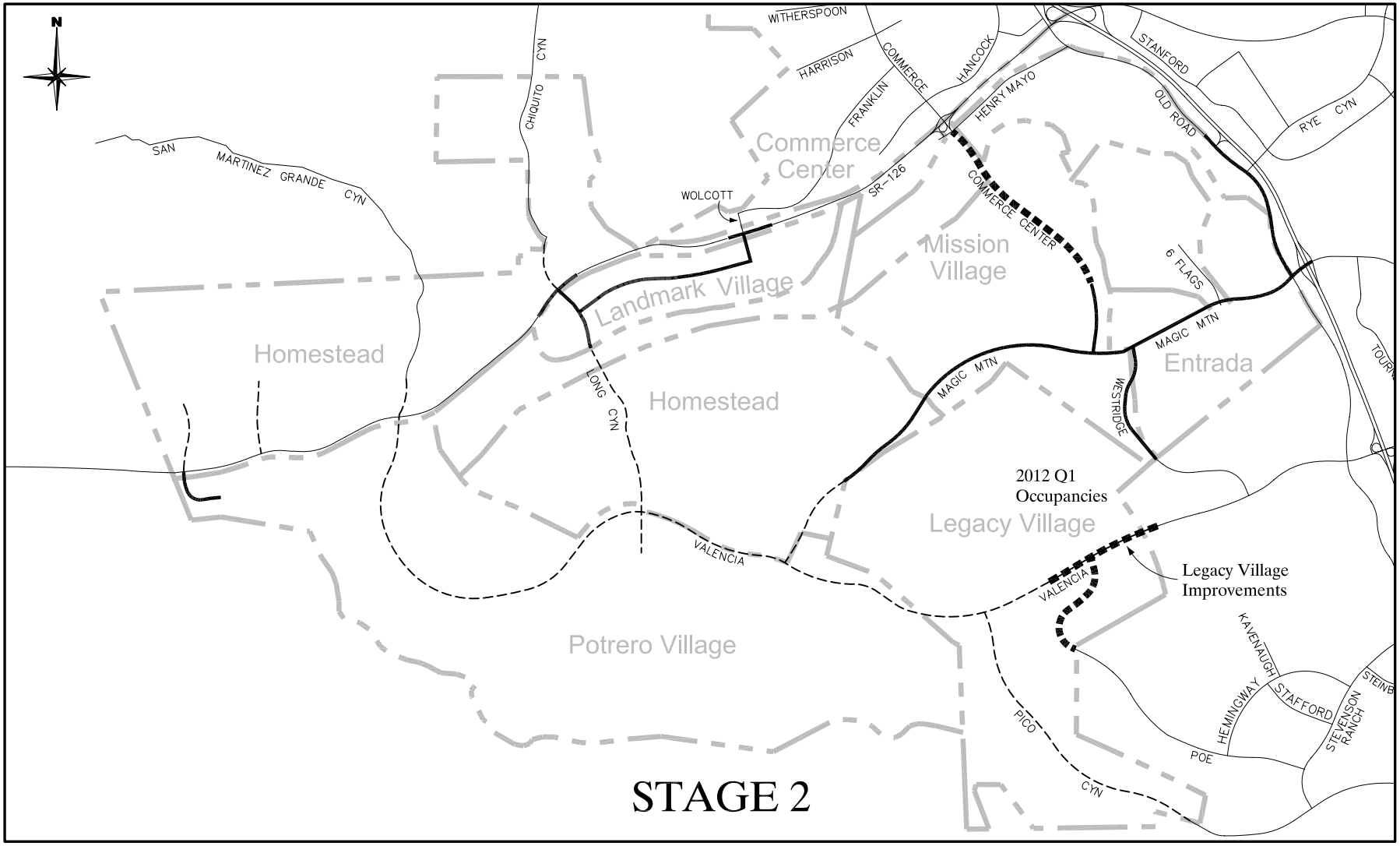


Legend

Construction This Stage
Planned Roadway (Future Stage)

Figure 4

STAGE 1 ROADWAY CONSTRUCTION (2007-2010) - FOR OCCUPANCIES THROUGH 2,240 DU/12.2 MSF (2011)

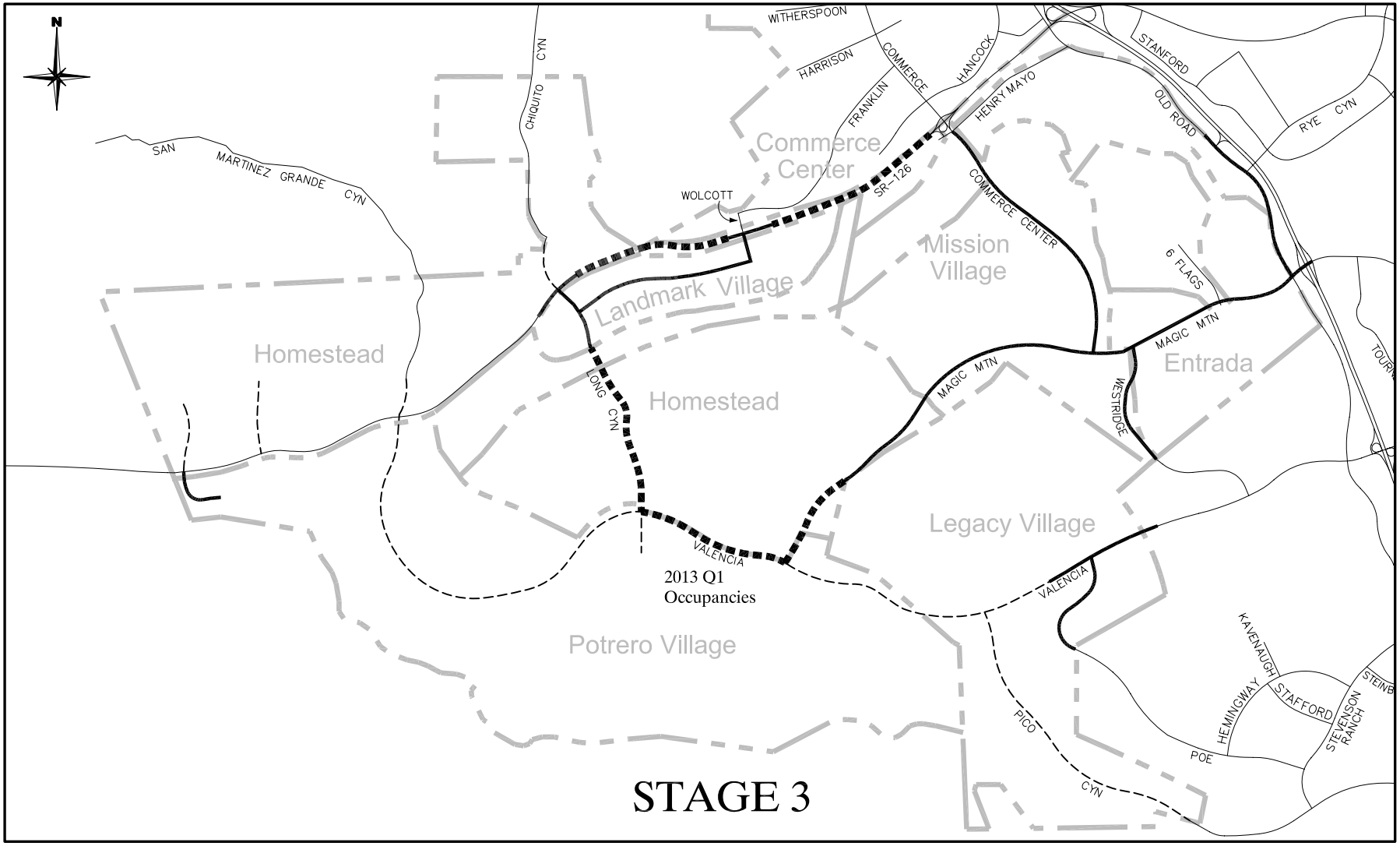


Legend

- Construction This Stage
- Constructed Previous Stage
- Planned Roadway (Future Stage)

Figure 5

STAGE 2 ROADWAY CONSTRUCTION (2010-2011) - FOR OCCUPANCIES THROUGH 3,180 DU/13.2 MSF (2012)

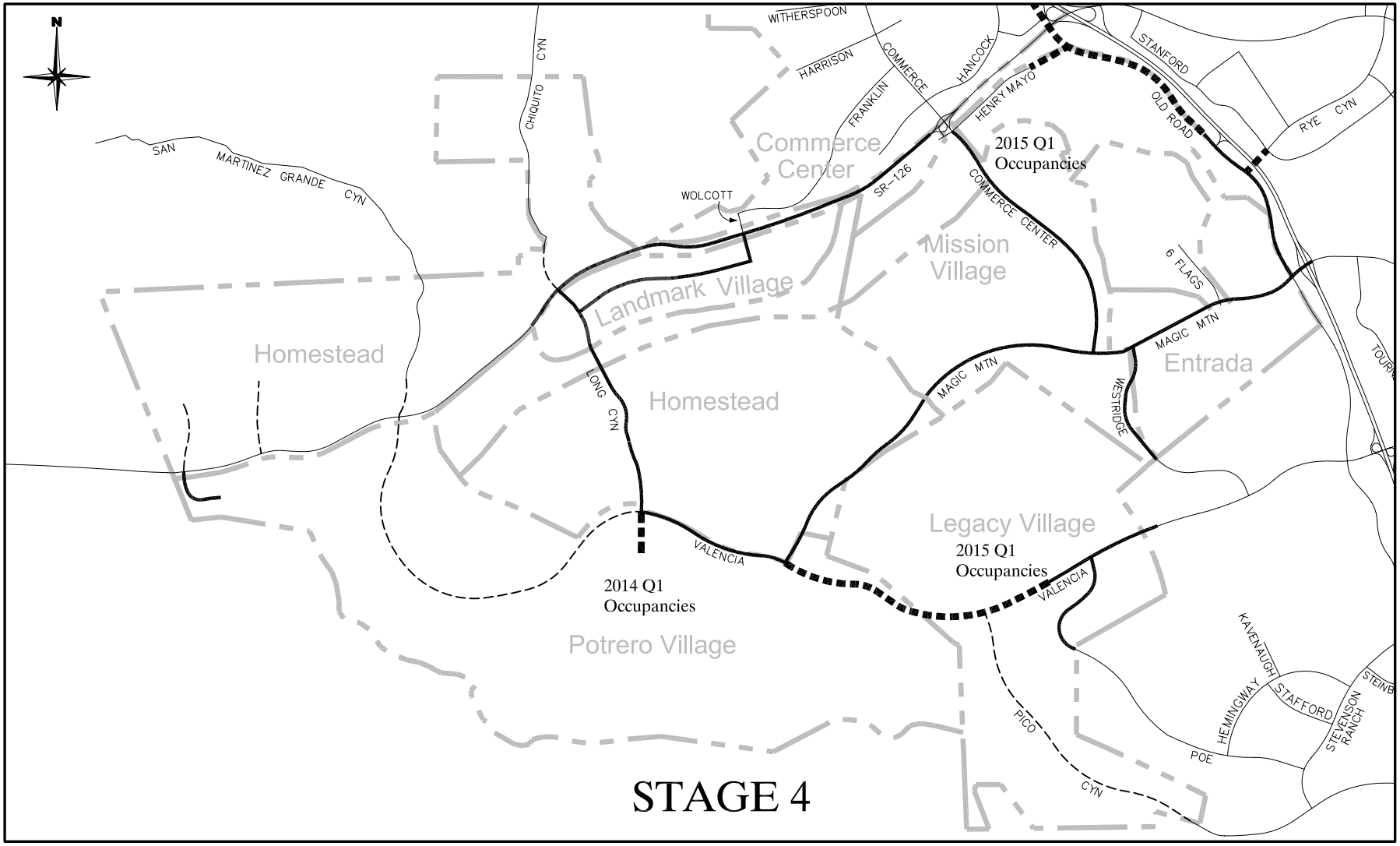


Legend

- Construction This Stage
- Constructed Previous Stage
- Planned Roadway (Future Stage)

Figure 6

STAGE 3 ROADWAY CONSTRUCTION (2012) - FOR OCCUPANCIES THROUGH 6,070 DU/14.9 MSF (2014)

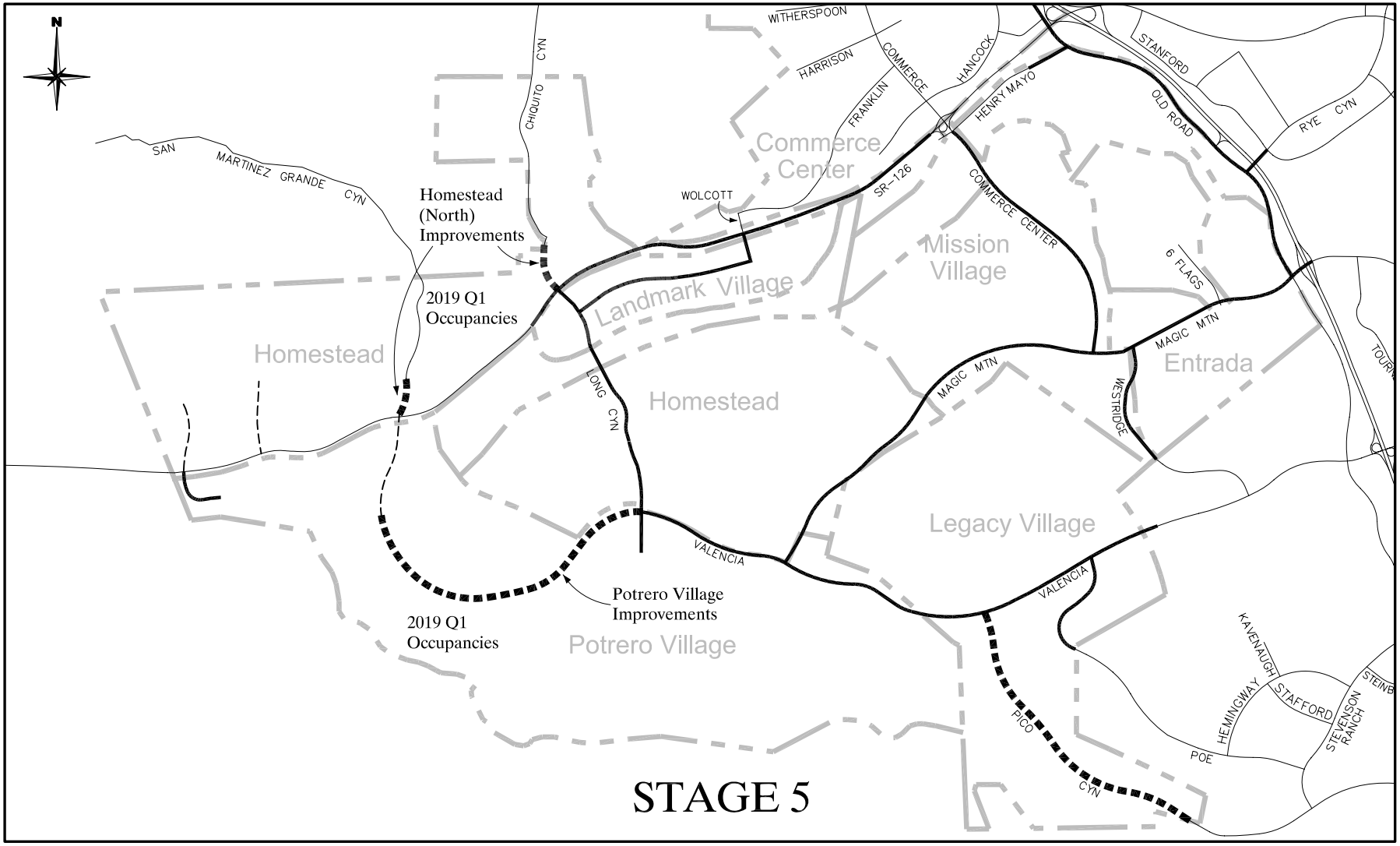


Legend

- Construction This Stage
- Constructed Previous Stage
- Planned Roadway (Future Stage)

Figure 7

STAGE 4 ROADWAY CONSTRUCTION (2013-2014) - FOR OCCUPANCIES THROUGH 14,520 DU/16.0 MSF (2018)

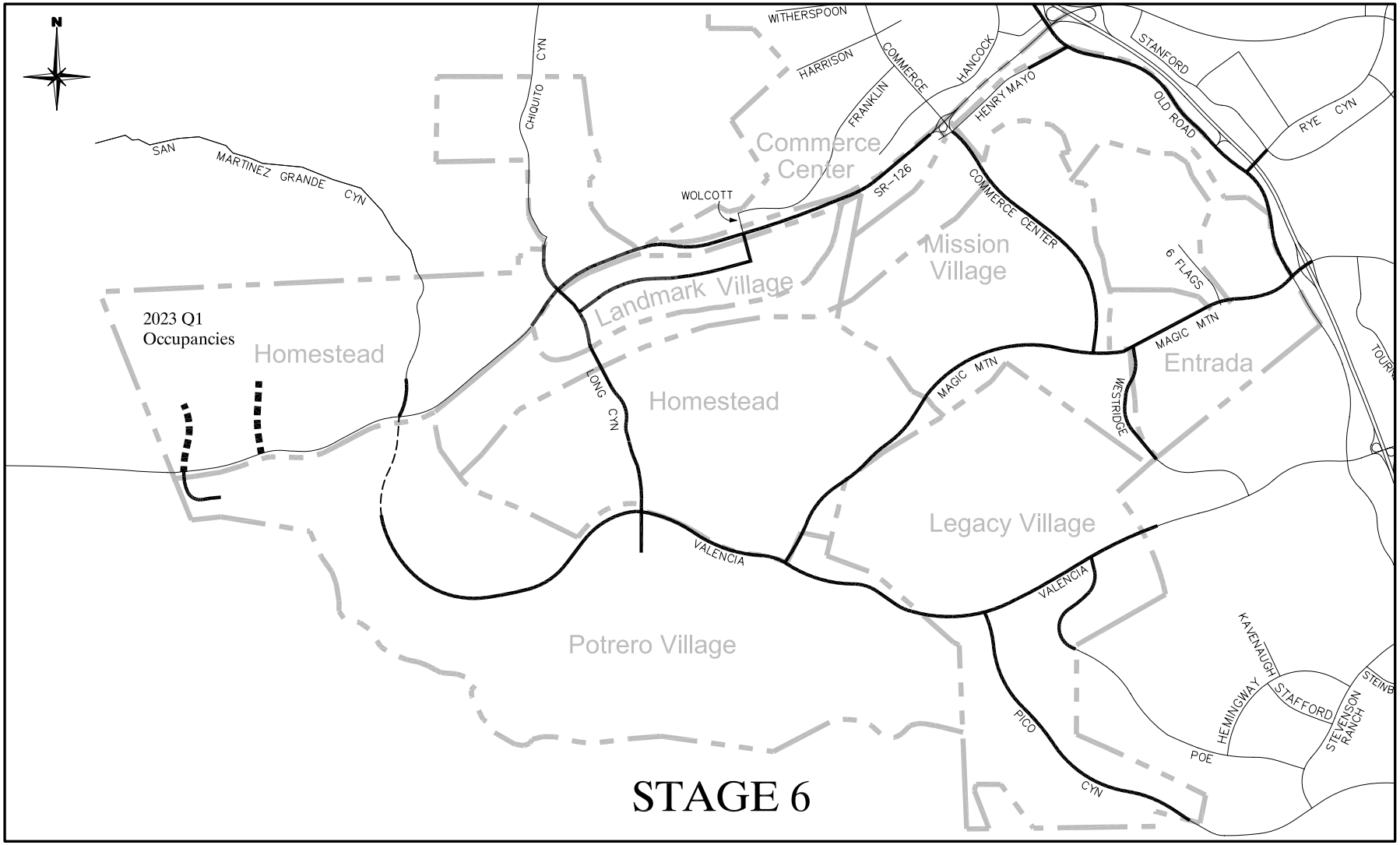


Legend

- Construction This Stage
- Constructed Previous Stage
- Planned Roadway (Future Stage)

Figure 8

STAGE 5 ROADWAY CONSTRUCTION (2015-2018) - FOR OCCUPANCIES THROUGH 21,380 DU/17.7 MSF (2022)

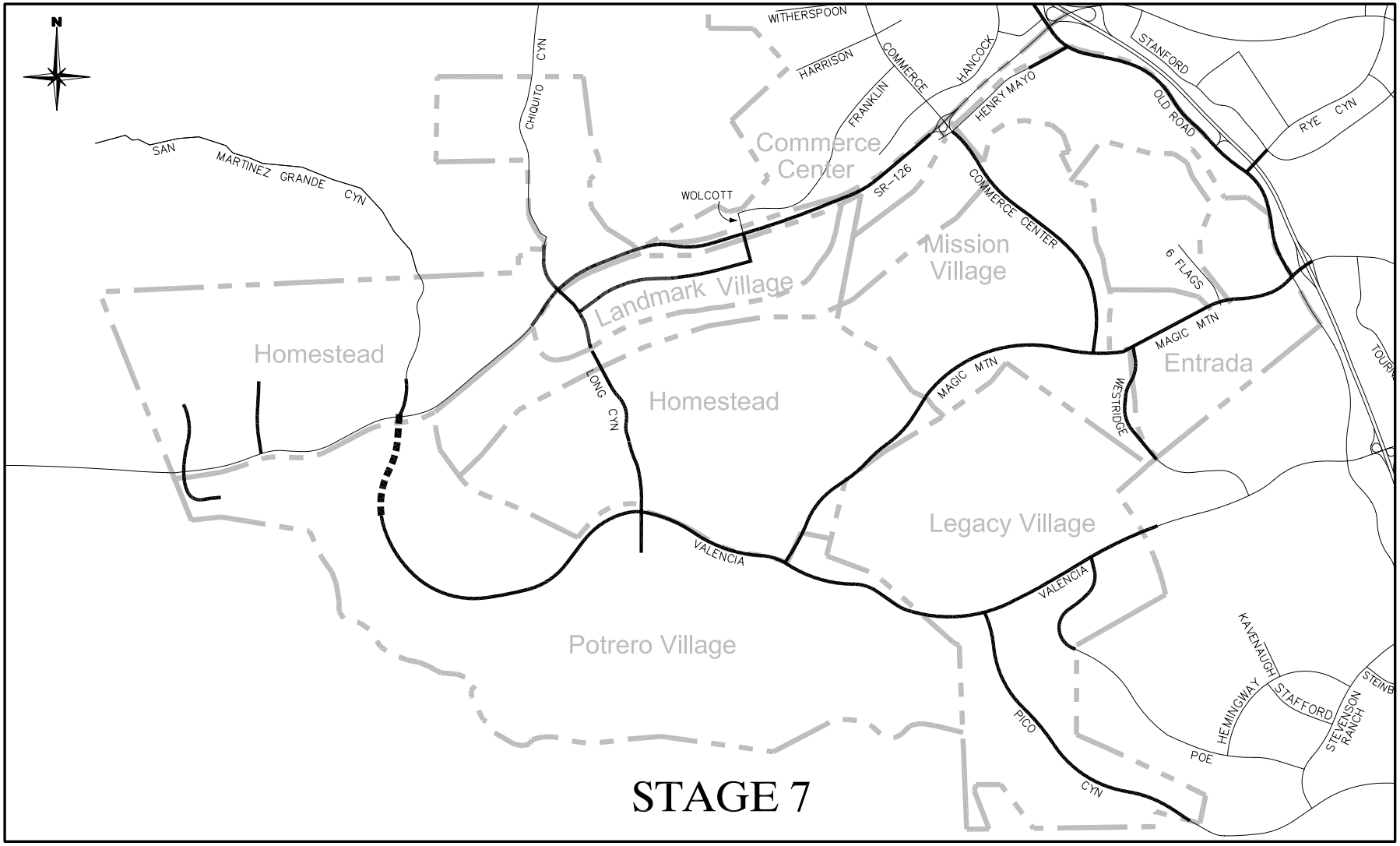


Legend

- Construction This Stage
- Constructed Previous Stage
- Planned Roadway (Future Stage)

Figure 9

STAGE 6 ROADWAY CONSTRUCTION (2019 - 2022) - FOR OCCUPANCIES THROUGH 25,000 DU/19.8 MSF (2025)



Legend

- Construction This Stage
- Constructed Previous Stage
- Planned Roadway (Future Stage)

Figure 10

STAGE 7 ROADWAY CONSTRUCTION (2023-2030) - FOR OCCUPANCIES THROUGH 27,620 DU/22.1 MSF (PROJECT BUILDOUT)

Completing the roadway construction by the years indicated will serve the land use plan as currently envisioned for that year and the years immediately following, after which additional infrastructure will be needed to serve additional development. Therefore, the infrastructure shown in each stage of construction will accommodate the land use development that will be occurring while the next stage of new roadways are being constructed. A description of each roadway construction stage, the estimated completion dates for the construction, and the amount of development that can be supported by that stage, is provided in Table 3.

Table 3: Roadway Construction Stages

Stage	Description	Completion Date	Max DU	Max MSF
1	Construct access to Landmark Village from SR-126 Construct access to Water Treatment Plant from SR-126 Extend Magic Mountain Parkway into Mission Village Extend Westridge Parkway to Magic Mountain Parkway Widen The Old Road between Feedmill Road & the relocated Rye Canyon interchange Extend Magic Mountain Parkway into Homestead	End of 2007 End of 2007 Mid 2009 Mid 2009 Mid 2010 End of 2010	2,237	12.21
2	Construct Commerce Center Drive Bridge/connect Mission Village to SR-126 Extend Valencia Boulevard into Legacy Village Extend Poe Parkway to Valencia Boulevard	End of 2011 End of 2011 End of 2011	3,176	13.17
3	Extend Magic Mountain Parkway into Potrero Village Construct segments of Valencia Blvd (Potrero Village) & Long Canyon Road Construct Long Canyon Road Bridge/connect Homestead (South) to SR-126 Widen SR-126 to 8-lanes between Commerce Center Drive and Long Canyon Road	End of 2012 End of 2012 End of 2012 End of 2012	6,066	14.87
4	Extend Valencia Boulevard to Potrero Village/Magic Mountain Parkway Widen The Old Road between the relocated Rye Canyon interchange to just north of SR-126	End of 2014 End of 2014	14,515	16.00
5	Construct Valencia Blvd west of Long Canyon Road Construct access to Homestead (North) from SR-126 at Chiquito Cyn Rd and at San Martinez Grande Cyn Rd Extend Pico Canyon Road to Valencia Blvd	End of 2018 End of 2018 End of 2018	21,373	17.65
6	Construct access to Homestead (North) from SR-126 at County Line	End of 2022	25,001	19.78
7	Construct 3rd river crossing Bridge (Potrero/Valencia)	2030	27,615	22.08

DU = Dwelling Units MSF = Million Square Feet (non-residential uses)
Max = Maximum amount of land use to be supported by Stage

The following section presents traffic model forecasts for the key stages of the phasing plan.

5.0 TRAFFIC FORECASTS BY PHASE

Key roadway construction stages have been modeled using the corresponding amount of land use development to be supported by the new roadways. Figures illustrate the Average Daily Traffic (ADT) volumes and the corresponding amounts of Westside land use development for each of the following scenarios:

- Year 2011 Land Use Projections with Stage 1 Roadways (Figure 11 & Figure 12)
- Year 2012 Land Use Projections with Stage 2 Roadways (Figure 13 & Figure 14)
- Year 2014 Land Use Projections with Stage 3 Roadways (Figure 15 & Figure 16)
- Year 2018 Land Use Projections with Stage 4 Roadways (Figure 17 & Figure 18)
- Year 2022 Land Use Projections with Stage 5 Roadways (Figure 19 & Figure 20)
- Year 2025 Land Use Projections with Stage 6 Roadways (Figure 21 & Figure 22)
- Year 2030 Land Use Projections with Stage 6[1] Roadways (Figure 23 & Figure 24)

As noted earlier, the roadways shown for each phase will be adequate to support the land development up to that year. Roadway construction from the next stage will then need to be in place to accommodate the additional development of subsequent years.

In addition to the roadway improvements outlined in the previous section, various intersection specific improvements will be required as part of each stage. Table 4 lists the intersection improvements needed to maintain acceptable levels of service through buildout of the Westside area. Constructing these intersection improvements as part of the indicated stages will result in the Intersection Capacity Utilization (ICU) values shown in Table 5 and the corresponding Levels of Service (LOS) shown in Table 6 for the AM peak hour and in Table 7 for the PM peak hour. Detailed ICU worksheets are provided in Appendix B.

In all cases, levels of service are maintained at LOS D or better up to and including buildout of the Westside area with the roadways constructed during Stage 6. Stage 7 will then complete the Westside roadway network (the County Highway Plan) by constructing the 3rd Santa Clara River crossing to complete the final segment of Valencia Boulevard (Potrero Canyon Road) between SR-126 and Potrero Village.

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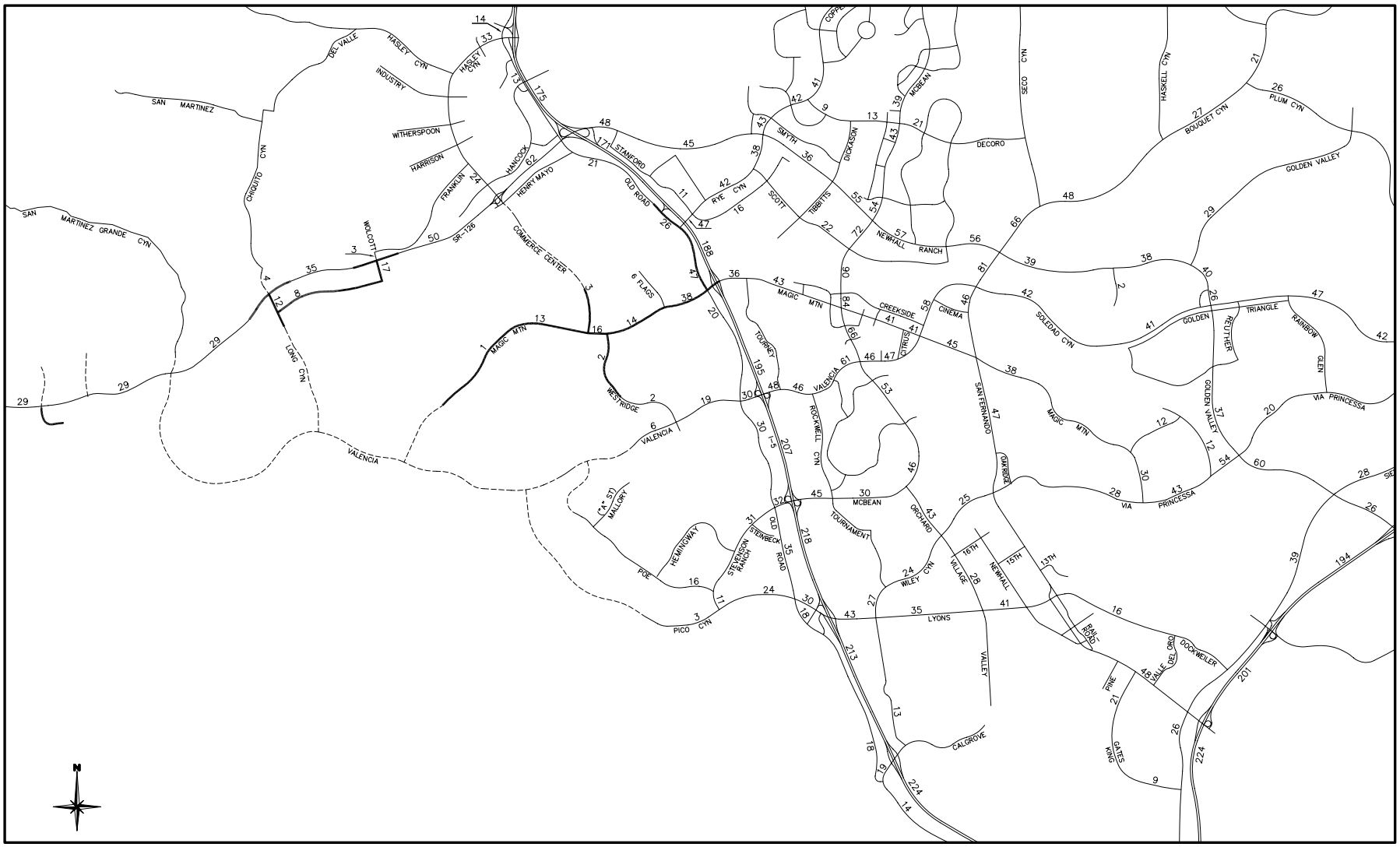
[1] Year 2030 with Stage 7 Roadways (buildout conditions) was evaluated as part of the Newhall Ranch Specific Plan EIR and is not included as part of this phasing analysis.



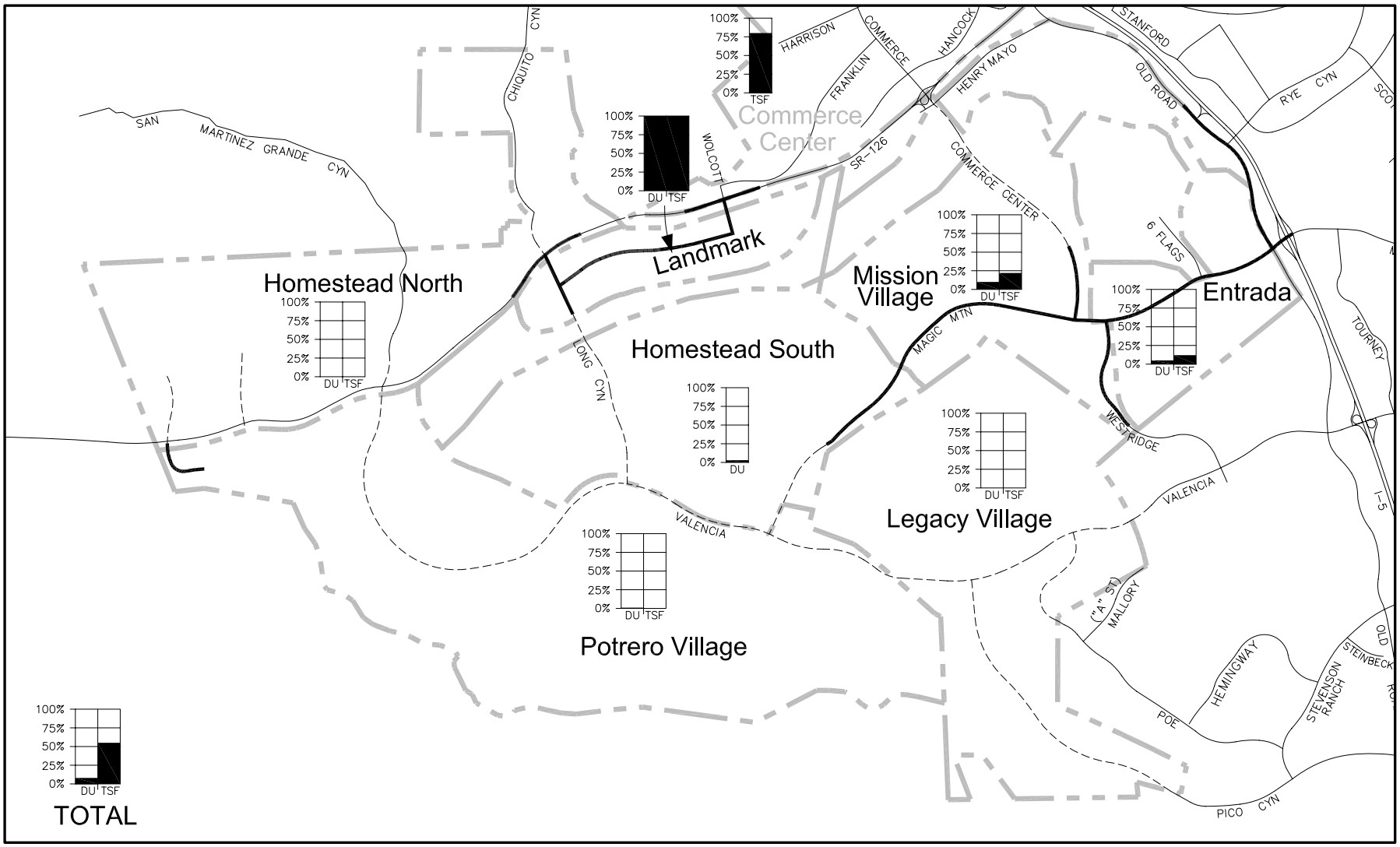
Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 11

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2011



Legend

Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 12

PROJECT DEVELOPMENT BY PLANNING AREA -2011

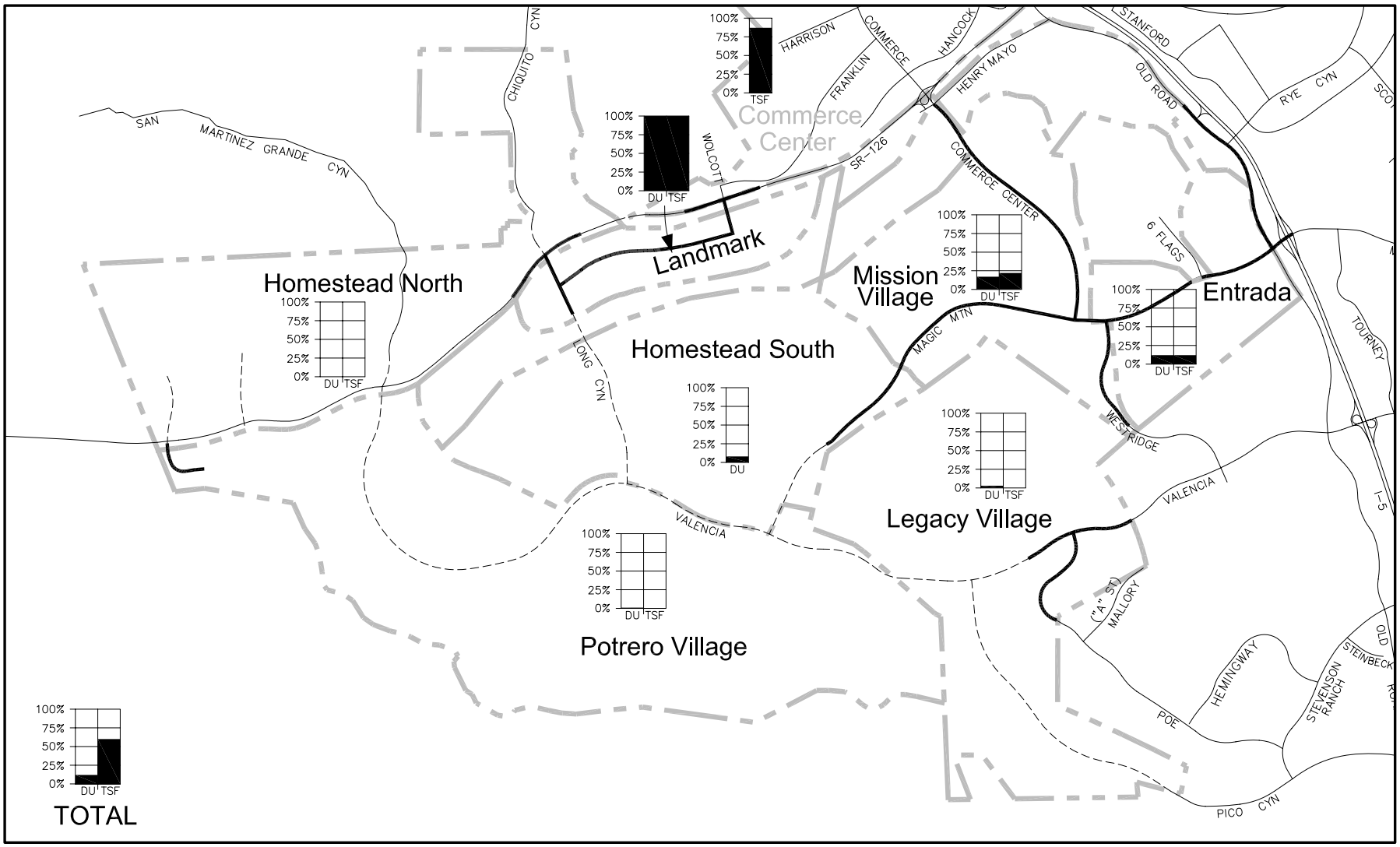
Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 13

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2012



Legend

Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 14

PROJECT DEVELOPMENT BY PLANNING AREA -2012

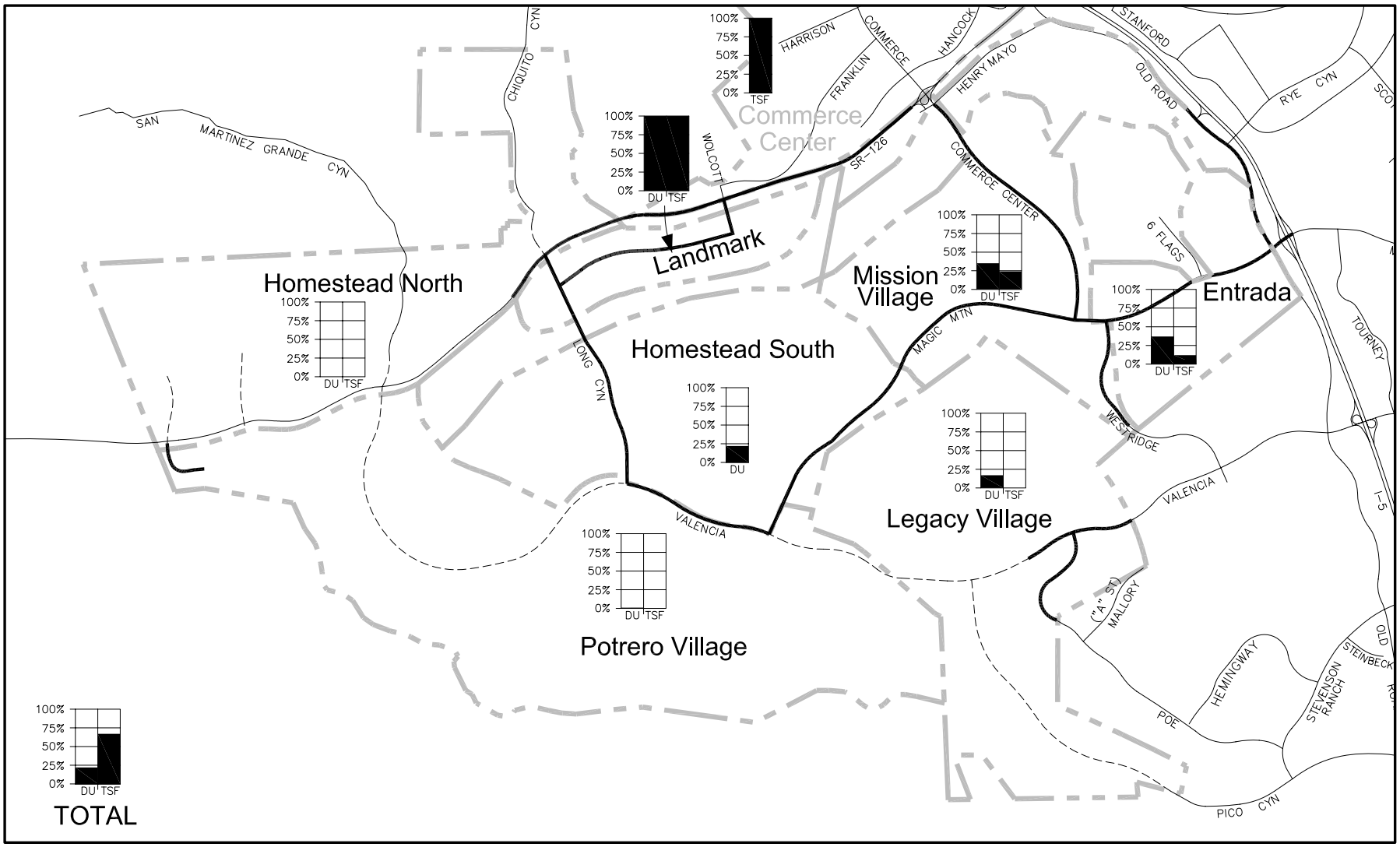
Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 15

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2014



Legend

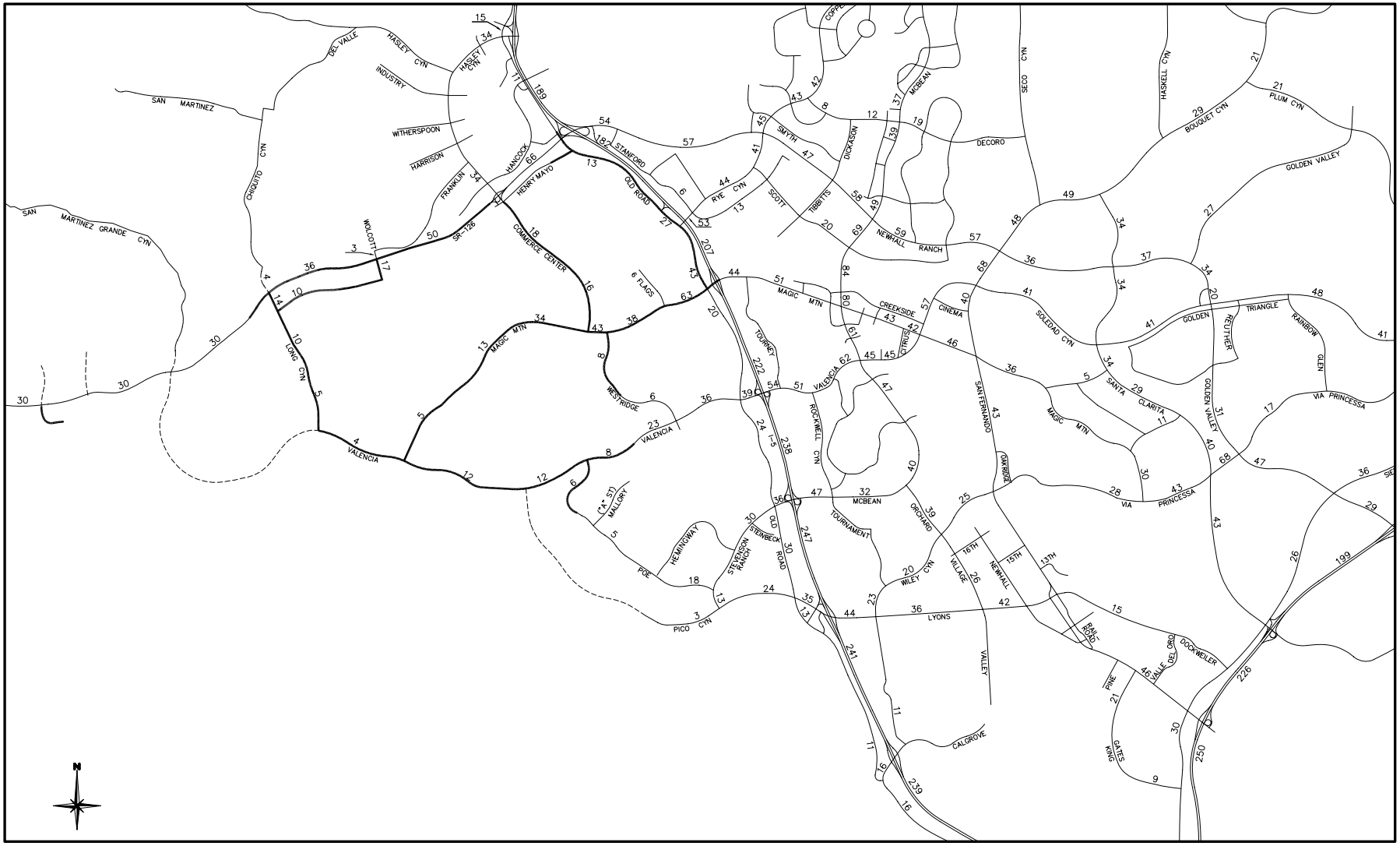
Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 16

PROJECT DEVELOPMENT BY PLANNING AREA -2014



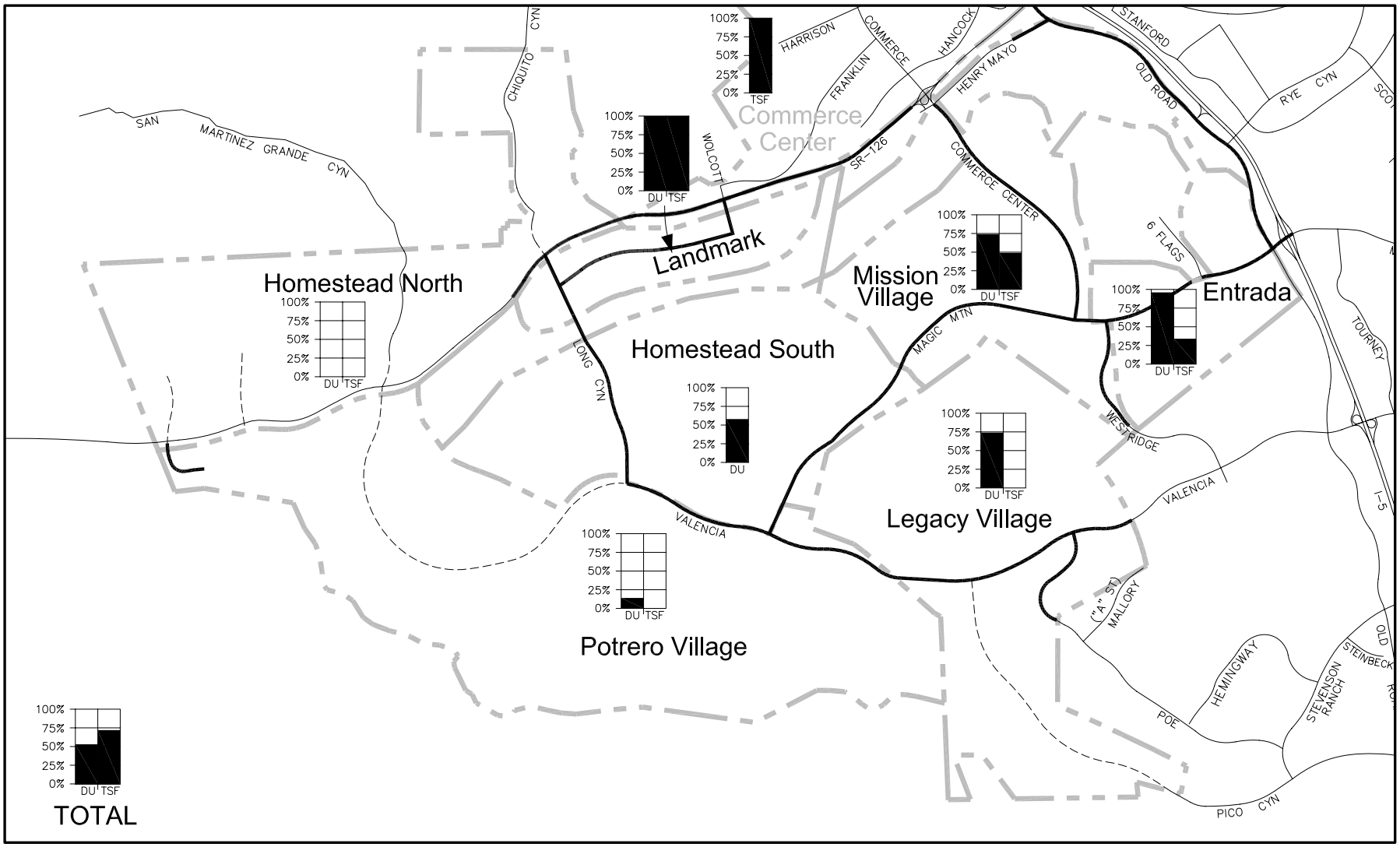
Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 17

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2018



Legend

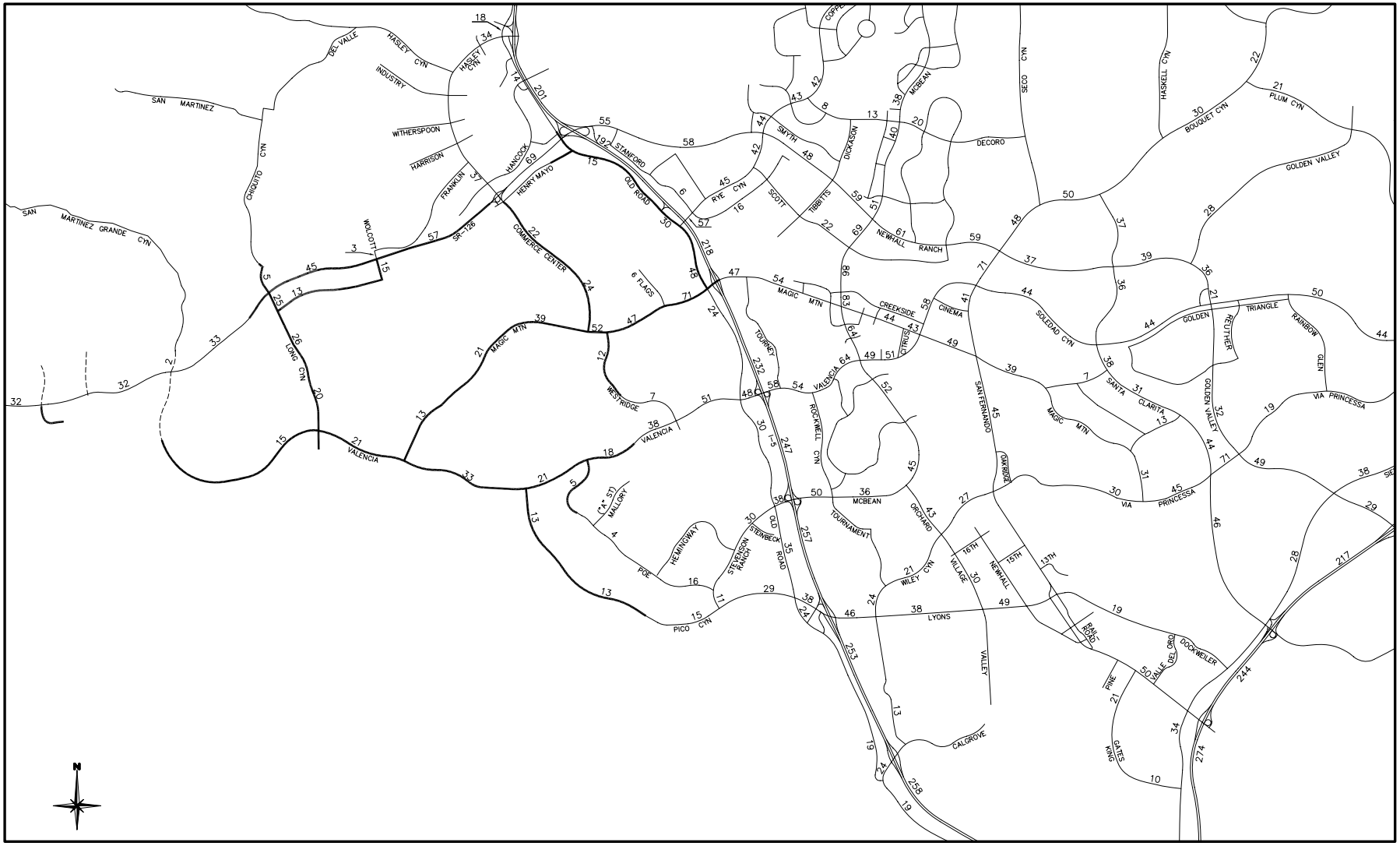
Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 18

PROJECT DEVELOPMENT BY PLANNING AREA -2018



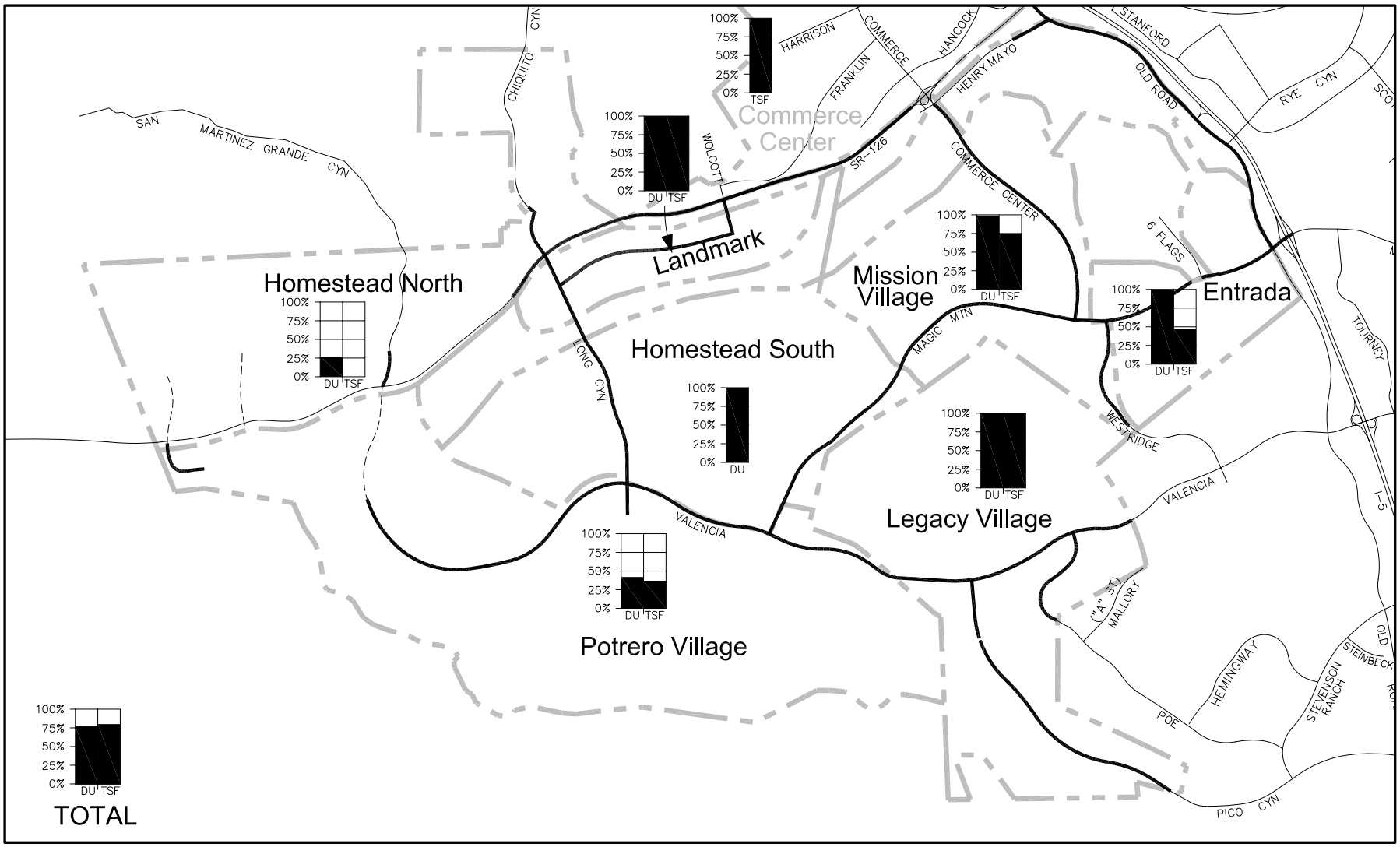
Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 19

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2022



Legend

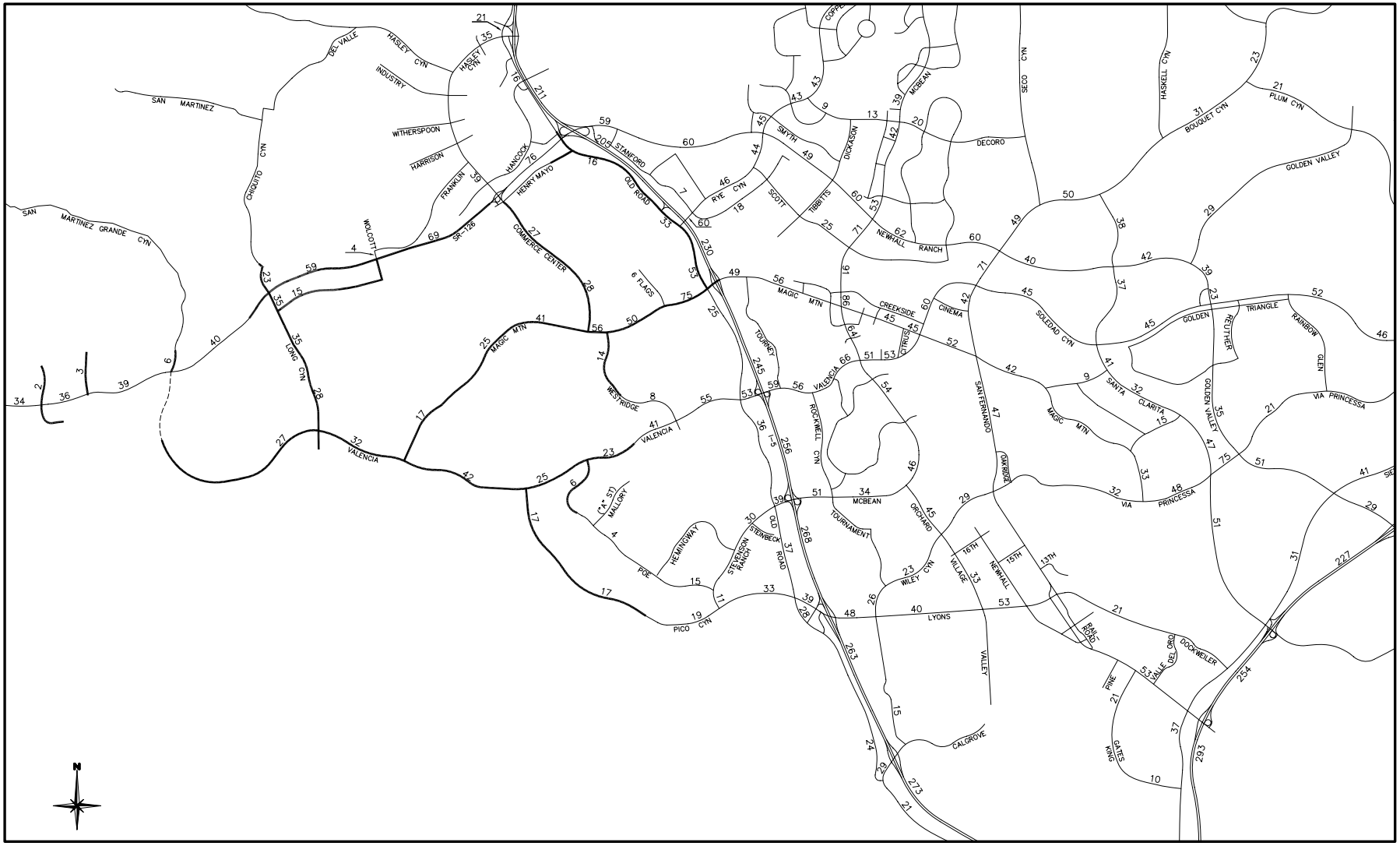
Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 20

PROJECT DEVELOPMENT BY PLANNING AREA -2022



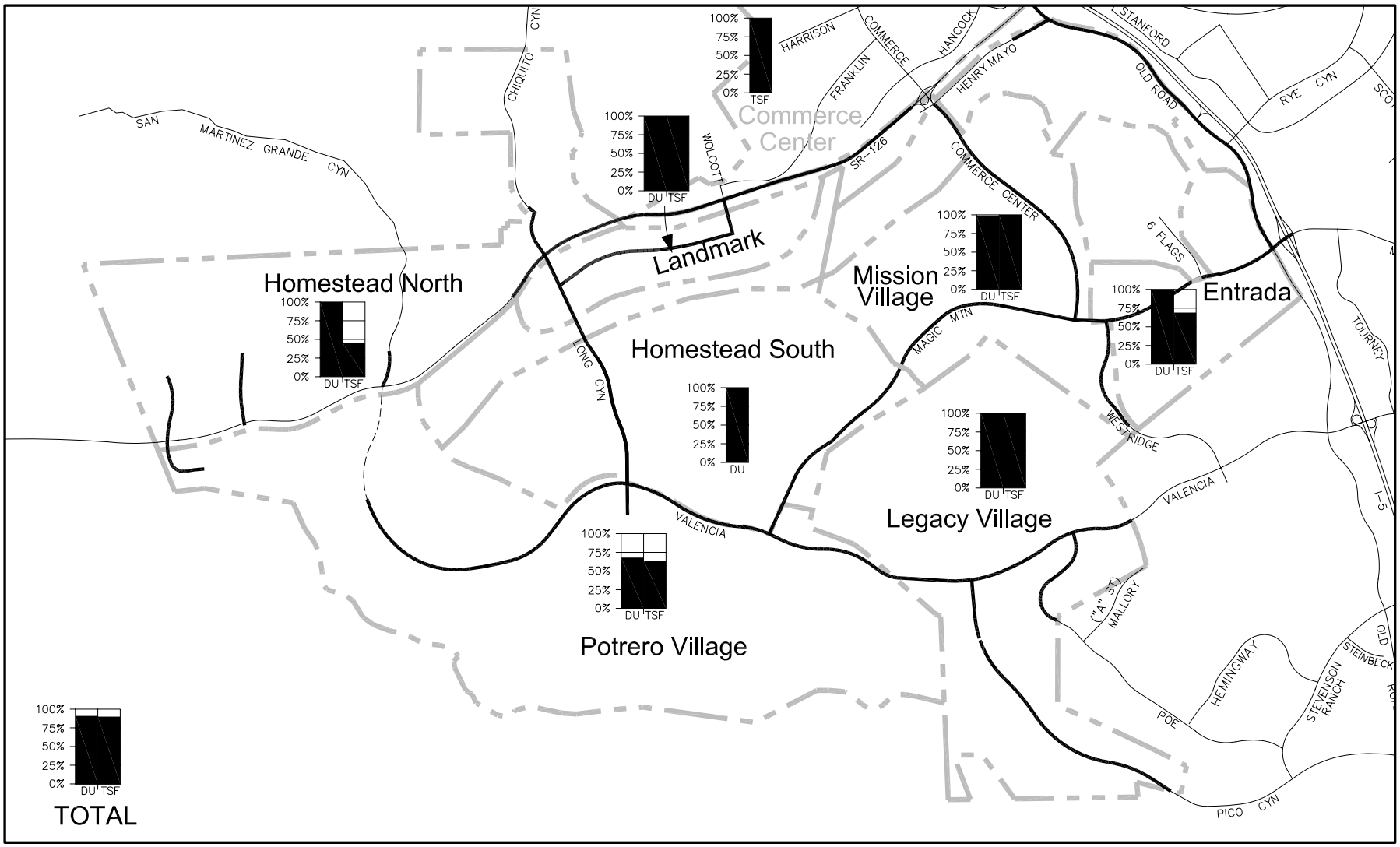
Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 21

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2025



Legend

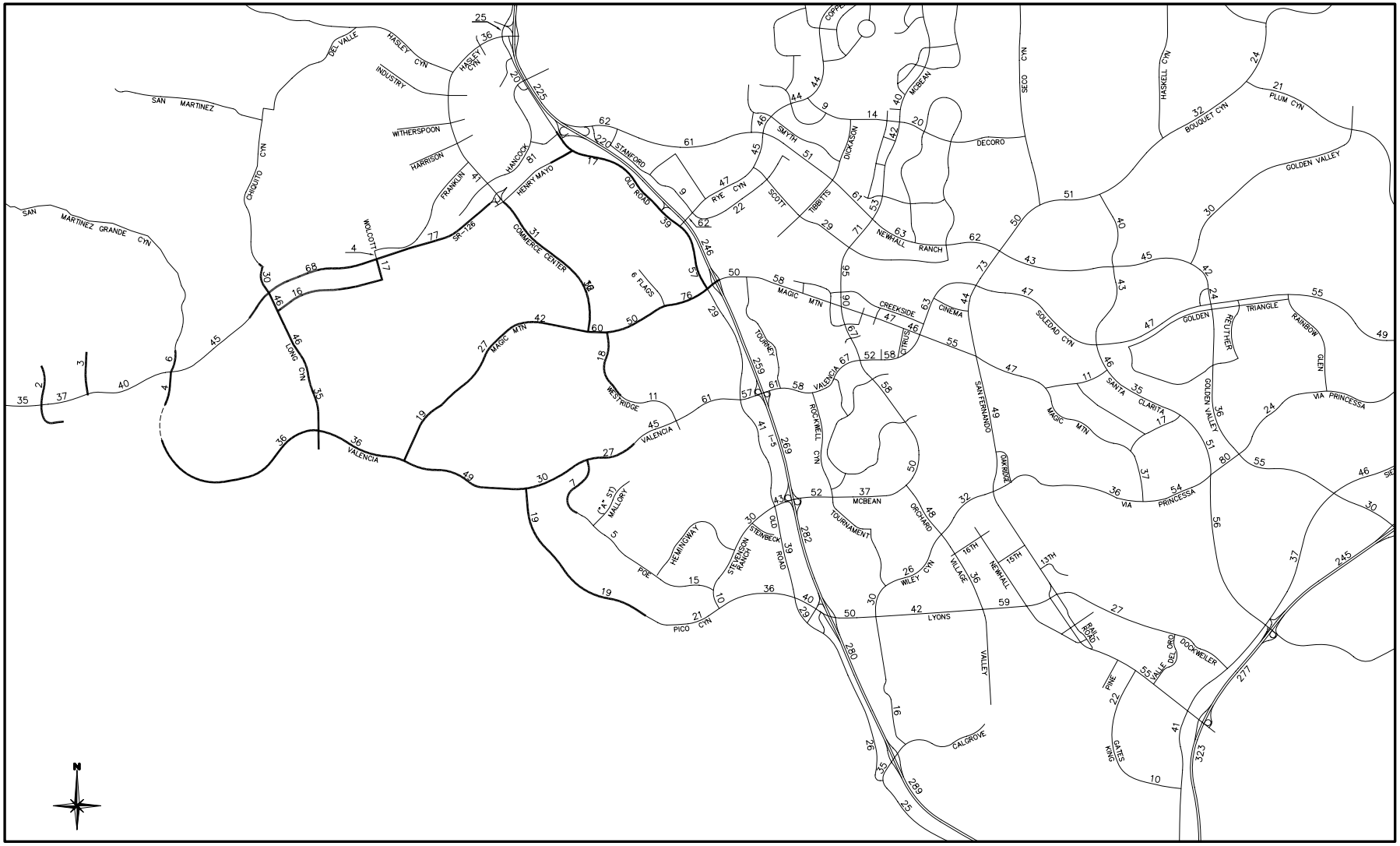
Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 22

PROJECT DEVELOPMENT BY PLANNING AREA -2025



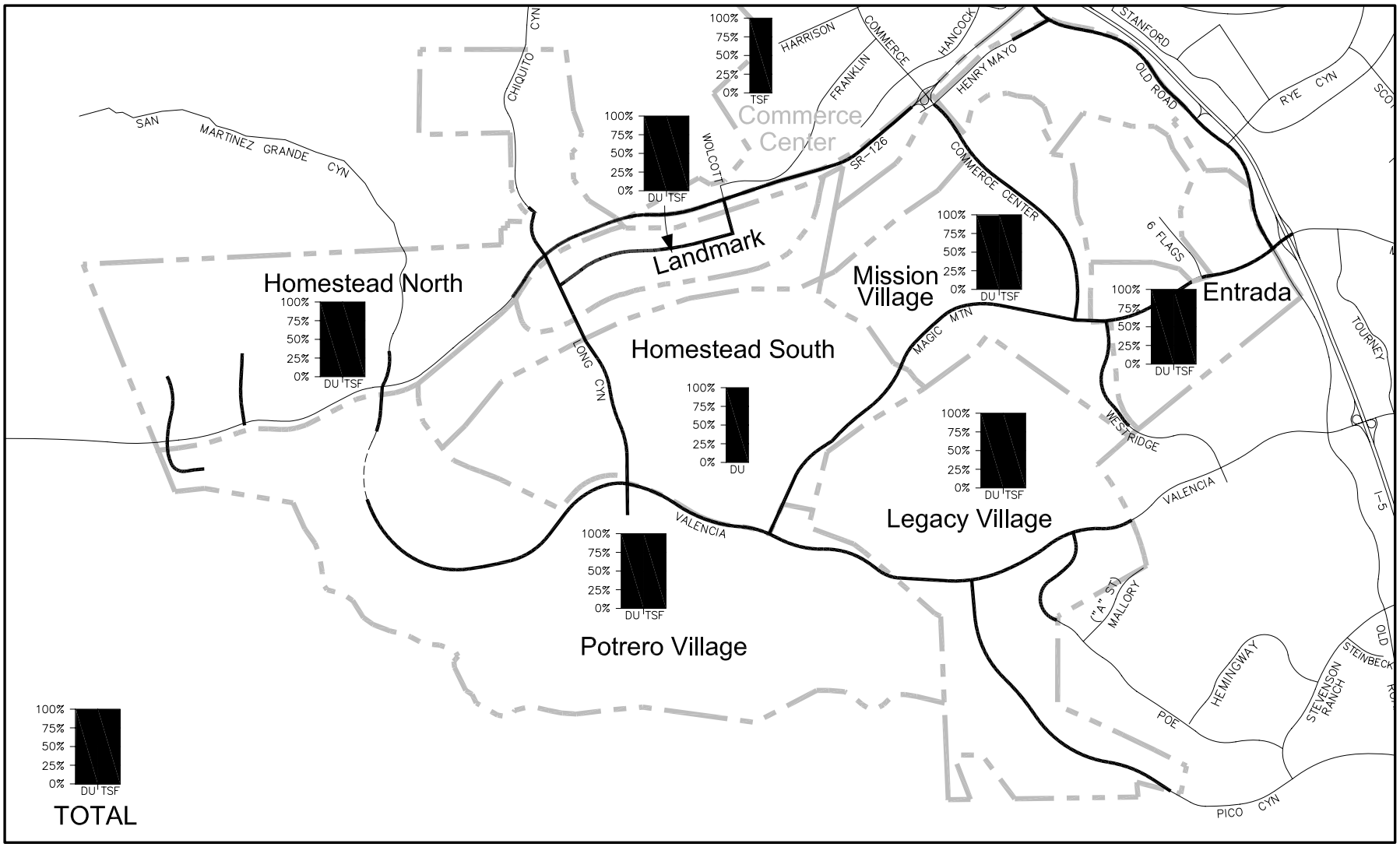
Legend

New/Upgraded Westside Roadway

Future Westside Roadway

Figure 23

AVERAGE DAILY TRAFFIC VOLUMES (000s)
-2030



Legend

Percent Completion of Dwelling Units & Non-Res. Square Footage

Constructed Roadway

Future Roadway

Figure 24

PROJECT DEVELOPMENT BY PLANNING AREA -2030

Table 4: Intersection Improvements by Stage

Stage	Intersection	Improvements
1	7. I-5 SB Ramps & SR-126	Add 4th WBT
	9. The Old Road & I-5 SB Ramps (at Rye Canyon Road)	Relocate intersection north of the existing location. Provide 1 NBL (U-Turns only), 2 NBT, 1 shared NBT/NBR, 1 NBR, 2 SBL, 3 SBT, 2 WBL, and 1 WBR
	10. I-5 SB Ramps & Magic Mountain Pkwy	Add 2nd SBR, 3rd EBT, 2nd EBR, 2nd WBL, and 4th WBT (part of the Magic Mountain Interchange Phase 2 project)
	11. I-5 NB Ramps & Magic Mountain Pkwy	Add shared NBL/NBR, 2nd EBL, 3rd EBT and convert 4th WBT to shared WBT/WBR (part of the Magic Mountain Interchange Phase 2 project)
	25. The Old Road & Rye Canyon Road	Add 2nd & 3rd NBT, 2nd SBL, and 3rd SBT. Restripe 1st WBR to a shared WBL/WBR.
	26. The Old Road & Magic Mountain Pkwy	Add 2nd NBL, 3rd NBT, 1st NBR, 2nd SBL, shared SBT/SBR, 1st SBR, 2nd EBL, 3rd & 4th EBT, 2nd WBL, and 4th WBT
	28. The Old Road & McBean Pkwy	Signal modification to add a northbound right-turn overlap phase.
	80. Wolcott Way & SR-126	Add 1st NBL, 1st & 2nd NBR, 2nd SBL, 3rd EBT, 1st EBR, 2nd WBL, and 3rd WBT
	81. Commerce Center Drive & Henry Mayo Drive	Add 1st EBL, 1st & 2nd EBT, and 1st WBT (part of SR-126 grade separation project)
	82/83. Commerce Center Drive & SR-126	Construct grade separation for Commerce Center Drive at SR-126 to include direct on- and off-ramps for WB SR-126, a loop on-ramp for SB Commerce Center Drive to EB SR-126, a direct on-ramp for NB Commerce Center Drive to EB SR-126, and a direct off-ramp for EB SR-126 to Commerce Center Drive
	106. Commerce Center Drive & Magic Mountain Pkwy	Construct new intersection. Provide 2 SBL, 1 SBR, 2 EBL, 3 EBT, 3 WBT, and 1 WBR with right-of-way reserved for future conversion to a free-flow right-turn lane (part of the project to extend Magic Mountain Parkway to west of Commerce Center Drive)
	107. Westridge Pkwy & Magic Mountain Pkwy	Construct new intersection. Provide 1 NBL, 1 shared NBL/NBR, 1 NBR, 3 EBT, 1 EBR, 2 WBL, and 3 WBT (part of the project to extend Westridge Parkway to Magic Mountain Parkway)
	110. Chiquito Canyon Road/Long Canyon Road & SR-126	Add 1st NBL, 1st & 2nd NBT, 1st & 2nd NBR, 2nd SBL, convert SBR to 1st SBT, add 2nd SBT, 1st EBR, and 1st & 2nd WBL (part of the project to construct Long Canyon Road south of SR-126)
	118. Six Flags Entrance & Magic Mountain Pkwy	Add 1st SBR, 1st & 2nd EBL, 2nd, 3rd & 4th EBT, and 2nd, 3rd & 4th WBT (part of the project to extend Magic Mountain Parkway to west of Commerce Center Drive)

(Continued)

Table 4: Intersection Improvements by Stage (Continued)

Stage	Intersection	Improvements
2	28. The Old Road & McBean Pkwy	Restripe southbound approach to add a 2nd SBL, signal modification to provide right-turn overlap phasing for NBR
	81. Commerce Center Drive & Henry Mayo Drive	Add 1st NBL, 1st, 2nd & 3rd NBT, 2nd SBL, 1st, 2nd & 3rd SBT, 1st EBR, 1st WBL, (part of the project to extend Commerce Center Drive south over the Santa Clara River)
	104. Poe Pkwy & Valencia Blvd	Construct new intersection. Provide 1 NBL, 1 NBR, 2 EBT, 1 EBR, 1 WBL, and 2 WBT (part of the project to extend Poe Parkway to Valencia Boulevard)
3	101. Long Canyon Road & Valencia Blvd	Construct new intersection. Provide 2 SBL and 1 free-flow WBR (part of the project to construct Valencia Boulevard between Long Canyon Road & Magic Mountain Parkway)
	102. Magic Mountain Pkwy & Valencia Blvd (Newhall Ranch)	Construct new intersection. Provide 1 free-flow SBR, and 2 EBL (part of the project to construct Valencia Boulevard between Long Canyon Road & Magic Mountain Parkway)
4	25. The Old Road & Rye Canyon Road	Add 2nd & 3rd WBL
	101. Long Canyon Road & Valencia Blvd	Add 1st NBT, 1st NBR, 1st SBT, and 1st WBL
	102. Magic Mountain Pkwy & Valencia Blvd (Newhall Ranch)	Add 1st & 2nd NBL, 1st & 2nd NBT, 1st NBR, 1st & 2nd SBL, 1st & 2nd SBT, 1st & 2nd EBT, 1st EBR, 1st WBL, 1st & 2nd WBT, 1st WBR (part of the project to extend Valencia Boulevard west to Magic Mountain Parkway)
5	12. I-5 SB Ramps & Valencia Blvd	Convert 2nd WBR to a shared WBT/WBR
	28. The Old Road & McBean Pkwy	Add 1st WBR
	96. San Martinez Grande Canyon Road & SR-126	Add 1st SBL, and 1st WBR
	101. Long Canyon Road & Valencia Blvd	Add 1st NBL, 1st SBR, 1st & 2nd EBL, 1st, 2nd & 3rd EBT, and 1st & 2nd WBT (part of the project to extend Valencia Boulevard west of Long Canyon Road)
	103. Pico Canyon Road & Valencia Blvd	Construct new intersection. Provide 2 NBL, 1 NBR, 2 EBT, 1 EBR, 1 WBL, and 2 WBT (part of the project to extend Pico Canyon Road to Valencia Boulevard)
	106. Commerce Center Drive & Magic Mountain Pkwy	Convert WBR to a free-flow right-turn lane
	110. Chiquito Canyon Road/Long Canyon Road & SR-126	Add 2nd NBL, 3rd SBT, 1st SBR, 2nd EBL, 3rd & 4th EBT, and 3rd WBT

(Continued)

Table 4: Intersection Improvements by Stage (Continued)

Stage	Intersection	Improvements
6a	14. I-5 SB Ramps & McBean Pkwy	Add 2nd SBL
	17. I-5 NB Ramps & Lyons Ave	Add 1st free-flow WBR
6b	10. I-5 SB Ramps & Magic Mountain Pkwy	Convert 1st SBR to a shared SBL/SBR
	16. I-5 SB Loop Ramp & Pico Canyon Road	Restripe eastbound approach to add a 3rd EBT.
	18. I-5 SB Ramps & Calgrove Blvd	Add 2nd EBT and 2nd WBT
	19. I-5 NB Ramps & Calgrove Blvd	Add 2nd EBT and 2nd WBT
	26. The Old Road & Magic Mountain Pkwy	Add 5th EBT
	29. The Old Road & Pico Canyon Road	Convert SBR to 2nd SBT
	80. Wolcott & SR-126	Add 4th EBT, 4th WBT, and right-turn overlap signal phasing for NBR
	96. San Martinez Grande Canyon Road & SR-126	Add 1st NBL, 1st NBT, 2nd SBL, 1st SBR, 1st EBR, and 1st WBL

NB = Northbound	NBL = NB Left-turn Lane	NBT = NB Through Lane	NBR = NB Right-turn Lane
SB = Southbound	SBL = SB Left-turn Lane	SBT = SB Through Lane	SBR = SB Right-turn Lane
EB = Eastbound	EBL = EB Left-turn Lane	EBT = EB Through Lane	EBR = EB Right-turn Lane
WB = Westbound	WBL = WB Left-turn Lane	WBT = WB Through Lane	WBR = WB Right-turn Lane

See Figure B-1 for intersection locations.

