LOS ANGELES COUNTY GENERAL PLAN

APPENDICES

Table of Contents

Appendix A: Land Use Policy Maps....3

Appendix B: Community Participation, General Plan Guiding Principles and Planning Areas Framework 4

Appendix C: Land Use Element Resources 9

Appendix D: Mobility Element Resources 39

Appendix E: Conservation and Natural Resources Element Resources 42

Appendix F: Parks and Recreation Element Resources 216

Appendix G: Noise Element Resources 229

Appendix H: Safety Element Resources 235

Appendix I: Public Services and Facilities Element Resources 255

Appendix J: Economic Development Element Resources 257

Appendix A: Land Use Policy Maps

Appendix B: Community Participation, General Plan Guiding Principles and Planning Areas Framework

I. Community Participation

Table B.1 summarizes the County's major outreach efforts to engage with stakeholders on the development of General Plan.

Table B.1 General Plan Community and Stakeholder Outreach Summary

General Plan Update Visioning/EIR Scoping (1999-2003)	SEA workshops and community meetings, 1999-2001. General Plan visioning workshops, 2001. EIR scoping meetings, 2003.
Shaping the Future 2025 (2003-2005)	Draft General Plan goals and policies released to the public, December 2003. 2004 Outreach Campaign: • Public release of Shaping the Future 2025. • *Shaping the Future 2025* mailed out to stakeholders. • Draft posted on the Department of Regional Planning's (DRP) web site and mailed out to County libraries. • Community meetings and invited stakeholder meetings.
Preliminary Draft General Plan (2007)	*Preliminary Draft General Plan* released to public, June 2007. 2007 Outreach Campaign: • Postcard announcements, newspaper advertisements, and press release. • Draft posted on DRP's web site and mailed out to County libraries. • Los Angeles County Regional Planning Commission presentation. • Community meetings and invited stakeholder meetings. • County interdepartmental meetings.
Planning Tomorrow's Great Places (2008)	Planning for Tomorrow's Great Places released to the public, July 2008. 2008 Outreach Campaign: • Postcard announcements, newspaper advertisements, and press

	release. • Draft posted on DRP's web site and mailed out to County libraries. • Los Angeles County Regional Planning Commission presentation, September 2008. • Stakeholder meetings. • Board office and interdepartmental meetings. • Poster plan released to the public, January 2009. • Los Angeles County Regional Planning Commission presentation.
Draft General Plan 2035/EIR Scoping (2011)	Draft General Plan 2035 released to the public, April 2011. 2011 Outreach Campaign: • Postcard and email announcements. • Draft posted on the DRP's web site and mailed out to County libraries. • Los Angeles County Regional Planning Commission presentation, May 2011. • Board office and interdepartmental meetings. • EIR scoping meetings, September 2011. • Stakeholder meetings, September to November 2011.
Draft General Plan 2035 (2012)	Draft General Plan 2035 released to the public, May 2012
Draft General Plan 2035 (2013)	Draft General Plan 2035 released to the public, October 2013. 2013 Outreach Campaign: • Zoning consistency courtesy letters • Stakeholder meetings
Draft General Plan 2035 (2014)	Draft General Plan 2035 released to the public, January 2014. 2014 Outreach Campaign: • Notice of Public Hearing

	• Stakeholder meetings

II. Development of the General Plan Guiding Principles

The County developed the General Plan Guiding Principles—Employ Smart Growth; Ensure Sufficient Community Services and Infrastructure; Provide the Foundation for a Strong and Diversified Economy; Excellence in Environmental Resource Management; and Provide Healthy, Livable and Equitable Communities—to reflect the broadly expressed needs, concerns, and aspirations of residents and stakeholders. The following issues were identified as important topics to be addressed in the General Plan:

Promote a Strong and Diversified Economy

- Provide a wide range of investment opportunities and job choices so that Los Angeles County is less vulnerable to the harmful consequences of economic recessions.
- Provide an adequate supply of land suitable for industry and commerce to ensure a diversified and strong economy.
- Increase training efforts to better prepare the workforce for future industries.

Promote Fiscal, Environmental, and Social Sustainability

- Meet the needs of the current generation without compromising the ability of future generations to meet their needs.
- Encourage practices that maximize user benefit, minimize waste and redundancy, and consistently promote the revitalization, restoration, and enhancement of the built, natural, and social environments.
- Promote the conservation of energy and other valuable natural resources as a basic principle in all planning activities.

Promote Revitalization of Urban Areas

- Direct development opportunities to areas most in need of economic investment.
- Emphasize code enforcement as a means to spur urban redevelopment in economically depressed areas.

Provide Affordable Housing

- Build and maintain a diversity of decent housing at an affordable price.

Provide for Adequate Community Services and Facilities

- Maintain roadways and regulate land uses.
- Provide community services and facilities, such as schools, parks, and libraries that play a significant role in the enrichment of the public consciousness.
- Develop a sense of place for the many neighborhoods within the unincorporated communities of Los Angeles County.
- Ensure proficient emergency service and infrastructure coverage, such as fire protection and wastewater systems, which are necessary for the health and safety of residents and visitors.
- Increase community services, such as daycare and job training centers.

Promote Multimodal Transportation Alternatives and an Efficient Transportation System

- Maintain and maximize the efficiency of the County highway and road network system by integrating and promoting alternative forms of transportation, such as rail, bus, and biking.
- Improve the freight and highway systems for the safe and efficient movement of goods.
- Protect rural communities and rural lifestyles.
- Maintain the unique character and development patterns of unincorporated rural communities.

Conserve Water and Protect its Quality

- Develop and promote strong conservation efforts and preserve land for the natural recharge of groundwater, which is essential to ensure an ongoing adequate supply of quality water.
- Promote the development of a countywide recycled water system.

Protect the Natural Environment, Natural Resources, and Conserve Open Space

- Maintain and protect natural resources, such as clean air and water, wildlife habitat areas, mineral resource areas, agricultural land, national forest land, parks and open space areas, and recreational areas.
- Preserve open space areas that provide valuable recreational, scenic and biological resources for residents.
- Acquire open space and limit development in rural areas.
- Address the regional issue of air quality, which is important in maintaining a high quality of life for residents.

Protect Against Natural and Manmade Hazards

- Create programs to provide current and improved hazard-related information, and strengthen development review procedures and standards.

III. Development of Planning Areas Framework

The Planning Areas Framework for the General Plan was developed using the following sources:

- SCAG subregional boundaries for Los Angeles County;
- Census tract boundaries;
- LAFCO Municipal Service Review areas;
- City and unincorporated community boundaries;
- Physical and geographic boundaries;
- Stakeholder input; and
- Subregional planning initiatives and planning issues.

Appendix C: Land Use Element Resources

I. Hazard, Environmental and Resource Constraints Model

The purpose of the Hazard, Environmental and Resource Constraints Model is to inform the land use policy direction of future community-based planning initiatives, as well as other land use policies, regulations and procedures. In addition, it is a tool to inform stakeholders of potential site constraints and regulations. The Model uses three classifications, which are defined as follows:

- Class I: Land that has minimal hazard, environmental and resource constraints.
- Class II: Land that has moderate hazard, environmental and resource constraints.
- Class III: Land that has severe hazard, environmental and resource constraints.

Figure C.1 is a visual representation of the Hazard, Environmental and Resource Constraints Model. The Model does not represent the constraints cumulatively. For example, if an area is part of a Very High Fire Hazard Severity Zone (Class I) and a Significant Ecological Area (Class II), it is mapped as Class II.

Figure C.1: Hazard, Environmental, and Resource Constraints Model

Table C.1 outlines the constraints incorporated into the model by class, and the source of the data.

Table C.1: Constraints, by Class, and Data Sources

Hazards, Environmental, and Resources	Class I	Class II	Class III	Data Source
FEMA Q3 Flood Zone 100 year		X		Federal Emergency Management Agency
FEMA Q3 Flood Zone 500 year	X			Federal Emergency Management Agency
National Forest		X		United States Forest Service
Open Space			X	Los Angeles County Department of Regional Planning Los Angeles County Assessor's Office GreenInfo Network – California's Protected Areas Database
Significant Ecological Areas (SEAs)		X		Los Angeles County Department of Regional Planning
Environmentally Sensitive Habitat Areas (ESHA)			X	Los Angeles County Department of Regional Planning
Oak Woodlands and Savannahs			X	Los Angeles County Department of Regional Planning

Cold Creek / Dark Canyon Resource Management Area			X	Los Angeles County Department of Regional Planning
Significant Watersheds			X	Los Angeles County Department of Regional Planning
Wildlife Migration Corridor / Habitat Linkages			X	Los Angeles County Department of Regional Planning
Coastal Zone	X			California Coastal Commission
Scenic Highways		X		California Department of Transportation
Significant Ridgelines	X			Los Angeles County Department of Regional Planning
Mineral Resource Zones	X			California Department of Conservation, Division of Mines and Geology
Oil and Gas Resources	X			California Department of Conservation, Division of Oil, Gas and Geothermal
Military Influence Areas	X			Military Operation Areas: Combination of Defense Installation Spatial Data Infrastructure (DISDI) dataset and information derived from the Flight Information Publications (FLIP), FAA Instrument Flight Rules (IFR), and Visual Flight Rules (VFR) data sources. Special Use Areas: Combination of DISDI dataset and information derived from FAA IFR and VFR data sources. Data verified by Regional Airspace Coordinators (RACs). HRAIZs: Air Force, 412 Test Wing Sustainability Office. Military Installations: DISDI dataset.
Dam and Reservoir Innundation Areas	X			California Emergency Management Agency
Tsunami Hazard Areas	X			California Emergency Management Agency University of Southern California California Geological Survey
Very High Fire Hazard Severity Zone		X		California Department of Forestry and Fire Protection, Fire and Resource Assessment Program
Airport Influence Areas	X			Los Angeles County Airport Land Use Commission
Active Fault Trace			X	Los Angeles County General Plan, Fault Rupture Hazards and Historic Seismicity Map

Seismically Induced Landslide Zone		X		California Geological Survey, Seismic Hazard Zone Maps
Seismically Induced Liquefaction Zone	X			California Geological Survey, A-P Maps
Alquist-Priolo Earthquake Fault Zone			X	California Geological Survey, Seismic Hazard Zone Maps
Hillside Management Areas: 25% - 49.9%	X			Los Angeles County Department of Regional Planning
Hillside Management Areas: 50% or greater slope		X		Los Angeles County Department of Regional Planning
Agricultural Resource Areas (ARAs)		X		Los Angeles County Department of Regional Planning
Prime Farmland		X		California Department of Conservation, Department of Land Resource Protection
Farmland of Statewide Importance		X		California Department of Conservation, Department of Land Resource Protection
Unique Farmland		X		California Department of Conservation, Department of Land Resource Protection
Farmland of Local Importance		X		California Department of Conservation, Department of Land Resource Protection

II. Land Use Legend

Population Density Standards

California Government Code Section 65302(a) requires general plan land use elements to contain population density standards for land use categories. This section summarizes the expected persons or employees per land use category upon General Plan buildout.

Residential Population Density

Table C.3: Residential Population Density, by Land Use Designation

General Plan Land Use	Acres	Population Density (Persons/Acre)	Population Estimate
Proposed General Plan (not in a community plan)			
General Plan	106,620.82	6.00	640,078.33

CG - General Commercial	961.14	-	-
CM - Major Commercial	0.64	-	-
CR - Rural Commercial	0.62	-	-
H2 - Residential 2	1,462.19	6.2	9,007.1
H5 - Residential 5	1,768.15	15.4	27,229.3
H9 - Residential 9	14,394.37	25.9	373,103.1
H18 - Residential 18	2,469.36	51.8	128,011.0
H30 - Residential 30	808.31	66.7	53,951.4
H50 - Residential 50	117.90	111.6	13,157.3
H100 - Residential 100	4.93	223.2	1,100.9
IH - Heavy Industrial	1,706.47	-	-
IL - Light Industrial	1,853.30	-	-
ML - Military land	36,615.49	-	-
MU - Mixed Use	158.36	167.4	26,509.4
OS-BLM - Bureau of Land Management	75.65	-	-
OS-C - Conservation	7,648.26	**-**	**-**
OS-MR - Mineral Resources	1,088.06	**-**	**-**
OS-NF - National Forest	2,776.64	**-**	**-**
OS-PR - Parks and Recreation	7,105.07	**-**	**-**

OS-W - Water	2,065.21	-	-
P - Public and Semi-Public	6,916.59	-	-
RL1 - Rural Land 1	1,153.26	3.8	4,440.0
RL2 - Rural Land 2	126.33	1.9	243.2
RL10 - Rural Land 10	2,246.56	0.4	864.9
RL20 - Rural Land 20	12,759.03	0.2	2,456.1
RL40 - Rural Land 40	38.42	0.1	4.4
SP - Specific Plan	300.51	-	-
Community Plans			
Altadena Community Plan	5,603.75	10.95	61,358.53
BP - Business Park	38.43	-	-
GC - General Commercial	63.91	-	-
I - Institutions	182.79	-	-
E - Estate/Equestrian (1 du/2.5 gross ac)	93.31	1.5	143.7
LD - Low Density Residential (1 to 6 du/gross ac)	3,067.88	18.5	56,694.2
LMD - Low/Medium Density Residential (6 to 12 du/gross ac)	1.23	37.0	45.6
MD - Medium Density Residential (12 to 22 du/gross ac)	25.89	49.1	1,271.3
MOS - Miscellaneous Open Space	67.92	-	-
MU - Mixed Use "Center"	36.50	49.1	1,792.4

N - Non-Urban (up to 1 du/gross ac)	327.21	1.2	403.3
NF - National Forest and National Forest Managed Lands	416.12	-	-
PR - Public and Private Recreation	103.48	-	-
Public Streets	815.24	-	-
SP - La Vina Specific Plan	218.88	4.6	1,008.0
U - Utilities	144.95	-	-
Antelope Valley Area Plan**	1,130,543.59	0.36	405,410.20
CR - Rural Commercial	1,792.76	-	-
H2 - Residential 2	4,561.90	6.2	28,101.3
H5 - Residential 5	6,686.90	15.4	102,978.3
H9 - Residential 9	453.40	25.9	11,752.2
H18 - Residential 18	120.61	51.8	6,252.6
H30 - Residential 30	83.86	67.0	5,615.2
IH - Heavy Industrial	1,979.63	-	-
IL - Light Industrial	4,172.85	-	-
ML - Military Land	41,779.07	-	-
MU-R - Rural Commercial / Mixed Use	693.07	7.7	5,336.6
OS-BLM - Bureau of Land Management	9,002.19	-	-

OS-C - Conservation	19,670.12	-	-
OS-NF - Open Space National Forest	499,733.50	-	-
OS-PR - Parks and Recreation	19,314.87	-	-
P - Public and Semi-Public	19,870.07	-	-
RL1 - Rural Land 1	10,241.80	3.9	39,430.9
RL2 - Rural Land 2	30,833.14	1.9	59,353.8
RL5 - Rural Land 5	36,329.06	0.8	27,973.4
RL10 - Rural Land 10	203,999.65	0.4	78,539.9
RL20 - Rural Land 20	208,187.48	0.2	40,076.1
W - Water	11,037.65	-	-
East Los Angeles Community Plan	3,380.51	39.94	135,003.24
CC - Community Commercial	94.57	-	-
MC - Major Commercial	63.74	-	-
CM - Commercial Manufacturing	76.46	-	-
CR - Commercial Residential (30 du/ac)	21.83	67.0	1,462.0
I - Industrial	157.78	-	-
LD - Low Density Residential (8 du/ac)	129.61	24.6	3,193.5
LMD - Low/Medium Density Residential (17 du/ac)	642.77	49.0	31,469.9
MD - Medium Density Residential (30 du/ac)	830.12	67.0	55,584.9

P - Public Use	259.07	-	-
RP - Residential Parking	20.55	-	-
1st Street (FS) Zone†	14.37	89.3	1,282.6
3rd Street (TOD) Zone†	63.60	89.3	5,678.4
Atlantic Boulevard (AB) Zone†	8.86	89.3	791.4
Cesar Chavez (CC) Zone†	48.22	89.3	4,305.4
Civic (CV) Zone†	111.97	-	-
Low-Medium Density (LMD) Zone†	584.05	46.8	27,333.6
Neighborhood Center (NC) Zone†	43.70	89.3	3,901.6
Open Space (OS) Zone†	209.21	-	-
Hacienda Heights Community Plan	6,359.66	10.35	65,833.00
CG - General Commercial	131.03	-	-
H2 - Residential 2 (0-2 du/ac)	718.93	6.2	4,428.6
H5 - Residential 5 (0-5 du/ac)	2,110.34	15.4	32,499.1
H9 - Residential 9 (0-9 du/ac)	594.02	27.7	16,466.2
H18 - Residential 18 (9-18 du/ac)	200.65	51.8	10,401.9
H30 - Residential 30 (18-30 du/ac)	10.35	67.0	693.2
H50 - Residential 50 (30-50 du/ac)	7.03	111.6	784.9
IL - Light Industrial	27.95	-	-

OS-C - Open Space Conservation	403.44	-	-
OS-PR - Open Space Parks and Recreation	1,131.34	-	-
P-CS - Public and Semi-Public Community Serving	29.91	-	-
P-TF - Public and Semi-Public - Transportation Facilities	0.00	-	-
P-UF - Public and Semi-Public Utilities and Facilities	132.96	-	-
RL2 - Rural Lands 2 (1du/2ac)	147.59	1.9	284.1
RL10 - Rural Lands 10 (1du/10ac)	714.10	0.4	274.9
Marina Del Rey Local Coastal Land Use Plan	693.67	30.91	21,439.04
B - Boat Storage	18.88	-	-
H - Hotel	26.44	-	-
MC - Marine Commercial	23.94	-	-
O - Office	5.40	-	-
OS - Open Space	41.81	-	-
P - Parking	16.90	-	-
PF - Public Facilities	5.14	-	-
R III - Residential III (35 du/ac)	37.97	78.1	2,966.2
R IV - Residential IV (45 du/ac)	22.60	100.4	2,270.4
R V - Residential V (75 du/ac)	96.79	167.4	16,202.5
SA - Senior Accomodations	2.11	-	-

VS/CC - Visitor-Serving / Convenience Commercial	30.12	-	-
W - Water	365.57	-	-
Rowland Heights Community Plan	7,421.77	6.86	50,899.53
C - Commercial	192.33	-	-
I - Industrial	143.73	-	-
N1 - Non-Urban 1 (0.2 du/ac)	1,459.45	0.8	1,123.8
N2 - Non-Urban 2 (0.3 to 1.0 du/ac)	509.82	3.4	1,729.7
O - Open Space	1,566.17	-	-
TOS - Transitional Open Space (N1)	272.44	0.8	209.8
TOS - Transitional Open Space (N2)	268.05	2.6	695.2
TOS - Transitional Open Space (U1)	252.24	7.4	1,877.9
U1 - Urban 1 (1.1 to 3.2 du/ac)	1,276.27	8.6	10,997.7
U2 - Urban 2 (3.3 to 6.0 du/ac)	1,278.00	17.8	22,728.3
U3 - Urban 3 (6.1 to 12.0 du/ac)	68.27	36.3	2,477.3
U4 - Urban 4 (12.1 to 22.0 du/ac)	51.26	49.1	2,516.8
U5 - Urban 5 (22.1 to 35.0 du/ac)	83.76	78.1	6,543.1
Santa Catalina Island Local Coastal Land Use Plan	46,136.87	0.00	0.00
Commercial - Two Harbors	2.65	-	-
Conservation/Primitive Recreation - Catalina	20,212.26	-	-

Conservation/Recreation - Two Harbors	820.42	-	-
Extractive Use - Catalina	513.74	-	-
Industrial/Transportation - Two Harbors	4.57	-	-
Industrial/Transportation/Utilities - Catalina	171.65	-	-
Lodges/Inns - Two Harbors	14.17	-	-
Marine Commercial - Two Harbors	2.56	-	-
Open Space/Recreation - Two Harbors	107.79	-	-
Open Space/Structured Recreation - Catalina	24,056.73	-	-
Residential Land Uses - Two Harbors	136.21	-	-
undefined* - Two Harbors	3.09	-	-
Utilites/Services - Two Harbors	6.82	-	-
View Corridor - Two Harbors	84.21	-	-
Santa Clarita Valley Area Plan‡	270,888.56	0.9	237,637.9
Non-Residential	270,888.56	0.9	237,637.9
Santa Monica Mountains Local Coastal Plan	51,011.87	0.29	15,042.65
C Commercial	28.88	-	-
CR Visitor-Serving Commercial Recreation-Limited	748.09	-	-
OS Open Space	954.75	-	-
OS-DR Open Space-Deed Restricted	304.17	-	-

OS-P Open Space-Parks	25,815.47	-	-
P Public and Semi-Public Facilities	912.90	-	-
RL1 Rural Residential (1DU/1AC)	64.82	3.4	219.2
RL2 Rural Residential (1DU/2AC)	134.87	1.3	179.0
RL5 Mountain Lands (1DU/5AC)	208.11	0.6	120.1
RL10 Mountain Lands (1DU/10AC)	1,089.51	0.3	299.5
RL20 Mountain Lands (1DU/20AC)	16,092.01	0.1	1,790.8
RL40 Mountain Lands (1DU/40AC)	3,353.94	0.08	257.2
RV Rural Village	1,205.42	8.17	9,848.86
U8 Residential (8 DU/AC)	92.64	21.2	1,965.5
U20 Residential (20 DU/AC)	6.29	57.6	362.4
Santa Monica Mountains North Area Plan	20,162.19	0.47	9,398.95
C - Commercial	119.57	-	-
CR - Commercial Recreation - Limited Intensity	46.72	-	-
N1 - Rural Residential 1 (1 du/ac max)	453.52	2.6	1,172.8
N2 - Rural Residential 2 (1 du/2 ac max)	668.50	1.7	1,123.7
N5 - Mountain Lands 5 (1 du/5 ac max)	2,028.06	0.7	1,388.5
N10 - Mountain Lands 10 (1 du/10 ac max)	4,264.61	0.3	1,419.0
N20 - Mountain Lands 20 (1 du/20 ac max)	5,505.19	0.2	1,059.7

OS - Open Space	774.97	-	-
OS-DR - Open Space Deed Restricted	590.60	-	-
OS-P - Open Space Parks	4,731.18	-	-
OS-W - Open Space Water	38.95	-	-
P - Public and Semi-Public Facilities	514.86	-	-
TC - Transportation Corridor	0.01	-	-
U2 - Residential 2 (2 du/ac max)	251.84	5.5	1,386.0
U4 - Residential 4 (4 du/ac max)	148.00	8.9	1,322.8
U8 - Residential 8 (8 du/ac max)	25.62	20.5	526.4
Twin Lakes Community Plan	45.25	3.8	174.2
RC - Rural Communities	45.25	3.8	174.2
Walnut Park Neighborhood Plan	368.83	37.19	13,717.17
GC - General Commercial	34.66	-	-
MC - Mixed Commercial	11.11	-	-
NP I - Neighborhood Preservation I (1 to 6 du/ac)	166.62	27.7	4,618.7
NP II - Neighborhood Preservation II (6 to 12 du/ac)	20.67	55.4	1,146.1
NR - Neighborhood Revitalization (12 to 30 du/ac)	117.27	67.0	7,852.3
OC - Office Commercial	6.61	-	-
PU/I - Public Use / Institutional	8.28	-	-

R/P - Residential / Parking	3.61	27.7	100.2
West Athens - Westmont	1,489.40	27.22	40,539.00
C.1 - Regional Commercial	44.54	-	-
C.2 - Community Commercial	80.64	-	-
C.3 - Neighborhood Commercial	1.86	-	-
C.4 - Commercial Manufacturing	14.91	-	-
CR - Commercial Recreation	12.61	-	-
OS.1 - Recreation / Open Space	121.54	-	-
PL.1 - Public/Quasi-Public Use	156.54	-	-
RD 2.3 - Single Family Residence (1 to 8 du/ac)	484.80	24.6	11,945.4
RD 3.1 - Two Family Residence (8 to 17 du/ac)	548.77	49.0	26,867.6
RD 3.2 - Medium Density Bonus (17 to 30 du/ac)	19.29	67.0	1,291.8
SCD - Senior Citizen Density Bonus (30 to 50 du/ac)	3.89	111.6	434.2
Grand Total	1,650,726.75	N/A	1,696,531.76

Note: The buildout for residential development on County land outside of community plan areas is based on 80 percent of the maximum residential density, with an exception for densities of no more than one unit per acre, which may buildout at the maximum.

The County includes a number of existing community plan areas. Assumptions for density and floor area ratios were developed in response to development standards in each community plan. Population projections were established by applying County–determined person per household assumptions for single-family and multifamily housing types.

For more detailed information about the Buildout Methodology of the General Plan, please consult Appendix D of the Final Environmental Impact Report.

* At times there are employment generating uses, such as parks or schools, within a residential land use category (please see aforementioned “Buildout Methodology” for more detailed information).

** The Antelope Valley Area Plan was approved by the Board of Supervisors on 11/12/14, but is not yet adopted as of 11/25/14.

† These Categories represent 'Form-Based Zoning Code' found in the 3rd Street Specific Plan - adopted by the Board of Supervisors

on 11/12/14.

‡ The buildout methodology devised by the City of Santa Clarita for the 'One Valley, One Vision' project was used here, hence the numbers are not broken down by Land Use Category (please see aforementioned "Buildout Methodology" for more detailed information).

Source: Los Angeles County Department of Regional Planning, GIS Section.

Employment Population Density

Table C.4: Employment Population Density, by Land Use Designation

General Plan Land Use	Acres	Employee Density (Employees/Acre)	Employee Estimate*
Proposed General Plan (not in a community plan)			
General Plan	106,620.82	1.56	166,036.25
CG - General Commercial	961.14	43.5	41,841.9
CM - Major Commercial	0.64	26.8	17.2
CR - Rural Commercial	0.62	21.3	13.1
H2 - Residential 2	1,462.19	0.07	100.0
H5 - Residential 5	1,768.15	0.06	100.0
H9 - Residential 9	14,394.37	0.2	3,086.4
H18 - Residential 18	2,469.36	0.3	710.6
H30 - Residential 30	808.31	0.5	426.7
H50 - Residential 50	117.90	2.1	250.0
H100 - Residential 100	4.93	-	-
IH - Heavy Industrial	1,706.47	16.7	28,458.4

IL - Light Industrial	1,853.30	16.7	30,907.1
ML - Military land	36,615.49	-	-
MU - Mixed Use	158.36	63.9	10,124.5
OS-BLM - Bureau of Land Management	75.65	-	-
OS-C - Conservation	7,648.26	0.000000003	0.00002
OS-MR - Mineral Resources	1,088.06	0.0004	0.5
OS-NF - National Forest	2,776.64	0.000001	0.004
OS-PR - Parks and Recreation	7,105.07	0.2	1,625.3
OS-W - Water	2,065.21	0.1	307.0
P - Public and Semi-Public	6,916.59	4.2	29,267.0
RL1 - Rural Land 1	1,153.26	0.09	100.7
RL2 - Rural Land 2	126.33	-	-
RL10 - Rural Land 10	2,246.56	0.00000001	0.00002
RL20 - Rural Land 20	12,759.03	0.0000001	0.001
RL40 - Rural Land 40	38.42	-	-
SP - Specific Plan	300.51	62.2	18,700.0
Community Plans			
Altadena Community Plan	5,603.75	3.29	18,463.24
BP - Business Park	38.43	80.0	3,074.9

GC - General Commercial	63.91	146.7	9,375.5
I - Institutions	182.79	4.4	802.7
E - Estate/Equestrian (1 du/2.5 gross ac)	93.31	0.05	4.7
LD - Low Density Residential (1 to 6 du/gross ac)	3,067.88	0.1	377.3
LMD - Low/Medium Density Residential (6 to 12 du/gross ac)	1.23	-	-
MD - Medium Density Residential (12 to 22 du/gross ac)	25.89	0.2	4.0
MOS - Miscellaneous Open Space	67.92	1.5	100.0
MU - Mixed Use "Center"	36.50	120.8	4,410.7
N - Non-Urban (up to 1 du/gross ac)	327.21	-	-
NF - National Forest and National Forest Managed Lands	416.12	-	-
PR - Public and Private Recreation	103.48	1.6	163.5
Public Streets	815.24	-	-
SP - La Vina Specific Plan	218.88	0.7	150.0
U - Utilities	144.95	-	-
Antelope Valley Area Plan**	1,130,543.59	0.12	134,350.51
CR - Rural Commercial	1,792.76	21.4	38,376.5
H2 - Residential 2	4,561.90	0.07	300.0
H5 - Residential 5	6,686.90	0.0000001	0.001

H9 - Residential 9	453.40	0.0000002	0.00009
H18 - Residential 18	120.61	-	-
H30 - Residential 30	83.86	-	-
IH - Heavy Industrial	1,979.63	7.4	14,575.5
IL - Light Industrial	4,172.85	16.7	69,589.8
ML - Military Land	41,779.07	-	-
MU-R - Rural Commercial / Mixed Use	693.07	10.7	7,385.0
OS-BLM - Bureau of Land Management	9,002.19	-	-
OS-C - Conservation	19,670.12	-	-
OS-NF - Open Space National Forest	499,733.50	0.0001	50.0
OS-PR - Parks and Recreation	19,314.87	0.02	346.3
P - Public and Semi-Public	19,870.07	0.2	3,175.0
RL1 - Rural Land 1	10,241.80	0.0002	2.4
RL2 - Rural Land 2	30,833.14	0.01	400.0
RL5 - Rural Land 5	36,329.06	-	-
RL10 - Rural Land 10	203,999.65	0.0005	100.0
RL20 - Rural Land 20	208,187.48	0.0002	50.0
W - Water	11,037.65	-	-
East Los Angeles Community Plan	3,380.51	12.62	42,646.67

CC - Community Commercial	94.57	127.9	12,097.3
MC - Major Commercial	63.74	26.8	1,708.9
CM - Commercial Manufacturing	76.46	46.9	3,583.4
CR - Commercial Residential (30 du/ac)	21.83	102.3	2,233.5
I - Industrial	157.78	33.2	5,234.0
LD - Low Density Residential (8 du/ac)	129.61	-	-
LMD - Low/Medium Density Residential (17 du/ac)	642.77	0.4	242.9
MD - Medium Density Residential (30 du/ac)	830.12	0.9	761.3
P - Public Use	259.07	4.3	1,106.3
RP - Residential Parking	20.55	-	-
1st Street (FS) Zone†	14.37	76.7	1,102.2
3rd Street (TOD) Zone†	63.60	76.7	4,879.5
Atlantic Boulevard (AB) Zone†	8.86	42.6	377.8
Cesar Chavez (CC) Zone†	48.22	76.7	3,699.7
Civic (CV) Zone†	111.97	18.5	2,067.1
Low-Medium Density (LMD) Zone†	584.05	-	-
Neighborhood Center (NC) Zone†	43.70	76.7	3,352.7
Open Space (OS) Zone†	209.21	1.0	200.0
Hacienda Heights Community Plan	6,359.66	2.09	13,310.02

CG - General Commercial	131.03	85.4	11,193.8
H2 - Residential 2 (0-2 du/ac)	718.93	0.1	100.0
H5 - Residential 5 (0-5 du/ac)	2,110.34	0.5	1,000.0
H9 - Residential 9 (0-9 du/ac)	594.02	0.3	200.0
H18 - Residential 18 (9-18 du/ac)	200.65	0.07	14.8
H30 - Residential 30 (18-30 du/ac)	10.35	-	-
H50 - Residential 50 (30-50 du/ac)	7.03	-	-
IL - Light Industrial	27.95	16.7	466.2
OS-C - Open Space Conservation	403.44	-	-
OS-PR - Open Space Parks and Recreation	1,131.34	0.2	200.0
P-CS - Public and Semi-Public Community Serving	29.91	3.3	100.0
P-TF - Public and Semi-Public - Transportation Facilities	0.00	-	-
P-UF - Public and Semi-Public Utilities and Facilities	132.96	-	-
RL2 - Rural Lands 2 (1du/2ac)	147.59	0.2	35.2
RL10 - Rural Lands 10 (1du/10ac)	714.10	-	-
Marina Del Rey Local Coastal Land Use Plan	693.67	6.48	4,492.81
B - Boat Storage	18.88	4.4	82.3
H - Hotel	26.44	38.8	1,027.0

MC - Marine Commercial	23.94	42.6	1,020.2
O - Office	5.40	144.2	779.6
OS - Open Space	41.81	-	-
P - Parking	16.90	-	-
PF - Public Facilities	5.14	48.7	250.0
R III - Residential III (35 du/ac)	37.97	-	-
R IV - Residential IV (45 du/ac)	22.60	-	-
R V - Residential V (75 du/ac)	96.79	-	-
SA - Senior Accomodations	2.11	23.7	50.0
VS/CC - Visitor-Serving / Convenience Commercial	30.12	42.6	1,283.8
W - Water	365.57	-	-
Rowland Heights Community Plan	7,421.77	2.78	20,660.62
C - Commercial	192.33	82.0	15,763.8
I - Industrial	143.73	21.1	3,027.0
N1 - Non-Urban 1 (0.2 du/ac)	1,459.45	-	-
N2 - Non-Urban 2 (0.3 to 1.0 du/ac)	509.82	0.4	200.0
O - Open Space	1,566.17	0.1	193.6
TOS - Transitional Open Space (N1)	272.44	-	-
TOS - Transitional Open Space (N2)	268.05	-	-

TOS - Transitional Open Space (U1)	252.24	-	-
U1 - Urban 1 (1.1 to 3.2 du/ac)	1,276.27	0.3	401.0
U2 - Urban 2 (3.3 to 6.0 du/ac)	1,278.00	0.8	1,075.0
U3 - Urban 3 (6.1 to 12.0 du/ac)	68.27	-	-
U4 - Urban 4 (12.1 to 22.0 du/ac)	51.26	0.003	0.2
U5 - Urban 5 (22.1 to 35.0 du/ac)	83.76	0.000003	0.0003
Santa Catalina Island Local Coastal Land Use Plan	46,136.87	0.01	570.00
Commercial - Two Harbors	2.65	0.4	7.0
Conservation/Primitive Recreation - Catalina	20,212.26	631.6	32.0
Conservation/Recreation - Two Harbors	820.42	47.6	17.2
Extractive Use - Catalina	513.74	-	-
Industrial/Transportation - Two Harbors	4.57	-	-
Industrial/Transportation/Utilities - Catalina	171.65	28.6	6.0
Lodges/Inns - Two Harbors	14.17	-	-
Marine Commercial - Two Harbors	2.56	-	-
Open Space/Recreation - Two Harbors	107.79	47.6	2.3
Open Space/Structured Recreation - Catalina	24,056.73	47.6	505.5
Residential Land Uses - Two Harbors	136.21	-	-
undefined* - Two Harbors	3.09	-	-

Utilites/Services - Two Harbors	6.82	-	-
View Corridor - Two Harbors	84.21	-	-
Santa Clarita Valley Area Plan‡	270,888.56	0.4	105,881.4
Non-Residential	270,888.56	0.4	105,881.4
Santa Monica Mountains Local Coastal Plan	51,011.87	0.38	19,432.62
C Commercial	28.88	24.3	700.8
CR Visitor-Serving Commercial Recreation-Limited	748.09	14.5	10,881.1
OS Open Space	954.75	-	-
OS-DR Open Space-Deed Restricted	304.17	-	-
OS-P Open Space-Parks	25,815.47	0.006	150.0
P Public and Semi-Public Facilities	912.90	8.3	7,600.0
RL1 Rural Residential (1DU/1AC)	64.82	-	-
RL2 Rural Residential (1DU/2AC)	134.87	-	-
RL5 Mountain Lands (1DU/5AC)	208.11	-	-
RL10 Mountain Lands (1DU/10AC)	1,089.51	-	-
RL20 Mountain Lands (1DU/20AC)	16,092.01	-	-
RL40 Mountain Lands (1DU/40AC)	3,353.94	-	-
RV Rural Village	1,205.42	0.08	100.69

U8 Residential (8 DU/AC)	92.64	-	-
U20 Residential (20 DU/AC)	6.29	-	-
Santa Monica Mountains North Area Plan	20,162.19	0.33	6,569.19
C - Commercial	119.57	39.8	4,763.8
CR - Commercial Recreation - Limited Intensity	46.72	25.6	1,194.9
N1 - Rural Residential 1 (1 du/ac max)	453.52	0.05	21.2
N2 - Rural Residential 2 (1 du/2 ac max)	668.50	0.1	100.0
N5 - Mountain Lands 5 (1 du/5 ac max)	2,028.06	0.1	199.8
N10 - Mountain Lands 10 (1 du/10 ac max)	4,264.61	0.05	200.0
N20 - Mountain Lands 20 (1 du/20 ac max)	5,505.19	0.003	16.4
OS - Open Space	774.97	-	-
OS-DR - Open Space Deed Restricted	590.60	0.0000005	0.0003
OS-P - Open Space Parks	4,731.18	0.01	62.0
OS-W - Open Space Water	38.95	0.3	11.1
P - Public and Semi-Public Facilities	514.86	-	-
TC - Transportation Corridor	0.01	0.05	0.0004
U2 - Residential 2 (2 du/ac max)	251.84	-	-
U4 - Residential 4 (4 du/ac max)	148.00	-	-
U8 - Residential 8 (8 du/ac max)	25.62	-	-

Twin Lakes Community Plan	45.25	-	-
RC - Rural Communities	45.25	-	-
Walnut Park Neighborhood Plan	368.83	13.68	5,043.85
GC - General Commercial	34.66	109.2	3,785.7
MC - Mixed Commercial	11.11	42.6	473.6
NP I - Neighborhood Preservation I (1 to 6 du/ac)	166.62	0.6	100.0
NP II - Neighborhood Preservation II (6 to 12 du/ac)	20.67	-	-
NR - Neighborhood Revitalization (12 to 30 du/ac)	117.27	-	-
OC - Office Commercial	6.61	86.5	572.2
PU/I - Public Use / Institutional	8.28	13.6	112.4
R/P - Residential / Parking	3.61	-	-
West Athens - Westmont	1,489.40	7.31	10,893.90
C.1 - Regional Commercial	44.54	23.8	1,059.6
C.2 - Community Commercial	80.64	86.7	6,993.9
C.3 - Neighborhood Commercial	1.86	42.6	79.4
C.4 - Commercial Manufacturing	14.91	21.3	318.4
CR - Commercial Recreation	12.61	0.4	5.0
OS.1 - Recreation / Open Space	121.54	0.6	70.0
PL.1 - Public/Quasi-Public Use	156.54	11.1	1,742.6

RD 2.3 - Single Family Residence (1 to 8 du/ac)	484.80	0.7	325.0
RD 3.1 - Two Family Residence (8 to 17 du/ac)	548.77	0.4	200.0
RD 3.2 - Medium Density Bonus (17 to 30 du/ac)	19.29	5.2	100.0
SCD - Senior Citizen Density Bonus (30 to 50 du/ac)	3.89	-	-
Grand Total	1,650,726.75	N/A	548,351.06

Note: Wherever possible, employment assumptions were provided by the Natelson Company Employment Density Study. Employment estimates for public uses, such as Public Facilities, Public/Quasi-Public, and Institutions, were determined individually to reflect existing uses.

Source: Los Angeles County Department of Regional Planning, GIS Section.

III. Land Use Policy Map

Map Conversion Methodology

Conversion to Digitized and Parcel-Based Land Use Policy Map

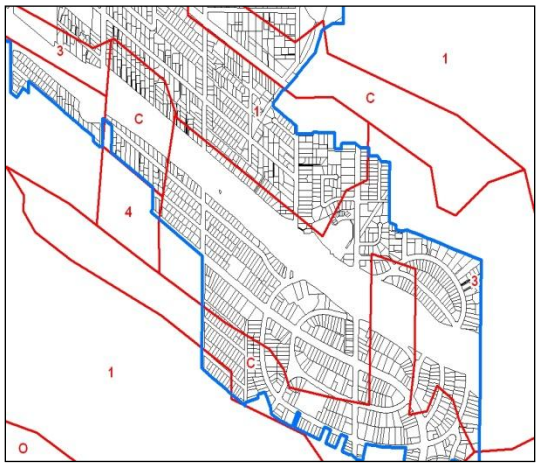
The 1980 General Plan Land Use Policy Map generalizes land use designations, and functions as a framework for the development of more detailed area and community plans. In developing parcel-based maps for thisGeneral Plan, it was necessary to examine every community at a parcel level to determine the appropriateness of the General Plan land use designations.

The conversion to parcel-based land use maps began in 1997, with the creation of base maps for all of the unincorporated areas of Los Angeles County, using the parcel patterns from zoning maps as a guide to make the linework more accurate. In 2004 and 2005, the General Plan and GIS sections reviewed the digitized, parcel-based maps and fixed discrepancies. In addition, the staff edited the maps to reflect adopted project-specific amendments to the maps.

Figure C.2 is a snapshot of an unincorporated community from the 1980 General Plan Land Use Policy Map. Figure C.3 is a digitized version of the same snapshot overlaid on a parcel-based map.

Figure C.2: 1980 General Plan Land Use Policy Map Snapshot

Figure C.3: GIS Digitized Version of the 1980 General Plan Land Use Policy Map



Figures C.4 and C.5 provide a final illustration of the land use map conversion process. Figure C.4 is a snapshot of the adopted 1980 General Plan Land Use Policy Map. Figure C.5 represents the fully converted, GIS-driven and parcel-based land use map.

Figure C.4: 1980 General Plan Land Use Map

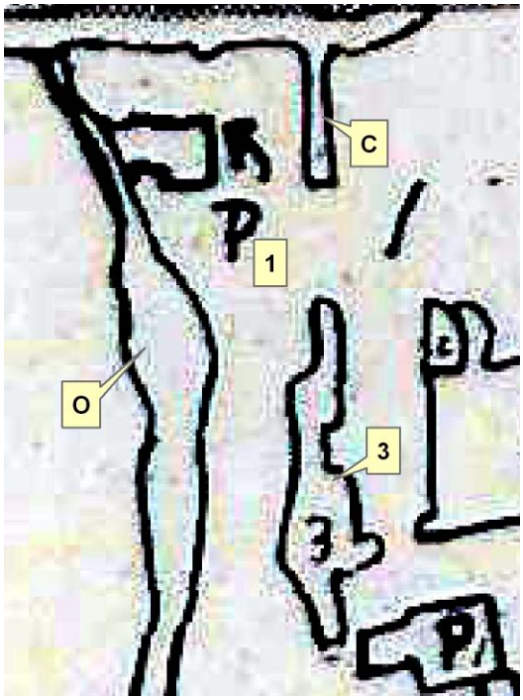
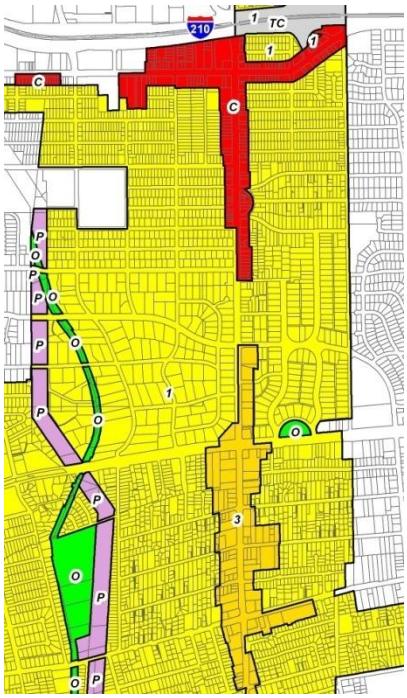


Figure C.5: Current Department Land Use Map



Additional Refinements

In 2010, the staff further refined the converted General Plan Land Use Policy Map using the approach outlined in the 1980 General Plan to determine land uses for areas not covered by an area or community plan.

Objectives

- Reduce inconsistencies between zoning and land use designations;
- Eliminate and discourage spot zoning;
- Reduce conflicts between adjacent uses;
- Reflect existing land use trends and/or envision future trends; and
- Eliminate unnecessary split-zoning/land use designations.

Factors considered

- Parcelized 1980 General Plan Land Use Policy Map (GIS-NET) and proposed land use designation of the subject property;
- Existing zoning of the subject property;
- Existing uses and densities (if residential) on subject property;
- Year built/established;
- Surrounding land use designation and zoning;
- Surrounding existing uses and densities (if residential);
- Plan amendments and/or zone changes;
- Recent approvals/projects under construction on the subject property; and
- City spheres of influence.

Policy-Driven Land Use Policy Map Changes

Transit Oriented Districts (TODs)

The TOD boundaries are delineated on the Land Use Policy Map as half-mile radii from stations along Metro rail and bus rapid transit linesthat are within, or adjacent to, unincorporated areas. The General Plan establishes 11 TODs, as discussed in the Land Use Element.

Where not covered by an existing community-based plan, and where appropriate, the staff designated the commercial corridors within the TODs to Mixed Use MU, which allows multifamily,

commercial and mixed uses at residential densities ranging from 0-150 du/ac and commercial uses at a maximum of FAR 3.0.

Industrial Area Preservation and Conflicts

The staff made land use changes based on the industrial land analysis (see Appendix J). In some instances, the recommended Employment Protection Districts differ from the boundaries identified on the Land Use Policy Maps. The recommended boundaries were refined as part of the land use mapping process, and therefore, may not be identical in every case. In addition, in some instances, instead of identifying an area as an Industrial Flex District, as recommended by the industrial lands study, the area was re-designated on the Land Use Policy Map to commercial to reflect the existing land uses. In other instances, the area was designated industrial and identified as an Industrial Flex District on the Opportunity Areas maps.

The staff also studied areas that are appropriate for heavy industrial uses, based on existing uses, zoning and additional research. The staff designated most of the areas zoned for heavy industrial as Heavy Industrial (IH), as well as sites with major industrial uses with noxious impacts, such as oil refineries.

Hillside Management Areas and Other Hazard, Environmental and Resource Constraints

Using the Hazard, Environmental and Resource Constraints Model, and existing and surrounding uses, the staff made land use changes to a limited number of hillsides and other areas with environmental constraints.

IV. SB 244 Methodology

As discussed in the Land Use Element, SB244 requires cities and counties to identify and study the infrastructure needs of disadvantaged unincorporated communities. In order to meet this state mandate, Los Angeles County utilized GIS to identify sites that match all of the following criteria:

- Parcels are at least 50 years old.
- Parcels are outside of a city's sphere of influence.
- Parcels are clustered with 10 or more units in close proximity.
- Households earn less than 80% of the state median income. (Source 2000 Census, 2010 American Community Survey)

Once sites were identified with GIS, the staff reviewed and refined the list to remove non-qualifying sites.

Appendix D: Mobility Element Resources

I. County Transit Services

Table D.1: Fixed Route Shuttle Services, Average Monthly Boardings, July 2012-June 2013

Fixed Route Shuttle Services	Average Monthly Boardings
Acton Agua Dulce Shuttle	313
Athens Shuttle	6,600
Avocado Heigths/Bassett/West Valinda Shuttle	5,290
Baldwin Hills Parklands Shuttle	110
Children's Court Shuttle	5,130
DASH Boyle Heigths/ East LA Shuttle**	36,670
East Valinda Shuttle	12,100
El Sol Shuttle (East LA)	112,484
Florence-Firestone/Walnut Park Shuttle	18,263
Lennox Shuttle	5,406
Los Nietos Shuttle	679
King Medical Center Shuttle	5,635
Sunshine Shuttle (South Whittier)	18,219
Willowbrook Route A Shuttle	1,968
Willowbrook Route B Shuttle	7,341

Source: Los Angeles County Department of Public Works, Fiscal Year 2013.

*Service implemented in January 2013. Ridership data is not available.

**Service operated by the City of Los Angeles.

Table D.2: Paratransit Services, Average Monthly Boardings, July 2012-June 2013

Paratransit Services	Average Monthly Boardings
Agoura Hills	185
Alondra Park/Del Aire/El Camino Village	39
Azusa	395
Cityride	114
East Los Angeles	1,823
East San Gabriel	836
La Cresenta	413
Ladera	16
Lennox	511
Mid San Gabriel	776
Palos Verdes Pennisula	35
Rancho Dominguez	677
Willowbrook	799
Whittier, et al	3,005

Source: Los Angeles County Department of Public Works, Fiscal Year 2012.

II. Bicycle Collision Data

Table D.3: Bicycle Collisions in Unincorporated Los Angeles County, 2004-2009

Year	Crashes	Killed
2004	272	5
2005	245	2
2006	209	6
2007	220	5
2008	220	5
2009	203	2
Total	**1,369**	**25**

Source: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS), 2010.

III. Mode of Transportation

Table D.4: Means of Transportation to Work for Workers 16 Years and Older, 2010

Means of Transportation	Unincorporated Areas	Los Angeles County
Drove Alone	74.14%	72.13%
Carpooled	12.53%	11.32%
Used Public Transportation	5.52%	7.09%
Walked	1.76%	2.86%
Bike, Motorcycle, Taxi, Other Means	1.86%	2.05%
Worked at Home	4.20%	4.56%

Source: 2006-2010 American Community Survey, 5-Year Estimates, SF B08101.

Appendix E: Conservation and Natural Resources Element Resources

I. Open Space and Natural Areas in Los Angeles County

Los Angeles County offers a wide variety of open space and natural areas. The following open space and natural areas are managed by the County or are located primarily within the unincorporated areas:

Angeles National Forest

The Angeles National Forest was established by Executive Order in 1892 and is managed by the U.S. Forest Service. The Forest covers over 650,000 acres. The Angeles National Forest manages the watersheds within its boundaries to provide water to Southern California and to protect surrounding communities from catastrophic floods. The land within the Angeles National Forest is diverse in appearance and terrain, and provides many opportunities for recreational and scenic enjoyment. Much of the Angeles National Forest is covered with dense chaparral, pine and fir covered slopes as elevations in the Angeles National Forest range from 1,200 to 10,064 feet.

Deane Dana Friendship Park

Deane Dana Friendship Park, which is a 123-acre park located on the Palos Verdes Peninsula, affords dramatic panoramic views of Santa Catalina Island, Los Angeles and Long Beach harbors, the City of Los Angeles to the north, and the San Gabriel and San Bernardino mountain ranges. There are hiking trails throughout the park.

Devil's Punchbowl Natural Area

Devil's Punchbowl is a 1,310-acre natural area that consists of rugged wilderness rock formations along the San Andreas Fault on the northern slope of the San Gabriel Mountains. The terrain climbs from 4,200 feet to 6,500 feet in elevation, with natural plant and animal communities ranging from desert scrub to pine forests. A seasonal stream runs through the natural area.

Eaton Canyon Natural Area

Situated at the base of Mt. Wilson, this 190-acre natural area contains several plant and native habitat communities. Eaton Creek flows through the Canyon during all but the summer months. The 7,600-square-foot nature center contains displays of local flora and fauna, ecosystem concepts and live animals. The natural area offers five miles of nature trails and an equestrian trail, and serves as a trailhead to the Mt. Wilson Toll Road and Henninger Flats.

High Desert Wildlife and Wild Flower Sanctuaries

The County currently operates eight wildlife sanctuaries and one wildflower sanctuary in the high desert of Antelope Valley. Ranging from 2,500 to over 3,600 feet in elevation and encompassing more than 2,000 acres, the sanctuaries offer opportunities for spring wildflower viewing, bird watching, hiking and horseback riding. Wildlife seen on the preserves vary from horned lizards,

chuckwallas and rattlesnakes, to prairie falcons and golden eagles. Insect life is most abundant during the warmer months, and in spring, the Joshua tree and other large shrubs provide nesting sites for a variety of songbirds. Other protected animals are the kit fox, desert tortoise and Mojave ground squirrel.

Kenneth Hahn State Recreation Area

The 338-acre Kenneth Hahn State Recreation Area, managed by the County, includes large areas of native coastal sage scrub habitat, lawns and landscaped areas, picnic sites, tot lots, a fishing lake, a lotus pond, a community center, and five miles of trails. One of the most actively used features is the park's more than seven miles of footpaths and trails.

Michael D. Antonovich Open Space Preserve

The Michael D. Antonovich Open Space Preserve offers 500 acres of dedicated open space in the Santa Susana Mountains and is managed by the Mountains Recreation and Conservation Authority (MRCA). Located on the northern border of Los Angeles, this open space preserve contains a diversity of flora and fauna, from big cone Douglas fir, California walnut and oak trees to black bears, deer and mountain lions. The Preserve also provides important habitat connections through its numerous wilderness trails in the Rim of the Valley corridor of the Santa Clarita Woodlands Park.

Placerita Canyon Natural Area

This 350-acre natural area is located in an east-west running canyon featuring oak groves, chaparral-covered slopes and a sycamore-lined stream. Placerita Canyon is home to the Oak of the Golden Dream, where gold was "first" discovered in California in 1842, and Walker's Cabin, which is a relic of early frontier living. Placerita Canyoncontains eight miles of hiking trails.

Santa Monica Mountains National Recreation Area

The 150,000-acre Santa Monica Mountains National Recreation Area is a part of the National Park System, which encompasses the mountain range from the Oxnard Plain in Ventura County, past Topanga State Park to Franklin Canyon and the Hollywood Bowl in Los Angeles. The Recreation Area preserves natural habitats, historical and cultural sites, offers recreational opportunities, and acts to improve the air quality for the Los Angeles Basin. Covered by chaparral, oak woodlands, and coastal sage scrub, it is home to many species listed as rare, threatened, or endangered.

Santa Catalina Island Regional Park

Santa Catalina Island Regional Park consists of 41,000 acres of natural open space, with miles of hiking trails, camp sites and a wildlife sanctuary. The Santa Catalina Island Interpretive Center is located within the park.

Schabarum Regional Park

The 640-acres Schabarum Regional Park is comprised of open space and natural areas, including picturesque canyons and rolling hills for hiking, biking and horseback riding. Over 90 percent of this park has been left in its natural state for the public to enjoy.

Vasquez Rocks Natural Area Park

This 945-acre natural area is a hiking, picnicking, and equestrian area. The park is located in the high desert near Agua Dulce Springs and features rock formations, Tatavian Indian sites, and a seasonal stream. The principal plant communities are desert, chaparral, and riparian.

Whittier Narrows Natural Area

This natural area occupies approximately 300 acres in the southern portion of the Whittier Narrows Recreation Area. Bordering the San Gabriel River, the Natural Area is home to several habitats, with the dominant one being a riparian woodland. The southeastern portion of the site features four lakes that provide a winter sanctuary for migrating waterfowl and are opened by special permit for birding and photography. This area is near lakes and contains many plants and animals that are typically found within a wetland community.

II. Conservancies

The County works with various conservancies to maintain and protect open space land in Los Angeles County. Land conservancies are private, nonprofit organizations and public agencies that share a common goal: to conserve land for the benefit of people and nature. Land conservancies are generally started by community residents who wish to preserve a certain area or piece of open space land on a local or regional scale. Land conservancies have the flexibility to acquire, hold and manage land in the public interest, and also to preserve open space through voluntary conservation agreements with landowners, which permanently protect the land from development, while the title remains with the landowner. Most conservancies work in partnership with local governments and provide various levels of educational programs and land restoration and/or land enhancement projects.

The County works with a number of conservancies to preserve and protect the County's open spaces:

Antelope Valley Conservancy

The Antelope Valley Conservancy is a local land trust conservancy that obtains and stewards lands that are important to the community for quality of life, scenic beauty, and plant and animal habitat. AVC focuses on Joshua tree woodlands, the keystone species of the Mojave Desert, which supports a wide variety of native species. Most of the Conservancy's targeted preservation lands are in the County's designated Significant Ecological Areas. (http://www.avconservancy.org/)

Baldwin Hills Conservancy

The Baldwin Hills Conservancy (BHC) was created by the State in 2000. Specifically, BHC is responsible for: implementing the Baldwin Hills Park Master Plan; prioritizing and implementing acquisition of additional recreational and open space land for the expansion of Kenneth Hahn State Recreation Area; conducting planning activities for the area; and developing and coordinating a program of resource stewardship for optimum recreational and natural resource value based on the needs of the surrounding community. (http://www.bhc.ca.gov/)

California Coastal Conservancy

Established in 1976, the California Coastal Conservancy is a state agency that purchases, protects, restores, and enhances coastal resources, and provides access to the shore. The Conservancy works in partnership with local governments, other public agencies, nonprofit organizations, and private landowners. To date, the Conservancy has undertaken more than 1,800 projects along the 1,100 mile California coastline. (http://www.scc.ca.gov/)

Catalina Island Conservancy

In 1974, the Santa Catalina Island Company entered into a 50 year Open Space Easement agreement with the County, guaranteeing public recreational and educational use of 41,000 acres of Santa Catalina Island, consistent with good land conservation practices. The Santa Catalina Island Company subsequently deeded this land to the non-profit Catalina Island Conservancy (formed in 1972), along with an additional 1,135 acres. The Catalina Island Conservancy continues to manage 42,135 acres on Santa Catalina Island, providing the highest level of conservation protection to 88 percent of Santa Catalina Island. The Conservancy's mission is "to be a responsible steward of its lands through a balance of conservation, education and recreation." The conservation activities include wildlife management, a plant ecology program, invasive plant management, restoration of degraded areas and scientific research by many different researchers from throughout the country. Other activities include various educational camps for youth, several campgrounds and hiking and biking trails. (http://www.catalinaconservancy.org/)

Mountains Recreation and Conservation Authority

Established in 1985, the Mountains Recreation and Conservation Authority (MRCA) is a partnership between the Santa Monica Mountains Conservancy (SMMC), the Conejo Recreation and Park District, and the Rancho Simi Recreation and Park District. The MRCA is dedicated to the preservation and management of open space and parkland, watershed lands, trails, and wildlife habitat. The MRCA manages almost 60,000 acres of public lands and parks, and provides comprehensive education and interpretation programs for the public. The MRCA works in cooperation with the SMMC and other local partners to acquire parkland, participate in vital planning processes, and complete major park improvement projects. The MRCA also provides natural resources and scientific expertise, critical regional planning services, park construction services, park operations, fire prevention, ranger services, and educational and leadership programs for youth. (http://www.mrca.ca.gov/)

Newhall Ranch High Country Recreation and Conservation Authority

The Newhall Ranch High Country Recreation and Conservation Authority is a joint powers authority formed by the SMMC, the County, and the City of Santa Clarita. Its purpose is the conservation and management of public open space lands set aside for habitat and recreation pursuant to the Los Angeles County Board of Supervisors approval of the Newhall Ranch project, the Westridge project, and any other such open space lands dedicated by Newhall Land Company or its successors. (http://smmc.ca.gov/NRHCRCA.asp)

Puente Hills Habitat Preservation Authority

The Puente Hills Habitat Preservation Authority (PHHPA) is a joint powers authority with a board of directors consisting of the City of Whittier, the County, Los Angeles County Sanitation Districts, and the Hacienda Heights Improvement Association. The PHHPA was created in 1994 as mitigation for the Puente Hills Landfill. To date, the PHHPA manages 3,860 acres of preserved public open space. The PHHPA's main focus is to acquire the remaining open space within its jurisdiction, with special consideration given to the Hacienda Heights area. (http://www.habitatauthority.org/)

San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy

The San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy (RMC) was created by the State in 1999. RMC is one of nine conservancies within the California Resources Agency. Its mission is to preserve open space and habitat in order to provide for low-impact recreation and educational uses, wildlife habitat restoration and protection, and watershed improvements. RMC's territory covers eastern portions of Los Angeles County and western Orange County, which is a vast and varied area that includes mountains, valleys, rivers, coastal plain, and coastline. (http://www.rmc.ca.gov/)

San Gabriel Mountains Regional Conservancy

The San Gabriel Mountains Regional Conservancy is devoted to watershed management and a great variety of other projects in the San Gabriel River watershed of the eastern portion of Los Angeles County. Included in the region are the San Gabriel Mountains, the San Gabriel River valley and related areas. (http://www.sgmrc.org/)

Santa Clarita Watershed Recreation and Conservation Authority

The Santa Clarita Watershed Recreation and Conservation Authority (SCWRCA) was established in 1993 by the City of Santa Clarita and the Santa Monica Mountains Conservancy in order to cooperatively plan for the preservation of open space, trails, parkland, and watershed protection in the Santa Clarita area and the upper Santa Clara River watershed. In 2002, the SCWRCA finalized the City's and Conservancy's long-standing efforts to acquire the 442-acre Whitney Canyon Ranch. (http://smmc.ca.gov/SCWRCA.asp)

Santa Monica Mountains Conservancy

The Santa Monica Mountains Conservancy (SMMC) was established by the State in 1980. Since that time, it has helped to preserve over 60,000 acres of parkland in both wilderness and urban settings, and has improved more than 114 public recreational facilities throughout Southern California. Through direct action, alliances, partnerships, and joint powers authorities, the SMMC's mission is to strategically buy back, preserve, protect, restore, and enhance treasured pieces of Southern California to form an interlinking system of urban, rural and river parks, open space, trails, and wildlife habitats that are easily accessible to the general public. (http://smmc.ca.gov/)

Watershed Conservation Authority

The Watershed Conservation Authority (WCA) was created in 2003 as a joint powers entity of the

RMC and the Los Angeles County Flood Control District. The focus of the WCA is on projects that will provide open space, habitat restoration, and watershed improvement projects in the watersheds of both the San Gabriel River and the lower Los Angeles River. (http://watershedconservationauthority.org/)

Wildlife Corridor Conservation Authority

The Wildlife Corridor Conservation Authority (WCCA) was established to provide for the proper planning, conservation, environmental protection, and maintenance of lands within the Puente-Chino Hills corridor area. Its goal is to assure that sufficient continuity of habitat can be preserved to maintain a functioning wildlife corridor made up of about 40,000 acres of land located between the Santa Ana Mountains and Whittier Hills. WCCA's governing board consists of representatives from the cities of Brea, Whittier, Diamond Bar, La Habra Heights, the Santa Monica Mountains Conservancy, California Department of Parks and Recreation, California Department of Fish and Wildlife, the County, and two public members. (http://smmc.ca.gov/WCCA.html)

III. Regional Habitat Linkages

Habitat linkages are defined as area within the overall range of a species or suite of species that possess sufficient cover, food, forage, water and other essential elements to serve as a movement pathway, or between two or more larger areas of habitat. Depending on the species, linkages vary in size. For example, a belt of coastal sage scrub traversing a golf course, connecting sage scrub habitat areas on either side, providing a safe passage zone for smaller, slower-moving species (such as lizards and rodents) to maintain population connectivity between the two sides of the golf course is one form of habitat linkage.

Wildlife corridors, which are areas of open space of sufficient width to permit larger, mobile species (such as foxes, bobcats and coyote) to pass between larger areas of open space, or to disperse from one major open space region to another, are another type of habitat linkage. Such areas are generally several hundred feet wide, unobstructed, and usually possess cover, food and water. The upland margins of a creek channel, open ridgelines, open valleys or the bottoms of drainages often serve as major corridors locally, as do riparian alignments.