Table 5: Intersection Capacity Utilization Summary

	Exist.		2011		2012		2014		2018		2022		2025		2030	
Intersection	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
7. I-5 SB Ramps & SR-126	.42	.31	.79	.59	.77	.65	.77	.67	.75	.64	.73	.66	.74	.70	.77	.75
8. I-5 NB Ramps & SR-126	.37	.29	.64	.60	.61	.62	.62	.64	.60	.61	.58	.64	.63	.69	.69	.77
9. Old Road & I-5 SB Ramps (at Rye Canyon)	.73	.92	.52	.62	.43	.53	.43	.54	.47	.65	.49	.68	.54	.74	.60	.82
10. I-5 SB Ramps & Magic Mountain	.58	.59	.55	.68	.58	.66	.59	.68	.60	.81	.63	.84	.68	.86	.64	.77
11. I-5 NB Ramps & Magic Mountain	.63	.70	.51	.66	.53	.66	.56	.69	.65	.79	.69	.82	.72	.84	.75	.87
12. I-5 SB Ramps & Valencia	.47	.42	.56	.66	.54	.65	.54	.72	.64	.86	.58	.78	.59	.83	.60	.86
13. I-5 NB Ramps & Valencia	.53	.51	.57	.65	.56	.64	.58	.66	.64	.67	.69	.69	.70	.71	.73	.73
14. I-5 SB Ramps & McBean	.56	.66	.55	.71	.52	.70	.53	.71	.57	.80	.60	.85	.52	.80	.52	.81
15. I-5 NB Ramps & McBean	.41	.66	.53	.71	.54	.69	.54	.70	.56	.72	.58	.76	.61	.81	.63	.85
16. I-5 SB On-Loop & Lyons	.55	.60	.56	.76	.57	.72	.57	.71	.57	.76	.58	.81	.60	.87	.58	.85
17. I-5 NB Ramps & Lyons	.53	.68	.50	.75	.45	.76	.44	.77	.48	.87	.49	.89	.51	.86	.53	.89
18. I-5 SB Ramps & Calgrove	.49	.64	.68	.66	.66	.70	.66	.70	.70	.74	.74	.82	.77	.89	.60	.68
19. I-5 NB Ramps & Calgrove	.64	.52	.79	.51	.78	.51	.78	.52	.82	.56	.85	.64	.88	.71	.67	.67
20. I-5 SB Ramp & Lyons	.44	.46	.41	.59	.40	.57	.40	.57	.46	.60	.50	.62	.51	.66	.53	.70
25. Old Road & Rye Canyon	.87	.84	.70	.80	.71	.72	.75	.74	.85	.66	.83	.73	.85	.78	.94	.85
26. Old Road & Magic Mountain	.49	.63	.55	.61	.51	.59	.58	.67	.68	.71	.73	.80	.78	.85	.85	.85
27. Old Road & Valencia	.54	.61	.52	.59	.58	.60	.60	.66	.66	.71	.75	.85	.76	.87	.79	.90
28. Old Road & McBean	.48	.72	.59	.89	.56	.84	.55	.86	.57	.77	.58	.77	.57	.77	.55	.82
29. Old Road & Pico	.55	.62	.83	.74	.84	.74	.87	.75	.79	.73	.80	.81	.82	.88	.84	.89
80. Wolcott & SR-126	.34	.46	.54	.77	.54	.80	.55	.79	.56	.74	.66	.77	.77	.86	.76	.79
81. Commerce Center & Henry Mayo	--	--	.22	.37	.37	.36	.44	.42	.50	.47	.65	.54	.75	.61	.78	.72
82. Commerce Center & SR-126 EB Ramps	--	--	.13	.18	.32	.26	.38	.34	.37	.39	.42	.41	.45	.43	.47	.46
83. Commerce Center & SR-126 WB Ramps	--	--	.54	.41	.67	.55	.74	.62	.78	.69	.80	.72	.81	.78	.80	.87
96. Martinez/Potrero & SR-126	.33	.46	.37	.45	.38	.46	.38	.46	.41	.50	.44	.52	.56	.64	.70	.72
101. Long Canyon & Valencia	--	--	--	--	--	--	.10	.10	.12	.20	.31	.41	.47	.65	.50	.81
102. Newhall Ranch & Valencia	--	--	--	--	--	--	.10	.10	.24	.21	.36	.40	.43	.51	.68	.71
103. Pico Canyon & Valencia	--	--	--	--	--	--	--	--	.26	.29	.53	.59	.63	.74	.66	.80
104. Poe & Valencia	--	--	--	--	.23	.19	.24	.19	.38	.33	.57	.52	.64	.59	.68	.63
105. Westridge & Valencia	.48	.20	.31	.17	.40	.22	.45	.31	.46	.40	.54	.54	.56	.58	.56	.64
106. Commerce Center & Magic Mountain	--	--	.19	.24	.69	.33	.84	.47	.78	.56	.59	.67	.67	.72	.74	.74
107. Westridge & Magic Mountain	--	--	.21	.26	.40	.32	.48	.44	.56	.53	.63	.63	.66	.67	.67	.67
110. Chiquito Canyon & SR-126	.38	.44	.56	.58	.58	.58	.58	.58	.59	.59	.69	.63	.87	.90	n/a[1]	n/a[1]
118. Six Flags Entrance & Magic Mountain	--	--	.25	.47	.29	.46	.32	.50	.39	.59	.44	.65	.44	.67	.45	.74

[1]not applicable – This scenario has been evaluated using the Highway Capacity Manual Signalized Intersection methodology (see worksheets in Appx. B)
See Figure B-1 for intersection locations.

Table 6: AM Peak Hour Level of Service Summary

Intersection	Exist.	2011	2012	2014	2018	2022	2025	2030
7. I-5 SB Ramps & SR-126	A	C	C	C	C	C	C	C
8. I-5 NB Ramps & SR-126	A	B	B	B	A	A	B	B
9. Old Road & I-5 SB Ramps (at Rye Canyon)	C	A	A	A	A	A	A	A
10. I-5 SB Ramps & Magic Mountain	A	A	A	A	A	B	B	B
11. I-5 NB Ramps & Magic Mountain	B	A	A	A	B	B	C	C
12. I-5 SB Ramps & Valencia	A	A	A	A	B	A	A	A
13. I-5 NB Ramps & Valencia	A	A	A	A	B	B	B	C
14. I-5 SB Ramps & McBean	A	A	A	A	A	A	A	A
15. I-5 NB Ramps & McBean	A	A	A	A	A	A	B	B
16. I-5 SB On-Loop & Lyons	A	A	A	A	A	A	A	A
17. I-5 NB Ramps & Lyons	A	A	A	A	A	A	A	A
18. I-5 SB Ramps & Calgrove	A	B	B	B	B	C	C	A
19. I-5 NB Ramps & Calgrove	B	C	C	C	D	D	D	B
20. I-5 SB Ramp & Lyons	A	A	A	A	A	A	A	A
25. Old Road & Rye Canyon	D	B	C	C	D	D	D	D
26. Old Road & Magic Mountain	A	A	A	A	B	C	C	D
27. Old Road & Valencia	A	A	A	A	B	C	C	C
28. Old Road & McBean	A	A	A	A	A	A	A	A
29. Old Road & Pico	A	D	D	D	C	C	D	D
80. Wolcott & SR-126	A	A	A	A	A	B	C	C
81. Commerce Center & Henry Mayo	--	A	A	A	A	B	C	C
82. Commerce Center & SR-126 EB Ramps	--	A	A	A	A	A	A	A
83. Commerce Center & SR-126 WB Ramps	--	A	B	C	C	C	D	C
96. Martinez/Potrero & SR-126	A	A	A	A	A	A	A	B
101. Long Canyon & Valencia	--	--	--	A	A	A	A	A
102. Newhall Ranch & Valencia	--	--	--	A	A	A	A	B
103. Pico Canyon & Valencia	--	--	--	--	A	A	B	B
104. Poe & Valencia	--	--	A	A	A	A	B	B
105. Westridge & Valencia	A	A	A	A	A	A	A	A
106. Commerce Center & Magic Mountain	--	A	B	D	C	A	B	C
107. Westridge & Magic Mountain	--	A	A	A	A	B	B	B
110. Chiquito Canyon & SR-126	A	A	A	A	A	B	D	D
118. Six Flags Entrance & Magic Mountain	--	A	A	A	A	A	A	A

See Figure B-1 for intersection locations.

Table 7: PM Peak Hour Level of Service Summary

Intersection	Exist.	2011	2012	2014	2018	2022	2025	2030
7. I-5 SB Ramps & SR-126	A	A	B	B	B	B	B	C
8. I-5 NB Ramps & SR-126	A	A	B	B	B	B	B	C
9. Old Road & I-5 SB Ramps (at Rye Canyon)	E	B	A	A	B	B	C	D
10. I-5 SB Ramps & Magic Mountain	A	B	B	B	D	D	D	C
11. I-5 NB Ramps & Magic Mountain	B	B	B	B	C	D	D	D
12. I-5 SB Ramps & Valencia	A	B	B	C	D	C	D	D
13. I-5 NB Ramps & Valencia	A	B	B	B	B	B	C	C
14. I-5 SB Ramps & McBean	B	C	B	C	C	D	C	D
15. I-5 NB Ramps & McBean	B	C	B	B	C	C	D	D
16. I-5 SB On-Loop & Lyons	A	C	C	C	C	D	D	D
17. I-5 NB Ramps & Lyons	B	C	C	C	D	D	D	D
18. I-5 SB Ramps & Calgrove	B	B	B	B	C	D	D	B
19. I-5 NB Ramps & Calgrove	A	A	A	A	A	B	C	B
20. I-5 SB Ramp & Lyons	A	A	A	A	A	B	B	B
25. Old Road & Rye Canyon	D	C	C	C	B	C	C	D
26. Old Road & Magic Mountain	B	B	A	B	C	C	D	D
27. Old Road & Valencia	B	A	A	B	C	D	D	D
28. Old Road & McBean	C	D	D	D	C	C	C	D
29. Old Road & Pico	B	C	C	C	C	D	D	D
80. Wolcott & SR-126	A	C	C	C	C	C	D	C
81. Commerce Center & Henry Mayo	--	A	A	A	A	A	B	C
82. Commerce Center & SR-126 EB Ramps	--	A	A	A	A	A	A	A
83. Commerce Center & SR-126 WB Ramps	--	A	A	B	B	C	C	D
96. Martinez/Potrero & SR-126	A	A	A	A	A	A	B	C
101. Long Canyon & Valencia	--	--	--	A	A	A	B	D
102. Newhall Ranch & Valencia	--	--	--	A	A	A	A	C
103. Pico Canyon & Valencia	--	--	--	--	A	A	C	C
104. Poe & Valencia	--	--	A	A	A	A	A	B
105. Westridge & Valencia	A	A	A	A	A	A	A	B
106. Commerce Center & Magic Mountain	--	A	A	A	A	B	C	C
107. Westridge & Magic Mountain	--	A	A	A	A	B	B	B
110. Chiquito Canyon & SR-126	A	A	A	A	A	B	D	D
118. Six Flags Entrance & Magic Mountain	--	A	A	A	A	B	B	C

See Figure B-1 for intersection locations.

6.0 NON-WESTSIDE AREAS

The original Newhall Ranch Specific Plan EIR addressed areas not covered in this analysis, such as the Ventura County communities of Fillmore and Piru, roadways within the City of Santa Clarita, and the State highway system (see Appendix D for the list of Newhall Ranch Specific Plan final mitigation measures).

Analysis for the Ventura County communities that satisfies the Specific Plan Conditions of Approval has been completed separate from this report, and an analysis of City of Santa Clarita roadways and intersections based on the traffic forecasts summarized in this report has been prepared as part of a separate document for City staff to review.

Caltrans is currently in the process of developing a comprehensive improvement program for the I-5 freeway through the Santa Clarita Valley. The project, which is in the Project Approval/Environmental Documentation (PA/ED) stage, will add a High Occupancy Vehicle (HOV) lane in each direction between SR-14 and the Parker Road interchange. The project will also add a truck lane in each direction between SR-14 and the Pico/Lyons Canyon Road interchange. It is also proposed that an early implementation project be constructed before construction begins for the full project. The early implementation project consists of the northbound HOV lane from SR-14 to the crest of the segment between SR-14 and the Calgrove interchange, as well as the southbound truck lane from the Pico/Lyons Canyon Road interchange to SR-14.

South of the SR-14 interchange, a single HOV lane in each direction is currently under construction. Direct HOV to HOV connectors between the existing SR-14 HOV lanes and the I-5 HOV lanes under construction are currently in the design stage. Ultimately, the MTA has identified the need to construct additional lanes south of the SR-14 interchange to accommodate the projected future traffic volumes. In the *North County Combined Highway Corridors Study – Final Report* (MTA, June 2004), multiple concepts to add additional capacity between SR-14 and I-210 are identified, with a recommended configuration pending the completion of subsequent design phases.

Following is the timing of the planned I-5 freeway improvements based on the anticipated construction schedule for the project currently in the PA/ED stage. As the project to add additional

capacity south of SR-14 does not have an identified time frame for construction, for the purpose of this analysis it is not presumed to be constructed until the year 2030.

- Northbound HOV Lane: SR-14 to crest of grade (south of Calgrove interchange) – 2010
- Southbound Truck Lane: Pico/Lyons Canyon interchange to SR-14 – 2010
- Complete HOV/Truck Lane project: SR-14 to Parker interchange – between 2015 & 2018
- Additional Lane(s) project: South of SR-14 – 2030

Table 8 summarizes the I-5 peak hour mainline freeway LOS values for each of the Westside phasing scenarios identified in the previous section. As with the arterial roadway forecasts presented in the previous sections, each of these scenarios includes cumulative development projections for outside the Westside area. Traffic volume forecasts for each of the scenarios, together with the I-5 improvements listed above, result in the indicated LOS values. Detailed V/C calculations are provided in Appendix C.

7.0 CONCLUSIONS

The construction stages outlined in this report will provide for the access needs of the Westside area by ensuring that the necessary roadway infrastructure is developed together with the phased land use development. Furthermore, the freeway improvements planned for I-5 through the Santa Clarita Valley will accommodate the projected traffic demands as the Valley builds out over the next 25 years.

A comprehensive plan such as this provides for some flexibility in regards to individual planning areas that proceed faster or slower than anticipated here. The roadway phasing plan will remain valid if the total number of units remains in line with the overall pattern assumed in this analysis, and if the placement of the development is relatively consistent with the projected plan. An update to this phasing study, such as every five years or given a substantial change to anticipated development, would provide a means to adjust the overall phasing plan as actual travel patterns evolve over time.

Table 8: I-5 Level of Service Summary

AM SOUTHBOUND	2006	2011	2012	2014	2018	2022	2025	2030
403. I-5 s/o Parker	A	C	C	C	C	C	C	C
404. I-5 s/o Hasley	B	C	C	C	C	C	C	C
405. I-5 s/o SR-126	B	C	C	C	C	C	C	C
406. I-5 s/o Rye Cyn	B	C	C	C	C	C	C	D
407. I-5 s/o Magic Mtn	C	C	C	C	C	C	C	D
408. I-5 s/o Valencia	C	C	C	C	C	D	D	D
409. I-5 s/o McBean	C	C	C	C	C	D	D	D
410. I-5 s/o Lyons	D	C	C	C	C	C	C	C
411. I-5 s/o Calgrove	D	C	C	C	C	C	C	C
412. I-5 s/o SR-14	E	D	D	E	E	E	E	E

AM NORTHBOUND	2006	2011	2012	2014	2018	2022	2025	2030
403. I-5 s/o Parker	A	B	B	B	B	B	B	B
404. I-5 s/o Hasley	A	C	C	C	C	C	C	C
405. I-5 s/o SR-126	B	C	C	C	C	C	C	C
406. I-5 s/o Rye Cyn	B	C	C	C	C	C	C	C
407. I-5 s/o Magic Mtn	C	D	D	D	C	C	D	D
408. I-5 s/o Valencia	C	D	D	D	D	D	D	D
409. I-5 s/o McBean	C	D	D	D	D	D	D	D
410. I-5 s/o Lyons	C	D	D	D	C	C	D	D
411. I-5 s/o Calgrove	C	C	C	C	C	C	C	C
412. I-5 s/o SR-14	B	B	B	B	B	C	C	C

PM SOUTHBOUND	2006	2011	2012	2014	2018	2022	2025	2030
403. I-5 s/o Parker	A	C	C	C	C	C	C	D
404. I-5 s/o Hasley	B	D	D	D	C	D	D	D
405. I-5 s/o SR-126	B	D	D	D	D	D	D	D
406. I-5 s/o Rye Cyn	C	E	E	E	E	E	E	E
407. I-5 s/o Magic Mtn	C	E	E	E	E	E	E	E
408. I-5 s/o Valencia	D	E	E	E	E	E	E	E
409. I-5 s/o McBean	D	E	E	E	E	E	E	E
410. I-5 s/o Lyons	D	D	D	D	C	C	C	C
411. I-5 s/o Calgrove	D	D	D	D	C	C	C	C
412. I-5 s/o SR-14	C	C	C	C	C	C	C	C

PM NORTHBOUND	2006	2011	2012	2014	2018	2022	2025	2030
403. I-5 s/o Parker	B	D	D	D	D	D	D	D
404. I-5 s/o Hasley	B	D	D	D	D	D	D	D
405. I-5 s/o SR-126	B	C	C	C	C	C	D	D
406. I-5 s/o Rye Cyn	B	C	C	C	C	C	D	D
407. I-5 s/o Magic Mtn	C	D	D	D	C	D	D	D
408. I-5 s/o Valencia	D	D	D	D	D	D	D	D
409. I-5 s/o McBean	D	D	D	D	D	D	D	D
410. I-5 s/o Lyons	D	E	E	E	D	D	D	D
411. I-5 s/o Calgrove	E	D	D	D	D	D	D	D
412. I-5 s/o SR-14	E	E	E	E	E	E	E	E

Level of Service (LOS) estimated based on the following range of V/C ratios (source: Highway Capacity Manual 2000):

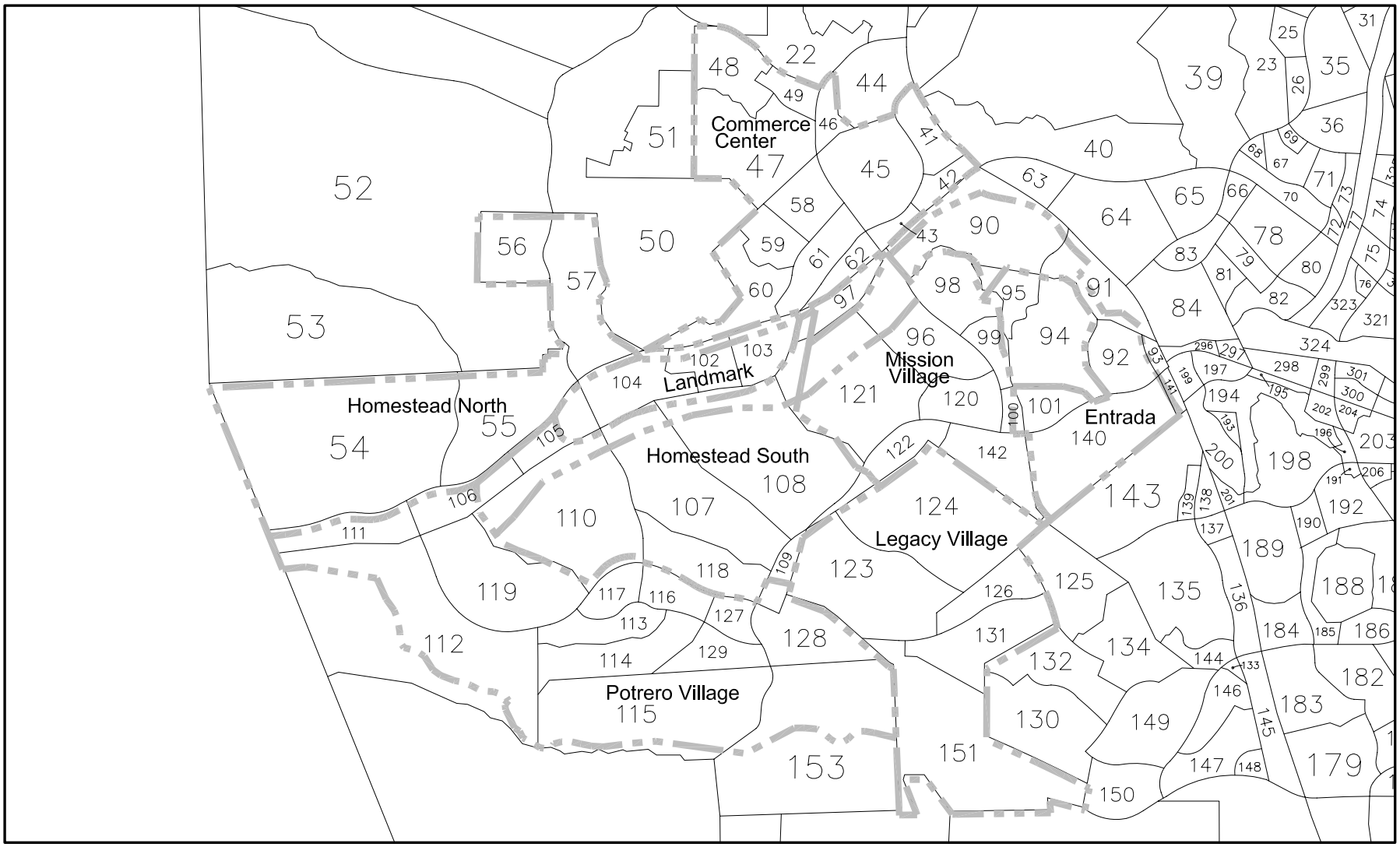
LOS	V/C
A	0.00 – 0.34
B	0.35 – 0.56
C	0.57 – 0.76
D	0.77 - 0.90
E	0.91 – 1.00
F	above 1.00

See Appendix C for V/C calculations.

APPENDIX A

LAND USE AND TRIP GENERATION BY PLANNING AREA

a. Traffic Analysis Zone (TAZ) Map



Legend

Planning Area Boundary
TAZ Boundary
XX TAZ Number

Figure A-1

SCVCTM TAZ MAP
- WESTSIDE PROJECT AREA

APPENDIX A (Cont.)

LAND USE AND TRIP GENERATION BY PLANNING AREA

b. Year 2011

LANDMARK VILLAGE (2011) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
102	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
	4.	Condominium/Townhouse	305.00 DU	31	146	177	143	79	222	2440
	5.	Apartment	155.00 DU	12	67	79	64	33	97	1070
	12.	Commercial Center (<10ac)	10.50 TSF	11	7	18	35	38	73	893
	40.	Commercial Office	9.50 TSF	15	2	17	2	12	14	110
		SUB-TOTAL		76	243	319	268	176	444	4889
103	3.	Single Family (6-10du/ac)	95.00 DU	18	53	71	61	35	96	940
	4.	Condominium/Townhouse	169.00 DU	17	81	98	79	44	123	1352
	12.	Commercial Center (<10ac)	38.50 TSF	42	27	69	128	139	267	3275
	13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
	20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
	51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
		SUB-TOTAL		279	316	595	345	304	649	7049
104	3.	Single Family (6-10du/ac)	175.00 DU	33	98	131	112	65	177	1732
	4.	Condominium/Townhouse	211.00 DU	21	101	122	99	55	154	1688
	5.	Apartment	152.00 DU	12	65	77	62	32	94	1049
	11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
	40.	Commercial Office	370.00 TSF	574	70	644	78	477	555	4277
		SUB-TOTAL		824	452	1276	951	1279	2230	22369
105	5.	Apartment	144.00 DU	12	62	74	59	30	89	994
	12.	Commercial Center (<10ac)	27.10 TSF	30	19	49	90	98	188	2305
	40.	Commercial Office	315.90 TSF	490	60	550	66	408	474	3652
		SUB-TOTAL		532	141	673	215	536	751	6951

LANDMARK VILLAGE (2011) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	308.00 DU	58	172	230	197	114	311	3048
4.	Condominium/Townhouse	685.00 DU	69	328	397	321	178	499	5480
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
12.	Commercial Center (<10ac)	76.10 TSF	83	53	136	253	275	528	6473
13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	695.40 TSF	1079	132	1211	146	897	1043	8039
51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
	TOTAL		1711	1152	2863	1779	2295	4074	41258

MISSION VILLAGE (2011) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
120	4.	Condominium/Townhouse	531.00 DU	53	255	308	250	138	388	4248
	11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
	13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
	20.	Elementary/Middle School	400.00 STU	104	80	184	32	36	68	580
	40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
	51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
		SUB-TOTAL		431	451	882	803	816	1619	17122

MISSION VILLAGE (2011) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
4.	Condominium/Townhouse	531.00 DU	53	255	308	250	138	388	4248
11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
20.	Elementary/Middle School	400.00 STU	104	80	184	32	36	68	580
40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
	TOTAL		431	451	882	803	816	1619	17122

HOMESTEAD S/O RIVER (2011) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
108	4. Condominium/Townhouse	112.00 DU	11	54	65	53	29	82	896
	51. Developed Park	8.70 AC	0	0	0	0	0	0	23
	SUB-TOTAL		11	54	65	53	29	82	919

HOMESTEAD S/O RIVER (2011) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4. Condominium/Townhouse	112.00 DU	11	54	65	53	29	82	896
51. Developed Park	8.70 AC	0	0	0	0	0	0	23
TOTAL		11	54	65	53	29	82	919

ENTRADA (2011) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
90	30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
	11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
		SUB-TOTAL		134	69	203	329	381	710	7681
92	40.	Commercial Office	200.00 TSF	310	38	348	42	258	300	2312
		SUB-TOTAL		310	38	348	42	258	300	2312
140	3.	Single Family (6-10du/ac)	150.00 DU	29	84	113	96	56	152	1485
	12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
		SUB-TOTAL		60	104	164	191	159	350	3907

ENTRADA (2011) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	150.00 DU	29	84	113	96	56	152	1485
11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
40.	Commercial Office	200.00 TSF	310	38	348	42	258	300	2312
	TOTAL		504	211	715	562	798	1360	13900

COMMERCE CENTER (2011) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
41	30.	Industrial Park	730.00 TSF	402	73	475	95	380	475	4380
		SUB-TOTAL		402	73	475	95	380	475	4380
42	30.	Industrial Park	275.00 TSF	151	28	179	36	143	179	1650
		SUB-TOTAL		151	28	179	36	143	179	1650
43	30.	Industrial Park	273.90 TSF	151	27	178	36	142	178	1643
		SUB-TOTAL		151	27	178	36	142	178	1643
45	30.	Industrial Park	660.20 TSF	363	66	429	86	343	429	3961
		SUB-TOTAL		363	66	429	86	343	429	3961
46	13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
	30.	Industrial Park	445.80 TSF	245	45	290	58	232	290	2675
		SUB-TOTAL		300	82	382	197	371	568	5529
47	30.	Industrial Park	3254.10 TSF	1790	325	2115	423	1692	2115	19525
		SUB-TOTAL		1790	325	2115	423	1692	2115	19525
48	30.	Industrial Park	720.00 TSF	396	72	468	94	374	468	4320
		SUB-TOTAL		396	72	468	94	374	468	4320
49	30.	Industrial Park	764.30 TSF	420	76	496	99	397	496	4586
		SUB-TOTAL		420	76	496	99	397	496	4586
58	30.	Industrial Park	1051.50 TSF	578	105	683	137	547	684	6309
		SUB-TOTAL		578	105	683	137	547	684	6309
59	35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
		SUB-TOTAL		153	115	268	115	115	230	3820
60	30.	Industrial Park	411.60 TSF	226	41	267	54	214	268	2470
		SUB-TOTAL		226	41	267	54	214	268	2470
61	30.	Industrial Park	744.90 TSF	410	74	484	97	387	484	4469
		SUB-TOTAL		410	74	484	97	387	484	4469
62	30.	Industrial Park	287.30 TSF	158	29	187	37	149	186	1724
		SUB-TOTAL		158	29	187	37	149	186	1724

COMMERCE CENTER (2011) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
30.	Industrial Park	9618.60 TSF	5290	961	6251	1252	5000	6252	57712
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	TOTAL		5498	1113	6611	1506	5254	6760	64386

TOTAL (2011) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3.	Single Family (6-10du/ac)	458.00 DU	87	256	343	293	170	463	4533
4.	Condominium/Townhouse	1328.00 DU	133	637	770	624	345	969	10624
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	587.00 TSF	429	275	704	1397	1514	2911	31733
12.	Commercial Center (<10ac)	104.57 TSF	114	73	187	348	378	726	8895
13.	Commercial Shops	102.50 TSF	74	50	124	185	185	370	3799
20.	Elementary/Middle School	1150.00 STU	299	230	529	92	104	196	1668
30.	Industrial Park	9682.48 TSF	5325	967	6292	1260	5033	6293	58095
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
40.	Commercial Office	970.40 TSF	1505	184	1689	204	1252	1456	11218
51.	Developed Park	33.20 AC	0	0	0	0	1	1	87
	TOTAL		8155	2981	11136	4703	9192	13895	137585

APPENDIX A (Cont.)

LAND USE AND TRIP GENERATION BY PLANNING AREA

c. Year 2012

LANDMARK VILLAGE (2012) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
102	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
	4.	Condominium/Townhouse	305.00 DU	31	146	177	143	79	222	2440
	5.	Apartment	155.00 DU	12	67	79	64	33	97	1070
	12.	Commercial Center (<10ac)	10.50 TSF	11	7	18	35	38	73	893
	40.	Commercial Office	9.50 TSF	15	2	17	2	12	14	110
		SUB-TOTAL		76	243	319	268	176	444	4889
103	3.	Single Family (6-10du/ac)	95.00 DU	18	53	71	61	35	96	940
	4.	Condominium/Townhouse	169.00 DU	17	81	98	79	44	123	1352
	12.	Commercial Center (<10ac)	38.50 TSF	42	27	69	128	139	267	3275
	13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
	20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
	51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
		SUB-TOTAL		279	316	595	345	304	649	7049
104	3.	Single Family (6-10du/ac)	175.00 DU	33	98	131	112	65	177	1732
	4.	Condominium/Townhouse	211.00 DU	21	101	122	99	55	154	1688
	5.	Apartment	152.00 DU	12	65	77	62	32	94	1049
	11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
	40.	Commercial Office	370.00 TSF	574	70	644	78	477	555	4277
		SUB-TOTAL		824	452	1276	951	1279	2230	22369
105	5.	Apartment	144.00 DU	12	62	74	59	30	89	994
	12.	Commercial Center (<10ac)	27.10 TSF	30	19	49	90	98	188	2305
	40.	Commercial Office	315.90 TSF	490	60	550	66	408	474	3652
		SUB-TOTAL		532	141	673	215	536	751	6951

LANDMARK VILLAGE (2012) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3.	Single Family (6-10du/ac)	308.00 DU	58	172	230	197	114	311	3048
4.	Condominium/Townhouse	685.00 DU	69	328	397	321	178	499	5480
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
12.	Commercial Center (<10ac)	76.10 TSF	83	53	136	253	275	528	6473
13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	695.40 TSF	1079	132	1211	146	897	1043	8039
51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
	TOTAL		1711	1152	2863	1779	2295	4074	41258

MISSION VILLAGE (2012) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
120	4.	Condominium/Townhouse	932.00 DU	93	447	540	438	242	680	7456
	11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
	13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
	20.	Elementary/Middle School	600.00 STU	156	120	276	48	54	102	870
	40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
	51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
		SUB-TOTAL		523	683	1206	1007	938	1945	20620

MISSION VILLAGE (2012) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4.	Condominium/Townhouse	932.00 DU	93	447	540	438	242	680	7456
11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
20.	Elementary/Middle School	600.00 STU	156	120	276	48	54	102	870
40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
	TOTAL		523	683	1206	1007	938	1945	20620

HOMESTEAD S/O RIVER (2012) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
108	4. Condominium/Townhouse	312.00 DU	31	150	181	147	81	228	2496
	51. Developed Park	8.70 AC	0	0	0	0	0	0	23
	SUB-TOTAL		31	150	181	147	81	228	2519

HOMESTEAD S/O RIVER (2012) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4. Condominium/Townhouse	312.00 DU	31	150	181	147	81	228	2496
51. Developed Park	8.70 AC	0	0	0	0	0	0	23
TOTAL		31	150	181	147	81	228	2519

ENTRADA (2012) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
90	30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
	11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
		SUB-TOTAL		134	69	203	329	381	710	7681
92	40.	Commercial Office	200.00 TSF	310	38	348	42	258	300	2312
		SUB-TOTAL		310	38	348	42	258	300	2312
140	3.	Single Family (6-10du/ac)	391.00 DU	74	219	293	250	145	395	3871
	12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
		SUB-TOTAL		105	239	344	345	248	593	6293

ENTRADA (2012) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	391.00 DU	74	219	293	250	145	395	3871
11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
40.	Commercial Office	200.00 TSF	310	38	348	42	258	300	2312
	TOTAL		549	346	895	716	887	1603	16286

LEGACY VILLAGE (2012) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
126	4. Condominium/Townhouse	97.00 DU	10	47	57	46	25	71	776
	SUB-TOTAL		10	47	57	46	25	71	776

LEGACY VILLAGE (2012) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4. Condominium/Townhouse	97.00 DU	10	47	57	46	25	71	776
TOTAL		10	47	57	46	25	71	776

COMMERCE CENTER (2012) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
41	30. Industrial Park	730.00 TSF	402	73	475	95	380	475	4380
	SUB-TOTAL		402	73	475	95	380	475	4380
42	30. Industrial Park	275.00 TSF	151	28	179	36	143	179	1650
	SUB-TOTAL		151	28	179	36	143	179	1650
43	30. Industrial Park	273.90 TSF	151	27	178	36	142	178	1643
	SUB-TOTAL		151	27	178	36	142	178	1643
45	30. Industrial Park	980.20 TSF	539	98	637	127	510	637	5881
	SUB-TOTAL		539	98	637	127	510	637	5881
46	13. Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
	30. Industrial Park	445.80 TSF	245	45	290	58	232	290	2675
	SUB-TOTAL		300	82	382	197	371	568	5529
47	30. Industrial Park	3574.10 TSF	1966	357	2323	465	1859	2324	21445
	SUB-TOTAL		1966	357	2323	465	1859	2324	21445
48	30. Industrial Park	720.00 TSF	396	72	468	94	374	468	4320
	SUB-TOTAL		396	72	468	94	374	468	4320
49	30. Industrial Park	764.30 TSF	420	76	496	99	397	496	4586
	SUB-TOTAL		420	76	496	99	397	496	4586
58	30. Industrial Park	1051.50 TSF	578	105	683	137	547	684	6309
	SUB-TOTAL		578	105	683	137	547	684	6309
59	35. Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	SUB-TOTAL		153	115	268	115	115	230	3820
60	30. Industrial Park	411.60 TSF	226	41	267	54	214	268	2470
	SUB-TOTAL		226	41	267	54	214	268	2470
61	30. Industrial Park	744.90 TSF	410	74	484	97	387	484	4469
	SUB-TOTAL		410	74	484	97	387	484	4469
62	30. Industrial Park	607.30 TSF	334	61	395	79	316	395	3644
	SUB-TOTAL		334	61	395	79	316	395	3644

COMMERCE CENTER (2012) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
30.	Industrial Park	10578.60 TSF	5818	1057	6875	1377	5501	6878	63472
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	TOTAL		6026	1209	7235	1631	5755	7386	70146

TOTAL (2012) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3.	Single Family (6-10du/ac)	699.00	DU	132	391	523	447	259	706	6919
4.	Condominium/Townhouse	2026.00	DU	203	972	1175	952	526	1478	16208
5.	Apartment	451.00	DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	587.00	TSF	429	275	704	1397	1514	2911	31733
12.	Commercial Center (<10ac)	104.57	TSF	114	73	187	348	378	726	8895
13.	Commercial Shops	102.50	TSF	74	50	124	185	185	370	3799
20.	Elementary/Middle School	1350.00	STU	351	270	621	108	122	230	1958
30.	Industrial Park	10642.48	TSF	5853	1063	6916	1385	5534	6919	63855
35.	Regional Post Office	764.00	TSF	153	115	268	115	115	230	3820
40.	Commercial Office	970.40	TSF	1505	184	1689	204	1252	1456	11218
51.	Developed Park	33.20	AC	0	0	0	0	1	1	87
	TOTAL			8850	3587	12437	5326	9981	15307	151605

APPENDIX A (Cont.)

LAND USE AND TRIP GENERATION BY PLANNING AREA

d. Year 2014

LANDMARK VILLAGE (2014) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
102	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
	4.	Condominium/Townhouse	305.00 DU	31	146	177	143	79	222	2440
	5.	Apartment	155.00 DU	12	67	79	64	33	97	1070
	12.	Commercial Center (<10ac)	10.50 TSF	11	7	18	35	38	73	893
	40.	Commercial Office	9.50 TSF	15	2	17	2	12	14	110
		SUB-TOTAL		76	243	319	268	176	444	4889
103	3.	Single Family (6-10du/ac)	95.00 DU	18	53	71	61	35	96	940
	4.	Condominium/Townhouse	169.00 DU	17	81	98	79	44	123	1352
	12.	Commercial Center (<10ac)	38.50 TSF	42	27	69	128	139	267	3275
	13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
	20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
	51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
		SUB-TOTAL		279	316	595	345	304	649	7049
104	3.	Single Family (6-10du/ac)	175.00 DU	33	98	131	112	65	177	1732
	4.	Condominium/Townhouse	211.00 DU	21	101	122	99	55	154	1688
	5.	Apartment	152.00 DU	12	65	77	62	32	94	1049
	11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
	40.	Commercial Office	370.00 TSF	574	70	644	78	477	555	4277
		SUB-TOTAL		824	452	1276	951	1279	2230	22369
105	5.	Apartment	144.00 DU	12	62	74	59	30	89	994
	12.	Commercial Center (<10ac)	27.10 TSF	30	19	49	90	98	188	2305
	40.	Commercial Office	315.90 TSF	490	60	550	66	408	474	3652
		SUB-TOTAL		532	141	673	215	536	751	6951

LANDMARK VILLAGE (2014) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	308.00 DU	58	172	230	197	114	311	3048
4.	Condominium/Townhouse	685.00 DU	69	328	397	321	178	499	5480
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
12.	Commercial Center (<10ac)	76.10 TSF	83	53	136	253	275	528	6473
13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	695.40 TSF	1079	132	1211	146	897	1043	8039
51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
	TOTAL		1711	1152	2863	1779	2295	4074	41258

MISSION VILLAGE (2014) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
100	12.	Commercial Center (<10ac)	23.00 TSF	25	16	41	76	83	159	1956
		SUB-TOTAL		25	16	41	76	83	159	1956
120	4.	Condominium/Townhouse	1874.00 DU	187	900	1087	881	487	1368	14992
	11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
	13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
	51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
		SUB-TOTAL		695	1196	1891	1474	1210	2684	28591

MISSION VILLAGE (2014) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4.	Condominium/Townhouse	1874.00 DU	187	900	1087	881	487	1368	14992
11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
12.	Commercial Center (<10ac)	23.00 TSF	25	16	41	76	83	159	1956
13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
	TOTAL		720	1212	1932	1550	1293	2843	30547

HOMESTEAD S/O RIVER (2014) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
108	4.	Condominium/Townhouse	851.00 DU	85	408	493	400	221	621	6808
	51.	Developed Park	8.70 AC	0	0	0	0	0	0	23
		SUB-TOTAL		85	408	493	400	221	621	6831

HOMESTEAD S/O RIVER (2014) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4.	Condominium/Townhouse	851.00 DU	85	408	493	400	221	621	6808
51.	Developed Park	8.70 AC	0	0	0	0	0	0	23
	TOTAL		85	408	493	400	221	621	6831

POTRERO VILLAGE (2014) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
128	3. Single Family (6-10du/ac)	114.00 DU	22	64	86	73	42	115	1129
	SUB-TOTAL		22	64	86	73	42	115	1129

POTRERO VILLAGE (2014) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3. Single Family (6-10du/ac)	114.00 DU	22	64	86	73	42	115	1129
TOTAL		22	64	86	73	42	115	1129

ENTRADA (2014) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
90	30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
	11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
		SUB-TOTAL		134	69	203	329	381	710	7681
92	40.	Commercial Office	200.00 TSF	310	38	348	42	258	300	2312
		SUB-TOTAL		310	38	348	42	258	300	2312
140	3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
	4.	Condominium/Townhouse	614.00 DU	61	295	356	289	160	449	4912
	12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
		SUB-TOTAL		201	635	836	750	475	1225	12997

ENTRADA (2014) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
4.	Condominium/Townhouse	614.00 DU	61	295	356	289	160	449	4912
11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
40.	Commercial Office	200.00 TSF	310	38	348	42	258	300	2312
	TOTAL		645	742	1387	1121	1114	2235	22990

LEGACY VILLAGE (2014) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
126	4. Condominium/Townhouse	585.00 DU	59	281	340	275	152	427	4680
	SUB-TOTAL		59	281	340	275	152	427	4680
131	4. Condominium/Townhouse	12.00 DU	1	6	7	6	3	9	96
	SUB-TOTAL		1	6	7	6	3	9	96

LEGACY VILLAGE (2014) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4. Condominium/Townhouse	597.00 DU	60	287	347	281	155	436	4776
TOTAL		60	287	347	281	155	436	4776

COMMERCE CENTER (2014) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
41	30.	Industrial Park	730.00 TSF	402	73	475	95	380	475	4380
		SUB-TOTAL		402	73	475	95	380	475	4380
42	30.	Industrial Park	275.00 TSF	151	28	179	36	143	179	1650
		SUB-TOTAL		151	28	179	36	143	179	1650
43	30.	Industrial Park	273.90 TSF	151	27	178	36	142	178	1643
		SUB-TOTAL		151	27	178	36	142	178	1643
45	30.	Industrial Park	1960.20 TSF	1078	196	1274	255	1019	1274	11761
		SUB-TOTAL		1078	196	1274	255	1019	1274	11761
46	13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
	30.	Industrial Park	445.80 TSF	245	45	290	58	232	290	2675
		SUB-TOTAL		300	82	382	197	371	568	5529
47	30.	Industrial Park	4254.10 TSF	2340	425	2765	553	2212	2765	25525
		SUB-TOTAL		2340	425	2765	553	2212	2765	25525
48	30.	Industrial Park	720.00 TSF	396	72	468	94	374	468	4320
		SUB-TOTAL		396	72	468	94	374	468	4320
49	30.	Industrial Park	764.30 TSF	420	76	496	99	397	496	4586
		SUB-TOTAL		420	76	496	99	397	496	4586
58	30.	Industrial Park	1051.50 TSF	578	105	683	137	547	684	6309
		SUB-TOTAL		578	105	683	137	547	684	6309
59	35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
		SUB-TOTAL		153	115	268	115	115	230	3820
60	30.	Industrial Park	411.60 TSF	226	41	267	54	214	268	2470
		SUB-TOTAL		226	41	267	54	214	268	2470
61	30.	Industrial Park	744.90 TSF	410	74	484	97	387	484	4469
		SUB-TOTAL		410	74	484	97	387	484	4469
62	30.	Industrial Park	627.30 TSF	345	63	408	82	326	408	3764
		SUB-TOTAL		345	63	408	82	326	408	3764

COMMERCE CENTER (2014) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
30.	Industrial Park	12258.60 TSF	6742	1225	7967	1596	6373	7969	73552
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	TOTAL		6950	1377	8327	1850	6627	8477	80226

TOTAL (2014) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3.	Single Family (6-10du/ac)	994.00 DU	189	556	745	636	368	1004	9840
4.	Condominium/Townhouse	4621.00 DU	462	2218	2680	2172	1201	3373	36968
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	587.00 TSF	429	275	704	1397	1514	2911	31733
12.	Commercial Center (<10ac)	127.57 TSF	139	89	228	424	461	885	10851
13.	Commercial Shops	102.50 TSF	74	50	124	185	185	370	3799
20.	Elementary/Middle School	1650.00 STU	429	330	759	132	149	281	2393
30.	Industrial Park	12322.48 TSF	6777	1231	8008	1604	6406	8010	73935
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
40.	Commercial Office	970.40 TSF	1505	184	1689	204	1252	1456	11218
51.	Developed Park	33.20 AC	0	0	0	0	1	1	87
	TOTAL		10193	5242	15435	7054	11747	18801	187757

APPENDIX A (Cont.)

LAND USE AND TRIP GENERATION BY PLANNING AREA

e. Year 2018

LANDMARK VILLAGE (2018) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
102	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
	4.	Condominium/Townhouse	305.00 DU	31	146	177	143	79	222	2440
	5.	Apartment	155.00 DU	12	67	79	64	33	97	1070
	12.	Commercial Center (<10ac)	10.50 TSF	11	7	18	35	38	73	893
	40.	Commercial Office	9.50 TSF	15	2	17	2	12	14	110
		SUB-TOTAL		76	243	319	268	176	444	4889
103	3.	Single Family (6-10du/ac)	95.00 DU	18	53	71	61	35	96	940
	4.	Condominium/Townhouse	169.00 DU	17	81	98	79	44	123	1352
	12.	Commercial Center (<10ac)	38.50 TSF	42	27	69	128	139	267	3275
	13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
	20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
	51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
		SUB-TOTAL		279	316	595	345	304	649	7049
104	3.	Single Family (6-10du/ac)	175.00 DU	33	98	131	112	65	177	1732
	4.	Condominium/Townhouse	211.00 DU	21	101	122	99	55	154	1688
	5.	Apartment	152.00 DU	12	65	77	62	32	94	1049
	11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
	40.	Commercial Office	370.00 TSF	574	70	644	78	477	555	4277
		SUB-TOTAL		824	452	1276	951	1279	2230	22369
105	5.	Apartment	144.00 DU	12	62	74	59	30	89	994
	12.	Commercial Center (<10ac)	27.10 TSF	30	19	49	90	98	188	2305
	40.	Commercial Office	315.90 TSF	490	60	550	66	408	474	3652
		SUB-TOTAL		532	141	673	215	536	751	6951

LANDMARK VILLAGE (2018) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	308.00 DU	58	172	230	197	114	311	3048
4.	Condominium/Townhouse	685.00 DU	69	328	397	321	178	499	5480
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
12.	Commercial Center (<10ac)	76.10 TSF	83	53	136	253	275	528	6473
13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	695.40 TSF	1079	132	1211	146	897	1043	8039
51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
	TOTAL		1711	1152	2863	1779	2295	4074	41258

MISSION VILLAGE (2018) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
96	2.	Single Family (1-5du/ac)	123.00 DU	23	69	92	79	46	125	1218
	4.	Condominium/Townhouse	855.00 DU	86	410	496	402	222	624	6840
		SUB-TOTAL		109	479	588	481	268	749	8058
98	12.	Commercial Center (<10ac)	6.20 TSF	7	4	11	21	22	43	527
	31.	Business Park	250.00 TSF	300	58	358	75	248	323	2550
		SUB-TOTAL		307	62	369	96	270	366	3077
99	51.	Developed Park	20.20 AC	0	0	0	1	1	2	53
		SUB-TOTAL		0	0	0	1	1	2	53
100	12.	Commercial Center (<10ac)	23.00 TSF	25	16	41	76	83	159	1956
		SUB-TOTAL		25	16	41	76	83	159	1956
120	4.	Condominium/Townhouse	2425.00 DU	243	1164	1407	1140	631	1771	19400
	11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
	13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
	51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
		SUB-TOTAL		800	1492	2292	1893	1528	3421	36637
122	4.	Condominium/Townhouse	176.00 DU	18	84	102	83	46	129	1408
		SUB-TOTAL		18	84	102	83	46	129	1408
142	4.	Condominium/Townhouse	351.00 DU	35	168	203	165	91	256	2808
		SUB-TOTAL		35	168	203	165	91	256	2808

MISSION VILLAGE (2018) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	123.00 DU	23	69	92	79	46	125	1218
4.	Condominium/Townhouse	3807.00 DU	382	1826	2208	1790	990	2780	30456
11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
12.	Commercial Center (<10ac)	29.20 TSF	32	20	52	97	105	202	2483
13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
31.	Business Park	250.00 TSF	300	58	358	75	248	323	2550
40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
51.	Developed Park	28.60 AC	0	0	0	1	1	2	75
	TOTAL		1294	2301	3595	2795	2287	5082	53997

HOMESTEAD S/O RIVER (2018) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
107	2.	Single Family (1-5du/ac)	461.00 DU	88	258	346	295	171	466	4564
		SUB-TOTAL		88	258	346	295	171	466	4564
108	4.	Condominium/Townhouse	1828.00 DU	183	877	1060	859	475	1334	14624
	20.	Elementary/Middle School	600.00 STU	156	120	276	48	54	102	870
	51.	Developed Park	8.70 AC	0	0	0	0	0	0	23
		SUB-TOTAL		339	997	1336	907	529	1436	15517

HOMESTEAD S/O RIVER (2018) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	461.00 DU	88	258	346	295	171	466	4564
4.	Condominium/Townhouse	1828.00 DU	183	877	1060	859	475	1334	14624
20.	Elementary/Middle School	600.00 STU	156	120	276	48	54	102	870
51.	Developed Park	8.70 AC	0	0	0	0	0	0	23
	TOTAL		427	1255	1682	1202	700	1902	20081

POTRERO VILLAGE (2018) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
127	4. Condominium/Townhouse	542.00 DU	54	260	314	255	141	396	4336
	SUB-TOTAL		54	260	314	255	141	396	4336
128	3. Single Family (6-10du/ac)	450.00 DU	86	252	338	288	167	455	4455
	SUB-TOTAL		86	252	338	288	167	455	4455
129	3. Single Family (6-10du/ac)	177.00 DU	34	99	133	113	65	178	1752
	SUB-TOTAL		34	99	133	113	65	178	1752

POTRERO VILLAGE (2018) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3. Single Family (6-10du/ac)	627.00 DU	120	351	471	401	232	633	6207
4. Condominium/Townhouse	542.00 DU	54	260	314	255	141	396	4336
TOTAL		174	611	785	656	373	1029	10543

ENTRADA (2018) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
90	5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
	11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
	30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
	40.	Commercial Office	200.00 TSF	310	38	348	42	258	300	2312
		SUB-TOTAL		477	282	759	538	725	1263	12808
92	4.	Condominium/Townhouse	867.00 DU	87	416	503	407	225	632	6936
	10.	Commercial Center (>30ac)	350.00 TSF	165	105	270	574	623	1197	14021
	40.	Commercial Office	250.00 TSF	388	48	436	53	323	376	2890
		SUB-TOTAL		640	569	1209	1034	1171	2205	23847
140	3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
	4.	Condominium/Townhouse	1250.00 DU	125	600	725	588	325	913	10000
	12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
		SUB-TOTAL		265	940	1205	1049	640	1689	18085

ENTRADA (2018) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
4.	Condominium/Townhouse	2117.00 DU	212	1016	1228	995	550	1545	16936
5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
10.	Commercial Center (>30ac)	350.00 TSF	165	105	270	574	623	1197	14021
11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
40.	Commercial Office	450.00 TSF	698	86	784	95	581	676	5202
	TOTAL		1382	1791	3173	2621	2536	5157	54740

LEGACY VILLAGE (2018) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
124	7. Senior (Active)	801.00 DU	64	96	160	128	80	208	2972
	SUB-TOTAL		64	96	160	128	80	208	2972
126	4. Condominium/Townhouse	585.00 DU	59	281	340	275	152	427	4680
	SUB-TOTAL		59	281	340	275	152	427	4680
131	4. Condominium/Townhouse	1200.00 DU	120	576	696	564	312	876	9600
	20. Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	SUB-TOTAL		354	756	1110	636	393	1029	10905

LEGACY VILLAGE (2018) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
4. Condominium/Townhouse	1785.00 DU	179	857	1036	839	464	1303	14280
7. Senior (Active)	801.00 DU	64	96	160	128	80	208	2972
20. Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
TOTAL		477	1133	1610	1039	625	1664	18557

COMMERCE CENTER (2018) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
41	30. Industrial Park	730.00 TSF	402	73	475	95	380	475	4380
	SUB-TOTAL		402	73	475	95	380	475	4380
42	30. Industrial Park	275.00 TSF	151	28	179	36	143	179	1650
	SUB-TOTAL		151	28	179	36	143	179	1650
43	30. Industrial Park	273.90 TSF	151	27	178	36	142	178	1643
	SUB-TOTAL		151	27	178	36	142	178	1643
45	30. Industrial Park	1960.20 TSF	1078	196	1274	255	1019	1274	11761
	SUB-TOTAL		1078	196	1274	255	1019	1274	11761
46	13. Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
	30. Industrial Park	445.80 TSF	245	45	290	58	232	290	2675
	SUB-TOTAL		300	82	382	197	371	568	5529
47	30. Industrial Park	4254.10 TSF	2340	425	2765	553	2212	2765	25525
	SUB-TOTAL		2340	425	2765	553	2212	2765	25525
48	30. Industrial Park	720.00 TSF	396	72	468	94	374	468	4320
	SUB-TOTAL		396	72	468	94	374	468	4320
49	30. Industrial Park	764.30 TSF	420	76	496	99	397	496	4586
	SUB-TOTAL		420	76	496	99	397	496	4586
58	30. Industrial Park	1051.50 TSF	578	105	683	137	547	684	6309
	SUB-TOTAL		578	105	683	137	547	684	6309
59	35. Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	SUB-TOTAL		153	115	268	115	115	230	3820
60	30. Industrial Park	411.60 TSF	226	41	267	54	214	268	2470
	SUB-TOTAL		226	41	267	54	214	268	2470
61	30. Industrial Park	744.90 TSF	410	74	484	97	387	484	4469
	SUB-TOTAL		410	74	484	97	387	484	4469
62	30. Industrial Park	627.30 TSF	345	63	408	82	326	408	3764
	SUB-TOTAL		345	63	408	82	326	408	3764

COMMERCE CENTER (2018) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
30.	Industrial Park	12258.60 TSF	6742	1225	7967	1596	6373	7969	73552
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	TOTAL		6950	1377	8327	1850	6627	8477	80226

TOTAL (2018) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	584.00	DU	111	327	438	374	217	591	5782
3.	Single Family (6-10du/ac)	1507.00	DU	287	843	1130	964	558	1522	14918
4.	Condominium/Townhouse	10764.00	DU	1079	5164	6243	5059	2798	7857	86112
5.	Apartment	859.00	DU	69	369	438	352	181	533	5928
7.	Senior (Active)	801.00	DU	64	96	160	128	80	208	2972
10.	Commercial Center (>30ac)	350.00	TSF	165	105	270	574	623	1197	14021
11.	Commercial Center(10-30a)	654.30	TSF	478	307	785	1557	1688	3245	35371
12.	Commercial Center (<10ac)	133.77	TSF	146	93	239	445	483	928	11378
13.	Commercial Shops	102.50	TSF	74	50	124	185	185	370	3799
20.	Elementary/Middle School	3150.00	STU	819	630	1449	252	284	536	4568
30.	Industrial Park	12322.48	TSF	6777	1231	8008	1604	6406	8010	73935
31.	Business Park	250.00	TSF	300	58	358	75	248	323	2550
35.	Regional Post Office	764.00	TSF	153	115	268	115	115	230	3820
40.	Commercial Office	1220.40	TSF	1893	232	2125	257	1575	1832	14108
51.	Developed Park	53.40	AC	0	0	0	1	2	3	140
	TOTAL			12415	9620	22035	11942	15443	27385	279402

APPENDIX A (Cont.)