Biological resources are important in a regional context, serving to connect resources in adjacent local jurisdictions. Critical biological resources are maintained through habitat connectivity, which sustains population genetic diversity, and provides refuge for migrant species. Regional habitat linkages are identified in the Conservation and Natural Resources Element. The Antelope Valley, Puente Hills, San Andreas, Santa Clara River, Santa Felicia, Santa Monica Mountains, and Santa Susana Mountains and Simi Hills SEAs serve as important regional habitat linkages. More details about linkages between and within each of these SEAs are provided below:

Antelope Valley SEA

The SEA extends from the Angeles National Forest to the playa lakes within Edwards Air Force Base, encompassing most of the two largest drainages exiting the northern slope of the San Gabriel Mountain range. The geographical features of the SEA serve as a major habitat linkage and movement corridor for all wildlife species within its vicinity and, in an intergenerational sense, many of the plant species. Ecologically generalist species (such as mountain lion, bobcat, coyote, gray

fox,) have the ability to move across such vast areas and through changing habitat types. For such species, the SEA may serve as an important system for long-term and genetic exchange among populations. For smaller or less-mobile species or taxa, which are narrowly restricted in their habitat needs, the SEA can serve as a broad linkage zone, in which individual movement can take place during seasonal population dispersal or over generations. This provides essential genetic exchange within and between metapopulations. The two drainages, combined with the upland terrestrial Desert-Montane transect portion of the SEA, ensure linkage and direct movement areas for all of the wildlife species present within the County portion of the Antelope Valley.

Puente Hills SEA

Evidence of significant wildlife movement throughout the Puente Hills SEA was documented in a two-year carnivore study commissioned by the Santa Monica Mountains Conservancy as part of a multi-jurisdictional effort to establish a regionwide wildlife movement linkage. Additional studies on wildlife movement through the area include several focusing on the Harbor Boulevard and Colima Road Underpasses. These studies can be accessed at the following link: http://www.habitatauthority.org/studies. This SEA represents the County portion of a continuous series of natural open space within the Puente Hills and Chino Hills. Overall, this open space extends north and west from State Route-91 in Orange and Riverside counties to the Whittier Narrows reach of the San Gabriel River. The Puente and Chino Hills are a natural, physical link between the Santa Ana Mountains and the San Gabriel River. The San Gabriel River flows from and links to the San Gabriel Mountains. By virtue of these linkages and a complex of interconnected habitat units, the Puente and Chino Hills function as both an important wildlife linkage and resident habitat area for regional wildlife populations.

San Andreas SEA

The SEA includes several important linkages for wildlife movement. The foothills in the western-most part of the SEA are an important linkage between the San Gabriel Mountains, the Tehachapi Mountains, and the Coastal Ranges. The linkage to the Tehachapi Mountains is important because the Tehachapis connect to the southern-most extent of the Sierra Nevada Mountains. The Tehachapi Mountains represent the only mountain linkage from the Transverse Ranges and the Coast Ranges to the Sierra Nevada Range. This feature may be an important topographic reference for migrating birds, and provides high elevation foraging grounds along the migratory route. The several ranges that meet at the western end of the SEA provide a valuable link for gene flow between divergent subspecies, varieties, and populations of many species. The SEA includes numerous drainages that extend onto the Antelope Valley floor towards resources such as the Fairmont and Antelope buttes. These washes provide an important linkage for animals traveling between the Valley floor, the buttes and the western part of the San Gabriel Mountains. In addition, Anaverde Creek, Amargosa Creek, and Pine Canyon facilitate east-west wildlife movement through the mountains, Portal Ridge, and Ritter Ridge. Tributary drainages from the Santa Clara River, such as Elizabeth Lake Canyon and San Francisquito Canyon, connect coastal drainages and the coastal ecoregion to the San Andreas Fault and interior watersheds. The frequency of valuable riparian communities along this travel route, which is located within an otherwise arid climate, further contributes to the SEA's importance for wildlife and habitat linkages in the region.

Santa Clara River SEA

Historically (and prehistorically) the riparian corridor along the Santa Clara River has served as the primary east-west linkage between the Pacific coastline, Coast Ranges, interior ranges, high desert and southern Sierra (via the Tehachapi Range). Animals moving through the Santa Clara River at one time had unobstructed passage along the river and within its tributaries. The present configuration of the tributary drainages has reduced connectivity from the Santa Clarita Valley to the north, but the Santa Clara River remains relatively intact and open. The SEA embraces the river corridor and the linkage zones that are considered essential to ensuring connectivity and resource values within the historic movement zones for all of the wildlife species present within the County portion of the Santa Clara River.

Santa Felicia SEA

Historically, riparian corridors have served as linkages between the Pacific coastline, Coast Ranges, interior ranges, the high desert and southern Sierras (via the Tehachapi Range). The Santa Felicia stream corridor likely serves the functions today. The elevation in this area is lower than that of the Los Padres National Forest, to the north, which facilitates animal movement within the riparian systems between Piru Lake in Ventura County and the San Gabriel Mountain Range in the County. The tributary drainages for Santa Felicia Creek within this SEA remain intact and unobstructed.

Santa Monica Mountains SEA

Although wildlife movement is hampered by rural development in the SEA, animals are still able to move through the Santa Monica Mountains in many areas. Due to its large size and topographic complexity, many linkages are certain to occur within the SEA at various bottlenecks. These linkages allow movement between large open space areas within the SEA, as well as between areas outside the SEA, such as the Simi Hills and the western extent of the Santa Monica Mountains in Ventura County. The genetic flow through these areas is crucial in maintaining the diversity and viability of certain species within the Santa Monica Mountains. Open space linkages between Kanan Road and Calabasas Parkway along State Route-101, as indicated by the National Park Service, are of particular importance for continued wildlife movement due to the lack of alternative routes and encroachment of development. Although there are significantly large open spaces within the SEA, contiguous habitat linkages between them are critical in reducing bottlenecks and providing for long-term sustainability.

Santa Susana Mountains and Simi Hills SEA

The Santa Susana Mountains and Simi Hills SEA includes several important linkages for wildlife movement. The Santa Susana Mountains and Simi Hills provide a vast open space corridor to foster wildlife movement between the Santa Monica Mountains to the south, San Gabriel Mountains to the east, and the Los Padres National Forest to the north. Dense, natural habitat associated with the majority of the study area provides excellent opportunities for concealment and water sources, while the grasslands provide an abundance of prey.

IV. Significant Ecological Areas

History of the SEA Program

Los Angeles County's Significant Ecological Areas (SEAs) Program has schematic roots in an initial General Plan guiding document, the 1970 Environmental Development Guide, which was adopted as a preliminary General Plan for the County. The Open Space Concept Plan and 1990 Open Space Policy Map depict greenbelt areas and rural lands that reasonably correspond to the current SEA map.

The original Significant Ecological Area Report was prepared in 1972 by scientists from the University of California, Los Angeles, the Los Angeles County Museum of Natural History and other local academic institutions, at the request of the Los Angeles County Department of Regional Planning (DRP). The DRP asked the report authors to identify "significant ecological areas," which due to their high biological resource value, should receive special consideration during the formulation of the 1973 General Plan. In the final report, 81 such areas were mapped and brief descriptions of the value of each were given. The 81 areas were then included on the Vegetation and Wildlife Map in the Conservation Element of the 1973 General Plan.

In 1976, following the 1975 court decision requiring the preparation of a revised General Plan, the DRP and the Environmental Systems Research Institute commissioned the Los Angeles County Significant Ecological Area Study (1976 SEA Study), from the environmental consulting firm, England and Nelson. After excluding the Channel Islands and national forest lands from the study area, the 1976 SEA Study reviewed the data and criteria used to establish the original significant ecological area list, analyzed new information, developed of a set of eight criteria to be used to select and prioritize significant ecological areas and concluded with individual maps and descriptions for each. From an initial list of 115 sites, 62 areas met the criteria and were recommended for adoption by the study. In 1980, 61 of these biologically significant areas were adopted as part of the Conservation and Open Space Element of the Los Angeles County General Plan on the Special Management Areas Policy Map and through individual descriptions of the SEAs in Technical Supplement E of the 1980 General Plan.

In 1991, supplemental studies further assessing the biological resources within seven SEAs were conducted. The Phase I Studies, conducted by Michael Brandman Associates, assessed the following SEA areas: Cold Creek Significant Ecological Area No.9, San Fransciquito Canyon Significant Ecological Area No.19, Dudleya Densiflora Population Significant Ecological Area No.45, Kentucky Springs Significant Ecological Area No.61, Las Virgenes Significant Ecological Area No.6, Tonner Canyon and Chino Hills SEA No. 15, and Tuna Canyon SEA No. 10. The studies looked at current ownership patterns, existing resources, development pressures and made recommendations into the future management of the SEAs. All of the Phase I studies found either that the SEA boundaries were adequate in size or recommended the expansion of the boundaries to better encompass and protect biotic resources.

In 2000, the DRP commissioned the Los Angeles County Significant Ecological Area Update Study (2000 Update Study) prepared by PCR Services Corporation, Frank Hovore & Associates and Forma Systems. The 2000 Update Study included an Executive Summary, Background Report and twelve biological resources assessments for the Proposed Antelope Valley SEA, Proposed Cruzan Mesa Vernal Pools SEA, Proposed East San Gabriel Valley SEA, Proposed Joshua Tree

Woodlands SEA, Proposed Puente Hills SEA, Proposed San Andreas SEA, Proposed San Dimas Canyon and San Antonio Wash SEA, Proposed San Gabriel Canyon SEA, Proposed Santa Catalina Island SEA, Proposed Santa Clara River SEA, Proposed Santa Monica Mountains SEA, and the Proposed Santa Susana Mountains and Simi Hills SEA. These twelve biological resource assessment areas consolidated the 1980 unincorporated area SEAs into larger areas for study and proposed inclusion as SEAs.

The 2000 Update Study also examined the assumptions of the original eight SEA designation criteria from the 1976 SEA Study, modifying one criterion and deleting two. The modification of Class 1 changed the language from “the habitat of rare, endangered, and threatened plant and animal species,” to specify “the habitat of *core populations* of rare, endangered and threatened plant and animal species.” Class 6: “areas important as game species habitat or as fisheries” was removed due to the questionable contribution of these areas towards maintaining biotic diversity. Class 8: “special areas” was deleted due to the vague nature of that designation. The six SEA criteria are contained within this Appendix E, and each SEA description lists which criteria it meets.

From 2001 to 2011, the DRP conducted public outreach, solicited additional recommendations on the SEA boundaries and checked the SEA boundaries with an expert panel ofbiologists convened in 2010.

SEA Designation Principles

Previously, areas were assigned SEA designations in an attempt to slow or modify the type of development within their boundaries. However, as the County underwent a period of unanticipated growth, many of the SEAs experienced a reduction and/or degradation of their biotic diversity. Appendix E uses the definition of biotic or biological diversity provided by the 1990 U.S. Congressional Biodiversity Act, HR1268, which is defined as a full range of variety and variability within and among living organisms and the ecological complexes in which they occur.

Currently, the design of the SEAs is based on scientifically-grounded concepts regarding size and connectivity. Where feasible, SEAs form linkages between core habitats, which are large blocks of habitat generally conforming to a significant topographical feature, such as a watershed, major river, butte, etc., in order to ensure regional species movement.

Most SEA designations do not focus on a single resource or habitat type and, over time, conservation plans have come to employ a fluid approach to conserving an everincreasing list of sensitive resources (e.g., endangered species, habitats of limited distribution, and "patchy" habitats such as coastal sage scrub). The SEA designations rely on two primary conservation principles: namely that species extinction rates are lower on larger “islands,” or blocks of land, than smaller islands; and that isolated habitat areas have less opportunity to regain species by re-colonization from other areas.

Many wildlife species, particularly carnivores and other wide ranging species, require large areas of suitable habitat for genetically and demographically viable populations. In addition, large islands are more likely to encompass diverse habitat types and are more easily buffered against potential impacts from surrounding developed lands. The SEAs are designed to provide habitat linkages between related habitat types (such as the Antelope Valley buttes, or the San Andreas Rift Zone wetlands), by encompassing areas of sufficient width to function as wildlife movement routes between these open space areas.

The current SEA designations provide local resources (such as sensitive species) and their habitats, as well as the seasonal support habitats for those resources, with connections to essential sustaining resource areas (such as corridor areas and hydrological systems). For example, zones of lower intensity human impacts that exist between essential habitat resources have been included in the current SEA designations, thereby helping to maintain the biotic diversity in the County. The designation of Coastal Resource Area (CRA) is given to those SEAs located with the California Coastal Zone.

SEA Selection Criteria

All of the County's SEAs and CRAs must satisfy at least one of the six SEA selection criteria:

A. The habitat of core populations of endangered or threatened plant or animal species.

Intent of Criterion A: These areas are important in maintaining viable plant and/or animal populations for those species recognized by state and or federal resource agencies as being extremely low in numbers or having a very limited amount of suitable habitat available. The terms "endangered" and "threatened" have precise meanings defined in both state and federal law. The identification of "core population"' will be determined by the U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Wildlife (CDFW). The term "core population" as used here is a general biological term referring to a known and/or a viable population. Other locations of endangered or threatened plant or animal species may also occur in the County, which are not within an SEA. It should also be noted that the concept of core populations is consistent with current thinking of the USFWS and the CDFW.

This criterion is not meant to constitute a recovery program for listed species, but one element of a more comprehensive conservation effort for the long term sustainment of listed species within the County. At the local level, recovery programs of both the CDFW and the USFWS have measures in place that can impose severe penalties for the "take"of listed species or their habitat.

- Federally Endangered: "any species which is in danger of extinction throughout all or a significant portion of its range...."

- Federally Threatened: "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."

- State Endangered: "....a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease."

- State Threatened: "....a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter." [California Code of Regulations, Title 1, Sec 670.5]

B. On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.

Intent of Criterion B: The purpose of this criterion is to identify biotic resources that are uncommon on a regional basis. The geographical region considered could be as small as the Southern California coastal plains, the Transverse Mountain Ranges, the Mojave Desert, the Southern California coastline, etc. The geographical region could also be as large as Southern California, the Pacific coast, all of California, the western United States, or even larger. The community, association, or habitat is either unique or restricted in distribution in an area larger than the political boundaries of the County (i.e., coastal sage scrub, native grasslands, or vernal pools). Resources that are limited in distribution in the region being considered, but common elsewhere, are also included under this category.

C. Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.

Intent of Criterion C: The purpose of this criterion is to identify biotic resources that are uncommon within the political boundaries of the County, regardless of their availability elsewhere. The County has a high diversity of biological components. The County and San Diego County are the only counties in the U.S. that possess coastal, montane, and desert subregions within their boundaries. It is a rich heritage that few local governments have an opportunity to preserve.

Many biotic communities that were once common in the County have been severely reduced due to urban and agricultural development. This is especially true south of the San Gabriel Mountains, and among the agricultural fields of the North County. Other biotic features have never been common.

D. Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or in the County.

Intent of Criterion D: Species or groups of species, at various points in their life cycles, tend to congregate in certain areas. These areas possess resources that are essential to the maintenance of specific wildlife species. This criterion is intended to identify those areas that are limited in distribution either regionally or in the County, and not the primary habitat of common species or groups of species.

E. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.

Intent of Criterion E: Oftentimes scientists learn the most about a biological phenomenon by studying it at an extreme in its distribution. This frequently reveals the biological and ecological parameters under which it can survive. In addition, isolated populations and communities often are relicts of what was present in an area at some previous time, and may show genetic traits not found elsewhere in the species. These biological and ecological parameters may be useful in determining taxonomic relationships.

F. Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.

Intent of Criterion F: The intent of this criterion was to identify examples of the primary biotic resources in the County. At least one example (e.g., native grassland, valley oak savannah) of each

vegetation type will be selected from the various geographical regions in the County in order to preserve basic biogeographic diversity.

SEA Descriptions

The following descriptions of the 21 SEAs include descriptions of the boundaries, resources, wildlife movement, and designation criteria for each. More detailed information about the specific plant and animal species of interest for each SEA is contained within the SEA Program Guide, which is maintained by the Department of Regional Planning. The SEA descriptions, followed by the CRA descriptions, are listed in alphabetical order.

Altadena Foothills and Arroyos SEA

Boundary and Resources Description

The Altadena Foothills and Arroyos SEA is located in the westernmost portion of the San Gabriel Valley. This SEA includes incorporated and unincorporated areas. The SEA represents the lower elevation/urban interface portions of Millard, Alzada, Chiquita, Las Flores, Rubio, and Eaton canyons from the urban edge, to undeveloped wildland areas of the lower elevations of the Angeles National Forest.

The SEA is located within the Mount Wilson and Pasadena United States Geological Survey (USGS) 7.5' California Quadrangles.

On the west side of the Altadena Foothills and Arroyos, the western and southwestern boundaries track along the urban-wildland interface in the undeveloped areas of the Arroyo Seco, Fern, and El Prieto canyons, and the boundary pulls back around a small area of development at the northern-eastern edge of La Cañada-Flintridge. A developed area northeast of the junction of Millard Canyon and El Prieto is excluded. The SEA designation includes the undeveloped portions of sub-watersheds of the Arroyo Seco, and also encompasses undeveloped parts of drainages, including Alzada and Chiquita, which flow into the Devils Gate Reservoir of the Arroyo Seco. The Arroyo Seco is within the Los Angeles River watershed. This SEA includes portions of the cities of Pasadena and La Cañada-Flintridge, the unincorporated community of Altadena, and the Angeles National Forest. The eastern side of the southern boundary encompasses undeveloped areas of the sub-watersheds of Las Flores, Rubio and Eaton canyons, which are tributary to the Rio Hondo and historically to the San Gabriel River. Much, but not all, of the Rio Hondo catchment is diverted via flood-control channels to the Los Angeles River. The southern boundary of the SEA is bordered by developed properties. The southern boundary moves east along the urban-wildland interface to include undeveloped parts of watersheds, which closely follow the perimeter of Devil's Gate Reservoir, in the Hahamongna Park in Pasadena. From Hahamongna Park, the SEA boundary continues east along the edge of development into the San Gabriel River watershed. The eastern border of the SEA is the eastern ridge of Eaton Canyon near the canyon mouth. A finger of the SEA extends downstream along Eaton Wash to include the Eaton Debris Basin and Reservoir. The northern boundary is formed along ridgelines within the Angeles National Forest that define the catchment of the local canyons. Within the Angeles National Forest, development is much less dense, in the form of in-holdings and Angeles National Forest leases, and is often naturally landscaped, albeit disturbed.

The chief attribute of this SEA is a high diversity of species, which is due to the SEA's position between the mountain biome and the valley biome, caused by an abrupt change of slope formed by

the thrust fault complex that borders the San Gabriel Mountains. Furthermore, the SEA has as its center the dividing ridge between the two principal rivers of the Los Angeles Basin, the Los Angeles River and the San Gabriel River.

The wide range of elevation, topography, aspect, and geology represent a diverse array of physical habitats within this SEA. In general, the topography of the SEA is moderately steep to very steep, which results in a number of very narrow corridors with elevations ranging from a high of approximately 2,400 feet above mean sea level (MSL) to a low of approximately 1,200 feet above MSL. Consequently, a variety of plant communities exist, including riparian and upland shrublands and woodlands. Within these major community types, there are many vegetation series that varyaccording to plant species dominance.

Of particular note for this SEA is its potential to accommodate lower elevation east-west linkages. This is significant because of the constraints of development at lower elevations, the very steep terrain, and seasonal snow storms above the SEA, beginning at about 3000 feet—all of which limit potential movement for many species. There is also potential for north-south wildlife movement between the Angeles National Forest and the Verdugo Mountains via the Arroyo Seco and the San Rafael Hills. The Arroyo Seco is the eastern limit of this link and creates a potential movement corridor from the Angeles National Forest, over and under the Interstate-210. Across the Interstate-210, the linkage enters the San Rafael Hills, where blocks of habitat remain in the cities. Some are conserved in natural open space, such as the Cherry Canyon Park and Open Space Preserve of the City of La Cañada-Flintridge, just south of the County Descanso Gardens. These open spaces are interspersed with residential development and are not part of the SEA. From the San Rafael Hills, linkage potential may be traced to the west across State Route-2 and Verdugo Wash, past enclaves of residential development to access the Verdugo Mountains.

Wildlife Movement

Wildlife movement within the SEA takes on two major forms. First, due to the extremely steep intervening topography, considerable movement of wildlife up and down the drainages, which course through this SEA to connect the forest interior with foothill areas, is expected. Consequently, this type of movement occurs on a seasonal basis, particularly for large mobile mammalsthat typically meet their full range of habitat needs over broad areas.

The second major type of movement occurs across the flanks of the foothills in an east-west direction. Particularly for riparian-obligate and riparian-favoring migratory birds, the corridor linking lower elevation riparian habitats in the SEA are of high importance and heavily utilized.

Regional Biological Value

The SEA meets important SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE ALTADENA FOOTHILLS AND ARROYOS SEA

Criterion	Status	Justification

	Criterion	Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	None within this SEA.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The SEA is designating one of the principle ecotones of the Southern California coastal areas: the area where the sediment of the coastal alluvial fans from the mountain streams and drainages is exiting the abrupt upthrust rock of the mountains. Here one finds the biotic communities of the mountains meeting the communities of the coastal plain areas, combining with the organisms that are only found at the junction. The natural habitats of this kind of biological area are fast dwindling as urban communities expand to the limits of easily buildable space.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The SEA is designating one of the principle ecotone areas of the County coastal exposure: the area where the sediment of the alluvial fans from the mountain streams and drainages is adding to the mile-deep sediments of the Los Angeles Basin, as the watercourses exit the abrupt upthrust rock of the San Gabriel Mountains. It is an area where one can often encounter flora that is characteristic of the Peninsular Ranges to the south and flora of the coastal ranges and Sierra Nevada to the north, among typical flora of the Transverse Ranges. The SEA contains prime examples of coastal sage scrub and other kinds of chaparral, riparian oaks, woodlands of the canyon oak of the mountains, woodlands of the coast live oak, which occurs both in the lower mountains and the valleys, good stands of the San Gabriel endemic oak (*Quercus dumosa* var. *gabrielensis*), diverse and beautiful flora characteristic of the continually changing beds of the mountain streams, both perennial and intermittent, and the wildlife that reside in these various habitats.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The SEA provides a low-elevation constrained corridor. The SEA serves as the only corridor to provide interacting component habitat areas for species to feed, rest, and migrate from low basin and foothill elevations to the sub-alpine elevations of the high San Gabriel Mountains.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not met	None within this SEA.

Criterion		Status	Justification
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Areas encompassed within the SEA represent the only remaining stands of low-elevation foothill scrub, chaparral, and canyon woodland communities within the north San Gabriel Valley. These communities once extended throughout what are now the communities of the north San Gabriel Valley, bridging the transition between high chaparral on the southern slope of the San Gabriel Mountains to the alluvial fans extending beneath the mountains to the coastal basin.

In conclusion, the area is an SEA because it contains (B - C) a good example of the biotic communities typical of the area where the abrupt upthrust of the mountains meets the alluvial fans of the valleys, a natural habitat that is limited in availability in the County and the coastal Southern California region; (D) it has a constrained connective corridor area near the Devil's Gate Dam where the freeway underpasses provide access between the San Rafael Hills and the San Gabriel Mountains; and (F) it supports intact remnant stands of low-elevation chaparral and scrub communities that were once more widespread within the region.

Antelope Valley SEA

Boundary and Resources Description

The Antelope Valley SEA is located in the central portion of the Antelope Valley, primarily east of the cities of Palmdale and Lancaster, within a predominantly unincorporated area of the County. The SEA is focused on the principal watercourses of the area: Little Rock Wash and Big Rock Wash and tributaries, such as Mescal Creek. Audubon California recognizes the area of Edwards Air Force Base as a Globally Important Bird Area (IBA), which is visited by tens of thousands of migrant birds during the spring and fall migratory seasons, and supports the breeding of rare and endangered birds during the spring and summer months.

The SEA is located, at least partially, in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Rosamond, Rosamond Lake, Redman, Rogers Lake South, Jackrabbit Hill, Lancaster East, Alpine Butte, Hi Vista, Adobe Mountain, Palmdale, Littlerock, Lovejoy Buttes, El Mirage, Pacifico Mountain, Juniper Hills, Valyermo, and Mescal Creek.

Watercourses and water features, such as dry lakes and springs, are the focus for desert wildlife and central to connectivity and biodiversity in this region. The SEA was delineated to emphasize the importance of the Little Rock Wash and Big Rock Wash watersheds to the surface and subsurface hydrology of the Antelope Valley and to the dry lakes. The western portion of the SEA extends along the margin of the Little Rock Wash and floodplain zone, while the eastern margin follows a tributary of Big Rock Wash, which is Mescal Creek Wash and its tributaries. The origins of the watercourses in the Angeles National Forest are an important aspect of their diversity and connectivity, and the importance of the diverse forest vegetation of this SEA is discussed below. The SEA includes several major buttes and numerous minor ones, which have highly diverse biota along with diverse desert habitats, which range from sand dunes formed from the wind-blown dust that the buttes collect, to rocky crags, which are home to various raptors. The SEA includes the County's portion of

the watershed basin for dry lakes, which are the destination for the watercourses. There are three dry lakes and their adjacent plains (protected as part of Edwards Air Force Base) included in the SEA: Rosamond Dry Lake with the adjacent Piute Ponds, Buckhorn Lake, and Rogers Lake. These lakes and ponds are often flooded during the rainy winter-spring seasons, and are the principal resting areas in the region on the Pacific Flyway. The northeastern portion of the SEA encompasses some agricultural cropland (portions of which are fallow) and dispersed rural residential uses; however, the underlying hydrology of the washes remains intact throughout the entire SEA.

Three main watercourse segments originate in the San Gabriel Mountains and flow through the Antelope Valley to dry lakes near the northern County boundary: 1) Little Rock Wash; 2) Big Rock Wash; and 3) Desert-Montane. Desert-Montane centers on Mescal Creek and includes adjacent drainages. The flows of all three drainages are subsurface for much of the year and may be on the surface during rain and snowmelt.

The Little Rock Wash segment (the westernmost segment), goes north from Little Rock-Palmdale Dam as its southern barrier. Upstream from the reservoir is critical habitat for the endangered arroyo toad (*Anaxyrus californicus* FE, SSC). The toad could occur from time to time in the downstream area of the SEA. Heading north to Mount Emma Road, the boundaries follow the flood zone of the Little Rock Wash and also incorporate some of the vegetated slopes that drain to the wash. North from Mount Emma Road, the boundaries generally follow Federal Emergency Management Agency (FEMA) boundaries. On the west side, south of Edwards Air Force Base and north of Avenue F, the SEA boundary follows the Economic Opportunity Area boundary.

All of Edwards Air Force Base that is in the County is included in the SEA because the restricted entry and use protect the dry lakes and their neighboring areas. Many desert plants and wildlife species once found broadly across the Antelope Valley are now found only or primarily within Edwards Air Force Base. The ponds and dry lakes have distributed habitat of marshy alkali grassland, alkali flats, and cattail and bulrush marsh augmented by wastewater treatment facilities that have additional ponds. Some of the nesting rare and uncommon birds include white-faced ibis (*Plegadis chihi*), tricolored blackbird (*Agelaius tricolor*), redhead (*Aythya americana*), gadwall (*Anas strepera*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), least bittern (*Ixobrychus exilis*), and federally-threatened western snowy plover (*Charadrius alexandrinus nivosus*).

The Big Rock Wash area has western and eastern segments in the SEA. The western arm of the Big Rock Wash segment begins near the northern boundary of the Angeles National Forest, heads north out of the Forest along Pallett Creek. The SEA includes parts of Cruthers and Holmes creeks near their junctions with Pallett Creek. SEA boundaries follow the braided stream channel toward the confluence with Big Rock Wash. From the aqueduct at Big Rock Wash to Edwards Air Force Base, the western boundary line follows recently active braids of Big Rock Wash, encompassing Alpine Butte, and joining to the Little Rock Wash segment within Edwards Air Force Base. On the eastern arm of the Big Rock Wash segment, the SEA boundaries head north from the Angeles National Forest headwaters of Dorr Canyon (a Big Rock Wash tributary) and the headwater area of Big Rock Wash near State Route-2. The boundaries travel through the Angeles National Forest and follow the wash area of the streams toward their confluence with Pallett Creek. The Angeles National Forest floodplain of the widened area of South Fork of Big Rock Wash is included in the SEA.

South Fork of Big Rock Wash is part of the federally-designated critical habitat of the mountain yellow-legged frog (*Rana muscosa*, FE, SE). This frog is known in the County from only a few high-

mountain streams in the San Gabriel Mountains. A fungal pathogen is principally responsible for its decline; however, climate change, air pollution and non-native predators are also likely contributing factors.

Another broad area of the San Andreas Fault Zone near the Valyermo Ranch follows the FEMA boundaries and includes a nesting area for gray vireos near Bobs Gap. Between the Angeles National Forest and the aqueduct, the SEA boundaries follow FEMA boundaries. The eastern boundary generally follows the FEMA boundary and recently active braids along the main course of Big Rock Wash to the vicinity of Avenue Q East, at which point it projects east to encompass Lovejoy Buttes. At Avenue O, the eastern boundary rejoins the main active portion of Big Rock Wash, continuing northeastward to skirt development in Lake Los Angeles. In the vicinity of Avenue M, the boundary projects eastward from about 156th Street East to 180th Street East) to encompass Rocky, Piute, and Saddleback Buttes, and connect with the Desert-Montane transect segment.

The Desert-Montane Transect segment begins in the Angeles National Forest along the ridge of Table Mountain at the San Bernardino-Los Angeles County line. Table Mountain is known for its diverse flora, which includes desert and mountain elements, and some unusual limestone-obligate species. The SEA southern boundary along the ridgeline meets the western boundary as it skirts the camp developments along the southern base of Table Mountain. The boundary turns north along the western ridge of the Mescal Creek drainage, crossing the California Aqueduct with the State Route-138. From the aqueduct to Avenue R, the western boundary buffers the westernmost portion of the drainage by 200 feet, protecting the braided area of the watercourse. This part of the SEA includes Black Butte and the Three Sisters Buttes, and many smaller unnamed buttes, as well as Mescal and Theodore Payne County wildlife sanctuaries. The east side of the transect is the San Bernardino-Los Angeles County line. At about Avenue U East, the eastern boundary veers off the San Bernardino-Los Angeles County line to the north-northwest, buffering the Puzzle Creek watercourse by about 200 feet, protecting the braiding of the easternmost drainages. Near Avenue R, the boundary trends north, and goes north-northwest near Avenue P to include Moody Butte, lesser unnamed rises, and Blue Rock Butte.

The Desert-Montane segment largely avoids drainages that flow into and out of the Lake Los Angeles community, but the transect includes diffuse watercourses on the south side of Saddleback Butte, Saddleback Butte and the surrounding Saddleback Butte State Park, the Antelope Valley Indian Museum State Park at the base of Piute Butte, and Piute Butte. At about Avenue H and 170th Street East, the boundary turns to the northeast following natural vegetation to the County boundary near Avenue C. Here the boundary turns north along the line to where San Bernardino, Kern and Los Angeles counties meet. This northeastern part of the SEA has WEMO conservation areas for the threatened desert tortoise and state-threatened Mojave ground squirrel. The northeastern area has some BLM land and the County Phacelia Wildlife Sanctuary, which is also County Wildflower Preserve A. The SEA includes large parts of County Wildflower Preserve F.

On Edwards Air Force Base, north to south between Avenues B and E East, and west to east between 140th Street East and the San Bernardino-Los Angeles County line, there is federally-designated critical habitat for the state and federally-threatened desert tortoise (*Gopherus agassizii*). At 190th Street, the critical habitat widens to extend north beyond the County and the SEA into Kern County. At 200th Street, the critical habitat widens to the south to extend to Avenue H and then goes east across the San Bernardino-Los Angeles County line. The desert tortoise critical habitat area on Edwards Air Force Base is included in the SEA, and much of the SEA area north of Avenue H in the

eastern drainages of the SEA is designated critical habitat for the tortoise.