LAND USE AND TRIP GENERATION BY PLANNING AREA

f. Year 2022

LANDMARK VILLAGE (2022) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
102	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
	4.	Condominium/Townhouse	305.00 DU	31	146	177	143	79	222	2440
	5.	Apartment	155.00 DU	12	67	79	64	33	97	1070
	12.	Commercial Center (<10ac)	10.50 TSF	11	7	18	35	38	73	893
	40.	Commercial Office	9.50 TSF	15	2	17	2	12	14	110
		SUB-TOTAL		76	243	319	268	176	444	4889
103	3.	Single Family (6-10du/ac)	95.00 DU	18	53	71	61	35	96	940
	4.	Condominium/Townhouse	169.00 DU	17	81	98	79	44	123	1352
	12.	Commercial Center (<10ac)	38.50 TSF	42	27	69	128	139	267	3275
	13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
	20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
	51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
		SUB-TOTAL		279	316	595	345	304	649	7049
104	3.	Single Family (6-10du/ac)	175.00 DU	33	98	131	112	65	177	1732
	4.	Condominium/Townhouse	211.00 DU	21	101	122	99	55	154	1688
	5.	Apartment	152.00 DU	12	65	77	62	32	94	1049
	11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
	40.	Commercial Office	370.00 TSF	574	70	644	78	477	555	4277
		SUB-TOTAL		824	452	1276	951	1279	2230	22369
105	5.	Apartment	144.00 DU	12	62	74	59	30	89	994
	12.	Commercial Center (<10ac)	27.10 TSF	30	19	49	90	98	188	2305
	40.	Commercial Office	315.90 TSF	490	60	550	66	408	474	3652
		SUB-TOTAL		532	141	673	215	536	751	6951

LANDMARK VILLAGE (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	308.00 DU	58	172	230	197	114	311	3048
4.	Condominium/Townhouse	685.00 DU	69	328	397	321	178	499	5480
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
12.	Commercial Center (<10ac)	76.10 TSF	83	53	136	253	275	528	6473
13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	695.40 TSF	1079	132	1211	146	897	1043	8039
51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
	TOTAL		1711	1152	2863	1779	2295	4074	41258

MISSION VILLAGE (2022) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
96	2.	Single Family (1-5du/ac)	123.00 DU	23	69	92	79	46	125	1218
	4.	Condominium/Townhouse	881.00 DU	88	423	511	414	229	643	7048
		SUB-TOTAL		111	492	603	493	275	768	8266
98	12.	Commercial Center (<10ac)	6.20 TSF	7	4	11	21	22	43	527
	31.	Business Park	350.00 TSF	420	81	501	105	347	452	3570
		SUB-TOTAL		427	85	512	126	369	495	4097
99	4.	Condominium/Townhouse	436.00 DU	44	209	253	205	113	318	3488
	51.	Developed Park	20.20 AC	0	0	0	1	1	2	53
		SUB-TOTAL		44	209	253	206	114	320	3541
100	12.	Commercial Center (<10ac)	23.00 TSF	25	16	41	76	83	159	1956
	40.	Commercial Office	220.00 TSF	341	42	383	46	284	330	2543
		SUB-TOTAL		366	58	424	122	367	489	4499
120	4.	Condominium/Townhouse	2425.00 DU	243	1164	1407	1140	631	1771	19400
	11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
	13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
	51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
		SUB-TOTAL		800	1492	2292	1893	1528	3421	36637
121	2.	Single Family (1-5du/ac)	168.00 DU	32	94	126	108	62	170	1663
	4.	Condominium/Townhouse	418.00 DU	42	201	243	196	109	305	3344
		SUB-TOTAL		74	295	369	304	171	475	5007
122	4.	Condominium/Townhouse	176.00 DU	18	84	102	83	46	129	1408
		SUB-TOTAL		18	84	102	83	46	129	1408
142	4.	Condominium/Townhouse	670.00 DU	67	322	389	315	174	489	5360
		SUB-TOTAL		67	322	389	315	174	489	5360

MISSION VILLAGE (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	291.00 DU	55	163	218	187	108	295	2881
4.	Condominium/Townhouse	5006.00 DU	502	2403	2905	2353	1302	3655	40048
11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
12.	Commercial Center (<10ac)	29.20 TSF	32	20	52	97	105	202	2483
13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
31.	Business Park	350.00 TSF	420	81	501	105	347	452	3570
40.	Commercial Office	295.00 TSF	457	56	513	62	381	443	3410
51.	Developed Park	28.60 AC	0	0	0	1	1	2	75
	TOTAL		1907	3037	4944	3542	3044	6586	68815

HOMESTEAD S/O RIVER (2022) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
107	2.	Single Family (1-5du/ac)	461.00 DU	88	258	346	295	171	466	4564
	4.	Condominium/Townhouse	326.00 DU	33	156	189	153	85	238	2608
	20.	Elementary/Middle School	700.00 STU	182	140	322	56	63	119	1015
	21.	High School	1300.00 STU	416	182	598	78	117	195	2327
	51.	Developed Park	20.50 AC	0	0	0	1	1	2	53
		SUB-TOTAL		719	736	1455	583	437	1020	10567
108	4.	Condominium/Townhouse	2189.00 DU	219	1051	1270	1029	569	1598	17512
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	51.	Developed Park	8.70 AC	0	0	0	0	0	0	23
		SUB-TOTAL		453	1231	1684	1101	650	1751	18840
109	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
		SUB-TOTAL		7	21	28	24	14	38	376
110	2.	Single Family (1-5du/ac)	184.00 DU	35	103	138	118	68	186	1822
	4.	Condominium/Townhouse	548.00 DU	55	263	318	258	142	400	4384
	51.	Developed Park	9.40 AC	0	0	0	0	0	0	24
		SUB-TOTAL		90	366	456	376	210	586	6230
118	4.	Condominium/Townhouse	161.00 DU	16	77	93	76	42	118	1288
		SUB-TOTAL		16	77	93	76	42	118	1288

HOMESTEAD S/O RIVER (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
2.	Single Family (1-5du/ac)	645.00 DU	123	361	484	413	239	652	6386
3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
4.	Condominium/Townhouse	3224.00 DU	323	1547	1870	1516	838	2354	25792
20.	Elementary/Middle School	1600.00 STU	416	320	736	128	144	272	2320
21.	High School	1300.00 STU	416	182	598	78	117	195	2327
51.	Developed Park	38.60 AC	0	0	0	1	1	2	100
	TOTAL		1285	2431	3716	2160	1353	3513	37301

HOMESTEAD N/O RIVER (2022) ZONAL LAND USE AND TRIP GENERATION

Zone	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
55	3. Single Family (6-10du/ac)	164.00 DU	31	92	123	105	61	166	1624
	4. Condominium/Townhouse	315.00 DU	32	151	183	148	82	230	2520
	SUB-TOTAL		63	243	306	253	143	396	4144

HOMESTEAD N/O RIVER (2022) LAND USE AND TRIP GENERATION SUMMARY

Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
3. Single Family (6-10du/ac)	164.00 DU	31	92	123	105	61	166	1624
4. Condominium/Townhouse	315.00 DU	32	151	183	148	82	230	2520
TOTAL		63	243	306	253	143	396	4144

POTRERO VILLAGE (2022) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
111	34.	Utilities	100.00 TSF	0	0	0	0	0	0	238
		SUB-TOTAL		0	0	0	0	0	0	238
112	2.	Single Family (1-5du/ac)	90.00 DU	17	50	67	58	33	91	891
	3.	Single Family (6-10du/ac)	156.00 DU	30	87	117	100	58	158	1544
	50.	Golf Course	180.00 AC	27	11	38	18	36	54	1433
		SUB-TOTAL		74	148	222	176	127	303	3868
115	3.	Single Family (6-10du/ac)	424.00 DU	81	237	318	271	157	428	4198
		SUB-TOTAL		81	237	318	271	157	428	4198
116	4.	Condominium/Townhouse	400.00 DU	40	192	232	188	104	292	3200
	11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
		SUB-TOTAL		186	286	472	664	620	1284	14012
117	4.	Condominium/Townhouse	400.00 DU	40	192	232	188	104	292	3200
	11.	Commercial Center(10-30a)	200.00 TSF	146	94	240	476	516	992	10812
		SUB-TOTAL		186	286	472	664	620	1284	14012
119	5.	Apartment	531.00 DU	42	228	270	218	112	330	3664
		SUB-TOTAL		42	228	270	218	112	330	3664
127	4.	Condominium/Townhouse	888.00 DU	89	426	515	417	231	648	7104
		SUB-TOTAL		89	426	515	417	231	648	7104
128	3.	Single Family (6-10du/ac)	450.00 DU	86	252	338	288	167	455	4455
		SUB-TOTAL		86	252	338	288	167	455	4455
129	3.	Single Family (6-10du/ac)	177.00 DU	34	99	133	113	65	178	1752
		SUB-TOTAL		34	99	133	113	65	178	1752

POTRERO VILLAGE (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	90.00 DU	17	50	67	58	33	91	891
3.	Single Family (6-10du/ac)	1207.00 DU	231	675	906	772	447	1219	11949
4.	Condominium/Townhouse	1688.00 DU	169	810	979	793	439	1232	13504
5.	Apartment	531.00 DU	42	228	270	218	112	330	3664
11.	Commercial Center(10-30a)	400.00 TSF	292	188	480	952	1032	1984	21624
34.	Utilities	100.00 TSF	0	0	0	0	0	0	238
50.	Golf Course	180.00 AC	27	11	38	18	36	54	1433
	TOTAL		778	1962	2740	2811	2099	4910	53303

ENTRADA (2022) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
90	5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
	10.	Commercial Center (>30ac)	200.00 TSF	94	60	154	328	356	684	8012
	11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
	30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
	40.	Commercial Office	300.00 TSF	465	57	522	63	387	450	3468
		SUB-TOTAL		726	361	1087	887	1210	2097	21976
92	4.	Condominium/Townhouse	1000.00 DU	100	480	580	470	260	730	8000
	10.	Commercial Center (>30ac)	400.00 TSF	188	120	308	656	712	1368	16024
	40.	Commercial Office	250.00 TSF	388	48	436	53	323	376	2890
		SUB-TOTAL		676	648	1324	1179	1295	2474	26914
101	10.	Commercial Center (>30ac)	200.00 TSF	94	60	154	328	356	684	8012
		SUB-TOTAL		94	60	154	328	356	684	8012
140	3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
	4.	Condominium/Townhouse	1250.00 DU	125	600	725	588	325	913	10000
	12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
		SUB-TOTAL		265	940	1205	1049	640	1689	18085

ENTRADA (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
4.	Condominium/Townhouse	2250.00 DU	225	1080	1305	1058	585	1643	18000
5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
10.	Commercial Center (>30ac)	800.00 TSF	376	240	616	1312	1424	2736	32048
11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
30.	Industrial Park	63.88 TSF	35	6	41	8	33	41	383
40.	Commercial Office	550.00 TSF	853	105	958	116	710	826	6358
	TOTAL		1761	2009	3770	3443	3501	6944	74987

LEGACY VILLAGE (2022) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
123	3.	Single Family (6-10du/ac)	440.00 DU	84	246	330	282	163	445	4356
		SUB-TOTAL		84	246	330	282	163	445	4356
124	7.	Senior (Active)	1000.00 DU	80	120	200	160	100	260	3710
		SUB-TOTAL		80	120	200	160	100	260	3710
126	4.	Condominium/Townhouse	585.00 DU	59	281	340	275	152	427	4680
	11.	Commercial Center(10-30a)	150.00 TSF	110	71	181	357	387	744	8109
	40.	Commercial Office	225.00 TSF	349	43	392	47	290	337	2601
		SUB-TOTAL		518	395	913	679	829	1508	15390
131	4.	Condominium/Townhouse	1400.00 DU	140	672	812	658	364	1022	11200
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
		SUB-TOTAL		374	852	1226	730	445	1175	12505
151	2.	Single Family (1-5du/ac)	75.00 DU	14	42	56	48	28	76	743
		SUB-TOTAL		14	42	56	48	28	76	743

LEGACY VILLAGE (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	75.00 DU	14	42	56	48	28	76	743
3.	Single Family (6-10du/ac)	440.00 DU	84	246	330	282	163	445	4356
4.	Condominium/Townhouse	1985.00 DU	199	953	1152	933	516	1449	15880
7.	Senior (Active)	1000.00 DU	80	120	200	160	100	260	3710
11.	Commercial Center(10-30a)	150.00 TSF	110	71	181	357	387	744	8109
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
40.	Commercial Office	225.00 TSF	349	43	392	47	290	337	2601
	TOTAL		1070	1655	2725	1899	1565	3464	36704

COMMERCE CENTER (2022) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
41	30.	Industrial Park	730.00 TSF	402	73	475	95	380	475	4380
		SUB-TOTAL		402	73	475	95	380	475	4380
42	30.	Industrial Park	275.00 TSF	151	28	179	36	143	179	1650
		SUB-TOTAL		151	28	179	36	143	179	1650
43	30.	Industrial Park	273.90 TSF	151	27	178	36	142	178	1643
		SUB-TOTAL		151	27	178	36	142	178	1643
45	30.	Industrial Park	1960.20 TSF	1078	196	1274	255	1019	1274	11761
		SUB-TOTAL		1078	196	1274	255	1019	1274	11761
46	13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
	30.	Industrial Park	445.80 TSF	245	45	290	58	232	290	2675
		SUB-TOTAL		300	82	382	197	371	568	5529
47	30.	Industrial Park	4254.10 TSF	2340	425	2765	553	2212	2765	25525
		SUB-TOTAL		2340	425	2765	553	2212	2765	25525
48	30.	Industrial Park	720.00 TSF	396	72	468	94	374	468	4320
		SUB-TOTAL		396	72	468	94	374	468	4320
49	30.	Industrial Park	764.30 TSF	420	76	496	99	397	496	4586
		SUB-TOTAL		420	76	496	99	397	496	4586
58	30.	Industrial Park	1051.50 TSF	578	105	683	137	547	684	6309
		SUB-TOTAL		578	105	683	137	547	684	6309
59	35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
		SUB-TOTAL		153	115	268	115	115	230	3820
60	30.	Industrial Park	411.60 TSF	226	41	267	54	214	268	2470
		SUB-TOTAL		226	41	267	54	214	268	2470
61	30.	Industrial Park	744.90 TSF	410	74	484	97	387	484	4469
		SUB-TOTAL		410	74	484	97	387	484	4469
62	30.	Industrial Park	627.30 TSF	345	63	408	82	326	408	3764
		SUB-TOTAL		345	63	408	82	326	408	3764

COMMERCE CENTER (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
30.	Industrial Park	12258.60 TSF	6742	1225	7967	1596	6373	7969	73552
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	TOTAL		6950	1377	8327	1850	6627	8477	80226

TOTAL (2022) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	1101.00	DU	209	616	825	706	408	1114	10901
3.	Single Family (6-10du/ac)	2729.00	DU	520	1526	2046	1746	1011	2757	27016
4.	Condominium/Townhouse	15153.00	DU	1519	7272	8791	7122	3940	11062	121224
5.	Apartment	1390.00	DU	111	597	708	570	293	863	9592
7.	Senior (Active)	1000.00	DU	80	120	200	160	100	260	3710
10.	Commercial Center (>30ac)	800.00	TSF	376	240	616	1312	1424	2736	32048
11.	Commercial Center(10-30a)	1204.30	TSF	880	566	1446	2866	3107	5973	65104
12.	Commercial Center (<10ac)	133.77	TSF	146	93	239	445	483	928	11378
13.	Commercial Shops	102.50	TSF	74	50	124	185	185	370	3799
20.	Elementary/Middle School	4150.00	STU	1079	830	1909	332	374	706	6018
21.	High School	1300.00	STU	416	182	598	78	117	195	2327
30.	Industrial Park	12322.48	TSF	6777	1231	8008	1604	6406	8010	73935
31.	Business Park	350.00	TSF	420	81	501	105	347	452	3570
34.	Utilities	100.00	TSF	0	0	0	0	0	0	238
35.	Regional Post Office	764.00	TSF	153	115	268	115	115	230	3820
40.	Commercial Office	1765.40	TSF	2738	336	3074	371	2278	2649	20408
50.	Golf Course	180.00	AC	27	11	38	18	36	54	1433
51.	Developed Park	83.30	AC	0	0	0	2	3	5	217
	TOTAL			15525	13866	29391	17737	20627	38364	396738

APPENDIX A (Cont.)

LAND USE AND TRIP GENERATION BY PLANNING AREA

g. Year 2025

LANDMARK VILLAGE (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
102	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
	4.	Condominium/Townhouse	305.00 DU	31	146	177	143	79	222	2440
	5.	Apartment	155.00 DU	12	67	79	64	33	97	1070
	12.	Commercial Center (<10ac)	10.50 TSF	11	7	18	35	38	73	893
	40.	Commercial Office	9.50 TSF	15	2	17	2	12	14	110
		SUB-TOTAL		76	243	319	268	176	444	4889
103	3.	Single Family (6-10du/ac)	95.00 DU	18	53	71	61	35	96	940
	4.	Condominium/Townhouse	169.00 DU	17	81	98	79	44	123	1352
	12.	Commercial Center (<10ac)	38.50 TSF	42	27	69	128	139	267	3275
	13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
	20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
	51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
		SUB-TOTAL		279	316	595	345	304	649	7049
104	3.	Single Family (6-10du/ac)	175.00 DU	33	98	131	112	65	177	1732
	4.	Condominium/Townhouse	211.00 DU	21	101	122	99	55	154	1688
	5.	Apartment	152.00 DU	12	65	77	62	32	94	1049
	11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
	40.	Commercial Office	370.00 TSF	574	70	644	78	477	555	4277
		SUB-TOTAL		824	452	1276	951	1279	2230	22369
105	5.	Apartment	144.00 DU	12	62	74	59	30	89	994
	12.	Commercial Center (<10ac)	27.10 TSF	30	19	49	90	98	188	2305
	40.	Commercial Office	315.90 TSF	490	60	550	66	408	474	3652
		SUB-TOTAL		532	141	673	215	536	751	6951

LANDMARK VILLAGE (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	308.00 DU	58	172	230	197	114	311	3048
4.	Condominium/Townhouse	685.00 DU	69	328	397	321	178	499	5480
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
12.	Commercial Center (<10ac)	76.10 TSF	83	53	136	253	275	528	6473
13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	695.40 TSF	1079	132	1211	146	897	1043	8039
51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
	TOTAL		1711	1152	2863	1779	2295	4074	41258

MISSION VILLAGE (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
96	2.	Single Family (1-5du/ac)	123.00 DU	23	69	92	79	46	125	1218
	4.	Condominium/Townhouse	881.00 DU	88	423	511	414	229	643	7048
		SUB-TOTAL		111	492	603	493	275	768	8266
98	12.	Commercial Center (<10ac)	6.20 TSF	7	4	11	21	22	43	527
	31.	Business Park	691.50 TSF	830	159	989	207	685	892	7053
		SUB-TOTAL		837	163	1000	228	707	935	7580
99	4.	Condominium/Townhouse	470.00 DU	47	226	273	221	122	343	3760
	51.	Developed Park	20.20 AC	0	0	0	1	1	2	53
		SUB-TOTAL		47	226	273	222	123	345	3813
100	12.	Commercial Center (<10ac)	23.00 TSF	25	16	41	76	83	159	1956
	40.	Commercial Office	220.00 TSF	341	42	383	46	284	330	2543
		SUB-TOTAL		366	58	424	122	367	489	4499
120	4.	Condominium/Townhouse	2425.00 DU	243	1164	1407	1140	631	1771	19400
	11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
	13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
	51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
		SUB-TOTAL		800	1492	2292	1893	1528	3421	36637
121	2.	Single Family (1-5du/ac)	168.00 DU	32	94	126	108	62	170	1663
	4.	Condominium/Townhouse	418.00 DU	42	201	243	196	109	305	3344
		SUB-TOTAL		74	295	369	304	171	475	5007
122	4.	Condominium/Townhouse	176.00 DU	18	84	102	83	46	129	1408
		SUB-TOTAL		18	84	102	83	46	129	1408
142	4.	Condominium/Townhouse	670.00 DU	67	322	389	315	174	489	5360
		SUB-TOTAL		67	322	389	315	174	489	5360

MISSION VILLAGE (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	291.00 DU	55	163	218	187	108	295	2881
4.	Condominium/Townhouse	5040.00 DU	505	2420	2925	2369	1311	3680	40320
11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
12.	Commercial Center (<10ac)	29.20 TSF	32	20	52	97	105	202	2483
13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
31.	Business Park	691.50 TSF	830	159	989	207	685	892	7053
40.	Commercial Office	295.00 TSF	457	56	513	62	381	443	3410
51.	Developed Park	28.60 AC	0	0	0	1	1	2	75
	TOTAL		2320	3132	5452	3660	3391	7051	72570

HOMESTEAD S/O RIVER (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
107	2.	Single Family (1-5du/ac)	461.00	DU	88	258	346	295	171	466	4564
	4.	Condominium/Townhouse	326.00	DU	33	156	189	153	85	238	2608
	20.	Elementary/Middle School	1000.00	STU	260	200	460	80	90	170	1450
	21.	High School	2000.00	STU	640	280	920	120	180	300	3580
	51.	Developed Park	20.50	AC	0	0	0	1	1	2	53
		SUB-TOTAL			1021	894	1915	649	527	1176	12255
108	4.	Condominium/Townhouse	2189.00	DU	219	1051	1270	1029	569	1598	17512
	20.	Elementary/Middle School	900.00	STU	234	180	414	72	81	153	1305
	51.	Developed Park	8.70	AC	0	0	0	0	0	0	23
		SUB-TOTAL			453	1231	1684	1101	650	1751	18840
109	3.	Single Family (6-10du/ac)	38.00	DU	7	21	28	24	14	38	376
		SUB-TOTAL			7	21	28	24	14	38	376
110	2.	Single Family (1-5du/ac)	184.00	DU	35	103	138	118	68	186	1822
	4.	Condominium/Townhouse	548.00	DU	55	263	318	258	142	400	4384
	20.	Elementary/Middle School	900.00	STU	234	180	414	72	81	153	1305
	51.	Developed Park	9.40	AC	0	0	0	0	0	0	24
		SUB-TOTAL			324	546	870	448	291	739	7535
118	4.	Condominium/Townhouse	161.00	DU	16	77	93	76	42	118	1288
		SUB-TOTAL			16	77	93	76	42	118	1288

HOMESTEAD S/O RIVER (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	645.00	DU	123	361	484	413	239	652	6386
3.	Single Family (6-10du/ac)	38.00	DU	7	21	28	24	14	38	376
4.	Condominium/Townhouse	3224.00	DU	323	1547	1870	1516	838	2354	25792
20.	Elementary/Middle School	2800.00	STU	728	560	1288	224	252	476	4060
21.	High School	2000.00	STU	640	280	920	120	180	300	3580
51.	Developed Park	38.60	AC	0	0	0	1	1	2	100
	TOTAL			1821	2769	4590	2298	1524	3822	40294

HOMESTEAD N/O RIVER (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
54	3.	Single Family (6-10du/ac)	62.00 DU	12	35	47	40	23	63	614
	4.	Condominium/Townhouse	589.00 DU	59	283	342	277	153	430	4712
		SUB-TOTAL		71	318	389	317	176	493	5326
55	3.	Single Family (6-10du/ac)	164.00 DU	31	92	123	105	61	166	1624
	4.	Condominium/Townhouse	922.00 DU	92	443	535	433	240	673	7376
	51.	Developed Park	5.80 AC	0	0	0	0	0	0	15
		SUB-TOTAL		123	535	658	538	301	839	9015
56	2.	Single Family (1-5du/ac)	19.00 DU	4	11	15	12	7	19	188
	4.	Condominium/Townhouse	23.00 DU	2	11	13	11	6	17	184
		SUB-TOTAL		6	22	28	23	13	36	372
57	12.	Commercial Center (<10ac)	55.40 TSF	60	38	98	184	199	383	4712
	31.	Business Park	439.60 TSF	528	101	629	132	435	567	4484
	40.	Commercial Office	105.00 TSF	163	20	183	22	135	157	1214
		SUB-TOTAL		751	159	910	338	769	1107	10410

HOMESTEAD N/O RIVER (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
2.	Single Family (1-5du/ac)	19.00 DU	4	11	15	12	7	19	188
3.	Single Family (6-10du/ac)	226.00 DU	43	127	170	145	84	229	2238
4.	Condominium/Townhouse	1534.00 DU	153	737	890	721	399	1120	12272
12.	Commercial Center (<10ac)	55.40 TSF	60	38	98	184	199	383	4712
31.	Business Park	439.60 TSF	528	101	629	132	435	567	4484
40.	Commercial Office	105.00 TSF	163	20	183	22	135	157	1214
51.	Developed Park	5.80 AC	0	0	0	0	0	0	15
	TOTAL		951	1034	1985	1216	1259	2475	25123

POTRERO VILLAGE (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
111	34.	Utilities	100.00 TSF	0	0	0	0	0	0	238
		SUB-TOTAL		0	0	0	0	0	0	238
112	2.	Single Family (1-5du/ac)	90.00 DU	17	50	67	58	33	91	891
	3.	Single Family (6-10du/ac)	156.00 DU	30	87	117	100	58	158	1544
	50.	Golf Course	180.00 AC	27	11	38	18	36	54	1433
		SUB-TOTAL		74	148	222	176	127	303	3868
115	3.	Single Family (6-10du/ac)	603.00 DU	115	338	453	386	223	609	5970
		SUB-TOTAL		115	338	453	386	223	609	5970
116	4.	Condominium/Townhouse	1000.00 DU	100	480	580	470	260	730	8000
	11.	Commercial Center(10-30a)	400.00 TSF	292	188	480	952	1032	1984	21624
		SUB-TOTAL		392	668	1060	1422	1292	2714	29624
117	4.	Condominium/Townhouse	1000.00 DU	100	480	580	470	260	730	8000
	11.	Commercial Center(10-30a)	400.00 TSF	292	188	480	952	1032	1984	21624
		SUB-TOTAL		392	668	1060	1422	1292	2714	29624
119	5.	Apartment	1022.00 DU	82	439	521	419	215	634	7052
		SUB-TOTAL		82	439	521	419	215	634	7052
127	4.	Condominium/Townhouse	888.00 DU	89	426	515	417	231	648	7104
		SUB-TOTAL		89	426	515	417	231	648	7104
128	3.	Single Family (6-10du/ac)	450.00 DU	86	252	338	288	167	455	4455
		SUB-TOTAL		86	252	338	288	167	455	4455
129	3.	Single Family (6-10du/ac)	177.00 DU	34	99	133	113	65	178	1752
		SUB-TOTAL		34	99	133	113	65	178	1752
153	3.	Single Family (6-10du/ac)	424.00 DU	81	237	318	271	157	428	4198
		SUB-TOTAL		81	237	318	271	157	428	4198

POTRERO VILLAGE (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	90.00 DU	17	50	67	58	33	91	891
3.	Single Family (6-10du/ac)	1810.00 DU	346	1013	1359	1158	670	1828	17919
4.	Condominium/Townhouse	2888.00 DU	289	1386	1675	1357	751	2108	23104
5.	Apartment	1022.00 DU	82	439	521	419	215	634	7052
11.	Commercial Center(10-30a)	800.00 TSF	584	376	960	1904	2064	3968	43248
34.	Utilities	100.00 TSF	0	0	0	0	0	0	238
50.	Golf Course	180.00 AC	27	11	38	18	36	54	1433
	TOTAL		1345	3275	4620	4914	3769	8683	93885

ENTRADA (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
90	5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
	10.	Commercial Center (>30ac)	300.00 TSF	141	90	231	492	534	1026	12018
	11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
	30.	Industrial Park	263.88 TSF	145	26	171	34	137	171	1583
	40.	Commercial Office	400.00 TSF	620	76	696	84	516	600	4624
		SUB-TOTAL		1038	430	1468	1098	1621	2719	28338
92	4.	Condominium/Townhouse	1000.00 DU	100	480	580	470	260	730	8000
	10.	Commercial Center (>30ac)	550.00 TSF	259	165	424	902	979	1881	22033
	14.	Hotel	300.00 ROOM	102	66	168	96	87	183	2469
	40.	Commercial Office	300.00 TSF	465	57	522	63	387	450	3468
		SUB-TOTAL		926	768	1694	1531	1713	3244	35970
101	10.	Commercial Center (>30ac)	388.30 TSF	183	116	299	637	691	1328	15555
		SUB-TOTAL		183	116	299	637	691	1328	15555
140	3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
	4.	Condominium/Townhouse	1250.00 DU	125	600	725	588	325	913	10000
	12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
		SUB-TOTAL		265	940	1205	1049	640	1689	18085

ENTRADA (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
4.	Condominium/Townhouse	2250.00 DU	225	1080	1305	1058	585	1643	18000
5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
10.	Commercial Center (>30ac)	1238.30 TSF	583	371	954	2031	2204	4235	49606
11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
14.	Hotel	300.00 ROOM	102	66	168	96	87	183	2469
30.	Industrial Park	263.88 TSF	145	26	171	34	137	171	1583
40.	Commercial Office	700.00 TSF	1085	133	1218	147	903	1050	8092
	TOTAL		2412	2254	4666	4315	4665	8980	97948

LEGACY VILLAGE (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
123	3.	Single Family (6-10du/ac)	440.00 DU	84	246	330	282	163	445	4356
		SUB-TOTAL		84	246	330	282	163	445	4356
124	7.	Senior (Active)	1000.00 DU	80	120	200	160	100	260	3710
		SUB-TOTAL		80	120	200	160	100	260	3710
126	4.	Condominium/Townhouse	585.00 DU	59	281	340	275	152	427	4680
	11.	Commercial Center(10-30a)	150.00 TSF	110	71	181	357	387	744	8109
	40.	Commercial Office	225.00 TSF	349	43	392	47	290	337	2601
		SUB-TOTAL		518	395	913	679	829	1508	15390
131	4.	Condominium/Townhouse	1400.00 DU	140	672	812	658	364	1022	11200
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
		SUB-TOTAL		374	852	1226	730	445	1175	12505
151	2.	Single Family (1-5du/ac)	75.00 DU	14	42	56	48	28	76	743
		SUB-TOTAL		14	42	56	48	28	76	743

LEGACY VILLAGE (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	75.00 DU	14	42	56	48	28	76	743
3.	Single Family (6-10du/ac)	440.00 DU	84	246	330	282	163	445	4356
4.	Condominium/Townhouse	1985.00 DU	199	953	1152	933	516	1449	15880
7.	Senior (Active)	1000.00 DU	80	120	200	160	100	260	3710
11.	Commercial Center(10-30a)	150.00 TSF	110	71	181	357	387	744	8109
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
40.	Commercial Office	225.00 TSF	349	43	392	47	290	337	2601
	TOTAL		1070	1655	2725	1899	1565	3464	36704

COMMERCE CENTER (2025) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
41	30.	Industrial Park	730.00 TSF	402	73	475	95	380	475	4380
		SUB-TOTAL		402	73	475	95	380	475	4380
42	30.	Industrial Park	275.00 TSF	151	28	179	36	143	179	1650
		SUB-TOTAL		151	28	179	36	143	179	1650
43	30.	Industrial Park	273.90 TSF	151	27	178	36	142	178	1643
		SUB-TOTAL		151	27	178	36	142	178	1643
45	30.	Industrial Park	1960.20 TSF	1078	196	1274	255	1019	1274	11761
		SUB-TOTAL		1078	196	1274	255	1019	1274	11761
46	13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
	30.	Industrial Park	445.80 TSF	245	45	290	58	232	290	2675
		SUB-TOTAL		300	82	382	197	371	568	5529
47	30.	Industrial Park	4254.10 TSF	2340	425	2765	553	2212	2765	25525
		SUB-TOTAL		2340	425	2765	553	2212	2765	25525
48	30.	Industrial Park	720.00 TSF	396	72	468	94	374	468	4320
		SUB-TOTAL		396	72	468	94	374	468	4320
49	30.	Industrial Park	764.30 TSF	420	76	496	99	397	496	4586
		SUB-TOTAL		420	76	496	99	397	496	4586
58	30.	Industrial Park	1051.50 TSF	578	105	683	137	547	684	6309
		SUB-TOTAL		578	105	683	137	547	684	6309
59	35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
		SUB-TOTAL		153	115	268	115	115	230	3820
60	30.	Industrial Park	411.60 TSF	226	41	267	54	214	268	2470
		SUB-TOTAL		226	41	267	54	214	268	2470
61	30.	Industrial Park	744.90 TSF	410	74	484	97	387	484	4469
		SUB-TOTAL		410	74	484	97	387	484	4469
62	30.	Industrial Park	627.30 TSF	345	63	408	82	326	408	3764
		SUB-TOTAL		345	63	408	82	326	408	3764

COMMERCE CENTER (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
30.	Industrial Park	12258.60 TSF	6742	1225	7967	1596	6373	7969	73552
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	TOTAL		6950	1377	8327	1850	6627	8477	80226

TOTAL (2025) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	1120.00	DU	213	627	840	718	415	1133	11089
3.	Single Family (6-10du/ac)	3394.00	DU	647	1899	2546	2172	1257	3429	33600
4.	Condominium/Townhouse	17606.00	DU	1763	8451	10214	8275	4578	12853	140848
5.	Apartment	1881.00	DU	151	808	959	771	396	1167	12980
7.	Senior (Active)	1000.00	DU	80	120	200	160	100	260	3710
10.	Commercial Center (>30ac)	1238.30	TSF	583	371	954	2031	2204	4235	49606
11.	Commercial Center(10-30a)	1604.30	TSF	1172	754	1926	3818	4139	7957	86728
12.	Commercial Center (<10ac)	189.18	TSF	206	131	337	629	682	1311	16090
13.	Commercial Shops	102.50	TSF	74	50	124	185	185	370	3799
14.	Hotel	300.00	ROOM	102	66	168	96	87	183	2469
20.	Elementary/Middle School	5350.00	STU	1391	1070	2461	428	482	910	7758
21.	High School	2000.00	STU	640	280	920	120	180	300	3580
30.	Industrial Park	12522.48	TSF	6887	1251	8138	1630	6510	8140	75135
31.	Business Park	1131.10	TSF	1358	260	1618	339	1120	1459	11537
34.	Utilities	100.00	TSF	0	0	0	0	0	0	238
35.	Regional Post Office	764.00	TSF	153	115	268	115	115	230	3820
40.	Commercial Office	2020.40	TSF	3133	384	3517	424	2606	3030	23356
50.	Golf Course	180.00	AC	27	11	38	18	36	54	1433
51.	Developed Park	89.10	AC	0	0	0	2	3	5	232
	TOTAL			18580	16648	35228	21931	25095	47026	488008

APPENDIX A (Cont.)

LAND USE AND TRIP GENERATION BY PLANNING AREA

h. Year 2030 (Buildout)

LANDMARK VILLAGE (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
102	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
	4.	Condominium/Townhouse	305.00 DU	31	146	177	143	79	222	2440
	5.	Apartment	155.00 DU	12	67	79	64	33	97	1070
	12.	Commercial Center (<10ac)	10.50 TSF	11	7	18	35	38	73	893
	40.	Commercial Office	9.50 TSF	15	2	17	2	12	14	110
		SUB-TOTAL		76	243	319	268	176	444	4889
103	3.	Single Family (6-10du/ac)	95.00 DU	18	53	71	61	35	96	940
	4.	Condominium/Townhouse	169.00 DU	17	81	98	79	44	123	1352
	12.	Commercial Center (<10ac)	38.50 TSF	42	27	69	128	139	267	3275
	13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
	20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
	51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
		SUB-TOTAL		279	316	595	345	304	649	7049
104	3.	Single Family (6-10du/ac)	175.00 DU	33	98	131	112	65	177	1732
	4.	Condominium/Townhouse	211.00 DU	21	101	122	99	55	154	1688
	5.	Apartment	152.00 DU	12	65	77	62	32	94	1049
	11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
	40.	Commercial Office	370.00 TSF	574	70	644	78	477	555	4277
		SUB-TOTAL		824	452	1276	951	1279	2230	22369
105	5.	Apartment	144.00 DU	12	62	74	59	30	89	994
	12.	Commercial Center (<10ac)	27.10 TSF	30	19	49	90	98	188	2305
	40.	Commercial Office	315.90 TSF	490	60	550	66	408	474	3652
		SUB-TOTAL		532	141	673	215	536	751	6951

LANDMARK VILLAGE (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	308.00 DU	58	172	230	197	114	311	3048
4.	Condominium/Townhouse	685.00 DU	69	328	397	321	178	499	5480
5.	Apartment	451.00 DU	36	194	230	185	95	280	3113
11.	Commercial Center(10-30a)	252.00 TSF	184	118	302	600	650	1250	13623
12.	Commercial Center (<10ac)	76.10 TSF	83	53	136	253	275	528	6473
13.	Commercial Shops	9.50 TSF	7	5	12	17	17	34	352
20.	Elementary/Middle School	750.00 STU	195	150	345	60	68	128	1088
40.	Commercial Office	695.40 TSF	1079	132	1211	146	897	1043	8039
51.	Developed Park	16.10 AC	0	0	0	0	1	1	42
	TOTAL		1711	1152	2863	1779	2295	4074	41258

MISSION VILLAGE (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
96	2.	Single Family (1-5du/ac)	123.00 DU	23	69	92	79	46	125	1218
	4.	Condominium/Townhouse	881.00 DU	88	423	511	414	229	643	7048
		SUB-TOTAL		111	492	603	493	275	768	8266
98	12.	Commercial Center (<10ac)	6.20 TSF	7	4	11	21	22	43	527
	31.	Business Park	691.50 TSF	830	159	989	207	685	892	7053
		SUB-TOTAL		837	163	1000	228	707	935	7580
99	4.	Condominium/Townhouse	470.00 DU	47	226	273	221	122	343	3760
	51.	Developed Park	20.20 AC	0	0	0	1	1	2	53
		SUB-TOTAL		47	226	273	222	123	345	3813
100	12.	Commercial Center (<10ac)	23.00 TSF	25	16	41	76	83	159	1956
	40.	Commercial Office	220.00 TSF	341	42	383	46	284	330	2543
		SUB-TOTAL		366	58	424	122	367	489	4499
120	4.	Condominium/Townhouse	2425.00 DU	243	1164	1407	1140	631	1771	19400
	11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
	13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	40.	Commercial Office	75.00 TSF	116	14	130	16	97	113	867
	51.	Developed Park	8.40 AC	0	0	0	0	0	0	22
		SUB-TOTAL		800	1492	2292	1893	1528	3421	36637
121	2.	Single Family (1-5du/ac)	168.00 DU	32	94	126	108	62	170	1663
	4.	Condominium/Townhouse	418.00 DU	42	201	243	196	109	305	3344
		SUB-TOTAL		74	295	369	304	171	475	5007
122	4.	Condominium/Townhouse	176.00 DU	18	84	102	83	46	129	1408
		SUB-TOTAL		18	84	102	83	46	129	1408
142	4.	Condominium/Townhouse	670.00 DU	67	322	389	315	174	489	5360
		SUB-TOTAL		67	322	389	315	174	489	5360

MISSION VILLAGE (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	291.00 DU	55	163	218	187	108	295	2881
4.	Condominium/Townhouse	5040.00 DU	505	2420	2925	2369	1311	3680	40320
11.	Commercial Center(10-30a)	267.30 TSF	195	126	321	636	690	1326	14450
12.	Commercial Center (<10ac)	29.20 TSF	32	20	52	97	105	202	2483
13.	Commercial Shops	16.00 TSF	12	8	20	29	29	58	593
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
31.	Business Park	691.50 TSF	830	159	989	207	685	892	7053
40.	Commercial Office	295.00 TSF	457	56	513	62	381	443	3410
51.	Developed Park	28.60 AC	0	0	0	1	1	2	75
	TOTAL		2320	3132	5452	3660	3391	7051	72570

HOMESTEAD S/O RIVER (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
107	2.	Single Family (1-5du/ac)	461.00 DU	88	258	346	295	171	466	4564
	4.	Condominium/Townhouse	326.00 DU	33	156	189	153	85	238	2608
	20.	Elementary/Middle School	1200.00 STU	312	240	552	96	108	204	1740
	21.	High School	2400.00 STU	768	336	1104	144	216	360	4296
	51.	Developed Park	20.50 AC	0	0	0	1	1	2	53
		SUB-TOTAL		1201	990	2191	689	581	1270	13261
108	4.	Condominium/Townhouse	2189.00 DU	219	1051	1270	1029	569	1598	17512
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	51.	Developed Park	8.70 AC	0	0	0	0	0	0	23
		SUB-TOTAL		453	1231	1684	1101	650	1751	18840
109	3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
		SUB-TOTAL		7	21	28	24	14	38	376
110	2.	Single Family (1-5du/ac)	184.00 DU	35	103	138	118	68	186	1822
	4.	Condominium/Townhouse	548.00 DU	55	263	318	258	142	400	4384
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
	51.	Developed Park	9.40 AC	0	0	0	0	0	0	24
		SUB-TOTAL		324	546	870	448	291	739	7535
118	4.	Condominium/Townhouse	161.00 DU	16	77	93	76	42	118	1288
		SUB-TOTAL		16	77	93	76	42	118	1288

HOMESTEAD S/O RIVER (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	645.00 DU	123	361	484	413	239	652	6386
3.	Single Family (6-10du/ac)	38.00 DU	7	21	28	24	14	38	376
4.	Condominium/Townhouse	3224.00 DU	323	1547	1870	1516	838	2354	25792
20.	Elementary/Middle School	3000.00 STU	780	600	1380	240	270	510	4350
21.	High School	2400.00 STU	768	336	1104	144	216	360	4296
51.	Developed Park	38.60 AC	0	0	0	1	1	2	100
	TOTAL		2001	2865	4866	2338	1578	3916	41300

HOMESTEAD N/O RIVER (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
54	3.	Single Family (6-10du/ac)	62.00 DU	12	35	47	40	23	63	614
	4.	Condominium/Townhouse	589.00 DU	59	283	342	277	153	430	4712
		SUB-TOTAL		71	318	389	317	176	493	5326
55	3.	Single Family (6-10du/ac)	164.00 DU	31	92	123	105	61	166	1624
	4.	Condominium/Townhouse	922.00 DU	92	443	535	433	240	673	7376
	51.	Developed Park	5.80 AC	0	0	0	0	0	0	15
		SUB-TOTAL		123	535	658	538	301	839	9015
56	2.	Single Family (1-5du/ac)	19.00 DU	4	11	15	12	7	19	188
	4.	Condominium/Townhouse	23.00 DU	2	11	13	11	6	17	184
		SUB-TOTAL		6	22	28	23	13	36	372
57	12.	Commercial Center (<10ac)	55.40 TSF	60	38	98	184	199	383	4712
	31.	Business Park	1169.60 TSF	1404	269	1673	351	1158	1509	11930
	40.	Commercial Office	105.00 TSF	163	20	183	22	135	157	1214
		SUB-TOTAL		1627	327	1954	557	1492	2049	17856

HOMESTEAD N/O RIVER (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	19.00 DU	4	11	15	12	7	19	188
3.	Single Family (6-10du/ac)	226.00 DU	43	127	170	145	84	229	2238
4.	Condominium/Townhouse	1534.00 DU	153	737	890	721	399	1120	12272
12.	Commercial Center (<10ac)	55.40 TSF	60	38	98	184	199	383	4712
31.	Business Park	1169.60 TSF	1404	269	1673	351	1158	1509	11930
40.	Commercial Office	105.00 TSF	163	20	183	22	135	157	1214
51.	Developed Park	5.80 AC	0	0	0	0	0	0	15
	TOTAL		1827	1202	3029	1435	1982	3417	32569

POTRERO VILLAGE (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
106	5.	Apartment	520.00 DU	42	224	266	213	109	322	3588
		SUB-TOTAL		42	224	266	213	109	322	3588
111	34.	Utilities	100.00 TSF	0	0	0	0	0	0	238
		SUB-TOTAL		0	0	0	0	0	0	238
112	2.	Single Family (1-5du/ac)	90.00 DU	17	50	67	58	33	91	891
	3.	Single Family (6-10du/ac)	156.00 DU	30	87	117	100	58	158	1544
	50.	Golf Course	180.00 AC	27	11	38	18	36	54	1433
		SUB-TOTAL		74	148	222	176	127	303	3868
113	4.	Condominium/Townhouse	354.00 DU	35	170	205	166	92	258	2832
		SUB-TOTAL		35	170	205	166	92	258	2832
114	4.	Condominium/Townhouse	560.00 DU	56	269	325	263	146	409	4480
		SUB-TOTAL		56	269	325	263	146	409	4480
115	3.	Single Family (6-10du/ac)	603.00 DU	115	338	453	386	223	609	5970
		SUB-TOTAL		115	338	453	386	223	609	5970
116	4.	Condominium/Townhouse	1262.00 DU	126	606	732	593	328	921	10096
	11.	Commercial Center(10-30a)	628.50 TSF	459	295	754	1496	1622	3118	33977
		SUB-TOTAL		585	901	1486	2089	1950	4039	44073
117	4.	Condominium/Townhouse	1261.00 DU	126	605	731	593	328	921	10088
	11.	Commercial Center(10-30a)	628.50 TSF	459	295	754	1496	1622	3118	33977
		SUB-TOTAL		585	900	1485	2089	1950	4039	44065
119	5.	Apartment	1679.00 DU	134	722	856	688	353	1041	11585
		SUB-TOTAL		134	722	856	688	353	1041	11585
127	4.	Condominium/Townhouse	888.00 DU	89	426	515	417	231	648	7104
		SUB-TOTAL		89	426	515	417	231	648	7104
128	3.	Single Family (6-10du/ac)	450.00 DU	86	252	338	288	167	455	4455
		SUB-TOTAL		86	252	338	288	167	455	4455
129	3.	Single Family (6-10du/ac)	177.00 DU	34	99	133	113	65	178	1752
		SUB-TOTAL		34	99	133	113	65	178	1752
153	3.	Single Family (6-10du/ac)	424.00 DU	81	237	318	271	157	428	4198
		SUB-TOTAL		81	237	318	271	157	428	4198

POTRERO VILLAGE (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	90.00 DU	17	50	67	58	33	91	891
3.	Single Family (6-10du/ac)	1810.00 DU	346	1013	1359	1158	670	1828	17919
4.	Condominium/Townhouse	4325.00 DU	432	2076	2508	2032	1125	3157	34600
5.	Apartment	2199.00 DU	176	946	1122	901	462	1363	15173
11.	Commercial Center(10-30a)	1257.00 TSF	918	590	1508	2992	3244	6236	67954
34.	Utilities	100.00 TSF	0	0	0	0	0	0	238
50.	Golf Course	180.00 AC	27	11	38	18	36	54	1433
	TOTAL		1916	4686	6602	7159	5570	12729	138208

ENTRADA (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
90	5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
	10.	Commercial Center (>30ac)	400.00 TSF	188	120	308	656	712	1368	16024
	11.	Commercial Center(10-30a)	135.00 TSF	99	63	162	321	348	669	7298
	30.	Industrial Park	543.88 TSF	299	54	353	71	283	354	3263
	40.	Commercial Office	773.02 TSF	1198	147	1345	162	997	1159	8936
		SUB-TOTAL		1817	559	2376	1377	2426	3803	38336
92	4.	Condominium/Townhouse	1000.00 DU	100	480	580	470	260	730	8000
	10.	Commercial Center (>30ac)	800.00 TSF	376	240	616	1312	1424	2736	32048
	14.	Hotel	300.00 ROOM	102	66	168	96	87	183	2469
	40.	Commercial Office	400.00 TSF	620	76	696	84	516	600	4624
		SUB-TOTAL		1198	862	2060	1962	2287	4249	47141
95	11.	Commercial Center(10-30a)	115.21 TSF	84	54	138	274	297	571	6228
		SUB-TOTAL		84	54	138	274	297	571	6228
101	10.	Commercial Center (>30ac)	388.30 TSF	183	116	299	637	691	1328	15555
		SUB-TOTAL		183	116	299	637	691	1328	15555
140	3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
	4.	Condominium/Townhouse	1250.00 DU	125	600	725	588	325	913	10000
	12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
		SUB-TOTAL		265	940	1205	1049	640	1689	18085

ENTRADA (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	ADT
3.	Single Family (6-10du/ac)	572.00 DU	109	320	429	366	212	578	5663
4.	Condominium/Townhouse	2250.00 DU	225	1080	1305	1058	585	1643	18000
5.	Apartment	408.00 DU	33	175	208	167	86	253	2815
10.	Commercial Center (>30ac)	1588.30 TSF	747	476	1223	2605	2827	5432	63627
11.	Commercial Center(10-30a)	250.21 TSF	183	117	300	595	645	1240	13526
12.	Commercial Center (<10ac)	28.48 TSF	31	20	51	95	103	198	2422
14.	Hotel	300.00 ROOM	102	66	168	96	87	183	2469
30.	Industrial Park	543.88 TSF	299	54	353	71	283	354	3263
40.	Commercial Office	1173.02 TSF	1818	223	2041	246	1513	1759	13560
	TOTAL		3547	2531	6078	5299	6341	11640	125345

LEGACY VILLAGE (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
123	3.	Single Family (6-10du/ac)	440.00 DU	84	246	330	282	163	445	4356
		SUB-TOTAL		84	246	330	282	163	445	4356
124	7.	Senior (Active)	1000.00 DU	80	120	200	160	100	260	3710
		SUB-TOTAL		80	120	200	160	100	260	3710
126	4.	Condominium/Townhouse	585.00 DU	59	281	340	275	152	427	4680
	11.	Commercial Center(10-30a)	150.00 TSF	110	71	181	357	387	744	8109
	40.	Commercial Office	225.00 TSF	349	43	392	47	290	337	2601
		SUB-TOTAL		518	395	913	679	829	1508	15390
131	4.	Condominium/Townhouse	1400.00 DU	140	672	812	658	364	1022	11200
	20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
		SUB-TOTAL		374	852	1226	730	445	1175	12505
151	2.	Single Family (1-5du/ac)	75.00 DU	14	42	56	48	28	76	743
		SUB-TOTAL		14	42	56	48	28	76	743

LEGACY VILLAGE (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	75.00 DU	14	42	56	48	28	76	743
3.	Single Family (6-10du/ac)	440.00 DU	84	246	330	282	163	445	4356
4.	Condominium/Townhouse	1985.00 DU	199	953	1152	933	516	1449	15880
7.	Senior (Active)	1000.00 DU	80	120	200	160	100	260	3710
11.	Commercial Center(10-30a)	150.00 TSF	110	71	181	357	387	744	8109
20.	Elementary/Middle School	900.00 STU	234	180	414	72	81	153	1305
40.	Commercial Office	225.00 TSF	349	43	392	47	290	337	2601
	TOTAL		1070	1655	2725	1899	1565	3464	36704

COMMERCE CENTER (2030) ZONAL LAND USE AND TRIP GENERATION

Zone		Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
41	30.	Industrial Park	730.00 TSF	402	73	475	95	380	475	4380
		SUB-TOTAL		402	73	475	95	380	475	4380
42	30.	Industrial Park	275.00 TSF	151	28	179	36	143	179	1650
		SUB-TOTAL		151	28	179	36	143	179	1650
43	30.	Industrial Park	273.90 TSF	151	27	178	36	142	178	1643
		SUB-TOTAL		151	27	178	36	142	178	1643
45	30.	Industrial Park	1960.20 TSF	1078	196	1274	255	1019	1274	11761
		SUB-TOTAL		1078	196	1274	255	1019	1274	11761
46	13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
	30.	Industrial Park	445.80 TSF	245	45	290	58	232	290	2675
		SUB-TOTAL		300	82	382	197	371	568	5529
47	30.	Industrial Park	4254.10 TSF	2340	425	2765	553	2212	2765	25525
		SUB-TOTAL		2340	425	2765	553	2212	2765	25525
48	30.	Industrial Park	720.00 TSF	396	72	468	94	374	468	4320
		SUB-TOTAL		396	72	468	94	374	468	4320
49	30.	Industrial Park	764.30 TSF	420	76	496	99	397	496	4586
		SUB-TOTAL		420	76	496	99	397	496	4586
58	30.	Industrial Park	1051.50 TSF	578	105	683	137	547	684	6309
		SUB-TOTAL		578	105	683	137	547	684	6309
59	35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
		SUB-TOTAL		153	115	268	115	115	230	3820
60	30.	Industrial Park	411.60 TSF	226	41	267	54	214	268	2470
		SUB-TOTAL		226	41	267	54	214	268	2470
61	30.	Industrial Park	744.90 TSF	410	74	484	97	387	484	4469
		SUB-TOTAL		410	74	484	97	387	484	4469
62	30.	Industrial Park	627.30 TSF	345	63	408	82	326	408	3764
		SUB-TOTAL		345	63	408	82	326	408	3764

COMMERCE CENTER (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units	-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
13.	Commercial Shops	77.00 TSF	55	37	92	139	139	278	2854
30.	Industrial Park	12258.60 TSF	6742	1225	7967	1596	6373	7969	73552
35.	Regional Post Office	764.00 TSF	153	115	268	115	115	230	3820
	TOTAL		6950	1377	8327	1850	6627	8477	80226

TOTAL (2030) LAND USE AND TRIP GENERATION SUMMARY

	Land Use Type	Units		-- AM Peak Hour -- In	Out	Total	-- PM Peak Hour -- In	Out	Total	ADT
2.	Single Family (1-5du/ac)	1120.00	DU	213	627	840	718	415	1133	11089
3.	Single Family (6-10du/ac)	3394.00	DU	647	1899	2546	2172	1257	3429	33600
4.	Condominium/Townhouse	19043.00	DU	1906	9141	11047	8950	4952	13902	152344
5.	Apartment	3058.00	DU	245	1315	1560	1253	643	1896	21101
7.	Senior (Active)	1000.00	DU	80	120	200	160	100	260	3710
10.	Commercial Center (>30ac)	1588.30	TSF	747	476	1223	2605	2827	5432	63627
11.	Commercial Center(10-30a)	2176.51	TSF	1590	1022	2612	5180	5616	10796	117662
12.	Commercial Center (<10ac)	189.18	TSF	206	131	337	629	682	1311	16090
13.	Commercial Shops	102.50	TSF	74	50	124	185	185	370	3799
14.	Hotel	300.00	ROOM	102	66	168	96	87	183	2469
20.	Elementary/Middle School	5550.00	STU	1443	1110	2553	444	500	944	8048
21.	High School	2400.00	STU	768	336	1104	144	216	360	4296
30.	Industrial Park	12802.48	TSF	7041	1279	8320	1667	6656	8323	76815
31.	Business Park	1861.10	TSF	2234	428	2662	558	1843	2401	18983
34.	Utilities	100.00	TSF	0	0	0	0	0	0	238
35.	Regional Post Office	764.00	TSF	153	115	268	115	115	230	3820
40.	Commercial Office	2493.42	TSF	3866	474	4340	523	3216	3739	28824
50.	Golf Course	180.00	AC	27	11	38	18	36	54	1433
51.	Developed Park	89.10	AC	0	0	0	2	3	5	232
	TOTAL			21342	18600	39942	25419	29349	54768	568180

APPENDIX B

INTERSECTION CAPACITY UTILIZATION WORKSHEETS

Peak hour intersection volume/capacity ratios are calculated by means of intersection capacity utilization (ICU) values. ICU calculations were performed for the intersections shown in Figure B-1.

The procedure is based on the critical movement methodology, and shows the amount of capacity utilized by each critical move. A "de-facto" right-turn lane is used in the ICU calculation for cases where a curb lane is wide enough to separately serve both through and right-turn traffic (typically with a width of 19 feet from curb to outside of through-lane with parking prohibited during peak periods). Such lanes are treated the same as striped right-turn lanes during the ICU calculations, but they are denoted on the ICU calculation worksheets using the letter "d" in place of a numerical entry for right-turn lanes.

The methodology also incorporates a check for right-turn capacity utilization. Both right-turn-on-green (RTOG) and right-turn-on-red (RTOR) capacity availability are calculated and checked against the total right-turn capacity need. If insufficient capacity is available, then an adjustment is made to the total capacity utilization value. The following example shows how this adjustment is made.

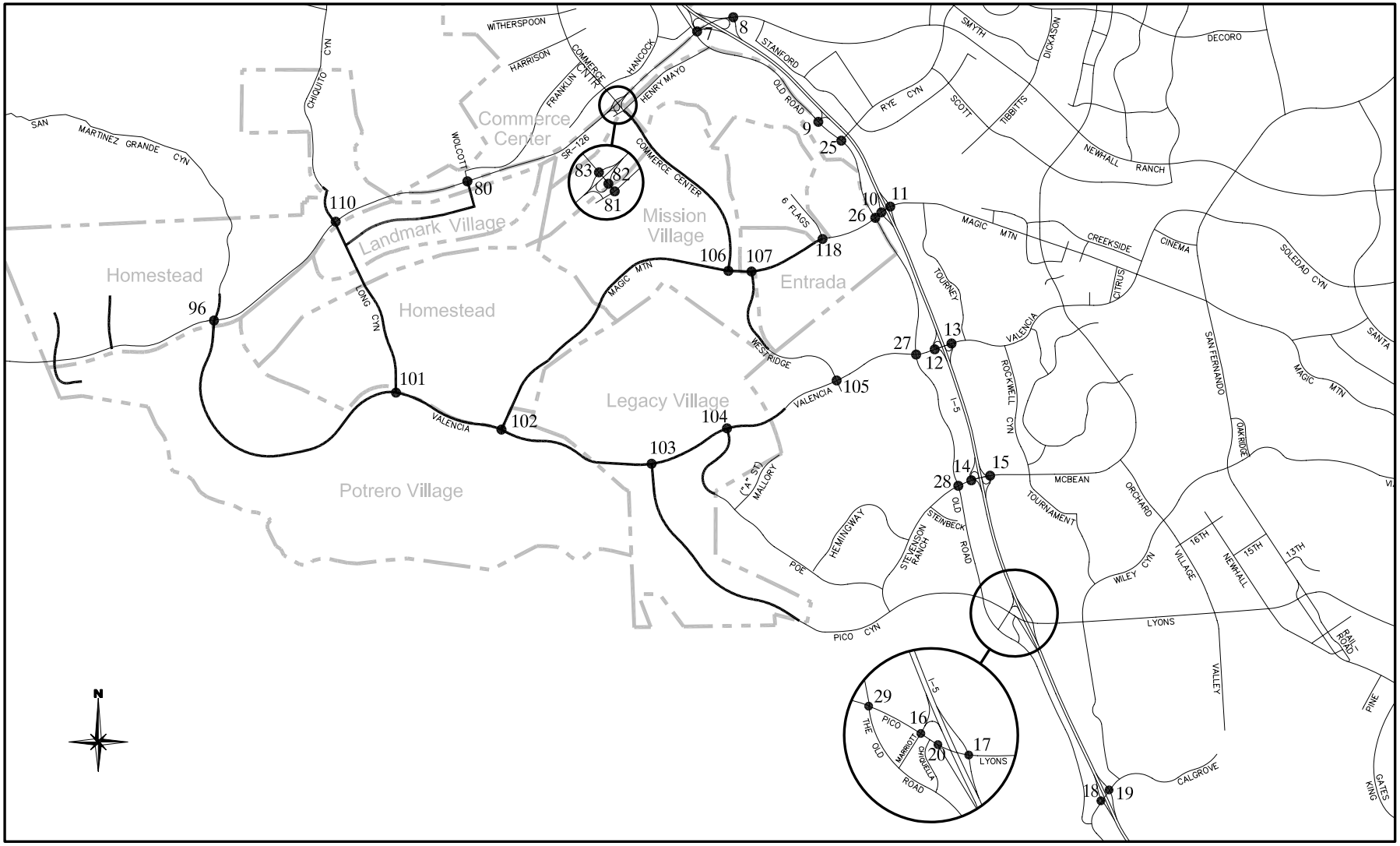
Example of Right-turn Capacity Utilization For Northbound Right

1. Right-Turn-On-Green (RTOG)

If NBT is critical move, then:
RTOG = V/C (NBT)
Otherwise,
RTOG = V/C (NBL) + V/C (SBT) - V/C (SBL)

2. Right-Turn-On-Red (RTOR)

If WBL is critical move, then:
RTOR = V/C (WBL)
Otherwise,
RTOR = V/C (EBL) + V/C (WBT) - V/C (EBT)



Legend

Intersection Location

New Westside Roadway

Figure B-1

INTERSECTION STUDY LOCATIONS

3. Right-Turn Overlap Adjustment

If the northbound right is assumed to overlap with the adjacent westbound left, adjustments to the RTOG and RTOR values are made as follows:

RTOG = RTOG + V/C (WBL)
RTOR = RTOR - V/C (WBL)

4. Total Right-Turn Capacity (RTC) Availability For NBR

RTC = RTOG + factor x RTOR
Where factor = RTOR saturation flow factor (typically 75%)

5. Right-turn Adjustment for ICU Calculation

Right-turn adjustment is then as follows: Additional ICU = V/C (NBR) - RTC

A zero or negative value indicates that adequate capacity is available and no adjustment is necessary. A positive value indicates that the available RTOR and RTOG capacity does not adequately accommodate the right-turn V/C, therefore the right-turn is essentially considered to be a critical movement. In such cases, the right-turn adjustment is noted on the ICU worksheet and it is included in the total capacity utilization value. When it is determined that a right-turn adjustment is required for more than one right-turn movement, the word "multi" is printed on the worksheet instead of an actual right-turn movement reference, and the right-turn adjustments are cumulatively added to the total capacity utilization value. In such cases, further operational evaluation is typically carried out to determine if under actual operational conditions, the critical right-turns would operate simultaneously, and therefore a right-turn adjustment credit should be applied.

Shared Lane V/C Methodology

For intersection approaches where shared usage of a lane is permitted by more than one turn movement (e.g., left/through, through/right, left/through/right), the individual turn volumes are evaluated to determine whether dedication of the shared lane is warranted to any one given turn movement. The following example demonstrates how this evaluation is carried out:

Example of Shared Lane Utilization for Shared Left/Through Lane

1. Average Lane Volume (ALV)

$$\text{ALV} = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left + Through Approach Lanes (including shared lane)}}.$$

2. ALV for Each Approach

$$\text{ALV (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Lanes (including shared lane)}}.$$

$$\text{ALV (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Lanes (including shared lane)}}.$$

3. Lane Dedication is Warranted

If ALV (Left) is greater than ALV then full dedication of the shared lane to the left-turn approach is warranted. Left-turn and through V/C ratios for this case are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (including shared lane)}}.$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (excluding shared lane)}}.$$

Similarly, if ALV (Through) is greater than ALV then full dedication to the through approach is warranted, and left-turn and through V/C ratios are calculated as follows:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (excluding shared lane)}}.$$

$$\text{V/C (Through)} = \frac{\text{Through Volume}}{\text{Through Approach Capacity (including shared lane)}}.$$

4. Lane Dedication is not Warranted

If ALV (Left) and ALV (Through) are both less than ALV, the left/through lane is assumed to be truly shared and each left, left/through or through approach lane carries an evenly distributed volume of traffic equal to ALV. A combined left/through V/C ratio is calculated as follows:

$$\text{V/C (Left/Through)} = \frac{\text{Left-Turn Volume + Through Volume}}{\text{Total Left + Through Approach Capacity (including shared lane)}}.$$

This V/C (Left/Through) ratio is assigned as the V/C (Through) ratio for the critical movement analysis and ICU summary listing.

If split phasing has not been designated for this approach, the relative proportion of V/C (Through) that is attributed to the left-turn volume is estimated as follows:

If approach has more than one left-turn (including shared lane), then:

$$\text{V/C (Left)} = \text{V/C (Through)}$$

If approach has only one left-turn lane (shared lane), then:

$$\text{V/C (Left)} = \frac{\text{Left-Turn Volume}}{\text{Single Approach Lane Capacity}}.$$

If this left-turn movement is determined to be a critical movement, the V/C (Left) value is posted in brackets on the ICU summary printout.

These same steps are carried out for shared through/right lanes. If full dedication of a shared through/right lane to the right-turn movement is warranted, the right-turn V/C value calculated in step three is checked against the RTOR and RTOG capacity availability if the option to include right-turns in the V/C ratio calculations is selected. If the V/C value that is determined using the shared lane methodology described here is reduced due to RTOR and RTOG capacity availability, the V/C value for the through/right lanes is posted in brackets.

When an approach contains more than one shared lane (e.g., left/through and through/right), steps one and two listed above are carried out for the three turn movements combined. Step four is carried out if dedication is not warranted for either of the shared lanes. If dedication of one of the shared lanes is warranted to one movement or another, step three is carried out for the two movements involved, and then steps one through four are repeated for the two movements involved in the other shared lane.

7. I-5 SB Ramps & SR-126

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	219	.06*	80	.02*
SBT	0	0	0		0	
SBR	2	3500	153	.04	185	.05
EBL	0	0	0		0	
EBT	4	7000	281	.04	532	.08
EBR	f		617		1260	
WBL	0	0	0		0	
WBT	3	5250	1343	.26*	848	.16*
WBR	f		10		196	
Right Turn Adjustment					SBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.42**		**.31**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	1020	.29*	780	.22*
SBT	0	0	0		0	
SBR	2	3500	400	.11	220	.06
EBL	0	0	0		0	
EBT	4	7000	640	.09	1780	.25
EBR	f		1130		1380	
WBL	0	0	0		0	
WBT	4	7000	2800	.40*	1870	.27*
WBR	f		20		80	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.79**		**.59**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	1010	.29*	930	.27*
SBT	0	0	0		0	
SBR	2	3500	440	.13	260	.07
EBL	0	0	0		0	
EBT	4	7000	700	.10	1950	.28*
EBR	f		1060		1320	
WBL	0	0	0		0	
WBT	4	7000	2650	.38*	1870	.27
WBR	f		20		140	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.65**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	980	.28*	930	.27*
SBT	0	0	0		0	
SBR	2	3500	430	.12	280	.08
EBL	0	0	0		0	
EBT	4	7000	760	.11	2090	.30*
EBR	f		1090		1250	
WBL	0	0	0		0	
WBT	4	7000	2700	.39*	1910	.27
WBR	f		10		140	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.67**

7. I-5 SB Ramps & SR-126

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	980	.28*	850	.24*
SBT	0	0	0		0	
SBR	2	3500	460	.13	340	.10
EBL	0	0	0		0	
EBT	4	7000	930	.13	2070	.30*
EBR	f		1100		1300	
WBL	0	0	0		0	
WBT	4	7000	2570	.37*	1860	.27
WBR	f		20		300	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.75**		**.64**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	950	.27*	860	.25*
SBT	0	0	0		0	
SBR	2	3500	510	.15	450	.13
EBL	0	0	0		0	
EBT	4	7000	1290	.18	2200	.31*
EBR	f		1240		1240	
WBL	0	0	0		0	
WBT	4	7000	2500	.36*	2110	.30
WBR	f		20		280	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.73**		**.66**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	890	.25*	830	.24*
SBT	0	0	0		0	
SBR	2	3500	590	.17	510	.15
EBL	0	0	0		0	
EBT	4	7000	1510	.22	2500	.36*
EBR	f		1420		1360	
WBL	0	0	0		0	
WBT	4	7000	2750	.39*	2480	.35
WBR	f		30		260	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.74**		**.70**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	840	.24*	880	.25*
SBT	0	0	0		0	
SBR	2	3500	660	.19	530	.15
EBL	0	0	0		0	
EBT	4	7000	1630	.23	2810	.40*
EBR	f		1550		1420	
WBL	0	0	0		0	
WBT	4	7000	3010	.43*	2700	.39
WBR	f		30		260	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.75**

8. I-5 NB Ramps & SR-126

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	1061	.20*	638	.12*
NBT	0	0	0		0	
NBR	1	1750	231	.13	50	.03
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	425	.06	514	.07*
EBR	f		73		189	
WBL	0	0	0		0	
WBT	3	5250	363	.07*	311	.06
WBR	f		145		334	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.37**		**.29**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	1240	.24*	1210	.23*
NBT	0	0	0		0	
NBR	1	1750	30	.02	20	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	1290	.18	1880	.27*
EBR	f		150		470	
WBL	0	0	0		0	
WBT	3	5250	1590	.30*	720	.14
WBR	f		290		670	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.60**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	960	.18*	1150	.22*
NBT	0	0	0		0	
NBR	1	1750	60	.03	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	1340	.19	2120	.30*
EBR	f		170		510	
WBL	0	0	0		0	
WBT	3	5250	1720	.33*	850	.16
WBR	f		320		700	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.61**		**.62**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	960	.18*	1170	.22*
NBT	0	0	0		0	
NBR	1	1750	60	.03	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	1340	.19	2240	.32*
EBR	f		190		520	
WBL	0	0	0		0	
WBT	3	5250	1760	.34*	860	.16
WBR	f		310		690	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.62**		**.64**

8. I-5 NB Ramps & SR-126

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	940	.18*	1090	.21*
NBT	0	0	0		0	
NBR	1	1750	90	.05	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	1440	.21	2130	.30*
EBR	f		250		560	
WBL	0	0	0		0	
WBT	3	5250	1660	.32*	1050	.20
WBR	f		330		700	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.60**		**.61**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	910	.17*	1200	.23*
NBT	0	0	0		0	
NBR	1	1750	90	.05	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	1650	.24	2180	.31*
EBR	f		330		640	
WBL	0	0	0		0	
WBT	3	5250	1630	.31*	1170	.22
WBR	f		350		700	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.64**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	1000	.19*	1380	.26*
NBT	0	0	0		0	
NBR	1	1750	90	.05	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	1740	.25	2330	.33*
EBR	f		400		750	
WBL	0	0	0		0	
WBT	3	5250	1800	.34*	1330	.25
WBR	f		360		700	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.69**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	3	5250	1040	.20*	1500	.29*
NBT	0	0	0		0	
NBR	1	1750	120	.07	20	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	4	7000	1760	.25	2630	.38*
EBR	f		450		800	
WBL	0	0	0		0	
WBT	3	5250	2030	.39*	1450	.28
WBR	f		370		710	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.69**		**.77**

9. Rye/Old Rd & I-5 SB Ramps

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	43	.02	22	.01*
NBT	2	3500	675	.19*	425	.12
NBR	1	1750	1013	.58	1325	.76
SBL	1	1750	51	.03*	83	.05
SBT	2	3500	598	.17	699	.20*
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		294		164	
WBT	0	3500	0	.08*	0	.05*
WBR	0.5		2		2	
Right Turn Adjustment			NBR	.33*	NBR	.56*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.73**		**.92**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	30	.02	30	.02
NBT	2	3500	870	.25*	840	.24*
NBR	2	3500	580	.17	770	.22
SBL	2	3500	140	.04*	720	.21*
SBT	3	5250	150	.03	650	.12
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3500	470	.13*	260	.07*
WBT	0	0	0		0	
WBR	1	1750	10	.01	10	.01
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.52**		**.62**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	30	.02	30	.02
NBT	2	3500	620	.18*	690	.20*
NBR	2	3500	650	.19	650	.19
SBL	2	3500	130	.04*	710	.20*
SBT	3	5250	120	.02	500	.10
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3500	400	.11*	90	.03*
WBT	0	0	0		0	
WBR	1	1750	10	.01	10	.01
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.43**		**.53**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	30	.02	30	.02
NBT	2	3500	680	.19*	680	.19*
NBR	2	3500	700	.20	740	.21
SBL	2	3500	120	.03*	730	.21*
SBT	3	5250	110	.02	550	.10
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3500	400	.11*	140	.04*
WBT	0	0	0		0	
WBR	1	1750	10	.01	10	.01
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.43**		**.54**

9. Rye/Old Rd & I-5 SB Ramps

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	30	.02	30	.02
NBT	2	3500	760	.22*	740	.21*
NBR	2	3500	830	.24	1050	.30
SBL	2	3500	180	.05*	880	.25*
SBT	3	5250	170	.03	440	.08
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3500	360	.10*	160	.05*
WBT	0	0	0		0	
WBR	1	1750	10	.01	10	.01
Right Turn Adjustment					NBR	.04*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .47 .65

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	30	.02	30	.02
NBT	2	3500	800	.23*	900	.26*
NBR	2	3500	840	.24	1000	.29
SBL	2	3500	210	.06*	900	.26*
SBT	3	5250	200	.04	510	.10
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3500	360	.10*	210	.06*
WBT	0	0	0		0	
WBR	1	1750	10	.01	10	.01
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .49 .68

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	30	.02	30	.02
NBT	2	3500	870	.25*	1010	.29*
NBR	2	3500	790	.23	1030	.29
SBL	2	3500	230	.07*	950	.27*
SBT	3	5250	250	.05	580	.11
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3500	420	.12*	290	.08*
WBT	0	0	0		0	
WBR	1	1750	10	.01	10	.01
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .54 .74

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1750	30	.02	30	.02
NBT	2	3500	1030	.29*	1130	.32*
NBR	2	3500	730	.21	1050	.30
SBL	2	3500	280	.08*	1030	.29*
SBT	3	5250	310	.06	660	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	3500	470	.13*	390	.11*
WBT	0	0	0		0	
WBR	1	1750	10	.01	20	.01
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .60 .82

10. I-5 SB Ramps & Magic Mtn

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1.5		432		358	
SBT	0.5	3500	0	.12*	0	.10*
SBR	1	1750	32	.02	57	.03
EBL	0	0	0		0	
EBT	2	3500	291	.08*	439	.13*
EBR	f		104		251	
WBL	1	1750	498	.28*	454	.26*
WBT	3	5250	1442	.27	1267	.24
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.59**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	640	.18*	1260	.36*
SBT	0	0	0		0	
SBR	2	3500	60	.02	40	.01
EBL	0	0	0		0	
EBT	3	5250	370	.07	980	.19
EBR	2	3500	680	.19	810	.23
WBL	2	3500	60	.02	30	.01
WBT	4	7000	1870	.27*	1560	.22*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.55**		**.68**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	640	.18*	1160	.33*
SBT	0	0	0		0	
SBR	2	3500	60	.02	50	.01
EBL	0	0	0		0	
EBT	3	5250	410	.08	930	.18
EBR	2	3500	670	.19	780	.22
WBL	2	3500	60	.02	30	.01
WBT	4	7000	2080	.30*	1600	.23*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.66**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	640	.18*	1120	.32*
SBT	0	0	0		0	
SBR	2	3500	60	.02	50	.01
EBL	0	0	0		0	
EBT	3	5250	570	.11	1060	.20
EBR	2	3500	850	.24	820	.23
WBL	2	3500	60	.02	30	.01
WBT	4	7000	2160	.31*	1810	.26*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.59**		**.68**

10. I-5 SB Ramps & Magic Mtn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	680	.19*	1250	.36*
SBT	0	0	0		0	
SBR	2	3500	100	.03	60	.02
EBL	0	0	0		0	
EBT	3	5250	950	.18	1200	.23
EBR	2	3500	1120	.32	1070	.31
WBL	2	3500	50	.01	40	.01
WBT	4	7000	2180	.31*	2460	.35*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.60**		**.81**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	750	.21*	1240	.35*
SBT	0	0	0		0	
SBR	2	3500	100	.03	80	.02
EBL	0	0	0		0	
EBT	3	5250	1100	.21	1350	.26
EBR	2	3500	1200	.34	1100	.31
WBL	2	3500	40	.01	30	.01
WBT	4	7000	2250	.32*	2720	.39*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.84**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	820	.23*	1270	.36*
SBT	0	0	0		0	
SBR	2	3500	90	.03	80	.02
EBL	0	0	0		0	
EBT	3	5250	1160	.22	1480	.28
EBR	2	3500	1230	.35	1160	.33
WBL	2	3500	30	.01	30	.01
WBT	4	7000	2420	.35*	2830	.40*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.68**		**.86**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2.5		920	.18*	1320	.25*
SBT	0	7000	0		0	
SBR	1.5		60	.03	80	.05
EBL	0	0	0		0	
EBT	3	5250	1220	.23	1620	.31
EBR	2	3500	1270	.36	1200	.34
WBL	2	3500	20	.01	20	.01
WBT	4	7000	2530	.36*	2950	.42*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.77**

11. I-5 NB Ramps & Magic Mtn

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		1147	{.33}*	1181	{.34}*
NBT	0.5	3500	2	.33	7	.34
NBR	1	1750	363	.21	695	.40
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	21	.01	39	.02
EBT	2	3500	703	.20*	698	.20*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	7000	793	.11	578	.08
WBR	f		279		413	
Right Turn Adjustment					NBR	.06*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.70**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2.5		1220	.23*	960	.18*
NBT	0	7000	0		0	
NBR	1.5		100	.06	280	.16
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	60	.02	260	.07
EBT	3	5250	950	.18*	1990	.38*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	710	.14	630	.12
WBR	1.5		940	.27	800	.23
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.51**		**.66**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2.5		1260	.24*	980	.19*
NBT	0	7000	0		0	
NBR	1.5		100	.06	280	.16
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	50	.01	140	.04
EBT	3	5250	1000	.19*	1950	.37*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	880	{.14}	650	.12
WBR	1.5		670		760	.22
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.66**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2.5		1270	.24*	1030	.20*
NBT	0	7000	0		0	
NBR	1.5		100	.06	270	.15
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	60	.02	140	.04
EBT	3	5250	1150	.22*	2030	.39*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	930	{.15}	810	.15
WBR	1.5		690		750	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.69**

11. I-5 NB Ramps & Magic Mtn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2.5		1350	.26*	1340	.26*
NBT	0	7000	0		0	
NBR	1.5		90	.05	110	.06
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	90	.03	180	.05
EBT	3	5250	1540	.29*	2270	.43*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	870	{.15}	1160	{.18}
WBR	1.5		770		740	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.65**		**.79**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2.5		1350	.26*	1370	.26*
NBT	0	7000	0		0	
NBR	1.5		100	.06	100	.06
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	100	.03	200	.06
EBT	3	5250	1750	.33*	2390	.46*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	940	{.17}	1380	{.21}
WBR	1.5		880		780	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.69**		**.82**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2.5		1370	.26*	1390	.26*
NBT	0	7000	0		0	
NBR	1.5		90	.05	90	.05
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	100	.03	230	.07
EBT	3	5250	1870	.36*	2520	.48*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	1090	{.18}	1470	{.23}
WBR	1.5		860		850	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.72**		**.84**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2.5		1400	.27*	1410	.27*
NBT	0	7000	0		0	
NBR	1.5		90	.05	80	.05
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	2	3500	130	.04	280	.08
EBT	3	5250	2020	.38*	2650	.50*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3.5	8750	1150	{.19}	1560	{.24}
WBR	1.5		900		870	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.75**		**.87**

12. I-5 SB Ramps & Valencia

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	209	.06*	236	.07*
SBT	0	0	0		0	
SBR	1	1750	262	.15	54	.03
EBL	0	0	0		0	
EBT	3	5250	586	.11	498	.09
EBR	f		407		127	
WBL	0	0	0		0	
WBT	2	3500	760	.22*	878	.25*
WBR	f		844		1029	
Right Turn Adjustment			SBR	.09*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.42**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	330	.09*	380	.11*
SBT	0	0	0		0	
SBR	1	1750	260	.15	380	.22
EBL	0	0	0		0	
EBT	3	5250	470	.09	670	.13
EBR	f		440		390	
WBL	0	0	0		0	
WBT	2	3500	1070	.31*	1190	.34*
WBR	f		1510		1010	
Right Turn Adjustment			SBR	.06*	SBR	.11*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.66**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	350	.10*	350	.10*
SBT	0	0	0		0	
SBR	1	1750	210	.12	330	.19
EBL	0	0	0		0	
EBT	3	5250	440	.08	650	.12
EBR	f		450		400	
WBL	0	0	0		0	
WBT	2	3500	1120	.32*	1250	.36*
WBR	f		1380		1000	
Right Turn Adjustment			SBR	.02*	SBR	.09*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.65**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	360	.10*	380	.11*
SBT	0	0	0		0	
SBR	1	1750	210	.12	370	.21
EBL	0	0	0		0	
EBT	3	5250	510	.10	710	.14
EBR	f		470		350	
WBL	0	0	0		0	
WBT	2	3500	1120	.32*	1440	.41*
WBR	f		1360		950	
Right Turn Adjustment			SBR	.02*	SBR	.10*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.72**

12. I-5 SB Ramps & Valencia

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	370	.11*	420	.12*
SBT	0	0	0		0	
SBR	1	1750	270	.15	410	.23
EBL	0	0	0		0	
EBT	3	5250	820	.16	790	.15
EBR	f		690		570	
WBL	0	0	0		0	
WBT	2	3500	1360	.39*	1850	.53*
WBR	f		1180		990	
Right Turn Adjustment			SBR	.04*	SBR	.11*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.86**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	350	.10*	390	.11*
SBT	0	0	0		0	
SBR	1	1750	320	.18	470	.27
EBL	0	0	0		0	
EBT	3	5250	1080	.21	1080	.21
EBR	f		920		740	
WBL	0	0	0		0	
WBT	3	5250	1580	.30*	2140	.41*
WBR	f		1170		920	
Right Turn Adjustment			SBR	.08*	SBR	.16*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.78**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	370	.11*	440	.13*
SBT	0	0	0		0	
SBR	1	1750	320	.18	550	.31
EBL	0	0	0		0	
EBT	3	5250	1110	.21	1240	.24
EBR	f		970		790	
WBL	0	0	0		0	
WBT	3	5250	1620	.31*	2220	.42*
WBR	f		1140		870	
Right Turn Adjustment			SBR	.07*	SBR	.18*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.59**		**.83**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	350	.10*	450	.13*
SBT	0	0	0		0	
SBR	1	1750	340	.19	570	.33
EBL	0	0	0		0	
EBT	3	5250	1190	.23	1390	.26
EBR	f		910		510	
WBL	0	0	0		0	
WBT	3	5250	1650	.31*	2280	.43*
WBR	f		1190		890	
Right Turn Adjustment			SBR	.09*	SBR	.20*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.60**		**.86**

13. I-5 NB Ramps & Valencia

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	291	.08*	273	.08*
NBT	0	0	0		0	
NBR	2	3500	945	.27	876	.25
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	697	.16	668	.14
EBR	0	0	157		79	
WBL	2	3500	80	.02	147	.04
WBT	4	7000	1266	.18*	1645	.24*
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.17*	NBR	.09*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.51**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	480	.14*	210	.06*
NBT	0	0	0		0	
NBR	2	3500	970	.28	1170	.33
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	700	.15	860	.20
EBR	0	0	100		190	
WBL	2	3500	280	.08	290	.08
WBT	4	7000	2130	.30*	2010	.29*
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.03*	NBR	.20*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.57**		**.65**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	510	.15*	230	.07*
NBT	0	0	0		0	
NBR	2	3500	970	.28	1170	.33
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	720	.15	830	.19
EBR	0	0	70		180	
WBL	2	3500	270	.08	290	.08
WBT	4	7000	2010	.29*	2030	.29*
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.02*	NBR	.18*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.64**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	510	.15*	300	.09*
NBT	0	0	0		0	
NBR	2	3500	970	.28	1140	.33
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	810	.17	910	.21
EBR	0	0	70		190	
WBL	2	3500	270	.08	280	.08
WBT	4	7000	2020	.29*	2110	.30*
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.04*	NBR	.17*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.66**

13. I-5 NB Ramps & Valencia

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	610	.17*	470	.13*
NBT	0	0	0		0	
NBR	2	3500	1030	.29	1100	.31
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	1120	.23*	1060	.23
EBR	0	0	100		160	
WBL	2	3500	270	.08*	270	.08
WBT	4	7000	1990	.28	2380	.34*
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.06*	NBR	.10*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.67**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	710	.20*	460	.13*
NBT	0	0	0		0	
NBR	2	3500	1010	.29	980	.28
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	1360	.28*	1320	.29
EBR	0	0	110		180	
WBL	2	3500	290	.08*	270	.08
WBT	4	7000	2120	.30	2620	.37*
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.03*	NBR	.09*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.69**		**.69**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	700	.20*	480	.14*
NBT	0	0	0		0	
NBR	2	3500	1020	.29	920	.26
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	1430	.29*	1510	.33*
EBR	0	0	110		200	
WBL	2	3500	310	.09*	270	.08*
WBT	4	7000	2160	.31	2650	.38
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.02*	NBR	.06*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.70**		**.71**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	670	.19*	480	.14*
NBT	0	0	0		0	
NBR	2	3500	1050	.30	880	.25
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	5250	1460	.30*	1660	.36*
EBR	0	0	120		230	
WBL	2	3500	440	.13*	300	.09*
WBT	4	7000	2260	.32	2740	.39
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.01*	NBR	.04*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.73**		**.73**

14. I-5 SB Ramps & McBean

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1750	144	.08*	406	.23*
SBT	0	0	0		0	
SBR	1	1750	57	.03	451	.26
EBL	0	0	0		0	
EBT	2	3500	627	.18	950	.27
EBR	1	1750	374	.21	93	.05
WBL	0	0	0		0	
WBT	2	3500	1326	.38*	1043	.30*
WBR	1	1750	215	.12	480	.27
Right Turn Adjustment					SBR	.03*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .56 .66

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1750	210	.12*	350	.20*
SBT	0	0	0		0	
SBR	1	1750	290	.17	320	.18
EBL	0	0	0		0	
EBT	2	3500	1140	.33*	1360	.39
EBR	1	1750	370	.21	250	.14
WBL	0	0	0		0	
WBT	2	3500	530	.15	1430	.41*
WBR	1	1750	450	.26	300	.17
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .55 .71

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1750	230	.13*	330	.19*
SBT	0	0	0		0	
SBR	1	1750	290	.17	300	.17
EBL	0	0	0		0	
EBT	2	3500	1020	.29*	1370	.39
EBR	1	1750	380	.22	350	.20
WBL	0	0	0		0	
WBT	2	3500	580	.17	1450	.41*
WBR	1	1750	450	.26	310	.18
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .52 .70

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1750	240	.14*	350	.20*
SBT	0	0	0		0	
SBR	1	1750	280	.16	210	.12
EBL	0	0	0		0	
EBT	2	3500	1010	.29*	1350	.39
EBR	1	1750	380	.22	370	.21
WBL	0	0	0		0	
WBT	2	3500	600	.17	1440	.41*
WBR	1	1750	450	.26	340	.19
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .53 .71

14. I-5 SB Ramps & McBean

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1750	290	.17*	460	.26*
SBT	0	0	0		0	
SBR	1	1750	310	.18	390	.22
EBL	0	0	0		0	
EBT	2	3500	1060	.30*	1340	.38
EBR	1	1750	390	.22	160	.09
WBL	0	0	0		0	
WBT	2	3500	580	.17	1550	.44*
WBR	1	1750	440	.25	310	.18
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .57 .80

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1750	330	.19*	450	.26*
SBT	0	0	0		0	
SBR	1	1750	270	.15	360	.21
EBL	0	0	0		0	
EBT	2	3500	1080	.31*	1360	.39
EBR	1	1750	380	.22	190	.11
WBL	0	0	0		0	
WBT	2	3500	670	.19	1730	.49*
WBR	1	1750	450	.26	320	.18
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .60 .85

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	380	.11*	550	.16*
SBT	0	0	0		0	
SBR	1	1750	260	.15	340	.19
EBL	0	0	0		0	
EBT	2	3500	1070	.31*	1310	.37
EBR	1	1750	370	.21	180	.10
WBL	0	0	0		0	
WBT	2	3500	710	.20	1790	.51*
WBR	1	1750	440	.25	310	.18
Right Turn Adjustment					SBR	.03*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .52 .80

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3500	420	.12*	540	.15*
SBT	0	0	0		0	
SBR	1	1750	250	.14	340	.19
EBL	0	0	0		0	
EBT	2	3500	1060	.30*	1340	.38
EBR	1	1750	360	.21	270	.15
WBL	0	0	0		0	
WBT	2	3500	800	.23	1810	.52*
WBR	1	1750	430	.25	320	.18
Right Turn Adjustment					SBR	.04*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR

TOTAL CAPACITY UTILIZATION .52 .81

15. I-5 NB Ramps & McBean

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	135	.04*	338	.10*
NBT	0	0	0		0	
NBR	2	3500	284	.08	742	.21
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	633	.18	1213	.35*
EBR	1	1750	133	.08	142	.08
WBL	0	0	0		0	
WBT	3	5250	1406	.27*	1185	.23
WBR	1	1750	101	.06	122	.07
Right Turn Adjustment					NBR	.11*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.41**		**.66**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	90	.03*	410	.12*
NBT	0	0	0		0	
NBR	2	3500	520	.15	710	.20
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	990	.28*	1430	.41*
EBR	1	1750	370	.21	280	.16
WBL	0	0	0		0	
WBT	3	5250	890	.17	1290	.25
WBR	1	1750	120	.07	170	.10
Right Turn Adjustment			NBR	.12*	NBR	.08*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.71**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	110	.03*	430	.12*
NBT	0	0	0		0	
NBR	2	3500	540	.15	640	.18
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1000	.29*	1420	.41*
EBR	1	1750	270	.15	280	.16
WBL	0	0	0		0	
WBT	3	5250	930	.18	1300	.25
WBR	1	1750	110	.06	170	.10
Right Turn Adjustment			NBR	.12*	NBR	.06*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.69**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	110	.03*	420	.12*
NBT	0	0	0		0	
NBR	2	3500	520	.15	670	.19
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1020	.29*	1450	.41*
EBR	1	1750	250	.14	260	.15
WBL	0	0	0		0	
WBT	3	5250	950	.18	1340	.26
WBR	1	1750	110	.06	170	.10
Right Turn Adjustment			NBR	.12*	NBR	.07*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.70**

15. I-5 NB Ramps & McBean

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	100	.03*	430	.12*
NBT	0	0	0		0	
NBR	2	3500	520	.15	670	.19
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1090	.31*	1510	.43*
EBR	1	1750	280	.16	290	.17
WBL	0	0	0		0	
WBT	3	5250	930	.18	1390	.26
WBR	1	1750	120	.07	190	.11
Right Turn Adjustment			NBR	.12*	NBR	.07*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.72**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	120	.03*	530	.15*
NBT	0	0	0		0	
NBR	2	3500	530	.15	820	.23
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1160	.33*	1520	.43*
EBR	1	1750	270	.15	290	.17
WBL	0	0	0		0	
WBT	3	5250	1020	.19	1480	.28
WBR	1	1750	130	.07	210	.12
Right Turn Adjustment			NBR	.12*	NBR	.08*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.76**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	90	.03*	470	.13*
NBT	0	0	0		0	
NBR	2	3500	560	.16	890	.25
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1210	.35*	1600	.46*
EBR	1	1750	250	.14	270	.15
WBL	0	0	0		0	
WBT	3	5250	1080	.21	1600	.30
WBR	1	1750	160	.09	230	.13
Right Turn Adjustment			NBR	.13*	NBR	.12*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.61**		**.81**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	3500	100	.03*	480	.14*
NBT	0	0	0		0	
NBR	2	3500	640	.18	970	.28
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1220	.35*	1630	.47*
EBR	1	1750	250	.14	250	.14
WBL	0	0	0		0	
WBT	3	5250	1150	.22	1610	.31
WBR	1	1750	170	.10	270	.15
Right Turn Adjustment			NBR	.15*	NBR	.14*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.85**

16. I-5 SB Loop & Lyons

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	67	.04	68	.04
SBL	1.5		332		375	
SBT	0.5	3500	136	.13*	71	.13*
SBR	1	1750	45	.03	118	.07
EBL	0	0	0		0	
EBT	2	3500	895	.27*	873	.27
EBR	0	0	56		58	
WBL	1	1750	48	.03*	53	.03
WBT	2	3500	612	.17	1281	.37*
WBR	1	1750	427	.24	282	.16
Right Turn Adjustment			NBR	.02*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.55**		**.60**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	70	.04	70	.04
SBL	1.5		460		460	
SBT	0.5	3500	10	.13*	310	.22*
SBR	1	1750	410	.23	10	.01
EBL	0	0	0		0	
EBT	2	3500	530	.16	1150	.34*
EBR	0	0	30		50	
WBL	1	1750	30	.02	170	.10*
WBT	2	3500	800	.23*	1180	.34
WBR	1	1750	380	.22	120	.07
Right Turn Adjustment			SBR	.10*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.76**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	60	.03	70	.04
SBL	1.5		490		410	
SBT	0.5	3500	10	.14*	280	.20*
SBR	1	1750	430	.25	10	.01
EBL	0	0	0		0	
EBT	2	3500	500	.15	1100	.33*
EBR	0	0	30		50	
WBL	1	1750	30	.02	160	.09*
WBT	2	3500	760	.22*	1150	.33
WBR	1	1750	280	.16	110	.06
Right Turn Adjustment			SBR	.11*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.57**		**.72**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	60	.03	70	.04
SBL	1.5		520		440	
SBT	0.5	3500	10	.15*	290	.21*
SBR	1	1750	430	.25	10	.01
EBL	0	0	0		0	
EBT	2	3500	490	.15	1070	.32*
EBR	0	0	30		50	
WBL	1	1750	30	.02	140	.08*
WBT	2	3500	770	.22*	1190	.34
WBR	1	1750	290	.17	100	.06
Right Turn Adjustment			SBR	.10*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.57**		**.71**

16. I-5 SB Loop & Lyons

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	60	.03	70	.04
SBL	1.5		660		560	
SBT	0.5	3500	10	.19*	330	.25*
SBR	1	1750	440	.25	10	.01
EBL	0	0	0		0	
EBT	2	3500	560	.17	1090	.33*
EBR	0	0	30		50	
WBL	1	1750	30	.02	140	.08*
WBT	2	3500	760	.22*	1260	.36
WBR	1	1750	260	.15	110	.06
Right Turn Adjustment			SBR	.06*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.57**		**.76**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	60	.03	70	.04
SBL	1.5		720		540	
SBT	0.5	3500	10	.21*	320	.25*
SBR	1	1750	430	.25	10	.01
EBL	0	0	0		0	
EBT	2	3500	620	.19	1260	.37*
EBR	0	0	30		50	
WBL	1	1750	30	.02	150	.09*
WBT	2	3500	800	.23*	1480	.42
WBR	1	1750	260	.15	110	.06
Right Turn Adjustment			SBR	.04*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.81**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	70	.04	70	.04
SBL	1.5		710		580	
SBT	0.5	3500	10	.21*	300	.25*
SBR	1	1750	420	.24	10	.01
EBL	0	0	0		0	
EBT	2	3500	740	.22*	1410	.42*
EBR	0	0	30		50	
WBL	1	1750	30	.02*	170	.10*
WBT	2	3500	850	.24	1610	.46
WBR	1	1750	250	.14	110	.06
Right Turn Adjustment			Multi	.05*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.60**		**.87**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	1	1750	70	.04	70	.04
SBL	1.5		770		610	
SBT	0.5	3500	10	.22*	310	.26*
SBR	1	1750	400	.23	10	.01
EBL	0	0	0		0	
EBT	3	5250	820	.16	1520	.30
EBR	0	0	30		50	
WBL	1	1750	30	.02	170	.10
WBT	2	3500	890	.25*	1700	.49*
WBR	1	1750	250	.14	110	.06
Right Turn Adjustment			SBR	.01*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.85**

17. I-5 NB Ramps & Lyons

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		251	{.07}*	685	{.20}*
NBT	0.5	3500	1	.07	0	.20
NBR	f		334		645	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	158	.09*	183	.10*
EBT	2	3500	719	.21	1081	.31
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	1066	.27*	1017	.28*
WBR	0	0	326		445	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.68**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		100	{.03}*	530	{.15}*
NBT	0.5	3500	10	.03	0	.15
NBR	f		170		410	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	90	.05*	160	.09
EBT	2	3500	950	.27	1590	.45*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	1120	.32*	930	.27
WBR	0	0	550		720	.41
Right Turn Adjustment					WBR	.05*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.75**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		100	{.03}*	540	{.15}*
NBT	0.5	3500	10	.03	0	.15
NBR	f		170		350	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	80	.05*	160	.09
EBT	2	3500	950	.27	1510	.43*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	980	.27*	880	.25
WBR	0	0	430		730	.42
Right Turn Adjustment					WBR	.08*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.45**		**.76**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		100	{.03}*	530	{.15}*
NBT	0.5	3500	10	.03	0	.15
NBR	f		170		340	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	70	.04*	160	.09
EBT	2	3500	980	.28	1520	.43*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	990	.27*	880	.25
WBR	0	0	440		750	.43
Right Turn Adjustment					WBR	.09*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.44**		**.77**

17. I-5 NB Ramps & Lyons

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		100	{.03}*	580	{.17}*
NBT	0.5	3500	10	.03	0	.17
NBR	f		170		320	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	110	.06*	170	.10
EBT	2	3500	1130	.32	1600	.46*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	950	.27*	910	.26
WBR	0	0	510	.29	870	.50
Right Turn Adjustment			WBR	.02*	WBR	.14*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.48**		**.87**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		100	{.03}*	660	{.19}*
NBT	0.5	3500	10	.03	0	.19
NBR	f		160		340	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	110	.06	150	.09
EBT	2	3500	1270	.36*	1690	.48*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	990	.28	1100	.31
WBR	0	0	500	.29	890	.51
Right Turn Adjustment					WBR	.12*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.49**		**.89**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		130	{.04}*	790	{.23}*
NBT	0.5	3500	10	.04	0	.23
NBR	f		160		340	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	110	.06	140	.08
EBT	2	3500	1300	.37*	1850	.53*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	1010	.19	1140	.22
WBR	f		510		910	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.51**		**.86**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		120	{.04}*	760	{.22}*
NBT	0.5	3500	10	.04	0	.22
NBR	f		160		370	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	110	.06	140	.08
EBT	2	3500	1380	.39*	1980	.57*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	5250	1090	.21	1270	.24
WBR	f		530		950	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.89**

18. I-5 SB Ramps & Calgrove

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		21		91	
SBT	0.5	1750	1	.01*	3	.05*
SBR	1	1750	255	.15	135	.08
EBL	0	0	0		0	
EBT	1	1750	110	.11*	657	.42*
EBR	0	0	74		70	
WBL	1	1750	466	.27*	123	.07*
WBT	1	1750	350	.20	212	.12
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.49**		**.64**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		30		130	
SBT	0.5	1750	10	.02*	10	.08*
SBR	1	1750	270	.15	230	.13
EBL	0	0	0		0	
EBT	1	1750	370	.33*	660	.42*
EBR	0	0	200		80	
WBL	1	1750	400	.23*	100	.06*
WBT	1	1750	430	.25	180	.10
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.68**		**.66**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		30		130	
SBT	0.5	1750	10	.02*	10	.08*
SBR	1	1750	280	.16	220	.13
EBL	0	0	0		0	
EBT	1	1750	350	.31*	680	.46*
EBR	0	0	200		130	
WBL	1	1750	400	.23*	110	.06*
WBT	1	1750	450	.26	180	.10
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.70**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		30		130	
SBT	0.5	1750	10	.02*	10	.08*
SBR	1	1750	290	.17	200	.11
EBL	0	0	0		0	
EBT	1	1750	340	.31*	670	.46*
EBR	0	0	200		130	
WBL	1	1750	400	.23*	110	.06*
WBT	1	1750	450	.26	180	.10
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.70**

18. I-5 SB Ramps & Calgrove

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		30		160	
SBT	0.5	1750	10	.02*	10	.10*
SBR	1	1750	350	.20	380	.22
EBL	0	0	0		0	
EBT	1	1750	410	.35*	740	.47*
EBR	0	0	210		80	
WBL	1	1750	400	.23*	120	.07*
WBT	1	1750	450	.26	160	.09
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.70**		**.74**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		40		180	
SBT	0.5	1750	10	.03*	10	.11*
SBR	1	1750	380	.22	380	.22
EBL	0	0	0		0	
EBT	1	1750	440	.38*	830	.53*
EBR	0	0	230		90	
WBL	1	1750	400	.23*	140	.08*
WBT	1	1750	470	.27	260	.15
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.74**		**.82**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		50		210	
SBT	0.5	1750	10	.03*	10	.13*
SBR	1	1750	410	.23	390	.22
EBL	0	0	0		0	
EBT	1	1750	480	.41*	900	.57*
EBR	0	0	240		90	
WBL	1	1750	400	.23*	160	.09*
WBT	1	1750	500	.29	280	.16
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.77**		**.89**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0.5		50		220	
SBT	0.5	1750	10	.03*	10	.13*
SBR	1	1750	450	.26	450	.26
EBL	0	0	0		0	
EBT	2	3500	550	.24*	1020	.34*
EBR	0	0	290		160	
WBL	1	1750	400	.23*	190	.11*
WBT	2	3500	530	.15	360	.10
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.60**		**.68**

19. I-5 NB Ramps & Calgrove

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		45	{.03}*	123	{.07}*
NBT	0.5	1750	4	.03	0	.07
NBR	1	1750	70	.04	264	.15
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	70	.04*	304	.17*
EBT	1	1750	60	.03	444	.25
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1750	771	.47*	212	.16*
WBR	0	0	55		61	
Right Turn Adjustment					NBR	.02*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.52**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		110	{.06}*	120	{.07}*
NBT	0.5	1750	0	.06	0	.07
NBR	1	1750	30	.02	210	.12
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	290	.17*	300	.17*
EBT	1	1750	90	.05	500	.29
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1750	740	.46*	150	.13*
WBR	0	0	60		80	
Right Turn Adjustment					NBR	.04*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.79**		**.51**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		130	{.07}*	120	{.07}*
NBT	0.5	1750	0	.07	0	.07
NBR	1	1750	40	.02	210	.12
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	270	.15*	300	.17*
EBT	1	1750	90	.05	510	.29
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1750	740	.46*	170	.14*
WBR	0	0	60		80	
Right Turn Adjustment					NBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.78**		**.51**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		130	{.07}*	120	{.07}*
NBT	0.5	1750	0	.07	0	.07
NBR	1	1750	40	.02	210	.12
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	270	.15*	290	.17*
EBT	1	1750	80	.05	500	.29
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1750	740	.46*	180	.15*
WBR	0	0	70		80	
Right Turn Adjustment					NBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.78**		**.52**

19. I-5 NB Ramps & Calgrove

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		130	{.07}*	80	{.05}*
NBT	0.5	1750	0	.07	0	.05
NBR	1	1750	40	.02	230	.13
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	310	.18*	340	.19*
EBT	1	1750	110	.06	560	.32
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1750	760	.47*	200	.18*
WBR	0	0	70		110	
Right Turn Adjustment					NBR	.04*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .82 .56

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		130	{.07}*	140	{.08}*
NBT	0.5	1750	0	.07	0	.08
NBR	1	1750	50	.03	270	.15
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	330	.19*	400	.23*
EBT	1	1750	120	.07	610	.35
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1750	780	.49*	250	.23*
WBR	0	0	80		150	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .85 .64

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		140	{.08}*	160	{.09}*
NBT	0.5	1750	0	.08	0	.09
NBR	1	1750	60	.03	290	.17
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	350	.20*	440	.25*
EBT	1	1750	150	.09	670	.38
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1750	790	.50*	290	.27*
WBR	0	0	90		180	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .88 .71

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0.5		160	{.09}*	200	{.11}*
NBT	0.5	1750	0	.09	0	.11
NBR	1	1750	70	.04	330	.19
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	1	1750	390	.22*	510	.29*
EBT	2	3500	180	.05	750	.21
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3500	820	.26*	360	.17*
WBR	0	0	100		220	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .67 .67

20. I-5 SB Ramp & Lyons

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	877	.25	1264	.36*
EBR	1	1750	591	.34	332	.19
WBL	0	0	0		0	
WBT	3	5250	1317	.25*	1702	.32
WBR	0	0	0		0	
Right Turn Adjustment			EBR	.09*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.44**		**.46**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1070	.31*	1730	.49*
EBR	1	1750	370	.21	190	.11
WBL	0	0	0		0	
WBT	3	5250	1220	.23	1470	.28
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.41**		**.59**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1050	.30*	1660	.47*
EBR	1	1750	370	.21	160	.09
WBL	0	0	0		0	
WBT	3	5250	1080	.21	1420	.27
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.40**		**.57**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1060	.30*	1660	.47*
EBR	1	1750	380	.22	150	.09
WBL	0	0	0		0	
WBT	3	5250	1090	.21	1410	.27
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.40**		**.57**

20. I-5 SB Ramp & Lyons

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1270	.36*	1760	.50*
EBR	1	1750	380	.22	210	.12
WBL	0	0	0		0	
WBT	3	5250	1050	.20	1490	.28
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.60**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1410	.40*	1830	.52*
EBR	1	1750	370	.21	230	.13
WBL	0	0	0		0	
WBT	3	5250	1090	.21	1760	.34
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.62**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1440	.41*	1970	.56*
EBR	1	1750	450	.26	260	.15
WBL	0	0	0		0	
WBT	3	5250	1130	.22	1920	.37
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.51**		**.66**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3500	1520	.43*	2100	.60*
EBR	1	1750	530	.30	270	.15
WBL	0	0	0		0	
WBT	3	5250	1200	.23	2030	.39
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.70**

25. Old Road & Rye

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	378	.24*	302	.19*
NBR	f		1614		1551	
SBL	1	1600	602	.38*	483	.30*
SBT	2	3200	288	.09	339	.11
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	247	.15*	398	.25*
WBT	0	0	0		0	
WBR	f		1336		1445	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .87 .84

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	800	.17*	610	.13*
NBR	2	3200	1700	.53	1260	.39
SBL	2	2880	210	.07*	450	.16*
SBT	3	4800	320	.07	670	.14
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		870		1140	
WBT	0	4800	0	{.36}*	0	{.41}*
WBR	1.5		920		1020	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .70 .80

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	480	.10*	530	.11*
NBR	2	3200	1720	.54	1290	.40
SBL	2	2880	200	.07*	290	.10*
SBT	3	4800	230	.05	480	.10
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		790		1230	
WBT	0	4800	0	{.35}*	0	{.41}*
WBR	1.5		970		850	
Right Turn Adjustment			NBR	.09*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .71 .72

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	470	.10*	530	.11*
NBR	2	3200	1870	.58	1300	.41
SBL	2	2880	190	.07*	330	.11*
SBT	3	4800	240	.05	550	.11
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1.5		740		1230	
WBT	0	4800	0	{.37}*	0	{.42}*
WBR	1.5		1120		930	
Right Turn Adjustment			NBR	.11*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .75 .74

25. Old Road & Rye

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	500	.10*	590	.12*
NBR	2	3200	2100	.66	1420	.44
SBL	2	2880	220	.08*	350	.12*
SBT	3	4800	240	.05	460	.10
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	3	4320	660	.15*	1230	.28*
WBT	0	0	0		0	
WBR	2	3200	1340	.42	1200	.38
Right Turn Adjustment			Multi	.41*	NBR	.04*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR NBR

TOTAL CAPACITY UTILIZATION .84 .66

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	520	.11*	720	.15*
NBR	2	3200	2090	.65	1490	.47
SBL	2	2880	240	.08*	450	.16*
SBT	3	4800	250	.05	500	.10
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	3	4320	780	.18*	1370	.32*
WBT	0	0	0		0	
WBR	2	3200	1380	.43	1210	.38
Right Turn Adjustment			Multi	.36*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR NBR

TOTAL CAPACITY UTILIZATION .83 .73

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	560	.12*	780	.16*
NBR	2	3200	2090	.65	1540	.48
SBL	2	2880	290	.10*	580	.20*
SBT	3	4800	300	.06	560	.12
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	3	4320	830	.19*	1360	.31*
WBT	0	0	0		0	
WBR	2	3200	1380	.43	1320	.41
Right Turn Adjustment			Multi	.34*	NBR	.01*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR NBR

TOTAL CAPACITY UTILIZATION .85 .78

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	700	.15*	860	.18*
NBR	2	3200	2030	.63	1610	.50
SBL	2	2880	340	.12*	710	.25*
SBT	3	4800	380	.08	670	.14
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	3	4320	980	.23*	1380	.32*
WBT	0	0	0		0	
WBR	2	3200	1400	.44	1400	.44
Right Turn Adjustment			Multi	.25*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for WBR NBR

TOTAL CAPACITY UTILIZATION .85 .85

26. Old Road & Magic Mtn

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		19	.01	24	.02
NBT	1.5	4800	510	.16*	557	.17*
NBR	d	1600	53	.03	175	.11
SBL	1.5		216		375	
SBT	1.5	4800	351	.12*	512	.20*
SBR	0		5		62	
EBL	1	1600	26	.02	22	.01
EBT	2	3200	38	.01*	76	.02*
EBR	1	1600	9	.01	16	.01
WBL	1	1600	156	.10*	218	.14*
WBT	3	4800	15	.00	7	.00
WBR	f		1249		1079	
Clearance Interval				.10*		.10*

Note: Assumes N/S Split Phasing

TOTAL CAPACITY UTILIZATION .49 .63

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	120	.04	150	.05*
NBT	3	4800	580	.12*	330	.07
NBR	1	1600	150	.09	120	.08
SBL	2	2880	410	.14*	430	.15
SBT	2.5	6400	120	.04	820	{.20}*
SBR	1.5		310	.10	640	
EBL	2	2880	320	.11*	410	.14
EBT	4	6400	490	.08	1250	.20*
EBR	1	1600	30	.02	230	.14
WBL	2	2880	190	.07	170	.06*
WBT	4	6400	520	.08*	620	.10
WBR	f		1230		810	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .55 .61

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	140	.05	190	.07*
NBT	3	4800	500	.10*	320	.07
NBR	1	1600	150	.09	110	.07
SBL	2	2880	300	.10*	460	.16
SBT	2.5	6400	120	.04	860	{.18}*
SBR	1.5		250	.08	470	
EBL	2	2880	240	.08*	380	.13
EBT	4	6400	620	.10	1140	.18*
EBR	1	1600	30	.02	370	.23
WBL	2	2880	190	.07	170	.06*
WBT	4	6400	810	.13*	670	.10
WBR	f		1140		810	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .51 .59

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	150	.05	230	.08*
NBT	3	4800	530	.11*	330	.07
NBR	1	1600	150	.09	100	.06
SBL	2	2880	240	.08*	400	.14
SBT	2.5	6400	120	{.03}	870	{.21}*
SBR	1.5		270		610	
EBL	2	2880	390	.14*	410	.14*
EBT	4	6400	1030	.16	1380	.22
EBR	1	1600	40	.03	450	.28
WBL	2	2880	190	.07	160	.06
WBT	4	6400	950	.15*	910	.14*
WBR	f		1070		780	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .58 .67

26. Old Road & Magic Mtn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	190	.07	200	.07*
NBT	3	4800	550	.11*	350	.07
NBR	1	1600	150	.09	100	.06
SBL	2	2880	340	.12*	490	.17
SBT	2.5	6400	80	{.02}	580	.18*
SBR	1.5		290		810	.25
EBL	2	2880	570	.20*	470	.16*
EBT	4	6400	1590	.25	1680	.26
EBR	1	1600	80	.05	240	.15
WBL	2	2880	180	.06	160	.06
WBT	4	6400	990	.15*	1260	.20*
WBR	f		1110		1100	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.68**		**.71**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	190	.07	210	.07*
NBT	3	4800	570	.12*	410	.09
NBR	1	1600	140	.09	100	.06
SBL	2	2880	370	.13*	500	.17
SBT	2.5	6400	90	.03	660	.21*
SBR	1.5		390	.12	890	.28
EBL	2	2880	600	.21*	560	.19*
EBT	4	6400	1790	.28	1850	.29
EBR	1	1600	90	.06	300	.19
WBL	2	2880	170	.06	170	.06
WBT	4	6400	1100	.17*	1470	.23*
WBR	f		1080		1150	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.73**		**.80**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	240	.08	310	.11*
NBT	3	4800	570	.12*	350	.07
NBR	1	1600	140	.09	90	.06
SBL	2	2880	440	.15*	620	.22
SBT	2.5	6400	90	.03	660	.21*
SBR	1.5		410	.13	900	.28
EBL	2	2880	640	.22*	580	.20*
EBT	4	6400	1810	.28	1930	.30
EBR	1	1600	100	.06	330	.21
WBL	2	2880	170	.06	160	.06
WBT	4	6400	1190	.19*	1500	.23*
WBR	f		1140		1250	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.78**		**.85**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	290	.10	430	.15*
NBT	3	4800	590	.12*	340	.07
NBR	1	1600	140	.09	100	.06
SBL	2	2880	550	.19*	660	.23
SBT	2.5	6400	90	.03	560	.18*
SBR	1.5		490	.15	960	.30
EBL	2	2880	630	.22*	580	.20*
EBT	5	8000	1800	.23	2050	.26
EBR	1	1600	110	.07	480	.30
WBL	2	2880	160	.06	140	.05
WBT	4	6400	1150	.18*	1500	.23*
WBR	f		1280		1390	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.81**		**.86**

27. Old Road & Valencia

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	486	.17*	261	.09
NBT	3	4800	345	.07	766	.16*
NBR	1	1600	69	.04	432	.27
SBL	2	2880	159	.06	379	.13*
SBT	3	4800	306	.06*	765	.16
SBR	1	1600	164	.10	145	.09
EBL	2	2880	210	.07*	206	.07
EBT	4	6400	579	.09	377	.06*
EBR	1	1600	183	.11	175	.11
WBL	2	2880	298	.10	463	.16*
WBT	3	4800	679	.14*	388	.08
WBR	f		363		463	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.61**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	330	.11*	150	.05*
NBT	3	4800	250	.05	560	.12
NBR	1	1600	70	.04	310	.19
SBL	2	2880	150	.05	300	.10
SBT	3	4800	180	.04*	810	.17*
SBR	1	1600	120	.08	80	.05
EBL	2	2880	170	.06*	100	.03
EBT	4	6400	720	.11	450	.07*
EBR	1	1600	250	.16	150	.09
WBL	2	2880	80	.03	570	.20*
WBT	3	4800	1000	.21*	630	.13
WBR	f		260		370	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.52**		**.59**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	490	.17*	150	.05*
NBT	3	4800	190	.04	570	.12
NBR	1	1600	40	.03	310	.19
SBL	2	2880	140	.05	290	.10
SBT	3	4800	180	.04*	980	.20*
SBR	1	1600	130	.08	90	.06
EBL	2	2880	170	.06*	100	.03
EBT	4	6400	730	.11	450	.07*
EBR	1	1600	190	.12	140	.09
WBL	2	2880	70	.02	520	.18*
WBT	3	4800	1020	.21*	690	.14
WBR	f		250		370	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.60**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	530	.18*	210	.07*
NBT	3	4800	210	.04	600	.13
NBR	1	1600	40	.03	320	.20
SBL	2	2880	140	.05	300	.10
SBT	3	4800	180	.04*	1060	.22*
SBR	1	1600	130	.08	110	.07
EBL	2	2880	190	.07*	110	.04
EBT	4	6400	830	.13	450	.07*
EBR	1	1600	230	.14	200	.13
WBL	2	2880	80	.03	540	.19*
WBT	3	4800	1020	.21*	870	.18
WBR	f		250		390	
Right Turn Adjustment					EBR	.01*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.60**		**.66**

27. Old Road & Valencia

SCVCTM 4.1 2018 with Stage 4 Improvements

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	400	.14*	320	.11
NBT	3	4800	170	.04	590	.12*
NBR	1	1600	30	.02	210	.13
SBL	2	2880	140	.05	310	.11*
SBT	3	4800	180	.04*	460	.10
SBR	1	1600	120	.08	180	.11
EBL	2	2880	290	.10*	160	.06*
EBT	4	6400	1420	.22	860	.13
EBR	1	1600	290	.18	170	.11
WBL	2	2880	70	.02	340	.12
WBT	3	4800	1330	.28*	1520	.32*
WBR	f		240		370	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.71**

SCVCTM 4.1 2022 with Stage 5 Improvements

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	480	.17*	500	.17*
NBT	3	4800	160	.03	670	.14
NBR	1	1600	20	.01	200	.13
SBL	2	2880	140	.05	300	.10
SBT	3	4800	180	.04*	580	.12*
SBR	1	1600	150	.09	200	.13
EBL	2	2880	330	.11*	210	.07*
EBT	4	6400	1970	.31	1360	.21
EBR	1	1600	330	.21	280	.18
WBL	2	2880	80	.03	330	.11
WBT	3	4800	1590	.33*	1890	.39*
WBR	f		240		350	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.75**		**.85**

SCVCTM 4.1 2025 with Stage 6a Improvements

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	500	.17*	480	.17*
NBT	3	4800	190	.04	700	.15
NBR	1	1600	30	.02	240	.15
SBL	2	2880	140	.05	360	.13
SBT	3	4800	190	.04*	550	.11*
SBR	1	1600	150	.09	200	.13
EBL	2	2880	320	.11*	210	.07*
EBT	4	6400	2050	.32	1470	.23
EBR	1	1600	360	.23	330	.21
WBL	2	2880	70	.02	360	.13
WBT	3	4800	1620	.34*	2020	.42*
WBR	f		260		350	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.76**		**.87**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	2	2880	550	.19*	490	.17
NBT	3	4800	230	.05	800	.17*
NBR	1	1600	40	.03	280	.18
SBL	2	2880	140	.05	360	.13*
SBT	3	4800	200	.04*	580	.12
SBR	1	1600	160	.10	200	.13
EBL	2	2880	340	.12*	210	.07*
EBT	4	6400	2060	.32	1310	.20
EBR	1	1600	330	.21	580	.36
WBL	2	2880	70	.02	400	.14
WBT	3	4800	1650	.34*	2040	.43*
WBR	f		280		370	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.79**		**.90**

28. Old Road & McBean

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	47	.03*	178	.11*
NBT	3	4800	178	.04	505	.11
NBR	1	1600	138	.09	592	.37
SBL	1	1600	62	.04	166	.10
SBT	2	3200	250	.08*	397	.12*
SBR	1	1600	73	.05	231	.14
EBL	1	1600	141	.09	170	.11*
EBT	3	4800	852	.18*	437	.09
EBR	1	1600	128	.08	114	.07
WBL	2	2880	254	.09*	593	.21
WBT	2	3200	186	.11	588	.20*
WBR	0	0	154		47	
Right Turn Adjustment					NBR	.08*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.48**		**.72**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	90	.06*	150	.09*
NBT	3	4800	280	.06	630	.13
NBR	1	1600	360	.23	770	.48
SBL	1	1600	50	.03	320	.20
SBT	2	3200	220	.07*	790	.25*
SBR	1	1600	30	.02	260	.16
EBL	1	1600	130	.08	160	.10*
EBT	3	4800	1120	.23*	510	.11
EBR	1	1600	120	.08	110	.07
WBL	2	2880	270	.09*	790	.27
WBT	2	3200	260	.16	870	.29*
WBR	0	0	270	.17	70	
Right Turn Adjustment			NBR	.04*	NBR	.06*
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.59**		**.89**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	80	.05*	150	.09*
NBT	3	4800	340	.07	640	.13
NBR	1	1600	380	.24	770	.48
SBL	2	2880	40	.01	420	.15
SBT	2	3200	180	.06*	840	.26*
SBR	1	1600	10	.01	210	.13
EBL	1	1600	110	.07	150	.09*
EBT	3	4800	1000	.21*	510	.11
EBR	1	1600	130	.08	110	.07
WBL	2	2880	300	.10*	800	.28
WBT	2	3200	250	.16	860	.30*
WBR	0	0	300	.19	90	
Right Turn Adjustment			NBR	.04*		
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.56**		**.84**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	80	.05*	150	.09*
NBT	3	4800	380	.08	700	.15
NBR	1	1600	370	.23	760	.48
SBL	2	2880	60	.02	470	.16
SBT	2	3200	200	.06*	900	.28*
SBR	1	1600	10	.01	250	.16
EBL	1	1600	110	.07	160	.10*
EBT	3	4800	980	.20*	500	.10
EBR	1	1600	130	.08	110	.07
WBL	2	2880	290	.10*	730	.25
WBT	2	3200	250	.16	810	.29*
WBR	0	0	310	.19	110	
Right Turn Adjustment			NBR	.04*		
Clearance Interval				.10*		.10*
Note: Assumes Right-Turn Overlap for NBR						
TOTAL CAPACITY UTILIZATION				**.55**		**.86**

28. Old Road & McBean

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	80	.05*	120	.08*
NBT	3	4800	220	.05	670	.14
NBR	1	1600	350	.22	760	.48
SBL	2	2880	110	.04	200	.07
SBT	2	3200	210	.07*	500	.16*
SBR	1	1600	10	.01	140	.09
EBL	1	1600	80	.05	130	.08*
EBT	3	4800	1020	.21*	510	.11
EBR	1	1600	120	.08	100	.06
WBL	2	2880	310	.11*	820	.28
WBT	2	3200	250	.16	930	.35*
WBR	0	0	320	.20	180	
Right Turn Adjustment			NBR	.03*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .57 .77

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	70	.04*	120	.08*
NBT	3	4800	220	.05	730	.15
NBR	1	1600	350	.22	740	.46
SBL	2	2880	130	.05	290	.10
SBT	2	3200	230	.07*	590	.18*
SBR	1	1600	10	.01	170	.11
EBL	1	1600	80	.05	130	.08
EBT	3	4800	1010	.21*	510	.11*
EBR	1	1600	110	.07	100	.06
WBL	2	2880	300	.10*	810	.28*
WBT	2	3200	240	.08	890	.28
WBR	1	1600	390	.24	370	.23
Right Turn Adjustment			NBR	.06*	NBR	.02*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .58 .77

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	70	.04*	110	.07*
NBT	3	4800	260	.05	770	.16
NBR	1	1600	330	.21	700	.44
SBL	2	2880	150	.05	280	.10
SBT	2	3200	240	.08*	670	.21*
SBR	1	1600	10	.01	160	.10
EBL	1	1600	90	.06	140	.09
EBT	3	4800	990	.21*	490	.10*
EBR	1	1600	110	.07	90	.06
WBL	2	2880	310	.11*	830	.29*
WBT	2	3200	250	.08	920	.29
WBR	1	1600	390	.24	360	.23
Right Turn Adjustment			NBR	.03*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .57 .77

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	70	.04*	120	.08
NBT	3	4800	300	.06	870	.18*
NBR	1	1600	320	.20	690	.43
SBL	2	2880	140	.05	440	.15*
SBT	2	3200	230	.07*	790	.25
SBR	1	1600	10	.01	170	.11
EBL	1	1600	100	.06	160	.10
EBT	3	4800	980	.20*	470	.10*
EBR	1	1600	110	.07	90	.06
WBL	2	2880	320	.11*	830	.29*
WBT	2	3200	250	.08	910	.28
WBR	1	1600	450	.28	410	.26
Right Turn Adjustment			NBR	.03*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .55 .82

29. Old Road & Pico

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	65	.04*	106	.07
NBT	2	3200	169	.08	349	.13*
NBR	0	0	84		56	
SBL	2	2880	288	.10	467	.16*
SBT	1	1600	301	.19*	222	.14
SBR	1	1600	19	.01	29	.02
EBL	1	1600	52	.03	61	.04*
EBT	2	3200	607	.19*	251	.08
EBR	1	1600	117	.07	23	.01
WBL	1	1600	51	.03*	70	.04
WBT	2	3200	320	.10	594	.19*
WBR	f		292		664	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.55**		**.62**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	70	.04	400	.25
NBT	2	3200	230	.09*	610	.26*
NBR	0	0	50		220	
SBL	2	2880	300	.10*	600	.21*
SBT	1	1600	150	.09	280	.18
SBR	1	1600	150	.09	270	.17
EBL	1	1600	360	.23*	60	.04*
EBT	2	3200	260	.08	140	.04
EBR	1	1600	50	.03	60	.04
WBL	1	1600	10	.01	70	.04
WBT	2	3200	1000	.31*	430	.13*
WBR	f		250		600	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.83**		**.74**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	70	.04	400	.25*
NBT	2	3200	260	.10*	610	.26
NBR	0	0	50		210	
SBL	2	2880	300	.10*	580	.20
SBT	1	1600	150	.09	350	.22*
SBR	1	1600	140	.09	290	.18
EBL	1	1600	390	.24*	60	.04*
EBT	2	3200	230	.07	130	.04
EBR	1	1600	50	.03	60	.04
WBL	1	1600	10	.01	70	.04
WBT	2	3200	970	.30*	410	.13*
WBR	f		260		600	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.84**		**.74**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	70	.04	380	.24*
NBT	2	3200	280	.10*	640	.25
NBR	0	0	50		150	
SBL	2	2880	290	.10*	560	.19
SBT	1	1600	150	.09	350	.22*
SBR	1	1600	150	.09	290	.18
EBL	1	1600	410	.26*	70	.04*
EBT	2	3200	220	.07	190	.06
EBR	1	1600	50	.03	60	.04
WBL	1	1600	10	.01	50	.03
WBT	2	3200	980	.31*	480	.15*
WBR	f		250		600	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.87**		**.75**

29. Old Road & Pico

SCVCTM 4.1 2018 with Stage 4 Improvements

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	100	.06	410	.26
NBT	2	3200	210	.08*	570	.25*
NBR	0	0	50		220	
SBL	2	2880	300	.10*	520	.18*
SBT	1	1600	150	.09	230	.14
SBR	1	1600	140	.09	170	.11
EBL	1	1600	310	.19*	60	.04*
EBT	2	3200	280	.09	180	.06
EBR	1	1600	50	.03	70	.04
WBL	1	1600	10	.01	90	.06
WBT	2	3200	1020	.32*	500	.16*
WBR	f		220		610	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.79**		**.73**

SCVCTM 4.1 2022 with Stage 5 Improvements

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	120	.08*	440	.28*
NBT	2	3200	210	.08	600	.23
NBR	0	0	50		150	
SBL	2	2880	290	.10	540	.19
SBT	1	1600	160	.10*	270	.17*
SBR	1	1600	140	.09	180	.11
EBL	1	1600	300	.19*	60	.04*
EBT	2	3200	360	.11	370	.12
EBR	1	1600	70	.04	90	.06
WBL	1	1600	10	.01	100	.06
WBT	2	3200	1040	.33*	690	.22*
WBR	f		220		620	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.80**		**.81**

SCVCTM 4.1 2025 with Stage 6a Improvements

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	140	.09*	400	.25*
NBT	2	3200	230	.09	620	.24
NBR	0	0	50		150	
SBL	2	2880	290	.10	570	.20
SBT	1	1600	160	.10*	370	.23*
SBR	1	1600	160	.10	160	.10
EBL	1	1600	300	.19*	60	.04*
EBT	2	3200	480	.15	460	.14
EBR	1	1600	80	.05	110	.07
WBL	1	1600	10	.01	80	.05
WBT	2	3200	1100	.34*	830	.26*
WBR	f		220		610	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.82**		**.88**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

			AM PK HOUR		PM PK HOUR	
	LANES	CAPACITY	VOL	V/C	VOL	V/C
NBL	1	1600	140	.09*	410	.26
NBT	2	3200	240	.09	670	.26*
NBR	0	0	50		150	
SBL	2	2880	280	.10	610	.21*
SBT	2	3200	170	.11*	460	.18
SBR	0	0	170		120	
EBL	1	1600	310	.19*	70	.04*
EBT	2	3200	570	.18	520	.16
EBR	1	1600	90	.06	220	.14
WBL	1	1600	10	.01	80	.05
WBT	2	3200	1110	.35*	890	.28*
WBR	f		240		640	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.84**		**.89**

80. Wolcott & SR-126

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	1		0	
NBT	1	1600	3	.00	0	.00
NBR	0	0	3		0	
SBL	1.5		1		9	
SBT	0.5	3200	1	.00*	0	.00*
SBR	1	1600	5	.00	21	.01
EBL	1	1600	14	.01*	2	.00
EBT	2	3200	655	.21	1150	.36*
EBR	0	0	6		0	
WBL	1	1600	3	.00	1	.00
WBT	2	3200	748	.23*	870	.27
WBR	1	1600	2	.00	6	.00
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.34**		**.46**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	90	.06*	10	.01*
NBR	2	3200	320	.10	810	.25
SBL	2	2880	10	.00	180	.06*
SBT	1	1600	20	.01	50	.03
SBR	1	1600	10	.01	60	.04
EBL	1	1600	130	.08	10	.01
EBT	3	4800	910	.19*	1500	.31*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	550	.19*	610	.21*
WBT	3	4800	1180	.25	1310	.27
WBR	1	1600	160	.10	10	.01
Right Turn Adjustment					NBR	.08*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.77**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	100	.06*	10	.01*
NBR	2	3200	320	.10	820	.26
SBL	2	2880	10	.00	190	.07*
SBT	1	1600	20	.01	40	.03
SBR	1	1600	10	.01	60	.04
EBL	1	1600	130	.08	10	.01
EBT	3	4800	930	.19*	1520	.32*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	550	.19*	620	.22*
WBT	3	4800	1230	.26	1350	.28
WBR	1	1600	170	.11	10	.01
Right Turn Adjustment					NBR	.08*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.80**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	110	.07*	10	.01*
NBR	2	3200	310	.10	810	.25
SBL	2	2880	10	.00	210	.07*
SBT	1	1600	20	.01	40	.03
SBR	1	1600	10	.01	70	.04
EBL	1	1600	200	.13	10	.01
EBT	3	4800	940	.20*	1540	.32*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	530	.18*	620	.22*
WBT	3	4800	1190	.25	1330	.28
WBR	1	1600	180	.11	10	.01
Right Turn Adjustment					NBR	.07*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.55**		**.79**

80. Wolcott & SR-126

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	90	.06*	10	.01*
NBR	2	3200	320	.10	750	.23
SBL	2	2880	10	.00	210	.07*
SBT	1	1600	20	.01	40	.03
SBR	1	1600	10	.01	90	.06
EBL	1	1600	270	.17	10	.01
EBT	3	4800	1090	.23*	1410	.29*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	480	.17*	610	.21*
WBT	3	4800	940	.20	1390	.29
WBR	1	1600	180	.11	10	.01
Right Turn Adjustment					NBR	.06*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .56 .74

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	70	.04*	10	.01*
NBR	2	3200	330	.10	650	.20
SBL	2	2880	20	.01*	190	.07*
SBT	1	1600	10	.01	30	.02
SBR	1	1600	20	.01	150	.09
EBL	1	1600	380	.24	10	.01
EBT	3	4800	1750	.36*	1670	.35*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	430	.15*	570	.20*
WBT	3	4800	1080	.23	2000	.42
WBR	1	1600	170	.11	10	.01
Right Turn Adjustment					NBR	.04*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .66 .77

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	60	.04*	10	.01*
NBR	2	3200	320	.10	620	.19
SBL	2	2880	10	.00	170	.06*
SBT	1	1600	10	.01	30	.02
SBR	1	1600	30	.02	190	.12
EBL	1	1600	440	.28	10	.01
EBT	3	4800	2330	.49*	2230	.46*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	390	.14*	550	.19*
WBT	3	4800	1550	.32	2730	.57
WBR	1	1600	140	.09	10	.01
Right Turn Adjustment					NBR	.04*
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .77 .86

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	60	.04*	10	.01*
NBR	2	3200	310	.10	610	.19
SBL	2	2880	10	.00	160	.06*
SBT	1	1600	10	.01	40	.03
SBR	1	1600	30	.02	250	.16
EBL	1	1600	490	.31*	10	.01
EBT	4	6400	2680	.42	2690	.42*
EBR	1	1600	10	.01	10	.01
WBL	2	2880	390	.14	540	.19*
WBT	4	6400	1960	.31*	3120	.49
WBR	1	1600	140	.09	10	.01
Right Turn Adjustment					SBR	.01*
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .76 .79

81. Commerce Ctr & Henry Mayo

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	10	.01*	190	.12*
SBT	0	0	0		0	
SBR	1	1600	20	.01	60	.04
EBL	1	1600	80	.05*	230	.14*
EBT	2	3200	20	.01	160	.05
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	1	1600	20	.01*	20	.01*
WBR	1	1600	110	.07	70	.04
Right Turn Adjustment			WBR	.05*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.22**		**.37**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	20	.01	10	.01
NBT	3	4800	1020	.21*	260	.06*
NBR	0	0	10		10	
SBL	2	2880	0	.00	140	.05*
SBT	3	4800	60	.02	320	.08
SBR	0	0	20		70	
EBL	1	1600	80	.05*	230	.14*
EBT	2	3200	20	.01	60	.02
EBR	1	1600	90	.06	220	.14
WBL	1.5		0		20	
WBT	0.5	3200	10	.01*	10	.01*
WBR	1	1600	20	.01	40	.03
Clearance Interval				.10*		.10*
Note: Assumes E/W Split Phasing						
TOTAL CAPACITY UTILIZATION				**.37**		**.36**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	20	.01	10	.01
NBT	3	4800	1320	.28*	270	.06*
NBR	0	0	20		10	
SBL	2	2880	0	.00	190	.07*
SBT	3	4800	90	.02	520	.12
SBR	0	0	20		60	
EBL	1	1600	80	.05*	260	.16*
EBT	2	3200	30	.01	50	.02
EBR	1	1600	80	.05	280	.18
WBL	1.5		10	.01	40	
WBT	0.5	3200	20	.01*	10	.02*
WBR	1	1600	20	.01	40	.03
Right Turn Adjustment					EBR	.01*
Clearance Interval				.10*		.10*
Note: Assumes E/W Split Phasing						
TOTAL CAPACITY UTILIZATION				**.44**		**.42**

81. Commerce Ctr & Henry Mayo

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	20	.01	20	.01*
NBT	3	4800	1340	.29*	480	.11
NBR	0	0	70		40	
SBL	2	2880	10	.00	140	.05
SBT	3	4800	170	.04	740	.17*
SBR	0	0	20		60	
EBL	1	1600	130	.08*	260	.16*
EBT	2	3200	60	.02	40	.01
EBR	1	1600	80	.05	210	.13
WBL	1.5		40		100	
WBT	0.5	3200	10	.02*	10	.03*
WBR	1	1600	40	.03	60	.04
Right Turn Adjustment			WBR	.01*		
Clearance Interval				.10*		.10*

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .50 .47

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	20	.01	20	.01*
NBT	3	4800	1440	.32*	660	.15
NBR	0	0	110		80	
SBL	2	2880	20	.01*	50	.02
SBT	3	4800	230	.05	890	.20*
SBR	0	0	20		60	
EBL	1	1600	320	.20*	290	.18*
EBT	2	3200	120	.04	60	.02
EBR	1	1600	120	.08	230	.14
WBL	1.5		60		150	
WBT	0.5	3200	10	.02*	10	.05*
WBR	1	1600	50	.03	110	.07
Clearance Interval				.10*		.10*

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .65 .54

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	20	.01	20	.01
NBT	3	4800	1540	.35*	890	.21*
NBR	0	0	140		110	
SBL	2	2880	20	.01*	60	.02*
SBT	3	4800	300	.07	950	.21
SBR	0	0	20		50	
EBL	1	1600	400	.25*	300	.19*
EBT	2	3200	170	.05	90	.03
EBR	1	1600	200	.13	320	.20
WBL	1.5		110		220	
WBT	0.5	3200	10	.04*	10	.07*
WBR	1	1600	60	.04	180	.11
Right Turn Adjustment					WBR	.02*
Clearance Interval				.10*		.10*

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .75 .61

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	20	.01	20	.01
NBT	3	4800	1620	.39*	980	.23*
NBR	0	0	240		140	
SBL	2	2880	70	.02*	70	.02*
SBT	3	4800	280	.06	1040	.23
SBR	0	0	20		50	
EBL	1	1600	380	.24*	300	.19*
EBT	2	3200	250	.08	140	.04
EBR	1	1600	220	.14	380	.24
WBL	1.5		90		300	
WBT	0.5	3200	10	.03*	10	.10*
WBR	1	1600	80	.05	270	.17
Right Turn Adjustment					Multi	.08*
Clearance Interval				.10*		.10*

Note: Assumes E/W Split Phasing

TOTAL CAPACITY UTILIZATION .78 .72

82. Commerce Ctr & SR-126 EB Rmp

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	160	.03*	230	.05
NBR	f		30		80	
SBL	0	0	0		0	
SBT	2	3200	40	.01	250	.08*
SBR	f		340		1160	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.13**		**.18**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	1050	.22*	400	.08
NBR	f		70		120	
SBL	0	0	0		0	
SBT	2	3200	90	.03	520	.16*
SBR	f		380		1300	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.32**		**.26**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	1320	.28*	440	.09
NBR	f		90		130	
SBL	0	0	0		0	
SBT	2	3200	120	.04	780	.24*
SBR	f		420		1400	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.38**		**.34**

82. Commerce Ctr & SR-126 EB Rmp

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	1310	.27*	540	.11
NBR	f		200		250	
SBL	0	0	0		0	
SBT	2	3200	200	.06	940	.29*
SBR	f		420		1430	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.37**		**.39**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	1520	.32*	740	.15
NBR	f		300		320	
SBL	0	0	0		0	
SBT	2	3200	260	.08	1000	.31*
SBR	f		400		1370	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.42**		**.41**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	1690	.35*	950	.20
NBR	f		320		420	
SBL	0	0	0		0	
SBT	2	3200	340	.11	1060	.33*
SBR	f		380		1330	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.45**		**.43**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	1760	.37*	1130	.24
NBR	f		330		410	
SBL	0	0	0		0	
SBT	2	3200	370	.12	1160	.36*
SBR	f		330		1400	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.46**

83. Commerce Ctr & SR-126 WB Rmps

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	90	.03*	50	.02*
NBT	3	4800	80	.02	180	.04
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	360	.08*	1360	.28*
SBR	1	1600	110	.07	220	.14
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	20	.01*	40	.01*
WBT	0	0	0		0	
WBR	2	3200	1270	.40	460	.14
Right Turn Adjustment			WBR	.32*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .54 .41

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	290	.10*	140	.05*
NBT	3	4800	760	.16	250	.05
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	430	.09*	1710	.36*
SBR	1	1600	110	.07	240	.15
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	40	.01*	110	.04*
WBT	0	0	0		0	
WBR	2	3200	1280	.40	510	.16
Right Turn Adjustment			WBR	.37*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .67 .55

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	270	.09	120	.04*
NBT	3	4800	1050	.22*	320	.07
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	490	.10	2040	.43*
SBR	1	1600	120	.08	270	.17
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	40	.01*	140	.05*
WBT	0	0	0		0	
WBR	2	3200	1350	.42	550	.17
Right Turn Adjustment			WBR	.41*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .74 .62

83. Commerce Ctr & SR-126 WB Rmps

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	170	.06	160	.06*
NBT	3	4800	1150	.24*	380	.08
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	520	.11	2140	.45*
SBR	1	1600	120	.08	320	.20
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	100	.03*	230	.08*
WBT	0	0	0		0	
WBR	2	3200	1420	.44	510	.16
Right Turn Adjustment			WBR	.41*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .78 .69

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	200	.07	270	.09*
NBT	3	4800	1320	.28*	480	.10
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	540	.11	2080	.43*
SBR	1	1600	140	.09	500	.31
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	110	.04*	290	.10*
WBT	0	0	0		0	
WBR	2	3200	1350	.42	540	.17
Right Turn Adjustment			WBR	.38*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .80 .72

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	260	.09	410	.14*
NBT	3	4800	1430	.30*	530	.11
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	560	.12	2060	.43*
SBR	1	1600	160	.10	610	.38
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	150	.05*	320	.11*
WBT	0	0	0		0	
WBR	2	3200	1300	.41	510	.16
Right Turn Adjustment			WBR	.36*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .81 .78

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	310	.11	550	.19*
NBT	3	4800	1440	.30*	580	.12
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	3	4800	560	.12	2220	.46*
SBR	1	1600	180	.11	630	.39
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	2	2880	140	.05*	340	.12*
WBT	0	0	0		0	
WBR	2	3200	1280	.40	520	.16
Right Turn Adjustment			WBR	.35*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .80 .87

96. Martinez/Potrero & SR-126

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	3		7	
SBT	1	1600	0	.00*	0	.01*
SBR	0	0	2		4	
EBL	1	1600	1	.00	2	.00
EBT	2	3200	592	.19	1126	.35*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	738	.23*	796	.25
WBR	0	0	2		4	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.33**		**.46**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	10		10	
SBT	1	1600	0	.01*	0	.01*
SBR	0	0	10		10	
EBL	1	1600	10	.01	0	.00
EBT	2	3200	840	.26*	1010	.32
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	680	.22	1090	.34*
WBR	0	0	10		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.37**		**.45**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	10		10	
SBT	1	1600	0	.01*	0	.01*
SBR	0	0	10		10	
EBL	1	1600	10	.01	0	.00
EBT	2	3200	860	.27*	1020	.32
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	710	.23	1110	.35*
WBR	0	0	10		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.38**		**.46**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	10		10	
SBT	1	1600	0	.01*	0	.01*
SBR	0	0	10		10	
EBL	1	1600	10	.01	0	.00
EBT	2	3200	860	.27*	1020	.32
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	700	.22	1110	.35*
WBR	0	0	10		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.38**		**.46**

96. Martinez/Potrero & SR-126

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	30		20	
SBT	1	1600	0	.03*	0	.02*
SBR	0	0	10		10	
EBL	1	1600	10	.01	10	.01*
EBT	2	3200	890	.28*	1050	.33
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	740	.23	1140	.37*
WBR	0	0	10		40	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.41**		**.50**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	70	.04*	40	.03*
SBT	1	1600	0	.01	0	.01
SBR	0	0	20		10	
EBL	1	1600	10	.01	10	.01*
EBT	2	3200	960	.30*	1130	.35
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	810	.25	1230	.38*
WBR	1	1600	30	.02	70	.04
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.44**		**.52**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	1	1600	90	.06*	50	.03*
SBT	1	1600	0	.02	0	.01
SBR	0	0	30		20	
EBL	1	1600	20	.01	30	.02*
EBT	2	3200	1270	.40*	1330	.42
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	900	.28	1570	.49*
WBR	1	1600	40	.03	120	.08
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.64**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	10	.01	10	.01
NBT	1	1600	10	.12*	10	.06*
NBR	0	0	180		90	
SBL	2	2880	130	.05*	70	.02*
SBT	1	1600	0	.00	10	.01
SBR	1	1600	30	.02	20	.01
EBL	1	1600	20	.01	30	.02*
EBT	2	3200	1320	.41*	1350	.42
EBR	1	1600	10	.01	10	.01
WBL	1	1600	30	.02*	180	.11
WBT	2	3200	920	.29	1670	.52*
WBR	1	1600	50	.03	170	.11
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.70**		**.72**

101. Long Cyn & Potrero Cyn

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	0	.00	10	.00
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	f		20		20	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.10**		**.10**

101. Long Cyn & Potrero Cyn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	70	.02*	280	.10*
SBT	1	1600	0	.00	0	.00
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	0	0	0		0	
WBR	f		440		170	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.12**		**.20**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00
NBR	1	1600	0	.00	0	.00
SBL	2	2880	110	.04*	350	.12
SBT	0.5	3200	0	.00	0	{.13}*
SBR	1.5		140		590	
EBL	2	2880	440	.15*	400	.14*
EBT	3	4800	140	.03	80	.02
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	2	3200	60	.02*	140	.04*
WBR	f		480		240	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.31**		**.41**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00
NBR	1	1600	0	.00	0	.00
SBL	2	2880	140	.05*	450	.16
SBT	0.5	3200	0	.00	0	{.23}*
SBR	1.5		240		1000	
EBL	2	2880	860	.30*	620	.22*
EBT	3	4800	200	.04	280	.06
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	2	3200	60	.02*	310	.10*
WBR	f		520		320	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.47**		**.65**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00
NBR	1	1600	0	.00	0	.00
SBL	2	2880	240	.08*	470	.16
SBT	0.5	3200	0	.00	0	{.26}*
SBR	1.5		320		1160	
EBL	2	2880	900	.31*	780	.27*
EBT	3	4800	100	.02	510	.11
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	2	3200	40	.01*	560	.18*
WBR	f		570		450	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.50**		**.81**

102. Newhall Ranch & Potrero Cyn

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	f		20		20	
EBL	2	2880	10	.00	10	.00
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	0	0	0		0	
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.10**		**.10**

102. Newhall Ranch & Potrero Cyn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	0	.00	0	.00
NBT	2	3200	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	100	.03*	90	.03*
SBT	2	3200	0	.00	0	.00
SBR	f		20		20	
EBL	2	2880	0	.00	10	.00
EBT	2	3200	50	.02	220	.07*
EBR	1	1600	0	.00	0	.00
WBL	1	1600	0	.00	0	.00
WBT	2	3200	340	.11*	120	.04
WBR	1	1600	70	.04	160	.10
Right Turn Adjustment					WBR	.01*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.24**		**.21**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	0	.00	0	.00
NBT	2	3200	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	290	.10*	170	.06*
SBT	2	3200	0	.00	0	.00
SBR	f		100		180	
EBL	2	2880	70	.02*	140	.05*
EBT	2	3200	410	.13	610	.19
EBR	1	1600	0	.00	0	.00
WBL	1	1600	0	.00	0	.00
WBT	2	3200	450	.14*	620	.19*
WBR	1	1600	210	.13	310	.19
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.36**		**.40**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	0	.00	0	.00
NBT	2	3200	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	280	.10*	190	.07*
SBT	2	3200	0	.00	0	.00
SBR	f		120		280	
EBL	2	2880	130	.05*	230	.08*
EBT	2	3200	690	.22	880	.28
EBR	1	1600	0	.00	0	.00
WBL	1	1600	0	.00	0	.00
WBT	2	3200	580	.18*	830	.26*
WBR	1	1600	250	.16	320	.20
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.43**		**.51**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	40	.01	30	.01*
NBT	2	3200	320	.10*	190	.06
NBR	1	1600	350	.22	340	.21
SBL	2	2880	310	.11*	180	.06
SBT	2	3200	80	.03	340	.11*
SBR	f		150		420	
EBL	2	2880	220	.08*	280	.10
EBT	2	3200	750	.23	950	.30*
EBR	1	1600	20	.01	80	.05
WBL	1	1600	90	.06	280	.18*
WBT	2	3200	690	.22*	990	.31
WBR	1	1600	300	.19	310	.19
Right Turn Adjustment			NBR	.07*	NBR	.01*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.68**		**.71**

103. Pico Cyn & Valencia

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	0	.00	0	.00
NBT	0	0	0		0	
NBR	1	1600	0	.00	0	.00
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	470	.15	510	.16
EBR	1	1600	0	.00	0	.00
WBL	1	1600	0	.00	0	.00
WBT	2	3200	500	.16*	610	.19*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.26**		**.29**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	150	.05*	380	.13*
NBT	0	0	0		0	
NBR	1	1600	20	.01	20	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	1170	.37*	840	.26
EBR	1	1600	140	.09	270	.17
WBL	1	1600	10	.01*	20	.01
WBT	2	3200	660	.21	1160	.36*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.53**		**.59**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	230	.08*	600	.21*
NBT	0	0	0		0	
NBR	1	1600	20	.01	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	1400	.44*	1050	.33
EBR	1	1600	260	.16	390	.24
WBL	1	1600	10	.01*	20	.01
WBT	2	3200	760	.24	1370	.43*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.63**		**.74**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	260	.09*	670	.23*
NBT	0	0	0		0	
NBR	1	1600	10	.01	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	1460	.46*	1060	.33
EBR	1	1600	380	.24	560	.35
WBL	1	1600	10	.01*	20	.01
WBT	2	3200	870	.27	1490	.47*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.66**		**.80**

104. Poe & Valencia

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	0	0	0		0	
NBR	1	1600	190	.12	20	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	0	.00*	0	.00*
EBR	1	1600	0	.00	0	.00
WBL	1	1600	70	.04*	140	.09*
WBT	2	3200	0	.00	0	.00
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.09*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.23**		**.19**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	0	0	0		0	
NBR	1	1600	200	.13	40	.03
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	0	.00*	0	.00*
EBR	1	1600	0	.00	0	.00
WBL	1	1600	70	.04*	150	.09*
WBT	2	3200	0	.00	0	.00
WBR	0	0	0		0	
Right Turn Adjustment			NBR	.10*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.24**		**.19**

104. Poe & Valencia

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	190	.12*	150	.09*
NBT	0	0	0		0	
NBR	1	1600	140	.09	40	.03
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	380	.12*	300	.09*
EBR	1	1600	90	.06	210	.13
WBL	1	1600	60	.04*	80	.05*
WBT	2	3200	310	.10	460	.14
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.38**		**.33**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	160	.10*	140	.09*
NBT	0	0	0		0	
NBR	1	1600	160	.10	60	.04
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	1070	.33*	680	.21
EBR	1	1600	120	.08	180	.11
WBL	1	1600	60	.04*	70	.04
WBT	2	3200	500	.16	1040	.33*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.57**		**.52**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	180	.11*	170	.11*
NBT	0	0	0		0	
NBR	1	1600	150	.09	60	.04
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	1280	.40*	840	.26
EBR	1	1600	130	.08	220	.14
WBL	1	1600	50	.03*	80	.05
WBT	2	3200	580	.18	1220	.38*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.64**		**.59**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	210	.13*	180	.11*
NBT	0	0	0		0	
NBR	1	1600	150	.09	70	.04
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	2	3200	1340	.42*	820	.26
EBR	1	1600	130	.08	250	.16
WBL	1	1600	40	.03*	100	.06
WBT	2	3200	670	.21	1330	.42*
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.68**		**.63**