The SEA traverses the Antelope Valley from the foothills of the San Gabriel Mountains, to the low elevations of the dry lake basins, and its expanse and considerable topographical relief is reflected in its relatively high floral and faunal diversity. The SEA includes playa lake, alkali marsh, alluvial fan scrub, a mosaic of xeric desert scrubs, Joshua tree woodland, desert riparian woodlands, juniper scrub, pinyon pine, chaparral and mixed conifer, oak, and riparian communities of higher elevations. Transitional zones (ecotones) between these communities often contain unusual species compositions, such as pinyon pine, juniper and Joshua trees together, or Joshua trees adjacent to cottonwood forest.

Edwards Air Force Base has the only good stands of mesquite (*Prosopis glandulosa*) remaining in the County. It has areas of Mojave spineflower (*Chorizanthe spinosa*), creosote bush scrub, alkali sink, and the transition vegetation between the two. Rosamond Lake has the best example of the shadscale scrub and alkali sink biotic communities in the County. Shadscale scrub needs heavy soil with underlying hardpan between 3000-6000 feet elevation, which is unusual in the County, and more common in the north Mojave Desert and Owens Valley. In addition, the playa has the southernmost extension of the Great Basin kangaroo rat (*Dipodomys microps*), which is an isolated geographic population of scientific interest.

The southernmost portions of the three “legs” of the SEA lie within the Angeles National Forest, and include the upper tributary watersheds and streams for Little Rock Wash, Big Rock Wash, and Mescal Creek. These areas support multi-species oak and conifer woodlands that are common to the middle-elevation zones on the north face of the San Gabriel Mountains. The creeks are higher energy systems at those elevations, as they collect water from the surrounding terrain, and are typically lined with woodlands of alder, willow, sycamore and cottonwood, with varying densities and with various compositions of species.

As the creeks drop north of the pressure ridges of the San Andreas Fault Zone, they lose gradient and widen, and most of the flow becomes sub-surface, except during high energy storms or in the spring (depending upon rainfall totals in the watersheds). The vegetation becomes sparser and less evenly distributed along the channel margins. Crossing the lowlands of the Antelope Valley, the channels support a variety of desert scrub vegetation within the alluvial plains. Where the alluvial plains are wide and shallow, cottonwood-willow woodland and sycamore woodland vegetation communities often occur within the overall floodplain on stable terraces; around oxbow flow zones in the Antelope Valley; or where the groundwater table is replaced or augmented by agricultural runoff. The surrounding upland habitats are primarily desert scrubs, including creosote and chenopod scrubs, sand sheets (chiefly around the buttes), and Joshua tree woodland. Intact Joshua tree woodland, with native understories present, supports a relatively high diversity of annual wildflowers, reptiles and mammals. The Joshua trees also provide nest sites for many resident and migratory bird species.

Lovejoy, Alpine, Piute, Black and Saddleback buttes, along with other, smaller unnamed buttes, form most of the topographical relief within the SEA. These areas offer different ecological conditions that are associated with rock shelter, perching sites, nesting sites, denning areas, wind protection and sand sheet accumulation areas. Local and migratory bat species roost and reproduce in the caves and crevices of the butte formations. The higher buttes provide local nesting sites for owls and other birds of prey.

Alpine Butte is the least disturbed butte in the County, with excellent stands of Joshua tree woodland and creosote bush scrub, and impressive wildflower displays when rainfall creates appropriate conditions. Lovejoy Butte has Joshua tree woodland and creosote bush scrub, with a central wind-blown sand community for a good mixture of rock and sand habitats. In addition, the close proximity of Lovejoy Butte to Big Rock Wash increases the diversity of habitats in the area. Nevertheless, it also suffers from impact from the Lake Los Angeles community, which borders the butte on three sides. The clustering of buttes in the SEA may be important to the abundant, diverse wildlife that inhabits the various vegetation communities around and in the buttes. Saddleback Butte and Piute Butte together are protected as a state park, but Saddleback Butte is also subject to development for campsites and hiking trails. Piute Butte has a prehistoric site that may protect it from much future recreational development. All of the buttes harbor diverse wildlife and flora. Most of them are critical habitat for the state and federally-threatened desert tortoise. Some buttes within the desert tortoise's critical habitat are not included in the SEA.

The acitive and fallow open agricultural lands support a diversity of wildlife species, which essentially regard the fields and ditches as irrigated desert. Birds of prey frequently hunt over the open agricultural areas, including fallow fields; wide-ranging predators also find excellent hunting conditions in and around agricultural areas. A spectrum of local and migratory bat species feed over the irrigated fields in the spring and summer, when insect numbers are the highest, and at least one sensitive bat species, the pallid bat, forages in open scrub or ruderal desert habitats.

The northern portion of the SEA contains several unique habitat types, including mesquite bosque (threatened locally by lowering water tables and harvest for firewood), clay pan pools, vernal pools, alkali grasslands, alkali and freshwater marshes, and permanent ponds. Hundreds of bird species have been recorded from the pond and marsh habitats around the dry lakes and ponds, and numerous species nest on the playa margins or in the associated riparian habitats. The open creosote scrub and other xeric habitats on the slopes surrounding the lake playas serve as important wintering areas for many raptor species, as well as large numbers of songbirds.

Wildlife Movement

The SEA extends from the Angeles National Forest to the playa lakes within Edwards Air Force Base, encompassing most of the two largest drainages exiting the northern slope of the San Gabriel Mountain range. The geographical features of the SEA serve as a major habitat linkage and movement corridor for all wildlife species within its vicinity and in an intergenerational sense, many of the plant species. Ecologically generalist species (mountain lion, bobcat, coyote, gray fox, etc.) have the ability to move across such vast areas and through changing habitat types. For such species, the SEA may serve as an important system for long-term and genetic exchange among populations. For smaller or less-mobile species or taxa, which are narrowly restricted in their habitat needs, the SEA can serve as a broad linkage zone, in which individual movement can take place during seasonal population dispersal or over generations. This provides essential genetic exchange within and between metapopulations. The two drainages, combined with the upland terrestrial Desert-Montane transect portion of the SEA, ensure linkage and direct movement areas for all of the wildlife species present within the County portion of the Antelope Valley.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE ANTELOPE VALLEY SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	Critical habitat for the only known Antelope Valley population of the federally-endangered arroyo toad is adjacent to Little Rock Reservoir, upstream in Little Rock Creek, and some may still be found downstream of the dam in the SEA. The SEA encompasses much of the County ranges of the federally-threatened California desert tortoise, including much of the County critical habitat for the tortoise. The state-threatened Mohave ground squirrel occurs throughout much of the SEA. The SEA includes some of the critical habitat of mountain yellow-legged frog in the South Fork of Big Rock Creek. It includes habitat designated in the Western Mojave Plan (WEMO) for the alkali mariposa lily, which is a rare lily of the desert floor.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The mesquite bosque, sand sheet, rocky butte, desert riparian woodland, and alluvial fan sage scrub habitats are unique and regionally restricted biotic communities encompassed by the SEA. Desert species not, or rarely, found elsewhere in the County, such as verdin, black-throated sparrow, Mojave rattlesnake, desert banded gecko, Leech's prionid borer, and mesquite borer, occur within these habitats. Additionally, the ponds and other riparian and wetland systems in the northern portion of the SEA support numerous water birds and raptors not found elsewhere in the County.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The desert alluvial fan sage scrub, Joshua tree woodland, desert riparian woodland, mesquite bosque, alkali meadow/marsh, desert freshwater marsh, playa lake and seasonal pool habitats are located within, are unique to, or best represented within, the SEA.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or in the County.	Met	The freshwater habitats within and around Rosamond, Buckhorn and Rogers dry lake basins have large concentrations of migratory and resident waterfowl and birds of prey, providing them with essential seasonal and permanent resources. The rocky desert buttes are unique roosting, sheltering, perching and nesting sites for birds of prey and bats. This SEA is centered on migratory routes for both plants and animals along principal desert washes and buttes that connect the mountains to freshwater playas.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The mesquite bosque that is located within the SEA is clearly at an extreme of its geographical range, along with its associated biota, such as the mesquite borer. Edge populations usually represent an unusual genetic variation in a population or community, and therefore meet the criterion of scientific interest as well as the criterion of a population at the extreme physical/geographical limit of its range.

Criterion		Status	Justification
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The SEA encompasses some of the most biotically intact acreages of Joshua tree woodland, desert riparian woodland, and desert alluvial fan sage scrub remaining in the County. Mesquite was formerly widely distributed in the Antelope Valley, but due to harvesting and drawdown of groundwater, is now limited to a few protected areas, such as the Edwards Air Force Base.

In conclusion, the area described is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) populations of scientific interest at the edge of their range including the desert tortoise, the mesquite bosque, and the Mojave ground squirrel; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Cruzan Mesa Vernal Pools SEA

Boundary and Resources Description

The Cruzan Mesa Vernal Pools SEA lies north of the Santa Clara River southeast of Bouquet Canyon. The SEA boundaries encompass the watershed and drainages of the Cruzan Mesa and Plum Canyon vernal pools, which are considered as a single ecosystem within the SEA. Vernal pools are a rare habitat. They are floored by clay or other substrates that retain the water of spring rains for a period of months. The pool dries primarily by evaporation. The fauna and flora are adapted to this regimen, which often forms propagules that can last through years of dessication. The pools are ephemeral, and may not fill every year. The fauna may be specific to an area of pools. Most biota is spread from pool to pool in mud, which adheres to the feet of birds and other animals that visit the pools.

The SEA is located within the unincorporated area of the County and lies entirely within the United States Geological Survey (USGS) 7.5' California Mint Canyon Quadrangle.

The SEA boundaries generally follow sub-watershed boundaries and occasionally extend beyond the sub-watershed boundary into areas to encompass vegetation, such as coastal sage scrub. The vernal pools in the northwest segment of the SEA are bounded in part by a sub-watershed boundary, but are primarily based on land formations that would adversely affect the vernal pools if altered to a great degree. This segment encompasses the vernal pool upland areas that contribute to the biological function of the vernal pool ecosystem. This SEA area includes most of the local federally-designated critical habitat for the threatened vernal pool plant, spreading navarretia (*Navarretia fossalis*, FT).

The SEA includes mesas, canyons and interior slopes, with Plum Canyon Creek running east-west through the southern portion of the SEA. The extent of the SEA encompasses the watershed, which

supports both regionally unique vernal pools, including their immediate watersheds and the corridor between them. Plum Canyon forms the major drainage running east-west through the southern portion of the SEA, which drains west toward Bouquet Canyon. Uplands within the SEA are comprised of slopes and canyons, which support coastal sage scrub or scrub-chaparral vegetation. The Cruzan Mesa vernal pool complex lies within an elevated, topographically enclosed basin atop an eroded foothill between Mint and Bouquet canyons. Plum Canyon vernal pool, which is situated in a landslide depression on a hillside terrace, is smaller than the Cruzan Mesa pools, but possesses the same essential vernal pool characteristics as the larger system, and the two areas together form an ecologically functional unit.

The seasonally wet vernal pools and surrounding open coastal sage scrub and chaparral slopes support migrant and resident birds, other native sage scrub vertebrate species, and a number of sensitive taxa, including Riverside fairy shrimp, western spadefoot toad, ashy rufous-crowned sparrow, Bell's sparrow, and possibly coastal California gnatcatcher. The steep cliffs that surround the Cruzan Mesa vernal pools, especially along the southeast and north margins, provide protected sites for perching, roosting and nesting by a variety of birds of prey, including great horned owl, barn owl, red-tailed hawk, prairie falcon, and golden eagle. The Plum Canyon vernal pool is hidden from view from the Plum Canyon roadway, and receives little human attention. Trash dumping, shooting and off-road vehicle activities have occurred within a few meters of the margin of the pool basin, but the pool shows only limited evidence of human intrusion.

Wildlife Movement

The vernal pools situated within this SEA serve as isolated, high-quality, habitat linkage sites for migratory waterfowl. The vernal pools teem with arthropod and amphibian activity, and provide essential feeding grounds for long-distance migrants, as well as for resident species of reptiles, birds and mammals. The ponds do not lie within any identified terrestrial movement routes for wildlife, but may serve as important seasonal watering sites for species moving through and across the Plum Canyon divide between Mint and Bouquet canyons. The Plum Canyon stream channel undoubtedly serves as a movement pathway for more mobile species of terrestrial mammals, but it no longer links any larger habitat areas directly due to land conversion in Mint and Bouquet canyons.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE CRUZAN MESA VERNAL POOLS SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The only known County populations of the federally- endangered Riverside fairy shrimp, and the state and federally-endangered California Orcutt grass, are found in the vernal pools within the SEA. The federally-threatened plant, spreading navarretia, also occurs in these pools, and the pools and much of the SEA are designated critical habitat for this plant.

Criterion		Status	Justification
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The Cruzan Mesa and Plum Canyon vernal pools are regionally unique biotic communities with several plants found only in such habitat types. The pools support the Riverside fairy shrimp, western spadefoot toad, and at least one vernal pool endemic ground beetle.
C)	Within County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The Cruzan Mesa and Plum Canyon vernal pools are unique biotic communities within the County, with several plants only found in such habitat types. The pools support the Riverside fairy shrimp, western spadefoot toad, and at least one vernal pool endemic ground beetle species.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The vernal pools serve as concentrated breeding areas for several species of amphibians, including the sensitive western spadefoot toad. They also attract a diversity of waterfowl seasonally—chiefly species migrating through the area—which use the pools for resting and feeding. While other open water systems attract and support waterfowl, the vernal pools are located in remote, upland sites, away from other freshwater features.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not met	Although the SEA does not contain biotic resources that are clearly an extreme in physical/geographical limitations, or represent unusual variation in a population or community (and therefore does not meet this criterion), it is of scientific interest due the extreme rarity of vernal pool communities, especially in the County, and due to their susceptibility to drought and climate change.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Protection and sensitive management of the Cruzan Mesa and Plum Canyon vernal pools would preserve one of the few examples of such habitat type in the County.

The SEA meets several designation criteria and supports several regional biological values. These values include A) sensitive plant species unique to seasonal pools on heavy clay soils—several of which are at the northernmost point in their overall ranges, and seasonal surface water, which provide breeding sites for sensitive amphibians, including western spadefoot and Riverside fairy shrimp; B-C) a concentration of vernal pools, found in few places in the County and rare in the region, and their coastal sage scrub watershed, which serves as a hydrological filter, and seasonal ponds and surrounding mesic vegetation; D) vegetation that provides essential foraging and wintering sites for migrating birds that are otherwise uncommon on the coastal side of the San Gabriel Mountains, and steep cliffs surrounding the mesa tops with crevices and cavities providing roosting and nesting sites in the otherwise brush-covered hillsides; E-F) Rare habitat in Southern

California, and the support of sensitive resources that are unique locally and regionally, and that biologists consider to be among the most sensitive habitat types in Southern California.

East San Gabriel Valley SEA

Boundary and Resources Description

The East San Gabriel Valley SEA is located in the eastern end of the San Gabriel Valley. The SEA includes some of the low hills that rim the San Gabriel Valley on the east. The SEA has several natural, interacting components that constitute an area-wide ecological unit. The SEA consists of five units. The location and configuration of this SEA and its parts are primarily defined by the urbanization of the eastern San Gabriel Valley, which has occurred over the more developable valley floor and lower slopes of the San Jose Hills. As a consequence, the SEA resembles an "archipelago" that encompasses portions, or islands, of undeveloped ridgelines, hilltops and drainages between the San Gabriel Mountains to the north and the Puente Hills to the south.

Generally, the topography within this SEA consists of moderate to steep hillsides with north, south, east and west slope aspects. Ridgelines vary in width, from narrow to broad, with well-defined drainages in between. One major drainage, Walnut Creek, and a man-made reservoir, Puddingstone Reservoir, are found within this SEA. Elevations range from a low of approximately 560 feet above Mean Sea Level (MSL) in the Walnut Creek drainage, to a high of approximately 1,375 feet above MSL at Buzzard Peak.

The SEA has several ridgelines and hilltops and the major drainage of Walnut Creek at the northern side of the San Jose Hills. In the last half of the 20th century, these areas have beensurrounded by urban development. Units 1-5 include 1) South Hills Park and the surrounding undeveloped land in the City of Glendora north of Interstate-210; 2) The natural riparian section of Walnut Creek County Park. The SEA includes sections in the City of Covina and City of San Dimas; 3) Frank G. Bonelli Regional County Park (Bonelli Park); 4) Buzzard Peak, which is an extended ridge of undeveloped slopes to the west of Bonelli Park within the City of San Dimas, City of Walnut, and City of West Covina; and 5) Elephant Hill and an adjoining ridgeline in the City of Pomona. Along most of its boundaries, the SEA is bordered by developed properties. Large parts of this SEA are designated critical habitat for the federally-threatened coastal California gnatcatcher (*Polioptila californica californica*).

In its entirety, the SEA is located within the San Dimas, Glendora and Baldwin Park U.S. Geological Survey (USGS) 7.5' California Quadrangles.

Unit 1: The northernmost section of the SEA is the South Hills unit. Much of the SEA is “protected” in the South Hills Park of the City of Glendora. The SEA lies north of the Interstate-210, has its northwestern boundary along Big Dalton Wash (a concrete-lined flood control channel), and northeastern boundary along existing residential development in the floodplain of the wash and adjoining hills. The eastern boundary is also bordered by existing residential development. The southern boundary consists of the Interstate-210 right-of-way, and the western boundary lies along Glendora Avenue. Residential neighborhoods on the periphery (and not inside) of the South Hills Park are excluded, while external natural habitat is included in the SEA. An area of nursery fields in a central position of the park is included, as it is less than 40 acres in extent. Toward the eastern side of the SEA, there are some estate residences on the hills that are included, as they incorporate much natural habitat; however, denser neighborhoods are excluded from the SEA.

The South Hills are an area of chaparral and grasslands, and a northern stepping stone for wildlife (chiefly aerial) that move along the spine of the San Jose Hills between the San Gabriel Mountains of the Transverse Ranges, and the Puente and Chino Hills of the Peninsular Ranges on the southern side of the San Gabriel Valley. In South Hills Park, there are fine stands of walnut woodland in the upper elevations; northern ravines of oak woodland with walnut woodland in the upper elevations; what remains of the coast live oak woodland that once bordered the Big Dalton Wash; and excellent stands of prickly pear cactus covering some of the slopes. There are also grasslands with a dominant component of introduced mustards and some rocky exposures. Coastal sage scrub with alternating dominant components of California sagebrush (*Artemisia californica*), sumacs (*Rhus* spp.) and elderberries (*Sambucus* spp.) cover many of the slopes. Big Dalton Wash is channelized, and much development has been inserted into what was formerly Big Dalton's riparian oak woodland. This residential area forms a border for the northeast area of the SEA.

Unit 2: Thewesternmost portion of Walnut Creek begins where South Reeder Avenue crosses the Walnut Creek drainage on the border of the City of Covina and City of San Dimas. Walnut Creek runs along the northern base of the San Jose Hills and is a riparian interface between the rolling hill habitat and the coastal plain of the San Gabriel Valley. This segment encompasses the undeveloped creek bottom and flood plain, which is a relatively natural area along and adjacent to Walnut Creek, most of it preserved as Walnut Creek Park. The Creek and lower slopes of the San Jose Hills contain one of the best riparian oak woodlands in the County, with a mixture of ash, walnut, willows, and sycamores. The upper areas of the oak woodland transition into excellent examples of walnut woodlands. Traveling east from this point, the SEA is bordered to the north by residential areas on the plains and to the south by residential areas on the ridgelines above the Creek. Much of the habitat of interest is on the slope of the ridgeline above the Creek.

Unit 3: The Walnut Creek Park unit is connected to the Bonelli Park unit. The SEA continues east to the Interstate-210, where the drainage and the SEA underpass along with San Dimas Avenue. There is a fenced footpath on the south side of the underpass that wildlife and humans use extensively. On the east side of the Interstate-210, the boundaries diverge and follow the freeway right-of-way to the north and to the south. At the edge of natural habitat about a 0.2 mile north, the boundary turns northeast with Walnut Creek. There are two fingers of creek tributaries: one encircles its stream course as far as the Arrow Highway, and the other includes the undeveloped north-facing slope of a low ridge that has residential development along the top. The SEA ends at a Union Pacific rail line. The edges of Walnut Creek have business parks and industrial properties, as well as residential areas.

The SEA boundary returns back west from the two fingers to circle around the west side, and excludes the Raging Waters theme park. From Raging Waters, the SEA boundary follows along the northern boundary of Bonelli Park, which is the largest unit of the SEA. This area of Bonelli Park includes the 250-acre Puddingstone Reservoir, which is a flood control basin created by damming the main course of Walnut Creek. Puddingstone Reservoir is home to many resident birds, including a large population of American coots (*Fulica americana*). Notably, Puddingstone Reservoir also hosts a great variety and number of migrating waterfowl and other birds during the spring and fall, and provides riparian habitat for birds and other animals that are riparian obligates. Following along Puddingstone Drive to the Puddingstone Channel, the SEA eastern boundary turns south to conform to the eastern boundary of Bonelli Park. Within Bonelli Park, developed areas include the Mountain Meadows Golf Course on the west side of the Park, the campground area for recreational vehicles, the northern parking area of Puddingstone Reservoir, and the developed south side of Puddingstone

Reservoir. On the south side of the park, the boundary borders the Interstate-10 to the junction with State Route-57, and then turns north following the east side of State Route-57, back to the undercrossing of San Dimas Avenue.

Bonelli Park (with the exception of the built areas above), Puddingstone Reservoir, and Raging Waters are critical habitat for the coastal California gnatcatcher. There are a number of breeding pairs that occur in natural areas of coastal sage scrub in Bonelli Park. Another species of note is the many-stemmed dudleya or live-forever (*Dudleya multicaulis*), which is an uncommon plant found on the picturesque rocky outcrops of the Glendora volcanics formation. This plant is at its northernmost extent in this area of the San Gabriel Valley, and is more common in Orange County.

Unit 4: Across the State Route-57 from Bonelli Park, the San Jose Hills continue southwest, with residential areas dispersed among intervening grassland and chaparral natural areas. This area is considered an extension of the Buzzard Peak ridgeline. The natural area that continues the habitat in Bonelli Park is roughly a central area of a north-facing wooded area and a southern area of a ridgeline with steep slopes along the Interstate-10. The SEA is chiefly on the undeveloped upper ridge areas, and critical habitat for the coastal California gnatcatcher closely follows the SEA in the southern part along the ridgeline and the Interstate-10. The SEA and critical habitat for the gnatcatcher cross the highway with the ridgeline, and extend to Buzzard Peak

Buzzard Peak and its associated lands begin in the east along a ridgeline that is immediately north of the California State Polytechnic University (Cal Poly), Pomona campus. The western section of the SEA is undeveloped, but may in the path of future growth. This component follows the ridgeline west to where it crosses Grand Avenue and continues in a westerly direction, which encompasses a series of minor ridgelines and drainages with highly dispersed residential areas. Moving east to west, its northern boundary is marked by Interstate-10, developed portions of the Forest Lawn Memorial Park Covina Hills and residential areas. Moving from east to west, its southern boundary is marked by developed and cultivated areas of the Cal Poly campus, Amar Road and residential areas. Along their entire lengths, the northern and southern boundaries follow highly circuitous alignments at the edge of developed landscape. A lobe of the SEA extends into the natural area that separates Cal Poly Pomona from Mt. San Antonio College. Gnatcatcher critical habitat covers most of this segment of the SEA, and extends beyond Grand Avenue as far as State Route-39 (Azusa Avenue), with some islands of critical habitat in nearby hilltops.

Unit 5: A final component of this SEA is located south of the intersection of State Route-71 and State Route-57 in the City of Pomona, at a ridgeline that is bordered chiefly by development that has an undisturbed remnant of the original habitat: north-facing slopes of oak and walnut woodland. South-facing slopes consist of a mixture of dispersed chaparral, coastal sage scrub, and grasslands. There is a lobe that is north of Mission Boulevard in the City of Pomona on Elephant Hill, and a lobe south of Mission Boulevard. On Elephant Hill, the northern boundary is the Metrolink track. The eastern boundary is bordered by industrial development; the southern boundary is Mission Boulevard in the southeast; and the periphery of apartments along Brea Canyon Road, Appian Way, and Ferrara Court in the southwest. The western boundary is State Route-57. The Spadra cemetery with many introduced eucalyptus trees is not included. The ravines of Elephant Hill have fine examples of walnut woodland and the upper slopes have grassland, often dominated by mustards, with some areas of prickly-pear scrub.

Southeast of Mission Boulevard, the SEA is bordered by Mission Boulevard. The north-facing slopes

with excellent oak and walnut woodland are bordered by residential areas at the base of the steep slopes. The eastern end is bordered by North Ranch Road, and the southwest is bordered by the dense residential community of Phillips Ranch in the City of Pomona. The crest of the ridge is rolling grasslands that are dominated by introduced mustards, and the slopes have a mix of dispersed grasslands, chaparral, coastal sage scrub, and prickly pear scrub.

The SEA encompasses several different local jurisdictions, including the unincorporated area of the County, City of Covina, City of Glendora, City of La Verne, City of Pomona, City of San Dimas, City of Walnut, and City of West Covina.

Wildlife Movement

The SEA represents the only regional wildlife linkage between the San Gabriel Mountains and the Puente Hills and Chino Hills complex. Unlike the commonly held concept of a corridor, however, this SEA contains a series of discontinuous habitat blocks and patches, rather than an unbroken corridor for movement. This SEA facilitates movement and exchange between larger habitat areas by permitting terrestrial "island-hopping" between the SEA components.

Using birds as an example, movement may be initiated by an individual or group of birds in either the San Gabriel Mountains or the Puente Hills. Larger species, with the capacity to cover long distances, may make the passage as one segment of its journey. Smaller species, however, that lack the physical or behavioral capacity may not be able to attain this movement under normal circumstances. By utilizing various components of the SEA, the same species can cover this journey in several smaller trips. The same example may also apply to winged insects and wind-borne plant propagules and pollen. Interaction between, not just through the components, can occur as well.

This same function probably does not apply to other taxonomic groups. It is highly doubtful that amphibian, reptile and most mammal populations use this corridor as effectively as birds, if at all. Mule deer (*Odocoileus hemionus*), for example, do not occur within Bonelli Park, but are common in the San Gabriel Mountains and the Puente Hills. However, some mammals that tolerate urban environments, such as Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and striped skunk (*Mephitis mephitis*), use the corridor in the manner previously described. Even mountain lion (*Puma concolor*) periodically enter Bonelli Park and Walnut Creek Park from the outside, by way of routes related to SEA components.

The manner in which the SEA allows wildlife populations in different areas to interact is less than ideal. However, exchange in the manner described above is dictated by the widespread urbanization of the region. “Island hopping” is the only remaining connection for regional interaction that can contribute to the maintenance of genetic variability and health of regional wildlife populations.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE EAST SAN GABRIEL VALLEY SEA

Criterion	Status	Justification

A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	This SEA contains various alliances of coastal sage scrub that are found in scattered patches over hillside habitat, which support a core population of the federally-threatened coastal California gnatcatcher. The gnatcatcher population has been slowly increasing, as recently observed in coastal sage scrub at two locations in the area, Bonelli Park and Buzzard Peak. There are an estimated 10 and 15 pairs of gnatcatchers in this population. The SEA also has a population of breeding coastal cactus wren. The rare multi-stemmed dudleya has its northernmost population in Bonelli Park.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Several plant communities within this SEA are CDFW highest priority communities due to their restricted distribution in the Southern California region. These communities include walnut woodlands, which are scattered throughout the SEA; oak riparian woodland, which is excellent within the Walnut Creek drainage; isolated stands of willow woodland along many of the drainages; freshwater marsh and open water in association with Puddingstone Reservoir; and coastal sage scrub in scattered patches over hillsides. Coastal sage scrub serves as the habitat for the coastal California gnatcatcher, which has been slowly increasing in Bonelli Park and Buzzard Peak. These areas also have a population of breeding cactus wren. The rare multi-stemmed dudleya has its northernmost population in Bonelli Park.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	All of the plant communities and habitats indicated as restricted in distribution on a regional basis, are also restricted in distribution within the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	Any relatively large body of water with pockets of natural lakeside vegetation along its shoreline potentially meets this criterion, particularly within the context of an arid to semi-arid environment that is characteristic of the County. Although subjected to boating activities and shoreline recreational use, Puddingstone Reservoir serves as an important habitat for migrating water fowl and water birds, which is evident in the high diversity of birds recorded at the Bonelli Park over the past several years. The natural areas of the east San Gabriel Valley serve as a migration and habitat connection between the San Gabriel Mountains and the Puente Hills.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	Bonelli Park contains a population of the rare many-stemmed dudleya, which is at the northern limit of its range. Most of the species is found in the Peninsular Ranges in Orange County. The coastal California gnatcatchers are in the northern extent of their range here, are clearly at an extreme in physical/geographical limitations, and may represent unusual variation in a

			population or community. The SEA, therefore, meets this criterion.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Not Met	The SEA does not contain areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.

In conclusion, the area is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; and E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.

Griffith Park SEA

Boundary and Resources Description

The Griffith Park SEA is located within Griffith Park, the central park of the City of Los Angeles, situated on the extreme eastern end of the Santa Monica Mountains. The SEA is an extensive, relatively undisturbed island of natural vegetation in an urbanized, metropolitan area. It supports the coastal sage scrub, chaparral, riparian, and southern oak woodland plant communities that are typical in the interior mountain ranges of Southern California. What makes the SEA important is its geographical location. It has become an island of natural vegetation surrounded by urban and suburban development. The geographic location makes the area important for scientific study, for genetic interchange between otherwise isolated populations, and for recreation of urban residents.

The SEA is located partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Burbank and Hollywood.

The SEA encompasses most of Griffith Park, south of the State Route-134, and west of Interstate-5. The SEA boundary generally follows the natural area near the Griffith Park boundaries in most cases. Isolated areas are important for preserving and documenting the geographical variability of vegetation and wildlife that formerly occurred throughout the region. They serve as reservoirs of native species that could be of scientific and economic value in the future. In addition, birds rely on these islands for areas to rest and feed along their north-south and east-west migration routes.In the case of Griffith Park, this function is made even greater than might be expected because it serves as a corridor for any gene flow and species movement that may take place between the Santa Monica and San Gabriel mountains via the Verdugo Mountains.

Beginning in the northwest corner, and proceeding eastward, the SEA follows the natural vegetation on the mountain slopes at the junction with the flood plain of the former Dark Canyon and the Los Angeles River. This area of the SEA includes the recently-acquired (2010) Cahuenga Peak, at 1820 feet, which is now the highest point of Griffith Park. Cahuenga Peak slopes have rocky outcrops, chaparral, and regenerating oak woodland and chaparral on the north-facing slopes. (This area was part of the 800 acres burned in the Griffith Park Fire of 2007.)

The Los Angeles River is channelized, but there is remnant oak riparian woodland in this area. Bordering the apartment complex on the east side of Barham Boulevard, there is a somewhat abrupt change in slope where the previous Dark Canyon Creek flowed (Barham Boulevard was evidently constructed in this Canyon.). The SEA includes the remnant riparian coast live oak woodland (*Quercus agrifolia)*, which has many jurisdictional oak trees and in many places, the natural understory. Residents and staff at the apartments report frequent sightings of wildlife, particularly mule deer (*Odocoileus hemionus*)and coyotes (*Canis latrans*), in their parking lots, which line the Griffith Park side of the complex. On the slopes above, the chaparral of this west-facing slope grades upward into an extensive area of coastal sage scrub. The SEA includes these natural areas. From the natural areas on slopes above the junction of Barham Boulevard and Forest Lawn Boulevard, the SEA boundary continues eastward along the border of natural vegetation on the slopes above Forest Lawn Boulevard, including oak woodland in the ravines and mixed chaparral and grassland on the upper slopes.Occasionally, an ash (*Fraxinus velutina*) or Southern California black walnut (*Juglans californica*) are in these ravines, along with oak trees and other chaparral plants.