105. Westridge & Valencia

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	36	.02	1	.00
NBT	1	1600	1	.00*	3	.00*
NBR	1	1600	47	.03	30	.02
SBL	2	2880	335	.12*	100	.03*
SBT	1	1600	9	.01	2	.00
SBR	1	1600	26	.02	0	.00
EBL	1	1600	4	.00	2	.00
EBT	3	4800	985	.21	209	.04*
EBR	0	0	15		3	
WBL	1	1600	29	.02	23	.01*
WBT	3	4800	1230	.26*	157	.03
WBR	1	1600	61	.04	120	.08
Right Turn Adjustment					Multi	.02*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.48**		**.20**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00	0	.00
NBR	1	1600	0	.00	0	.00
SBL	2	2880	0	.00	0	.00
SBT	1	1600	0	.00*	0	.00*
SBR	1	1600	20	.01	10	.01
EBL	1	1600	20	.01*	10	.01*
EBT	3	4800	480	.10	280	.06
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	3	4800	940	.20*	220	.05*
WBR	1	1600	50	.03	100	.06
Right Turn Adjustment					WBR	.01*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.31**		**.17**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00	0	.00
NBR	1	1600	0	.00	0	.00
SBL	2	2880	10	.00	10	.00
SBT	1	1600	0	.00*	0	.00*
SBR	1	1600	60	.04	50	.03
EBL	1	1600	110	.07*	30	.02*
EBT	3	4800	510	.11	280	.06
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	3	4800	860	.18*	310	.06*
WBR	1	1600	360	.23	140	.09
Right Turn Adjustment			WBR	.05*	Multi	.04*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.40**		**.22**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00
NBR	1	1600	0	.00	0	.00
SBL	2	2880	30	.01*	10	.00
SBT	1	1600	0	.00	0	.00*
SBR	1	1600	90	.06	60	.04
EBL	1	1600	130	.08*	40	.03*
EBT	3	4800	640	.13	360	.08
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	3	4800	840	.18*	450	.09*
WBR	1	1600	430	.27	260	.16
Right Turn Adjustment			WBR	.08*	Multi	.09*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.45**		**.31**

105. Westridge & Valencia

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	80	.03*	30	.01*
SBT	1	1600	0	.00	0	.00
SBR	1	1600	80	.05	50	.03
EBL	1	1600	130	.08*	40	.03*
EBT	3	4800	1370	.29	820	.17
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	3	4800	1180	.25*	1260	.26*
WBR	1	1600	270	.17	320	.20
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.46**		**.40**

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	80	.03*	50	.02*
SBT	1	1600	0	.00	0	.00
SBR	1	1600	90	.06	60	.04
EBL	1	1600	130	.08	40	.03*
EBT	3	4800	1990	.41*	1460	.30
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	3	4800	1530	.32	1880	.39*
WBR	1	1600	290	.18	320	.20
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.54**		**.54**

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	60	.02*	100	.03*
SBT	1	1600	0	.00	0	.00
SBR	1	1600	90	.06	70	.04
EBL	1	1600	140	.09	40	.03*
EBT	3	4800	2120	.44*	1580	.33
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	3	4800	1560	.33	2010	.42*
WBR	1	1600	320	.20	310	.19
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.58**

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	0	.00	0	.00
NBT	1	1600	0	.00*	0	.00*
NBR	1	1600	0	.00	0	.00
SBL	2	2880	60	.02*	230	.08*
SBT	1	1600	0	.00	0	.00
SBR	1	1600	80	.05	90	.06
EBL	1	1600	140	.09	50	.03*
EBT	3	4800	2130	.44*	1540	.32
EBR	0	0	0		0	
WBL	1	1600	0	.00	0	.00
WBT	3	4800	1610	.34	2070	.43*
WBR	1	1600	350	.22	300	.19
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.64**

106. Commerce Center & Magic Mtn

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	0	.00	0	.00
SBT	0	0	0		0	
SBR	1	1600	0	.00	0	.00
EBL	2	2880	0	.00	0	.00
EBT	3	4800	420	.09*	650	.14
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	360	.08	670	.14*
WBR	1	1600	0	.00	0	.00
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.19**		**.24**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	70	.02*	270	.09*
SBT	0	0	0		0	
SBR	1	1600	90	.06	50	.03
EBL	2	2880	240	.08*	20	.01*
EBT	3	4800	440	.09	590	.12
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	340	.07*	600	.13*
WBR	1	1600	810	.51	100	.06
Right Turn Adjustment			WBR	.42*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.69**		**.33**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	80	.03*	460	.16*
SBT	0	0	0		0	
SBR	1	1600	100	.06	80	.05
EBL	2	2880	240	.08	10	.00
EBT	3	4800	850	.18*	790	.16
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	460	.10	990	.21*
WBR	1	1600	1040	.65	140	.09
Right Turn Adjustment			WBR	.53*		
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.84**		**.47**

106. Commerce Center & Magic Mtn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	280	.10*	500	.17*
SBT	0	0	0		0	
SBR	1	1600	120	.08	200	.13
EBL	2	2880	240	.08	40	.01*
EBT	3	4800	1260	.26*	1010	.21
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	580	.12	1330	.28*
WBR	1	1600	920	.58	400	.25
Right Turn Adjustment			WBR	.32*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .78 .56

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	580	.20*	750	.26*
SBT	0	0	0		0	
SBR	1	1600	160	.10	360	.23
EBL	2	2880	400	.14*	110	.04*
EBT	3	4800	1230	.26	1140	.24
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	710	.15*	1280	.27*
WBR	f		1110		790	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .59 .67

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	700	.24*	900	.31*
SBT	0	0	0		0	
SBR	1	1600	190	.12	430	.27
EBL	2	2880	490	.17*	130	.05*
EBT	3	4800	1200	.25	1170	.24
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	750	.16*	1240	.26*
WBR	f		1280		920	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .67 .72

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	2880	790	.27*	1010	.35*
SBT	0	0	0		0	
SBR	1	1600	190	.12	520	.33
EBL	2	2880	610	.21*	150	.05*
EBT	3	4800	1090	.23	1220	.25
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	3	4800	760	.16*	1140	.24*
WBR	f		1360		1140	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .74 .74

107. Westridge & Magic Mtn

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		80	.03*	110	.03*
NBT	0	4800	0		0	
NBR	1.5		10	.01	10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	400	.08*	640	.13*
EBR	1	1600	20	.01	10	.01
WBL	2	2880	0	.00	10	.00
WBT	3	4800	280	.06	560	.12
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .21 .26

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		540	.17*	180	.06*
NBT	0	4800	0		0	
NBR	1.5		10		10	.01
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	430	.09	760	.16*
EBR	1	1600	80	.05	100	.06
WBL	2	2880	0	.00	10	.00
WBT	3	4800	610	.13*	530	.11
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .40 .32

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		670	.21*	320	.10*
NBT	0	4800	0		0	
NBR	1.5		20	.01	10	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	800	.17	1100	.23*
EBR	1	1600	140	.09	150	.09
WBL	2	2880	10	.00	20	.01*
WBT	3	4800	830	.17*	800	.17
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .48 .44

107. Westridge & Magic Mtn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		500	.16*	340	.11*
NBT	0	4800	0		0	
NBR	1.5		100	.06	40	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	1380	.29*	1380	.29*
EBR	1	1600	160	.10	130	.08
WBL	2	2880	20	.01*	90	.03*
WBT	3	4800	990	.21	1380	.29
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .56 .53

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		570	.18*	370	.12*
NBT	0	4800	0		0	
NBR	1.5		180	.11	100	.06
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	1630	.34*	1700	.35*
EBR	1	1600	180	.11	190	.12
WBL	2	2880	30	.01*	180	.06*
WBT	3	4800	1250	.26	1700	.35
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .63 .63

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		610	.19*	370	.12*
NBT	0	4800	0		0	
NBR	1.5		200	.13	110	.07
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	1740	.36*	1810	.38*
EBR	1	1600	160	.10	260	.16
WBL	2	2880	30	.01*	200	.07*
WBT	3	4800	1420	.30	1790	.37
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .66 .67

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		650	.20*	380	.12*
NBT	0	4800	0		0	
NBR	1.5		210	.13	120	.08
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	3	4800	1730	.36*	1800	.38*
EBR	1	1600	150	.09	430	.27
WBL	2	2880	30	.01*	210	.07*
WBT	3	4800	1460	.30	1910	.40
WBR	0	0	0		0	
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for EBR

TOTAL CAPACITY UTILIZATION .67 .67

110. Chiquito Cyn & SR-126

Existing Count

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	0	.00*	0	.00*
NBR	0	0	1		0	
SBL	1	1600	72	.05*	31	.02*
SBT	0	0	0		0	
SBR	1	1600	12	.01	14	.01
EBL	1	1600	4	.00	21	.01
EBT	2	3200	592	.19	1035	.32*
EBR	0	0	1		1	
WBL	0	0	0		1	
WBT	2	3200	737	.23*	770	.24
WBR	1	1600	25	.02	52	.03
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.38**		**.44**

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	30	.02*	70	.04*
NBT	2	3200	20	.01	80	.03
NBR	2	3200	270	.08	480	.15
SBL	2	2880	70	.02	50	.02
SBT	2	3200	60	.03*	40	.02*
SBR	0	0	30		20	
EBL	1	1600	20	.01	30	.02
EBT	2	3200	780	.24*	940	.29*
EBR	1	1600	80	.05	50	.03
WBL	2	2880	500	.17*	280	.10*
WBT	2	3200	680	.21	1000	.31
WBR	1	1600	20	.01	90	.06
Right Turn Adjustment					NBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.56**		**.58**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	30	.02*	70	.04*
NBT	2	3200	20	.01	80	.03
NBR	2	3200	270	.08	490	.15
SBL	2	2880	70	.02	50	.02
SBT	2	3200	60	.03*	40	.02*
SBR	0	0	30		20	
EBL	1	1600	20	.01	40	.03
EBT	2	3200	800	.25*	940	.29*
EBR	1	1600	80	.05	40	.03
WBL	2	2880	510	.18*	290	.10*
WBT	2	3200	720	.23	1030	.32
WBR	1	1600	20	.01	90	.06
Right Turn Adjustment					NBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.58**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	40	.03*	80	.05*
NBT	2	3200	30	.01	70	.02
NBR	2	3200	350	.11	490	.15
SBL	2	2880	70	.02	50	.02
SBT	2	3200	50	.03*	40	.02*
SBR	0	0	30		20	
EBL	1	1600	20	.01	30	.02
EBT	2	3200	800	.25*	940	.29*
EBR	1	1600	70	.04	50	.03
WBL	2	2880	480	.17*	280	.10*
WBT	2	3200	700	.22	1020	.32
WBR	1	1600	20	.01	90	.06
Right Turn Adjustment					NBR	.02*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.58**		**.58**

110. Chiquito Cyn & SR-126

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	140	.09*	110	.07*
NBT	2	3200	40	.01	80	.03
NBR	2	3200	560	.18	390	.12
SBL	2	2880	80	.03	50	.02
SBT	2	3200	60	.03*	70	.03*
SBR	0	0	30		20	
EBL	1	1600	20	.01	30	.02
EBT	2	3200	820	.26*	910	.28*
EBR	1	1600	100	.06	130	.08
WBL	2	2880	260	.09*	320	.11*
WBT	2	3200	660	.21	1060	.33
WBR	1	1600	20	.01	100	.06
Right Turn Adjustment			NBR	.02*		
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .59 .59

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	190	.07	170	.06
NBT	2	3200	80	.03*	180	.06*
NBR	2	3200	1190	.37	560	.18
SBL	2	2880	220	.08*	120	.04*
SBT	3	4800	130	.03	160	.03
SBR	1	1600	30	.02	20	.01
EBL	2	2880	20	.01	40	.01
EBT	4	6400	880	.14*	930	.15*
EBR	1	1600	160	.10	200	.13
WBL	2	2880	330	.11*	800	.28*
WBT	3	4800	700	.15	1110	.23
WBR	1	1600	60	.04	240	.15
Right Turn Adjustment			NBR	.23*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

TOTAL CAPACITY UTILIZATION .69 .63

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	2	2880	220	.08	280	.10
NBT	2	3200	320	.10*	340	.11*
NBR	2	3200	1420	.44	640	.20
SBL	2	2880	460	.16*	520	.18*
SBT	3	4800	250	.05	420	.09
SBR	1	1600	40	.03	60	.04
EBL	2	2880	60	.02	50	.02
EBT	4	6400	1100	.17*	1030	.16*
EBR	1	1600	250	.16	280	.18
WBL	2	2880	390	.14*	1000	.35*
WBT	3	4800	760	.16	1350	.28
WBR	1	1600	430	.27	560	.35
Right Turn Adjustment			NBR	.20*		
Clearance Interval				.10*		.10*

Note: Assumes Right-Turn Overlap for NBR

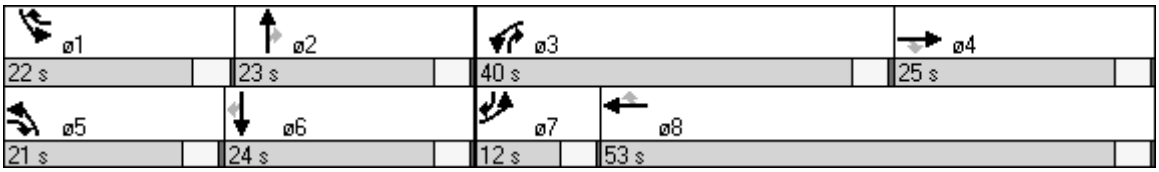
TOTAL CAPACITY UTILIZATION .87 .90

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge
(See HCM delay worksheets on following pages)

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	1250	330	440	790	780	260	560	1640	510	290	50
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	8.0	20.0	8.0	8.0	20.0	8.0	8.0	20.0	8.0
Total Split (s)	12.0	25.0	21.0	40.0	53.0	22.0	21.0	23.0	40.0	22.0	24.0	12.0
Total Split (%)	10.9%	22.7%	19.1%	36.4%	48.2%	20.0%	19.1%	20.9%	36.4%	20.0%	21.8%	10.9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Act Effct Green (s)	7.7	21.0	38.7	36.0	49.3	71.3	13.7	19.0	59.0	18.0	23.3	35.0
Actuated g/C Ratio	0.07	0.19	0.35	0.33	0.45	0.65	0.12	0.17	0.54	0.16	0.21	0.32
v/c Ratio	0.50	1.02	0.50	0.39	0.35	0.75	0.61	0.92	1.09	0.91	0.27	0.09
Control Delay	56.6	75.6	15.5	29.8	20.5	18.1	51.5	66.1	79.1	66.7	37.7	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.6	75.6	15.5	29.8	20.5	18.1	51.5	66.1	79.1	66.7	37.7	8.5
LOS	E	E	B	C	C	B	D	E	E	E	D	A
Approach Delay		62.6			21.6			73.2			53.4	
Approach LOS		E			C			E			D	

Intersection Summary	
Cycle Length: 110	
Actuated Cycle Length: 110	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.09	
Intersection Signal Delay: 53.5	Intersection LOS: D
Analysis Period (min) 15	

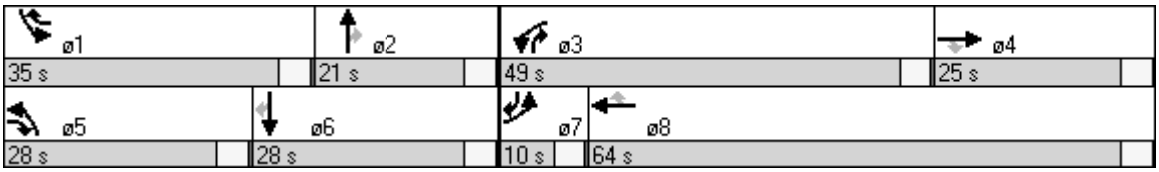
Splits and Phases: 3: SR-126 & Chiquito Canyon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	1080	360	1220	1530	620	400	380	740	820	620	110
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov
Protected Phases	7	4	5	3	8	1	5	2	3	1	6	7
Permitted Phases			4			8			2			6
Detector Phases	7	4	5	3	8	1	5	2	3	1	6	7
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	8.0	20.0	8.0	8.0	20.0	8.0	8.0	20.0	8.0	8.0	20.0	8.0
Total Split (s)	10.0	25.0	28.0	49.0	64.0	35.0	28.0	21.0	49.0	35.0	28.0	10.0
Total Split (%)	7.7%	19.2%	21.5%	37.7%	49.2%	26.9%	21.5%	16.2%	37.7%	26.9%	21.5%	7.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	Max	None	None	Max	None
Act Effct Green (s)	6.0	21.0	45.6	45.0	60.0	95.0	20.6	17.0	66.0	31.0	27.4	37.4
Actuated g/C Ratio	0.05	0.16	0.35	0.35	0.46	0.73	0.16	0.13	0.51	0.24	0.21	0.29
v/c Ratio	0.44	1.04	0.64	1.03	0.65	0.53	0.74	0.82	0.52	1.00	0.58	0.23
Control Delay	69.5	92.3	40.0	75.0	28.6	8.8	60.4	70.3	22.7	81.1	49.2	29.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.5	92.3	40.0	75.0	28.6	8.8	60.4	70.3	22.7	81.1	49.2	29.4
LOS	E	F	D	E	C	A	E	E	C	F	D	C
Approach Delay		78.8			41.8			44.5			64.7	
Approach LOS		E			D			D			E	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 130	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 53.8	Intersection LOS: D
Analysis Period (min) 15	

Splits and Phases: 3: SR-126 & Chiquito Canyon



118. Six Flags & Magic Mtn

SCVCTM 4.1 2011 with Stage 1 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	3	4320	390	.09*	1200	.28*
SBT	0	0	0		0	
SBR	1	1600	10	.01	50	.03
EBL	2	2880	20	.01	40	.01
EBT	4	6400	380	.06*	590	.09*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	6400	270	.04	520	.08
WBR	f		620		780	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.25**		**.47**

SCVCTM 4.1 2012 with Stage 2 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	3	4320	370	.09*	1140	.26*
SBT	0	0	0		0	
SBR	1	1600	40	.03	110	.07
EBL	2	2880	50	.02*	90	.03
EBT	4	6400	380	.06	630	.10*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	6400	540	.08*	410	.06
WBR	f		600		730	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.29**		**.46**

SCVCTM 4.1 2014 with Stage 3 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	3	4320	370	.09*	1110	.26*
SBT	0	0	0		0	
SBR	1	1600	40	.03	140	.09
EBL	2	2880	70	.02*	100	.03
EBT	4	6400	720	.11	890	.14*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	6400	690	.11*	640	.10
WBR	f		580		700	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				**.32**		**.50**

118. Six Flags & Magic Mtn

SCVCTM 4.1 2018 with Stage 4 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	3	4320	360	.08*	1060	.25*
SBT	0	0	0		0	
SBR	1	1600	50	.03	200	.13
EBL	2	2880	100	.03	140	.05*
EBT	4	6400	1350	.21*	1140	.18
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	6400	800	.13	1200	.19*
WBR	f		560		660	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .39 .59

SCVCTM 4.1 2022 with Stage 5 Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	3	4320	330	.08*	1000	.23*
SBT	0	0	0		0	
SBR	1	1600	80	.05	260	.16
EBL	2	2880	130	.05	180	.06*
EBT	4	6400	1640	.26*	1590	.25
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	6400	1080	.17	1640	.26*
WBR	f		530		640	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .44 .65

SCVCTM 4.1 2025 with Stage 6a Improvements

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	3	4320	320	.07*	980	.23*
SBT	0	0	0		0	
SBR	1	1600	90	.06	280	.18
EBL	2	2880	150	.05	180	.06*
EBT	4	6400	1750	.27*	1810	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	6400	1270	.20	1810	.28*
WBR	f		510		620	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .44 .67

SCVCTM 4.1 2030 with 6b Imp./no Potrero Bridge

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	3	4320	360	.08*	1180	.27*
SBT	0	0	0		0	
SBR	1	1600	100	.06	330	.21
EBL	2	2880	160	.06	220	.08*
EBT	4	6400	1740	.27*	1760	.28
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	4	6400	1290	.20	1880	.29*
WBR	f		560		810	
Clearance Interval				.10*		.10*

TOTAL CAPACITY UTILIZATION .45 .74

APPENDIX C

I-5 FREEWAY MAINLINE V/C CALCULATIONS

V/C Calculations
AM Peak Hour - Northbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2006													
403. I-5 s/o Parker	1,570	4	1,800	1,570	0.22	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	2,170	4	1,950	2,170	0.28	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	3,340	4	1,950	3,340	0.43	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	3,340	4	1,950	3,340	0.43	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	4,490	4	1,950	4,490	0.58	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	5,430	4	1,950	5,430	0.70	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	5,560	4	1,950	5,560	0.71	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	5,620	4	1,950	5,620	0.72	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	5,600	4	1,900	5,600	0.74	-	-	-	-	-	-	-	-
412. I-5 s/o SR-14	7,390	6	2,000	6,651	0.55	-	-	-	-	2	1,300	739	0.28
2011													
403. I-5 s/o Parker	2,989	4	1,800	2,989	0.42	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	4,688	4	1,950	4,688	0.60	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	5,934	4	1,950	5,934	0.76	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	5,934	4	1,950	5,934	0.76	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	6,248	4	1,950	6,248	0.80	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,865	4	1,950	6,865	0.88	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,619	4	1,950	6,619	0.85	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,272	4	1,950	6,272	0.80	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	5,953	4	1,900	5,358	0.70	1	2,000	595	0.30	-	-	-	-
412. I-5 s/o SR-14	8,006	6	2,000	6,325	0.53	1	2,000	801	0.40	2	1,300	881	0.34
2012													
403. I-5 s/o Parker	3,000	4	1,800	3,000	0.42	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	4,558	4	1,950	4,558	0.58	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	5,452	4	1,950	5,452	0.70	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	5,452	4	1,950	5,452	0.70	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	6,088	4	1,950	6,088	0.78	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,803	4	1,950	6,803	0.87	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,757	4	1,950	6,757	0.87	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,402	4	1,950	6,402	0.82	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	6,023	4	1,900	5,421	0.71	1	2,000	602	0.30	-	-	-	-
412. I-5 s/o SR-14	8,006	6	2,000	6,325	0.53	1	2,000	801	0.40	2	1,300	881	0.34
2014													
403. I-5 s/o Parker	3,043	4	1,800	3,043	0.42	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	4,669	4	1,950	4,669	0.60	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	5,552	4	1,950	5,552	0.71	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	5,552	4	1,950	5,552	0.71	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	6,174	4	1,950	6,174	0.79	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,866	4	1,950	6,866	0.88	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,803	4	1,950	6,803	0.87	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,451	4	1,950	6,451	0.83	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	6,073	4	1,900	5,466	0.72	1	2,000	607	0.30	-	-	-	-
412. I-5 s/o SR-14	8,093	6	2,000	6,393	0.53	1	2,000	809	0.40	2	1,300	890	0.34

V/C Calculations
AM Peak Hour - Northbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2018													
403. I-5 s/o Parker	3,334	4	1,800	3,001	0.42	1	2,000	333	0.17	-	-	-	-
404. I-5 s/o Hasley	5,018	4	1,950	4,516	0.58	1	2,000	502	0.25	-	-	-	-
405. I-5 s/o SR-126	5,844	4	1,950	5,260	0.67	1	2,000	584	0.29	-	-	-	-
406. I-5 s/o Rye Cyn	5,844	4	1,950	5,260	0.67	1	2,000	584	0.29	-	-	-	-
407. I-5 s/o Magic Mtn	6,432	4	1,950	5,789	0.74	1	2,000	643	0.32	-	-	-	-
408. I-5 s/o Valencia	7,227	4	1,950	6,504	0.83	1	2,000	723	0.36	-	-	-	-
409. I-5 s/o McBean	7,115	4	1,950	6,404	0.82	1	2,000	712	0.36	-	-	-	-
410. I-5 s/o Lyons	6,622	4	1,950	5,960	0.76	1	2,000	662	0.33	-	-	-	-
411. I-5 s/o Calgrove	6,167	4	2,000	4,872	0.61	1	2,000	617	0.31	1	1,300	678	0.52
412. I-5 s/o SR-14	8,422	6	2,000	6,653	0.55	1	2,000	842	0.42	2	1,300	926	0.36
2022													
403. I-5 s/o Parker	3,615	4	1,800	3,254	0.45	1	2,000	362	0.18	-	-	-	-
404. I-5 s/o Hasley	5,303	4	1,950	4,773	0.61	1	2,000	530	0.27	-	-	-	-
405. I-5 s/o SR-126	5,995	4	1,950	5,276	0.68	1	2,000	719	0.36	-	-	-	-
406. I-5 s/o Rye Cyn	5,995	4	1,950	5,276	0.68	1	2,000	719	0.36	-	-	-	-
407. I-5 s/o Magic Mtn	6,468	4	1,950	5,692	0.73	1	2,000	776	0.39	-	-	-	-
408. I-5 s/o Valencia	7,297	4	1,950	6,421	0.82	1	2,000	876	0.44	-	-	-	-
409. I-5 s/o McBean	7,195	4	1,950	6,332	0.81	1	2,000	863	0.43	-	-	-	-
410. I-5 s/o Lyons	6,696	4	1,950	5,892	0.76	1	2,000	804	0.40	-	-	-	-
411. I-5 s/o Calgrove	6,209	4	2,000	4,781	0.60	1	2,000	745	0.37	1	1,300	683	0.53
412. I-5 s/o SR-14	8,812	6	2,000	6,785	0.57	1	2,000	1,057	0.53	2	1,300	969	0.37
2025													
403. I-5 s/o Parker	3,887	4	1,800	3,498	0.49	1	2,000	389	0.19	-	-	-	-
404. I-5 s/o Hasley	5,597	4	1,950	5,037	0.65	1	2,000	560	0.28	-	-	-	-
405. I-5 s/o SR-126	6,330	4	1,950	5,570	0.71	1	2,000	760	0.38	-	-	-	-
406. I-5 s/o Rye Cyn	6,330	4	1,950	5,570	0.71	1	2,000	760	0.38	-	-	-	-
407. I-5 s/o Magic Mtn	6,825	4	1,950	6,006	0.77	1	2,000	819	0.41	-	-	-	-
408. I-5 s/o Valencia	7,625	4	1,950	6,710	0.86	1	2,000	915	0.46	-	-	-	-
409. I-5 s/o McBean	7,453	4	1,950	6,559	0.84	1	2,000	894	0.45	-	-	-	-
410. I-5 s/o Lyons	6,961	4	1,950	6,126	0.79	1	2,000	835	0.42	-	-	-	-
411. I-5 s/o Calgrove	6,462	4	2,000	4,976	0.62	1	2,000	775	0.39	1	1,300	711	0.55
412. I-5 s/o SR-14	9,156	6	2,000	7,050	0.59	1	2,000	1,099	0.55	2	1,300	1,007	0.39
2030													
403. I-5 s/o Parker	4,382	4	1,800	3,988	0.55	1	2,000	394	0.20	-	-	-	-
404. I-5 s/o Hasley	6,055	4	1,950	5,450	0.70	1	2,000	606	0.30	-	-	-	-
405. I-5 s/o SR-126	6,690	4	1,950	5,887	0.75	1	2,000	803	0.40	-	-	-	-
406. I-5 s/o Rye Cyn	6,690	4	1,950	5,887	0.75	1	2,000	803	0.40	-	-	-	-
407. I-5 s/o Magic Mtn	7,048	4	1,950	6,202	0.80	1	2,000	846	0.42	-	-	-	-
408. I-5 s/o Valencia	7,763	4	1,950	6,831	0.88	1	2,000	932	0.47	-	-	-	-
409. I-5 s/o McBean	7,698	4	1,950	6,774	0.87	1	2,000	924	0.46	-	-	-	-
410. I-5 s/o Lyons	7,181	4	1,950	6,319	0.81	1	2,000	862	0.43	-	-	-	-
411. I-5 s/o Calgrove	6,590	4	2,000	5,074	0.63	1	2,000	791	0.40	1	1,300	725	0.56
412. I-5 s/o SR-14	9,185	6	2,000	6,797	0.57	2	2,000	1,194	0.30	2	1,300	1,194	0.46

V/C Calculations
AM Peak Hour - Southbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2006													
403. I-5 s/o Parker	2,210	4	1,800	2,210	0.31	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	3,110	4	1,950	3,110	0.40	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	3,420	4	1,950	3,420	0.44	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	4,200	4	1,950	4,200	0.54	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	4,490	4	1,950	4,490	0.58	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	5,310	4	1,950	5,310	0.68	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	5,730	4	1,950	5,730	0.73	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,320	4	1,950	6,320	0.81	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	6,610	4	1,900	6,610	0.87	-	-	-	-	-	-	-	-
412. I-5 s/o SR-14	13,270	6	2,000	11,810	0.98	-	-	-	-	2	1,300	1,460	0.56
2011													
403. I-5 s/o Parker	4,591	4	1,800	4,591	0.64	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	5,276	4	1,950	5,276	0.68	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	4,946	4	1,950	4,946	0.63	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	4,910	4	1,950	4,910	0.63	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	4,956	4	1,950	4,956	0.64	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	5,814	4	1,950	5,814	0.75	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	5,778	4	1,950	5,778	0.74	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,448	4	2,000	5,739	0.72	-	-	-	-	1	1,300	709	0.55
411. I-5 s/o Calgrove	6,657	4	2,000	5,925	0.74	-	-	-	-	1	1,300	732	0.56
412. I-5 s/o SR-14	13,907	6	2,000	10,708	0.89	1	2,000	1,669	0.83	2	1,300	1,530	0.59
2012													
403. I-5 s/o Parker	4,615	4	1,800	4,615	0.64	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	5,286	4	1,950	5,286	0.68	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	4,858	4	1,950	4,858	0.62	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	4,959	4	1,950	4,959	0.64	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	4,982	4	1,950	4,982	0.64	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	5,748	4	1,950	5,748	0.74	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	5,787	4	1,950	5,787	0.74	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,474	4	2,000	5,762	0.72	-	-	-	-	1	1,300	712	0.55
411. I-5 s/o Calgrove	6,667	4	2,000	5,934	0.74	-	-	-	-	1	1,300	733	0.56
412. I-5 s/o SR-14	14,034	6	2,000	10,806	0.90	1	2,000	1,684	0.84	2	1,300	1,544	0.59
2014													
403. I-5 s/o Parker	4,639	4	1,800	4,639	0.64	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	5,216	4	1,950	5,216	0.67	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	4,839	4	1,950	4,839	0.62	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	4,979	4	1,950	4,979	0.64	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	5,186	4	1,950	5,186	0.66	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	5,939	4	1,950	5,939	0.76	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	5,806	4	1,950	5,806	0.74	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,525	4	2,000	5,807	0.73	-	-	-	-	1	1,300	718	0.55
411. I-5 s/o Calgrove	6,686	4	2,000	5,951	0.74	-	-	-	-	1	1,300	735	0.57
412. I-5 s/o SR-14	14,236	6	2,000	10,962	0.91	1	2,000	1,708	0.85	2	1,300	1,566	0.60

V/C Calculations
AM Peak Hour - Southbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2018													
403. I-5 s/o Parker	4,910	4	1,800	4,419	0.61	1	2,000	491	0.25	-	-	-	-
404. I-5 s/o Hasley	5,536	4	1,950	4,982	0.64	1	2,000	554	0.28	-	-	-	-
405. I-5 s/o SR-126	5,154	4	1,950	4,639	0.59	1	2,000	515	0.26	-	-	-	-
406. I-5 s/o Rye Cyn	5,517	4	1,950	4,965	0.64	1	2,000	552	0.28	-	-	-	-
407. I-5 s/o Magic Mtn	5,911	4	1,950	5,320	0.68	1	2,000	591	0.30	-	-	-	-
408. I-5 s/o Valencia	6,614	4	1,950	5,953	0.76	1	2,000	661	0.33	-	-	-	-
409. I-5 s/o McBean	6,380	4	1,950	5,742	0.74	1	2,000	638	0.32	-	-	-	-
410. I-5 s/o Lyons	6,628	4	2,000	5,236	0.65	1	2,000	663	0.33	1	1,300	729	0.56
411. I-5 s/o Calgrove	6,724	4	2,000	5,312	0.66	1	2,000	672	0.34	1	1,300	740	0.57
412. I-5 s/o SR-14	15,158	6	2,000	11,672	0.97	1	2,000	1,819	0.91	2	1,300	1,667	0.64
2022													
403. I-5 s/o Parker	5,260	4	1,800	4,734	0.66	1	2,000	526	0.26	-	-	-	-
404. I-5 s/o Hasley	5,914	4	1,950	5,323	0.68	1	2,000	591	0.30	-	-	-	-
405. I-5 s/o SR-126	5,636	4	1,950	4,960	0.64	1	2,000	676	0.34	-	-	-	-
406. I-5 s/o Rye Cyn	6,037	4	1,950	5,313	0.68	1	2,000	724	0.36	-	-	-	-
407. I-5 s/o Magic Mtn	6,430	4	1,950	5,658	0.73	1	2,000	772	0.39	-	-	-	-
408. I-5 s/o Valencia	7,329	4	1,950	6,450	0.83	1	2,000	879	0.44	-	-	-	-
409. I-5 s/o McBean	7,084	4	1,950	6,234	0.80	1	2,000	850	0.43	-	-	-	-
410. I-5 s/o Lyons	6,730	4	2,000	5,182	0.65	1	2,000	808	0.40	1	1,300	740	0.57
411. I-5 s/o Calgrove	6,762	4	2,000	5,207	0.65	1	2,000	811	0.41	1	1,300	744	0.57
412. I-5 s/o SR-14	16,111	6	2,000	11,922	0.99	1	2,000	1,933	0.97	2	1,300	2,256	0.87
2025													
403. I-5 s/o Parker	5,574	4	1,800	5,017	0.70	1	2,000	557	0.28	-	-	-	-
404. I-5 s/o Hasley	6,193	4	1,950	5,574	0.71	1	2,000	619	0.31	-	-	-	-
405. I-5 s/o SR-126	6,072	4	1,950	5,343	0.69	1	2,000	729	0.36	-	-	-	-
406. I-5 s/o Rye Cyn	6,382	4	1,950	5,616	0.72	1	2,000	766	0.38	-	-	-	-
407. I-5 s/o Magic Mtn	6,740	4	1,950	5,931	0.76	1	2,000	809	0.40	-	-	-	-
408. I-5 s/o Valencia	7,633	4	1,950	6,717	0.86	1	2,000	916	0.46	-	-	-	-
409. I-5 s/o McBean	7,320	4	1,950	6,442	0.83	1	2,000	878	0.44	-	-	-	-
410. I-5 s/o Lyons	6,807	4	2,000	5,241	0.66	1	2,000	817	0.41	1	1,300	749	0.58
411. I-5 s/o Calgrove	6,790	4	2,000	5,228	0.65	1	2,000	815	0.41	1	1,300	747	0.57
412. I-5 s/o SR-14	16,597	6	2,000	12,033	1.00	1	2,000	1,992	1.00	2	1,300	2,573	0.99
2030													
403. I-5 s/o Parker	5,845	4	1,800	5,261	0.73	1	2,000	585	0.29	-	-	-	-
404. I-5 s/o Hasley	6,518	4	1,950	5,866	0.75	1	2,000	652	0.33	-	-	-	-
405. I-5 s/o SR-126	6,483	4	1,950	5,705	0.73	1	2,000	778	0.39	-	-	-	-
406. I-5 s/o Rye Cyn	6,884	4	1,950	6,058	0.78	1	2,000	826	0.41	-	-	-	-
407. I-5 s/o Magic Mtn	7,152	4	1,950	6,222	0.80	1	2,000	930	0.46	-	-	-	-
408. I-5 s/o Valencia	8,071	4	1,950	7,022	0.90	1	2,000	1,049	0.52	-	-	-	-
409. I-5 s/o McBean	7,779	4	1,950	6,768	0.87	1	2,000	1,011	0.51	-	-	-	-
410. I-5 s/o Lyons	7,373	4	2,000	5,603	0.70	1	2,000	958	0.48	1	1,300	811	0.62
411. I-5 s/o Calgrove	7,360	4	2,000	5,594	0.70	1	2,000	957	0.48	1	1,300	810	0.62
412. I-5 s/o SR-14	17,608	6	2,000	11,463	0.96	2	2,000	3,768	0.94	2	1,300	2,377	0.91

V/C Calculations
PM Peak Hour - Northbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2006													
403. I-5 s/o Parker	2,790	4	1,800	2,790	0.39	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	3,620	4	1,950	3,620	0.46	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	4,080	4	1,950	4,080	0.52	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	4,080	4	1,950	4,080	0.52	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	5,270	4	1,950	5,270	0.68	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,050	4	1,950	6,050	0.78	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,610	4	1,950	6,610	0.85	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	7,020	4	1,950	7,020	0.90	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	6,970	4	1,900	6,970	0.92	-	-	-	-	-	-	-	-
412. I-5 s/o SR-14	13,710	6	2,000	11,928	0.99	-	-	-	-	2	1,300	1,782	0.69
2011													
403. I-5 s/o Parker	5,954	4	1,800	5,954	0.83	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	6,472	4	1,950	6,472	0.83	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	5,952	4	1,950	5,952	0.76	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	5,952	4	1,950	5,952	0.76	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	6,130	4	1,950	6,130	0.79	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,561	4	1,950	6,561	0.84	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,802	4	1,950	6,802	0.87	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	7,169	4	1,950	7,169	0.92	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	7,108	4	1,900	6,397	0.84	1	2,000	711	0.36	-	-	-	-
412. I-5 s/o SR-14	13,932	6	2,000	11,006	0.92	1	2,000	1,393	0.70	2	1,300	1,533	0.59
2012													
403. I-5 s/o Parker	5,942	4	1,800	5,942	0.83	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	6,459	4	1,950	6,459	0.83	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	5,757	4	1,950	5,757	0.74	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	5,757	4	1,950	5,757	0.74	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	6,121	4	1,950	6,121	0.78	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,593	4	1,950	6,593	0.85	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,841	4	1,950	6,841	0.88	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	7,199	4	1,950	7,199	0.92	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	7,135	4	1,900	6,422	0.84	1	2,000	714	0.36	-	-	-	-
412. I-5 s/o SR-14	13,976	6	2,000	11,041	0.92	1	2,000	1,398	0.70	2	1,300	1,537	0.59
2014													
403. I-5 s/o Parker	6,009	4	1,800	6,009	0.83	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	6,433	4	1,950	6,433	0.82	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	5,757	4	1,950	5,757	0.74	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	5,757	4	1,950	5,757	0.74	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	6,157	4	1,950	6,157	0.79	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,659	4	1,950	6,659	0.85	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,917	4	1,950	6,917	0.89	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	7,258	4	1,950	7,258	0.93	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	7,190	4	1,900	6,471	0.85	1	2,000	719	0.36	-	-	-	-
412. I-5 s/o SR-14	14,065	6	2,000	11,111	0.93	1	2,000	1,407	0.70	2	1,300	1,547	0.60

V/C Calculations
PM Peak Hour - Northbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2018													
403. I-5 s/o Parker	6,247	4	1,800	5,622	0.78	1	2,000	625	0.31	-	-	-	-
404. I-5 s/o Hasley	6,796	4	1,950	6,116	0.78	1	2,000	680	0.34	-	-	-	-
405. I-5 s/o SR-126	5,980	4	1,950	5,382	0.69	1	2,000	598	0.30	-	-	-	-
406. I-5 s/o Rye Cyn	5,980	4	1,950	5,382	0.69	1	2,000	598	0.30	-	-	-	-
407. I-5 s/o Magic Mtn	6,517	4	1,950	5,865	0.75	1	2,000	652	0.33	-	-	-	-
408. I-5 s/o Valencia	7,187	4	1,950	6,468	0.83	1	2,000	719	0.36	-	-	-	-
409. I-5 s/o McBean	7,071	4	1,950	6,364	0.82	1	2,000	707	0.35	-	-	-	-
410. I-5 s/o Lyons	7,377	4	1,950	6,639	0.85	1	2,000	738	0.37	-	-	-	-
411. I-5 s/o Calgrove	7,300	4	2,000	6,570	0.82	1	2,000	730	0.37	1	1,300	803	0.62
412. I-5 s/o SR-14	14,242	6	2,000	11,251	0.94	1	2,000	1,424	0.71	2	1,300	1,567	0.60
2022													
403. I-5 s/o Parker	6,733	4	1,800	6,060	0.84	1	2,000	673	0.34	-	-	-	-
404. I-5 s/o Hasley	7,317	4	1,950	6,585	0.84	1	2,000	732	0.37	-	-	-	-
405. I-5 s/o SR-126	6,520	4	1,950	5,738	0.74	1	2,000	782	0.39	-	-	-	-
406. I-5 s/o Rye Cyn	6,520	4	1,950	5,738	0.74	1	2,000	782	0.39	-	-	-	-
407. I-5 s/o Magic Mtn	7,013	4	1,950	6,171	0.79	1	2,000	842	0.42	-	-	-	-
408. I-5 s/o Valencia	7,527	4	1,950	6,624	0.85	1	2,000	903	0.45	-	-	-	-
409. I-5 s/o McBean	7,619	4	1,950	6,705	0.86	1	2,000	914	0.46	-	-	-	-
410. I-5 s/o Lyons	7,496	4	1,950	6,596	0.85	1	2,000	900	0.45	-	-	-	-
411. I-5 s/o Calgrove	7,410	4	2,000	6,521	0.82	1	2,000	889	0.44	1	1,300	815	0.63
412. I-5 s/o SR-14	15,261	6	2,000	11,751	0.98	1	2,000	1,831	0.92	2	1,300	1,679	0.65
2025													
403. I-5 s/o Parker	7,150	4	1,800	6,435	0.89	1	2,000	715	0.36	-	-	-	-
404. I-5 s/o Hasley	7,754	4	1,950	6,979	0.89	1	2,000	775	0.39	-	-	-	-
405. I-5 s/o SR-126	6,997	4	1,950	6,157	0.79	1	2,000	840	0.42	-	-	-	-
406. I-5 s/o Rye Cyn	6,997	4	1,950	6,157	0.79	1	2,000	840	0.42	-	-	-	-
407. I-5 s/o Magic Mtn	7,392	4	1,950	6,505	0.83	1	2,000	887	0.44	-	-	-	-
408. I-5 s/o Valencia	7,825	4	1,950	6,886	0.88	1	2,000	939	0.47	-	-	-	-
409. I-5 s/o McBean	7,933	4	1,950	6,981	0.90	1	2,000	952	0.48	-	-	-	-
410. I-5 s/o Lyons	7,923	4	1,950	6,972	0.89	1	2,000	951	0.48	-	-	-	-
411. I-5 s/o Calgrove	7,797	4	2,000	6,861	0.86	1	2,000	936	0.47	1	1,300	858	0.66
412. I-5 s/o SR-14	15,842	6	2,000	11,882	0.99	1	2,000	1,901	0.95	2	1,300	2,059	0.79
2030													
403. I-5 s/o Parker	7,344	4	1,800	6,463	0.90	1	2,000	881	0.44	-	-	-	-
404. I-5 s/o Hasley	8,050	4	1,950	7,004	0.90	1	2,000	1,047	0.52	-	-	-	-
405. I-5 s/o SR-126	7,365	4	1,950	6,334	0.81	1	2,000	1,031	0.52	-	-	-	-
406. I-5 s/o Rye Cyn	7,365	4	1,950	6,334	0.81	1	2,000	1,031	0.52	-	-	-	-
407. I-5 s/o Magic Mtn	7,787	4	1,950	6,775	0.87	1	2,000	1,012	0.51	-	-	-	-
408. I-5 s/o Valencia	8,235	4	1,950	7,000	0.90	1	2,000	1,235	0.62	-	-	-	-
409. I-5 s/o McBean	8,397	4	1,950	7,053	0.90	1	2,000	1,344	0.67	-	-	-	-
410. I-5 s/o Lyons	8,407	4	1,950	7,020	0.90	1	2,000	1,387	0.69	-	-	-	-
411. I-5 s/o Calgrove	8,269	4	2,000	7,111	0.89	1	2,000	1,158	0.58	1	1,300	910	0.70
412. I-5 s/o SR-14	16,720	6	2,000	11,035	0.92	2	2,000	3,511	0.88	2	1,300	2,174	0.84

V/C Calculations
PM Peak Hour - Southbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2006													
403. I-5 s/o Parker	2,420	4	1,800	2,420	0.34	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	3,010	4	1,950	3,010	0.39	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	4,150	4	1,950	4,150	0.53	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	5,350	4	1,950	5,350	0.69	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	5,600	4	1,950	5,600	0.72	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	6,420	4	1,950	6,420	0.82	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	6,450	4	1,950	6,450	0.83	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,460	4	1,950	6,460	0.83	-	-	-	-	-	-	-	-
411. I-5 s/o Calgrove	6,410	4	1,900	6,410	0.84	-	-	-	-	-	-	-	-
412. I-5 s/o SR-14	9,180	6	2,000	8,262	0.69	-	-	-	-	2	1,300	918	0.35
2011													
403. I-5 s/o Parker	4,575	4	1,800	4,575	0.64	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	6,130	4	1,950	6,130	0.79	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	6,815	4	1,950	6,815	0.87	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	7,802	4	1,950	7,802	1.00	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	7,336	4	1,950	7,336	0.94	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	7,773	4	1,950	7,773	1.00	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	7,491	4	1,950	7,491	0.96	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	6,937	4	2,000	6,174	0.77	-	-	-	-	1	1,300	763	0.59
411. I-5 s/o Calgrove	7,045	4	2,000	6,270	0.78	-	-	-	-	1	1,300	775	0.60
412. I-5 s/o SR-14	9,483	6	2,000	7,681	0.64	1	2,000	853	0.43	2	1,300	948	0.36
2012													
403. I-5 s/o Parker	4,596	4	1,800	4,596	0.64	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	6,117	4	1,950	6,117	0.78	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	6,619	4	1,950	6,619	0.85	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	7,705	4	1,950	7,705	0.99	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	7,302	4	1,950	7,302	0.94	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	7,818	4	1,950	7,818	1.00	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	7,674	4	1,950	7,674	0.98	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	7,162	4	2,000	6,374	0.80	-	-	-	-	1	1,300	788	0.61
411. I-5 s/o Calgrove	7,172	4	2,000	6,383	0.80	-	-	-	-	1	1,300	789	0.61
412. I-5 s/o SR-14	9,544	6	2,000	7,731	0.64	1	2,000	859	0.43	2	1,300	954	0.37
2014													
403. I-5 s/o Parker	4,660	4	1,800	4,660	0.65	-	-	-	-	-	-	-	-
404. I-5 s/o Hasley	6,257	4	1,950	6,257	0.80	-	-	-	-	-	-	-	-
405. I-5 s/o SR-126	6,663	4	1,950	6,663	0.85	-	-	-	-	-	-	-	-
406. I-5 s/o Rye Cyn	7,794	4	1,950	7,794	1.00	-	-	-	-	-	-	-	-
407. I-5 s/o Magic Mtn	7,475	4	1,950	7,475	0.96	-	-	-	-	-	-	-	-
408. I-5 s/o Valencia	7,828	4	1,950	7,828	1.00	-	-	-	-	-	-	-	-
409. I-5 s/o McBean	7,827	4	1,950	7,827	1.00	-	-	-	-	-	-	-	-
410. I-5 s/o Lyons	7,235	4	2,000	6,439	0.80	-	-	-	-	1	1,300	796	0.61
411. I-5 s/o Calgrove	7,280	4	2,000	6,479	0.81	-	-	-	-	1	1,300	801	0.62
412. I-5 s/o SR-14	9,752	6	2,000	7,899	0.66	1	2,000	878	0.44	2	1,300	975	0.38

V/C Calculations
PM Peak Hour - Southbound

	Total	Mixed-Flow Lanes				HOV Lanes				Truck Lanes			
Location	Vol	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C	Lanes	Cap/Ln	Vol	V/C
2018													
403. I-5 s/o Parker	5,013	4	1,800	4,512	0.63	1	2,000	501	0.25	-	-	-	-
404. I-5 s/o Hasley	6,651	4	1,950	5,853	0.75	1	2,000	798	0.40	-	-	-	-
405. I-5 s/o SR-126	7,291	4	1,950	6,124	0.79	1	2,000	1,167	0.58	-	-	-	-
406. I-5 s/o Rye Cyn	8,844	4	1,950	7,429	0.95	1	2,000	1,415	0.71	-	-	-	-
407. I-5 s/o Magic Mtn	8,644	4	1,950	7,261	0.93	1	2,000	1,383	0.69	-	-	-	-
408. I-5 s/o Valencia	9,179	4	1,950	7,710	0.99	1	2,000	1,469	0.73	-	-	-	-
409. I-5 s/o McBean	8,586	4	1,950	7,212	0.92	1	2,000	1,374	0.69	-	-	-	-
410. I-5 s/o Lyons	7,899	4	2,000	5,766	0.72	1	2,000	1,264	0.63	1	1,300	869	0.67
411. I-5 s/o Calgrove	7,658	4	2,000	5,590	0.70	1	2,000	1,225	0.61	1	1,300	842	0.65
412. I-5 s/o SR-14	10,257	6	2,000	8,000	0.67	1	2,000	1,231	0.62	2	1,300	1,026	0.39
2022													
403. I-5 s/o Parker	5,453	4	1,800	4,908	0.68	1	2,000	545	0.27	-	-	-	-
404. I-5 s/o Hasley	7,063	4	1,950	6,215	0.80	1	2,000	848	0.42	-	-	-	-
405. I-5 s/o SR-126	7,500	4	1,950	6,150	0.79	1	2,000	1,350	0.68	-	-	-	-
406. I-5 s/o Rye Cyn	8,956	4	1,950	7,344	0.94	1	2,000	1,612	0.81	-	-	-	-
407. I-5 s/o Magic Mtn	8,773	4	1,950	7,194	0.92	1	2,000	1,579	0.79	-	-	-	-
408. I-5 s/o Valencia	9,358	4	1,950	7,674	0.98	1	2,000	1,684	0.84	-	-	-	-
409. I-5 s/o McBean	8,851	4	1,950	7,258	0.93	1	2,000	1,593	0.80	-	-	-	-
410. I-5 s/o Lyons	8,221	4	2,000	5,919	0.74	1	2,000	1,398	0.70	1	1,300	904	0.70
411. I-5 s/o Calgrove	7,999	4	2,000	5,759	0.72	1	2,000	1,360	0.68	1	1,300	880	0.68
412. I-5 s/o SR-14	10,914	6	2,000	8,404	0.70	1	2,000	1,419	0.71	2	1,300	1,091	0.42
2025													
403. I-5 s/o Parker	5,792	4	1,800	5,213	0.72	1	2,000	579	0.29	-	-	-	-
404. I-5 s/o Hasley	7,419	4	1,950	6,529	0.84	1	2,000	890	0.45	-	-	-	-
405. I-5 s/o SR-126	7,938	4	1,950	6,350	0.81	1	2,000	1,588	0.79	-	-	-	-
406. I-5 s/o Rye Cyn	9,357	4	1,950	7,486	0.96	1	2,000	1,871	0.94	-	-	-	-
407. I-5 s/o Magic Mtn	9,191	4	1,950	7,353	0.94	1	2,000	1,838	0.92	-	-	-	-
408. I-5 s/o Valencia	9,658	4	1,950	7,726	0.99	1	2,000	1,932	0.97	-	-	-	-
409. I-5 s/o McBean	9,045	4	1,950	7,236	0.93	1	2,000	1,809	0.90	-	-	-	-
410. I-5 s/o Lyons	8,439	4	2,000	6,076	0.76	1	2,000	1,435	0.72	1	1,300	928	0.71
411. I-5 s/o Calgrove	8,201	4	2,000	5,905	0.74	1	2,000	1,394	0.70	1	1,300	902	0.69
412. I-5 s/o SR-14	11,384	6	2,000	8,766	0.73	1	2,000	1,480	0.74	2	1,300	1,138	0.44
2030													
403. I-5 s/o Parker	6,733	4	1,800	5,723	0.79	1	2,000	1,010	0.50	-	-	-	-
404. I-5 s/o Hasley	8,227	4	1,950	6,993	0.90	1	2,000	1,234	0.62	-	-	-	-
405. I-5 s/o SR-126	8,703	4	1,950	6,962	0.89	1	2,000	1,741	0.87	-	-	-	-
406. I-5 s/o Rye Cyn	9,828	4	1,950	7,823	1.00	1	2,000	2,005	1.00	-	-	-	-
407. I-5 s/o Magic Mtn	9,723	4	1,950	7,740	0.99	1	2,000	1,983	0.99	-	-	-	-
408. I-5 s/o Valencia	9,832	4	1,950	7,826	1.00	1	2,000	2,006	1.00	-	-	-	-
409. I-5 s/o McBean	9,519	4	1,950	7,615	0.98	1	2,000	1,904	0.95	-	-	-	-
410. I-5 s/o Lyons	8,877	4	2,000	6,081	0.76	1	2,000	1,775	0.89	1	1,300	1,021	0.79
411. I-5 s/o Calgrove	8,794	4	2,000	6,024	0.75	1	2,000	1,759	0.88	1	1,300	1,011	0.78
412. I-5 s/o SR-14	11,623	6	2,000	7,787	0.65	2	2,000	2,325	0.58	2	1,300	1,511	0.58

APPENDIX D

NEWHALL RANCH SPECIFIC PLAN – TRAFFIC MITIGATION MEASURES

SP 4.8-1 The applicants for future subdivision maps which permit construction shall be responsible for funding and constructing all on-site traffic improvements except as otherwise provided below. The obligation to construct improvements shall not preclude the applicants' ability to seek local, state, or federal funding for these facilities.

SP 4.8-2 Prior to the approval of each subdivision map which permits construction, the applicant for that map shall prepare a transportation performance evaluation which shall indicate the specific improvements for all on-site roadways which are necessary to provide adequate roadway and intersection capacity as well as adequate right-of-way for the subdivision and other expected traffic. Transportation performance evaluations shall be approved by Los Angeles County Department of Public Works according to standards and policies in effect at that time. The transportation performance evaluation shall form the basis for specific conditions of approval for the subdivision.

SP 4.8-3 The applicants for future subdivisions shall provide the traffic signals at the 15 locations labeled B through P in Figure 4.8-17 [of the Newhall Ranch Specific Plan Final EIR] as well as any additional signals warranted by future subdivision design. Signal warrants shall be prepared as part of the transportation performance evaluations noted in Mitigation 4.8-2 [of the Newhall Ranch Specific Plan Final EIR].

SP 4.8-4 All development within the Specific Plan shall conform to the requirements of the Los Angeles County Transportation Demand Management (TDM) Ordinance.

SP 4.8-5 The applicants for all future subdivision maps which permit construction shall consult with the local transit provider regarding the need for, and locations of, bus pull-ins on highways within the Specific Plan area. All bus pull-in locations shall be approved by the Department of Public Works, and approved bus pull-ins shall be constructed by the applicant.

SP 4.8-6 Prior to the recordation of the first subdivision map which permits construction, the applicant for that map shall prepare a transportation performance evaluation which shall determine the specific needed improvements of each off-site arterial and related costs in order to provide adequate roadway and intersection capacity for the expected Specific Plan and General Plan buildout traffic trips. The transportation performance evaluation

shall be based on the Master Plan of Highways in effect at that time and shall be approved by the Los Angeles County Department of Public Works. The applicant shall be required to fund its fair share of improvements to these arterials, as stated on Table 4.8-18 of the Newhall Ranch Specific Plan Final EIR. The applicants total funding obligation shall be equitably distributed over the housing units and non-residential building square footage (i.e., Business Park, Visitor-Serving, Mixed-Use, and Commercial) in the Specific Plan, and shall be a fee to be paid to the County and/or the City at each building permit. For off-site areas within the County unincorporated area, the applicant may construct improvements for credit against or in lieu of paying the fee.

(3) I-5 and SR-126 in Los Angeles County

SP 4.8-7 Each future performance evaluation which shows that a future subdivision map will create significant impacts on SR-126 shall analyze the need for additional travel lanes on SR-126. If adequate lane capacity is not available at the time of subdivision, the applicant of the subdivision shall fund or construct the improvements necessary to serve the proposed increment of development. Construction or funding of any required facilities shall not preclude the applicant's ability to seek state, federal, or local funding for these facilities.

SP 4.8-8 Project-specific environmental analysis for future subdivision maps which allow construction shall comply with the requirements of the *Congestion Management Program* in effect at the time that subdivision map is filed.

SP 4.8-9 Prior to the recordation of the first subdivision map which permits construction, the applicant for that map shall prepare a transportation evaluation including all of the Specific Plan land uses which shall determine the specific improvements needed to the following intersections with SR-126 in the City of Fillmore and community of Piru in Ventura County: A, B, C, D and E Streets, Old Telegraph, Olive, Central, Santa Clara, Mountain View, El Dorado Road, and Pole Creek (Fillmore), and Main/Torrey and Center (Piru). The related costs of those intersection improvements and the project's fair share shall be estimated based upon the expected Specific Plan traffic volumes. The transportation performance evaluation shall be based on the Los Angeles *County Master Plan of Highways* in effect at that time and shall be approved by the Los Angeles County Department of Public Works. The applicant's total funding obligation shall be equitably distributed over the housing units and non-residential building square footage (i.e.,

Business Park, Visitor Center, Mixed Use, and Commercial) in the Specific Plan, and shall be a fee to be paid to the City of Fillmore and the County of Ventura at each building permit.

SP 4.8-10 The Specific Plan is responsible to construct or fund its fair-share of the intersections and interchange improvements indicated on Table 4.8-18 of the Newhall Ranch Specific Plan Final EIR. Each future transportation performance evaluation required by Mitigation 4.8-2 of the Newhall Ranch Specific Plan Final EIR which identifies a significant impact at these locations due to subdivision map-generated traffic shall address the need for additional capacity at each of these locations. If adequate capacity is not available at the time of subdivision map recordation, the performance evaluation shall determine the improvements necessary to carry Specific Plan generated traffic, as well as the fair share cost to construct such improvements. If the future subdivision is conditioned to construct a phase of improvements which results in an overpayment of the fair-share cost of the improvement, then an appropriate adjustment (offset) to the fees paid to Los Angeles County and/or City of Santa Clarita pursuant to Mitigation Measure 4.8-6 above shall be made.

SP 4.8-11 The applicant of the Newhall Ranch Specific Plan shall participate in an I-5 developer fee program, if adopted by the Board of Supervisors for the Santa Clarita Valley.

SP 4.8-12 The applicant of the Newhall Ranch Specific Plan shall participate in a transit fee program, if adopted for the entire Santa Clarita Valley by Los Angeles County and City of Santa Clarita.

SP 4.8-13 Prior to the approval of each subdivision map which permits construction, the applicant for that map shall prepare a traffic analysis approved by the Los Angeles County Department of Public Works. The analysis will assess project and cumulative development (including an existing plus cumulative development scenario under the County's Traffic Impact Analysis Report Guidelines (TIA) and its Development Monitoring System (DMS)). In response to the traffic analysis, the applicant may construct off-site traffic improvements for credit against, or in lieu of paying, the mitigation fees described in Mitigation Measure 4.8-6 of the Newhall Ranch Specific Plan Final EIR. If future subdivision maps are developed in phases, a traffic study for each phase of the subdivision map may be submitted to determine the improvements needed to be constructed with that phase of development.

APPENDIX F4.9

Air Quality Analyses and Calculations

LANDMARK VILLAGE

Supplemental
Localized Significance Thresholds Analysis

Prepared for:

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August 2010

1.0 THRESHOLDS OF SIGNIFICANCE

The South Coast Air Quality Management District (SCAQMD) recommends the evaluation of localized air quality impacts to sensitive receptors in the immediate vicinity of the project site. The thresholds are based on the difference between the maximum monitored ambient pollutant concentrations and the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS). Therefore, the thresholds depend upon the concentrations of pollutants monitored locally with respect to a project site. For pollutants that already exceed the CAAQS or NAAQS (e.g., PM10 and PM2.5), the thresholds are based on standards established by the SCAQMD in the *Final Localized Significance Threshold Methodology*. This evaluation requires that anticipated ambient air concentrations, determined using a computer-based air quality dispersion model, be compared to localized significance thresholds for PM10, PM2.5, NO_2, and CO.[1] The significance threshold for PM10 represents compliance with Rule 403 (Fugitive Dust) and Rule 1303 (New Source Review Requirements), while the thresholds for NO_2 and CO represent the allowable increase in concentrations above background levels in the vicinity of the project that would not cause or contribute to an exceedance of the relevant ambient air quality standards. The significance thresholds for PM2.5 are intended to constrain emissions so as to aid in the progress toward attainment of the ambient air quality standards.[2] The applicable thresholds are shown below in **Table 1**, **Localized Significance Thresholds for Santa Clarita Valley (Source Receptor Area 13).**

2.0 CALCULATION OF EMISSIONS

Unmitigated construction emissions during grading and other earthwork activities were estimated based on the URBEMIS2007 (Version 9.2.4) Environmental Management Software. Model input parameters were based on information and activity levels provided by the project applicant. Where information was not available, model default values recommended by the SCAQMD or data from similar projects were used. The results indicate that the maximum on-site daily emissions of NO_X, CO, PM10 and PM2.5 are anticipated to occur during the initial stages of construction. This is primarily the result of grading activities for both the Landmark Village project site and the Utility Corridor. Emission calculations are provided in **Appendix A**.

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1 South Coast Air Quality Management District, *Final Localized Significance Threshold Methodology*, (2008).

2 South Coast Air Quality Management District, *Final Methodology to Calculate Particulate Matter (PM) 2.5 and PM 2.5 Significance Thresholds*, (2006).

Table 1
Localized Significance Thresholds for Santa Clarita Valley (Source Receptor Area 13)

Construction LST	Pollutant (concentration)							
	NO_2 1-hour		CO 1-hour		CO 8-hours		PM_{10} 24-hours	$PM_{2.5}$ 24-hours
	µg/m³	ppm	µg/m³	ppm	µg/m³	ppm	µg/m³	µg/m³
CAAQS/NAAQS[1]	188	0.100	23,000	20	10,000	9.0	10.4	10.4
Peak Background[2]	115	0.061	2,300	2	1,444	1.3	NA	NA
LSTs[3]	73	0.039	20,700	18	8,556	7.7	10.4	10.4

NA = not applicable
Source: South Coast Air Quality Management District, Final Localized Significance Threshold Methodology, (2008), Appendix C.
[1] *California has not adopted a 24-hour standard for $PM_{2.5}$; the 24-hour $PM_{2.5}$ standard shown is the national standard. The U.S. EPA adopted a 1-hour standard for NO_2 that is lower than the California standard; therefore, the national standard is used for NO_2. All other standards are the California standards*
[2] *The peak background concentration for NO_2 is based on the 3-year average of the 98th-percentile of the annual distribution of daily maximum 1-hour concentrations for 2006 through 2008. All other peak background concentrations are based on the maximum concentrations between 2006 and 2008.*
[3] *LSTs for NO_2 and CO are the differences between the more stringent of the CAAQS or NAAQS and the peak background concentration.*

3.0 LOCALIZED SIGNIFICANCE THRESHOLD ANALYSIS

3.1 Modeling Approach

Per the recommendation of the SCAQMD, ambient NO_x, CO, PM10, and PM2.5 concentrations due to the construction of the proposed project were analyzed using methods described in its LST Methodology. The U.S. EPA and SCAQMD-approved dispersion model, AERMOD,[3] was used to model the air quality impacts of NO_x, CO, PM10, and PM2.5 emissions. AERMOD can estimate the air quality impacts of single or multiple point, area, or volume sources using historical meteorological conditions. Volume sources were used to represent the emissions from trucks and heavy-duty construction equipment. Area sources were used to model fugitive dust emissions of PM10 and PM2.5.

3 Lakes Environmental, ISC-AERMOD VIEW Software.

For the purpose of the dispersion modeling, the maximum daily emissions that could occur due to construction activities from any construction phase were selected for the LST analysis. It was assumed that an average workday was 8 hours. Therefore, the maximum daily emissions were divided by 8 to obtain maximum emission rates in units of pounds per hour.

3.2 Modeling Results

The results of the LST dispersion modeling are presented below in **Table 2, Localized Significance Threshold Analysis**. The modeling results presented below are based on conservative assumptions. Construction emissions were based on conservative assumptions and do not fully take into account emissions reductions that would occur from CARB regulations that are scheduled to be implemented over the coming years. As shown in **Table 2,** construction of the project would not generate on-site emissions in excess of the site-specific localized significance thresholds for CO. Construction of the project would generate on-site emissions in excess of the threshold for NO_2, PM10, and PM2.5 at sensitive receptors adjacent to the project site.

In accordance with the SCAQMD methodology, the impacts are evaluated for receptor locations in which a person could be located for a period of time equal to the averaging period of each pollutant. For example, workplace receptors were evaluated for pollutants with an averaging period of 1- and 8-hours, but not for 24-hours. Residential receptors were evaluated for all pollutants listed above because a person could be located at a residential land use for 1-, 8- and 24-hours. School receptors were conservatively evaluated for all pollutants listed above.

Table 2
Localized Significance Threshold Analysis

Construction LST	Maximum Modeled Concentrations (micrograms per cubic meter; parts per million)							
	NO_2 1-hour		CO 1-hour		CO 8-hour		PM10 24-hour	PM2.5 24-hour
	μg/m³	ppm	μg/m³	ppm	μg/m³	ppm	μg/m³	μg/m³
LSTs[1]	73	0.039	20,700	18	8,556	7.7	10.4	10.4
Draft EIR Results	483	0.257	1,787	2	244	0.2	56.1	NA
AERMOD Results	324	0.172	561	< 1	70	< 0.1	34.1	12.8
Exceeds Threshold?	**YES**		NO		NO		**YES**	**YES**

Source: Impact Sciences, Inc. Emissions calculations are provided in ***Appendix A****.*

[1] *South Coast Air Quality Management District,* Final Localized Significance Threshold Methodology, *(2008).*

4.0 CONCLUSIONS

The LST analysis was conducted to estimate worst-case ambient air quality impacts during construction at the Landmark Village project site and Utility Corridor. As shown in **Table 2,** construction of the proposed project would not generate on-site emissions in excess of the site-specific LST for CO. Construction of the proposed project would generate on-site emissions that would potentially exceed the LST criteria for NO_2, PM10, and PM2.5 for off-site receptors. Therefore, based on this assessment, the localized impacts for NO_2, PM10, and PM2.5 would be potentially significant during the construction of the proposed Landmark Village project and Utility Corridor when construction activity is taking place near off-site sensitive receptors. It should be noted that the results presented above are based on data that was known at the time this analysis was conducted as well as reasonable and conservative assumptions. Actual impacts during project construction may be different depending on several factors including the actual level of construction activity and actual meteorological conditions.

APPENDIX A

LST Model Calculations

Landmark Village
AERMOD Dispersion Model
SCAQMD Localized Significance Threshold Modeling

Table LST-1
Maximum On-Site Emissions

Construction Emissions[1]		**NO_X (lbs/day)**	**CO (lbs/day)**	**PM10 Dust (lbs/day)**	**PM10 Exh (lbs/day)**	**PM10 (lbs/day)**	**PM2.5 Dust (lbs/day)**	**PM2.5 Exh (lbs/day)**	**PM2.5 (lbs/day)**
Landmark Village + Utility Corridor									
Weeks	1 through 19	988.69	424.21	1,876.83	43.04	1,919.87	391.96	39.59	431.55
Weeks	20 through 39	1,608.00	687.30	2,355.10	72.31	2,427.41	491.84	66.52	558.36
Weeks	40 through 46	2,333.34	968.81	2,355.23	106.28	2,461.51	491.87	97.77	589.64
Weeks	47 through 91	1,344.65	544.60	-	63.24	63.24	-	58.18	58.18
Weeks	92	1,423.18	596.23	-	67.05	67.05	-	61.69	61.69
Weeks	93 through 144	1,306.46	549.45	-	61.50	61.50	-	56.58	56.58
Weeks	145 through 158	1,124.77	493.05	-	53.72	53.72	-	49.42	49.42
Weeks	159 through 178	545.10	245.76	-	25.70	25.70	-	23.65	23.65
Weeks	179 through 196	471.70	210.80	-	22.01	22.01	-	20.25	20.25
Weeks	197 through 210	321.07	141.33	-	14.77	14.77	-	13.59	13.59
Weeks	211 through 220	209.01	97.71	-	9.21	9.21	-	8.48	8.48
Weeks	221 through 235	128.12	58.05	-	5.41	5.41	-	4.97	4.97
Year	2015+	214.46	105.32	-	8.68	8.68	-	7.98	7.98
Maximum Emissions		2,333.34	968.81	2,355.23	106.28	2,461.51	491.87	97.77	589.64

Max. Utility Corridor Portion of Emissions	38.91	18.49	75.23	1.90	77.13	15.71	1.75	17.46

Source:
1. Emission estimates from URBEMIS2007, Version 9.2.4.

Landmark Village
AERMOD Dispersion Model
SCAQMD Localized Significance Threshold Modeling

Table LST-2
AERMOD Source Characteristics

Emission Source	Source Type	Release Height (m)	Length of Side X (m)	Length of Side Y (m)	Initial Vertical (m)	Initial Lateral (m)	Initial Vertical (m)	Exit Temperature (F)	Inside Diameter (ft)	Exit Flow Rate (ft^3/s)
Landmark Village										
Construction Off-Road	Volume	5.00	220.37	220.37	1.16	51.25	n/a	n/a	n/a	n/a
Construction Fugitive Dust	Area	0.00	220.37	220.37	n/a	n/a	1.00	n/a	n/a	n/a
Utility Corridor										
Construction Off-Road	Volume	5.00	30 to 50	30 to 50	1.16	6.98 to 11.63	n/a	n/a	n/a	n/a
Construction Fugitive Dust	Area	0.00	Polygon	Polygon	n/a	n/a	1.00	n/a	n/a	n/a

Landmark Village
AERMOD Dispersion Model
SCAQMD Localized Significance Threshold Modeling

Table LST-3
Calculated AERMOD Source Emission Rates

Emissions Source		Model Source Group	Source ID	Source Type	Number of Sources	Averaging Period (hours/day)	Modeled Emission Rates											
							NO_X		CO		PM10 (Dust)		PM10 (Exh)		PM2.5 (Dust)		PM2.5 (Exh)	
							(lbs/day)	(g/s)	(lbs/day)	(g/s)	(lbs/day)	(g/s)	(lbs/day)	(g/s)	(lbs/day)	(g/s)	(lbs/day)	(g/s)
Landmark Village																		
Construction Off-Road		West	W01	Volume	1	8	2,294.43	3.61E+01	950.32	1.50E+01	-	0.00E+00	104.38	1.64E+00	-	0.00E+00	96.02	1.51E+00
Construction Fugitive Dust		West	W02	Area	1	8	-	0.00E+00	-	0.00E+00	2,280.00	3.59E+01	-	0.00E+00	476.16	7.50E+00	-	0.00E+00
Utility Corridor																		
Construction Off-Road		West	U01-13	Volume	13	8	38.91	4.71E-02	18.49	2.24E-02	-	0.00E+00	1.90	2.30E-03	-	0.00E+00	1.75	2.12E-03
Construction Fugitive Dust																		
Square Meters	17,955.0	West	U14	Area	1	8	-	0.00E+00	-	0.00E+00	41.72	6.57E-01	-	0.00E+00	8.71	1.37E-01	-	0.00E+00
Square Meters	7,792.5	West	U15	Area	1	8	-	0.00E+00	-	0.00E+00	18.11	2.85E-01	-	0.00E+00	3.78	5.96E-02	-	0.00E+00
Square Meters	6,627.5	West	U16	Area	1	8	-	0.00E+00	-	0.00E+00	15.40	2.43E-01	-	0.00E+00	3.22	5.07E-02	-	0.00E+00

Landmark Village
AERMOD Dispersion Model
SCAQMD Localized Significance Threshold Modeling

Table LST-4
NO_2 1-hour Daily Average
Design value for all station , 2005-2008
(average of the 98th percentile value in a 3-year period)

		Design Value		98th percentile, ppb			
Stn #	City	2005-2007	2006-2008	2005	2006	2007	2008
60	AZUS	83	84	77	84	87	82
69	BURK	75	76	79	72	74	83
72	LGBH	74	78	76	69	77	88
74	RESE	60	60	64	57	59	63
75	POMA	80	83	77	84	78	87
84	LYNN	79	79	81	85	71	82
85	PICO**	84	87	75	88	88	85
87	CELA	84	84	81	83	87	82
88	PASA	73	73	75	73	71	74
90	**SCLR**	**61**	**61**	**61**	**60**	**63**	**60**
91	WSLA	63	64	63	62	64	66
591	GLEN	78	76	75	79	79	71
820	HAWT	71	72	71	72	69	76
3176	ANAH	66	67	70	68	61	73
3177	LAHB	73	73	73	77	70	73
3195	CSTA	62	62	63	62	60	64
4137	PLSP	50	49	49	50	51	45
4144	RIVR	64	65	66	64	63	67
4158	ELSI	53	52	53	54	51	50
4164	BNAP	65	63	65	66	64	58
5175	UPLA	83	77	86	88	74	69
5197	FONT	80	77	88	80	72	79
5203	SNBO	71	69	70	73	69	64
5212	MLOM	69	73	66	70	70	79
5214	MRLM	51	61	35	61	58	64

Source:
1. South Coast Air Quality Management District, (2010).

Notes:
** Incomplete data for 2005 and 2006.

Landmark Village
AERMOD Dispersion Model
SCAQMD Localized Significance Threshold Modeling

Table LST-5
Maximum Modeled Impacts at Sensitive Receptors

Model Scenario	Receptor	Maximum Modeled Impacts							
		NO_2		CO				PM10	PM2.5
		1-Hr		1-Hr		8-Hr		24-Hr	24-Hr
		µg/m^3	ppm	µg/m^3	ppm	µg/m^3	ppm	µg/m^3	µg/m^3
Elevated Terrain / Meteorological Data Year: 2005-2007									
Construction									
LST Impacts	Residential	247.46	0.13	183.17	0.16	23.18	0.02	28.71	10.42
UTM Coordinate	*Easting*		*351,400*		*348,000*		*348,000*	*350,700*	*350,700*
UTM Coordinate	*Northing*		*3,813,500*		*3,812,200*		*3,812,200*	*3,813,500*	*3,813,500*
LST Impacts	Workplace	324.11	0.17	561.29	0.49	70.16	0.06		
UTM Coordinate	*Easting*		*353,800*		*350,300*		*350,300*		
UTM Coordinate	*Northing*		*3,810,900*		*3,811,600*		*3,811,600*		
LST Impacts	Student	229.32	0.12	134.00	0.12	17.70	0.02	19.97	7.21
UTM Coordinate	*Easting*		*351,300*		*351,300*		*353,800*	*351,300*	*351,300*
UTM Coordinate	*Northing*		*3,813,300*		*3,813,300*		*3,808,300*	*3,813,300*	*3,813,300*
Flat Terrain / Meteorological Data Year: 2005-2007									
Construction									
LST Impacts	Residential	132.90	0.07	270.22	0.24	34.34	0.03	34.09	12.83
UTM Coordinate	*Easting*		*351,100*		*352,800*		*353,400*	*353,400*	*353,500*
UTM Coordinate	*Northing*		*3,813,000*		*3,807,000*		*3,808,600*	*3,808,600*	*3,808,500*
LST Impacts	Workplace	222.69	0.12	344.33	0.30	45.25	0.04		
UTM Coordinate	*Easting*		*349,600*		*350,200*		*350,100*		
UTM Coordinate	*Northing*		*3,812,500*		*3,811,500*		*3,811,700*		
LST Impacts	Student	113.17	0.06	222.01	0.19	32.05	0.03	33.60	12.26
UTM Coordinate	*Easting*		*351,300*		*353,800*		*353,800*	*353,700*	*353,800*
UTM Coordinate	*Northing*		*3,813,300*		*3,808,300*		*3,808,300*	*3,808,400*	*3,808,300*
Maximum Values		**324.11**	**0.172**	**561.29**	**0.49**	**70.16**	**0.06**	**34.09**	**12.83**

Source: Lakes-Environmental, ISC-AERMOD View, Version 6.6.0, (2010).

APPENDIX B

AERMOD Dispersion Modeling Files
(Available electronically upon request)

LANDMARK VILLAGE

Supplemental Construction Health Risk Assessment

Prepared for:

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Prepared by:

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August 2010

SUMMARY

The proposed Landmark Village project would result in the development of single-family and multi-family residences, mixed-use residential/commercial development, commercial/retail uses, office uses, school uses, parks, and recreational areas. Construction of the project would result in emissions of diesel particulate matter (DPM), which may potentially result in adverse health impacts to nearby sensitive receptors.

This health risk assessment (HRA) evaluates the health impacts of DPM emitted by diesel-fueled equipment associated with construction of the proposed project. The South Coast Air Quality Management District (SCAQMD) recommends the following significance thresholds for health risk assessments of projects being reviewed under the California Environmental Quality Act (CEQA):

- Criterion 1: a lifetime probability of contracting cancer greater than 10 in 1 million (10×10^{-6}); and
- Criterion 2: a health hazard index of 1 for evaluating the non-carcinogenic effects of toxic air contaminants.

Using the SCAQMD's thresholds of significance, the HRA finds that the maximum anticipated cancer risk associated with the construction of the project is 0.3 in 1 million at the maximally exposed individual (MEI) receptor. The assessment also finds that the chronic Hazard Index for non-cancer health impacts is well below 1 at any modeled receptor point. Since health impacts are less than SCAQMD significance thresholds, the health impacts associated with construction of the project are considered to be less than significant.

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1.0 GENERAL

1.1 Purpose

The proposed Landmark Village project is located south of the Santa Clara River and State Route 126 (SR-126) and west of the Golden State Freeway (Interstate 5). The South Coast Air Quality Management District (SCAQMD) is the local agency responsible for air quality planning and control in this region as well as throughout the populated areas of Los Angeles, Riverside, and San Bernardino Counties and all of Orange County.

Construction of the project would result in emissions of diesel particulate matter (DPM) that could potentially result in adverse health impacts to sensitive receptors located in the vicinity of the project site. On August 27, 1998, the California Air Resources Board (CARB) designated diesel particulate matter (DPM) emissions from diesel-fueled engines as a toxic air contaminant (TAC) because some of the exhaust constituents that make up DPM, such as arsenic, benzene, and nickel, are known to cause cancer in humans. Exposure to DPM also can cause non-cancer health effects, including respiratory symptoms, changes in lung function, and cardiovascular disease. The SCAQMD has not adopted a methodology for evaluating construction-related health impacts because typical construction activity is short-term and temporary. However, the proposed project would result in construction activity over approximately seven years. Therefore, in the interest of full disclosure under CEQA, this analysis determined the potential for adverse health impacts due to DPM emissions from construction activities.

Sources utilized in the health risk assessment (HRA) for the project include the SCAQMD's *California Environmental Quality Act (CEQA) Air Quality Handbook* ("CEQA Handbook") and Office of Environmental Health Hazard Assessment's (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*[1], and the URBEMIS2007 Environmental Management Software. Air quality modeling conducted for the analysis was conducted using the AERMOD model, which is a Gaussian dispersion model and is approved for use in air quality analyses by the U.S. Environmental Protection Agency (EPA) and the SCAQMD.

1.2 Project Description

The proposed project consists of the development of single-family and multi-family residences, mixed-use residential/commercial development, commercial/retail uses, office uses, school uses, parks, and recreational areas. The proposed project also includes facilities and infrastructure proposed to support

1 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, (2003).

the project, including roads, trails, drainage improvements, potable water systems, sanitary sewer system and dry utility systems.

1.3 Thresholds of Significance

The SCAQMD CEQA Handbook recommends that the following thresholds be used to determine the potential to expose off-site receptors to significant health risks from project operations. The SCAQMD developed these thresholds to evaluate the significance of operational-related TAC emissions, assuming a maximum lifetime exposure period of 70 years. As noted above, construction would last for several years. Therefore, the analysis assumes that TAC emissions would be generated during construction activity, after which time TAC emissions would no longer be emitted.

- Criterion 1: a lifetime probability of contracting cancer greater than 10 in 1 million (10×10^{-6}); and
- Criterion 2: a health hazard index of 1 for evaluating the non-carcinogenic effects of toxic air contaminants.

These thresholds apply to the Maximally Exposed Individual (MEI), which is the receptor that is exposed to the highest concentration of TACs as determined by dispersion modeling. The thresholds are assessed using the methodologies described in the Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*[2] (OEHHA Guidance). For Criterion 1, the OEHHA Guidance recommends that a 70-year exposure duration be used for determining lifetime residential cancer risks (7 days per week, 50 weeks per year).[3] This ensures that a person residing in the vicinity of a facility for a lifetime will be included in the evaluation of risk posed by that facility. In addition to the lifetime cancer risk, additional exposure periods may be evaluated. The OEHHA Guidance provides direction with respect to the evaluation of cancer risk calculations for shorter-term exposures (i.e., less than a maximum lifetime exposure period of 70 years). The standard default assumption for workplace exposure is 5 days per week, 49 weeks per year, for 40 years.[4] The assumption for student exposure is 180 days, which corresponds to number of days in a typical school year, for 9 years. The OEHHA Guidance recommends that the short-term exposure last for a minimum of 9 years.[5]

For Criterion 2, the non-carcinogenic effects of TACs are evaluated for acute and chronic impacts, which take into account effects from exposure pathways. A receptor may be exposed to TACs via one or more of

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2 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, (2003).

3 Ibid., p. 8-3.

4 Ibid., p. 8-5.

5 Ibid., p. 8-4.

the following pathways: (1) inhalation, (2) ingestion, and/or (3) dermal (skin absorption). OEHHA has not identified acute (short-term) non-cancer health impact factors for DPM. However, OEHHA has identified chronic (long-term) non-cancer health impact factors for DPM via the inhalation pathway. OEHHA has not identified non-cancer health impact factors for DPM from exposure via the ingestion or dermal pathways. Therefore, the non-carcinogenic effects of DPM are evaluated for chronic impacts via inhalation. Chronic non-cancer inhalation impacts are evaluated over an annual exposure period.

The project's estimated health impacts will be evaluated with respect to these criteria. This analysis evaluates the incremental increase in ambient levels of DPM that would result from construction of the proposed project and quantifies the potential health risk in the vicinity of the project.

2.0 CALCULATION OF EMISSIONS

Unmitigated construction emissions were estimated based on the URBEMIS2007 (Version 9.2.4) Environmental Management Software. Model input parameters were based on information and activity levels provided by the project applicant. Where information was not available, model default values recommended by the SCAQMD or data from similar projects were used. Exhaust emissions of PM10 from on-site equipment was used to represent DPM emissions. Only emissions from on-site equipment and activity were considered in the analysis. **Table 1, Estimated Unmitigated On-Site Construction DPM Emissions**, presents the estimated on-site construction emissions for DPM. For the purposes of modeling cancer risk, the daily emissions of DPM as calculated from the URBEMIS2007 model were summed and averaged over the representative exposure durations (i.e., 70 years, 40 years and 9 years) to obtain emissions rates in units of grams per second. For the purposes of modeling chronic non-cancer health impacts, the year with the maximum emissions of DPM as calculated from the URBEMIS2007 model were used and averaged over the exposure durations (i.e., 1 year) to obtain emissions rates in units of grams per second. Because construction would involve a variety of activities, such as grading, utilities trenching, street paving, and building construction, the emissions listed in **Table 1** were summed over each unique combination of activities.

Table 1
Estimated Unmitigated On-Site Construction DPM Emissions

Construction Year	Primary Activities	Duration (Work Days)	On-Site DPM Emissions (lbs/day)	On-Site DPM Emissions (total lbs)
Landmark Village and Utility Corridor				
2010	Week 1-19	95	43.04	4,088.80
2010	Week 20-39	100	72.31	7,231.00
2010	Week 40-46	35	106.28	3,719.80
2010	Week 47-91	30	63.24	1,897.20
2011	Week 47-91	195	58.36	11,380.20
2011	Week 92	5	67.05	335.25
2011	Week 93-144	60	61.50	3,690.00
2012	Week 93-144	210	57.79	12,135.90
2012	Week 145-158	51	53.72	2,739.72
2013	Week 145-158	19	49.29	936.51
2013	Week 159-178	100	25.70	2,570.00
2013	Week 179-196	90	22.01	1,980.90
2013	Week 197-210	52	14.77	768.04
2014	Week 197-210	18	13.02	234.36
2014	Week 211-220	50	9.21	460.50
2014	Week 221-235	75	5.41	405.75
2015	Week 236+	259	8.68	2,248.12
2016	Week 236+	261	8.00	2,088.00
2017	Week 236+	180	6.97	1,254.60
Landmark Village: Total Emissions				**59,692.15**
Utility Corridor: Total Emissions				**472.50**
Landmark Village: Maximum 1-Year Emissions				**16,687.90**
Utility Corridor: Maximum 1-Year Emissions				**248.90**

*Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix A**.*
Totals in the table may not appear to add exactly due to rounding in the computer model calculations.

3.0 HEATH RISK ASSESSMENT

3.1 Modeling Approach

Concentrations of DPM due to the construction of the proposed project were modeled using the U.S. Environmental Protection Agency (EPA) and SCAQMD-approved dispersion model, AERMOD.[6] AERMOD can estimate the air quality impacts of single or multiple point, area, or volume sources using historical meteorological conditions. Volume sources were used to represent the emissions from trucks and heavy-duty construction equipment.

3.1.1 Modeled Scenarios

Construction activity could take place at any location on the Landmark Village project site. In order to model the incremental increase in cancer risk to off-site receptors, the modeling sources were placed throughout the Landmark Village project site and the portion of the Utility Corridor adjacent to the Landmark Village site. This is a simplified representation of the actual construction conditions. However, because cancer risk is based on long-term exposures, it is appropriate to simplify the model and assume that the DPM emissions would be distributed equally throughout the Landmark Village project site. A graphical representation of this modeling scenario is presented in **Figure 1, Model Source Groups to Evaluate Cancer Risks**.

In order to model the incremental increase in non-cancer chronic health impacts to off-site receptors, a representative worst-case modeling source group was defined. The worst-case modeling source group placed emission sources at the northeastern portion of both the Landmark Village site and the Utility Corridor. This area is nearest to off-site sensitive receptors, and thus would result in worst-case impacts. Locating the sources in this area would allow the model to determine the maximum non-cancer chronic health impacts to nearby sensitive receptors. A graphical representation of this modeling scenario is presented in **Figure 2, Model Source Groups to Evaluate Non-Cancer Chronic Health Impacts**.

3.1.2 Source Characteristics

Volume sources were used to represent emissions from construction equipment. For evaluating cancer risk, Landmark Village consisted of 25 volume sources, which were given a 5-meter release height and a 1.16-meter initial vertical dimension. The volume sources for the Utility Corridor were set up using the line source function in the AERMOD software. For evaluating non-cancer health impacts, the volume sources for Landmark Village consisted of a single volume source, which was given a 5-meter release

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6 Lakes Environmental, ISC-AERMOD VIEW Software.

height and a 1.16-meter initial vertical dimension. The volume sources for the Utility Corridor consisted of 13 volume sources, which were given a 5-meter release height and a 1.16-meter initial vertical dimension. The emission factors used in the AERMOD model are listed below in **Table 2, AERMOD Emission Factors**. These emission factors were calculated from the total emissions presented previously in **Table 1** and divided by the exposure duration periods (i.e., 70 years, 40 years, 9 years, and 1 year) and the number of individual volume source. The factors also assume that DPM is emitted for 8 hours per day. The factors are presented in scientific notation (e.g., 1.47E-03 is equal to 0.00147). Detailed emission rate calculations for the volume sources are presented in **Appendix A**.

Table 2
AERMOD Emission Factors

Model Source Group	Emission Factor (grams per second)
Cancer Risk: 70-Year Exposure	
Landmark Village	1.47E-03
Utility Corridor	2.91E-04
Cancer Risk: 40-Year Exposure	
Landmark Village	2.58E-03
Utility Corridor	5.10E-04
Cancer Risk: 9-Year Exposure	
Landmark Village	1.14E-02
Utility Corridor	2.27E-03
Non-Cancer Chronic: 1-Year	
Landmark Village	7.20E-01
Utility Corridor	8.26E-04

*Source: Impact Sciences, Inc. Emissions calculations are provided in **Appendix A**.*
Totals in the table may not appear to add exactly due to rounding in the computer model calculations.

3.1.3 Receptors

Discrete Cartesian receptors were used to determine air quality impacts in the vicinity of the project site. Field receptors were placed at 100-meter intervals outside the boundary of the Landmark Village project site to cover the nearby community of Val Verde, California and other nearby receptors including the nearest schools, offices, and residences. Due to the size of the project site and the number of model runs required, this receptor grid was determined to provide a balanced approach with respect to receptor coverage and model run times. This receptor grid is also consistent with SCAQMD recommended

guidance for AERMOD.[7] A graphical representation of the receptor grid is presented in **Figure 3, Landmark Village Receptor Grid to Evaluate Cancer Risks and Non-Cancer Health Impacts**.

3.1.4 Meteorological Data

The monitoring station located in Source Receptor Area 13 was used in the analysis. Monitoring data were obtained from SCAQMD website.[8] These files were developed by the SCAQMD using site specific surface characteristics (i.e., surface albedo, surface roughness, and Bowen ratio) obtained using AERSURFACE. The surface wind directions are presented graphically in a polar diagram generated by the Wind Rose software. This diagram is shown in **Figure 4, Wind Rose for the Santa Clarita Monitoring Station**. The SCAQMD provides three years worth of meteorological data (from 2005 to 2007), which is representative of typical meteorological conditions in the project area.

3.1.5 Terrain Data

According to the U.S. EPA *AERMOD Implementation Guide*,[9] for cases in which receptor elevations are lower than the base elevation of the source, AERMOD will predict concentrations that are less than what would be estimated from an otherwise identical flat terrain situation. While this is appropriate and realistic in most cases, for cases of down-sloping terrain where the plume is terrain-following, AERMOD will tend to underestimate concentrations when terrain effects are taken into account. This situation is potentially applicable to the project site since the surrounding region contains numerous hills and elevation changes and surrounding receptors may be located at higher and lower elevations than the emission sources. Therefore, in order to avoid underestimating concentrations in such situations, the SCAQMD recommends that AERMOD should be run twice – once using the elevated terrain option and a second time using the flat terrain option. The maximum ground-level concentration from both runs should be reported. Therefore, modeling runs were set up for both terrain options.

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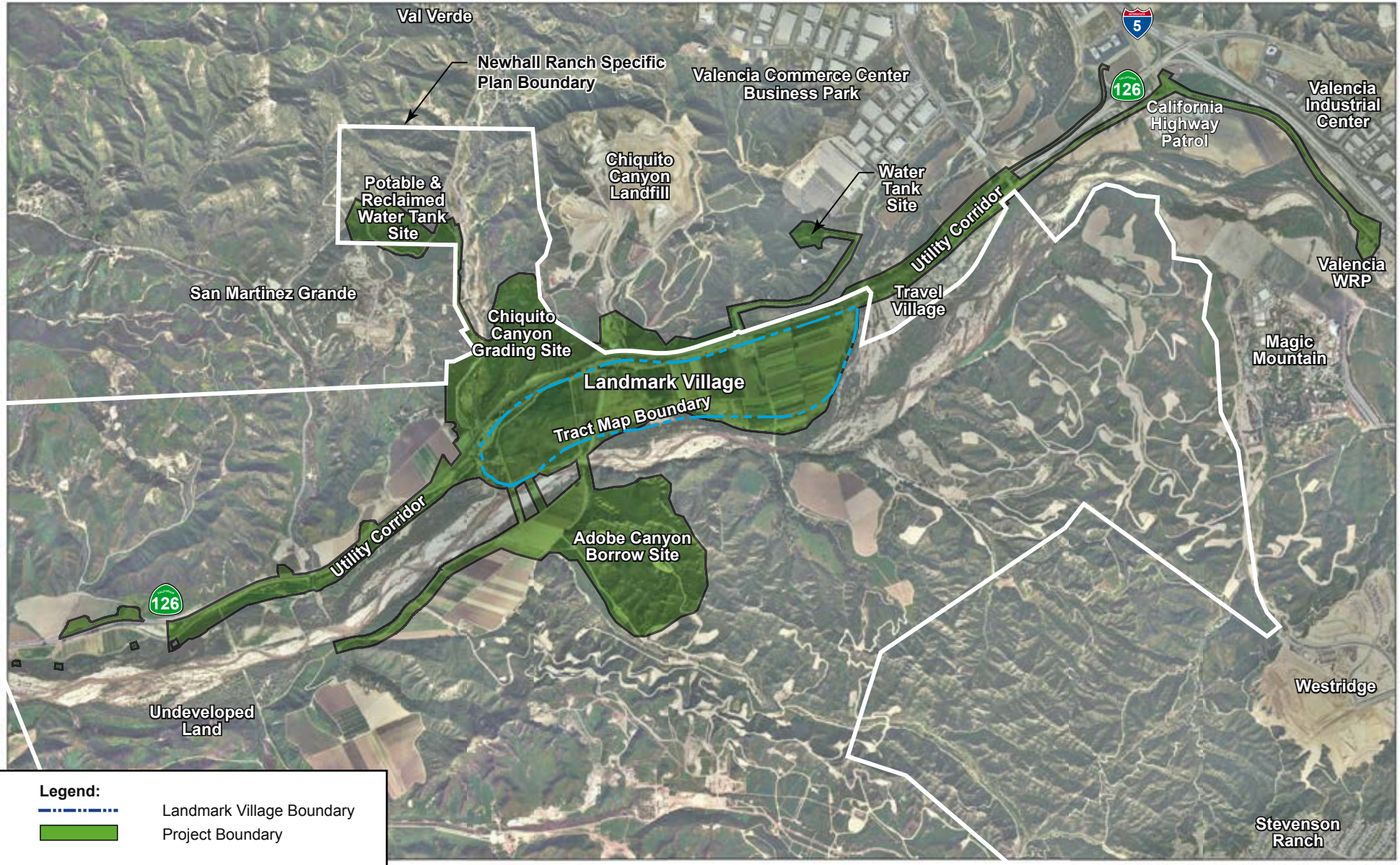
7 Refer to the SCAQMD AERMOD modeling guidance website: http://www.aqmd.gov/smog/metdata/AERMOD_ModelingGuidance.html

8 South Coast Air Quality Management District, "AQMD Meteorological Data for AERMOD," http://www.aqmd.gov/smog/metdata/AERMOD.html. 2010.

9 U.S. Environmental Protection Agency, *AERMOD Implementation Guide*, (2009).

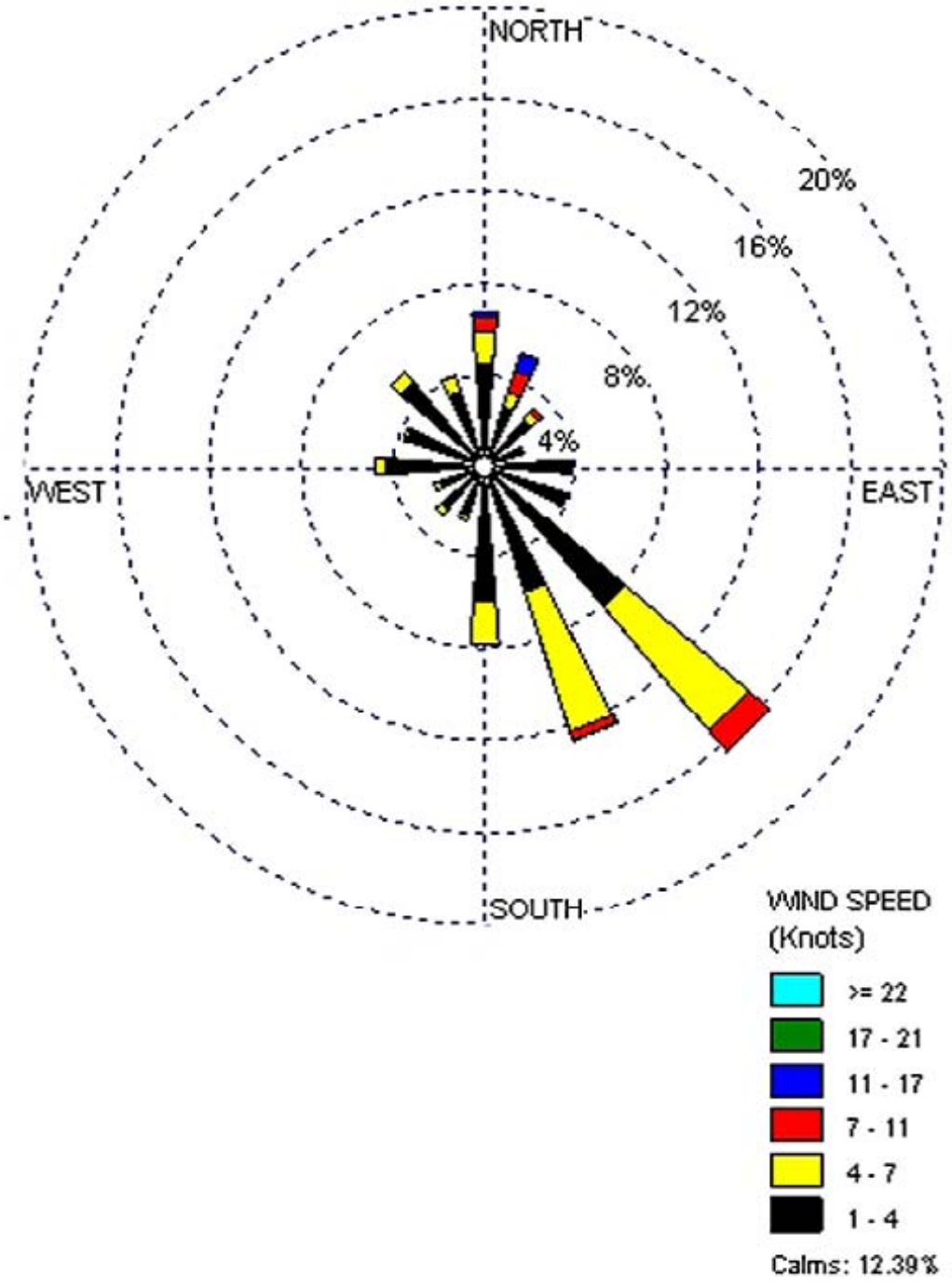


SOURCE: Impact Sciences, Inc. – May 2006

FIGURE **1**

Conceptual Site Plan

32-92•05/06



SOURCE: Impact Sciences, Inc. – May 2006

FIGURE **2**

Wind Rose for the Newhall Monitoring Station

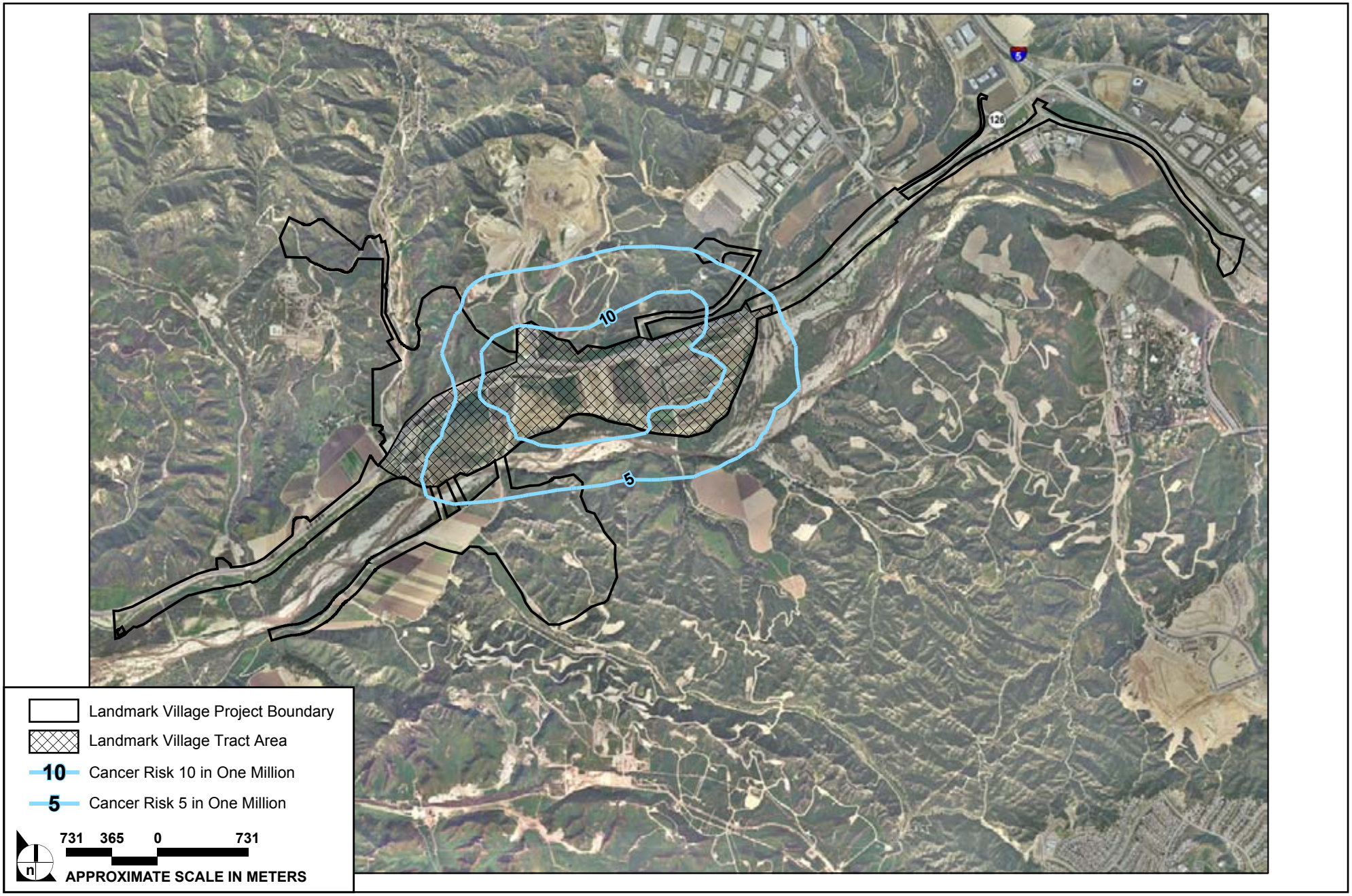
32-99•05/06

SOURCE: Impact Sciences, Inc. – May 2006

FIGURE 3

Sensitive Receptors Near the Project Site

32-92•05/06



SOURCE: Impact Sciences, Inc. – May 2006

FIGURE **4**

Model Impacts of Diesel Particulate Matter

32-92•05/06

Terrain heights receptors were derived from digital terrain elevations developed by the U.S. Geological Survey (USGS) by using its Digital Elevation Model (DEM). The DEM data provides terrain elevations with 1-meter vertical resolution and 10-meter or 30-meter horizontal resolution based on a Universal Transverse Mercator (UTM) coordinate system, referenced to an appropriate map projection as needed (e.g., North American Datum of 1927 (NAD 27), NAD 83, or World Geodetic System of 1984 (WGS 84)).

3.1.6 Model Options

The SCAQMD requires that AERMOD be run using U.S. EPA regulatory default options, unless non-default options are justified. AERMOD was run using U.S. EPA regulatory default options. As noted above, both flat and elevated terrain options were modeled. Additional modeling options are listed below:

- Urban dispersion (Los Angeles County population of 9,862,049, as per SCAQMD guidance);[10]
- Averaging periods: Annual;
- Flagpole receptor heights: 0 meter (corresponding to ground-level concentrations); and
- No building downwash (no point sources modeled).

3.2 Modeling Results

3.2.1 Cancer Risk

The health impacts are based on the methodologies described in the OEHHA Guidance.[11] The following equations are used to calculate the cancer risk due to inhalation using the modeled DPM concentrations:[12]

Equation 1: Risk = Dose Inhalation × Inhalation Potency Factor

where:

Equation 2: Dose Inhalation = $C_{AIR} \times DBR \times A \times EF \times ED \times 10^{-6} / AT$

where:

C_{AIR} = concentration in microgram per cubic meter
DBR = breathing rate in liter per kilogram of body weight per day
A = inhalation absorption factor (1 for DPM)

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10 Refer to the SCAQMD AERMOD modeling guidance website: http://www.aqmd.gov/smog/metdata/AERMOD_ModelingGuidance.html

11 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, (2003).

12 Ibid.

EF = exposure frequency in days per year
ED = exposure duration in years
AT = averaging time period over which exposure is averaged in days (25,550 days for 70 years)

In accordance with CARB policy,[13] a breathing rate equal to the 80th percentile should be used in single-point risk management decisions, such as those subject to a threshold or standard, for which the cancer risk is entirely associated with inhalation and residential cancer risk are being evaluated. These two criteria are met for this assessment. Thus, a breathing rate of 302 liters per kilogram of body weight per day was used for the residential cancer risk calculations. The breathing rate for workers and students are different. Typical workers do not engage in strenuous activities and thus a lower breathing rate should be used, according to the OEHHA Guidance. Students are presumed to be children, who have much higher breathing rates than adults. Therefore, breathing rates of 149 and 581 liters per kilogram of body weight per day was used for the workplace and student cancer risk calculations.

The risk is calculated by multiplying the dose by inhalation potency factor. The Unit Risk Value for DPM recommended by the Scientific Review Panel is 3.0×10^{-4} per microgram per cubic meter ($\mu g/m^3$).[14] This value corresponds to a Cancer Potency Factor of 1.1 per milligram/kilogram (body weight) per day (mg/kg-day). The Unit Risk Value means that for receptors with an annual average concentration of 1 $\mu g/m^3$ in the ambient air, the probability of contracting cancer over a 70-year lifetime of exposure is 300 in 1 million. This Unit Risk Value considers exposure via inhalation only. The potential exposure through other pathways (e.g., ingestion) requires substance and site-specific data, and the specific parameters for diesel exhaust are not known for these pathways.[15] The Unit Risk Value also assumes that a person is exposed continuously for 70 years. This approach is intended to result in conservative (i.e., health protective) estimates of health impacts and is used for the sensitive receptors previously identified. In order to calculate risk directly as a modeling output, a multiplying factor was derived based on the information discussed above. This multiplying factor, when multiplied by the concentration that the dispersion model calculates, results in risk in 1 million at a particular receptor. The multiplying factors were calculated as follows:

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13 California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk*, (2003).

14 Ibid., *Initial Statement of Reasons for Rulemaking, Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant*, (1998).

15 California Air Resources Board, *Report to the Air Resources Board on the Proposed Identification of Diesel Exhaust as a Toxic Air Contaminant, Part A Exposure Assessment (as approved by the Scientific Review Panel)*, April 1998.

Multiplying factor (residential receptor) = CPF × (DBR × A × EF × ED × 10^{-6} / AT) × 10^{6}

= 1.1 (mg/kg-day)$^{-1}$ × (302 L/kg body weight-day × 1 × 350 day/yr × 70 yr ×10^{-6} / 25,550 days) × 10^{6}

= 318.55 (μg/m^{3})$^{-1}$

Multiplying factor (workplace receptor) = 1.1 (mg/kg-day)$^{-1}$ × (149 L/kg body weight-day × 1 × 245 day/yr × 40 yr ×10^{-6} / 25,550 days) × 10^{6}

= 62.87 (μg/m^{3})$^{-1}$

Multiplying factor (student receptor) = 1.1 (mg/kg-day)$^{-1}$ × (581 L/kg body weight-day × 1 × 180 day/yr × 9 yr ×10^{-6} / 25,550 days) × 10^{6}

= 40.52 (μg/m^{3})$^{-1}$

Table 3, Summary of Maximum Modeled DPM Concentrations and Cancer Risks, shows the maximum modeled cancer risk for the maximally exposed individual resulting from the project-related DPM emissions. The values are presented in scientific notation (e.g., 9.20E-04 is equal to 0.000920). The values shown in **Table 3** indicate that the cancer risks, as a result of construction of the proposed project, would be less than 10 in 1 million. This is considered a less than significant impact.

Table 3
Summary of Maximum Modeled DPM Concentrations and Cancer Risks

Receptor	Modeled DPM Concentration (micrograms/cubic meter)	Cancer Risk (in 1 million)	Significance Threshold	Exceeds Threshold?
Residential	9.20E-04	0.3	10 in 1 million	NO
Workplace	2.22E-04	0.1	10 in 1 million	NO
Student	2.04E-03	0.1	10 in 1 million	NO

*Source: Impact Sciences, Inc. Detailed calculations are available in **Appendix A**.*

3.2.2 Chronic Hazard Index

In addition to the potential cancer risk, DPM has chronic (i.e., long term) non-cancer health impacts. The chronic non-cancer Hazard Indices for the proposed project were calculated by dividing the maximum modeled annual average concentrations of DPM, using the year with the greatest emissions (2012), by the Reference Exposure Level (REL). The DPM concentrations represent the worst-case year; therefore, the

chronic non-cancer Hazard Indices for 2015 represents the maximum non-cancer chronic health impacts. Detailed calculations are provided in **Appendix A**.

OEHHA has recommended an ambient concentration of 5 micrograms per cubic meter ($\mu g/m^3$) as the chronic inhalation REL for DPM exhaust. The REL is the concentration at or below which no adverse health effects are anticipated. The inhalation REL for acute (i.e., short-term) effects from DPM is currently under study and OEHHA has not determined a value to be used to estimate acute DPM health impacts. Therefore, acute health impacts have not been estimated.

The maximum chronic Hazard Indices at the MEIs are shown in **Table 4, Summary of Maximum Modeled DPM Concentrations and Non-Cancer Health Impacts**. The results are based on the highest concentrations at any receptor point in each of the four modeled scenarios. Therefore, the results are considered to be conservative. The values are presented in scientific notation (e.g., 9.19E-03 is equal to 0.00919). As shown, the chronic Hazard Indices at the MEIs are less than the SCAQMD's significance threshold of 1 for non-cancer health impacts. This is considered a less than significant impact.

Table 4
Summary of Maximum Modeled DPM Concentrations and Non-Cancer Health Impacts

Receptor	Modeled DPM Concentration (micrograms/cubic meter)	Maximum Chronic Hazard Index	Significance Threshold	Exceeds Threshold?
Residential	9.19E-03	1.84E-03	1	NO
Workplace	1.06E-01	2.12E-02	1	NO
Student	6.95E-03	1.39E-03	1	NO

*Source: Impact Sciences, Inc. Detailed calculations are available in **Appendix A**.*

4.0 CONCLUSIONS

Based on this analysis, the health impacts resulting from the proposed project would not exceed the SCAQMD significance threshold of an incremental cancer risk of 10 in 1 million since the maximum anticipated cancer risk is 0.3 in 1 million at the MEI receptor. In addition, the chronic Hazard Indices for non-cancer health impacts are well below the significance threshold of 1 at all sensitive receptor points associated with each modeled source group. Based on this assessment, the health impacts associated with construction of the proposed project would result in an impact that is considered less than significant.

It should be noted that these health impacts were based on conservative (i.e., health protective) assumptions, as explained in this analysis, and do not fully take into account the reductions in diesel emissions from construction equipment. Sources of DPM are subject to increasingly stringent emission standards, many of which will take effect in upcoming years. Therefore, the emissions used to calculate cancer risks and non-cancer health impacts are conservative estimates.

For sensitive receptors, this health risk assessment is based on a lifetime exposure of 70 years. According to the OEHHA health risk assessment guidance manual, 30 years represents a "high-end" estimate of the length of time that a person resides in one location. Using the calculations in the OEHHA Guidance manual, the cancer risk associated with a 30-year exposure period would be 30/70 of the 70-year cancer risk. Accordingly, the cancer risk at the maximally impacted residential receptor would be 0.1 in 1 million for a 30-year exposure period.

APPENDIX A

HRA Model Calculations

Landmark Village
Maximum Individual Cancer Risk and Noncarcinogenic Hazards
AERMOD Model

Table HRA-1
Emissions Estimates

Period	Primary Activities		Source	Exhaust DPM Emissions (pounds/day)	Duration (days)	Total Emissions (pounds)
Landmark Village + Utility Corridor						
2010	Week 1-19	Grading	Off-Road Diesel	43.04	95	4,088.80
2010	Week 20-39	Grading	Off-Road Diesel	72.31	100	7,231.00
2010	Week 40-46	Grading, Building Construction, Paving	Off-Road Diesel	106.28	35	3,719.80
2010	Week 47-91	Building Construction, Paving	Off-Road Diesel	63.24	30	1,897.20
2011	Week 47-91	Building Construction, Paving	Off-Road Diesel	58.36	195	11,380.20
2011	Week 92	Building Construction, Paving	Off-Road Diesel	67.05	5	335.25
2011	Week 93-144	Building Construction, Paving	Off-Road Diesel	61.50	60	3,690.00
2012	Week 93-144	Building Construction, Paving	Off-Road Diesel	57.79	210	12,135.90
2012	Week 145-158	Building Construction, Paving	Off-Road Diesel	53.72	51	2,739.72
2013	Week 145-158	Building Construction, Paving	Off-Road Diesel	49.29	19	936.51
2013	Week 159-178	Building Construction	Off-Road Diesel	25.70	100	2,570.00
2013	Week 179-196	Building Construction	Off-Road Diesel	22.01	90	1,980.90
2013	Week 197-210	Building Construction	Off-Road Diesel	14.77	52	768.04
2014	Week 197-210	Building Construction	Off-Road Diesel	13.02	18	234.36
2014	Week 211-220	Building Construction	Off-Road Diesel	9.21	50	460.50
2014	Week 221-235	Building Construction	Off-Road Diesel	5.41	75	405.75
2015	Year 2015+	Building Construction	Off-Road Diesel	8.68	259	2,248.12
2016	Year 2015+	Building Construction	Off-Road Diesel	8.00	261	2,088.00
2017	Year 2015+	Building Construction	Off-Road Diesel	6.97	180	1,254.60
		Landmark Village Total Emissions (LVTE)				59,692.15
		Utility Corridor Total Emissions (UCTE)				472.50
		Landmark Village Maximum Annual Emissions (LVME)				16,687.90
		Utility Corridor Maximum Emissions (UCME)				248.90

Source: Diesel particulate matter emissions were obtained from URBEMIS2007 (on-site PM10 exhaust emissions).

Landmark Village
Maximum Individual Cancer Risk and Noncarcinogenic Hazards
AERMOD Model

Table HRA-2
Average Emissions (Grams per Second, 70-Year Period)

Source (number of sources)	EF (g/s)	TE (pounds)	Unit Conversions				
			Years	Days/year	Hours/day	Seconds/hour	Grams/pound
Landmark Village (25 Vol)	1.4718E-03	59,692.15	70	365	8	3,600	453.5924
Utility Corridor (Line)	2.9126E-04	472.50	70	365	8	3,600	453.5924

Equation: Emission Factor (EF) = TE ÷ 70 years ÷ 365 days/year ÷ 8 hours/day ÷ 3600 seconds/hour × 453.5924 grams/pound ÷ Number of Sources

Table HRA-3
Average Emissions (Grams per Second, 40-Year Period)

Source (number of sources)	EF (g/s)	TE (pounds)	Unit Conversions				
			Years	Days/year	Hours/day	Seconds/hour	Grams/pound
Landmark Village (25 Vol)	2.5757E-03	59,692.15	40	365	8	3,600	453.5924
Utility Corridor (Line)	5.0971E-04	472.50	40	365	8	3,600	453.5924

Equation: Emission Factor (EF) = TE ÷ 40 years ÷ 365 days/year ÷ 8 hours/day ÷ 3600 seconds/hour × 453.5924 grams/pound ÷ Number of Sources

Table HRA-4
Conversion to Grams per Second (Maximum Emissions for any 9-Year Period-Student Receptor)

Source (number of sources)	EF (g/s)	TE (pounds)	Unit Conversions				
			Years	Days/year	Hours/day	Seconds/hour	Grams/pound
Landmark Village (25 Vol)	1.1448E-02	59,692.15	9	365	8	3,600	453.5924
Utility Corridor (Line)	2.2654E-03	472.50	9	365	8	3,600	453.5924

Equation: Emission Factor (EF) = TE ÷ 9 year ÷ 365 days/year ÷ 8 hours/day ÷ 3600 seconds/hour × 453.5924 grams/pound ÷ Number of Sources

Table HRA-5
Conversion to Grams per Second (Maximum Emissions for any Year)

Source (number of sources)	EF (g/s)	ME (pounds)	Unit Conversions				
			Years	Days/year	Hours/day	Seconds/hour	Grams/pound
Landmark Village (1 Vol)	7.2008E-01	16,687.90	1	365	8	3,600	453.5924
Utility Corridor (13 Vol)	8.2616E-04	248.90	1	365	8	3,600	453.5924

Equation: Emission Factor (EF) = ME ÷ 1 year ÷ 365 days/year ÷ 8 hours/day ÷ 3600 seconds/hour × 453.5924 grams/pound ÷ Number of Sources

Landmark Village
Maximum Individual Cancer Risk and Noncarcinogenic Hazards
SCREEN3 Model

Table HRA-6
Maximum Individual Cancer Risk (MICR)

Receptor	Pollutant	CPF	$C_{AIR,ANN}$	DBR	A	EF	ED	AT	Mult Factor	MICR	Threshold	Over?
Residential - Elevated	DPM	1.10E+00	7.90E-04	302	1	350	70	25550	318.55	0.3	10	NO
Residential - Flat	DPM	1.10E+00	9.20E-04	302	1	350	70	25550	318.55	0.3	10	NO
Workplace - Elevated	DPM	1.10E+00	2.03E-03	149	1	245	40	25550	62.87	0.1	10	NO
Worker - Flat	DPM	1.10E+00	2.22E-03	149	1	245	40	25550	62.87	0.1	10	NO
Student - Elevated	DPM	1.10E+00	1.63E-03	581	1	180	9	25550	40.52	0.1	10	NO
Student - Flat	DPM	1.10E+00	2.04E-03	581	1	180	9	25550	40.52	0.1	10	NO

Exposure factors used to calculate cancer risk:

CPF	Cancer Potency Factor $(mg/kg\text{-}day)^{-1}$.
$C_{AIR,ANN}$	Annual concentration ($\mu g/m^3$). The US EPA recommends multiplying the SCREEN3 1-hour concentrations by 0.03 to determine annual average concentrations.
DBR	Daily breathing rate (L/kg (body weight) per day). DBR Sources: 1. California Air Resources Board and Office of Environmental Health Hazard Assessment, *Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk* , (2003). 2. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* , (2003). 3. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment, Integrated Risk Assessment Section, *Guidance for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(f): Guidance for Assessing Exposures and Health Risks at Existing and Proposed School Sites* , (2003).
A	Inhalation absorption factor (default = 1).
EF	Exposure frequency (days/year).
ED	Exposure duration (years).
AT	Average time period over which exposure is averaged in days (days).
Mult Factor	Multiplying Factor = $CPF \times (DBR \times A \times EF \times ED \times 10^{-6} / AT) \times 10^{6}$.

Landmark Village
Maximum Individual Cancer Risk and Noncarcinogenic Hazards
SCREEN3 Model

Table HRA-7
Maximum Non-carcinogenic (Chronic) Hazards / Toxicological Endpoints*

Source Group	Pollutant	CREL	$C_{AIR,ANN}$	HQ	RESP	CNS/PNS	CV/BL	IMMUN	KIDN	GI/LV	REPRO	EYES	Threshold	Over?
Residential - Elevated	DPM	5.00E+00	7.23E-03	1.45E-03	1.45E-03	-	-	-	-	-	-	-	1	NO
Residential - Flat	DPM	5.00E+00	9.19E-03	1.84E-03	1.84E-03	-	-	-	-	-	-	-	1	NO
Workplace - Elevated	DPM	5.00E+00	1.05E-01	2.10E-02	2.10E-02	-	-	-	-	-	-	-	1	NO
Worker - Flat	DPM	5.00E+00	1.06E-01	2.12E-02	2.12E-02	-	-	-	-	-	-	-	1	NO
Student - Elevated	DPM	5.00E+00	6.03E-03	1.21E-03	1.21E-03	-	-	-	-	-	-	-	1	NO
Student - Flat	DPM	5.00E+00	6.95E-03	1.39E-03	1.39E-03	-	-	-	-	-	-	-	1	NO

Where:

CREL	Chronic Reference Exposure Level
HQ	Hazard Quotient

* Key to Toxicological Endpoints

RESP	Respiratory System.
CNS/PNS	Central/Peripheral Nervous System.
CV/BL	Cardiovascular/Blood System.
IMMUN	Immune System.
KIDN	Kidney.
GI/LV	Gastrointestinal System/Liver.
REPRO	Reproductive System.
EYES	Eye irritation and/or other effects.

APPENDIX B

AERMOD Dispersion Modeling Files
(Available electronically upon request)

URBEMIS2007 Calculations, Construction

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk001-019.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
2010 TOTALS (lbs/day mitigated)	117.27	1,068.47	475.33	0.13	1,877.30	46.32	1,923.62	392.12	42.61	434.73

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	**1,068.47**	**475.33**	**0.13**	**13,276.02**	**46.32**	**13,322.34**	**2,772.62**	**42.61**	**2,815.23**
Mass Grading 01/04/2010-05/14/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Phase Assumptions

Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 2.51
Fugitive Dust Level of Detail: Low
Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day
On Road Truck Travel (VMT): 2521.74
Off-Road Equipment:
10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day
1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

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Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	**1,068.47**	**475.33**	**0.13**	1,877.30	**46.32**	1,923.62	392.12	**42.61**	434.73
Mass Grading 01/04/2010-05/14/2010	117.27	1,068.47	475.33	0.13	1,877.30	46.32	1,923.62	392.12	42.61	434.73
Mass Grading Dust	0.00	0.00	0.00	0.00	1,876.83	0.00	1,876.83	391.96	0.00	391.96
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:
PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:
PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:
PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:
PM10: 61% PM25: 61%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk001-019.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
2010 TOTALS (lbs/day mitigated)	117.27	1,068.47	475.33	0.13	1,877.30	46.32	1,923.62	392.12	42.61	434.73

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	**1,068.47**	**475.33**	**0.13**	**13,276.02**	**46.32**	**13,322.34**	**2,772.62**	**42.61**	**2,815.23**
Mass Grading 01/04/2010-05/14/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Phase Assumptions

Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 2.51

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day

On Road Truck Travel (VMT): 2521.74

Off-Road Equipment:

10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	**1,068.47**	**475.33**	**0.13**	1,877.30	**46.32**	1,923.62	392.12	**42.61**	434.73
Mass Grading 01/04/2010-05/14/2010	117.27	1,068.47	475.33	0.13	1,877.30	46.32	1,923.62	392.12	42.61	434.73
Mass Grading Dust	0.00	0.00	0.00	0.00	1,876.83	0.00	1,876.83	391.96	0.00	391.96
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

5/27/2010 05:31:17 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk020-039.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	191.69	1,700.58	764.59	0.17	13,275.49	76.14	13,351.63	2,772.54	70.04	2,842.57
2010 TOTALS (lbs/day mitigated)	191.69	1,700.58	764.59	0.17	2,355.75	76.14	2,431.89	492.06	70.04	562.10

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	**1,700.58**	**764.59**	**0.17**	**13,275.49**	**76.14**	**13,351.63**	**2,772.54**	**70.04**	**2,842.57**
Asphalt 05/17/2010-10/01/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	1,068.47	475.33	0.13	13,275.32	46.32	13,321.64	2,772.48	42.61	2,815.09
Mass Grading Dust	0.00	0.00	0.00	0.00	13,274.84	0.00	13,274.84	2,772.32	0.00	2,772.32
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Phase Assumptions

Phase: Fine Grading 5/17/2010 - 10/1/2010 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.14
Off-Road Equipment:

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Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 2.44
Fugitive Dust Level of Detail: Low
Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day
On Road Truck Travel (VMT): 2521.74
Off-Road Equipment:
10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day
1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

Phase: Paving 5/17/2010 - 10/1/2010 - Asphalt Paving
Acres to be Paved: 38.37
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	**1,700.58**	**764.59**	**0.17**	2,355.75	**76.14**	2,431.89	492.06	**70.04**	562.10
Asphalt 05/17/2010-10/01/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	1,068.47	475.33	0.13	2,355.58	46.32	2,401.90	492.00	42.61	534.61
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.10	0.00	2,355.10	491.84	0.00	491.84
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk020-039.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	191.69	1,700.58	764.59	0.17	13,275.49	76.14	13,351.63	2,772.54	70.04	2,842.57
2010 TOTALS (lbs/day mitigated)	191.69	1,700.58	764.59	0.17	2,355.75	76.14	2,431.89	492.06	70.04	562.10

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	**1,700.58**	**764.59**	**0.17**	**13,275.49**	**76.14**	**13,351.63**	**2,772.54**	**70.04**	**2,842.57**
Asphalt 05/17/2010-10/01/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	1,068.47	475.33	0.13	13,275.32	46.32	13,321.64	2,772.48	42.61	2,815.09
Mass Grading Dust	0.00	0.00	0.00	0.00	13,274.84	0.00	13,274.84	2,772.32	0.00	2,772.32
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Phase Assumptions

Phase: Fine Grading 5/17/2010 - 10/1/2010 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
  0 lbs per acre-day
On Road Truck Travel (VMT): 232.14
Off-Road Equipment:

Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 2.44
Fugitive Dust Level of Detail: Low
  Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day
On Road Truck Travel (VMT): 2521.74
Off-Road Equipment:
10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day
1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

Phase: Paving 5/17/2010 - 10/1/2010 - Asphalt Paving
Acres to be Paved: 38.37
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	**1,700.58**	**764.59**	**0.17**	2,355.75	**76.14**	2,431.89	492.06	**70.04**	562.10
Asphalt 05/17/2010-10/01/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	1,068.47	475.33	0.13	2,355.58	46.32	2,401.90	492.00	42.61	534.61
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.10	0.00	2,355.10	491.84	0.00	491.84
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk040-046.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	303.71	2,428.89	1,058.30	0.18	13,276.26	110.24	13,386.50	2,772.71	101.41	2,874.12
2010 TOTALS (lbs/day mitigated)	303.71	2,428.89	1,058.30	0.18	2,355.95	110.24	2,466.19	492.11	101.41	593.52

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010 Active Days: 35	**303.71**	**2,428.89**	**1,058.30**	**0.18**	**13,276.26**	**110.24**	**13,386.50**	**2,772.71**	**101.41**	**2,874.12**
Asphalt 10/04/2010-11/19/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	728.25	292.63	0.02	0.07	34.10	34.16	0.02	31.37	31.39
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 10/04/2010-11/19/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Phase Assumptions

Phase: Fine Grading 10/4/2010 - 11/19/2010 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
  0 lbs per acre-day
On Road Truck Travel (VMT): 232.15
Off-Road Equipment:

Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 2.51
Fugitive Dust Level of Detail: Low
  Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day
On Road Truck Travel (VMT): 2521.74
Off-Road Equipment:
10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day
1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

Phase: Paving 10/4/2010 - 11/19/2010 - Asphalt Paving
Acres to be Paved: 13.43
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Building Construction 10/4/2010 - 11/19/2010 - Building Construction

Off-Road Equipment:

9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/4/2010 - 11/19/2010 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010 Active Days: 35	**303.71**	**2,428.89**	**1,058.30**	**0.18**	2,355.95	**110.24**	2,466.19	492.11	**101.41**	593.52
Asphalt 10/04/2010-11/19/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	728.25	292.63	0.02	0.07	34.10	34.16	0.02	31.37	31.39
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Mass Grading 10/04/2010-11/19/2010	117.27	1,068.47	475.33	0.13	2,355.70	46.32	2,402.02	492.02	42.61	534.63
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.23	0.00	2,355.23	491.87	0.00	491.87
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk040-046.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	303.71	2,428.89	1,058.30	0.18	13,276.26	110.24	13,386.50	2,772.71	101.41	2,874.12
2010 TOTALS (lbs/day mitigated)	303.71	2,428.89	1,058.30	0.18	2,355.95	110.24	2,466.19	492.11	101.41	593.52

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010	**303.71**	**2,428.89**	**1,058.30**	**0.18**	**13,276.26**	**110.24**	**13,386.50**	**2,772.71**	**101.41**	**2,874.12**
Active Days: 35										
Asphalt 10/04/2010-11/19/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	728.25	292.63	0.02	0.07	34.10	34.16	0.02	31.37	31.39
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 10/04/2010-11/19/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Phase Assumptions

Phase: Fine Grading 10/4/2010 - 11/19/2010 - Surrogate for Paving On-Road Trucks

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 232.15

Off-Road Equipment:

Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 2.51

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day

On Road Truck Travel (VMT): 2521.74

Off-Road Equipment:

10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

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Phase: Paving 10/4/2010 - 11/19/2010 - Asphalt Paving
Acres to be Paved: 13.43
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/4/2010 - 11/19/2010 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/4/2010 - 11/19/2010 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010 Active Days: 35	**303.71**	**2,428.89**	**1,058.30**	**0.18**	2,355.95	**110.24**	2,466.19	492.11	**101.41**	593.52
Asphalt 10/04/2010-11/19/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	728.25	292.63	0.02	0.07	34.10	34.16	0.02	31.37	31.39
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 10/04/2010-11/19/2010	117.27	1,068.47	475.33	0.13	2,355.70	46.32	2,402.02	492.02	42.61	534.63
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.23	0.00	2,355.23	491.87	0.00	491.87
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk047-091.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	188.97	1,376.08	642.89	0.14	0.61	64.61	65.22	0.22	59.42	59.63
2011 TOTALS (lbs/day unmitigated)	177.97	1,273.29	612.89	0.14	0.61	59.61	60.22	0.22	54.82	55.03

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 11/22/2010-12/31/2010 Active Days: 30	**188.97**	**1,376.08**	**642.89**	**0.14**	**0.61**	**64.61**	**65.22**	**0.22**	**59.42**	**59.63**
Asphalt 11/22/2010-09/30/2011	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	83.00	743.90	352.56	0.10	0.43	34.79	35.22	0.15	31.99	32.14
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	1.31	15.06	11.69	0.03	0.10	0.63	0.73	0.03	0.58	0.61
Building Worker Trips	1.87	3.50	59.36	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.55	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/3/2011-9/30/2011 Active Days: 195	177.97	1,273.29	612.89	**0.14**	**0.61**	59.61	60.22	**0.22**	54.82	55.03
Asphalt 11/22/2010-09/30/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Building 11/22/2010-09/30/2011	76.63	685.87	336.08	0.10	0.43	32.15	32.59	0.15	29.57	29.72
Building Off Road Diesel	73.72	669.10	270.00	0.00	0.00	31.40	31.40	0.00	28.89	28.89
Building Vendor Trips	1.20	13.57	10.84	0.03	0.10	0.56	0.66	0.03	0.51	0.55
Building Worker Trips	1.70	3.20	55.25	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.54	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 11/22/2010 - 9/30/2011 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.16
Off-Road Equipment:

Phase: Paving 11/22/2010 - 9/30/2011 - Asphalt Paving
Acres to be Paved: 86.34
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Building Construction 11/22/2010 - 9/30/2011 - Building Construction

Off-Road Equipment:

9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 11/22/2010 - 9/30/2011 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk047-091.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	188.97	1,376.08	642.89	0.14	0.61	64.61	65.22	0.22	59.42	59.63
2011 TOTALS (lbs/day unmitigated)	177.97	1,273.29	612.89	0.14	0.61	59.61	60.22	0.22	54.82	55.03

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 11/22/2010-12/31/2010	**188.97**	**1,376.08**	**642.89**	**0.14**	**0.61**	**64.61**	**65.22**	**0.22**	**59.42**	**59.63**
Active Days: 30										
Asphalt 11/22/2010-09/30/2011	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	83.00	743.90	352.56	0.10	0.43	34.79	35.22	0.15	31.99	32.14
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	1.31	15.06	11.69	0.03	0.10	0.63	0.73	0.03	0.58	0.61
Building Worker Trips	1.87	3.50	59.36	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.55	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Fine Grading 11/22/2010-09/30/2011	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/3/2011-9/30/2011 Active Days: 195	177.97	1,273.29	612.89	**0.14**	**0.61**	59.61	60.22	**0.22**	54.82	55.03
Asphalt 11/22/2010-09/30/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	76.63	685.87	336.08	0.10	0.43	32.15	32.59	0.15	29.57	29.72
Building Off Road Diesel	73.72	669.10	270.00	0.00	0.00	31.40	31.40	0.00	28.89	28.89
Building Vendor Trips	1.20	13.57	10.84	0.03	0.10	0.56	0.66	0.03	0.51	0.55
Building Worker Trips	1.70	3.20	55.25	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.54	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 11/22/2010 - 9/30/2011 - Surrogate for Paving On-Road Trucks

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 232.16

Off-Road Equipment:

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Phase: Paving 11/22/2010 - 9/30/2011 - Asphalt Paving
Acres to be Paved: 86.34
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 11/22/2010 - 9/30/2011 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 11/22/2010 - 9/30/2011 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk092.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	196.86	1,435.16	622.94	0.05	0.19	67.56	67.75	0.07	62.15	62.21

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/3/2011-10/7/2011 Active Days: 5	**196.86**	**1,435.16**	**622.94**	**0.05**	**0.19**	**67.56**	**67.75**	**0.07**	**62.15**	**62.21**
Asphalt 10/03/2011-10/07/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/03/2011-10/07/2011	95.09	847.74	346.13	0.00	0.01	40.10	40.11	0.00	36.90	36.90
Building Off Road Diesel	95.02	847.36	344.65	0.00	0.00	40.09	40.09	0.00	36.88	36.88
Building Vendor Trips	0.03	0.30	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.07	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Coating 10/03/2011-10/07/2011	31.97	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/03/2011-10/07/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/3/2011 - 10/7/2011 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.32
Off-Road Equipment:

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Phase: Paving 10/3/2011 - 10/7/2011 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/3/2011 - 10/7/2011 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
13 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
76 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
5 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
13 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
15 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
11 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/3/2011 - 10/7/2011 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk092.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	196.86	1,435.16	622.94	0.05	0.19	67.56	67.75	0.07	62.15	62.21

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/3/2011-10/7/2011 Active Days: 5	**196.86**	**1,435.16**	**622.94**	**0.05**	**0.19**	**67.56**	**67.75**	**0.07**	**62.15**	**62.21**
Asphalt 10/03/2011-10/07/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/03/2011-10/07/2011	95.09	847.74	346.13	0.00	0.01	40.10	40.11	0.00	36.90	36.90
Building Off Road Diesel	95.02	847.36	344.65	0.00	0.00	40.09	40.09	0.00	36.88	36.88
Building Vendor Trips	0.03	0.30	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.07	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Coating 10/03/2011-10/07/2011	31.97	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/03/2011-10/07/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Fine Grading 10/3/2011 - 10/7/2011 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
  0 lbs per acre-day
On Road Truck Travel (VMT): 232.32
Off-Road Equipment:

Phase: Paving 10/3/2011 - 10/7/2011 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/3/2011 - 10/7/2011 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
13 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
76 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
5 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
13 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
15 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
11 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 10/3/2011 - 10/7/2011 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk093-144.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	177.84	1,326.41	642.49	0.14	0.60	62.41	63.01	0.21	57.39	57.61
2012 TOTALS (lbs/day unmitigated)	170.22	1,228.45	616.13	0.14	0.60	58.64	59.23	0.21	53.92	54.13

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/10/2011-12/30/2011 Active Days: 60	**177.84**	**1,326.41**	**642.49**	**0.14**	**0.60**	**62.41**	**63.01**	**0.21**	**57.39**	**57.61**
Asphalt 10/10/2011-10/19/2012	68.00	577.06	271.85	0.03	0.12	27.04	27.16	0.04	24.87	24.91
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	84.62	749.18	369.70	0.11	0.47	35.37	35.83	0.17	32.52	32.69
Building Off Road Diesel	81.44	730.64	297.87	0.00	0.00	34.54	34.54	0.00	31.77	31.77
Building Vendor Trips	1.34	15.06	12.00	0.03	0.11	0.62	0.73	0.04	0.57	0.61
Building Worker Trips	1.84	3.47	59.82	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.22	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2012-10/19/2012 Active Days: 210	170.22	1,228.45	616.13	**0.14**	**0.60**	58.64	59.23	**0.21**	53.92	54.13
Asphalt 10/10/2011-10/19/2012	64.77	536.47	260.69	0.03	0.12	25.20	25.32	0.04	23.18	23.22
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Building 10/10/2011-10/19/2012	80.23	691.83	354.57	0.11	0.47	33.43	33.90	0.17	30.74	30.91
Building Off Road Diesel	77.33	675.20	287.82	0.00	0.00	32.67	32.67	0.00	30.06	30.06
Building Vendor Trips	1.22	13.45	11.10	0.03	0.11	0.55	0.66	0.04	0.50	0.54
Building Worker Trips	1.68	3.18	55.65	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.21	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/10/2011 - 10/19/2012 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
  0 lbs per acre-day
On Road Truck Travel (VMT): 4.3
Off-Road Equipment:

Phase: Paving 10/10/2011 - 10/19/2012 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Building Construction 10/10/2011 - 10/19/2012 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

9 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

4 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

12 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/10/2011 - 10/19/2012 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk093-144.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	177.84	1,326.41	642.49	0.14	0.60	62.41	63.01	0.21	57.39	57.61
2012 TOTALS (lbs/day unmitigated)	170.22	1,228.45	616.13	0.14	0.60	58.64	59.23	0.21	53.92	54.13

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/10/2011-12/30/2011	**177.84**	**1,326.41**	**642.49**	**0.14**	**0.60**	**62.41**	**63.01**	**0.21**	**57.39**	**57.61**
Active Days: 60										
Asphalt 10/10/2011-10/19/2012	68.00	577.06	271.85	0.03	0.12	27.04	27.16	0.04	24.87	24.91
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	84.62	749.18	369.70	0.11	0.47	35.37	35.83	0.17	32.52	32.69
Building Off Road Diesel	81.44	730.64	297.87	0.00	0.00	34.54	34.54	0.00	31.77	31.77
Building Vendor Trips	1.34	15.06	12.00	0.03	0.11	0.62	0.73	0.04	0.57	0.61
Building Worker Trips	1.84	3.47	59.82	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.22	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Fine Grading 10/10/2011-10/19/2012	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2012-10/19/2012 Active Days: 210	170.22	1,228.45	616.13	**0.14**	**0.60**	58.64	59.23	**0.21**	53.92	54.13
Asphalt 10/10/2011-10/19/2012	64.77	536.47	260.69	0.03	0.12	25.20	25.32	0.04	23.18	23.22
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	80.23	691.83	354.57	0.11	0.47	33.43	33.90	0.17	30.74	30.91
Building Off Road Diesel	77.33	675.20	287.82	0.00	0.00	32.67	32.67	0.00	30.06	30.06
Building Vendor Trips	1.22	13.45	11.10	0.03	0.11	0.55	0.66	0.04	0.50	0.54
Building Worker Trips	1.68	3.18	55.65	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.21	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/10/2011 - 10/19/2012 - Surrogate for Paving On-Road Trucks

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 4.3

Off-Road Equipment:

5/27/2010 05:59:33 PM

Phase: Paving 10/10/2011 - 10/19/2012 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/10/2011 - 10/19/2012 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
9 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
4 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
12 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/10/2011 - 10/19/2012 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk145-158.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2012 TOTALS (lbs/day unmitigated)	160.25	1,139.61	534.31	0.07	0.31	54.37	54.67	0.11	50.01	50.11
2013 TOTALS (lbs/day unmitigated)	153.53	1,056.37	518.33	0.07	0.31	49.87	50.18	0.11	45.87	45.98

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/22/2012-12/31/2012 Active Days: 51	**160.25**	**1,139.61**	**534.31**	**0.07**	**0.31**	**54.37**	**54.67**	**0.11**	**50.01**	**50.11**
Asphalt 10/22/2012-01/25/2013	66.03	539.84	261.99	0.03	0.14	25.33	25.47	0.05	23.30	23.35
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.28	3.44	1.33	0.01	0.02	0.14	0.16	0.01	0.12	0.13
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	67.59	593.92	269.21	0.03	0.13	28.81	28.93	0.04	26.50	26.54
Building Off Road Diesel	66.80	589.44	251.22	0.00	0.00	28.60	28.60	0.00	26.31	26.31
Building Vendor Trips	0.33	3.62	2.99	0.01	0.03	0.15	0.18	0.01	0.14	0.15
Building Worker Trips	0.45	0.86	15.00	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.18	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2013-1/25/2013 Active Days: 19	153.53	1,056.37	518.33	**0.07**	**0.31**	49.87	50.18	**0.11**	45.87	45.98
Asphalt 10/22/2012-01/25/2013	63.16	502.13	253.10	0.03	0.14	23.78	23.92	0.05	21.87	21.92
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	61.39	498.12	234.42	0.00	0.00	23.59	23.59	0.00	21.71	21.71
Paving On Road Diesel	0.25	3.03	1.18	0.01	0.02	0.12	0.14	0.01	0.11	0.11
Paving Worker Trips	0.52	0.98	17.50	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Building 10/22/2012-01/25/2013	63.77	549.08	262.44	0.03	0.13	25.89	26.02	0.04	23.81	23.86
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.30	3.20	2.75	0.01	0.03	0.13	0.16	0.01	0.12	0.13
Building Worker Trips	0.41	0.78	13.94	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.17	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/22/2012 - 1/25/2013 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.15
Off-Road Equipment:

Phase: Paving 10/22/2012 - 1/25/2013 - Asphalt Paving
Acres to be Paved: 26.86
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Building Construction 10/22/2012 - 1/25/2013 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/22/2012 - 1/25/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk145-158.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2012 TOTALS (lbs/day unmitigated)	160.25	1,139.61	534.31	0.07	0.31	54.37	54.67	0.11	50.01	50.11
2013 TOTALS (lbs/day unmitigated)	153.53	1,056.37	518.33	0.07	0.31	49.87	50.18	0.11	45.87	45.98

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/22/2012-12/31/2012	**160.25**	**1,139.61**	**534.31**	**0.07**	**0.31**	**54.37**	**54.67**	**0.11**	**50.01**	**50.11**
Active Days: 51										
Asphalt 10/22/2012-01/25/2013	66.03	539.84	261.99	0.03	0.14	25.33	25.47	0.05	23.30	23.35
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.28	3.44	1.33	0.01	0.02	0.14	0.16	0.01	0.12	0.13
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	67.59	593.92	269.21	0.03	0.13	28.81	28.93	0.04	26.50	26.54
Building Off Road Diesel	66.80	589.44	251.22	0.00	0.00	28.60	28.60	0.00	26.31	26.31
Building Vendor Trips	0.33	3.62	2.99	0.01	0.03	0.15	0.18	0.01	0.14	0.15
Building Worker Trips	0.45	0.86	15.00	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.18	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Fine Grading 10/22/2012-01/25/2013	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2013-1/25/2013 Active Days: 19	153.53	1,056.37	518.33	**0.07**	**0.31**	49.87	50.18	**0.11**	45.87	45.98
Asphalt 10/22/2012-01/25/2013	63.16	502.13	253.10	0.03	0.14	23.78	23.92	0.05	21.87	21.92
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	61.39	498.12	234.42	0.00	0.00	23.59	23.59	0.00	21.71	21.71
Paving On Road Diesel	0.25	3.03	1.18	0.01	0.02	0.12	0.14	0.01	0.11	0.11
Paving Worker Trips	0.52	0.98	17.50	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	63.77	549.08	262.44	0.03	0.13	25.89	26.02	0.04	23.81	23.86
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.30	3.20	2.75	0.01	0.03	0.13	0.16	0.01	0.12	0.13
Building Worker Trips	0.41	0.78	13.94	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.17	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/22/2012 - 1/25/2013 - Surrogate for Paving On-Road Trucks

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 232.15

Off-Road Equipment:

5/27/2010 06:05:01 PM

Phase: Paving 10/22/2012 - 1/25/2013 - Asphalt Paving
Acres to be Paved: 26.86
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/22/2012 - 1/25/2013 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/22/2012 - 1/25/2013 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk159-178.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	91.64	551.13	271.68	0.05	0.20	25.99	26.18	0.07	23.90	23.97

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/28/2013-6/14/2013 Active Days: 100	**91.64**	**551.13**	**271.68**	**0.05**	**0.20**	**25.99**	**26.18**	**0.07**	**23.90**	**23.97**
Building 01/28/2013-06/14/2013	64.13	551.08	270.83	0.04	0.19	25.98	26.17	0.07	23.90	23.96
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.45	4.81	4.13	0.01	0.04	0.20	0.24	0.01	0.18	0.19
Building Worker Trips	0.62	1.17	20.94	0.03	0.15	0.08	0.23	0.05	0.07	0.12
Coating 01/28/2013-06/14/2013	27.51	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	27.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01

Phase Assumptions

Phase: Building Construction 1/28/2013 - 6/14/2013 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