The boundary follows natural vegetation southward, away from the Los Angeles River, at the boundary of Forest Lawn Memorial Park (Forest Lawn). A slope and ridge top that have been cleared by Forest Lawn have been excluded from the SEA, but the chaparral on the east-facing side of the slope is included. From this ridge, the SEA roughly follows at the edge of the natural areas around the south side of the Forest Lawn and returns northward on the parcel line between the Forest Lawn and Griffith Park.

From the east side of Forest Lawn, the SEA boundary includes a chaparral-covered slope that is south of Travel Town and Zoo Drive. Cooper and Mathewson (2008) describe how coastal sage scrub occurs through a broad section of the northern part of Griffith Park, from end to end with patches of the sensitive valley needlegrass grassland. From the natural area near the Interstate-5 and State Route-134 interchange, the SEA boundary swings around westward, north of the Los Angeles Zoo, and forming a lobe on the chaparral-covered slopes. This area has ravines and a gradually sloping area near Travel Town, with riparian forest that includes sycamores (*Platanus racemosa*), oaks, willows (*Salix* spp.), and mulefat (*Baccharis salicifolia*), which are easily seen along Griffith Park Drive. Travel Town is not in the SEA, but its periphery of native riparian and chaparral is included. The north-facing upper slopes have chaparral, and the south-facing upper slopes have coastal sage scrub or grassland with chaparral plants here and there, especially elderberry (*Sambucus* spp.). Along Zoo Drive, ravines have typical chaparral of north-facing slopes. The SEA boundary continues past the Los Angeles Zoo along a road to a landfill area within Griffith Park, and goes around the landfill, forming a cherry-stem shaped area at the landfill road, and then continuing southeastward on the west side of Griffith Park Drive, excluding the Harding Municipal Golf Course. The Spring Canyon picnic area is excluded, as the understory of the sycamores and oaks is unnatural lawn, and the SEA boundary continues south along natural vegetation along Griffith Park Drive to the southern boundary of Griffith Park, near the Los Feliz offramp from the Interstate-5. A golf course practice area at the corner is excluded from the SEA.

From the southeast corner, the SEA boundary goes west along with the Griffith Park boundary at the edge of development to another golf course, which is excluded due to extensive modification of theslopes. The Greek Theater in Vermont Canyon and Griffith Park Observatory on the slope beyond are included, as the modified vegetation for each covers less than 40 acres. The SEA boundary continues west and then north with the Griffith Park boundary at the edge of development.

A small quarry is excluded. The undeveloped upper Brush Canyon in Griffith Park is included. Griffith Park and SEA have oak woodland along the drainages, transitioning uphill into chaparral and then grassland on the upper slopes. Within Griffith Park, north-facing sides of rocky outcrops often have a cliffside vegetation that is characterized by multiple kinds of lichens, mosses, liverworts and other non-vascular plants along with live-forever (*Dudleya* spp.), and other flowering plants.The SEA boundary follows Griffith Park boundaries around the development in the Blackwood Canyon area. A ridge area in Griffith Park on the south side of Mulholland Drive overlook is excluded. The SEA boundary follows Griffith Park boundaries on the southern edge and then turns north after including the grassland and coastal sage scrub-covered slopes that cover the open area between the two northern arms of the Hollywood Reservoir. On the west side of the SEA, the boundaries lap west outside of Griffith Park boundaries to include the oak woodland and chaparral of the lower elevations of Cahuenga Peak in the neighborhood of Dark Canyon (Barham Boulevard) and Cahuenga Pass.

Wildlife Movement

Griffith Park has become increasingly isolated from the rest of the Santa Monica Mountain Range, the Los Angeles River, the Los Angeles Basin, the San Fernando Valley, and the Verdugo Mountains (a little less than two miles to the east) because of the freeways, concrete river projects and urbanization that surround Griffith Park.Although some species have disappeared, including the ringtail (*Bassariscus astutus*), the gray fox is still seen.

River-bed vegetation is quickly returning in the Los Angeles River as sand deposits on the hard channel bottom, and re-vegetation should be encouraged. Major bird and mammal populations exist on the re-vegetated portions of the Los Angeles River. Although some stretches of the Los Angeles River may not provide suitable primary corridors, it is important to reinstate Griffith Park's connection to the Los Angeles River for the future of wildlife and plant connectivity. In the management draft for Griffith Park wildlife (Cooper and Mathewson 2008), the authors outline some of the important connections to maintain or enhance: bridges and underpasses over and under State Route-101 and culverts that feed into the Los Angeles River Channel.

Griffith Park is viewed as an important connective island for the Santa Monica Mountains to the west of State Route-101 and the Verdugo Mountains and San Gabriel Mountains to the east. Wildlife may also use the natural areas and even concrete channels of the Los Angeles River to connect to the Tujunga Wash and Hansen Dam SEA and to the San Gabriel Mountains.

Regional Biological Value

The SEA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

Criteria Analysis of the Griffith Park SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	No known core populations occur within this SEA.

B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Not Met	No known unique or rare plant or animal species occur within this SEA that would be regionally uncommon. No rare plant habitats occur in Griffith Park. Griffith Park has extensive wild areas that are little studied according to Cooper and Mathewson 2008.Such areas could be discovered.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Not Met	No known unique or rare plant or animal species occur within this SEA that would be particularly uncommon in the County. No rare plant habitats are known in Griffith Park. Griffith Park has extensive wild areas that are little studied according to Cooper and Mathewson 2008. Such areas could be discovered.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	Griffith Park is the easternmost extent of the Santa Monica Mountains, and a stepping stone to the Verdugo and San Gabriel mountains, which are only two miles distant.It is a very important natural area for animals and plants species that go between the Santa Monica and San Gabriel mountains. Because of its large acreage, Griffith Park maintains sizable populations of biological communities, even including top predators, such as bobcats and mountain lions. Griffith Park is teetering between becoming an island of natural habitat in a metropolis and maintaining connections to the rest of the Santa Monica Mountains to the west.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	Griffith Park is the easternmost extent of the Santa Monica Mountains, and a stepping stone to the Verdugo and San Gabriel Mountains, which are only two miles distant. It is a very important natural area for animals and plants species that go between the Santa Monica and San Gabriel mountains. Because of its large acreage, Griffith Park maintains sizable populations of biological communities, even including top predators, such as bobcats and mountain lions. Griffith Park is teetering between becoming an island of natural habitat in a metropolis and maintaining connections to the rest of the Santa Monica Mountains to the west.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Griffith Park has extensive areas of coastal chaparral and is an island of refuge for native animals in the Santa Monica Mountains. Its mosaic of habitats includes coastal sage scrub, riparian areas, and southern oak woodland. The mosaic of habitats is especially valuable to preserve. Griffith Park is in the City of Los Angeles and protected in this respect, but no management plan preserves its natural habitat in perpetuity.

In conclusion, the area is an SEA because it contains D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or

represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Harbor Lake Regional Park SEA

Boundary and Resources Description

The Harbor Lake Regional Park SEA is located [within Kenneth Malloy Harbor Regional Park] in the Harbor City community of the City of Los Angeles, which is approximately 15 miles south of downtown Los Angeles and just west of the Interstate-110. The Lake is named "Machado Lake." The SEA supports one of three remaining wetlands that once covered the southern and western areas of the Los Angeles Basin. The SEA supports significant areas of aquatic and terrestrial plant communities, which provide habitat to a variety of birds and wildlife.

The site is located in the Torrance Quadrangle of the United States Geological Survey (USGS) 7.5 Minute Map Series (USGS, 1964).

The SEA boundaries encompass the lake areas that contribute to the biological function of the Harbor Lake ecosystem. It is bordered to the north by the Pacific Coast Highway, but includes a small segment of drainage, the Wilmington Drain ("Bixby Slough") north of Pacific Coast Highway. The slough is a secluded marsh that supports wildlife and waterfowl common to marsh areas. Thirty-five species of native birds have been observed breeding in the Wilmington Drain and a large number of interesting vagrants are recorded from this area. Following the Wilmington Drain segment, the boundary travels east along the south side of Pacific Coast Highway and south along the east boundary of Harbor Regional Park to the Harbor Park Municipal Golf Course. The SEA goes east to a parking area for the golf course. The golf course is included in the SEA to emphasize the need to keep this area green. Wildlife from the adjacent woodlands use the golf course to transit between natural areas of the park in a less-populated area. The eastern boundary of the SEA includes the greens and excludes parking areas around the periphery of the golf course. The SEA goes west along the boundary of the natural riparian woodland of the park and golf course and then southwest along the boundary of marsh habitats of the park and the golf course. At the south end of the golf course, the SEA boundary goes generally southeast along the periphery of park and developed environment, much of it along the outer southern boundary of Los Angeles Harbor College. The SEA stops at the college southern frontage paved area, then turns west along Anaheim Street with the park boundary, excludes a graded and cleared area of the park in the southwest corner, and then goes with the park boundary north along Vermont Avenue to the Pacific Coast Highway. At the Pacific Coast Highway, the SEA boundary goes with the park boundary to the Wilmington Drain. Machado Lake is chiefly bordered by native marsh vegetation of cattails, rushes, reeds, and mulefat with some invasive giant cane (*Arundo donax*) and upland native riparian forest, which primarily consists of willows. The exception to the natural vegetation is along Vermont Avenue where lawns are maintained between parking areas and the lake for public recreation and picnicking. The bird species list has over 330 species, and the area is used by migrant birds on the Pacific Flyway during the spring and fall migration periods. The SEA lies generally west of the Interstate-110.

The SEA encompasses regionally unique areas, including one of three remaining wetlands that once covered the South Bay area. The freshwater plants and animals found here are completely surrounded by residential and industrial facilities. This type of habitat has been filled, drained, and lost to development throughout most of the County. In some areas, man-made lakes and ponds have created

small freshwater marshes along their edges, but this is minimal in comparison to the large expanses of freshwater marsh that were once found in the Los Angeles Basin.

Freshwater marsh habitat supports a great diversity of wildlife. Most of the bird species found here are dependent in some way on the surface moisture and vegetation, and would not be able to survive without it. It is also a habitat that supports several species of amphibians. Frogs and toads can be found here that are becoming extremely difficult to find throughout Southern California. The marsh is also an important area for migratory birds. Because Harbor Lake Regional Park and Madrona Marsh are the only habitat of this type in the southern portion of the County, they serve as small scale wildlife refuges. Waterfowl, shorebirds, marsh birds, and others can be found on the marsh in numbers during the spring and fall migration.

Wildlife Movement

The vernal pools situated within this SEA serve as isolated, high-quality habitat and linkage resource for migratory waterfowl. The vernal pools teem with arthropod and amphibian activity, and provide essential feeding grounds for long-distance migrants, as well as for resident species of reptiles, birds and mammals. The SEA does not lie within any identified terrestrial movement routes for wildlife.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE HARBOR LAKE REGIONAL PARK SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	This SEA contains habitat that supports a population of vernal pool fairy shrimp.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	SEA supports a sizeable lake with a freshwater marsh along its northern, eastern and southern shores and the Bixby Slough, habitats that once covered the South Bay area. This type of habitat has been filled, drained, and lost to development throughout most of Southern California.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	Harbor Lake Regional Park is one of three remaining wetlands with freshwater marsh in the County(The others are Madrona Marsh and recreated Ballona Freshwater Marsh, which are also in SEAs.). This type of habitat once covered much of the southern and western Los Angeles Basin area, and supports several species of amphibians including frogs and toads that are becoming rare throughout Southern California.
D)	Habitat that at some point in the life cycle of a species or group of species, serves	Met	Harbor Lake Regional Park and its marshes is an important area for migratory birds. The list of number of

	as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or inCounty.		bird species seen has over 330 species. Freshwater marshes are important breeding areas for a number of birds and amphibian species.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The Harbor Lake freshwater marsh has attracted considerable attention from the academic and scientific communities, and the resources of the area are well documented and continue to be studied.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The freshwater marsh is a good example of the freshwater marshes that used to occur along the fault lines of the Los Angeles Basin.

In conclusion, the area is an SEA because it contains B-C) a sizeable lake with a freshwater marsh along its eastern shore and the Bixby Slough, habitats that once covered the South Bay area. This type of habitat has been filled, drained, and lost to development throughout most of Southern California and the County. Three of these habitats remain in the County; D) the Harbor Lake Regional Park is habitat that serves as concentrated breeding, feeding, resting, and migrating grounds and is limited in availability both regionally and in the County; E) the Harbor Lake freshwater marsh has attracted considerable attention from the academic and scientific communities, and the resources of the area are well documented and continue to be studied; and F) the freshwater marsh is a good example of thefreshwater marshes that used to occur along the fault lines of the Los Angeles Basin.

Joshua Tree Woodlands SEA

Boundary and Resources Description

The Joshua Tree Woodlands SEA is located in the western portion of the Antelope Valley west and northwest of the Antelope Valley California Poppy Reserve State Natural Reserve in an unincorporated area of the County. This SEA encompasses many of the remaining old-growth stands of Joshua trees (*Yucca brevifolia*) on the west side of the Antelope Valley. Joshua tree woodland is a complex biological community of the gradual slopes of higher elevation desert are as that once covered much of this part of the Antelope Valley around the Antelope Wash. Joshua trees only occur within the Mojave Desert, and Los Angeles County populations are at the western limit of the species' range.

Because Joshua trees live in areas that are easily developed for residences and agriculture, this habitat has become very fragmented in the County. The SEA consists of eight separate units, seven of which are in close proximity to each other between the Kern-Los Angeles County line to the north, and the California Aqueduct and Fairmont Butte to the south. The eighth unit is in an arroyo on the north side of the principal western ridgeline of Liebre Mountain, which is near the furthest western extent of Joshua tree woodland in Southern California. This woodland is located partially within the Angeles National Forest, and east and adjacent to the Interstate-5. The eighth unit is bordered on three sides by the San Andreas SEA.

All of the SEA except Unit 8 is within an area designated as the Antelope Valley Globally Important Bird Area (IBA) by Audubon California. This part of the Antelope Valley is very important as a

resource area that supports spring and fall migration of birds, from the small passerines to the larger raptors, such as the state-threatened Swainson's hawk (*Buteo swainsoni*) and turkey vultures (*Cathartes aura*). The Joshua tree woodland is a very important resource to these migrations by supplying perches and food for these animals on their journeys. The SEA is near the San Andreas SEA, the Antelope Valley California Poppy Reserve State Natural Reserve, the Arthur B. Ripley Desert Woodland State Park, and the County George F. Bones Desert Pines Wildlife Reserve; however, many of these areas are not contiguous with one another nor with the SEA. Unit 2 of the SEA includes much of the Arthur B. Ripley Desert Woodland State Park. Unit 8 of the SEA is contiguous with the San Andreas SEA.

Fragmentation is a concern because the Joshua trees depend on a small moth for reproduction. Only two species of moth can successfully pollinate Joshua trees, and in the SEA, there is only the yucca moth (*Tegeticula synthetica*). The moth may have limited dispersal abilities, and the Joshua trees cannot reproduce from seeds without pollination from this particular moth. Cross pollination is regarded as essential to a species' genetic diversity, which is essential to adaptation to environmental change.

The Joshua trees in the seven units have the growth form of the lower elevation woodlands of the flatter areas, and somewhat spaced from one another and less clumped. The Joshua trees in the eighth unit have a growth form that is more common in the hilly areas, where the individuals sprout from connected rhizomes and are clumped. Many times, these clumps are clones, with individuals all sharing the same genetic identity.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Neenach School, Fairmont Butte, Black Mountain, and Lebec.

The SEA is composed of eight units. The overall boundaries are as follows: The western boundary for units 1-7 terminates at 220th Street West (the border between Ranges 15W and 16W). The eastern boundary is 145th Street West. The northern boundary is on Avenue A at the Kern-Los Angeles Countyline. The southern boundary straddles the California Aqueduct, touches the Los Angeles Aqueduct, and is approximately on Avenue F. The southernmost area is located close to the foothills of the western San Gabriel Mountains.

Unit 1: The northernmost unit is bounded by Avenue A on the Kern-Los Angeles County line on the north between 200th Street West and approximately on 218th Street West. It extends irregularly to the south along a desert wash contour, about a 0.7 mile at its greatest extent. The current southern boundary is determined by agricultural clearing. This unit has a Joshua tree woodland with many shrub components of the biological community intact, including a floor covered by the wildflower slender goldfields (*Lasthenia gracilis*) in the spring.

Unit 2: Another unit is located between Avenue C to the north and Avenue F to the south (straddling part of State Route-138 on Avenue D and part of Lancaster Road on Avenue E), and east to west from about 200th Street to about 220th Street West. Vegetation clearance in various parcel units accounts for this unit's irregular shape. Agricultural clearing on both sides of the Antelope Wash has separated this unit from Unit 1 to the north. The intervening area is a broad wash plain with rich alluvial soils. The former agricultural fields may now become fields of photovoltaic panels to generate renewable energy. This unit has a southern square mile that straddles the California Aqueduct and touches the Los Angeles Aqueduct at the base of the San Gabriel Mountains. In the northern area, this unit has old-growth Joshua tree woodlands on a rocky ridge that grades into

stands of Joshua trees and woodland that includes California junipers (*Juniperus californica*) in flatter areas toward the south. The southern and eastern parts of this unit overlap with much of the Arthur B. Ripley Desert Woodland State Park. The California Aqueduct is open in this area and is an important resource for bird migration along the desert slopes of the western San Gabriel Mountains, particularly waterfowl. The Los Angeles Aqueduct is generally in concrete pipe for most of its extent, and in this area, is covered by a berm and road. A colony of burrowing owls (*Athene cunicularia*), which is a state species of special concern, was discovered during surveys for an adjacent photovoltaic panel development, and probably other colonies or individuals of the owl live within this unit.

Unit 3: Another unit is located between Avenue D to the north and Avenue E to the south, and between 190th Street and 195th Street West. It is on the broad outwash alluvial area of Kings Canyon and adjacent drainages. This outwash area is somewhat blocked by the aqueducts, but both aqueducts are provided with underpass channels for outflow of the canyons onto the desert floor. The SEA includes a central cleared area that is regenerating the Joshua tree woodland and a residence with less than 40 acres cleared. The area next to Avenue D that has been cleared of Joshua trees is not included.

Unit 4: The square mile between Avenue C and Avenue D, and between 180th Street and 190th Street West has a good stand of Joshua tree and juniper woodland. This is also in the Kings Canyon alluvial wash area. There is a known area of Joshua tree regeneration to the east that is not included in the SEA.

Unit 5: The quarter square mile between Avenue C-5 and Avenue E, and between 180th Street and 185th Street West, is also on the Kings Canyon alluvial wash area and has a good stand of Joshua tree and juniper woodland.

Units 6: An area of a little over one-eighth square mile is located at the corners of both units 4 and 5. It is between Avenues D and E and between 180th Street and what would be 174th Street West. This is also in the Kings Canyon alluvial wash area and has a good stand of Joshua tree and juniper woodland.

Unit 7: A large irregular unit is located roughly between Avenue B, Avenue C5, 145th Street and 180th Street West. It has an extensive area of Joshua tree-juniper woodland that grades into stands of Joshua trees towards the east. There is a known area of Joshua tree regeneration in former agricultural fields between 160thStreet West and 170thStreet West that is not included in the SEA. The alluvial wash in the SEA is a combined area of outflow from Kings Canyon, unnamed canyons, and Broad Canyon.

Unit 8: The eighth unit is in an arroyo on the north side of the principal western ridgeline of Liebre Mountain, which is near the furthest western extent of Joshua tree woodland in Southern California. This woodland is located partially within the Angeles National Forest. It is east and adjacent to the Interstate-5. The eighth unit is bordered on three sides by the San Andreas SEA.This woodland has the clonal growth that is typical of Joshua trees in hilly areas.

The SEA is located primarily on the western Antelope Valley floor between the Tehachapi Mountains and the western San Gabriel Mountains. The topography of the SEA is extremely flat with the land sloping less than 200 feet in approximately five miles. The location and orientation of the SEA represents a matrix of remnant stands of Joshua tree woodland among a patchwork of disturbed

areas. Nearly all of the land within the SEA is undisturbed and vegetated. Most of the land surrounding the SEA is disturbed by agricultural use, and also has some scattered rural residences. The SEA is entirely within the unincorporated area of the County.

Wildlife Movement

Wildlife movement within the SEA is possibly limited to local movement, but large-scale movement across the Antelope Valley floor is probably much facilitated by the Joshua tree habitat as island-like stepping stones. Typically in burned-over areas, animal paths tend to orient toward the Joshua tree habitat. Birds, and possibly bats, and other aerial organisms that use the habitat linkage along the desert side of the San Gabriel Mountains probably use the woodland in the SEA for resting and feeding. Animals foraging within the SEA are unlikely to occur in concentrated numbers due to the heterogeneity of the topography and habitat of the SEA. However, local movement to and from the different SEA areas, as well as to and from the San Gabriel Mountains and the Tehachapi Mountains may be restricted due to the disturbed nature of the Antelope Valley floor. Wildlife movement is likely to converge in areas where movement is still possible, which produces concentrated movement areas or “bottlenecks.”

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE JOSHUA TREE WOODLANDS SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	Although there are several listed species that occur within the SEA, this criterion is not met due to the lack of known core population areas.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The SEA contains large patches of undisturbed Joshua tree woodland habitat, which has become increasingly rare in the region.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	As stated above, Joshua tree woodlands have become rare in the region, and are even more rare in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The habitat within the SEA has been studied for how it may serve as a concentrated breeding, feeding, resting, or migrating ground for any species. Some cross-desert migratory routes depend, in part, on the cover and habitat of the Joshua tree woodland. The units 1-7 of the SEA on the Antelope Valley floor are in a globally IBA, known as a bird migration route. The Joshua tree woodland is an important component of resources that supports this migration.

E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	Due to the scarcity of Joshua tree woodland, specimens of the quality found in the SEA are important to science and have become living laboratories. The SEA contains the most westerly extent of this habitat type.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The Joshua tree woodland contained within the SEA is an excellent example of this community type.

In conclusion, the area is an SEA because it contains B-C) Joshua tree woodland, a rare community both regionally and within the County; D) habitat important to breeding, feeding, and migration; E) the geographic limit of Joshua tree woodland; and F) an excellent undisturbed example of Joshua tree woodland.

Madrona Marsh Preserve SEA

Boundary and Resources Description

The Madrona Marsh Preserve SEA lies on the northeast corner of Madrona Avenue and Sepulveda Boulevard, within the City of Torrance. The SEA boundaries encompass the natural part of the Madrona Marsh Preserve, which is a remnant of one of the last natural vernal wetlands in the County. Vernal marshes fill in the rainy season (winter and spring in our area) and dry completely by the end of summer. They are heavily used by migrant birds in the spring, and in the fall if rains are early. They usually have other resident flora and fauna that are specially adapted to the seasonal cycle of wetting and gradual complete dessication.

The SEA is located within the Torrance United States Geological Survey (USGS) 7.5' California Quadrangle.

The SEA boundaries generally follow the Madrona Marsh Preserve boundary, which is surrounded by urban development. The Madrona Marsh Preserve is a park of the City of Torrance that is situated to the west of Maple Avenue, north of West Sepulveda Boulevard, east of Madrona Avenue and directly south of Plaza Del Amo. The Madrona Marsh Nature Center has offices and visitor activities to the north of Plaza Del Amo. The Nature Center supports an active volunteer and educational program for natural areas in this part of the Los Angeles Basin.

The SEA supports one of three remaining freshwater wetlands that once covered much ofthe southern and western Los Angeles Basin area. In the lowland are vernal marshes and an alkaline margin, and the upland supports a back dune system and vernal pools.

The freshwater plants and animals found here are completely surrounded by residential development and industrial facilities. This type of habitat has been filled, drained, and lost to development throughout most of the County. In some areas, man-made lakes and ponds have created small freshwater marshes along their edges, but this is minimal in comparison to the large expanses of freshwater marsh that were once found in the Los Angeles Basin.

Freshwater marsh habitat supports a great diversity of wildlife. Most of the bird species are dependent in

some way on the surface moisture and vegetation, and would not be able to survive without it. It is also a habitat that supports several species of amphibians. Frogs and toads can be found here that are becoming extremely difficult to find throughout Southern California. The marsh is also an important area for migratory birds. Over 150 bird species have been recorded as using Madrona Marsh. Because the remnant freshwater marshes like Madrona Marsh are the only habitat of this type in southern portion of the County, they serve as miniature wildlife refuges. Kenneth Malloy Harbor Regional Park (Harbor Lake Regional Park SEA) and Ballona Freshwater Marsh (Ballona Wetlands CRA) are the two other freshwater marshes in this area. Waterfowl, shorebirds, marsh birds, and others can be found on the marsh in numbers during the spring and fall migration.

Wildlife Movement

The vernal pools situated within this SEA serve as an isolated, high-quality resource providing habitat linkage for migratory waterfowl. The vernal pools teem with arthropod and amphibian activity, and provide essential feeding grounds for long-distance migrants, as well as for resident species of reptiles, birds and mammals. The ponds do not lie within any identified terrestrial movement routes for wildlife.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

Criteria Analysis of the Madrona Marsh Preserve SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	Not met, although the Madrona Marsh contains vernal pools, which may harbor threatened and endangered species in a unique location for the County.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Madrona Marsh is one of three remaining wetlands with freshwater marsh in the County (the others are Kenneth Malloy Harbor Regional Park and the Ballona Wetlands freshwater marsh.). This type of habitat once covered the South Bay area of the Los Angeles Basin, and supports several species of amphibians and vernal pools that are becoming rare throughout Southern California.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	Madrona Marsh is one of three remaining wetlands with freshwater marsh in the County.This type of habitat once covered the South Bay area, and supports several species of amphibians including frogs and toads that are becoming rare throughout Southern California.In addition it has some vernal pools, which are very rare in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as	Met	Any natural wetland like the Madrona Marsh is an important area for amphibians, which need water for

	concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.		their aquatic larvae to complete their life cycle. The Marsh is very important for migratory birds as a waypoint during the spring and fall migration periods.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	Because the Madrona Marsh is one of only three remnants of the formerly extensive habitat, there is much interest in the local community and at academic and scientific institutions in preserving the area and acquiring adjacent habitat currently used for gas and oil extraction that can be restored to marsh habitat.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The Madrona Marsh is a remnant of the freshwater marsh once prevalent in this area of the County, and it is important to recognize protection of the habitat.

In conclusion, the area is an SEA because it contains B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, and migrating grounds, which are limited in availability in the County; E) unique habitat that is of scientific and educational value; and F) a very rare habitat of vernal marsh that has retained its unique yearly cycle.

Palos Verdes Peninsula and Coastline SEA

Boundary and Resources Description

The Palos Verdes Peninsula and Coastline SEA is chiefly located offshore around the Palos Verdes Peninsula, but also includes terrestrial habitat in Portuguese Bend and several other disjunct drainages and ridgelines. All of the many offshore rocks within 12 nautical miles of the coast are part of the California Coastal National Monument that managed by the Bureau of Land Management in the U.S. Department of the Interior.Many endangered marine mammals use this habitat. The SEA includes the inshore part of the Point Vicente State Marine Conservation Area (SMCA) and the Abalone Cove SMCA. Most of the interior Peninsula canyons and slopes are critical habitat for the federally-threatened coastal California gnatcatcher (*Polioptila californica californica*). Many of the interior areas are also critical habitat for the federally-endangered Palos Verde blue butterfly (*Glaucopsyche lygdamus palosverdesensis*). The gnatcatcher favors the coastal sage scrub or chaparral vegetation; the butterfly favors flatter areas with grassland plants of the upper marine terraces, such as Ventura milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*), which is a principal food plant for its larvae. The gnatcatcher critical habitat covers virtually all of the terrestrial part of the SEA and extends well beyond the SEA on the Peninsula.The butterfly's critical habitat is chiefly in flatter areas of the marine terraces, but can include broader areas of the canyons.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Torrance, San Pedro, and Redondo Beach

Most of the SEA is in the nearshore marine habitat and extends from the high tide line of the beach to about one mile offshore. The designated SEA traverses along the coastline of the Palos Verdes Peninsula from Flat Rock Point at the northern end of Bluff Cove to the west end of the breakwater

of Los Angeles Outer Harbor. The terrestrial part of the SEA includes several non-contiguous ravines, canyons and streambeds that are adjacent to rural residential areas. The area known as Portuguese Bend is one of the largest inland areas within the SEA.

The SEA has the inshore part of the Point Vicente SMCA, which extends from mean high tide due east-west to three nautical miles offshore. The Point Vicente SMCA is like a reserve in that no take of any kind is permitted. The western line goes due east-west off an unnamed point about a 0.4 mile north of Point Vicente. The eastern line goes due north-south off Long Point. Adjacent is the Abalone Cove SMCA, which extends from mean high tide to 3 nautical miles offshore, also due north-south. The eastern boundary of the Abalone Cove SMCA extends off Portuguese Point.

Disjunct interior parts of the SEA include 1) Agua Amarga Canyon, which drains to Lunada Bay (critical habitat for both the Palos Verdes blue butterfly and the coastal California gnatcatcher; 2) an area of coastal sage scrub and bluffs north of Point Vicente; 3) the upper bluff area of chaparral and grassland that is on the northeast side of Pacific Coast Highway at Point Vicente; 4) the beach and cliff area south of Pacific Coast Highway at Abalone Cove, Portuguese Point, Inspiration Point and Portuguese Bend; 5) the unbuildable areas of the Portuguese Bend Landslide, which include grassland, chaparral, and canyons and surround the community of Portuguese Bend on the north side of Pacific Coast Highway, and border the southern side of the community of Rolling Hills; 6) cliffs and headland areas with coastal bluff, coastal chaparral, and grassland extending from the east side of Portuguese Bend to the City of Los Angeles border at the west end of Royal Palms Beach Park; 7) a lobe bordering the switchbacks of Palos Verdes Drive East that connects to the coast and coversthe natural cliff, bluff, and chaparral vegetation up to about one mile inland; and 8) the intertidal area on the west side of Point Fermin.

The other disjunct interior parts of the SEA are within the community of Rolling Hills, with numerous natural parts of the canyons and ridges have been too steep to develop. These are designated as part of the SEA because the native vegetation is essential for the native birds and the migrants, which include those that use the Palos Verdes Peninsula as a rest stop and those that overwinter. They include the following canyons, which are on the north side of the Palos Verdes Range crest, and drain to the Los Angeles Basin: 9) Agua Negra Canyon on the west side of Crenshaw Avenue; 10) Agua Magna Canyon; 11) Sepulveda Canyon; 12) Blackwater Canyon, including two upland forks; and 13) George F. Canyon withall three upland forks.

Finally, the remaining disjunct interior parts of the SEA are in the Miraleste district of Rancho Palos Verdes, on the east side of Palos Verdes Drive East, naturally-vegetated canyons trend eastward to the flat area of San Pedro: 14) north of Rockinghorse Road; 15) north of Colt Road; 16) north of Coral Ridge Road; 17) Miraleste Canyon (north of Miraleste Road); and 18) two branches of San Pedro Canyon (south of Via Siena and north of Via Colinta).

The SEA is formed by the Palos Verdes Range, and is characterized by marine terraces atop rough terrain that is created by the erosion of the upland areas into many canyons. The flatter areas on the marine terraces are the areas that have been developed. Unparalleled headlands, rocky shoreline, and the land-sea interface provide for a tremendous variety of biotic resources in this area. It is one of the most biologically diverse and productive regions in the County, and contains several biotic communities, including rocky intertidal, kelp bed, coastal strand, and coastal sage scrub. One small sandy beach is periodically present on an ephemeral basis at Portuguese Bend. This 10 mile stretch of coastline, between Point Fermin and Bluff Cove, is the only sizeable rocky intertidal area in the County.

The Peninsula was once an island before sediments filled the Los Angeles Basin, and it has many biological associations today that originated during the time it was insular. A number of the uncommon plants, for example, are also only known from offshore islands, and some of the bird subspecies on the Peninsula are also only known elsewhere on the offshore islands. They are not found on the mainland except on the Palos Verdes Peninsula.

Rocky shores support a great number of species. This is primarily due to the interface of the ocean and the land, the highly diverse natural communities that both contain, and the oxygen and food-rich environment offered by this habitat. The natural features include a variety of substrates, both stable and unstable, the aeration of water and humidification of the air through wave splash, and the upwelling of nutrient-rich waters along the Southern California coast.

Subtidally, one can find representatives of every phylum of animals (major groupings, such as mollusks, echinoderms, jellyfish, etc.), many of which are not represented on land. Rocky substrates are as diverse as the intertidal areas. Sandy subtidal areas also support a great variety of species, but most are cryptic and submerge into the depths of the sand because of the high energy and unstable nature of their environment.

Kelp beds dominated by giant kelp (*Macrocystispyrifera*) are an extremely productive habitat that provides food, attachment sites, and shelter for a diverse community of invertebrates, fishes, and sea mammals. They are an important nursery habitat for juvenile fishes. Kelp beds were originally common off the Southern California coast wherever rocks were present at shallow depths. However, due to man-made and natural phenomena, this habitat has been severely diminished in the region, and is now rare in the County. A kelp bed habitat restoration program was begun in the area in the 1960s, and appears to have been successful. Kelp has been reestablished west of Point Fermin, along Abalone Cove, and offshore of Halfway Point. Smaller colonies are now reestablishing at other locations offshore of the southern coast of the Peninsula.

The coastal cliffs found in the area range in elevation from 100 to 300 feet and support coastal sage scrub and coastal strand bluff scrub. These and offshore rocks offer ideal roosting and feeding sites for numerous shorebirds, gulls, and other seabirds, including the fully-protected California brown pelican (*Pelecanus occidentalis californicus*). The area is an important stop for migrating birds as they fly along the coast or across the Santa Monica Bay. In addition, the bluff tops that are now abandoned agricultural fields are utilized by many species as wintering feeding grounds. One fully-protected species, the American peregrine falcon (*Falco peregrinus anatum*), and one very uncommon species of conservation concern, the prairie falcon (*F. mexicanus*), have been known to winter here in recent years.

The bluff tops and cliffs have been disturbed by pedestrian use, residential development, and agriculture. Only very small, isolated ravines remain in a natural state. The shoreline has suffered major biological impairment, commonly blamed on over-collection by humans and intense pollution. The health of the marine environment has been relatively poor due to human influences, such as outfalls with toxic contents, but appears to be slowly recovering.

Wildlife Movement

The SEA is on the Pacific Flyway migration route, which is used by many birds seasonally and plays an important role as a stopover because of its extensive undisturbed marine resources. It does not fall within any identified terrestrial movement routes for wildlife because it is isolated by the ocean on

one side, and enclosed by miles of developed land on the remaining terrestrial sides.

The offshore major part of the SEA is on the annual migration route of the California gray whale (*Eschrichtius robustus*), which is a Convention on International Trade in Endangered Species (CITES) Appendix I animal. This means that they have endangered status, and no trade or harvest is permitted, except by strictly controlled export and import permits that are issued in countries that are party to the convention and have legislation of adoption, which includes the U.S. The gray whale migrates close to shore on its transit during the winter months, from the Bering Sea to lagoons of Baja California for calving and breeding.A whale count station is manned by volunteers at the Point Vicente Park and Interpretive Center that has yearly records, starting in 1979. The whales generally return north offshore.The area may be a migration corridor for other marine animals, as this is part of the great Southern California Bight, which has an eddy circling counterclockwise to the north off the southward flow of the California Current. This flow brings marine organisms (fishes, invertebrates, and plants) that may have major population concentrations in the south to this part of the ocean habitat. Most of these organisms have a planktonic stage that is dependent on the current system to maintain their populations and distribution.Pollution of the ocean waters by development on land will have significant effects that may not be appreciated immediately because of the cryptic nature of subtidal animals and plants.

Other Cites Appendix I mammals have been recorded as using the SEA in the Point Vicente records including sperm whales (*Physeter macrocephalus*), minke whales (*Balaenoptera acutorostrata*), humpback whales (*Megaptera novaeangliae*), blue whales (*Balaenoptera musculus*), fin whales (*Balaenoptera physalus*), and southern sea otters (*Enhydra lutris nereis*).

Regional Biological Value

The SEA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE PALOS VERDES PENINSULA AND COASTLINE SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The Palos Verdes Peninsula is the western-most area of breeding for the threatened coastal California gnatcatcher. The headlands and rocky shoreline provide wintering habitat for two important birds: the fully protected California brown pelican and the state-fully protected American peregrine falcon. The canyons of the SEA support three races of birds that are residents only on the Peninsula and the Channel Islands: insular forms of the orange-crowned warbler, western flycatcher, and Allen's hummingbird. Rare plants, such as southern island mallow and Island crossosoma, make this area a very special mainland population for species that otherwise occur only on the offshore islands. Island green dudleya, a rare bluff plant known only from Palos Verdes Peninsula, Santa Catalina Island, and San Nicolas Island, occurs in the Portuguese Bend Landslide.

B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Unparalleled headlands, rocky shoreline, and the land-sea interface provide for a tremendous variety of biotic resources in the coastline area. Rocky shores support a great number of species, and the upwelling of deep waters provides nutrient-rich waters for the area's kelp beds, which are dominated by giant kelp. Kelp beds were formerly common off the Southern California coast wherever rocks were present at shallow depths. However, due to man-made and natural phenomena, this habitat has been severely diminished in the region. The mainland SEA areas contain mainland populations of species that occur chiefly on the offshore Channel Islands.Any population characteristic of an island is of extremely restricted regional distribution.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	Kelp beds are now rare in the County. These algal communities can account for 90% of the biomass where they occur, and provide food and habitat for hundreds of species. Like terrestrial forests, they moderate the microclimate, reduce wave shock to shorelines and provide shade and shelter to their myriad denizens. The coastal cliffs support coastal sage and coastal strand vegetation, which are rare in Los Angeles because of the scarcity of rocky headlands. The Peninsula's former island status and current maintenance of mainland populations of species that occur chiefly on the offshore Channel Islands are very special. Any population characteristic of an island is of extremely restricted distribution in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The coastal cliffs provide ideal roosting and feeding sites for numerous shorebirds, gulls, and other seabirds, including the fully-protected California brown pelican. This headland is a principal rest-stop for migrating terrestrial and marine birds on the Pacific Flyway and a wintering area for some migrants. Bluff tops and marine terraces of abandoned agricultural fields are utilized by many species as winter feeding grounds. The Palos Verde Peninsula is the western-most area of breeding for the federally-threatened coastal California gnatcatcher. It has numerous plant and animal species that only occur here and otherwise on the offshore islands, so this is a special area for all phases of their life cycles. The marine area is an important migration area for all of the sealife and marine mammals.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	Much scientific and educational work has been done on this part of the coastline. State and county agencies have generated a great deal of information about the area. The Peninsula was once an island and has biotic characteristics more like the offshore Channel Islands than the rest of the County. It is an anomaly of an island now attached to the mainland, and thus interesting for biogeographic studies. The Peninsula canyons are the

			western-most area of breeding coastal California gnatcatchers. Because of the resident birds and plants that occur only on the Palos Verdes Peninsula and the Channel Islands, this area is of scientific interest for study of island biogeography and evolutionary ecology.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	As the only extensive (10 miles long) rocky intertidal shoreline in the County, the coastline is an important area for preserving its intense biodiversity. It has headlands, rocky shoreline cliffs, rocky intertidal areas, boulder field intertidal areas, kelp beds, coastal strand, ephemeral coastal strand, and coastal sage scrub. The bluffs have a special array of plants found nowhere else on the County mainland. The Peninsula has diverse communities typical of the offshore Channel Islands including coastal sage scrub (which is used by the mainland threatened bird, coastal California gnatcatcher), chaparral, and riparian habitats. The SEA canyons are the least disturbed coastal drainages of the County.

In conclusion, the area is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, and migrating grounds, which are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Puente Hills SEA

Boundary and Resources Description

The Puente Hills SEA is located in the Puente Hills in the southeastern portion of the County. The Puente Hills are an inland topographical feature that separates the San Gabriel Valley to the north and the coastal plain to the south. The hills are oriented east-west and stretch from the San Gabriel River on the west approximately to the San Bernardino-Los Angeles County line to the east, where they transition into the Chino Hills. The SEA includes portions of the Whittier Narrows Dam Recreation Area and Flood Control Basin, and much of the undeveloped land throughout the Puente Hills. Nearly the entire SEA is designated as the Puente-Chino Hills State Important Bird Area (IBA) by Audubon California. The main area hosts migrating and resident birds that use the extensive mosaic of lowland terrestrial habitats, and notable extensive areas of grassland and oak and walnut woodlands. This IBA extends well beyond the SEA into Orange and San Bernardino counties, and in general, goes beyond the SEA boundaries in most places. The northwestern disjunct area of the SEA is part of the Los Angeles Flood Control Basin IBA, which hosts many resident and migrating birds that use the wetlands. This IBA extends beyond the SEA on both the Rio Hondo and a long distance upstream along the San Gabriel River.

The SEA encompasses portions of the El Monte, Baldwin Park, Whittier, La Habra and Yorba Linda United States Geological Survey (USGS) 7.5' California Quadrangles. The majority of this SEA lies

within unincorporated area of the County.

In the westernmost part of the SEA, boundaries encompass the undeveloped portions of the Montebello Hills. The oil field and transmission lines that occupy this area have protectively-fenced and left most of the coastal sage scrub, which is inhabited by the largest population of the federally-threatened coastal California gnatcatcher (*Polioptila californica californica*) in the County. This area is part of critical habitat for the gnatcatcher. Boundaries of critical habitat extend to Montebello Boulevard on the north side and to the west side of San Gabriel Boulevard, while the SEA boundary stops at the transmission lines' southern edge. Some of the canyons in the oil field have oak woodland.

The SEA has a finger that extends from the Montebello Hills section over San Gabriel Boulevard to the oak woodland (among oil field structures) that borders the Rio Hondo Channel. The SEA finger continues upstream along the natural riparian course of the Rio Hondo to a point where the Rio Hondo is encased as a concrete flood control channel. This area of the Rio Hondo usually has surface water and is on the migration route for migrating and wintering waterfowl. The riparian area of the Rio Hondo immediately north of San Gabriel Boulevard has long been recognized as important to birds and has been called "Bosque Del Rio Hondo" since Spanish occupation of this area. Abundance of birdlife is frequently mentioned, but the area also has amphibians, reptiles, mammals, and probably fishes.

It is intended that the SEA encompass only natural areas of the basin and portions of the San Gabriel River and Rio Hondo, and the SEA in this area is disjunct from the rest of the Puente Hills. A golf course that is part of the Whittier Narrows Dam County Recreation Area is on the west side of Rio Hondo, and the golf course is not included in the SEA. Likewise, the manicured areas of the County Recreation Area on the east side of Rio Hondo are not included.

Moving east, the southern boundary of the SEA follows the upstream edge of the Whittier Narrows Dam, while the northern boundary goes east along the south side of Durfee Avenue from the east bank of the Rio Hondo. This captures the Flood Control Basin at the confluence of the San Gabriel River and Rio Hondo. The pool at the base of the Whittier Narrows Dam, which is regularly utilized by migrant and resident waterfowl, is included in the SEA.In the Flood Control Basin the connective channel between the Rio Hondo and the San Gabriel River has native riparian vegetation and usually has water. The connective channel is included in both the SEA and the critical habitat for the coastal California gnatcatcher. The northern SEA boundary follows the south side of Durfee Avenue eastward to near the junction with Peck Road. Here the northern SEA boundary follows the northern side of the grounds of the Whittier Narrows Nature Center to the San Gabriel River, which is naturally vegetatedwith a soft bottom. The southern SEA boundary has outlined the natural vegetation of the flood control basin and connective channel, with a finger extending south downstream along natural riparian vegetation in the San Gabriel River, to the crossing of San Gabriel Boulevard. Across from the Whittier Narrows Nature Center, the southern boundary is along the southeast side of the San Gabriel River. A finger of the SEA extends upstream along the area of the San Gabriel River, which has soft-bottom and native riparian vegetation upstream about one mile (three-quarters of a mile beyond the crossing of State Route-60, which is a short distance upstream from the Whittier Narrows Nature Center area). This includes the confluence with San Jose Creek that drains the south side of the San Jose Hills, and the north side of the Puente Hills. Currently, the Whittier Narrows area of the SEA outlined above is not physically connected to the remainder of the SEA due to urban development on both sides of Interstate-605.

Much of San Jose Creek is channelized, and the City of Industry is located in the flood plain. Because of this, most wildlife movement cannot use the main watercourse route, which makes Puente Hills the wildlife corridor through the area. A plan for the Whittier Narrows area, sometimes called “the Emerald Necklace,” proposes to eventually have a string of parks along the San Gabriel River and Rio Hondo, stretching from the Whittier Narrows Dam County Recreation Area along the rivers to the Santa Fe Dam area, into the City of Irwindale. This would better connect wildlife from the Puente Hills, Chino Hills, Santa Ana Mountains and the other Peninsular Ranges of Southern California with the San Gabriel Mountains, and the Transverse Ranges across the northern side of the San Gabriel Valley.

Moving east across Interstate-605, the SEA begins at the end of Sycamore Canyon Road and the mouth of Sycamore Canyon (off Workman Mill Road on the south side of the west section of Rose Hills Memorial Park). The northern boundary essentially follows the edge of developed portions of the Rose Hills Memorial Park, the Puente Hills Landfill, and rural residential and suburban developments of the Hacienda Heights area, eastward to Peter F. Schabarum Regional Park. The southern boundary in this area tracks the edge of urban development along the southern slopes of the Puente Hills bordering the City of Whittier and the City of La Habra Heights. The SEA in this southern slope area includes some areas impacted by oil production that are otherwise connective by virtue of largely natural habitat of chaparral and grasslands. Much of this area of the SEA is critical habitat for the coastal California gnatcatcher. The critical habitat of the gnatcatcherextends into areas with appropriate habitat for the gnatcatcher among some development, for example, Rose Hills Memorial Park and the Puente Hills Landfill. Active operation areas within these properties were not included in the SEA because they did not meet the SEA mapping criteria.

Much of the summit area in the Puente Hills is conserved and under restoration by the Puente Hills Habitat Preservation Authority (PHHPA), which has sponsored important studies on habitat and wildlife movement, restoration, and the wildlife movement tunnel under Harbor Boulevard at the eastern side of the SEA. The SEA in this western end of the Puente Hills includes important natural drainages on the west side of the Puente Hills, which drain to the San Gabriel River: much of Sycamore Canyon, with walnut woodland and riparian scrub; and Turnbull Canyon with a mixed riparian forest containing ash, sycamore, and oak. The ridges around Turnbull Canyon are mixed grassland and chaparral, with coastal sage scrub and a scattered population of the federally-threatened coastal California gnatcatcher. Mixed chaparral and cactus scrub on the Turnbull Canyon and Sycamore Canyon slopes support a local population of the sensitive coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*). Other areas of the southwest slope drainages include Worsham Creek, La Cañada Verde Creek, Arroyo Pescadero, and San Miguel Creek. Underpasses of Colima Road, which could otherwise block the east-west wildlife movement along the Puente Hills, are used by wildlife as shown by studies sponsored by the PHHPA. (SWCA Environmental Consultants, 2012)

A lobe of the SEA goes over the ridge to natural habitat along north-facing slopes.These tributaries of Joe Hill Wash have a mix of oak and walnut woodland habitats along multiple drainages that end in San Jose Creek. Other areas of north slope drainage to San Jose Creek are included in the SEA on the southeast side of Workman Mill and along the transmission line corridor in the Workman Mill area. The north-slope boundary skirts the developed areas of the community of Hacienda Heights. An area of planned development in the oak woodland just west of Peter F. Schabarum Regional Park has been excluded from the SEA.

Continuing east, the northern SEA boundary crosses the Schabarum Park accessory corridor and includes the undeveloped portions, as well as those of neighboring Trailview County Park in the SEA. Here the northern boundary is trending southeast, skirting along the edge of residential development within unincorporated Rowland Heights. The southern SEA boundary in this area skirts development in the community of City of La Habra Heights and includes the southern slope of Powder Canyon, which has a variety of natural habitats including riparian, walnut, and north-slope oak woodlands, California walnut woodland, rocky hillsides, chaparral, and some grassland. Powder Canyon is part of the watershed of San Jose Creek. Here the SEA crosses Fullerton Road in a broad swath about a 0.4mile wide that includes the Powder Canyon undercrossing and Pathfinder Park on the east side. Pathfinder Park has riparian and chaparral habitat. There is an area around the ridgeline development along Vantage Pointe Drive that has been excluded from the SEA.

The northern SEA boundary continues along the edge of development at the southern edge of the communities of Rowland Heights to include walnut woodland, oak woodland, grassland, and chaparral vegetation on the north-facing slopes and central ridge of the Puente Hills. This area includes tributaries in the Puente Hills for the Brea Canyon watershed. The boundary crosses Brea Canyon (Santa Ana River watershed) and State Route-57 at the edge of development in the City of Diamond Bar, and continues along the boundary of natural vegetation to the San Bernardino-Los Angeles County line. East of State Route-57, this urban-wildland interface is more or less the boundary between development in the eastern San Gabriel Valley and the natural areas of the Firestone Boy Scout Reservation, with its focal area on Tonner Canyon (also in the Santa Ana River watershed).

From the crossing of Fullerton Road, the southern SEA boundary encompasses the naturally-vegetated central ridgeline of the Puente Hills, and extends south along the west side of Harbor Boulevard to include natural area around a wildlife passage tunnel under Harbor Boulevard. This tunnel was constructed by the Puente Hills Habitat Preservation Authority, and its mud floor has many track prints that attest to frequent use by deer and other animals. The tunnel has the ridgeline area on its west side (with scattered residences), and on the east side are a deep canyon with fine riparian oak woodland, hills with scattered oil wells, walnut woodland, and grasslands. The southern boundary includes the canyon, but excludes the hills and grasslands of the oil field that are on the ridgeline and south of the canyon. On the northern slope of the included canyon is the Vantage Pointe development, which is excluded from the SEA. On the east side of the oil field, the southern SEA boundary trends southeast along natural vegetation boundaries to the Orange-Los Angeles County line. At the Orange-Los Angeles County line, the SEA borders the development in the City of Brea in Orange County for a short distance, and continues through grassland and chaparral to cross the State Route-57 into walnut woodlands, southern oak woodland, chaparral, coastal sage scrub, and riparian woodlands of Tonner Canyon on the Firestone Boy Scout Reservation. Tonner Canyon is in the Santa Ana River watershed, and the ridge separating Brea and Tonner canyons is generally considered the divide between the Puente Hills and the Chino Hills. From here the southern SEA boundary continues eastward on the Orange-Los Angeles County line to the three-way junction with the San Bernardino-Los Angeles County line. For its eastern border in the Chino Hills, the SEA boundary turns north and follows along the San Bernardino-Los Angeles County line to contact with the northern boundary. In Orange County, south of the Orange-Los Angeles County line, is the Chino Hills State Park, with grasslands, chaparral, and riparian oak woodlands that extend across into the Firestone Boy Scout Reservation.

Critical habitat for the coastal California gnatcatcher is generally coincident with the SEA in the

western part of the SEA, but has lobes and fingers that extend into development areas where the preferred natural habitat of the gnatcatcher, coastal sage scrub, coexists with less dense residential areas. East of Fullerton Road, the gnatcatcher critical habitat differs from the SEA. Gnatcatcher critical habitat narrowly includes the Harbor Boulevard wildlife passage tunnel, goes on the south side of the Vantage Point exclusion area, and trends into Orange County on the eastern side of the oilfield that borders the Vantage Point development. There is a small area of gnatcatcher critical habitat in the Firestone Boy Scout Reservation in the County that connects to the large area of critical habitat in Orange County and the Chino Hills.

The majority of the SEA lies within unincorporated County jurisdiction. Other local jurisdictions have also been included within the SEA in order to delineate the boundaries of functioning habitat units. These include the City of Diamond Bar, the City of Industry, the City of La Habra Heights, the City of Montebello, the City of Pico Rivera, the City of South El Monte, and the City of Whittier.

Wildlife Movement

Evidence of significant wildlife movement throughout the Puente Hills SEA has recently been documented in a two year carnivore study commissioned by the Santa Monica Mountains Conservancy as part of a multi-jurisdictional effort to establish a region wide wildlife movement linkage. Additional studies on wildlife movement through the area include several focusing on the Harbor Boulevard and Colima Road Underpasses. These studies can be accessed at the following link: http://www.habitatauthority.org/studies. This SEA represents the County portion of a continuous series of natural open space within the Puente Hills and Chino Hills. Overall, this open space extends north and west from State Route 91 (SR-91) in Orange and Riverside Counties to the Whittier Narrows reach of the San Gabriel River. The open space physically links the Puente/Chino Hills with the Santa Ana Mountains and the San Gabriel Mountains, respectively. By virtue of these linkages and a complex of interconnected habitat units throughout the hills, the Puente/Chino Hills function as both an important wildlife linkage and resident habitat area for regional wildlife populations.

Within the SEA itself several habitat units, well defined by major canyons, exist. These include Sycamore Canyon, Turnbull Canyon, Powder Canyon, Brea Canyon and Tonner Canyon. Each of these, in and of themselves, is capable of supporting a diversity and abundance of wildlife. More importantly, however, these habitat units are connected by a series of open space corridors, which allows population exchange to occur. Maintenance of biological diversity and population viability is accorded throughout the SEA and the chance of local species extinctions due to isolation is minimized. This function is acutely important for wide-ranging species that meet their breeding and/or habitat requirements over broad areas.

Although several major arterial roads and highways cross the hills, continued use of undercrossings and surface crossings by wildlife has been documented. This movement is largely east-west trending between large habitat blocks located in the western, central and eastern portions of the SEA. Species documented as moving through the area include bobcat, coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), and mule deer (*Odocoileus hemionus*).

Regional Biological Value

The SEA meets several SEA designation criteria that consider regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE PUENTE HILLS SEA

	Criterion	Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The population of the California gnatcatcher at the Montebello Hills is probably one of the largest single populations in the U.S. Pairs occur throughout the County portion of the Puente Hills, especially in Sycamore Canyon and Arroyo San Miguel. The coastal cactus wren has significant populations in the Puente Hills, occurring in the Montebello Hills, Sycamore Canyon, Rose Hills, Hellman Park in Whittier, and through Hacienda Heights into Rowland Heights. Several CNPS-Rare plants occur in the Puente Hills, including Weed's mariposa-lily.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Several plant communities within this SEA are CDFW highest priority communities due to their restricted distribution in the Southern California region. These communities include walnut woodland, which is scattered throughout this SEA: oak riparian woodland, which is best developed in the major drainages of Sycamore Canyon, Turnbull Canyon, Powder Canyon, Brea Canyon, and Tonner Canyon, but is found elsewhere; stands of southern willow scrub along many of the drainages; scattered freshwater marsh; and coastal sage scrub, which is found in scattered patches over hillsides throughout.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	All of the plant communities and habitats mentioned above as being restricted in distribution on a regional basis are also restricted in distribution within the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	This SEA represents the only large complex of multiple, relatively undisturbed habitats in southeastern portion of the County. It is regionally important to many resident species, as well as migrating species, which would otherwise not be able to meet their habitat requirements. In particular, large mammal and overwintering birds of prey and songbirds make use of this area.The Puente Hills are a well known migration corridor for migratory songbirds during spring migration (April and May). On foggy May mornings, the hilltops can support hundreds of individual migrant songbirds, which forage actively in all available habitats.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The Puente Hills represent the clear northern edge of the Peninsular Ranges. For this reason, taxa such as red diamond rattlesnake, occur here at the edge of their range, where they co-occur with the more widespread Pacific rattlesnake. Several bird species extend west through the Puente Hills into the Los Angeles Basin and the Whittier Hills (Oak Titmouse, Grasshopper Sparrow). These species are absent from the floor of the Los Angeles Basin. The Whittier Narrows Nature Center provides the public with extensive information and opportunities for field study of the Whittier Narrows natural

Criterion		Status	Justification
			environment.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Both the oak woodlands and walnut woodlands within this SEA represent excellent relatively undisturbed examples. The walnut woodlands in this area are reported to be the best remaining stands south of Ventura County.

In conclusion, the area is an SEA because it contains A) habitat of core populations of endangered or threatened plant species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) populations of scientific interest because they are at range extremes and intermix with species from other areas with known examples of reptiles and birds; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Rio Hondo College Wildlife Santuary SEA

Boundary and Resources Description

The Rio Hondo College Wildlife Sanctuary SEA is located on the western edge of the Puente Hills near the San Gabriel River, within the City of Whittier, and south of the Interstate-605.The SEA is the designated a Wildlife Sanctuary of the Rio Hondo College in the northern and eastern part of the campus, and is currently used as a study area by the students and faculty of Rio Hondo College.The SEA includes natural areas bordering two ridgelines—one impacted by transmission line installation and the maintenance roads, and the other with substantially natural areas.Between the two ridgelines is an intermittent drainage with riparian elements.The area includes good examples of riparian woodland, chaparral, oak woodland, coastal sage scrub, and chaparral communities.The entire unpaved campus area is designated critical habitat for the federally-threatened coastal California gnatcatcher (*Polioptila californica californica).*

The SEA is located within the El Monte United States Geological Survey (USGS) 7.5' California Quadrangle.

The SEA boundaries have a roughly triangular shape. The northern boundary begins in an arroyo with walnut woodland toward the west end of the North Entry Road, and goes southeastward along the border of natural habitat, passing the justice buildings near the bottom of the transmission line ridge. The boundary continues along the base of the ridge to the border with the Rose Hills Memorial Park.On the east side, the boundary tracks the edge of the Rose Hills Memorial Park peripheral road towards the southeast, including a slope of probable restored white-sage scrub.Where the peripheral road meets the crest of the southern ridge, the boundary turns northwest and goes along the southern ridge top, countinues down off the ridge northwestward around the Rio Hondo College campus parking lots and buildings to connect with the small walnut woodland.

The northern ridge primarily contains non-native grassland, with a strong component of introduced

mustards, but also a strong component of scattered native chaparral shrubs, such as elderberry (*Sambucus* spp.), sumacs (*Rhus* spp.); and in the ravines, dense growths of large chaparral shrubs,including coast live oak (*Quercus agrifolia*).Some of the slopes on the north ridge have prickly-pear shrub. The watercourse between the ridges is riparian with plants, such as mulefat (*Senecio douglasii*) and coyote bush (*Baccharis* spp.). The ravines on the north face of the southern ridge that border the watercourse have fine oak woodland, cherry woodland, and walnut woodland at the upper ends.The SEA provides examples of many of the common and cherished natural habitats of the County for study.Sign of coyote (*Canis latrans*), fox (probably *Urocyon cinereoargenteus*) and bobcat (*Lynx rufus*) can be noted while walking the transmission line northern ridge. The biotic communities within the SEA contain a variety of plant life and an abundant fauna.

Due to location near the extreme northwestern end of the Peninsular Ranges, the SEA is an excellent place to observe the geographical range variability of a number of species that are characteristic of the mountains to the south, and have their northernmost occurrences in the Puente Hills, such as the red diamond rattlesnake (co-occurring with the Pacific rattlesnake).

Wildlife Movement

The SEA is located in an area of potentially low to moderate value with regards to regional and local terrestrial wildlife movement. The Interstate-605 and industrial development that borders the freeway serves as a barrier for wildlife movement. The SEA is a gateway area for connectivity between the Peninsular Ranges of Southern California and the Transverse Ranges to the north.Naturally, they are connected by use of wildlife, particularly birds, insects, and plant propagules that are found along the San Gabriel River and Rio Hondo, which are only a 0.5 mile to the west of the Rio Hondo College.The San Gabriel River is designated by Audubon California as a State Important Bird Area (IBA), and extended arms of Semi-Natural habitat are important to connectivity for wildlife of the area and the region.Wildlife species could potentially use the SEA and possibly the ornamentally landscaped areas to facilitate movement and provide access to natural resources located in the Puente Hills.A wide variety of wildlife use linkages throughout the SEA from the extreme southeast up to the Rio Hondo College Wildlife Sanctuary, including mountain lion (*Puma concolor*) and a number of medium-sized mammals.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE RIO HONDO WILDLIFE SANCTUARY SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The SEA is critical habitat for the coastal California gnatcatcher.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either	Not Met	The SEA contains walnut woodland, which is restricted in distribution in the region of Southern California.

	unique or are restricted in distribution.		
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	The SEA contains walnut woodland, which is restricted in distribution in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	This SEA is located on the eastern upland area of the San Gabriel River and is considered critical habitat for connectivity of the coastal California gnatcatcher. The largest population of the gnatcatcher in the County is on the west side of the San Gabriel River and the Interstate-605. Critical habitat in the SEA is on the east side of the San Gabriel River and the Interstate-605. The SEA is an arm extending to the rest of the gnatcatcher critical habitat and connecting to the rest of the Puente Hills SEA. TheSEA is an important connecting and migration area for plants and wildlife of the Puente-Chino Hills of the Peninsular Ranges.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The SEA is part of the education network of the public community colleges of the Los Angeles area.The area is used by the college for scientific study and research on native wildlife and plants.The college maintains field records on the biotic resources of the area.The SEA is relatively undisturbed. As a “choke point” for the wildlife corridor, it is an important area of research and study of connectivity.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	NotMet	The SEA has little disturbed areas, as well as recovering natural habitat.

In conclusion, the area described is an SEA because it contains A) core habitat for a threatened species; D) is an important choke point in a significant migration and connective corridor of the County and the region of Southern California; and E) is an important resource to the education community of the County because of its connective status and its natural and recovering habitats.

San Andreas SEA

Boundary and Resources Description

The San Andreas SEA is located in the western portion of the Antelope Valley in an unincorporated area of the County. The SEA is the second largest SEA and includes many diverse habitats. This is in large part due to the northwestern area being a meeting place for several diverse biomes and wildlife corridors. There are five ecoregions that meet in this area and have biological species that extend along the SEA and San Andreas Fault in the County. These ecoregions include California Coastal Mountains; California Central Valley; Tehachapi Mountains, which extend to the southern Sierra Nevada; San Gabriel Mountains, which extend to other ranges in the Transverse Ranges; and the Antelope Valley, which is the western limit of the Mojave Desert. Wildlife corridors extend along

the courses of the mountain ranges, as well as along the San Andreas Fault and Garlock Fault, which provide a great variety of habitats and frequent emergent water that is important for wildlife, plant movement and connectivity. The location and orientation of the SEA coincides with a segment of the San Andreas Fault Zone. The SEA includes a small portion of the western south-facing Tehachapi foothills, which are known for wildflower field displays in years of good rainfall. The SEA extends east and south across grasslands at the western tip of the Antelope Valley, and includes Quail Lake, a sag pond enhanced to receive water from the West Branch of the California Aqueduct. From Quail Lake, the SEA extends up the northern foothills of Liebre Mountain, Sawmill Mountain, and includes Portal Ridge; large portions of Leona Valley; Ritter Ridge, Fairmont and Antelope buttes; and portions of Anaverde Valley. It also includes a disjunct area that encompasses water bodies along the fault, Lake Palmdale, and Una Lake, with a terminus at Barrel Springs.

The Antelope Valley and adjacent desert slopes of the SEA are recognized by Audubon California as the Antelope Valley (Lancaster) Globally Important Bird Area (IBA). Near Lake Palmdale in the disjunct eastern section of the SEA is part of the Antelope Valley (Lancaster) IBA and near Barrel Springs is part of the Santa Clara River IBA.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Frazier Mountain, Lebec, La Liebre Ranch, Neenach School, Fairmont Butte, Little Buttes, Black Mountain, Liebre Mountain, Burnt Peak, Lake Hughes, Del Sur, Lancaster West, Sleepy Valley, Ritter Ridge, and Palmdale.