5/27/2010 06:16:03 PM

Phase: Architectural Coating 1/28/2013 - 6/14/2013 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk159-178.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	91.64	551.13	271.68	0.05	0.20	25.99	26.18	0.07	23.90	23.97

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/28/2013-6/14/2013 Active Days: 100	**91.64**	**551.13**	**271.68**	**0.05**	**0.20**	**25.99**	**26.18**	**0.07**	**23.90**	**23.97**
Building 01/28/2013-06/14/2013	64.13	551.08	270.83	0.04	0.19	25.98	26.17	0.07	23.90	23.96
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.45	4.81	4.13	0.01	0.04	0.20	0.24	0.01	0.18	0.19
Building Worker Trips	0.62	1.17	20.94	0.03	0.15	0.08	0.23	0.05	0.07	0.12
Coating 01/28/2013-06/14/2013	27.51	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	27.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Phase Assumptions

Phase: Building Construction 1/28/2013 - 6/14/2013 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 1/28/2013 - 6/14/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk179-196.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	80.61	476.87	233.03	0.04	0.17	22.25	22.42	0.06	20.47	20.53

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 6/17/2013-10/18/2013 Active Days: 90	**80.61**	**476.87**	**233.03**	**0.04**	**0.17**	**22.25**	**22.42**	**0.06**	**20.47**	**20.53**
Building 06/17/2013-10/18/2013	54.66	476.82	232.22	0.04	0.16	22.25	22.41	0.06	20.46	20.52
Building Off Road Diesel	53.75	471.70	210.80	0.00	0.00	22.01	22.01	0.00	20.25	20.25
Building Vendor Trips	0.38	4.11	3.53	0.01	0.04	0.17	0.20	0.01	0.15	0.17
Building Worker Trips	0.53	1.00	17.88	0.03	0.12	0.07	0.20	0.04	0.06	0.11
Coating 06/17/2013-10/18/2013	25.95	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 6/17/2013 - 10/18/2013 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
64 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
10 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
11 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
7 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 6/17/2013 - 10/18/2013 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk179-196.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	80.61	476.87	233.03	0.04	0.17	22.25	22.42	0.06	20.47	20.53

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 6/17/2013-10/18/2013 Active Days: 90	**80.61**	**476.87**	**233.03**	**0.04**	**0.17**	**22.25**	**22.42**	**0.06**	**20.47**	**20.53**
Building 06/17/2013-10/18/2013	54.66	476.82	232.22	0.04	0.16	22.25	22.41	0.06	20.46	20.52
Building Off Road Diesel	53.75	471.70	210.80	0.00	0.00	22.01	22.01	0.00	20.25	20.25
Building Vendor Trips	0.38	4.11	3.53	0.01	0.04	0.17	0.20	0.01	0.15	0.17
Building Worker Trips	0.53	1.00	17.88	0.03	0.12	0.07	0.20	0.04	0.06	0.11
Coating 06/17/2013-10/18/2013	25.95	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 6/17/2013 - 10/18/2013 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

64 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

10 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

11 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

7 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 6/17/2013 - 10/18/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk197-210.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	53.65	323.81	151.89	0.02	0.08	14.90	14.98	0.03	13.70	13.73
2014 TOTALS (lbs/day unmitigated)	51.53	292.33	147.19	0.02	0.08	13.14	13.22	0.03	12.08	12.11

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/21/2013-12/31/2013 Active Days: 52	**53.65**	**323.81**	**151.89**	**0.02**	**0.08**	**14.90**	**14.98**	**0.03**	**13.70**	**13.73**
Building 10/21/2013-01/24/2014	36.95	323.79	151.43	0.02	0.08	14.89	14.97	0.03	13.70	13.73
Building Off Road Diesel	36.50	321.07	141.33	0.00	0.00	14.77	14.77	0.00	13.59	13.59
Building Vendor Trips	0.21	2.26	1.94	0.01	0.02	0.09	0.11	0.01	0.08	0.09
Building Worker Trips	0.24	0.46	8.16	0.01	0.06	0.03	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 1/1/2014-1/24/2014 Active Days: 18	51.53	292.33	147.19	**0.02**	**0.08**	13.14	13.22	**0.03**	12.08	12.11
Building 10/21/2013-01/24/2014	34.84	292.30	146.76	0.02	0.08	13.14	13.21	0.03	12.08	12.11
Building Off Road Diesel	34.43	289.90	137.36	0.00	0.00	13.02	13.02	0.00	11.98	11.98
Building Vendor Trips	0.19	1.98	1.79	0.01	0.02	0.08	0.10	0.01	0.07	0.08
Building Worker Trips	0.22	0.42	7.60	0.01	0.06	0.04	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 10/21/2013 - 1/24/2014 - Building Construction
Off-Road Equipment:
5 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
44 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
7 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
4 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
6 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
4 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/21/2013 - 1/24/2014 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk197-210.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	53.65	323.81	151.89	0.02	0.08	14.90	14.98	0.03	13.70	13.73
2014 TOTALS (lbs/day unmitigated)	51.53	292.33	147.19	0.02	0.08	13.14	13.22	0.03	12.08	12.11

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/21/2013-12/31/2013 Active Days: 52	**53.65**	**323.81**	**151.89**	**0.02**	**0.08**	**14.90**	**14.98**	**0.03**	**13.70**	**13.73**
Building 10/21/2013-01/24/2014	36.95	323.79	151.43	0.02	0.08	14.89	14.97	0.03	13.70	13.73
Building Off Road Diesel	36.50	321.07	141.33	0.00	0.00	14.77	14.77	0.00	13.59	13.59
Building Vendor Trips	0.21	2.26	1.94	0.01	0.02	0.09	0.11	0.01	0.08	0.09
Building Worker Trips	0.24	0.46	8.16	0.01	0.06	0.03	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 1/1/2014-1/24/2014 Active Days: 18	51.53	292.33	147.19	**0.02**	**0.08**	13.14	13.22	**0.03**	12.08	12.11
Building 10/21/2013-01/24/2014	34.84	292.30	146.76	0.02	0.08	13.14	13.21	0.03	12.08	12.11
Building Off Road Diesel	34.43	289.90	137.36	0.00	0.00	13.02	13.02	0.00	11.98	11.98
Building Vendor Trips	0.19	1.98	1.79	0.01	0.02	0.08	0.10	0.01	0.07	0.08
Building Worker Trips	0.22	0.42	7.60	0.01	0.06	0.04	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 10/21/2013 - 1/24/2014 - Building Construction

Off-Road Equipment:

5 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

44 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

7 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

4 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

6 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

4 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/21/2013 - 1/24/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk211-220.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	35.75	209.78	101.08	0.01	0.03	9.25	9.28	0.01	8.51	8.52

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/27/2014-4/4/2014 Active Days: 50	**35.75**	**209.78**	**101.08**	**0.01**	**0.03**	**9.25**	**9.28**	**0.01**	**8.51**	**8.52**
Building 01/27/2014-04/04/2014	24.92	209.77	100.88	0.01	0.03	9.25	9.28	0.01	8.51	8.52
Building Off Road Diesel	24.79	209.01	97.71	0.00	0.00	9.21	9.21	0.00	8.48	8.48
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.08	0.14	2.61	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 01/27/2014-04/04/2014	10.82	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 1/27/2014 - 4/4/2014 - Building Construction
Off-Road Equipment:
3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
32 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
5 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
3 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
2 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 1/27/2014 - 4/4/2014 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

5/27/2010 06:39:16 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk211-220.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	35.75	209.78	101.08	0.01	0.03	9.25	9.28	0.01	8.51	8.52

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/27/2014-4/4/2014 Active Days: 50	**35.75**	**209.78**	**101.08**	**0.01**	**0.03**	**9.25**	**9.28**	**0.01**	**8.51**	**8.52**
Building 01/27/2014-04/04/2014	24.92	209.77	100.88	0.01	0.03	9.25	9.28	0.01	8.51	8.52
Building Off Road Diesel	24.79	209.01	97.71	0.00	0.00	9.21	9.21	0.00	8.48	8.48
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.08	0.14	2.61	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 01/27/2014-04/04/2014	10.82	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5/27/2010 06:39:16 PM

Phase Assumptions

Phase: Building Construction 1/27/2014 - 4/4/2014 - Building Construction

Off-Road Equipment:

3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

32 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

5 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

3 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

2 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 1/27/2014 - 4/4/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

5/27/2010 06:42:57 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk221-235.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	22.02	128.35	59.47	0.00	0.01	5.42	5.43	0.00	4.98	4.99

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 4/7/2014-7/18/2014 Active Days: 75	**22.02**	**128.35**	**59.47**	**0.00**	**0.01**	**5.42**	**5.43**	**0.00**	**4.98**	**4.99**
Building 04/07/2014-07/18/2014	15.20	128.35	59.41	0.00	0.01	5.42	5.43	0.00	4.98	4.99
Building Off Road Diesel	15.15	128.12	58.05	0.00	0.00	5.41	5.41	0.00	4.97	4.97
Building Vendor Trips	0.02	0.16	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.03	0.07	1.20	0.00	0.01	0.01	0.01	0.00	0.00	0.01
Coating 04/07/2014-07/18/2014	6.82	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	6.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 4/7/2014 - 7/18/2014 - Building Construction
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
20 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
3 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

5/27/2010 06:42:57 PM

Phase: Architectural Coating 4/7/2014 - 7/18/2014 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

5/27/2010 06:43:18 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction wk221-235.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	22.02	128.35	59.47	0.00	0.01	5.42	5.43	0.00	4.98	4.99

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 4/7/2014-7/18/2014 Active Days: 75	**22.02**	**128.35**	**59.47**	**0.00**	**0.01**	**5.42**	**5.43**	**0.00**	**4.98**	**4.99**
Building 04/07/2014-07/18/2014	15.20	128.35	59.41	0.00	0.01	5.42	5.43	0.00	4.98	4.99
Building Off Road Diesel	15.15	128.12	58.05	0.00	0.00	5.41	5.41	0.00	4.97	4.97
Building Vendor Trips	0.02	0.16	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.03	0.07	1.20	0.00	0.01	0.01	0.01	0.00	0.00	0.01
Coating 04/07/2014-07/18/2014	6.82	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	6.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5/27/2010 06:43:18 PM

Phase Assumptions

Phase: Building Construction 4/7/2014 - 7/18/2014 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

20 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

3 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/7/2014 - 7/18/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

5/27/2010 06:55:09 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction 2015.urb924
Project Name: Landmark Village - Construction
Project Location: South Coast AQMD
On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:
CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2015 TOTALS (lbs/day unmitigated)	50.59	220.62	143.93	0.08	0.33	9.02	9.35	0.12	8.29	8.40
2016 TOTALS (lbs/day unmitigated)	48.87	195.79	139.56	0.08	0.33	8.33	8.66	0.12	7.65	7.77
2017 TOTALS (lbs/day unmitigated)	47.22	174.59	135.80	0.08	0.33	7.28	7.61	0.12	6.68	6.80

Construction Unmitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/5/2015-12/31/2015 Active Days: 259	**50.59**	**220.62**	**143.93**	0.08	0.33	**9.02**	**9.35**	0.12	**8.29**	**8.40**
Building 01/05/2015-09/08/2017	28.30	220.61	143.74	0.08	0.33	9.02	9.35	0.12	8.29	8.40
Building Off Road Diesel	26.90	214.46	105.32	0.00	0.00	8.68	8.68	0.00	7.98	7.98
Building Vendor Trips	0.43	4.29	4.33	0.01	0.05	0.17	0.23	0.02	0.16	0.18
Building Worker Trips	0.97	1.86	34.09	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2016-12/30/2016 Active Days: 261	48.87	195.79	139.56	0.08	0.33	8.33	8.66	0.12	7.65	7.77
Building 01/05/2015-09/08/2017	26.58	195.78	139.38	0.08	0.33	8.33	8.66	0.12	7.65	7.76
Building Off Road Diesel	25.30	190.28	103.51	0.00	0.00	8.00	8.00	0.00	7.36	7.36
Building Vendor Trips	0.39	3.79	4.03	0.01	0.05	0.15	0.21	0.02	0.14	0.16
Building Worker Trips	0.89	1.72	31.84	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2017-9/8/2017 Active Days: 180	47.22	174.59	135.80	0.08	0.33	7.28	7.61	0.12	6.68	6.80
Building 01/05/2015-09/08/2017	24.93	174.59	135.63	0.08	0.33	7.28	7.61	0.12	6.68	6.80
Building Off Road Diesel	23.76	169.63	102.19	0.00	0.00	6.97	6.97	0.00	6.41	6.41
Building Vendor Trips	0.36	3.37	3.75	0.01	0.05	0.14	0.19	0.02	0.13	0.14
Building Worker Trips	0.82	1.59	29.69	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 1/5/2015 - 9/8/2017 - Building Construction
Off-Road Equipment:
3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
33 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
6 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
5 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 1/5/2015 - 9/8/2017 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:
CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

Construction Related Mitigation Measures

5/27/2010 06:55:29 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Construction 2015.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2015 TOTALS (lbs/day unmitigated)	50.59	220.62	143.93	0.08	0.33	9.02	9.35	0.12	8.29	8.40
2016 TOTALS (lbs/day unmitigated)	48.87	195.79	139.56	0.08	0.33	8.33	8.66	0.12	7.65	7.77
2017 TOTALS (lbs/day unmitigated)	47.22	174.59	135.80	0.08	0.33	7.28	7.61	0.12	6.68	6.80

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/5/2015-12/31/2015 Active Days: 259	**50.59**	**220.62**	**143.93**	0.08	0.33	**9.02**	**9.35**	0.12	**8.29**	**8.40**
Building 01/05/2015-09/08/2017	28.30	220.61	143.74	0.08	0.33	9.02	9.35	0.12	8.29	8.40
Building Off Road Diesel	26.90	214.46	105.32	0.00	0.00	8.68	8.68	0.00	7.98	7.98
Building Vendor Trips	0.43	4.29	4.33	0.01	0.05	0.17	0.23	0.02	0.16	0.18
Building Worker Trips	0.97	1.86	34.09	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5/27/2010 06:55:29 PM

Time Slice 1/1/2016-12/30/2016 Active Days: 261	48.87	195.79	139.56	0.08	0.33	8.33	8.66	0.12	7.65	7.77
Building 01/05/2015-09/08/2017	26.58	195.78	139.38	0.08	0.33	8.33	8.66	0.12	7.65	7.76
Building Off Road Diesel	25.30	190.28	103.51	0.00	0.00	8.00	8.00	0.00	7.36	7.36
Building Vendor Trips	0.39	3.79	4.03	0.01	0.05	0.15	0.21	0.02	0.14	0.16
Building Worker Trips	0.89	1.72	31.84	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2017-9/8/2017 Active Days: 180	47.22	174.59	135.80	0.08	0.33	7.28	7.61	0.12	6.68	6.80
Building 01/05/2015-09/08/2017	24.93	174.59	135.63	0.08	0.33	7.28	7.61	0.12	6.68	6.80
Building Off Road Diesel	23.76	169.63	102.19	0.00	0.00	6.97	6.97	0.00	6.41	6.41
Building Vendor Trips	0.36	3.37	3.75	0.01	0.05	0.14	0.19	0.02	0.13	0.14
Building Worker Trips	0.82	1.59	29.69	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 1/5/2015 - 9/8/2017 - Building Construction

Off-Road Equipment:

3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

33 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

6 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

5 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

5/27/2010 06:55:29 PM

Phase: Architectural Coating 1/5/2015 - 9/8/2017 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

Construction Related Mitigation Measures

URBEMIS2007 Calculations, Construction with Mitigation

9/17/2010 12:07:49 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk001-019.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
2010 TOTALS (lbs/day mitigated)	117.27	920.16	475.33	0.13	1,877.30	14.04	1,891.35	392.12	12.91	405.03

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	**1,068.47**	**475.33**	**0.13**	**13,276.02**	**46.32**	**13,322.34**	**2,772.62**	**42.61**	**2,815.23**
Mass Grading 01/04/2010-05/14/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Phase Assumptions

Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 2.51

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day

On Road Truck Travel (VMT): 2521.74

Off-Road Equipment:

10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

9/17/2010 12:07:49 PM

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	920.16	**475.33**	**0.13**	1,877.30	14.04	1,891.35	392.12	12.91	405.03
Mass Grading 01/04/2010-05/14/2010	117.27	920.16	475.33	0.13	1,877.30	14.04	1,891.35	392.12	12.91	405.03
Mass Grading Dust	0.00	0.00	0.00	0.00	1,876.83	0.00	1,876.83	391.96	0.00	391.96
Mass Grading Off Road Diesel	110.58	840.39	424.21	0.00	0.00	10.76	10.76	0.00	9.90	9.90
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crawler Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crawler Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

9/17/2010 12:07:49 PM

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

9/17/2010 12:08:29 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk001-019.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
2010 TOTALS (lbs/day mitigated)	117.27	920.16	475.33	0.13	1,877.30	14.04	1,891.35	392.12	12.91	405.03

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	**1,068.47**	**475.33**	**0.13**	**13,276.02**	**46.32**	**13,322.34**	**2,772.62**	**42.61**	**2,815.23**
Mass Grading 01/04/2010-05/14/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

9/17/2010 12:08:29 PM

Phase Assumptions

Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 2.51

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day

On Road Truck Travel (VMT): 2521.74

Off-Road Equipment:

10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/4/2010-5/14/2010 Active Days: 95	**117.27**	920.16	**475.33**	**0.13**	1,877.30	14.04	1,891.35	392.12	12.91	405.03
Mass Grading 01/04/2010-05/14/2010	117.27	920.16	475.33	0.13	1,877.30	14.04	1,891.35	392.12	12.91	405.03
Mass Grading Dust	0.00	0.00	0.00	0.00	1,876.83	0.00	1,876.83	391.96	0.00	391.96
Mass Grading Off Road Diesel	110.58	840.39	424.21	0.00	0.00	10.76	10.76	0.00	9.90	9.90
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

9/17/2010 12:08:29 PM

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 1/4/2010 - 5/14/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Reduce speed on unpaved roads to less than 15 mph mitigation reduces emissions by:

PM10: 44% PM25: 44%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crawler Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crawler Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

9/17/2010 12:10:25 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk020-039.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	191.69	1,700.58	764.59	0.17	13,275.49	76.14	13,351.63	2,772.54	70.04	2,842.57
2010 TOTALS (lbs/day mitigated)	191.69	1,459.38	764.59	0.17	2,355.75	21.90	2,377.65	492.06	20.14	512.20

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	**1,700.58**	**764.59**	**0.17**	**13,275.49**	**76.14**	**13,351.63**	**2,772.54**	**70.04**	**2,842.57**
Asphalt 05/17/2010-10/01/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	1,068.47	475.33	0.13	13,275.32	46.32	13,321.64	2,772.48	42.61	2,815.09
Mass Grading Dust	0.00	0.00	0.00	0.00	13,274.84	0.00	13,274.84	2,772.32	0.00	2,772.32
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

9/17/2010 12:10:25 PM

Phase Assumptions

Phase: Fine Grading 5/17/2010 - 10/1/2010 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
  0 lbs per acre-day
On Road Truck Travel (VMT): 232.14
Off-Road Equipment:

Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 2.44
Fugitive Dust Level of Detail: Low
  Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day
On Road Truck Travel (VMT): 2521.74
Off-Road Equipment:
10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day
1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

Phase: Paving 5/17/2010 - 10/1/2010 - Asphalt Paving
Acres to be Paved: 38.37
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

9/17/2010 12:10:25 PM

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	1,459.38	**764.59**	**0.17**	2,355.75	21.90	2,377.65	492.06	20.14	512.20
Asphalt 05/17/2010-10/01/2010	73.87	531.98	286.48	0.03	0.14	7.56	7.71	0.05	6.95	7.00
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	526.41	263.09	0.00	0.00	7.32	7.32	0.00	6.73	6.73
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	920.16	475.33	0.13	2,355.58	14.04	2,369.62	492.00	12.91	504.91
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.10	0.00	2,355.10	491.84	0.00	491.84
Mass Grading Off Road Diesel	110.58	840.39	424.21	0.00	0.00	10.76	10.76	0.00	9.90	9.90
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crawler Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crawler Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

9/17/2010 12:10:25 PM

For Crushing/Processing Equip, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
The following mitigation measures apply to Phase: Paving 5/17/2010 - 10/1/2010 - Asphalt Paving
For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

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For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk020-039.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	191.69	1,700.58	764.59	0.17	13,275.49	76.14	13,351.63	2,772.54	70.04	2,842.57
2010 TOTALS (lbs/day mitigated)	191.69	1,459.38	764.59	0.17	2,355.75	21.90	2,377.65	492.06	20.14	512.20

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	**1,700.58**	**764.59**	**0.17**	**13,275.49**	**76.14**	**13,351.63**	**2,772.54**	**70.04**	**2,842.57**
Asphalt 05/17/2010-10/01/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	1,068.47	475.33	0.13	13,275.32	46.32	13,321.64	2,772.48	42.61	2,815.09
Mass Grading Dust	0.00	0.00	0.00	0.00	13,274.84	0.00	13,274.84	2,772.32	0.00	2,772.32
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

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Phase Assumptions

Phase: Fine Grading 5/17/2010 - 10/1/2010 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
  0 lbs per acre-day
On Road Truck Travel (VMT): 232.14
Off-Road Equipment:

Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 2.44
Fugitive Dust Level of Detail: Low
  Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day
On Road Truck Travel (VMT): 2521.74
Off-Road Equipment:
10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day
1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day
15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day
1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

Phase: Paving 5/17/2010 - 10/1/2010 - Asphalt Paving
Acres to be Paved: 38.37
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 5/17/2010-10/1/2010 Active Days: 100	**191.69**	1,459.38	**764.59**	**0.17**	2,355.75	21.90	2,377.65	492.06	20.14	512.20
Asphalt 05/17/2010-10/01/2010	73.87	531.98	286.48	0.03	0.14	7.56	7.71	0.05	6.95	7.00
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	526.41	263.09	0.00	0.00	7.32	7.32	0.00	6.73	6.73
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Fine Grading 05/17/2010-10/01/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 05/17/2010-10/01/2010	117.27	920.16	475.33	0.13	2,355.58	14.04	2,369.62	492.00	12.91	504.91
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.10	0.00	2,355.10	491.84	0.00	491.84
Mass Grading Off Road Diesel	110.58	840.39	424.21	0.00	0.00	10.76	10.76	0.00	9.90	9.90
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 5/17/2010 - 10/1/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crawler Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crawler Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Crushing/Processing Equip, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
The following mitigation measures apply to Phase: Paving 5/17/2010 - 10/1/2010 - Asphalt Paving
For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

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For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk040-046.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	303.71	2,428.89	1,058.30	0.18	13,276.26	110.24	13,386.50	2,772.71	101.41	2,874.12
2010 TOTALS (lbs/day mitigated)	303.71	2,078.89	1,058.30	0.18	2,355.95	30.53	2,386.48	492.11	28.07	520.18

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010	**303.71**	**2,428.89**	**1,058.30**	**0.18**	**13,276.26**	**110.24**	**13,386.50**	**2,772.71**	**101.41**	**2,874.12**
Active Days: 35										
Asphalt 10/04/2010-11/19/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	728.25	292.63	0.02	0.07	34.10	34.16	0.02	31.37	31.39
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 10/04/2010-11/19/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Phase Assumptions

Phase: Fine Grading 10/4/2010 - 11/19/2010 - Surrogate for Paving On-Road Trucks

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 232.15

Off-Road Equipment:

Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 2.51

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day

On Road Truck Travel (VMT): 2521.74

Off-Road Equipment:

10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

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Phase: Paving 10/4/2010 - 11/19/2010 - Asphalt Paving
Acres to be Paved: 13.43
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/4/2010 - 11/19/2010 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/4/2010 - 11/19/2010 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010 Active Days: 35	**303.71**	2,078.89	**1,058.30**	**0.18**	2,355.95	30.53	2,386.48	492.11	28.07	520.18
Asphalt 10/04/2010-11/19/2010	73.87	531.98	286.48	0.03	0.14	7.56	7.71	0.05	6.95	7.00
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	526.41	263.09	0.00	0.00	7.32	7.32	0.00	6.73	6.73
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	619.45	292.63	0.02	0.07	8.62	8.69	0.02	7.93	7.95
Building Off Road Diesel	79.83	616.54	281.51	0.00	0.00	8.49	8.49	0.00	7.81	7.81
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 10/04/2010-11/19/2010	117.27	920.16	475.33	0.13	2,355.70	14.04	2,369.74	492.02	12.91	504.94
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.23	0.00	2,355.23	491.87	0.00	491.87
Mass Grading Off Road Diesel	110.58	840.39	424.21	0.00	0.00	10.76	10.76	0.00	9.90	9.90
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crawler Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crawler Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Crushing/Processing Equip, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Paving 10/4/2010 - 11/19/2010 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Building Construction 10/4/2010 - 11/19/2010 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk040-046.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	303.71	2,428.89	1,058.30	0.18	13,276.26	110.24	13,386.50	2,772.71	101.41	2,874.12
2010 TOTALS (lbs/day mitigated)	303.71	2,078.89	1,058.30	0.18	2,355.95	30.53	2,386.48	492.11	28.07	520.18

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010 Active Days: 35	**303.71**	**2,428.89**	**1,058.30**	**0.18**	**13,276.26**	**110.24**	**13,386.50**	**2,772.71**	**101.41**	**2,874.12**
Asphalt 10/04/2010-11/19/2010	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	728.25	292.63	0.02	0.07	34.10	34.16	0.02	31.37	31.39
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 10/04/2010-11/19/2010	117.27	1,068.47	475.33	0.13	13,276.02	46.32	13,322.34	2,772.62	42.61	2,815.23
Mass Grading Dust	0.00	0.00	0.00	0.00	13,275.54	0.00	13,275.54	2,772.46	0.00	2,772.46
Mass Grading Off Road Diesel	110.58	988.69	424.21	0.00	0.00	43.04	43.04	0.00	39.59	39.59
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Phase Assumptions

Phase: Fine Grading 10/4/2010 - 11/19/2010 - Surrogate for Paving On-Road Trucks

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0

Fugitive Dust Level of Detail: Default

0 lbs per acre-day

On Road Truck Travel (VMT): 232.15

Off-Road Equipment:

Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 2.51

Fugitive Dust Level of Detail: Low

Onsite Cut/Fill: 18260.9 cubic yards/day; Offsite Cut/Fill: 25217.4 cubic yards/day

On Road Truck Travel (VMT): 2521.74

Off-Road Equipment:

10 Crawler Tractors (147 hp) operating at a 0.64 load factor for 8 hours per day

1 Crushing/Processing Equip (142 hp) operating at a 0.78 load factor for 8 hours per day

4 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

15 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

4 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

9 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day

1 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

36 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day

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Phase: Paving 10/4/2010 - 11/19/2010 - Asphalt Paving
Acres to be Paved: 13.43
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/4/2010 - 11/19/2010 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/4/2010 - 11/19/2010 - Architectural Coating
Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100
Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50
Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250
Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100
Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250
Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/4/2010-11/19/2010 Active Days: 35	**303.71**	2,078.89	**1,058.30**	**0.18**	2,355.95	30.53	2,386.48	492.11	28.07	520.18
Asphalt 10/04/2010-11/19/2010	73.87	531.98	286.48	0.03	0.14	7.56	7.71	0.05	6.95	7.00
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	526.41	263.09	0.00	0.00	7.32	7.32	0.00	6.73	6.73
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/04/2010-11/19/2010	80.32	619.45	292.63	0.02	0.07	8.62	8.69	0.02	7.93	7.95
Building Off Road Diesel	79.83	616.54	281.51	0.00	0.00	8.49	8.49	0.00	7.81	7.81
Building Vendor Trips	0.20	2.36	1.83	0.00	0.02	0.10	0.11	0.01	0.09	0.10
Building Worker Trips	0.29	0.55	9.29	0.01	0.05	0.03	0.08	0.02	0.03	0.04
Coating 10/04/2010-11/19/2010	31.69	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.08	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/04/2010-11/19/2010	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading 10/04/2010-11/19/2010	117.27	920.16	475.33	0.13	2,355.70	14.04	2,369.74	492.02	12.91	504.94
Mass Grading Dust	0.00	0.00	0.00	0.00	2,355.23	0.00	2,355.23	491.87	0.00	491.87
Mass Grading Off Road Diesel	110.58	840.39	424.21	0.00	0.00	10.76	10.76	0.00	9.90	9.90
Mass Grading On Road Diesel	6.03	78.54	30.16	0.10	0.36	3.22	3.57	0.12	2.96	3.08
Mass Grading Worker Trips	0.66	1.24	20.96	0.03	0.12	0.07	0.19	0.04	0.06	0.10

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Mass Grading 10/4/2010 - 11/19/2010 - Grading

For Soil Stablizing Measures, the Water exposed surfaces 3x daily watering mitigation reduces emissions by:

PM10: 61% PM25: 61%

For Soil Stablizing Measures, the Equipment loading/unloading mitigation reduces emissions by:

PM10: 69% PM25: 69%

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For Unpaved Roads Measures, the Manage haul road dust 3x daily watering mitigation reduces emissions by:
PM10: 61% PM25: 61%
For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Crawler Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Crawler Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Crushing/Processing Equip, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Crushing/Processing Equip, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
The following mitigation measures apply to Phase: Paving 10/4/2010 - 11/19/2010 - Asphalt Paving
For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

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For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
The following mitigation measures apply to Phase: Building Construction 10/4/2010 - 11/19/2010 - Building Construction
For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

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For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk047-091.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	188.97	1,376.08	642.89	0.14	0.61	64.61	65.22	0.22	59.42	59.63
2010 TOTALS (lbs/day mitigated)	188.97	1,174.38	642.89	0.14	0.61	17.18	17.79	0.22	15.78	16.00
2011 TOTALS (lbs/day unmitigated)	177.97	1,273.29	612.89	0.14	0.61	59.61	60.22	0.22	54.82	55.03
2011 TOTALS (lbs/day mitigated)	177.97	1,086.55	612.89	0.14	0.61	15.83	16.44	0.22	14.54	14.76

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 11/22/2010-12/31/2010 Active Days: 30	**188.97**	**1,376.08**	**642.89**	**0.14**	**0.61**	**64.61**	**65.22**	**0.22**	**59.42**	**59.63**
Asphalt 11/22/2010-09/30/2011	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	83.00	743.90	352.56	0.10	0.43	34.79	35.22	0.15	31.99	32.14
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	1.31	15.06	11.69	0.03	0.10	0.63	0.73	0.03	0.58	0.61
Building Worker Trips	1.87	3.50	59.36	0.07	0.33	0.19	0.52	0.12	0.16	0.28

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Coating 11/22/2010-09/30/2011	31.55	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/3/2011-9/30/2011 Active Days: 195	177.97	1,273.29	612.89	**0.14**	**0.61**	59.61	60.22	**0.22**	54.82	55.03
Asphalt 11/22/2010-09/30/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	76.63	685.87	336.08	0.10	0.43	32.15	32.59	0.15	29.57	29.72
Building Off Road Diesel	73.72	669.10	270.00	0.00	0.00	31.40	31.40	0.00	28.89	28.89
Building Vendor Trips	1.20	13.57	10.84	0.03	0.10	0.56	0.66	0.03	0.51	0.55
Building Worker Trips	1.70	3.20	55.25	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.54	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Fine Grading 11/22/2010 - 9/30/2011 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.16
Off-Road Equipment:

Phase: Paving 11/22/2010 - 9/30/2011 - Asphalt Paving
Acres to be Paved: 86.34
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 11/22/2010 - 9/30/2011 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 11/22/2010 - 9/30/2011 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 11/22/2010-12/31/2010 Active Days: 30	**188.97**	1,174.38	**642.89**	**0.14**	**0.61**	17.18	17.79	**0.22**	15.78	16.00
Asphalt 11/22/2010-09/30/2011	73.87	531.98	286.48	0.03	0.14	7.56	7.71	0.05	6.95	7.00
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	526.41	263.09	0.00	0.00	7.32	7.32	0.00	6.73	6.73
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	83.00	635.10	352.56	0.10	0.43	9.31	9.74	0.15	8.55	8.70
Building Off Road Diesel	79.83	616.54	281.51	0.00	0.00	8.49	8.49	0.00	7.81	7.81
Building Vendor Trips	1.31	15.06	11.69	0.03	0.10	0.63	0.73	0.03	0.58	0.61
Building Worker Trips	1.87	3.50	59.36	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.55	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 1/3/2011-9/30/2011 Active Days: 195	177.97	1,086.55	612.89	**0.14**	**0.61**	15.83	16.44	**0.22**	14.54	14.76
Asphalt 11/22/2010-09/30/2011	69.29	494.48	273.31	0.03	0.14	6.97	7.11	0.05	6.40	6.45
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	489.44	251.58	0.00	0.00	6.74	6.74	0.00	6.20	6.20
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	76.63	585.51	336.08	0.10	0.43	8.60	9.03	0.15	7.90	8.05
Building Off Road Diesel	73.72	568.73	270.00	0.00	0.00	7.85	7.85	0.00	7.22	7.22
Building Vendor Trips	1.20	13.57	10.84	0.03	0.10	0.56	0.66	0.03	0.51	0.55
Building Worker Trips	1.70	3.20	55.25	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.54	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 11/22/2010 - 9/30/2011 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Building Construction 11/22/2010 - 9/30/2011 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk047-091.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2010 TOTALS (lbs/day unmitigated)	188.97	1,376.08	642.89	0.14	0.61	64.61	65.22	0.22	59.42	59.63
2010 TOTALS (lbs/day mitigated)	188.97	1,174.38	642.89	0.14	0.61	17.18	17.79	0.22	15.78	16.00
2011 TOTALS (lbs/day unmitigated)	177.97	1,273.29	612.89	0.14	0.61	59.61	60.22	0.22	54.82	55.03
2011 TOTALS (lbs/day mitigated)	177.97	1,086.55	612.89	0.14	0.61	15.83	16.44	0.22	14.54	14.76

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 11/22/2010-12/31/2010 Active Days: 30	**188.97**	**1,376.08**	**642.89**	**0.14**	**0.61**	**64.61**	**65.22**	**0.22**	**59.42**	**59.63**
Asphalt 11/22/2010-09/30/2011	73.87	624.88	286.48	0.03	0.14	29.52	29.66	0.05	27.15	27.20
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	619.31	263.09	0.00	0.00	29.27	29.27	0.00	26.93	26.93
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	83.00	743.90	352.56	0.10	0.43	34.79	35.22	0.15	31.99	32.14
Building Off Road Diesel	79.83	725.34	281.51	0.00	0.00	33.97	33.97	0.00	31.25	31.25
Building Vendor Trips	1.31	15.06	11.69	0.03	0.10	0.63	0.73	0.03	0.58	0.61
Building Worker Trips	1.87	3.50	59.36	0.07	0.33	0.19	0.52	0.12	0.16	0.28

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Coating 11/22/2010-09/30/2011	31.55	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/3/2011-9/30/2011 Active Days: 195	177.97	1,273.29	612.89	**0.14**	**0.61**	59.61	60.22	**0.22**	54.82	55.03
Asphalt 11/22/2010-09/30/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	76.63	685.87	336.08	0.10	0.43	32.15	32.59	0.15	29.57	29.72
Building Off Road Diesel	73.72	669.10	270.00	0.00	0.00	31.40	31.40	0.00	28.89	28.89
Building Vendor Trips	1.20	13.57	10.84	0.03	0.10	0.56	0.66	0.03	0.51	0.55
Building Worker Trips	1.70	3.20	55.25	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.54	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Fine Grading 11/22/2010 - 9/30/2011 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.16
Off-Road Equipment:

Phase: Paving 11/22/2010 - 9/30/2011 - Asphalt Paving
Acres to be Paved: 86.34
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 11/22/2010 - 9/30/2011 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 11/22/2010 - 9/30/2011 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 11/22/2010-12/31/2010 Active Days: 30	**188.97**	1,174.38	**642.89**	**0.14**	**0.61**	17.18	17.79	**0.22**	15.78	16.00
Asphalt 11/22/2010-09/30/2011	73.87	531.98	286.48	0.03	0.14	7.56	7.71	0.05	6.95	7.00
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	71.85	526.41	263.09	0.00	0.00	7.32	7.32	0.00	6.73	6.73
Paving On Road Diesel	0.33	4.29	1.65	0.01	0.02	0.18	0.20	0.01	0.16	0.17
Paving Worker Trips	0.68	1.28	21.75	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	83.00	635.10	352.56	0.10	0.43	9.31	9.74	0.15	8.55	8.70
Building Off Road Diesel	79.83	616.54	281.51	0.00	0.00	8.49	8.49	0.00	7.81	7.81
Building Vendor Trips	1.31	15.06	11.69	0.03	0.10	0.63	0.73	0.03	0.58	0.61
Building Worker Trips	1.87	3.50	59.36	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.55	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.07	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.55	7.23	2.78	0.01	0.03	0.30	0.33	0.01	0.27	0.28
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 1/3/2011-9/30/2011 Active Days: 195	177.97	1,086.55	612.89	**0.14**	**0.61**	15.83	16.44	**0.22**	14.54	14.76
Asphalt 11/22/2010-09/30/2011	69.29	494.48	273.31	0.03	0.14	6.97	7.11	0.05	6.40	6.45
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	489.44	251.58	0.00	0.00	6.74	6.74	0.00	6.20	6.20
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 11/22/2010-09/30/2011	76.63	585.51	336.08	0.10	0.43	8.60	9.03	0.15	7.90	8.05
Building Off Road Diesel	73.72	568.73	270.00	0.00	0.00	7.85	7.85	0.00	7.22	7.22
Building Vendor Trips	1.20	13.57	10.84	0.03	0.10	0.56	0.66	0.03	0.51	0.55
Building Worker Trips	1.70	3.20	55.25	0.07	0.33	0.19	0.52	0.12	0.16	0.28
Coating 11/22/2010-09/30/2011	31.54	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 11/22/2010-09/30/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 11/22/2010 - 9/30/2011 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Building Construction 11/22/2010 - 9/30/2011 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk092.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	196.86	1,435.16	622.94	0.05	0.19	67.56	67.75	0.07	62.15	62.21
2011 TOTALS (lbs/day mitigated)	196.86	1,221.69	622.94	0.05	0.19	17.27	17.46	0.07	15.88	15.95

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/3/2011-10/7/2011 Active Days: 5	**196.86**	**1,435.16**	**622.94**	**0.05**	**0.19**	**67.56**	**67.75**	**0.07**	**62.15**	**62.21**
Asphalt 10/03/2011-10/07/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/03/2011-10/07/2011	95.09	847.74	346.13	0.00	0.01	40.10	40.11	0.00	36.90	36.90
Building Off Road Diesel	95.02	847.36	344.65	0.00	0.00	40.09	40.09	0.00	36.88	36.88
Building Vendor Trips	0.03	0.30	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.07	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Coating 10/03/2011-10/07/2011	31.97	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Fine Grading 10/03/2011-10/07/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/3/2011 - 10/7/2011 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.32
Off-Road Equipment:

Phase: Paving 10/3/2011 - 10/7/2011 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Building Construction 10/3/2011 - 10/7/2011 - Building Construction

Off-Road Equipment:

9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

3 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

13 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

76 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

5 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

13 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

15 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

11 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/3/2011 - 10/7/2011 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/3/2011-10/7/2011 Active Days: 5	**196.86**	1,221.69	**622.94**	**0.05**	**0.19**	17.27	17.46	**0.07**	15.88	15.95
Asphalt 10/03/2011-10/07/2011	69.29	494.48	273.31	0.03	0.14	6.97	7.11	0.05	6.40	6.45
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	489.44	251.58	0.00	0.00	6.74	6.74	0.00	6.20	6.20
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/03/2011-10/07/2011	95.09	720.64	346.13	0.00	0.01	10.04	10.05	0.00	9.24	9.24
Building Off Road Diesel	95.02	720.26	344.65	0.00	0.00	10.02	10.02	0.00	9.22	9.22
Building Vendor Trips	0.03	0.30	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.07	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Coating 10/03/2011-10/07/2011	31.97	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/03/2011-10/07/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 10/3/2011 - 10/7/2011 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Building Construction 10/3/2011 - 10/7/2011 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk092.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	196.86	1,435.16	622.94	0.05	0.19	67.56	67.75	0.07	62.15	62.21
2011 TOTALS (lbs/day mitigated)	196.86	1,221.69	622.94	0.05	0.19	17.27	17.46	0.07	15.88	15.95

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/3/2011-10/7/2011 Active Days: 5	**196.86**	**1,435.16**	**622.94**	**0.05**	**0.19**	**67.56**	**67.75**	**0.07**	**62.15**	**62.21**
Asphalt 10/03/2011-10/07/2011	69.29	580.85	273.31	0.03	0.14	27.19	27.33	0.05	25.01	25.06
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/03/2011-10/07/2011	95.09	847.74	346.13	0.00	0.01	40.10	40.11	0.00	36.90	36.90
Building Off Road Diesel	95.02	847.36	344.65	0.00	0.00	40.09	40.09	0.00	36.88	36.88
Building Vendor Trips	0.03	0.30	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.07	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Coating 10/03/2011-10/07/2011	31.97	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Fine Grading 10/03/2011-10/07/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Fine Grading 10/3/2011 - 10/7/2011 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.32
Off-Road Equipment:

Phase: Paving 10/3/2011 - 10/7/2011 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/3/2011 - 10/7/2011 - Building Construction
Off-Road Equipment:
9 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
3 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
13 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
76 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
5 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
13 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
15 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
11 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 10/3/2011 - 10/7/2011 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/3/2011-10/7/2011 Active Days: 5	**196.86**	1,221.69	**622.94**	**0.05**	**0.19**	17.27	17.46	**0.07**	15.88	15.95
Asphalt 10/03/2011-10/07/2011	69.29	494.48	273.31	0.03	0.14	6.97	7.11	0.05	6.40	6.45
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	489.44	251.58	0.00	0.00	6.74	6.74	0.00	6.20	6.20
Paving On Road Diesel	0.30	3.86	1.49	0.01	0.02	0.16	0.17	0.01	0.14	0.15
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/03/2011-10/07/2011	95.09	720.64	346.13	0.00	0.01	10.04	10.05	0.00	9.24	9.24
Building Off Road Diesel	95.02	720.26	344.65	0.00	0.00	10.02	10.02	0.00	9.22	9.22
Building Vendor Trips	0.03	0.30	0.24	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.04	0.07	1.24	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Coating 10/03/2011-10/07/2011	31.97	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	31.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.06	1.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Fine Grading 10/03/2011-10/07/2011	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.51	6.51	2.50	0.01	0.03	0.26	0.29	0.01	0.24	0.25
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 10/3/2011 - 10/7/2011 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
The following mitigation measures apply to Phase: Building Construction 10/3/2011 - 10/7/2011 - Building Construction
For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

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For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk093-144.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	177.84	1,326.41	642.49	0.14	0.60	62.41	63.01	0.21	57.39	57.61
2011 TOTALS (lbs/day mitigated)	177.84	1,130.44	642.49	0.14	0.60	16.29	16.88	0.21	14.96	15.17
2012 TOTALS (lbs/day unmitigated)	170.22	1,228.45	616.13	0.14	0.60	58.64	59.23	0.21	53.92	54.13
2012 TOTALS (lbs/day mitigated)	170.22	1,046.87	616.13	0.14	0.60	15.29	15.89	0.21	14.04	14.25

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/10/2011-12/30/2011 Active Days: 60	**177.84**	**1,326.41**	**642.49**	**0.14**	**0.60**	**62.41**	**63.01**	**0.21**	**57.39**	**57.61**
Asphalt 10/10/2011-10/19/2012	68.00	577.06	271.85	0.03	0.12	27.04	27.16	0.04	24.87	24.91
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	84.62	749.18	369.70	0.11	0.47	35.37	35.83	0.17	32.52	32.69
Building Off Road Diesel	81.44	730.64	297.87	0.00	0.00	34.54	34.54	0.00	31.77	31.77
Building Vendor Trips	1.34	15.06	12.00	0.03	0.11	0.62	0.73	0.04	0.57	0.61
Building Worker Trips	1.84	3.47	59.82	0.08	0.36	0.21	0.57	0.13	0.18	0.31

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Coating 10/10/2011-10/19/2012	25.22	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2012-10/19/2012 Active Days: 210	170.22	1,228.45	616.13	**0.14**	**0.60**	58.64	59.23	**0.21**	53.92	54.13
Asphalt 10/10/2011-10/19/2012	64.77	536.47	260.69	0.03	0.12	25.20	25.32	0.04	23.18	23.22
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	80.23	691.83	354.57	0.11	0.47	33.43	33.90	0.17	30.74	30.91
Building Off Road Diesel	77.33	675.20	287.82	0.00	0.00	32.67	32.67	0.00	30.06	30.06
Building Vendor Trips	1.22	13.45	11.10	0.03	0.11	0.55	0.66	0.04	0.50	0.54
Building Worker Trips	1.68	3.18	55.65	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.21	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Fine Grading 10/10/2011 - 10/19/2012 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 4.3
Off-Road Equipment:

Phase: Paving 10/10/2011 - 10/19/2012 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/10/2011 - 10/19/2012 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
9 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
4 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
12 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 10/10/2011 - 10/19/2012 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/10/2011-12/30/2011 Active Days: 60	**177.84**	1,130.44	**642.49**	**0.14**	**0.60**	16.29	16.88	**0.21**	14.96	15.17
Asphalt 10/10/2011-10/19/2012	68.00	490.69	271.85	0.03	0.12	6.81	6.94	0.04	6.26	6.31
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	489.44	251.58	0.00	0.00	6.74	6.74	0.00	6.20	6.20
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	84.62	639.58	369.70	0.11	0.47	9.46	9.93	0.17	8.69	8.86
Building Off Road Diesel	81.44	621.05	297.87	0.00	0.00	8.63	8.63	0.00	7.94	7.94
Building Vendor Trips	1.34	15.06	12.00	0.03	0.11	0.62	0.73	0.04	0.57	0.61
Building Worker Trips	1.84	3.47	59.82	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.22	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 1/2/2012-10/19/2012 Active Days: 210	170.22	1,046.87	616.13	**0.14**	**0.60**	15.29	15.89	**0.21**	14.04	14.25
Asphalt 10/10/2011-10/19/2012	64.77	456.17	260.69	0.03	0.12	6.35	6.48	0.04	5.84	5.88
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	455.03	241.83	0.00	0.00	6.28	6.28	0.00	5.78	5.78
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	80.23	590.55	354.57	0.11	0.47	8.93	9.40	0.17	8.19	8.36
Building Off Road Diesel	77.33	573.92	287.82	0.00	0.00	8.17	8.17	0.00	7.52	7.52
Building Vendor Trips	1.22	13.45	11.10	0.03	0.11	0.55	0.66	0.04	0.50	0.54
Building Worker Trips	1.68	3.18	55.65	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.21	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 10/10/2011 - 10/19/2012 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Building Construction 10/10/2011 - 10/19/2012 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

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For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk093-144.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2011 TOTALS (lbs/day unmitigated)	177.84	1,326.41	642.49	0.14	0.60	62.41	63.01	0.21	57.39	57.61
2011 TOTALS (lbs/day mitigated)	177.84	1,130.44	642.49	0.14	0.60	16.29	16.88	0.21	14.96	15.17
2012 TOTALS (lbs/day unmitigated)	170.22	1,228.45	616.13	0.14	0.60	58.64	59.23	0.21	53.92	54.13
2012 TOTALS (lbs/day mitigated)	170.22	1,046.87	616.13	0.14	0.60	15.29	15.89	0.21	14.04	14.25

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/10/2011-12/30/2011	**177.84**	**1,326.41**	**642.49**	**0.14**	**0.60**	**62.41**	**63.01**	**0.21**	**57.39**	**57.61**
Active Days: 60										
Asphalt 10/10/2011-10/19/2012	68.00	577.06	271.85	0.03	0.12	27.04	27.16	0.04	24.87	24.91
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	575.82	251.58	0.00	0.00	26.96	26.96	0.00	24.81	24.81
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	84.62	749.18	369.70	0.11	0.47	35.37	35.83	0.17	32.52	32.69
Building Off Road Diesel	81.44	730.64	297.87	0.00	0.00	34.54	34.54	0.00	31.77	31.77
Building Vendor Trips	1.34	15.06	12.00	0.03	0.11	0.62	0.73	0.04	0.57	0.61
Building Worker Trips	1.84	3.47	59.82	0.08	0.36	0.21	0.57	0.13	0.18	0.31

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Coating 10/10/2011-10/19/2012	25.22	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2012-10/19/2012 Active Days: 210	170.22	1,228.45	616.13	**0.14**	**0.60**	58.64	59.23	**0.21**	53.92	54.13
Asphalt 10/10/2011-10/19/2012	64.77	536.47	260.69	0.03	0.12	25.20	25.32	0.04	23.18	23.22
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	80.23	691.83	354.57	0.11	0.47	33.43	33.90	0.17	30.74	30.91
Building Off Road Diesel	77.33	675.20	287.82	0.00	0.00	32.67	32.67	0.00	30.06	30.06
Building Vendor Trips	1.22	13.45	11.10	0.03	0.11	0.55	0.66	0.04	0.50	0.54
Building Worker Trips	1.68	3.18	55.65	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.21	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Fine Grading 10/10/2011 - 10/19/2012 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 4.3
Off-Road Equipment:

Phase: Paving 10/10/2011 - 10/19/2012 - Asphalt Paving
Acres to be Paved: 1.92
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/10/2011 - 10/19/2012 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
9 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
70 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
4 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
12 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
10 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
13 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
9 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 10/10/2011 - 10/19/2012 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/10/2011-12/30/2011 Active Days: 60	**177.84**	1,130.44	**642.49**	**0.14**	**0.60**	16.29	16.88	**0.21**	14.96	15.17
Asphalt 10/10/2011-10/19/2012	68.00	490.69	271.85	0.03	0.12	6.81	6.94	0.04	6.26	6.31
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	67.35	489.44	251.58	0.00	0.00	6.74	6.74	0.00	6.20	6.20
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.62	1.17	20.24	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	84.62	639.58	369.70	0.11	0.47	9.46	9.93	0.17	8.69	8.86
Building Off Road Diesel	81.44	621.05	297.87	0.00	0.00	8.63	8.63	0.00	7.94	7.94
Building Vendor Trips	1.34	15.06	12.00	0.03	0.11	0.62	0.73	0.04	0.57	0.61
Building Worker Trips	1.84	3.47	59.82	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.22	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.90	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.12	0.05	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 1/2/2012-10/19/2012 Active Days: 210	170.22	1,046.87	616.13	**0.14**	**0.60**	15.29	15.89	**0.21**	14.04	14.25
Asphalt 10/10/2011-10/19/2012	64.77	456.17	260.69	0.03	0.12	6.35	6.48	0.04	5.84	5.88
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	455.03	241.83	0.00	0.00	6.28	6.28	0.00	5.78	5.78
Paving On Road Diesel	0.01	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/10/2011-10/19/2012	80.23	590.55	354.57	0.11	0.47	8.93	9.40	0.17	8.19	8.36
Building Off Road Diesel	77.33	573.92	287.82	0.00	0.00	8.17	8.17	0.00	7.52	7.52
Building Vendor Trips	1.22	13.45	11.10	0.03	0.11	0.55	0.66	0.04	0.50	0.54
Building Worker Trips	1.68	3.18	55.65	0.08	0.36	0.21	0.57	0.13	0.18	0.31
Coating 10/10/2011-10/19/2012	25.21	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.84	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/10/2011-10/19/2012	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.01	0.11	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 10/10/2011 - 10/19/2012 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Building Construction 10/10/2011 - 10/19/2012 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk145-158.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2012 TOTALS (lbs/day unmitigated)	160.25	1,139.61	534.31	0.07	0.31	54.37	54.67	0.11	50.01	50.11
2012 TOTALS (lbs/day mitigated)	160.25	970.89	534.31	0.07	0.31	14.07	14.38	0.11	12.94	13.04
2013 TOTALS (lbs/day unmitigated)	153.53	1,056.37	518.33	0.07	0.31	49.87	50.18	0.11	45.87	45.98
2013 TOTALS (lbs/day mitigated)	153.53	899.89	518.33	0.07	0.31	12.90	13.21	0.11	11.86	11.96

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/22/2012-12/31/2012 Active Days: 51	**160.25**	**1,139.61**	**534.31**	**0.07**	**0.31**	**54.37**	**54.67**	**0.11**	**50.01**	**50.11**
Asphalt 10/22/2012-01/25/2013	66.03	539.84	261.99	0.03	0.14	25.33	25.47	0.05	23.30	23.35
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.28	3.44	1.33	0.01	0.02	0.14	0.16	0.01	0.12	0.13
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	67.59	593.92	269.21	0.03	0.13	28.81	28.93	0.04	26.50	26.54
Building Off Road Diesel	66.80	589.44	251.22	0.00	0.00	28.60	28.60	0.00	26.31	26.31
Building Vendor Trips	0.33	3.62	2.99	0.01	0.03	0.15	0.18	0.01	0.14	0.15
Building Worker Trips	0.45	0.86	15.00	0.02	0.10	0.06	0.15	0.04	0.05	0.08

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Coating 10/22/2012-01/25/2013	26.18	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2013-1/25/2013 Active Days: 19	153.53	1,056.37	518.33	**0.07**	**0.31**	49.87	50.18	**0.11**	45.87	45.98
Asphalt 10/22/2012-01/25/2013	63.16	502.13	253.10	0.03	0.14	23.78	23.92	0.05	21.87	21.92
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	61.39	498.12	234.42	0.00	0.00	23.59	23.59	0.00	21.71	21.71
Paving On Road Diesel	0.25	3.03	1.18	0.01	0.02	0.12	0.14	0.01	0.11	0.11
Paving Worker Trips	0.52	0.98	17.50	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	63.77	549.08	262.44	0.03	0.13	25.89	26.02	0.04	23.81	23.86
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.30	3.20	2.75	0.01	0.03	0.13	0.16	0.01	0.12	0.13
Building Worker Trips	0.41	0.78	13.94	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.17	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Fine Grading 10/22/2012 - 1/25/2013 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
  0 lbs per acre-day
On Road Truck Travel (VMT): 232.15
Off-Road Equipment:

Phase: Paving 10/22/2012 - 1/25/2013 - Asphalt Paving
Acres to be Paved: 26.86
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/22/2012 - 1/25/2013 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 10/22/2012 - 1/25/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/22/2012-12/31/2012 Active Days: 51	**160.25**	970.89	**534.31**	**0.07**	**0.31**	14.07	14.38	**0.11**	12.94	13.04
Asphalt 10/22/2012-01/25/2013	66.03	459.54	261.99	0.03	0.14	6.49	6.63	0.05	5.96	6.01
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	455.03	241.83	0.00	0.00	6.28	6.28	0.00	5.78	5.78
Paving On Road Diesel	0.28	3.44	1.33	0.01	0.02	0.14	0.16	0.01	0.12	0.13
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	67.59	505.50	269.21	0.03	0.13	7.35	7.48	0.04	6.76	6.81
Building Off Road Diesel	66.80	501.02	251.22	0.00	0.00	7.15	7.15	0.00	6.58	6.58
Building Vendor Trips	0.33	3.62	2.99	0.01	0.03	0.15	0.18	0.01	0.14	0.15
Building Worker Trips	0.45	0.86	15.00	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.18	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 1/1/2013-1/25/2013 Active Days: 19	153.53	899.89	518.33	**0.07**	**0.31**	12.90	13.21	**0.11**	11.86	11.96
Asphalt 10/22/2012-01/25/2013	63.16	427.41	253.10	0.03	0.14	6.09	6.23	0.05	5.59	5.64
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	61.39	423.40	234.42	0.00	0.00	5.90	5.90	0.00	5.43	5.43
Paving On Road Diesel	0.25	3.03	1.18	0.01	0.02	0.12	0.14	0.01	0.11	0.11
Paving Worker Trips	0.52	0.98	17.50	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	63.77	467.31	262.44	0.03	0.13	6.61	6.74	0.04	6.08	6.12
Building Off Road Diesel	63.06	463.33	245.76	0.00	0.00	6.43	6.43	0.00	5.91	5.91
Building Vendor Trips	0.30	3.20	2.75	0.01	0.03	0.13	0.16	0.01	0.12	0.13
Building Worker Trips	0.41	0.78	13.94	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.17	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 10/22/2012 - 1/25/2013 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
The following mitigation measures apply to Phase: Building Construction 10/22/2012 - 1/25/2013 - Building Construction
For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%
For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk145-158.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2012 TOTALS (lbs/day unmitigated)	160.25	1,139.61	534.31	0.07	0.31	54.37	54.67	0.11	50.01	50.11
2012 TOTALS (lbs/day mitigated)	160.25	970.89	534.31	0.07	0.31	14.07	14.38	0.11	12.94	13.04
2013 TOTALS (lbs/day unmitigated)	153.53	1,056.37	518.33	0.07	0.31	49.87	50.18	0.11	45.87	45.98
2013 TOTALS (lbs/day mitigated)	153.53	899.89	518.33	0.07	0.31	12.90	13.21	0.11	11.86	11.96

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/22/2012-12/31/2012 Active Days: 51	**160.25**	**1,139.61**	**534.31**	**0.07**	**0.31**	**54.37**	**54.67**	**0.11**	**50.01**	**50.11**
Asphalt 10/22/2012-01/25/2013	66.03	539.84	261.99	0.03	0.14	25.33	25.47	0.05	23.30	23.35
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	535.33	241.83	0.00	0.00	25.12	25.12	0.00	23.11	23.11
Paving On Road Diesel	0.28	3.44	1.33	0.01	0.02	0.14	0.16	0.01	0.12	0.13
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	67.59	593.92	269.21	0.03	0.13	28.81	28.93	0.04	26.50	26.54
Building Off Road Diesel	66.80	589.44	251.22	0.00	0.00	28.60	28.60	0.00	26.31	26.31
Building Vendor Trips	0.33	3.62	2.99	0.01	0.03	0.15	0.18	0.01	0.14	0.15
Building Worker Trips	0.45	0.86	15.00	0.02	0.10	0.06	0.15	0.04	0.05	0.08

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Coating 10/22/2012-01/25/2013	26.18	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2013-1/25/2013 Active Days: 19	153.53	1,056.37	518.33	**0.07**	**0.31**	49.87	50.18	**0.11**	45.87	45.98
Asphalt 10/22/2012-01/25/2013	63.16	502.13	253.10	0.03	0.14	23.78	23.92	0.05	21.87	21.92
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	61.39	498.12	234.42	0.00	0.00	23.59	23.59	0.00	21.71	21.71
Paving On Road Diesel	0.25	3.03	1.18	0.01	0.02	0.12	0.14	0.01	0.11	0.11
Paving Worker Trips	0.52	0.98	17.50	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	63.77	549.08	262.44	0.03	0.13	25.89	26.02	0.04	23.81	23.86
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.30	3.20	2.75	0.01	0.03	0.13	0.16	0.01	0.12	0.13
Building Worker Trips	0.41	0.78	13.94	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.17	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Fine Grading 10/22/2012 - 1/25/2013 - Surrogate for Paving On-Road Trucks
Total Acres Disturbed: 0
Maximum Daily Acreage Disturbed: 0
Fugitive Dust Level of Detail: Default
0 lbs per acre-day
On Road Truck Travel (VMT): 232.15
Off-Road Equipment:

Phase: Paving 10/22/2012 - 1/25/2013 - Asphalt Paving
Acres to be Paved: 26.86
Off-Road Equipment:
8 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
4 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
3 Off Highway Tractors (267 hp) operating at a 0.65 load factor for 8 hours per day
14 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
18 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
8 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day
6 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
6 Scrapers (313 hp) operating at a 0.72 load factor for 8 hours per day
4 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day
10 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Building Construction 10/22/2012 - 1/25/2013 - Building Construction
Off-Road Equipment:
8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day
67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day
3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day
11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day
9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day
2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day
12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

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Phase: Architectural Coating 10/22/2012 - 1/25/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/22/2012-12/31/2012 Active Days: 51	**160.25**	970.89	**534.31**	**0.07**	**0.31**	14.07	14.38	**0.11**	12.94	13.04
Asphalt 10/22/2012-01/25/2013	66.03	459.54	261.99	0.03	0.14	6.49	6.63	0.05	5.96	6.01
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	64.18	455.03	241.83	0.00	0.00	6.28	6.28	0.00	5.78	5.78
Paving On Road Diesel	0.28	3.44	1.33	0.01	0.02	0.14	0.16	0.01	0.12	0.13
Paving Worker Trips	0.57	1.08	18.83	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	67.59	505.50	269.21	0.03	0.13	7.35	7.48	0.04	6.76	6.81
Building Off Road Diesel	66.80	501.02	251.22	0.00	0.00	7.15	7.15	0.00	6.58	6.58
Building Vendor Trips	0.33	3.62	2.99	0.01	0.03	0.15	0.18	0.01	0.14	0.15
Building Worker Trips	0.45	0.86	15.00	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.18	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.87	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.47	5.80	2.24	0.01	0.03	0.23	0.26	0.01	0.21	0.22
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 1/1/2013-1/25/2013 Active Days: 19	153.53	899.89	518.33	**0.07**	**0.31**	12.90	13.21	**0.11**	11.86	11.96
Asphalt 10/22/2012-01/25/2013	63.16	427.41	253.10	0.03	0.14	6.09	6.23	0.05	5.59	5.64
Paving Off-Gas	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	61.39	423.40	234.42	0.00	0.00	5.90	5.90	0.00	5.43	5.43
Paving On Road Diesel	0.25	3.03	1.18	0.01	0.02	0.12	0.14	0.01	0.11	0.11
Paving Worker Trips	0.52	0.98	17.50	0.03	0.12	0.07	0.19	0.04	0.06	0.10
Building 10/22/2012-01/25/2013	63.77	467.31	262.44	0.03	0.13	6.61	6.74	0.04	6.08	6.12
Building Off Road Diesel	63.06	463.33	245.76	0.00	0.00	6.43	6.43	0.00	5.91	5.91
Building Vendor Trips	0.30	3.20	2.75	0.01	0.03	0.13	0.16	0.01	0.12	0.13
Building Worker Trips	0.41	0.78	13.94	0.02	0.10	0.06	0.15	0.04	0.05	0.08
Coating 10/22/2012-01/25/2013	26.17	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	26.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Fine Grading 10/22/2012-01/25/2013	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Dust	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Off Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading On Road Diesel	0.42	5.11	1.98	0.01	0.03	0.20	0.23	0.01	0.18	0.19
Fine Grading Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Paving 10/22/2012 - 1/25/2013 - Asphalt Paving

For Excavators, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Excavators, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Tractors, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

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For Off Highway Tractors, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rollers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rollers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Scrapers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Scrapers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

The following mitigation measures apply to Phase: Building Construction 10/22/2012 - 1/25/2013 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

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For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:
NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:
PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk159-178.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	91.64	551.13	271.68	0.05	0.20	25.99	26.18	0.07	23.90	23.97
2013 TOTALS (lbs/day mitigated)	91.64	469.36	271.68	0.05	0.20	6.71	6.91	0.07	6.16	6.23

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/28/2013-6/14/2013 Active Days: 100	**91.64**	**551.13**	**271.68**	**0.05**	**0.20**	**25.99**	**26.18**	**0.07**	**23.90**	**23.97**
Building 01/28/2013-06/14/2013	64.13	551.08	270.83	0.04	0.19	25.98	26.17	0.07	23.90	23.96
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.45	4.81	4.13	0.01	0.04	0.20	0.24	0.01	0.18	0.19
Building Worker Trips	0.62	1.17	20.94	0.03	0.15	0.08	0.23	0.05	0.07	0.12
Coating 01/28/2013-06/14/2013	27.51	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	27.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Phase Assumptions

Phase: Building Construction 1/28/2013 - 6/14/2013 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 1/28/2013 - 6/14/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/28/2013-6/14/2013 Active Days: 100	**91.64**	469.36	**271.68**	**0.05**	**0.20**	6.71	6.91	**0.07**	6.16	6.23
Building 01/28/2013-06/14/2013	64.13	469.32	270.83	0.04	0.19	6.71	6.90	0.07	6.16	6.23
Building Off Road Diesel	63.06	463.33	245.76	0.00	0.00	6.43	6.43	0.00	5.91	5.91
Building Vendor Trips	0.45	4.81	4.13	0.01	0.04	0.20	0.24	0.01	0.18	0.19
Building Worker Trips	0.62	1.17	20.94	0.03	0.15	0.08	0.23	0.05	0.07	0.12
Coating 01/28/2013-06/14/2013	27.51	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	27.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/28/2013 - 6/14/2013 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk159-178.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	91.64	551.13	271.68	0.05	0.20	25.99	26.18	0.07	23.90	23.97
2013 TOTALS (lbs/day mitigated)	91.64	469.36	271.68	0.05	0.20	6.71	6.91	0.07	6.16	6.23

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/28/2013-6/14/2013 Active Days: 100	**91.64**	**551.13**	**271.68**	**0.05**	**0.20**	**25.99**	**26.18**	**0.07**	**23.90**	**23.97**
Building 01/28/2013-06/14/2013	64.13	551.08	270.83	0.04	0.19	25.98	26.17	0.07	23.90	23.96
Building Off Road Diesel	63.06	545.10	245.76	0.00	0.00	25.70	25.70	0.00	23.65	23.65
Building Vendor Trips	0.45	4.81	4.13	0.01	0.04	0.20	0.24	0.01	0.18	0.19
Building Worker Trips	0.62	1.17	20.94	0.03	0.15	0.08	0.23	0.05	0.07	0.12
Coating 01/28/2013-06/14/2013	27.51	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	27.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Phase Assumptions

Phase: Building Construction 1/28/2013 - 6/14/2013 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day

5 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

67 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

11 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

9 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

12 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

8 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 1/28/2013 - 6/14/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/28/2013-6/14/2013 Active Days: 100	**91.64**	469.36	**271.68**	**0.05**	**0.20**	6.71	6.91	**0.07**	6.16	6.23
Building 01/28/2013-06/14/2013	64.13	469.32	270.83	0.04	0.19	6.71	6.90	0.07	6.16	6.23
Building Off Road Diesel	63.06	463.33	245.76	0.00	0.00	6.43	6.43	0.00	5.91	5.91
Building Vendor Trips	0.45	4.81	4.13	0.01	0.04	0.20	0.24	0.01	0.18	0.19
Building Worker Trips	0.62	1.17	20.94	0.03	0.15	0.08	0.23	0.05	0.07	0.12
Coating 01/28/2013-06/14/2013	27.51	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01
Architectural Coating	27.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.03	0.05	0.85	0.00	0.01	0.00	0.01	0.00	0.00	0.01

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/28/2013 - 6/14/2013 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Graders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Graders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk179-196.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	80.61	476.87	233.03	0.04	0.17	22.25	22.42	0.06	20.47	20.53
2013 TOTALS (lbs/day mitigated)	80.61	406.11	233.03	0.04	0.17	5.75	5.91	0.06	5.28	5.34

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 6/17/2013-10/18/2013 Active Days: 90	**80.61**	**476.87**	**233.03**	**0.04**	**0.17**	**22.25**	**22.42**	**0.06**	**20.47**	**20.53**
Building 06/17/2013-10/18/2013	54.66	476.82	232.22	0.04	0.16	22.25	22.41	0.06	20.46	20.52
Building Off Road Diesel	53.75	471.70	210.80	0.00	0.00	22.01	22.01	0.00	20.25	20.25
Building Vendor Trips	0.38	4.11	3.53	0.01	0.04	0.17	0.20	0.01	0.15	0.17
Building Worker Trips	0.53	1.00	17.88	0.03	0.12	0.07	0.20	0.04	0.06	0.11
Coating 06/17/2013-10/18/2013	25.95	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 6/17/2013 - 10/18/2013 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

64 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

10 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

11 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

7 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 6/17/2013 - 10/18/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 6/17/2013-10/18/2013	**80.61**	406.11	**233.03**	**0.04**	**0.17**	5.75	5.91	**0.06**	5.28	5.34
Active Days: 90										
Building 06/17/2013-10/18/2013	54.66	406.06	232.22	0.04	0.16	5.74	5.90	0.06	5.28	5.33
Building Off Road Diesel	53.75	400.95	210.80	0.00	0.00	5.50	5.50	0.00	5.06	5.06
Building Vendor Trips	0.38	4.11	3.53	0.01	0.04	0.17	0.20	0.01	0.15	0.17
Building Worker Trips	0.53	1.00	17.88	0.03	0.12	0.07	0.20	0.04	0.06	0.11
Coating 06/17/2013-10/18/2013	25.95	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 6/17/2013 - 10/18/2013 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk179-196.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	80.61	476.87	233.03	0.04	0.17	22.25	22.42	0.06	20.47	20.53
2013 TOTALS (lbs/day mitigated)	80.61	406.11	233.03	0.04	0.17	5.75	5.91	0.06	5.28	5.34

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 6/17/2013-10/18/2013 Active Days: 90	**80.61**	**476.87**	**233.03**	**0.04**	**0.17**	**22.25**	**22.42**	**0.06**	**20.47**	**20.53**
Building 06/17/2013-10/18/2013	54.66	476.82	232.22	0.04	0.16	22.25	22.41	0.06	20.46	20.52
Building Off Road Diesel	53.75	471.70	210.80	0.00	0.00	22.01	22.01	0.00	20.25	20.25
Building Vendor Trips	0.38	4.11	3.53	0.01	0.04	0.17	0.20	0.01	0.15	0.17
Building Worker Trips	0.53	1.00	17.88	0.03	0.12	0.07	0.20	0.04	0.06	0.11
Coating 06/17/2013-10/18/2013	25.95	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00

9/17/2010 02:10:36 PM

Phase Assumptions

Phase: Building Construction 6/17/2013 - 10/18/2013 - Building Construction

Off-Road Equipment:

8 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

64 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

10 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

7 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

11 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

7 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 6/17/2013 - 10/18/2013 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 6/17/2013-10/18/2013 Active Days: 90	**80.61**	406.11	**233.03**	**0.04**	**0.17**	5.75	5.91	**0.06**	5.28	5.34
Building 06/17/2013-10/18/2013	54.66	406.06	232.22	0.04	0.16	5.74	5.90	0.06	5.28	5.33
Building Off Road Diesel	53.75	400.95	210.80	0.00	0.00	5.50	5.50	0.00	5.06	5.06
Building Vendor Trips	0.38	4.11	3.53	0.01	0.04	0.17	0.20	0.01	0.15	0.17
Building Worker Trips	0.53	1.00	17.88	0.03	0.12	0.07	0.20	0.04	0.06	0.11
Coating 06/17/2013-10/18/2013	25.95	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00
Architectural Coating	25.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.02	0.05	0.81	0.00	0.01	0.00	0.01	0.00	0.00	0.00

9/17/2010 02:10:36 PM

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 6/17/2013 - 10/18/2013 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

9/17/2010 02:15:01 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk197-210.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	53.65	323.81	151.89	0.02	0.08	14.90	14.98	0.03	13.70	13.73
2013 TOTALS (lbs/day mitigated)	53.65	275.65	151.89	0.02	0.08	3.82	3.90	0.03	3.51	3.54
2014 TOTALS (lbs/day unmitigated)	51.53	292.33	147.19	0.02	0.08	13.14	13.22	0.03	12.08	12.11
2014 TOTALS (lbs/day mitigated)	51.53	248.84	147.19	0.02	0.08	3.37	3.45	0.03	3.10	3.13

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/21/2013-12/31/2013 Active Days: 52	**53.65**	**323.81**	**151.89**	**0.02**	**0.08**	**14.90**	**14.98**	**0.03**	**13.70**	**13.73**
Building 10/21/2013-01/24/2014	36.95	323.79	151.43	0.02	0.08	14.89	14.97	0.03	13.70	13.73
Building Off Road Diesel	36.50	321.07	141.33	0.00	0.00	14.77	14.77	0.00	13.59	13.59
Building Vendor Trips	0.21	2.26	1.94	0.01	0.02	0.09	0.11	0.01	0.08	0.09
Building Worker Trips	0.24	0.46	8.16	0.01	0.06	0.03	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 1/1/2014-1/24/2014 Active Days: 18	51.53	292.33	147.19	**0.02**	**0.08**	13.14	13.22	**0.03**	12.08	12.11
Building 10/21/2013-01/24/2014	34.84	292.30	146.76	0.02	0.08	13.14	13.21	0.03	12.08	12.11
Building Off Road Diesel	34.43	289.90	137.36	0.00	0.00	13.02	13.02	0.00	11.98	11.98
Building Vendor Trips	0.19	1.98	1.79	0.01	0.02	0.08	0.10	0.01	0.07	0.08
Building Worker Trips	0.22	0.42	7.60	0.01	0.06	0.04	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00