The northwestern tip of the SEA encompasses south-facing foothills at the western end of the Tehachapi Mountains, in the northwest corner of the County, on the eastern side of Tejon Pass.

From the Tehachapi Foothills, the southern boundary goes south-southeast along Interstate-5, including much of Peace Valley in the Gorman area, which is the broad faulted area that includes Gorman Creek. The SEA boundary crosses the Western Branch of the California Aqueduct, which is south of the junction of Interstate-5 and State Route-138. The boundary continues south along Interstate-5 until the point where the Liebre Mountain ridgeline dips to the highway, and the SEA boundary turns eastward and follows the ridgeline along the northern side of Liebre Mountain.

Along this section of Interstate-5 are several large underpasses for stream courses that are extremely important for wildlife connectivity across Interstate-5. The Angeles National Forest boundary is just east of the highway, and south of the aqueduct. Just north of the Liebre Mountain ridgeline, the San Andreas SEA borders the north, east, and south sides of the eighth unit of the Joshua Tree Woodlands SEA. This woodland is in an unnamed arroyo, and contains a population of the clonal growth form that Joshua trees (*Yucca brevifolia*) exhibit in colder and more fire-prone areas, sometimes referred to as *Yucca brevifolia* var. *jaegeriana*. The woodland is located near the westernmost limit of the range of the species, with a small number of stands and individuals known west of the Interstate-5. The SEA includes the northern slope area of the Angeles National Forest with its diversity of chaparral, grasslands, and oak and conifer forests.

After turning east from Interstate-5 and climbing uphill on the northern slope of Liebre Mountain, the SEA boundary crosses the ridgeline to the south to incorporate natural pristine areas of headwaters for all the branches of Liebre Gulch, which are part of the headwaters for Piru Creek, the largest tributary of the Santa Clara River in Ventura County. The SEA boundary returns to the north face of Liebre Gulch in the vicinity of Sandberg. The boundary tracks the Sawmill Mountain-Maxwell Road, along the broad ridgeline of the mountains and generally trends in a southeasterly direction. This

ridgeline is the headwaters of Castaic Creek, which is the largest tributary of the Santa Clara River in Los Angeles County. Castaic Creek is above the Castaic Reservoir, which extends into Cienega Canyon and Fish Creek, which is federally-designated critical habitat for the endangered arroyo toad (*Anaxyrus californicus*). In addition, maintenance of clean water in the source areas is critical for the species.

The boundary turns northeast where it meets Lake Hughes Road. This is an extremely important area of connectivity as the canyon along the Lake Hughes Road (Elizabeth Lake Canyon) drains to Castaic Creek and the Santa Clara River, whereas the Amargosa Creek that goes east and west from the Lake Hughes Road in the fault valley drains to the Antelope Valley in both directions. The junction is topographically broad and well-vegetated though residential, which is excellent for wildlife connectivity in spite of a few houses.

The SEA boundary goes north at the junction with Lake Hughes Road and then skirts the Lake Hughes community's extension into Pine Canyon along the San Andreas Fault. In Pine Canyon, the boundary turns north and returns to its southeasterly direction, skirting the Lake Hughes development along the southern edge of Portal Ridge. Portal Ridge is entirely included in the SEA. A side extension of the southern boundary includes Lake Hughes, which is important for migrating waterfowl, with its sheltered position in the Fault valley. The boundary extends along the southern edge of Lake Hughes, Munz Lake, and Elizabeth Lake, and then trends southeast to go along the Leona Divide, including a large portion of Leona Valley.

The entire area along the San Andreas Fault is rich in wetlands and bogs, but Leona Valley has these in abundance, even in many yards. All of the wetlands in the San Andreas Fault valley and Portal Ridge are home to the greatest concentration of the tricolored blackbird in Southern California, many of which are year-round residents. This bird species has experienced great population declines in recent years and is proposed for listing at both state and federal levels. In the community of Leona Valley, the southern SEA boundary goes along Lost Valley Creek and then along Leona Road to exclude some of the denser residential area in this section. The included area in Leona Valley has many of the bogs that line the Fault and the less populated farm areas along Portal Ridge north of Leona Road.

North of the Bouquet Canyon watershed, the southern SEA boundary dips south around an expansive area of drainages and bogs used by the tricolored blackbird on the old Ritter Ranch. From Ritter Canyon to the east, the boundary follows the old Ritter Ranch high road along the Sierra Pelona, crosses from 40th Street to the California Aqueduct along vegetation in the Anaverde Valley (where the boundary transitions from the Amargosa Creek drainage to the Anaverde Creek drainage), and then follows the aqueduct to the area where Anaverde Creek exits from the Fault valley. At the Lancaster Landfill boundary, the SEA boundary goes north and becomes the north SEA boundary at Verde Point.

The northern boundary of the SEA begins at Tejon Pass next to Interstate-5 and follows the Kern-Los Angeles County line eastward to its intersection with the western branch of the California Aqueduct in the western Tehachapi Foothills. This area along the Kern-Los Angeles County line is coincident with the designated critical habitat for the federally-endangered California condor (*Gymnogyps californicus*), which is a bird that nearly went extinct and was saved by prodigious efforts in captive breeding. The boundary then generally follows the Tehachapi foothills southward to Quail Lake. Here the northern SEA boundary crosses Highway 138 to include the northern foothills

of the liebre Mountains and fallow agricultural fields, which are important for raptor foraging. These fields are often oriented along the Los Angeles Aqueduct, which is a little south of the California Aqueduct in this area, or along the California Aqueduct itself.

The boundary eventually tracks along the northeast edge of Fairmont Reservoir (another breeding site for the tricolored blackbird), and turns northeast to include a patchwork of farmed areas between the Fairmont and Antelope buttes, which are known to have tricolored blackbird feeding grounds. The boundary makes an inclusive path to encompass the Broad Canyon Wash, the Fairmont and Antelope buttes, and the Antelope Valley California Poppy Reserve State Natural Reserve. These desert buttes are concentrated wintering grounds for birds of prey, and provide roosting sites that are surrounded by cultivated fields that support a plentiful food supply of rodents, rabbits, and hares. They are the most westerly buttes in the Mojave Desert, and with their proximity to the San Gabriel Mountains, have unique ecological relationships of scientific interest. Near the southern area of the buttes, the boundary follows agricultural fields along 130th Street West and then 135th Street West south to Munz Ranch Road (Willow Springs Road on some maps). Along 135th Street West, the boundary crosses Myrick Canyon where it spreads out onto the plain of the desert floor. The upstream areas of Myrick Canyon are included in the SEA.

The boundary tracks along the northwest side of Munz Ranch Road and then crosses to include Willow Springs Canyon, where Willow Springs Canyon is in its most undisturbed state. Where Willow Springs Canyon crosses the California Aqueduct, the northern SEA boundary turns east along the California Aqueduct as it passes along the northern base of Portal Ridge. Following the southern edge of the California Aqueduct, the boundary continues in a southeasterly direction to the east side of Ritter Ridge to Leona Siphon. A development along Joshua Tree Ranch Road near the summit of Ritter Ridge is excluded from the SEA. The SEA northern boundary turns east for roughly one quarter mile along the southern edge of a tributary to Amargosa Creek. Where the Amargosa Creek terminates Ritter Ridge, the SEA boundary crosses the creek and ascends along the ridgeline of an unnamed ridge to where it meets the southern boundary at Verde Point.

East across the State Route-14 is a disjunct part of the SEA that incorporates Lake Palmdale and Una Lake and extends along the Fault to 37th Street East, including the ridgelines north and south of Barrel Springs Road, which includes the sag ponds or Barrel Springs. The Palmdale Ditch is included in this part of the SEA. Many migrant birds using the desert water features can be observed at these artificial lakes and the natural springs of this area during the spring and fall migration.

The gap between the two portions of the SEA includes the Antelope Valley Landfill, disturbed lots, and State Route-14.

The majority of land within the SEA lies within unincorporated area of the County. Other jurisdictions include the Angeles National Forest, the City of Palmdale, and the City of Lancaster.

Wildlife Movement

The SEA includes several important linkages for wildlife movement. The foothills in the western-most part of the SEA are an important linkage between the San Gabriel Mountains, the Tehachapi Mountains, and the Coastal Ranges. This linkage to the Tehachapi Mountains is important because they connect to the southern-most extent of the Sierra Nevada Mountains. The Tehachapi Mountains represent the only mountain linkage from the Transverse Ranges and the Coast Ranges to the Sierra Nevada Range. This feature may be an important topographic reference for migrating

birds, as well as providing high elevation foraging grounds along the migratory route. The several ranges that meet at the western end of the SEA, provide a valuable link for gene flow between divergent subspecies, varieties, and populations of many species. The SEA includes numerous drainages that extend onto the Antelope Valley floor towards resources, such as the Fairmont and Antelope buttes. These washes provide an important linkage for animals traveling between the Valley floor, the buttes and the western part of the San Gabriel Mountains. In addition, Anaverde Creek, Amargosa Creek, and Pine Canyon facilitate east-west wildlife movement through the mountains, Portal Ridge, and Ritter Ridge. Tributary drainages from the Santa Clara River, such as Elizabeth Lake Canyon and San Francisquito Canyon, connect coastal drainages and the coastal ecoregion to the Fault and interior watersheds. The frequency of valuable riparian communities along this travel route, which are located within an otherwise arid climate, further contributes to the SEA's importance for wildlife and habitat linkages in the region.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE SAN ANDREAS SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not met Met in Future?	Although there are several listed species that occur within the SEA, this criterion is not met due to the lack of known core population areas. The far northwestern border with Kern Countyis the edge of critical habitat for the California condor. The tricolored blackbird may soon be listed and has its largest population in Southern Californiawithin the SEA.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The SEA encompasses a series of marshes and sinks concentrated along the San Andreas Fault Zone, which are both unique and restricted in distribution. The Fairmont and Antelope buttes represent a unique habitat due to their location, as the most westerly buttes of the Mojave Desert and their close proximity to several geographic regions. As the confluence of a number of major geographical areas, the Mojave Desert, the San Gabriel Mountains of the Transverse Ranges, the Coastal Ranges, and the Tehachapi Mountains produces a unique and regionally rare flora that represents a transition between desert, foothill, and several montane environments.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The confluence of five major geographical areas–the Mojave Desert, the San Gabriel Mountains, the Coastal Ranges, the Tehachapi Mountains, and the Central Valley–has produced the most unique and diverse flora found in the County, and represents a transition between desert, foothill, and montane environments. The SEA also includes the southern limit of the foothill woodland community, blue oak, gray or foothill pine,

	Criterion	Status	Justification
			and California buckeye, rare relic stands of Great Basin sagebrush scrub, and rare wildflower fields.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The Fairmont and Antelope buttes provide vital habitat to many wide ranging species, which forage in outlying habitat, but use the buttes for nesting, roosting, denning, and refuge. The buttes also serve as concentrated wintering grounds for birds of prey, which are rare in the County, and which forage on grassland and agricultural fields in the vicinity. Lakes and other wetland areas along the Fault and throughout the SEA provide breeding habitat for amphibians and feeding habitat for migrating birds that traverse the slopes adjacent to the Mojave Desert. The Fault is one of the principle wildlife corridors and connective areas for in the County. Major drainages (Santa Clara River, San Francisquito Canyon, and Lake Elizabeth Canyon) run from the coast through the San Gabriel Mountains and end at the Fault, which also has extensive riparian habitat that facilitates migration. The Fault provides the final westernmostlinkage to the Mojave Desert (Antelope Valley). The tricolored blackbird is a year-round resident of the SEA.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The transition of several habitat types including creosote bush scrub, Joshua tree/California juniper mixed woodland, and desert chaparral, makes the SEA valuable for educational and scientific reasons. The close proximity of the Fairmont and Antelope buttes to the San Gabriel Mountains renders them unique in their species composition and ecological relationships and, therefore, of interest to scientists. The concentrated diversity of vegetation types, particularly in the western half of the SEA, creates an outstanding opportunity for educational use. This area also harbors the southern limit of the foothill woodland community, blue oak, gray or foothill pine, and California buckeye, as well as rare relic stands of great basin sagebrush scrub.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The slopes of Ritter Ridge support one of the most pristine mixed stands of Joshua tree and California juniper in Los Angeles County. The location of theSEA at the confluence of five major geographical areas, the Mojave Desert, the Central Valley, the San Gabriel Mountains of the Transverse Ranges, the Coastal Ranges, and the Tehachapi Mountains has produced a community-rich area with desert, foothill, and montane environments. The SEA encompasses large, mostly undisturbed examples of all of these communities.

In conclusion, the area is an SEA because it contains B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, and migrating grounds, which are limited

in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

San Dimas Canyon and San Antonio Wash SEA

Boundary and Resources Description

The San Dimas Canyon and San Antonio Wash SEA is located along the cismontane foothills of the eastern San Gabriel Mountains. Generally, the SEA is centered on the mouths of four major canyons, which flow from the mountains and interconnecting terrain. From east to west, these canyons include San Antonio Canyon above the City of Claremont as one component; and Live Oak, Marshall, and San Dimas canyons above the cities of La Verne and San Dimas as a second component. The SEA incorporates areas with diverse natural habitat ranging from high elevations to the foothill alluvial areas of two of the major drainages of the San Gabriel Mountains. San Dimas Canyon is a tributary of the San Gabriel River. San Antonio Wash is a tributary of the Santa Ana River.

The SEA is found within the Mount Baldy and Ontario U.S. Geological Survey (USGS) 7.5' California Quadrangles.

Over most of its boundaries, particularly to the north, east, and west of both the San Dimas Canyon and San Antonio Wash components, the SEA is bordered by open space within the Angeles National Forest. Generally to the south, however, the borders are mostly defined by the edge of urban development within the San Gabriel Valley. The San Dimas Canyon component covers approximately 5,500 acres and includes portions of Live Oak, Marshall, and San Dimas canyons.The smaller component, San Antonio Canyon, covers approximately 1,200 acres of the San Antonio Canyon alluvial outwash.In total, this SEA encompasses 6,727 acres.

In general, the topography of the SEA is severe, consisting of steep-walled canyons and narrow ridgelines.Elevations range from a high of approximately 3,000 feet above mean sea level (MSL) along the ridges of San Dimas Canyon, to a low of approximately 451 feet above MSL in San Antonio Wash.Several major drainages and numerous tributaries exit the San Gabriel Mountains through this SEA.

The wide range of elevation, topography, slope aspect, and geology represent a wide array of physical habitats within this SEA.Consequently, a number of plant communities exist, including grasslands, riparian, shrublands, woodlands, and forests.Within these major community types, there are many sub-communities, which vary according to plant species dominance.This area contains the last remaining relatively well-developed lower montane riparian habitat in the eastern County. Dammed drainages have created significant reservoirs or flood control basins in the SEA.The SEA is within several jurisdictions including the Angeles National Forest, the unincorporated area of the County, the City of Claremont, the City of Glendora, the City of La Verne, and the City of San Dimas.

The more westerly component of this SEA generally includes portions of the lower watersheds of San Dimas, Marshall, and Live Oak canyons, which is part of the San Dimas Canyon component. The San Dimas Canyon watershed is part of the Experimental Forest section of the Angeles National Forest.Experiments were conducted and data was collected here during the latter half of the 20th century to determine the relationships among rainfall, topography, vegetation, and runoff.

Much of the work and results influenced flood control in the Los Angeles Basin and even other areas of the U.S. The area was carefully protected through very limited and monitored access.The terrain chiefly includes undisturbed natural habitats of rocky canyon walls and canyon forest, riparian areas of many vegetation types, coniferous and oak forest, chaparral, and grassland.A few slopes were altered with vegetation removal in order to experiment on the effect of vegetation, and some of these are still grassland.

This SEA area on the border of the granitic San Gabriel Mountains has unusual rock strata, such as the Glendora Volcanics.Much of the grassland is natural and has unusual vegetation, such as wildflowers that prefer clay substrates.Not too distant from this area arecritical habitat areas for the endangered thread-leaved brodiaea (*Brodiaea filifolia*). Some of these brodiaea and other rare wildflowers could occur in appropriate habitat of the SEA in undiscovered populations.

Beginning at Johnstone Peak in the west, the western boundary follows the ridgeline separating Big Dalton Canyon and San Dimas Canyon. Just before this ridgeline is intersected by Big Dalton Canyon Road, the SEA boundary turns east. From the area of Big Dalton Canyon Road, the northern boundary follows and crosses over a series of ridgelines to include the upper portions of several tributary canyons.It continues in this fashion in a southeasterly direction eventually meeting and following the Sunset Ridge Fire Road (Sunset Peak Motorway), which separates Wolfskill and Marshall canyons.The tributaries San Dimas Canyon include Lodi, West Fork of San Dimas, and San Dimas from near the junction with Wolfskill Canyon. The lower section of Wolfskill Canyon with and below the Wolfskill Falls is included in the SEA. The upper section of Wolfskill is not included in the SEA, but much of Marshall Canyon watershed is included, along with watersheds of Live Oak and Webb canyons in the City of Claremont.

A large lobe of the SEA extends from the Sunset Ridge Fire Road on the dividing ridgeline, to include lush canyon forests and chaparral of the slopes above the City of La Verne and City of Claremont. Most of this lobe is in municipal or private ownership. The Angeles National Forest boundary is about a 0.1 mile south of the Sunset Ridge Fire Road. The eastern boundary leaves the fire road and travels south along a ridgeline, including Live Oak Canyon in the SEA, but separating out the more developed watersheds of Palmer, Cobal, Burbank, and Gail canyons in the City of Claremont.A finger of the SEA includes the lush riparian oak forest of Webb Canyon to the edge of adevelopment.The lobe of the SEA excludes an area around the residences and equestrian areas that surround Live Oak Reservoir.Live Oak Canyon Reservoir and its riparian oak woodland is included as far south as Base Line Road.The ridges and dissected canyons that border Live Oak Reservoir are included as far south as Base Line Road.However, the flat area of the ridge around Live Oak Reservoir and development in the periphery are excluded.The northwestern edge of the lobe includes the riparian area and slopes of Marshall Creek, but excludes developed areas, such as the Marshall Canyon Regional Park and Golf Course.The lobe boundary returns north into the Angeles National Forest at the Sunset Ridge Fire Road along the edge of Marshall Creek and the western ridge of Marshall Canyon.

From Sunset Ridge Fire Road, the southern boundary of the SEA is within the Angeles National Forest and follows the ridgeline that includes the watershed of San Dimas Canyon.The San Dimas Reservoir, with good habitat for waterfowl, is included in the SEA.The SEA extends a finger out of the Angeles National Forest along San Dimas Canyon road to include the riparian habitat along the watercourse, which is a rare example of the lowland riparian community.From the Angeles National Forest boundary and rocky cliffs above the west side of San Dimas Canyon, the SEA boundary

follows the ridge of Lodi Canyon (tributary of San Dimas Canyon) to Johnstone Peak.

The eastern, disjunct segment of the SEA (San Antonio Wash) follows the San Bernardino-Los Angeles County line as its eastern boundary from about a 0.5 mile upstream of the San Antonio Dam through the San Antonio debris basin, past the San Antonio Dam, to the natural extent of alluvial fan vegetation south of the Interstate-210. This is at an area about a 0.1 mile north of Base Line Road.Downstream of the San Antonio Dam has the best example of arroyo or wash vegetation that remains in the County, and it extends onto the adjacent alluvial fan.The vegetation is a dry form of coastal sage scrub, with included desert plants that are adapted to coarse substrate.The vegetation is much more dense and stable than the alluvial fan in the arroyos behind Santa Fe Dam (San Gabriel Canyon SEA) and Hansen Dam (Tujunga Valley-Hansen Dam SEA).From its southern point, the SEA turns north to include the natural alluvial fan vegetation and border on the existing residential development on the alluvial fan.At the intersection of the San Antonio Wash with Mount Baldy Road, the SEA boundary follows the southeast side of Mount Baldy Road to the watershed of Chicken Canyon, which is a tributary of San Antonio Wash.The boundary crosses the road and includes the undeveloped part of Chicken Canyon. The boundary follows the minor ridgeline up to Potato Mountain, and goes along the south ridge of Evey Canyon back to cross Mount Baldy Road and return to the San Bernardino-Los Angeles County line in the San Antonio Debris Basin.Evey Canyon is outside the SEA, but is a preserve of the Claremont Colleges, and has excellent riparian canyon habitat. The SEA designation acknowledges the need to protext the Evey Canyon watershed. Small tributary watersheds of San Antonio Canyon with chaparral vegetation are included with the Chicken Canyon area.

Wildlife Movement

Wildlife movement within the SEA takes on two major forms.First, due to the extreme intervening topography, it is logical to expect considerable movement of wildlife up and down the many sizeable drainages, which course through this SEA and connect the forest interior with foothill areas.The larger the watershed of the drainages, the greater the volume of movement.Consequently, this type of movement occurs on a seasonal and more frequent basis, particularly for large mobile mammals, such as American black bear, mountain lion, coyote (*Canis latrans*), bobcat (*Lynx rufus*) and mule deer (*Odocoileus hemionus*), whose full range of habitat needs are typically met over broad areas.

The second major type of movement occurs across the flanks of the foothills and lower mountains, in an east-west direction.Particularly for riparian-favoring migratory birds, a corridor linking lower elevational riparian habitats in the SEA is expected to be of high use and importance.In addition to providing essential habitat for resident riparian birds, this SEA contains some of the best developed riparian habitat for birds, which are seasonal visitors to the cismontane region of the County.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

Criteria Analysis of the San Dimas Canyon and San Antonio Wash SEA

Criterion	Status	Justification

A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	Although the SEA contains rare plant populations, it does not contain a core population of a listed species and therefore does not meet this criterion. The lower slopes in and around San Dimas Canyon support one of the largest populations of the coastal cactus wren in the County, which is a subspecies that is very threatened throughout its range, although not officially recognized by listing.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The SEA contains habitat of the rare rock monardella.In addition, several plant communities within this SEA are CDFW highest priority communities due to their restricted distribution in the Southern California region, including walnut woodland, oak riparian woodland, southern willow scrub, coastal sage scrub, and alluvial fan scrub.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	All of the plant communities and habitats mentioned as being restricted in distribution on a regional basis, are also restricted in distribution within the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The major canyons within this SEA support well-developed and diverse riparian woodlands, as well as a source of perennial water. These represent important stopover and overwintering areas for a wide variety of migratory birds, as well as essential habitat for resident species of fauna and flora. These canyons also support seasonal and more frequent movement for wide-ranging mammals, which must move over large areas to fulfill their habitat requirements. The federally-threatened California gnatcatcher has been sighted (2010) in the Glendora foothills, and probably maintains a small population along the lowest slopes of the San Gabriel Mountains.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not Met	The SEA does not contain biotic resources that are clearly an extreme in physical/geographical limitations, or represent unusual variation in a population or community, and therefore does not meet this criterion.However, the extreme localization of several species of plants in the SEA may indicate geographical processes that are not well understood at this time that merit scientific inquiry.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Virtually all of the native biotic communities within this SEA are relatively undisturbed over most of their extent. Because urbanization throughout much of the County's foothill regions has removed large expanses of these communities, those in the SEA are particularly important to the County's natural heritage.

In conclusion, the area is an SEA because it contains B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; and F) areas that would provide for the

preservation of relatively undisturbed examples of the original natural biotic communities in the County.

San Gabriel Canyon SEA

Boundary and Resources Description

The San Gabriel Canyon Significant Ecological Area (SEA) is located along the cismontane foothills of the eastern section of these mountains.Generally, the SEA is centered on the mouths of three major canyons, which flow from the mountains and interconnecting terrain. From west to east these include, Santa Anita, Monrovia and Sawpit, and San Gabriel canyons, which are located above the cities of Sierra Madre, Arcadia, Monrovia, Duarte, Bradbury, Irwindale, and Azusa.A substantial part of the eastern and southern part of the SEA along the San Gabriel River is in the Audubon California -designated State Important Bird Area (IBA) of the Los Angeles Flood Control Basin IBA. The San Gabriel River has largely been dammed and channelized, but with infrequent clearing of the detention basins and wash areas, substantial parts of the San Gabriel River have reverted to riparian habitat or the even more rare alluvial fan habitat, and this attracts many resident birds, as well as numerous spring and winter migrants.

The SEA is found within the, Mount Wilson, Azusa, San Dimas, and Glendora U.S. Geological Survey (USGS) 7.5' California Quadrangles.

Over most of its boundaries (north, east, and west), the SEA is bordered by open space within the Angeles National Forest. However, generally to the south, the borders are defined by the edge of urban development within the San Gabriel Valley. The SEA begins in the west at the peak of Mount Wilson within the Angeles National Forest.Traveling east, the northerly boundary follows a major east-west trending ridgeline to Pine Mountain. This ridgeline defines the separation between the watershed of the San Gabriel River West Fork to the north, and the Santa Anita, Sawpit, and lower San Gabriel canyons to the south. These front-range canyons are tributaries of the San Gabriel River.

At Pine Mountain, the boundary turns south to follow the ridgeline that is the western border of the San Gabriel River, and turns east onto a secondary ridge, and descends towards the San Gabriel River near the Morris Reservoir Dam. This easterly boundary crosses the San Gabriel Canyon at Morris Dam and climbs the adjacent ridgeline to Glendora Ridge and the Glendora Ridge Motorway. The southerly boundary follows the motorway to the west, to the point near the mouth of the San Gabriel Canyon where the motorway leaves the ridgeline. The SEA boundary turns north towards the San Gabriel River, and descends to the opening of the San Gabriel Canyon into the Los Angeles Basin. This is between the Glendora Ridge and the mountains near Fish Canyon.The boundary turns along the southeast side of the San Gabriel River floodplain and follows the east side of the San Gabriel River flood control channel.A development near the mouth of Roberts Canyon that is just north of the river mouth has been excluded from the SEA.

In the mouth of the San Gabriel Canyon is a population of the San Gabriel Mountains live-forever (*Dudleya densiflora*), which is unusual in that it has multiple dense flower clusters, whereas other live-forevers have one or several flower stalks with spaced blooms. This live-forever is extremely limited in rangeand occurs only on the slopes of granitic rubble and canyon walls in the nearby south face of the San Gabriel Mountains. Another population is on private land about one mile upstream of the canyon mouth, on the north-side slope of the Glendora Ridge.Another live-forever population is

upstream in nearby Fish Canyon, which is a little downstream of the Fish Canyon Falls. Collections have been made from Mystic Canyon to the east, and Van Tassel Canyon to the west.

The mouth of San Gabriel Canyon and nearby canyons are the principle area for the San Gabriel bedstraw (*Galium grande*), which is another local endemic. The only known populations of the bedstraw and the San Gabriel Mountains live-forever on the planet occur in the County in this small area of the San Gabriel Mountains.

The Los Angeles Flood Control BasinIBA covers all of the SEA in the San Gabriel River and downstream at the Santa Fe Dam Recreation Area. Furthermore, the IBA extends upstream beyond the SEA to the confluence area of the West, North, and East forks of the San Gabriel River in the Angeles National Forest, and it extends downstream beyond Santa Fe Dam to the Whittier Narrows Dam.

A finger of the SEA extends along the San Gabriel River, south of its confluence area with Fish and Van Tassel canyons to pass under the Interstate-210. The finger boundary enlarges around the Santa FeFlood Control Basin and Recreation Area to include one of the last remaining natural alluvial fan habitats in the County. The Santa Fe Flood Control Basin is one of the most unusual vegetation habitats in the County, and has special sensitive species.

The main SEA boundary continues just west of the Van Tassel Canyon confluence along the north side of the Encanto Equestrian Center, along the northern extent of development in the City of Duarte. A lobe of the SEA encloses the natural habitat of the steep watershed areas of Spinks and Maddox canyons, extending to the edge of development in the City of Bradbury. The ridge bordering the southeast side of Bliss Canyon is the western edge of the lobe, and the boundary crosses Bliss Canyon at its upper end near the Van Tassel Truck Trail. At this point the boundary of the SEA has reentered the Angeles National Forest.After crossing Bliss Canyon, the boundary follows the southern ridgeline of Spanish Canyon westward to cross out of the Angeles National Forest, tracking around the northern arm of the City of Monrovia. The Sawpit Debris Basin is included in the SEA as is the undeveloped part of Monrovia Canyon Park. To the west of Monrovia Canyon, a lobe of the SEA extends along the undeveloped ridges of the San Gabriel Mountains bordered by the urban edges of the City of Monrovia and City of Arcadia.These communities extend into the mountains where the cities have municipal water rights. The southern boundary skirts the edge of development in Santa Anita Canyon, but includes the Santa Anita Debris Basin, Arcadia Natural Park, Big Santa Anita Dam and Reservoir, and the Santa Anita Canyon stream course above the Dam, which has numerous lease-hold cabins north of the 1600 feet elevation contour. The boundary reenters the Angeles National Forest just north of Arcadia Natural Park.

The southern ridge of Sawpit Canyon, from its dam to about a 0.5 mile upstream has a population of the endangered San Gabriel bedstraw (*Galium grande)*, which is an endemic species of highly restricted distribution.It occurs only on the south slopes of the western section of the San Gabriel Mountains.

Within the SEA, just to the south of Arcadia Natural Park is a Santa Anita Canyon tributary, Clamshell Canyon. On the south banks and ridge of Clamshell Canyon is critical habitat for the federally-endangered Braunton's milk-vetch (*Astragalus brauntonii*), which is a locoweed that prefers interbedded sandstone and carbonate substrate, probably deposited near the coastline of former oceans. Very limited areas of this substrate occur at the boundary of the San Gabriel Mountains in this area. Most of the rocks of the San Gabriel Mountains are igneous granites and metamorphic

rocks.

Santa Anita Canyon has some stands of Pacific madrone (*Arbutus menziesii*), which is a plant known elsewhere from the Pacific coast north of Santa Barbara to British Columbia. The Santa Anita stands are isolated occurrences, which is one of the few places madrone is found between Santa Barbara and Baja California.

Near the confluence with Winter Creek in the vicinity of Chantry Flats, the southern boundary of the SEA turns west and climbs the southern ridgeline of Winter Creek, including Winter Creek watershed in the SEA and excluding San Olene Canyon on the south. The boundary follows the ridgeline, marking the southern limits of the Winter Creek watershed to Mount Harvard, and then travels along the Harvard ridgeline to Mount Wilson.

The SEA is comprised of three major canyons: San Gabriel, Sawpit, and Santa Anita. In general, the topography of the SEA is severe, consisting of steep-walled canyons and narrow ridgelines. Elevations range from a high of approximately 5,710 feet above mean sea level (MSL) at Mount Wilson, to a low of approximately 660 feet above MSL in San Gabriel Canyon. Numerous drainages and tributaries of the main canyons are included in the SEA and exit the San Gabriel Mountains into the Los Angeles Basin through this SEA.

The wide range of elevation, topography, slope aspect, and geology represent a wide array of physical habitats within this SEA.Consequently, a number of plant communities exist, including grasslands, riparian, shrublands, woodlands, and forests. Within these major community types, there are many sub-communities, which vary according to plant species dominance. Of particular note, this SEA contains the last remaining relatively well-developed lower montane riparian habitats in the eastern County and dammed drainages that have created significant reservoirs or flood control basins in Sawpit and Santa Anita canyons. Enclaves of sensitive plant species and vegetation habitats are found here.Other jurisdictions within the SEA include the unincorporatedarea of the County, the City of Arcadia, City of Monrovia, City of Bradbury, City of Irwindale, City of Duarte,City of Azusa, and the City of Glendora.