9/17/2010 02:15:01 PM

Phase Assumptions

Phase: Building Construction 10/21/2013 - 1/24/2014 - Building Construction

Off-Road Equipment:

5 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

44 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

7 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

4 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

6 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

4 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/21/2013 - 1/24/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/21/2013-12/31/2013 Active Days: 52	**53.65**	275.65	**151.89**	**0.02**	**0.08**	3.82	3.90	**0.03**	3.51	3.54
Building 10/21/2013-01/24/2014	36.95	275.63	151.43	0.02	0.08	3.82	3.89	0.03	3.51	3.54
Building Off Road Diesel	36.50	272.91	141.33	0.00	0.00	3.69	3.69	0.00	3.40	3.40
Building Vendor Trips	0.21	2.26	1.94	0.01	0.02	0.09	0.11	0.01	0.08	0.09
Building Worker Trips	0.24	0.46	8.16	0.01	0.06	0.03	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 1/1/2014-1/24/2014 Active Days: 18	51.53	248.84	147.19	**0.02**	**0.08**	3.37	3.45	**0.03**	3.10	3.13
Building 10/21/2013-01/24/2014	34.84	248.82	146.76	0.02	0.08	3.37	3.45	0.03	3.10	3.13
Building Off Road Diesel	34.43	246.42	137.36	0.00	0.00	3.25	3.25	0.00	2.99	2.99
Building Vendor Trips	0.19	1.98	1.79	0.01	0.02	0.08	0.10	0.01	0.07	0.08
Building Worker Trips	0.22	0.42	7.60	0.01	0.06	0.04	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 10/21/2013 - 1/24/2014 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

9/17/2010 02:15:34 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk197-210.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2013 TOTALS (lbs/day unmitigated)	53.65	323.81	151.89	0.02	0.08	14.90	14.98	0.03	13.70	13.73
2013 TOTALS (lbs/day mitigated)	53.65	275.65	151.89	0.02	0.08	3.82	3.90	0.03	3.51	3.54
2014 TOTALS (lbs/day unmitigated)	51.53	292.33	147.19	0.02	0.08	13.14	13.22	0.03	12.08	12.11
2014 TOTALS (lbs/day mitigated)	51.53	248.84	147.19	0.02	0.08	3.37	3.45	0.03	3.10	3.13

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/21/2013-12/31/2013 Active Days: 52	**53.65**	**323.81**	**151.89**	**0.02**	**0.08**	**14.90**	**14.98**	**0.03**	**13.70**	**13.73**
Building 10/21/2013-01/24/2014	36.95	323.79	151.43	0.02	0.08	14.89	14.97	0.03	13.70	13.73
Building Off Road Diesel	36.50	321.07	141.33	0.00	0.00	14.77	14.77	0.00	13.59	13.59
Building Vendor Trips	0.21	2.26	1.94	0.01	0.02	0.09	0.11	0.01	0.08	0.09
Building Worker Trips	0.24	0.46	8.16	0.01	0.06	0.03	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 1/1/2014-1/24/2014 Active Days: 18	51.53	292.33	147.19	**0.02**	**0.08**	13.14	13.22	**0.03**	12.08	12.11
Building 10/21/2013-01/24/2014	34.84	292.30	146.76	0.02	0.08	13.14	13.21	0.03	12.08	12.11
Building Off Road Diesel	34.43	289.90	137.36	0.00	0.00	13.02	13.02	0.00	11.98	11.98
Building Vendor Trips	0.19	1.98	1.79	0.01	0.02	0.08	0.10	0.01	0.07	0.08
Building Worker Trips	0.22	0.42	7.60	0.01	0.06	0.04	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 10/21/2013 - 1/24/2014 - Building Construction

Off-Road Equipment:

5 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

44 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

7 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

4 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

6 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

4 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 10/21/2013 - 1/24/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 10/21/2013-12/31/2013 Active Days: 52	**53.65**	275.65	**151.89**	**0.02**	**0.08**	3.82	3.90	**0.03**	3.51	3.54
Building 10/21/2013-01/24/2014	36.95	275.63	151.43	0.02	0.08	3.82	3.89	0.03	3.51	3.54
Building Off Road Diesel	36.50	272.91	141.33	0.00	0.00	3.69	3.69	0.00	3.40	3.40
Building Vendor Trips	0.21	2.26	1.94	0.01	0.02	0.09	0.11	0.01	0.08	0.09
Building Worker Trips	0.24	0.46	8.16	0.01	0.06	0.03	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.03	0.46	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Time Slice 1/1/2014-1/24/2014 Active Days: 18	51.53	248.84	147.19	**0.02**	**0.08**	3.37	3.45	**0.03**	3.10	3.13
Building 10/21/2013-01/24/2014	34.84	248.82	146.76	0.02	0.08	3.37	3.45	0.03	3.10	3.13
Building Off Road Diesel	34.43	246.42	137.36	0.00	0.00	3.25	3.25	0.00	2.99	2.99
Building Vendor Trips	0.19	1.98	1.79	0.01	0.02	0.08	0.10	0.01	0.07	0.08
Building Worker Trips	0.22	0.42	7.60	0.01	0.06	0.04	0.09	0.02	0.03	0.05
Coating 10/21/2013-01/24/2014	16.69	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Architectural Coating	16.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.02	0.43	0.00	0.00	0.00	0.01	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 10/21/2013 - 1/24/2014 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk211-220.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	35.75	209.78	101.08	0.01	0.03	9.25	9.28	0.01	8.51	8.52
2014 TOTALS (lbs/day mitigated)	35.75	178.43	101.08	0.01	0.03	2.34	2.37	0.01	2.15	2.16

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/27/2014-4/4/2014 Active Days: 50	**35.75**	**209.78**	**101.08**	**0.01**	**0.03**	**9.25**	**9.28**	**0.01**	**8.51**	**8.52**
Building 01/27/2014-04/04/2014	24.92	209.77	100.88	0.01	0.03	9.25	9.28	0.01	8.51	8.52
Building Off Road Diesel	24.79	209.01	97.71	0.00	0.00	9.21	9.21	0.00	8.48	8.48
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.08	0.14	2.61	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 01/27/2014-04/04/2014	10.82	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9/17/2010 02:31:14 PM

Phase Assumptions

Phase: Building Construction 1/27/2014 - 4/4/2014 - Building Construction

Off-Road Equipment:

3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

32 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

5 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

3 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

2 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 1/27/2014 - 4/4/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/27/2014-4/4/2014 Active Days: 50	**35.75**	178.43	**101.08**	**0.01**	**0.03**	2.34	2.37	**0.01**	2.15	2.16
Building 01/27/2014-04/04/2014	24.92	178.42	100.88	0.01	0.03	2.34	2.37	0.01	2.15	2.16
Building Off Road Diesel	24.79	177.66	97.71	0.00	0.00	2.30	2.30	0.00	2.12	2.12
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.08	0.14	2.61	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 01/27/2014-04/04/2014	10.82	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9/17/2010 02:31:14 PM

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/27/2014 - 4/4/2014 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

9/17/2010 02:32:02 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk211-220.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	35.75	209.78	101.08	0.01	0.03	9.25	9.28	0.01	8.51	8.52
2014 TOTALS (lbs/day mitigated)	35.75	178.43	101.08	0.01	0.03	2.34	2.37	0.01	2.15	2.16

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/27/2014-4/4/2014 Active Days: 50	**35.75**	**209.78**	**101.08**	**0.01**	**0.03**	**9.25**	**9.28**	**0.01**	**8.51**	**8.52**
Building 01/27/2014-04/04/2014	24.92	209.77	100.88	0.01	0.03	9.25	9.28	0.01	8.51	8.52
Building Off Road Diesel	24.79	209.01	97.71	0.00	0.00	9.21	9.21	0.00	8.48	8.48
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.08	0.14	2.61	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 01/27/2014-04/04/2014	10.82	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9/17/2010 02:32:02 PM

Phase Assumptions

Phase: Building Construction 1/27/2014 - 4/4/2014 - Building Construction

Off-Road Equipment:

3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

32 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

5 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

3 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

2 Trenchers (63 hp) operating at a 0.75 load factor for 8 hours per day

Phase: Architectural Coating 1/27/2014 - 4/4/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/27/2014-4/4/2014 Active Days: 50	**35.75**	178.43	**101.08**	**0.01**	**0.03**	2.34	2.37	**0.01**	2.15	2.16
Building 01/27/2014-04/04/2014	24.92	178.42	100.88	0.01	0.03	2.34	2.37	0.01	2.15	2.16
Building Off Road Diesel	24.79	177.66	97.71	0.00	0.00	2.30	2.30	0.00	2.12	2.12
Building Vendor Trips	0.06	0.62	0.56	0.00	0.01	0.02	0.03	0.00	0.02	0.02
Building Worker Trips	0.08	0.14	2.61	0.00	0.02	0.01	0.03	0.01	0.01	0.02
Coating 01/27/2014-04/04/2014	10.82	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	10.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9/17/2010 02:32:02 PM

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/27/2014 - 4/4/2014 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Tractors/Loaders/Backhoes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Trenchers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Trenchers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

9/17/2010 02:35:10 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk221-235.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	22.02	128.35	59.47	0.00	0.01	5.42	5.43	0.00	4.98	4.99
2014 TOTALS (lbs/day mitigated)	22.02	109.14	59.47	0.00	0.01	1.36	1.38	0.00	1.25	1.26

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 4/7/2014-7/18/2014 Active Days: 75	**22.02**	**128.35**	**59.47**	**0.00**	**0.01**	**5.42**	**5.43**	**0.00**	**4.98**	**4.99**
Building 04/07/2014-07/18/2014	15.20	128.35	59.41	0.00	0.01	5.42	5.43	0.00	4.98	4.99
Building Off Road Diesel	15.15	128.12	58.05	0.00	0.00	5.41	5.41	0.00	4.97	4.97
Building Vendor Trips	0.02	0.16	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.03	0.07	1.20	0.00	0.01	0.01	0.01	0.00	0.00	0.01
Coating 04/07/2014-07/18/2014	6.82	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	6.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 4/7/2014 - 7/18/2014 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

20 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

3 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/7/2014 - 7/18/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 4/7/2014-7/18/2014 Active Days: 75	**22.02**	109.14	**59.47**	**0.00**	**0.01**	1.36	1.38	**0.00**	1.25	1.26
Building 04/07/2014-07/18/2014	15.20	109.13	59.41	0.00	0.01	1.36	1.37	0.00	1.25	1.26
Building Off Road Diesel	15.15	108.91	58.05	0.00	0.00	1.35	1.35	0.00	1.24	1.24
Building Vendor Trips	0.02	0.16	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.03	0.07	1.20	0.00	0.01	0.01	0.01	0.00	0.00	0.01
Coating 04/07/2014-07/18/2014	6.82	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	6.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 4/7/2014 - 7/18/2014 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction wk221-235.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2014 TOTALS (lbs/day unmitigated)	22.02	128.35	59.47	0.00	0.01	5.42	5.43	0.00	4.98	4.99
2014 TOTALS (lbs/day mitigated)	22.02	109.14	59.47	0.00	0.01	1.36	1.38	0.00	1.25	1.26

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 4/7/2014-7/18/2014 Active Days: 75	**22.02**	**128.35**	**59.47**	**0.00**	**0.01**	**5.42**	**5.43**	**0.00**	**4.98**	**4.99**
Building 04/07/2014-07/18/2014	15.20	128.35	59.41	0.00	0.01	5.42	5.43	0.00	4.98	4.99
Building Off Road Diesel	15.15	128.12	58.05	0.00	0.00	5.41	5.41	0.00	4.97	4.97
Building Vendor Trips	0.02	0.16	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.03	0.07	1.20	0.00	0.01	0.01	0.01	0.00	0.00	0.01
Coating 04/07/2014-07/18/2014	6.82	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	6.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Phase Assumptions

Phase: Building Construction 4/7/2014 - 7/18/2014 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

20 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

2 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

3 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

2 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 4/7/2014 - 7/18/2014 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 4/7/2014-7/18/2014 Active Days: 75	**22.02**	109.14	**59.47**	**0.00**	**0.01**	1.36	1.38	**0.00**	1.25	1.26
Building 04/07/2014-07/18/2014	15.20	109.13	59.41	0.00	0.01	1.36	1.37	0.00	1.25	1.26
Building Off Road Diesel	15.15	108.91	58.05	0.00	0.00	1.35	1.35	0.00	1.24	1.24
Building Vendor Trips	0.02	0.16	0.15	0.00	0.00	0.01	0.01	0.00	0.01	0.01
Building Worker Trips	0.03	0.07	1.20	0.00	0.01	0.01	0.01	0.00	0.00	0.01
Coating 04/07/2014-07/18/2014	6.82	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	6.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 4/7/2014 - 7/18/2014 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction 2015.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2015 TOTALS (lbs/day unmitigated)	50.59	220.62	143.93	0.08	0.33	9.02	9.35	0.12	8.29	8.40
2015 TOTALS (lbs/day mitigated)	50.59	188.45	143.93	0.08	0.33	2.52	2.84	0.12	2.30	2.42
2016 TOTALS (lbs/day unmitigated)	48.87	195.79	139.56	0.08	0.33	8.33	8.66	0.12	7.65	7.77
2016 TOTALS (lbs/day mitigated)	48.87	167.25	139.56	0.08	0.33	2.33	2.66	0.12	2.13	2.24
2017 TOTALS (lbs/day unmitigated)	47.22	174.59	135.80	0.08	0.33	7.28	7.61	0.12	6.68	6.80
2017 TOTALS (lbs/day mitigated)	47.22	149.15	135.80	0.08	0.33	2.05	2.38	0.12	1.87	1.99

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/5/2015-12/31/2015 Active Days: 259	**50.59**	**220.62**	**143.93**	**0.08**	**0.33**	**9.02**	**9.35**	**0.12**	**8.29**	**8.40**
Building 01/05/2015-09/08/2017	28.30	220.61	143.74	0.08	0.33	9.02	9.35	0.12	8.29	8.40
Building Off Road Diesel	26.90	214.46	105.32	0.00	0.00	8.68	8.68	0.00	7.98	7.98
Building Vendor Trips	0.43	4.29	4.33	0.01	0.05	0.17	0.23	0.02	0.16	0.18
Building Worker Trips	0.97	1.86	34.09	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9/17/2010 12:01:08 PM

Time Slice 1/1/2016-12/30/2016 Active Days: 261	48.87	195.79	139.56	**0.08**	**0.33**	8.33	8.66	**0.12**	7.65	7.77
Building 01/05/2015-09/08/2017	26.58	195.78	139.38	0.08	0.33	8.33	8.66	0.12	7.65	7.76
Building Off Road Diesel	25.30	190.28	103.51	0.00	0.00	8.00	8.00	0.00	7.36	7.36
Building Vendor Trips	0.39	3.79	4.03	0.01	0.05	0.15	0.21	0.02	0.14	0.16
Building Worker Trips	0.89	1.72	31.84	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2017-9/8/2017 Active Days: 180	47.22	174.59	135.80	**0.08**	**0.33**	7.28	7.61	**0.12**	6.68	6.80
Building 01/05/2015-09/08/2017	24.93	174.59	135.63	0.08	0.33	7.28	7.61	0.12	6.68	6.80
Building Off Road Diesel	23.76	169.63	102.19	0.00	0.00	6.97	6.97	0.00	6.41	6.41
Building Vendor Trips	0.36	3.37	3.75	0.01	0.05	0.14	0.19	0.02	0.13	0.14
Building Worker Trips	0.82	1.59	29.69	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 1/5/2015 - 9/8/2017 - Building Construction

Off-Road Equipment:

3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

33 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

6 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

5 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 1/5/2015 - 9/8/2017 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

9/17/2010 12:01:08 PM

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/5/2015-12/31/2015 Active Days: 259	**50.59**	188.45	**143.93**	**0.08**	**0.33**	2.52	2.84	**0.12**	2.30	2.42
Building 01/05/2015-09/08/2017	28.30	188.44	143.74	0.08	0.33	2.52	2.84	0.12	2.30	2.42
Building Off Road Diesel	26.90	182.29	105.32	0.00	0.00	2.17	2.17	0.00	2.00	2.00
Building Vendor Trips	0.43	4.29	4.33	0.01	0.05	0.17	0.23	0.02	0.16	0.18
Building Worker Trips	0.97	1.86	34.09	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2016-12/30/2016 Active Days: 261	48.87	167.25	139.56	**0.08**	**0.33**	2.33	2.66	**0.12**	2.13	2.24
Building 01/05/2015-09/08/2017	26.58	167.24	139.38	0.08	0.33	2.33	2.65	0.12	2.13	2.24
Building Off Road Diesel	25.30	161.74	103.51	0.00	0.00	2.00	2.00	0.00	1.84	1.84
Building Vendor Trips	0.39	3.79	4.03	0.01	0.05	0.15	0.21	0.02	0.14	0.16
Building Worker Trips	0.89	1.72	31.84	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2017-9/8/2017 Active Days: 180	47.22	149.15	135.80	**0.08**	**0.33**	2.05	2.38	**0.12**	1.87	1.99
Building 01/05/2015-09/08/2017	24.93	149.14	135.63	0.08	0.33	2.05	2.38	0.12	1.87	1.99
Building Off Road Diesel	23.76	144.19	102.19	0.00	0.00	1.74	1.74	0.00	1.60	1.60
Building Vendor Trips	0.36	3.37	3.75	0.01	0.05	0.14	0.19	0.02	0.13	0.14
Building Worker Trips	0.82	1.59	29.69	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9/17/2010 12:01:08 PM

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/5/2015 - 9/8/2017 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

9/17/2010 12:01:42 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Construction - Mitigated\Landmark Recirc Construction 2015.urb924

Project Name: Landmark Village - Construction

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
2015 TOTALS (lbs/day unmitigated)	50.59	220.62	143.93	0.08	0.33	9.02	9.35	0.12	8.29	8.40
2015 TOTALS (lbs/day mitigated)	50.59	188.45	143.93	0.08	0.33	2.52	2.84	0.12	2.30	2.42
2016 TOTALS (lbs/day unmitigated)	48.87	195.79	139.56	0.08	0.33	8.33	8.66	0.12	7.65	7.77
2016 TOTALS (lbs/day mitigated)	48.87	167.25	139.56	0.08	0.33	2.33	2.66	0.12	2.13	2.24
2017 TOTALS (lbs/day unmitigated)	47.22	174.59	135.80	0.08	0.33	7.28	7.61	0.12	6.68	6.80
2017 TOTALS (lbs/day mitigated)	47.22	149.15	135.80	0.08	0.33	2.05	2.38	0.12	1.87	1.99

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/5/2015-12/31/2015 Active Days: 259	**50.59**	**220.62**	**143.93**	**0.08**	**0.33**	**9.02**	**9.35**	**0.12**	**8.29**	**8.40**
Building 01/05/2015-09/08/2017	28.30	220.61	143.74	0.08	0.33	9.02	9.35	0.12	8.29	8.40
Building Off Road Diesel	26.90	214.46	105.32	0.00	0.00	8.68	8.68	0.00	7.98	7.98
Building Vendor Trips	0.43	4.29	4.33	0.01	0.05	0.17	0.23	0.02	0.16	0.18
Building Worker Trips	0.97	1.86	34.09	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Time Slice 1/1/2016-12/30/2016 Active Days: 261	48.87	195.79	139.56	**0.08**	**0.33**	8.33	8.66	**0.12**	7.65	7.77
Building 01/05/2015-09/08/2017	26.58	195.78	139.38	0.08	0.33	8.33	8.66	0.12	7.65	7.76
Building Off Road Diesel	25.30	190.28	103.51	0.00	0.00	8.00	8.00	0.00	7.36	7.36
Building Vendor Trips	0.39	3.79	4.03	0.01	0.05	0.15	0.21	0.02	0.14	0.16
Building Worker Trips	0.89	1.72	31.84	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2017-9/8/2017 Active Days: 180	47.22	174.59	135.80	**0.08**	**0.33**	7.28	7.61	**0.12**	6.68	6.80
Building 01/05/2015-09/08/2017	24.93	174.59	135.63	0.08	0.33	7.28	7.61	0.12	6.68	6.80
Building Off Road Diesel	23.76	169.63	102.19	0.00	0.00	6.97	6.97	0.00	6.41	6.41
Building Vendor Trips	0.36	3.37	3.75	0.01	0.05	0.14	0.19	0.02	0.13	0.14
Building Worker Trips	0.82	1.59	29.69	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 1/5/2015 - 9/8/2017 - Building Construction

Off-Road Equipment:

3 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day

6 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

33 Other Equipment (190 hp) operating at a 0.62 load factor for 8 hours per day

3 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

6 Rough Terrain Forklifts (93 hp) operating at a 0.6 load factor for 8 hours per day

2 Rubber Tired Loaders (164 hp) operating at a 0.54 load factor for 8 hours per day

5 Skid Steer Loaders (44 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 1/5/2015 - 9/8/2017 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

9/17/2010 12:01:42 PM

Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Winter Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5
Time Slice 1/5/2015-12/31/2015 Active Days: 259	**50.59**	188.45	**143.93**	**0.08**	**0.33**	2.52	2.84	**0.12**	2.30	2.42
Building 01/05/2015-09/08/2017	28.30	188.44	143.74	0.08	0.33	2.52	2.84	0.12	2.30	2.42
Building Off Road Diesel	26.90	182.29	105.32	0.00	0.00	2.17	2.17	0.00	2.00	2.00
Building Vendor Trips	0.43	4.29	4.33	0.01	0.05	0.17	0.23	0.02	0.16	0.18
Building Worker Trips	0.97	1.86	34.09	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.01	0.01	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/1/2016-12/30/2016 Active Days: 261	48.87	167.25	139.56	**0.08**	**0.33**	2.33	2.66	**0.12**	2.13	2.24
Building 01/05/2015-09/08/2017	26.58	167.24	139.38	0.08	0.33	2.33	2.65	0.12	2.13	2.24
Building Off Road Diesel	25.30	161.74	103.51	0.00	0.00	2.00	2.00	0.00	1.84	1.84
Building Vendor Trips	0.39	3.79	4.03	0.01	0.05	0.15	0.21	0.02	0.14	0.16
Building Worker Trips	0.89	1.72	31.84	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Time Slice 1/2/2017-9/8/2017 Active Days: 180	47.22	149.15	135.80	**0.08**	**0.33**	2.05	2.38	**0.12**	1.87	1.99
Building 01/05/2015-09/08/2017	24.93	149.14	135.63	0.08	0.33	2.05	2.38	0.12	1.87	1.99
Building Off Road Diesel	23.76	144.19	102.19	0.00	0.00	1.74	1.74	0.00	1.60	1.60
Building Vendor Trips	0.36	3.37	3.75	0.01	0.05	0.14	0.19	0.02	0.13	0.14
Building Worker Trips	0.82	1.59	29.69	0.06	0.27	0.17	0.45	0.10	0.15	0.24
Coating 01/05/2015-09/08/2017	22.28	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	22.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00

9/17/2010 12:01:42 PM

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Building Construction 1/5/2015 - 9/8/2017 - Building Construction

For Cranes, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Other Equipment, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Other Equipment, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pavers, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Pavers, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rough Terrain Forklifts, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Rubber Tired Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Skid Steer Loaders, the Use Aqueous Diesel Fuel mitigation reduces emissions by:

NOX: 15% PM10: 50% PM25: 50%

For Skid Steer Loaders, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

URBEMIS2007 Calculations, Operational

5/27/2010 03:45:00 PM

Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Operational.urb924

Project Name: Landmark - Operational - Recirculated DEIR

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	93.70	31.98	55.66	0.00	0.17	0.17

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	185.52	216.70	1,989.02	2.63	426.36	83.31

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	279.22	248.68	2,044.68	2.63	426.53	83.48

5/27/2010 03:45:00 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	2.40	31.52	16.92	0.00	0.06	0.06
Hearth - No Summer Emissions						
Landscape	5.75	0.46	38.74	0.00	0.11	0.11
Consumer Products	75.56					
Architectural Coatings	9.99					
TOTALS (lbs/day, unmitigated)	93.70	31.98	55.66	0.00	0.17	0.17

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	27.24	32.67	307.20	0.41	65.89	12.87
Apartments low rise	15.46	17.53	164.84	0.22	35.36	6.91
Condo/townhouse general	15.29	17.78	167.17	0.22	35.86	7.01
Elementary school	8.93	5.51	50.30	0.07	10.73	2.10
City park	0.35	0.29	2.63	0.00	0.58	0.11
Free-standing discount store	48.65	56.46	504.09	0.65	106.27	20.78
Regnl shop. center	24.03	29.76	265.66	0.35	57.20	11.17
Strip mall	1.27	1.43	12.80	0.02	2.69	0.53
Office park	44.30	55.27	514.33	0.69	111.78	21.83
TOTALS (lbs/day, unmitigated)	185.52	216.70	1,989.02	2.63	426.36	83.31

5/27/2010 03:45:00 PM

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 26.38 Nonresidential Trip % Reduction: 10.81

Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	197.00	7.29	dwelling units	591.00	4,307.64	38,101.06
Apartments low rise	28.44	5.08	dwelling units	455.00	2,311.41	20,444.42
Condo/townhouse general	24.88	5.89	dwelling units	398.00	2,344.17	20,734.21
Elementary school		1.29	students	750.00	969.96	6,202.22
City park		2.32	acres	20.90	48.47	335.87
Free-standing discount store		48.22	1000 sq ft	252.00	12,150.67	61,437.25
Regnl shop. center		75.87	1000 sq ft	76.10	5,773.43	33,077.46
Strip mall		33.05	1000 sq ft	9.50	314.02	1,553.95
Office park		10.31	1000 sq ft	702.40	7,242.12	64,645.92
					35,461.89	246,532.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Free-standing discount store				2.0	1.0	97.0
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Alan Sako\032.92A Landmark Village\Recirculated DEIR\URBEMIS2007 Update\Landmark Recirc Operational.urb924

Project Name: Landmark - Operational - Recirculated DEIR

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	88.51	41.14	21.01	0.06	0.84	0.83

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	202.00	260.33	1,925.72	2.16	426.36	83.31

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	290.51	301.47	1,946.73	2.22	427.20	84.14

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	2.40	31.52	16.92	0.00	0.06	0.06
Hearth	0.56	9.62	4.09	0.06	0.78	0.77
Landscaping - No Winter Emissions						
Consumer Products	75.56					
Architectural Coatings	9.99					
TOTALS (lbs/day, unmitigated)	88.51	41.14	21.01	0.06	0.84	0.83

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Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	28.78	39.30	293.66	0.34	65.89	12.87
Apartments low rise	15.84	21.09	157.57	0.18	35.36	6.91
Condo/townhouse general	15.88	21.39	159.80	0.18	35.86	7.01
Elementary school	7.22	6.62	48.91	0.05	10.73	2.10
City park	0.31	0.35	2.56	0.00	0.58	0.11
Free-standing discount store	56.45	67.65	499.47	0.54	106.27	20.78
Regnl shop. center	27.90	35.70	261.01	0.29	57.20	11.17
Strip mall	1.46	1.72	12.70	0.01	2.69	0.53
Office park	48.16	66.51	490.04	0.57	111.78	21.83
TOTALS (lbs/day, unmitigated)	202.00	260.33	1,925.72	2.16	426.36	83.31

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 26.38 Nonresidential Trip % Reduction: 10.81

Analysis Year: 2014 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

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Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	197.00	7.29	dwelling units	591.00	4,307.64	38,101.06
Apartments low rise	28.44	5.08	dwelling units	455.00	2,311.41	20,444.42
Condo/townhouse general	24.88	5.89	dwelling units	398.00	2,344.17	20,734.21
Elementary school		1.29	students	750.00	969.96	6,202.22
City park		2.32	acres	20.90	48.47	335.87
Free-standing discount store		48.22	1000 sq ft	252.00	12,150.67	61,437.25
Regnl shop. center		75.87	1000 sq ft	76.10	5,773.43	33,077.46
Strip mall		33.05	1000 sq ft	9.50	314.02	1,553.95
Office park		10.31	1000 sq ft	702.40	7,242.12	64,645.92
					35,461.89	246,532.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Free-standing discount store				2.0	1.0	97.0
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

URBEMIS2007 Calculations, Operational with Mitigation

Estimated Summertime Emissions Reductions Efficiencies
Landmark Village Emissions With Implementation of Newhall Ranch Specific Plan FEIR Air Quality Mitigation Measures

Input Fields

LAND USE		Unmitigated Emissions in Pounds per Day				
		CO	VOC	NO_X	PM_{10}	$PM_{2.5}$
Single Family Residential Uses	Vehicular Sources	307.20	27.24	32.67	65.89	12.87
	Area Sources	31.63	38.78	12.64	0.09	0.09
Multi-Family Residential Uses	Vehicular Sources	332.01	30.75	35.31	71.22	13.92
	Area Sources	7.65	47.17	10.76	0.03	0.03
Commercial/Office/Institutional Uses	Vehicular Sources	1,349.81	127.53	148.72	289.25	56.52
	Area Sources	16.38	7.75	8.58	0.05	0.05
Total Emissions	Vehicular Sources	1,989.02	185.52	216.70	426.36	83.31
	Area Sources	55.66	93.70	31.98	0.17	0.17
	Total Non-Reduced Emissions	**2,044.68**	**279.22**	**248.68**	**426.53**	**83.48**

Recommended Measures already incorporated into Project are marked "No"			Emission Reduction Efficiency					Reduced Emissions in Pounds per Day				
Yes	**No**	**MEASURES, EFFICIENCIES, AND REDUCTIONS**	**CO**	**VOC**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Stationary Sources												
All Residential Uses												
X		Use solar or low emission water heaters	10.0%	11.0%	9.5%	4.5%	4.5%	3.93	9.45	2.22	0.01	0.01
X		Use built-in-energy-efficient appliances	3.0%	2.5%	3.0%	6.5%	6.5%	1.18	2.15	0.70	0.01	0.01
X		Provide shade trees to reduce heating/cooling needs	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
X		Use energy-efficient and automated controls for air conditioners	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
X		Use double-glass paned windows	4.5%	4.5%	4.0%	2.5%	2.5%	1.77	3.87	0.94	0.00	0.00
	X	Provide ventilation systems for enclosed parking facilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Use lighting controls and energy efficient lighting	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Use fuel cells in residential subdivisions to produce heat and electicity	1.0%	0.0%	1.5%	7.0%	7.0%	0.00	0.00	0.00	0.00	0.00
X		Orient buildings to the north	13.5%	14.0%	13.0%	10.5%	10.5%	5.30	12.03	3.04	0.01	0.01
X		Use light-colored roof materials to reflect heat	1.5%	1.5%	1.5%	1.5%	1.5%	0.59	1.29	0.35	0.00	0.00
X		Comply with Title 24	13.0%	14.0%	13.0%	7.5%	7.5%	5.11	12.03	3.04	0.01	0.01
Multi-Family Residential Uses												
X		Use central water heating systems	8.5%	9.0%	8.0%	4.0%	4.0%	0.65	4.25	0.86	0.00	0.00
Commercial, Office, Institutional Uses												
X		Use solar or low emission water heaters	0.5%	0.5%	0.5%	0.5%	0.5%	0.08	0.04	0.04	0.00	0.00
X		Use central water heating systems	0.5%	0.5%	0.5%	0.5%	0.5%	0.08	0.04	0.04	0.00	0.00
X		Provide shade trees to reduce heating/cooling needs	0.5%	0.5%	0.5%	1.0%	1.0%	0.08	0.04	0.04	0.00	0.00
X		Use energy-efficient and automated controls for air conditioners	1.0%	1.0%	1.0%	1.5%	1.5%	0.16	0.08	0.09	0.00	0.00
X		Use double-glass paned windows	3.0%	3.5%	3.0%	2.5%	2.5%	0.49	0.27	0.26	0.00	0.00
X		Use energy-efficient low-sodium parking lights	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide ventilation systems for enclosed parking facilities	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
X		Use lighting controls and energy efficient lighting	7.0%	3.0%	8.5%	19.5%	19.5%	1.15	0.23	0.73	0.01	0.01
X		Use light-colored roof materials to reflect heat	1.0%	1.0%	1.0%	0.5%	0.5%	0.16	0.08	0.09	0.00	0.00
X		Comply with Title 24	9.5%	10.0%	9.0%	7.0%	7.0%	1.56	0.78	0.77	0.00	0.00
X		Orient buildings to the north	12.5%	11.0%	13.5%	17.5%	17.5%	2.05	0.85	1.16	0.01	0.01
Industrial Uses												
	X	Provide shade trees to reduce heating/cooling needs	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Use energy-efficient and automated controls for air conditioners	0.0%	0.0%	0.0%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Use double-glass paned windows	0.0%	0.0%	0.5%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Use energy-efficient low-sodium parking lights	0.0%	0.0%	0.5%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide ventilation systems for enclosed parking facilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use lightin constrols and energy efficient lighting	0.5%	0.0%	1.0%	2.5%	2.5%	0.00	0.00	0.00	0.00	0.00
	X	Use light-colored roof materials to reflect heat	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Orient buildings to the north	2.5%	2.0%	3.0%	5.5%	5.5%	0.00	0.00	0.00	0.00	0.00
	X	Comply with Title 24	0.5%	0.0%	1.0%	3.0%	3.0%	0.00	0.00	0.00	0.00	0.00
	X	Improved storage and handling of source materials	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Materials substitution (e.g., use water-based paints, life cycle analysis)	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Utilize efficient manufacturing processes	1.5%	0.5%	2.0%	6.0%	6.0%	0.00	0.00	0.00	0.00	0.00
	X	Resource recovery systems	3.0%	3.5%	3.0%	1.5%	1.5%	0.00	0.00	0.00	0.00	0.00

Mobile-Sources

Residential Uses

	X	Allow satellite telecommunications centers in residential subdivisions	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle service from residential subdivisions to commercial core areas	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Construct bus passenger benches and shelters	0.2%	0.2%	0.2%	0.2%	0.2%	1.28	0.12	0.14	0.27	0.05
X		Construct pedestrian facility improvements	0.1%	0.1%	0.1%	0.1%	0.1%	0.64	0.06	0.07	0.14	0.03
X		Retail services within or adjacent to residential subdivisions	1.3%	1.0%	1.3%	1.3%	1.3%	8.31	0.58	0.88	1.78	0.35
	X	Shuttle to major rail transit centers or multi-modal stations	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Contribute to regional transit systems	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Synchronize traffic lights on streets impacted by development	4.0%	4.0%	4.0%	4.0%	4.0%	25.57	2.32	2.72	5.48	1.07
X		Construct bicycle trails	0.1%	0.1%	0.1%	0.1%	0.1%	0.64	0.06	0.07	0.14	0.03

Commercial, Office and Insitutional Uses

X		Preferential parking spaces for carpools and vanpools	0.1%	0.1%	0.1%	0.1%	0.1%	1.35	0.13	0.15	0.29	0.06
X		Implement on-site circulation plan in parking lots	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Provide separate windows for fast-food restaurants	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide video-conference facilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Set up resident worker training programs to improve job/housing balance	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Implement home dispatching system for employees	0.1%	0.0%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Minimize use of fleet vehicles during smog alerts	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use low emission fleet vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce employee parking spaces for those business not under Rule 2202	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Lunch shuttle service from a worksite to food establishments	0.5%	0.4%	0.5%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Implement compressed work-week schedules	1.0%	0.8%	1.0%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Trip reduction plan to achieve 1.5 AVR for businesses	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Utilize satellite offices rather than regular worksite to reduce VMT	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Establish a home-based telecommuting program	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Provide or contribute to child care and after school facilities	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Offer travel incentives such as discounts on purchases for transit riders	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide on-site employee services such as cafeteria, banks, etc.	0.3%	0.2%	0.3%	0.3%	0.3%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle service from residential core area to the worksite	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Construct bus passenger benches and shelters	0.1%	0.1%	0.1%	0.1%	0.1%	1.35	0.13	0.15	0.29	0.06
X		Pricing structure for single-occupancy employee parking	2.0%	1.5%	2.0%	2.0%	2.0%	27.00	1.91	2.97	5.79	1.13
X		Residential units within or adjacent to commercial developments	4.0%	3.1%	4.0%	4.0%	4.0%	53.99	3.95	5.95	11.57	2.26
X		Utilize excess parking as park-n-ride or contribute to park-n-ride	0.1%	0.1%	0.1%	0.1%	0.1%	1.35	0.13	0.15	0.29	0.06
X		Construct bicycle facility improvements	0.3%	0.2%	0.3%	0.3%	0.3%	4.05	0.26	0.45	0.87	0.17
X		Construct pedestrian facility improvements	0.2%	0.2%	0.2%	0.2%	0.2%	2.70	0.26	0.30	0.58	0.11
	X	Shuttle to major rail transit centers or multi-modal stations	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Contribute to regional transit systems	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Charge visitors to park	2.0%	1.5%	2.0%	2.0%	2.0%	0.00	0.00	0.00	0.00	0.00
X		Synchronize traffic lights on streets impacted by development	4.0%	4.0%	4.0%	4.0%	4.0%	53.99	5.10	5.95	11.57	2.26
X		Reschedule truck deliveries and pickups for off-peak hours	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Paid parking at walkup kiosks	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		On-site truck loading zones	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Implement or contribute to public outreach programs	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Provide commuter information areas	0.1%	0.1%	0.1%	0.1%	0.1%	1.35	0.13	0.15	0.29	0.06

Industrial Uses

	X	Preferential parking spaces for carpools and vanpools	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Implement on-site circulation plan in parking lots	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Set up resident worker training programs to improve job/housing balance	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Implement home dispatching system for employees	0.1%	0.0%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Minimize use of fleet vehicles during smog alerts	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use low emission fleet vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide commuter information areas	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce employee parking spaces for those business not under Rule 2202	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Implement compressed work-week schedules	1.0%	0.8%	1.0%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Offer loans or other incentives to employees who move locally	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Trip reduction plan to achieve 1.5 AVR for businesses	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Provide or contribute to child care and after school facilities	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Provide on-site employee services such as cafeteria, banks, etc.	0.3%	0.2%	0.3%	0.3%	0.3%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle service from residential core area to the worksite	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Construct bus passenger benches and shelters	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Pricing structure for single-occupancy employee parking	2.0%	1.5%	2.0%	2.0%	2.0%	0.00	0.00	0.00	0.00	0.00
	X	Utilize excess parking as park-n-ride or contribute to park-n-ride	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Construct bicycle facility improvements	0.3%	0.2%	0.3%	0.3%	0.3%	0.00	0.00	0.00	0.00	0.00
	X	Construct pedestrian facility improvements	0.2%	0.2%	0.2%	0.2%	0.2%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle to major rail transit centers or multi-modal stations	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Contribute to regional transit systems	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Synchronize traffic lights on streets impacted by development	4.0%	4.0%	4.0%	4.0%	4.0%	0.00	0.00	0.00	0.00	0.00
	X	Reschedule truck deliveries and pickups for off-peak hours	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Lunch shuttle system from worksite to food establishments	0.5%	0.4%	0.5%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	On-site truck loading zones	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Install aerodynamic add-on devices to heavy-duty trucks	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Implement or contribute to public outreach programs	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce ship cruising speeds in the inner harbor	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use low-emission fuels or electrify airport ground service vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Engine tuning for marine vessels	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce number of aircraft engines used during idling	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Install monitoring system to control airport shuttles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use centralized ground power systems for airport service vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
		Reduction in Stationary Sources Emissions (Pounds per Day)						24.34	47.47	14.37	0.07	0.07
		Reduction in Mobile Sources Emissions (Pounds per Day)						183.56	15.12	20.09	39.34	7.69
		Total Reduction in Emissions Based on Newhall Ranch FEIR Measures (Pounds per Day)						207.90	62.59	34.46	39.41	7.76
		Percentage Reduced Based on Newhall Ranch FEIR Measures						10.17%	22.42%	13.86%	9.24%	9.29%
		Total Reduced Stationary Source Emissions						31.32	46.23	17.61	0.10	0.10
		Total Reduced Mobile Source Emissions						1,805.46	170.40	196.61	387.02	75.62
		TOTAL REDUCED EMISSIONS						1,836.78	216.63	214.22	387.12	75.72
		SCAQMD Thresholds						550.00	55.00	55.00	150.00	55.00
		Project Air Quality Impacts Significant?						YES	YES	YES	YES	YES

Estimated Wintertime Emissions Reductions Efficiencies
Landmark Village Emissions With Implementation of Newhall Ranch Specific Plan FEIR Air Quality Mitigation Measures

	Input Fields

		Unmitigated Emissions in Pounds per Day				
LAND USE		**CO**	**VOC**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Single Family Residential Uses	Vehicular Sources	293.66	28.78	39.30	65.89	12.87
	Area Sources	7.34	34.30	17.24	0.42	0.41
Multi-Family Residential Uses	Vehicular Sources	317.37	31.72	42.48	71.22	13.92
	Area Sources	6.57	47.20	15.44	0.40	0.40
Commercial/Office/Institutional Uses	Vehicular Sources	1,314.69	141.50	178.55	289.25	56.52
	Area Sources	7.11	7.01	8.46	0.02	0.02
Total Emissions	Vehicular Sources	1,925.72	202.00	260.33	426.36	83.31
	Area Sources	21.02	88.51	41.14	0.84	0.83
	Total Non-Reduced Emissions	**1,946.74**	**290.51**	**301.47**	**427.20**	**84.14**

Recommended Measures already incorporated into Project are marked "No"			Emission Reduction Efficiency					Reduced Emissions in Pounds per Day				
Yes	**No**	**MEASURES, EFFICIENCIES, AND REDUCTIONS**	**CO**	**VOC**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**	**CO**	**VOC**	**NO_X**	**PM_{10}**	**$PM_{2.5}$**
Stationary Sources												
All Residential Uses												
X		Use solar or low emission water heaters	10.0%	11.0%	9.5%	4.5%	4.5%	1.39	8.97	3.10	0.04	0.04
X		Use built-in-energy-efficient appliances	3.0%	2.5%	3.0%	6.5%	6.5%	0.42	2.04	0.98	0.05	0.05
X		Provide shade trees to reduce heating/cooling needs	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
X		Use energy-efficient and automated controls for air conditioners	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
X		Use double-glass paned windows	4.5%	4.5%	4.0%	2.5%	2.5%	0.63	3.67	1.31	0.02	0.02
	X	Provide ventilation systems for enclosed parking facilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Use lighting controls and energy efficient lighting	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Use fuel cells in residential subdivisions to produce heat and electicity	1.0%	0.0%	1.5%	7.0%	7.0%	0.00	0.00	0.00	0.00	0.00
X		Orient buildings to the north	13.5%	14.0%	13.0%	10.5%	10.5%	1.88	11.41	4.25	0.09	0.09
X		Use light-colored roof materials to reflect heat	1.5%	1.5%	1.5%	1.5%	1.5%	0.21	1.22	0.49	0.01	0.01
X		Comply with Title 24	13.0%	14.0%	13.0%	7.5%	7.5%	1.81	11.41	4.25	0.06	0.06
Multi-Family Residential Uses												
X		Use central water heating systems	8.5%	9.0%	8.0%	4.0%	4.0%	0.56	4.25	1.24	0.02	0.02
Commercial, Office, Institutional Uses												
X		Use solar or low emission water heaters	0.5%	0.5%	0.5%	0.5%	0.5%	0.04	0.04	0.04	0.00	0.00
X		Use central water heating systems	0.5%	0.5%	0.5%	0.5%	0.5%	0.04	0.04	0.04	0.00	0.00
X		Provide shade trees to reduce heating/cooling needs	0.5%	0.5%	0.5%	1.0%	1.0%	0.04	0.04	0.04	0.00	0.00
X		Use energy-efficient and automated controls for air conditioners	1.0%	1.0%	1.0%	1.5%	1.5%	0.07	0.07	0.08	0.00	0.00
X		Use double-glass paned windows	3.0%	3.5%	3.0%	2.5%	2.5%	0.21	0.25	0.25	0.00	0.00
X		Use energy-efficient low-sodium parking lights	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide ventilation systems for enclosed parking facilities	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
X		Use lighting controls and energy efficient lighting	7.0%	3.0%	8.5%	19.5%	19.5%	0.50	0.21	0.72	0.00	0.00
X		Use light-colored roof materials to reflect heat	1.0%	1.0%	1.0%	0.5%	0.5%	0.07	0.07	0.08	0.00	0.00
X		Comply with Title 24	9.5%	10.0%	9.0%	7.0%	7.0%	0.68	0.70	0.76	0.00	0.00
X		Orient buildings to the north	12.5%	11.0%	13.5%	17.5%	17.5%	0.89	0.77	1.14	0.00	0.00
Industrial Uses												
	X	Provide shade trees to reduce heating/cooling needs	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Use energy-efficient and automated controls for air conditioners	0.0%	0.0%	0.0%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Use double-glass paned windows	0.0%	0.0%	0.5%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Use energy-efficient low-sodium parking lights	0.0%	0.0%	0.5%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide ventilation systems for enclosed parking facilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use lightin constrols and energy efficient lighting	0.5%	0.0%	1.0%	2.5%	2.5%	0.00	0.00	0.00	0.00	0.00
	X	Use light-colored roof materials to reflect heat	0.0%	0.0%	0.0%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Orient buildings to the north	2.5%	2.0%	3.0%	5.5%	5.5%	0.00	0.00	0.00	0.00	0.00
	X	Comply with Title 24	0.5%	0.0%	1.0%	3.0%	3.0%	0.00	0.00	0.00	0.00	0.00
	X	Improved storage and handling of source materials	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Materials substitution (e.g., use water-based paints, life cycle analysis)	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Utilize efficient manufacturing processes	1.5%	0.5%	2.0%	6.0%	6.0%	0.00	0.00	0.00	0.00	0.00
	X	Resource recovery systems	3.0%	3.5%	3.0%	1.5%	1.5%	0.00	0.00	0.00	0.00	0.00

Mobile-Sources

Residential Uses

	X	Allow satellite telecommunications centers in residential subdivisions	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle service from residential subdivisions to commercial core areas	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Construct bus passenger benches and shelters	0.2%	0.2%	0.2%	0.2%	0.2%	1.22	0.12	0.16	0.27	0.05
X		Construct pedestrian facility improvements	0.1%	0.1%	0.1%	0.1%	0.1%	0.61	0.06	0.08	0.14	0.03
X		Retail services within or adjacent to residential subdivisions	1.3%	1.0%	1.3%	1.3%	1.3%	7.94	0.61	1.06	1.78	0.35
	X	Shuttle to major rail transit centers or multi-modal stations	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Contribute to regional transit systems	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Synchronize traffic lights on streets impacted by development	4.0%	4.0%	4.0%	4.0%	4.0%	24.44	2.42	3.27	5.48	1.07
X		Construct bicycle trails	0.1%	0.1%	0.1%	0.1%	0.1%	0.61	0.06	0.08	0.14	0.03

Commercial, Office and Insitutional Uses

X		Preferential parking spaces for carpools and vanpools	0.1%	0.1%	0.1%	0.1%	0.1%	1.31	0.14	0.18	0.29	0.06
X		Implement on-site circulation plan in parking lots	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Provide separate windows for fast-food restaurants	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide video-conference facilities	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Set up resident worker training programs to improve job/housing balance	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Implement home dispatching system for employees	0.1%	0.0%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Minimize use of fleet vehicles during smog alerts	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use low emission fleet vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce employee parking spaces for those business not under Rule 2202	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Lunch shuttle service from a worksite to food establishments	0.5%	0.4%	0.5%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	Implement compressed work-week schedules	1.0%	0.8%	1.0%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Trip reduction plan to achieve 1.5 AVR for businesses	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Utilize satellite offices rather than regular worksite to reduce VMT	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Establish a home-based telecommuting program	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Provide or contribute to child care and after school facilities	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Offer travel incentives such as discounts on purchases for transit riders	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide on-site employee services such as cafeteria, banks, etc.	0.3%	0.2%	0.3%	0.3%	0.3%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle service from residential core area to the worksite	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Construct bus passenger benches and shelters	0.1%	0.1%	0.1%	0.1%	0.1%	1.31	0.14	0.18	0.29	0.06
X		Pricing structure for single-occupancy employee parking	2.0%	1.5%	2.0%	2.0%	2.0%	26.29	2.12	3.57	5.79	1.13
X		Residential units within or adjacent to commercial developments	4.0%	3.1%	4.0%	4.0%	4.0%	52.59	4.39	7.14	11.57	2.26
X		Utilize excess parking as park-n-ride or contribute to park-n-ride	0.1%	0.1%	0.1%	0.1%	0.1%	1.31	0.14	0.18	0.29	0.06
X		Construct bicycle facility improvements	0.3%	0.2%	0.3%	0.3%	0.3%	3.94	0.28	0.54	0.87	0.17
X		Construct pedestrian facility improvements	0.2%	0.2%	0.2%	0.2%	0.2%	2.63	0.28	0.36	0.58	0.11
	X	Shuttle to major rail transit centers or multi-modal stations	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
X		Contribute to regional transit systems	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Charge visitors to park	2.0%	1.5%	2.0%	2.0%	2.0%	0.00	0.00	0.00	0.00	0.00
X		Synchronize traffic lights on streets impacted by development	4.0%	4.0%	4.0%	4.0%	4.0%	52.59	5.66	7.14	11.57	2.26
X		Reschedule truck deliveries and pickups for off-peak hours	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Paid parking at walkup kiosks	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		On-site truck loading zones	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Implement or contribute to public outreach programs	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
X		Provide commuter information areas	0.1%	0.1%	0.1%	0.1%	0.1%	1.31	0.14	0.18	0.29	0.06

Industrial Uses

	X	Preferential parking spaces for carpools and vanpools	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Implement on-site circulation plan in parking lots	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Set up resident worker training programs to improve job/housing balance	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Implement home dispatching system for employees	0.1%	0.0%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Minimize use of fleet vehicles during smog alerts	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use low emission fleet vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Provide commuter information areas	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce employee parking spaces for those business not under Rule 2202	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Implement compressed work-week schedules	1.0%	0.8%	1.0%	1.0%	1.0%	0.00	0.00	0.00	0.00	0.00
	X	Offer loans or other incentives to employees who move locally	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Trip reduction plan to achieve 1.5 AVR for businesses	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Provide or contribute to child care and after school facilities	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Provide on-site employee services such as cafeteria, banks, etc.	0.3%	0.2%	0.3%	0.3%	0.3%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle service from residential core area to the worksite	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Construct bus passenger benches and shelters	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Pricing structure for single-occupancy employee parking	2.0%	1.5%	2.0%	2.0%	2.0%	0.00	0.00	0.00	0.00	0.00
	X	Utilize excess parking as park-n-ride or contribute to park-n-ride	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Construct bicycle facility improvements	0.3%	0.2%	0.3%	0.3%	0.3%	0.00	0.00	0.00	0.00	0.00
	X	Construct pedestrian facility improvements	0.2%	0.2%	0.2%	0.2%	0.2%	0.00	0.00	0.00	0.00	0.00
	X	Shuttle to major rail transit centers or multi-modal stations	0.1%	0.1%	0.1%	0.1%	0.1%	0.00	0.00	0.00	0.00	0.00
	X	Contribute to regional transit systems	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Synchronize traffic lights on streets impacted by development	4.0%	4.0%	4.0%	4.0%	4.0%	0.00	0.00	0.00	0.00	0.00
	X	Reschedule truck deliveries and pickups for off-peak hours	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Lunch shuttle system from worksite to food establishments	0.5%	0.4%	0.5%	0.5%	0.5%	0.00	0.00	0.00	0.00	0.00
	X	On-site truck loading zones	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Install aerodynamic add-on devices to heavy-duty trucks	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Implement or contribute to public outreach programs	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce ship cruising speeds in the inner harbor	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use low-emission fuels or electrify airport ground service vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Engine tuning for marine vessels	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Reduce number of aircraft engines used during idling	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Install monitoring system to control airport shuttles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
	X	Use centralized ground power systems for airport service vehicles	0.0%	0.0%	0.0%	0.0%	0.0%	0.00	0.00	0.00	0.00	0.00
							Reduction in Stationary Sources Emissions (Pounds per Day)	9.41	45.13	18.79	0.31	0.31
							Reduction in Mobile Sources Emissions (Pounds per Day)	178.13	16.57	24.12	39.34	7.69
							Total Reduction in Emissions Based on Newhall Ranch FEIR Measures (Pounds per Day)	187.54	61.70	42.91	39.65	7.99
							Percentage Reduced Based on Newhall Ranch FEIR Measures	9.63%	21.24%	14.23%	9.28%	9.50%
							Total Reduced Stationary Source Emissions	11.61	43.38	22.35	0.53	0.52
							Total Reduced Mobile Source Emissions	1,747.59	185.43	236.21	387.02	75.62
							TOTAL REDUCED EMISSIONS	1,759.20	228.81	258.56	387.55	76.15
							SCAQMD Thresholds	550.00	55.00	55.00	150.00	55.00
							Project Air Quality Impacts Significant?	YES	YES	YES	YES	YES

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Operational - separate land uses\Landmark Recirc Operatior

Project Name: Landmark - Operational - Recirculated DEIR - Single Family Residential

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	38.78	12.64	31.63	0.00	0.09	0.09

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	35.70	44.37	417.25	0.55	89.50	17.49

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	74.48	57.01	448.88	0.55	89.59	17.58

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.95	12.34	5.25	0.00	0.02	0.02
Hearth - No Summer Emissions						
Landscape	4.77	0.30	26.38	0.00	0.07	0.07
Consumer Products	30.92					
Architectural Coatings	2.14					
TOTALS (lbs/day, unmitigated)	38.78	12.64	31.63	0.00	0.09	0.09

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	35.70	44.37	417.25	0.55	89.50	17.49
TOTALS (lbs/day, unmitigated)	35.70	44.37	417.25	0.55	89.50	17.49

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Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00 Nonresidential Trip % Reduction: 0.00

Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	197.00	9.90	dwelling units	591.00	5,850.90	51,751.22
					5,850.90	51,751.22

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Operational - separate land uses\Landmark Recirc Operatior

Project Name: Landmark - Operational - Recirculated DEIR - Single Family Residential

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	34.30	17.24	7.34	0.03	0.42	0.41

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	38.49	53.39	398.86	0.46	89.50	17.49

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	72.79	70.63	406.20	0.49	89.92	17.90

9/21/2010 12:23:02 PM

Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.95	12.34	5.25	0.00	0.02	0.02
Hearth	0.29	4.90	2.09	0.03	0.40	0.39
Landscaping - No Winter Emissions						
Consumer Products	30.92					
Architectural Coatings	2.14					
TOTALS (lbs/day, unmitigated)	34.30	17.24	7.34	0.03	0.42	0.41

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Single family housing	38.49	53.39	398.86	0.46	89.50	17.49
TOTALS (lbs/day, unmitigated)	38.49	53.39	398.86	0.46	89.50	17.49

9/21/2010 12:23:02 PM

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00 Nonresidential Trip % Reduction: 0.00

Analysis Year: 2014 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	197.00	9.90	dwelling units	591.00	5,850.90	51,751.22
					5,850.90	51,751.22

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Operational - separate land uses\Landmark Recirc Operatio

Project Name: Landmark - Operational - Recirculated DEIR - Multi-Family Residential

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	47.17	10.76	7.65	0.00	0.03	0.03

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	39.90	47.96	450.95	0.60	96.72	18.90

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	87.07	58.72	458.60	0.60	96.75	18.93

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.83	10.72	4.56	0.00	0.02	0.02
Hearth - No Summer Emissions						
Landscape	0.25	0.04	3.09	0.00	0.01	0.01
Consumer Products	44.63					
Architectural Coatings	1.46					
TOTALS (lbs/day, unmitigated)	47.17	10.76	7.65	0.00	0.03	0.03

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Apartments low rise	20.00	23.81	223.89	0.30	48.02	9.38
Condo/townhouse general	19.90	24.15	227.06	0.30	48.70	9.52
TOTALS (lbs/day, unmitigated)	39.90	47.96	450.95	0.60	96.72	18.90

9/21/2010 12:24:49 PM

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00 Nonresidential Trip % Reduction: 0.00

Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments low rise	28.44	6.90	dwelling units	455.00	3,139.50	27,768.88
Condo/townhouse general	24.88	8.00	dwelling units	398.00	3,184.00	28,162.48
					6,323.50	55,931.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

9/21/2010 12:24:49 PM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

9/21/2010 12:25:12 PM

Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Operational - separate land uses\Landmark Recirc Operatio

Project Name: Landmark - Operational - Recirculated DEIR - Multi-Family Residential

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	47.20	15.44	6.57	0.03	0.40	0.40

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	42.21	57.70	431.08	0.50	96.72	18.90

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	89.41	73.14	437.65	0.53	97.12	19.30

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.83	10.72	4.56	0.00	0.02	0.02
Hearth	0.28	4.72	2.01	0.03	0.38	0.38
Landscaping - No Winter Emissions						
Consumer Products	44.63					
Architectural Coatings	1.46					
TOTALS (lbs/day, unmitigated)	47.20	15.44	6.57	0.03	0.40	0.40

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Apartments low rise	21.05	28.65	214.02	0.25	48.02	9.38
Condo/townhouse general	21.16	29.05	217.06	0.25	48.70	9.52
TOTALS (lbs/day, unmitigated)	42.21	57.70	431.08	0.50	96.72	18.90

9/21/2010 12:25:12 PM

Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00 Nonresidential Trip % Reduction: 0.00

Analysis Year: 2014 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Apartments low rise	28.44	6.90	dwelling units	455.00	3,139.50	27,768.88
Condo/townhouse general	24.88	8.00	dwelling units	398.00	3,184.00	28,162.48
					6,323.50	55,931.36

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

9/21/2010 12:25:12 PM

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			

% of Trips - Commercial (by land use)

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Operational - separate land uses\Landmark Recirc Operatio
Commercial.urb924

Project Name: Landmark - Operational - Recirculated DEIR - Commercial

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	7.75	8.58	16.38	0.00	0.05	0.05

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	141.64	166.76	1,513.37	1.98	324.28	63.36

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	149.39	175.34	1,529.75	1.98	324.33	63.41

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.61	8.46	7.11	0.00	0.02	0.02
Hearth - No Summer Emissions						
Landscape	0.74	0.12	9.27	0.00	0.03	0.03
Consumer Products	0.00					
Architectural Coatings	6.40					
TOTALS (lbs/day, unmitigated)	7.75	8.58	16.38	0.00	0.05	0.05

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Elementary school	9.46	6.18	56.39	0.07	12.03	2.35
City park	0.37	0.33	2.95	0.00	0.65	0.13
Free-standing discount store	54.36	63.30	565.17	0.73	119.14	23.29
Regnl shop. center	26.89	33.37	297.85	0.39	64.13	12.53
Strip mall	1.41	1.61	14.35	0.02	3.01	0.59
Office park	49.15	61.97	576.66	0.77	125.32	24.47
TOTALS (lbs/day, unmitigated)	141.64	166.76	1,513.37	1.98	324.28	63.36

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Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00 Nonresidential Trip % Reduction: 0.00

Analysis Year: 2014 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Elementary school		1.45	students	750.00	1,087.50	6,953.82
City park		2.60	acres	20.90	54.34	376.57
Free-standing discount store		54.06	1000 sq ft	252.00	13,623.12	68,882.38
Regnl shop. center		85.06	1000 sq ft	76.10	6,473.07	37,085.88
Strip mall		37.06	1000 sq ft	9.50	352.07	1,742.26
Office park		11.56	1000 sq ft	702.40	8,119.74	72,479.89
					29,709.84	187,520.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Free-standing discount store				2.0	1.0	97.0
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

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Urbemis 2007 Version 9.2.4

Combined Winter Emissions Reports (Pounds/Day)

File Name: Z:\Air Quality\032.225 Landmark Village Recirculated\URBEMIS2007 Operational - separate land uses\Landmark Recirc Operatio
Commercial.urb924

Project Name: Landmark - Operational - Recirculated DEIR - Commercial

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	7.01	8.46	7.11	0.00	0.02	0.02

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	158.02	200.20	1,474.01	1.66	324.28	63.36

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5
TOTALS (lbs/day, unmitigated)	165.03	208.66	1,481.12	1.66	324.30	63.38

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Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOx	CO	SO2	PM10	PM2.5
Natural Gas	0.61	8.46	7.11	0.00	0.02	0.02
Hearth	0.00	0.00	0.00	0.00	0.00	0.00
Landscaping - No Winter Emissions						
Consumer Products	0.00					
Architectural Coatings	6.40					
TOTALS (lbs/day, unmitigated)	7.01	8.46	7.11	0.00	0.02	0.02

Area Source Changes to Defaults

Percent residential using natural gas changed from 78% to 100%

Percentage of residences with wood stoves changed from 10% to 0%

Percentage of residences with wood fireplaces changed from 5% to 0%

Percentage of residences with natural gas fireplaces changed from 85% to 100%

The number of persons per household for consumer product use changed from 3 persons to 3.06 persons

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Winter Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25
Elementary school	7.84	7.42	54.84	0.06	12.03	2.35
City park	0.34	0.40	2.86	0.00	0.65	0.13
Free-standing discount store	63.20	75.85	560.00	0.61	119.14	23.29
Regnl shop. center	31.26	40.03	292.64	0.33	64.13	12.53
Strip mall	1.63	1.93	14.24	0.02	3.01	0.59
Office park	53.75	74.57	549.43	0.64	125.32	24.47
TOTALS (lbs/day, unmitigated)	158.02	200.20	1,474.01	1.66	324.28	63.36

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Operational Settings:

Includes correction for passby trips

Includes the following double counting adjustment for internal trips:

Residential Trip % Reduction: 0.00 Nonresidential Trip % Reduction: 0.00

Analysis Year: 2014 Temperature (F): 60 Season: Winter

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Elementary school		1.45	students	750.00	1,087.50	6,953.82
City park		2.60	acres	20.90	54.34	376.57
Free-standing discount store		54.06	1000 sq ft	252.00	13,623.12	68,882.38
Regnl shop. center		85.06	1000 sq ft	76.10	6,473.07	37,085.88
Strip mall		37.06	1000 sq ft	9.50	352.07	1,742.26
Office park		11.56	1000 sq ft	702.40	8,119.74	72,479.89
					29,709.84	187,520.80

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.1	0.4	99.4	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.1	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.8	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.7	0.0	82.4	17.6
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.6	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	50.0	50.0	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

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Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
City park				5.0	2.5	92.5
Free-standing discount store				2.0	1.0	97.0
Regnl shop. center				2.0	1.0	97.0
Strip mall				2.0	1.0	97.0
Office park				48.0	24.0	28.0

CO Hotspots, With and Without Potrero Bridge

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	Landmark Village
Intersection:	Long Canyon and Landmark Village "A" Street
Analysis Condition:	2030 Buildout without Potrero Bridge
Nearest Air Monitoring Station measuring CO:	SRA 13 (Santa Clarita Valley)
Background 1-hour CO Concentration (ppm):	5.0
Background 8-hour CO Concentration (ppm):	3.7
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Long Canyon	AT GRADE	6	5	5
East-West Roadway:	Landmark Village "A" Street	AT GRADE	0	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Los Angeles

Assumes lowest mean wintertime temperature of 47 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2008	8.877	7.732	6.829	6.108	5.526	5.057	4.682	4.371	4.114	3.903
2009	8.018	6.995	6.187	5.54	5.017	4.597	4.259	3.979	3.746	3.554
2010	7.25	6.339	5.617	5.037	4.568	4.191	3.887	3.635	3.424	3.249
2011	6.578	5.765	5.118	4.598	4.176	3.836	3.563	3.334	3.142	2.983
2012	5.983	5.255	4.674	4.206	3.826	3.519	3.273	3.066	2.891	2.745
2013	5.437	4.787	4.267	3.846	3.504	3.228	3.006	2.818	2.66	2.526
2014	4.963	4.38	3.911	3.531	3.222	2.972	2.771	2.601	2.456	2.333
2015	4.534	4.01	3.588	3.244	2.964	2.739	2.556	2.401	2.269	2.157
2020	3.038	2.713	2.448	2.23	2.052	1.908	1.791	1.689	1.601	1.525
2025	2.234	2.008	1.821	1.667	1.54	1.438	1.355	1.283	1.219	1.163
2030	1.84	1.657	1.506	1.381	1.278	1.196	1.13	1.071	1.02	0.975
2035	1.625	1.464	1.331	1.221	1.131	1.06	1.002	0.952	0.907	0.868
2040	1.509	1.358	1.233	1.13	1.047	0.981	0.928	0.882	0.842	0.806

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N			
		8	544	207
W		<	v	>
105	^			^
11	>			<
17	v			v
		<	^	>
		204	2,184	218
	S			

				E
				188
				22
				105

P.M. Peak

	N			
		30	1,620	529
W		<	v	>
335	^			^
20	>			<
80	v			v
		<	^	>
		41	596	143
	S			

				E
				412
				38
				366

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	3,272	N-S Road	3,522
E-W Road	751	E-W Road	1,508
Primary Road =	N-S Road	Primary Road =	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A.M. Peak Hour									
N-S Road	9.5	6.1	4.9	*	3,272	*	1.84	÷	100,000
E-W Road	0.0	0.0	0.0	*	751	*	1.84	÷	100,000
P.M. Peak Hour									
N-S Road	9.5	6.1	4.9	*	3,522	*	1.84	÷	100,000
E-W Road	0.0	0.0	0.0	*	1,508	*	1.84	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
0 Feet from Roadway Edge	5.6	5.6	4.1
25 Feet from Roadway Edge	5.4	5.4	4.0
50 Feet from Roadway Edge	5.3	5.3	3.9

BAY AREA AQMD SIMPLIFIED CALINE4 ANALYSIS; UPDATED WITH EMFAC2007

Project Title:	Landmark Village
Intersection:	Long Canyon and Landmark Village "A" Street
Analysis Condition:	2030 Buildout with Potrero Bridge
Nearest Air Monitoring Station measuring CO:	SRA 13 (Santa Clarita Valley)
Background 1-hour CO Concentration (ppm):	5.0
Background 8-hour CO Concentration (ppm):	3.7
Persistence Factor:	0.7
Analysis Year:	2030

		Roadway Type	No. of Lanes	Approach/Departure Speed A.M.	Approach/Departure Speed P.M.
North-South Roadway:	Long Canyon	AT GRADE	4	5	5
East-West Roadway:	Landmark Village "A" Street	AT GRADE	0	5	5

EMFAC2007 COMPOSITE EMISSION FACTORS FOR CO

Air Basin: South Coast County: Los Angeles

Assumes lowest mean wintertime temperature of 47 degrees F and 30% humidity.

	Average Speed (miles per hour)									
Year	5	8	11	14	17	20	23	26	29	32
2008	8.877	7.732	6.829	6.108	5.526	5.057	4.682	4.371	4.114	3.903
2009	8.018	6.995	6.187	5.54	5.017	4.597	4.259	3.979	3.746	3.554
2010	7.25	6.339	5.617	5.037	4.568	4.191	3.887	3.635	3.424	3.249
2011	6.578	5.765	5.118	4.598	4.176	3.836	3.563	3.334	3.142	2.983
2012	5.983	5.255	4.674	4.206	3.826	3.519	3.273	3.066	2.891	2.745
2013	5.437	4.787	4.267	3.846	3.504	3.228	3.006	2.818	2.66	2.526
2014	4.963	4.38	3.911	3.531	3.222	2.972	2.771	2.601	2.456	2.333
2015	4.534	4.01	3.588	3.244	2.964	2.739	2.556	2.401	2.269	2.157
2020	3.038	2.713	2.448	2.23	2.052	1.908	1.791	1.689	1.601	1.525
2025	2.234	2.008	1.821	1.667	1.54	1.438	1.355	1.283	1.219	1.163
2030	1.84	1.657	1.506	1.381	1.278	1.196	1.13	1.071	1.02	0.975
2035	1.625	1.464	1.331	1.221	1.131	1.06	1.002	0.952	0.907	0.868
2040	1.509	1.358	1.233	1.13	1.047	0.981	0.928	0.882	0.842	0.806

PEAK HOUR TURNING VOLUMES

A.M. Peak

	N			
		8	281	207
W		<	v	>
105	^			^
11	>			<
17	v			v
		<	^	>
		204	1,405	218
	S			

				E
				188
				22
				105

P.M. Peak

	N			
		30	1,112	529
W		<	v	>
335	^			^
20	>			<
80	v			v
		<	^	>
		41	486	143
	S			

				E
				412
				38
				366

Representative Traffic Volumes (Vehicles per Hour)

N-S Road	2,230	N-S Road	2,904
E-W Road	751	E-W Road	1,508
Primary Road =	N-S Road	Primary Road =	N-S Road

ROADWAY CO CONTRIBUTIONS

Roadway	Reference CO Concentrations 0 Feet	25 Feet	50 Feet		Traffic Volume		Emission Factor		
A.M. Peak Hour									
N-S Road	11.9	7.0	5.4	*	2,230	*	1.84	÷	100,000
E-W Road	0.0	0.0	0.0	*	751	*	1.84	÷	100,000
P.M. Peak Hour									
N-S Road	11.9	7.0	5.4	*	2,904	*	1.84	÷	100,000
E-W Road	0.0	0.0	0.0	*	1,508	*	1.84	÷	100,000

TOTAL CO CONCENTRATIONS (ppm)

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
0 Feet from Roadway Edge	5.5	5.6	4.1
25 Feet from Roadway Edge	5.3	5.4	4.0
50 Feet from Roadway Edge	5.2	5.3	3.9

Landmark Village CNFL at Off-Site Noise Sensitive Land Uses - Cumulative Plus Project Conditions – 2030 With and Without Potrero Bridge

Landmark Village
CNEL at Off-Site Noise-Sensitive Land Uses
Cumulative Plus Project Conditions - 2030 With and Without Potrero Bridge

ROADWAY NAME Segment	Number of Lanes in Each Direction	Median Width	ADT Volume	Design Speed (mph)	Distance From Edge of Pavemt	Alpha (1) Factor	Barrier Attn. dB(A)	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	dB(A) CNEL
2030 Building Without Potrero Bridge										
Long Canyon - North of Landmark Village "A" Street	3	0	46,000	55	100	0.5	0	11.4%	3.9%	66.1
Long Canyon - South of Landmark Village "A" Street	3	0	46,000	55	100	0.5	0	11.4%	3.9%	66.1
Landmark Village "A" Street - East of Long Canyon	2	0	16,000	45	100	0.5	0	11.4%	3.9%	60.3
2030 Building With Potrero Bridge										
Long Canyon - North of Landmark Village "A" Street	3	0	36,000	55	100	0.5	0	11.4%	3.9%	65.1
Long Canyon - South of Landmark Village "A" Street	3	0	37,000	55	100	0.5	0	11.4%	3.9%	65.2
Landmark Village "A" Street - East of Long Canyon	2	0	16,000	45	100	0.5	0	11.4%	3.9%	60.3

Notes:

(1) Alpha Factor: Coefficient of absorption relating to the effects of the ground surface. An alpha factor of 0 indicates that the site is an acoustically "hard" site, such as aspalt. An alpha factor of 0.5 indicates that the site is an acoustically "soft" site such, as heavily vegetated ground cover.

(2) ADT volumes from Austin-Foust Associates, Inc., Memorandum - Potrero Canyon Road Bridge, July 1, 2010.

(3) Vehicle mix from California Air Resources Board, EMFAC2007 on-road vehicle emissions model (in URBEMIS2007) for 2030.

Assumed 24-Hour Traffic Distribution:	**Day**	**Evening**	**Night**	**Total**
Total ADT Volumes	77.70%	12.70%	9.60%	100.00%
Medium-Duty Trucks	87.43%	5.05%	7.52%	100.00%
Heavy-Duty Trucks	89.10%	2.84%	8.06%	100.00%