Wildlife Movement

Wildlife movement within the SEA takes on two major forms.First, due to the extreme intervening topography, it is logical to expect considerable movement of wildlife up and down the sizeable drainages, which course through this SEA to connect the forest interior with foothill areas.Consequently, this type of movement occurs on a seasonal and more frequent basis, particularly for large mobile mammals whose full range of habitat needs are typically met over broad areas, including American black bear, mountain lion, coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), gray fox (*Urocyon cinereoargenteus*) and other medium-sized mammals.

The second major type of movement occurs across the flanks of the foothills and lower mountains, in an east-west direction. Particularly for riparian-favoring migratory birds, a corridor linking lower elevation riparian habitats in the SEA is of high use and importance. In addition to providing essential habitat for resident riparian birds, this SEA contains some of the best developed riparian habitat for birds, which are seasonal visitors to the cismontane region of the County.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE SAN GABRIEL CANYON SEA

	Criterion	Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The SEA contains a core habitat area for the endangered plant Braunton's milkvetch. The upper San Gabriel River is a core habitat of several native fishes, one of the last areas where three of five original natives occur together: federally-threatened Santa Ana sucker, and the arroyo chub and Santa Ana speckled dace, which is of state concern. All three live in the San Gabriel River in the SEA area. A local population of the speckled dace is known from the mouth of Fish Canyon. The very rare San Gabriel bedstraw and San Gabriel Mountains live-forever only occur in this area of the world.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The SEA contains habitat of extremely rare plants: San Gabriel bedstraw and the San Gabriel Mountains dudleya. In addition, several plant communities within this SEA are CDFW highest priority communities due to their restricted distribution in the Southern California region. These communities include walnut woodland, oak riparian woodland, southern willow scrub, coastal sage scrub, and alluvial fan scrub. The federally-endangered California gnatcatcher has been recently sighted in the Glendora foothills, and probably maintains a small population along the lowest slopes of the San Gabriel Mountains.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	All of the plant communities and habitats mentioned as being restricted in distribution on a regional basis, are also restricted in distribution within the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The three major canyons within this SEA support well-developed and diverse riparian woodlands, as well as year-round water sources. These represent important stopover and overwintering areas for a wide variety of migratory birds, as well as essential habitat for resident species. These canyons also support seasonal and more frequent movement for wide-ranging mammals, which must move over large areas to fulfill their habitat requirements.
E)	Biotic resources that are of scientific interest because they are either an extreme in	Met	The SEA contains biotic resources that are of scientific interest for their very restricted distributions: Braunton's milkvetch San Gabriel bedstraw, San Gabriel Mountains live-forever, and a

Criterion		Status	Justification
	physical/geographical limitations, or represent unusual variation in a population or community.		local isolated population of Pacific madrone. The population of Santa Ana speckled dace in Fish Canyon may be the remaining extreme western extent of its population.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Virtually all of the native biotic communities within this SEA are relatively undisturbed over most of their extent. Because urbanization throughout much of the County's foothill regions has removed large expanses of these communities, those in the SEA are particularly important to the County's natural heritage.

In conclusion, the area is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, and migrating grounds, which are limited in availability in the County; E) populations of scientific interest because of very restricted distributions and isolated populations; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Santa Clara River SEA

Boundary and Resources Description

The Santa Clara River SEA extends along the entire County reach of the Santa Clara River, primarily within unincorporated areas of the County. The SEA encompasses a wide variety of topographic features and habitat types, as well as major tributaries—all of which contribute to this diversity. It is a major biotic corridor for the County (and Ventura County). The orientation and extent of the SEA depends upon the surface and subsurface hydrology of the Santa Clara River, from its headwaters, tributaries, and watershed basin, to the point at which it exits the County's jurisdiction. Nearly all of the SEA is designated by Audubon California as a Globally Important Bird Area (IBA). The Santa Clara River IBA extends beyond the SEA in both upstream and downstream directions (across Soledad Pass to the Barrel Springs area in the Antelope Valley and through Ventura County to the mouth of the River at the Pacific Ocean).

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles:Pacifico Mountain, Acton, Agua Dulce, Sunland, San Fernando, Mint Canyon, Oat Mountain, Newhall, and Val Verde.

The SEA covers a wide variety of topographic features and habitat types, including parts of the watershed tributaries. The biological and ecological functionality of the SEA is integrally linked to the Santa Clara River basin for its entire length. The bio-geographic limits of the SEA would extend downstream through Ventura-Los Angeles County line to its mouth at the Pacific Ocean, and encompass significant tributary drainages of Ventura County (Piru Creek, Sespe Creek, Santa Paula Creek, Wheeler Creek, etc.).

The eastern portion of the SEA follows natural contours at the headwaters of the watershed to

incorporate much of upper watershed of Soledad Canyon (which becomes the Santa Clara River), the Kentucky Springs and the Aliso Canyon basins, and the downstream unnamed tributaries of the Santa Clara River to Arrastre Creek.This includes the watershed southern headwater areas within the Angeles National Forest.The headwaters of both Kentucky Springs and Aliso Canyon are in the Angeles National Forest, in semi-arid chaparral and desert scrub habitat; however, the drainages themselves support vegetation of desert and interior riparian habitat, which ranges from Great Basin sagebrush in Kentucky Springs Wash to dense, mature, willow-cottonwood-sycamore woodlands along permanent streams in Aliso Canyon. The surrounding uplands in the basins support pinyon-juniper woodlands, chamise, mountain mahogany, and manzanita-dominated chaparral, buckwheat scrub, and ruderal lands.The alluvial plain formed along the southern margin of the Santa Clara River basin below these canyons supports intact, high diversity xeric alluvial fan sage scrub. Alluvial terraces within both drainages have been extensively cultivated for orchard crops and dryland agriculture, and in more recent years, rural and urban-type residential developments have encroached on the watersheds. The Kentucky Springs basin has a large population of Parish's Great Basin sagebrush (*Artemisia tridentata* ssp. *parishii*), which is considered rare and sensitive in the County. A population of the federally-threatened red-legged frog (*Rana draytonii* FT, SC) is known to inhabit and breed in the Aliso Canyon watershed. Blum Ranch and another area on Aliso Canyon Road are disturbed, with farming development, but important to continuity of the SEA. The Santa Clara River IBA extends in a branch upstream to include Blum Ranch.

The boundary follows the Santa Clara River channel downstream through the Acton basin, paralleling Soledad Canyon Road on the north side, following the toe of the slope of the San Gabriel Mountains to the south. Boundaries continue along the channel margins to the southwest from Acton to Arrastre Creek, where the southern boundary follows watershed contours to take in four upper tributary channels (Arrastre, Moody, and Bootleggers). Downstream from Acton, there are developed areas as along the Santa Clara River. From a little upstream of the Arrastre Creek confluence to a little downstream in the vicinity of the railroad stop of Lang (about 13 miles of river), the floodplain of the Santa Clara River is designated critical habitat for the federally-endangered arroyo toad (*Anaxyrus californicus*). Some of the confluence area of Mill Canyon is also critical habitat for the arroyo toad. Part of the area of critical habitat for the toad was also proposed as critical habitat for the state and federally-endangered unarmored threespine stickleback (*Gasterosteus aculeatus williamsoni*), which is a small three-inch fish that essentially only occurs in the County. It once was widespread throughout the Los Angeles Basin and beyond, but is now restricted to the upper Santa Clara River. The proposal for critical habitat was never approved, and this is now referred to as "essential habitat" for the fish.The type area for the fish is the Arrastre Creek, where it was first collected and described with a museum specimen.

The habitat along the Santa Clara River supports the largest community of riparian-obligate birds between Santa Ynez River in Santa Barbara County and the Prado Basin in Riverside County. In the Soledad Canyon stretch are breeding summer tanager (*Piranga rubra*) and other desert species, along with some instances of least Bell's vireos (*Vireo bellii pusillus*), coastal cactus wrens (*Campylorhynchus brunneicapillus sandiegensis*), and southwestern willow flycatchers (*Empidonax traillii extimus*) from the coastal influence areas.The area is notable for having a combination of species that are characteristic of the desert and characteristic of coastal-influence.

Just west of the confluence with Arrastre Creek the northern boundary loops up to the slopes of Parker Mountain and the eastern watershed of Hughes Canyon around the basal contours of significant rock outcroppings above the river basin, and on the south side, around the Mill Canyon

tributary basin. The rocky buttes on the north side of the river, while only a minor part of the watershed of the river, provide important nesting, roosting, and sheltering habitat values for bats, birds of prey, and other sensitive species foraging along the river corridor. The boundaries stay at the river margins west to the watersheds of two northern tributaries, Nellus and Bobcat canyons. These drainages were identified by the South Coast Wildlands Project as important to connectivity across the Santa Clara River between the western and eastern highland areas of the San Gabriel Mountains.

At the Agua Dulce Canyon drainage, the northern boundary loops around the watershed, including the Vasquez Rocks County Natural Area. Agua Dulce Canyon has a permanent stream and supports high quality riparian habitat from the confluence with the river to the intersection with State Route-14. The Santa Clara River IBA extends upstream to include about one mile of the Agua Dulce Canyon.

The Agua Dulce underpass of State Route-14 is an important crossing of the highway barrier for wildlife. From that point, north riparian areas exist where the creeks (Agua Dulce and Escondido) pass through Vasquez Rocks County Natural Area. The Agua Dulce Canyon extension was included in the SEA for its value as a wildlife corridor to provide connectivity across the Santa Clara River between the western and eastern highland areas of the San Gabriel Mountains.The extension includes the watershed of Bee Canyon, which is a downstream tributary of the Santa Clara River. Bee Canyon has an important population of the federally-endangered slender-horned spineflower (*Dodecahema leptoceras*) in its broad, floodplain area. In the Bee Canyon slopes of coastal sage chaparral, the federally-threatened coastal California gnatcatcher (*Polioptila californica californica*) is sometimes resident. The Bee Canyon area has some underpasses of the State Route-14 that could be used by smaller wildlife if maintained unclogged. The extension includes upper watersheds of Spring and Tick canyons to enhance the connective area. Beyond upper areas of Tick Canyon, the SEA boundaries cross Mint Canyon into the Angeles National Forest and the watershed of Rowher Canyon. The SEA continues to the upper reaches of Rowher Canyon onto the main ridgeline of the Sierra Pelona.At the Mint Canyon crossing, just southwest of the community of Sleepy Valley, a lobe of the SEA extends along Mint Canyon to capture riparian woodlands of coast live oak, with a number of heritage trees (diameters greater than 36 inches).Residences are scattered and the natural communities of chaparral are intact on the canyon slopes.

The southern boundary of the SEA opposite the confluence with Agua Dulce Canyon includes the flood plain. The SEA dips southward into the lower portion of Bear Canyon (tributary of Santa Clara River) and includes undeveloped alluvial terrace slopes of the river downstream of Bear Canyon. The flood plain is a narrowed part of the SEA in the vicinity of Lang, which is a railroad stop on the transcontinental railroad line that runs the length of the Soledad Canyon. Downstream from Lang, the SEA expands to the southern slopes between Lang and Oak Spring Canyon, adjacent to the river channel. Downstream of Oak Canyon, the SEA narrows to the flood plain, passes Sand Canyon, and reaches the west ridge of Sand Canyon. A broad finger of the SEA goes south along the ridgeline of the Sand Canyon watershed, where the finger expands when it reaches the watershed of Placerita Canyon.

The alluvial fans of Oak Springs Canyon and Sand Canyon are important recharge grounds for the river aquifer. Surface flows from both canyons enter the Santa Clara River basin through natural, unconfined channels. Recognizing the importance of the Sand Canyon drainage, the SEA boundaries are drawn to encompass the entire upper Sand Canyon watershed, which is largely

natural with scattered residences, as well as the Sand Canyon tributary, Bear Canyon.Most of the upper Sand Canyon and its Bear Canyon tributary are within the Angeles National Forest, and Sand Canyon originates on the peak of Magic Mountain.These canyons form a natural movement zone for wildlife traversing among the western end of the San Gabriel Mountains, the eastern end of the Santa Susana Mountains, and the Santa Clara River basin. Together, they encompass a spectrum of significant and unique habitat, vegetation and wildlife resources. The major habitat linkage zones and watersheds between the river basin and the Angeles National Forest, and the protected areas of the County (Placerita Canyon Natural Area), have also been included within the SEA boundary. Near the peak of Magic Mountain, the boundary contours to the southwest, and then proceeds west along the Santa Clara Divide to its intersection with the junction of Interstate-5 and State Route-14. Natural areas of the Sand Canyon watershed, along with the major topography of ridgelines, earthquake escarpments, grasslands, and canyon habitat features and watersheds of Bear, Placerita, Whitney, and Elsmere canyons are the important features of the wildlife linkage. Existing rural residential developments are excluded from the SEA, but the remaining natural highland areas of the western banks of the Sand Canyon watershed are included. These are integral parts of the river basin recharge system and functional ecosystem.

Parts of this area have coastal sage scrub and are critical habitat for the threatened coastal California gnatcatcher. The watershed of Placerita Canyon southeast of the State Route-14 is generally critical habitat for the federally-threatened coastal California gnatcatcher. An area of development surrounding the Placerita Creek near State Route-14 is excluded from the critical habitat. The critical habitat area for the gnatcatcher extends along the east side of State Route-14 beyond Placerita Creek and envelops watersheds into the Angeles National Forest along Whitney Canyon, Elsmere Canyon, and southward over the main ridge of the San Gabriel Mountains, into Grapevine Canyon in its upper natural watershed. Upper areas of these canyons with oaks and big-cone Douglas fir are habitat for the California spotted owl (*Strix occidentalis*)

The eastern half of the Los Piñetos undercrossing of State Route-14 on old oil development roads is included, and focuses on a major wildlife conduit connecting the Santa Susana Mountains to the San Gabriel Mountains, and to the Santa Clara River. The adjacent part of the Santa Susana Mountainsand Simi Hills SEA includes the west half of the Los Piñetos undercrossing of State Route-14, connecting through the natural oak woodlands and drainages adjacent to the San Fernando Pass. This area, once called “San Francisco” or “Newhall Wedge,” is north and west of the junction of Interstate-5 and State Route-14 with The Old Road running through it. The Newhall Wedge area is nearly all critical habitat for the coastal California gnatcatcher. This critical habitat of the Newhall Wedge is adjacent to the gnatcatcher critical habitat across State Route-14 in the SEA, but is in the Santa Susana Mountains and Simi Hills SEA.

The SEA boundary borders State Route-14 from the north ridge of Grapevine Canyon and heads northeast from the Los Piñetos undercrossing, on the natural side of existing development east of State Route-14. The area around development along Running Horse Road off Placerita Canyonhas been excluded from the SEA. The movie-shoot ranch at the junction of State Route-14 and Placerita Canyon has much area with development or staging excluded, but there is a connected finger of the SEA in Placerita Canyon that leads to the Placerita Canyon watercourse underpass. Much of the watercourse underpass is used by wildlife to transition between the natural areas of Placerita Canyon and the oil field area on the west side of State Route-14. The SEA narrows to the western hills of Sand Canyon beyond the movie-shoot ranch, to avoid developed areas, and continues back to the river margin at Humphreys railway stop, about a 0.4 mile west of its previous point of

departure from the river channel.The boundary was drawn to avoid existing major development, but connect the uplands to the river basin.The narrow aperture for the linkage at the Santa Clara River reflects the remnant nature of the last unobstructed terrestrial passageway between the upland areas and the river.

West of Sand Canyon, the river has been intermittently armored to allow for development within flood hazard zones. From Sand Canyon westward through the residential neighborhoods of Santa Clarita, the SEA boundary continues on the margins of the flood plain to the confluence with San Francisquito Canyon. The segment of the Santa Clara River passing through the City of Santa Clarita is a dry channel, except during seasonal runoff flows. Some irregular extensions go north into tributaries that have remnant riparian habitat and probable outflows from irrigation runoff that flows into neighborhood storm drains. Regardless of the intermittent nature of water, the river bed elevated areas among braided channels support relatively intact stands of alluvial sage scrub, riparian woodland, and southern riparian scrub. The dry zones are essential to the continued genetic isolation and integrity of the unarmored three-spine stickleback population in the upper reaches of the Santa Clara River.

The boundary extends northward upstream into the reaches of San Francisquito Creek (formerly a separate SEA, but now included with the SEA), following the approved development setback limits, north into the Angeles National Forest (Santa Clara/Mojave Rivers District).The SEA continues nearly the length of the San Francisquito Creek to beyond the junction with South Portal Creek in the vicinity of the community of Green Valley. The Santa Clara River IBA extends in a branch upstream in close proximity to the crossing of Copper Hill Drive.

As the channel enters the Angeles National Forest, flows become less seasonal, and riparian resources expand and diversify. San Francisquito Creek supports dense and mature southern riparian scrub and riparian woodland formations, along with small areas of freshwater marsh, which provide essential wintering areas and resident habitat for waterfowl, wading birds, marshland birds, and a variety of other vertebrate species. The headwaters of San Francisquito Creek are on a low ridge that bounds the San Andreas Fault Zone, and this is an important connective element of the SEA, in that it completes the path from the Pacific Ocean through the mountains to the Mojave Desert. The sub-watershed and flood plain of the San Francisquito Creek perennial flow in the Angeles National Forest jurisdiction is designated critical habitat for the federally-threatened red-legged frog, which extends from about the Angeles National Forest southern boundary to about one mile south of the junction with Bee Canyon.Much of the San Francisquito Creek is considered essential habitat (one of three areas) for the endangered unarmored threespine stickleback, although the fish has not been found in the San Francisquito Canyon in recent years.

The boundaries west of the confluence with San Francisquito Creek follow the river margins under the Interstate-5 to the Castaic Creek confluence, at which point the northern setback line has been drawn around the lower portion of Castaic Creek, which embraces the riparian habitat areas around and above the confluence. Castaic Creek is the tributary with the largest watershed for the Santa Clara River in the County. The SEA boundaries go upstream about four miles along the watercourse of Castaic Creek to the crossing of Lake Hughes Road, which is just downstream of Castaic Lagoon. The Santa Clara River IBA extends in a branch upstream into Castaic Creek for approximately one mile.

Relatively extensive areas of willow-cottonwood forest and southern riparian scrub occur west of

San Francisquito Creek and within the junction zone of Castaic Creek and the Santa Clara River. These river forests support numerous sensitive species and provide multi-layered riparian habitat for a wide diversity of wildlife species, particularly birds of prey and riparian-obligate song birds, such as the federally-endangered least Bell's vireo (*Vireo bellii pusillus*) and the southwestern willow flycatcher (*Empidonax traillii extimus*).

Federally-designated critical habitat for the endangered arroyo toad extends from the east side of Interstate-5, from the junction of the Santa Clara River with San Francisquito Creek, under the Interstate-5, about 5.8 miles to the confluence, with an unnamed drainage just upstream of the confluence of the river with San Martinez Chiquito. The critical habitat area for the toad also includes the flood plain of Castaic Creek as far upstream as the Interstate-5 undercrossing (about 2.5 miles), and for about one mile upstream into the natural area of Hasley Canyon, a tributary of Castaic. Coincident with the critical habitat for the toad is critical habitat for the endangered least Bell's vireo (FE, SE). Critical habitat for the vireo extends along the floodplain from the Rye Canyon undercrossing of the river (west side of Interstate-5), over the Ventura-Los Angeles County line, to about a mile short of the confluence of the Santa Clara River with Piru Creek in Ventura County (about 9 miles). The river area from near Interstate-5 towards the Ventura-Los Angeles County line is "essential habitat" for the threespine stickleback.A disjunct SEA area is on a ridge south of the river bend at Castaic Junction (interchange of Interstate-5 and State Route-126). This area supports a population of the federal candidate and state-endangered San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*, FC, SE), which is a diminuitive, once-common flower of slopes within the San Fernando Valley and adjacent passes and mountain ranges. The plant became so rare that it was believed to be extinct until it was rediscovered during required surveys for development.

Beyond the confluence with Castaic Creek, the boundaries of the SEA follow the margins of the Santa Clara River channel to the Ventura-Los Angeles County line. The Santa Clara River IBA has a lobelike expansion opposite the confluence with San Martin Chiquito, extending south to cover diverse topography from river cliffs to confluence flood plains in the area around Potrero Canyon.

The Santa Clara River channel and its alluvial terraces and tributary creeks together form the single most important and natural wildlife movement zone through the County. Mobile species can enter the river basin anywhere along its length (outside of developed areas) and proceed in either direction without having to pass through narrow culverts or blind channels, with continuous vegetative cover and only short stretches of dry substrates. The overall drainage course provides a continuum of aquatic and terrestrial movement opportunities, shelter, forage, and resident habitat from the mouth of the river at Ventura County and the Pacific Ocean, to the Antelope Valley. The drainage course connects to both districts of the Angeles National Forest, and links together three large public resource preserves (Vasquez Rocks and Placerita County Natural Areas and the Angeles National Forest).

Wildlife Movement

Historically (and prehistorically) the riparian corridor along the Santa Clara River has served as the primary east-west linkage between the Pacific coastline, coast ranges, interior ranges, high desert and southern Sierra (via the Tehachapi Range). Animals moving through the Santa Clara drainage had unobstructed passage along the river and within the riparian systems between the coastal lowlands of Ventura County and the Mojave Desert. The tributary routes extend south into the Santa

Susana Mountains, south and north into the San Gabriel Mountains, northward via Castaic, Bouquet and San Francisquito tributaries (over the coastal ranges and San Gabriel Mountains of the Transverse Ranges and into the San Joaquin Valley), west into the central coast ranges, or east through the Tehachapi Mountains, and into the southern Sierra Nevada. The present configuration of the tributary drainages has impinged upon connectivity from the Santa Clarita Valley to the north, but the Santa Clara River remains relatively intact and open. The SEA embraces the river corridor and the linkage zones that are considered essential to ensuring connectivity and resource values within the historic movement zones for all of the wildlife species present within the County portion of the Santa Clara River, including mountain lion, coyote, bobcat, and several medium-sized mammals, as well as birds, reptiles, amphibians, and fishes.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE SANTA CLARA RIVER SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The only existing natural population of the federally-endangered unarmored three-spine stickleback is within the Santa Clara River and its tributaries, and all of its essential habitat is in this SEA. The federally-threatened Santa Ana sucker occurs in the river, as does the state species of concern, the arroyo chub. The population of state and federally-endangered slender-horned spineflower in Bee Canyon is one of fewer than seven known occurrences for this species, one of only two known occurrences in the County, and one of its largest populations. San Francisquito Creek has a breeding area for the endangered red-legged frog. The San Fernando Valley spineflower (at Newhall Ranch in Interstate-5 vicinity) is found in only a few nearby places. Some of the critical habitat for the threatened California coastal gnatcatcher is included in this SEA. Western spadefoot, which is a species of concern, is extremely rare and local in the County away from this SEA. One of the largest, if not largest populations of least Bell's vireo in the County occurs along the river in the vicinity of the crossing of Interstate-5 near Newhall Ranch. Many RPR-listed rare plants occur within the SEA. Critical habitat occurs in the SEA for the listed arroyo toad, the red-legged frog, the coastal California gnatcatcher, and the least Bell's vireo.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The low-elevation bigcone Douglas fir-canyon oak forests above Placerita Canyon, the vernal pool in the Placerita Canyon-Sand Canyon divide, the native grassland on the Golden Valley Ranch (upper Placerita Canyon), and the alluvial fans with sage scrub in lower San Francisquito Canyon, Kentucky Springs and Acton are unique and regionally restricted biotic communities. Additionally, the riparian forests and woodlands along the Santa Clara River are

Criterion		Status	Justification
			among the most extensive, diverse and intact vegetative stands of this type in Southern California.Rare aquatic species, such as the unarmored three-spined stickleback, Santa Ana sucker, red-legged frog, least Bell's vireo, summer tanager, spineflower, and many others represented within the SEA are found nowhere else in the region.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The cottonwood-willow forests and woodlands, alluvial fan sage scrub, and coast live oak riparian forest are best represented in the County within the SEA. The lower elevation examples of bigcone Douglas fir-canyon oak forest communities where they mix with low-elevation biota are restricted to the edges of mountain habitat communities, which are regionally rare and also designated in this SEA.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The Santa Clara River is simultaneously an oasis running through a dry landscape and an extension of coastal conditions into the dry interior. For this reason, it supports unique populations of aquatic and amphibious species, as well as aridlands species extending towards the coast and coastal species' extension inland. It is a principle migratory route for the County plants and animals and a center of diversity for the County. The Santa Clara River and its tributaries provide breeding opportunities for numerous species otherwise not known to breed within the County, including California red-legged frog, summer tanager, southwestern willow flycatcher, and the unarmored three-spined stickleback . The extensive riparian areas shelter dozens of migrant songbird species during winter, including high concentrations of white-crowned and golden-crowned sparrows, fox sparrow, yellow-rumped warbler, dark-eyed junco, and sharp-shinned hawk. The SEA embraces the river corridor and the linkage zones that are considered essential to ensuring connectivity and resource values for many of the wildlife species that are present within the County portion of the Santa Clara River.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The Santa Clara River represents a unique example of a drainage that stretches from the desert to the coast through the mountains. Its resources are, by definition, present at their geographic extremes. Plants such as western juniper, snake cholla, basin sagebrush, and birds, such as summer tanager are at the southwestern edges of their ranges along the river. Coastal taxa extend to the headwaters in the Acton area. High elevation species, such as bigcone Douglas fir, spotted owl, and Steller's jay occur at fairly low elevations at the edges of Santa Clara River valley, on north facing slopes that remain cool all summer.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic	Met	The SEA encompasses some of the highest quality, least disturbed and biotically intact acreage of bigcone Douglas-fir-canyon oak forest, riparian forest and woodland, coastal sage scrub, and alluvial fan sage scrub that remains in the County, and one of the

Criterion		Status	Justification
	communities in the County.		three known vernal pools along the river.Vernal pools are rare everywhere in California.

In conclusion, the area is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) numerous examples of species at their habitat extremes as the coastal and desert influences meet; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Santa Felicia SEA

Boundary and Resources Description

The Santa Felicia SEA is located northwest of the City of Santa Clarita within unincorporated area of the County. Some of the SEA extends into the Angeles National Forest. The area is west of the Interstate-5, north of State Route-126 and encompasses almost the entire County portion of the Santa Felicia watershed that drains into Lake Piru and Piru Creek. Piru Creek has the largest watershed of any tributary of the Santa Clara River. The SEA is largely composed of natural coastal slopes of the western San Gabriel Mountains, with south-facing slopes of coastal sage scrub and grasslands, north-facing slopes of oak woodland and chaparral, and canyons of riparian oak forest and other riparian habitats.This habitat has beendiminished by development, and the SEA is one place in the County where the natural habitat remains.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Whitaker Peak and Val Verde.

Starting at the north end of the SEA boundary on the Ventura-Los Angeles County line, the northern SEA boundary is about one-quarter to one-half mile north of the boundary of Angeles National Forest, with private property as it follows along the northern ridgeline of Devil Canyon. Most of the SEA captures the natural, coastal sage scrub-covered south-facing slopes, oak-forests and mixed chaparral of the north-facing slopes, and deep ravines with riparian oak forest in the canyons. Devil Canyon is a major tributary of Piru Creek (at Lake Piru) in Ventura County. Where the Devil Canyon watershed contacts the southern ridgeline off Townsend Peak, the SEA boundary turns south along a ridge that separates Santa Felicia Canyon and its tributaries on the west side, from Palomas Canyon on the east side. The boundary goes south out of the Angeles National Forest into private lands about a 0.75 mile south of Townsend Peak. To capture the watershed tributaries, the eastern boundary follows the dominant ridgeline between Palomas Canyon and Santa Felicia Canyon, and then between Santa Felicia Canyon and Violin Canyon after Palomas Canyon joins Violin Canyon. There is a triple divide for the watersheds of Violin Canyon (which joins Castaic Creek), the watershed of Romero Canyon, which joins Hasley Canyon before it joins Castaic Canyon, and Santa Felicia Canyon, which is a tributary of Piru Creek. At the triple divide, the SEA boundary turns west to follow the ridge of the Santa Felicia watershed. The boundary crosses Loma Verde (peak), where it separates Santa Felicia Canyon from Romero Canyon, and the unnamed headwater creeks of

Hasley Canyon, excluding the rapidly developing areas. About a mile southwest of Loma Verde Canyon, the SEA boundary turns south and west to encompass the watershed of Oak Canyon, with coast live oaks and riparian forest. The SEA boundary goes north along the Ventura-Los Angeles County line, crossing riparian forest of Santa Felicia Canyon and Devil Canyon into the Angeles National Forest, where it joins the north ridge of Devil Canyon. Most of the SEA is included in the wildlife movement linkage Sierra Madre-Castaic Connection that was outlined by the South Coast Wildlands study of linkages (Penrod, *et al*. 2005).

The SEA includes a wide variety of topographic features and habitat types. The orientation and extent of the SEA encompasses the surface and subsurface hydrology of the Santa Felicia watershed, from its headwater, tributaries, and basin to the point at which it exits the County jurisdiction.

The SEA encompasses most of the County portion of the Santa Felicia watershed that drains into Lake Piru. This watershed is largely undeveloped and contains vast stands of coastal sage scrub and chaparral communities on south- and north-facing slopes. In addition to the undisturbed upland habitats, the watershed includes examples of mixed riparian (sycamore-willow), oak riparian and coast live oak forests and alluvial scrub in the bottomlands. Grasslands occur in areas where grazing may have taken place; however, there is little invasion of these ruderal taxa into the native communities.

Wildlife Movement

The SEA provides riparian corridors, which serve as linkages between the Pacific coastline, coastranges, interior ranges, the high desert and southern Sierras (via the Tehachapi Range). Animals move through the Santa Felicia watershed along and within the riparian systems between Piru Lake in Ventura County and the San Gabriel Mountain range and beyond.The tributary drainages in this SEA appear fully intact and open and support regional movement by many wildlife species. Most of the SEA was designated as an important wildlife movement linkage—Sierra Madre-Castaic Connection—which was outlined by the South Coast Wildlands study of linkages (Penrod, *et al*. 2005).

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE SANTA FELICIA SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	The SEA does not include known core habitat.
	On a regional basis, biotic communities, vegetative associations,		The natural mountainous terrain and vegetation habitats of theSEA, which is a coastal drainage, have been diminished

Criterion		Status	Justification
B)	and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	elsewhere within Southern California through development. The SEA encompasses a fine example of vegetation that has not been impacted very much by development.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	This is a somewhat remote area where natural flora and natural bottoms remain in the canyons, invasive predators are nonexistent, and human intrusion is minimal, which is a rare habitat in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The SEA encompasses important tributaries (Santa Felicia Canyon and Devil Canyon) of Piru Creek. Piru Creek is the major tributary of the Santa Clara River. Nearly all of the drainages within the SEA are natural with sensitive habitats of all kinds of riparian forest. These drainages are all migratory corridors for both plants and animals that connect the San Gabriel Mountains with the Santa Clara River and the coast, the Sierra Madre-Castaic Connection.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Not Met	The Santa Felicia watershed is not known as a physical/geographical extreme habitat.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The Santa Felicia watershed is an excellent example of the inland watercourses and their vegetation on the coastal side of the Transverse Ranges. It is largely undisturbed, and a number of the drainages are still perennial.

In conclusion, the area is an SEA because it contains B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, and migrating grounds, which are limited in availability in the County; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Santa Monica Mountains SEA

Boundary and Resources Description

The Santa Monica Mountains SEA is located within the Santa Monica Mountains in a mostly unincorporated area of the County. Much of the area is in the Santa Monica Mountains National Recreation Area, but is privately owned. Many of the federal lands under the jurisdiction of the National Park Service (NPS) are included in the SEA designation. Many of the state parklands, notably Malibu Creek State Park and Topanga State Park, are also included in the SEA. The SEA includes nearly all of the canyons and ridges from the Ventura-Los Angeles Countyline, and east to

Sullivan Canyon, which is near the communities of Pacific Palisades Brentwood to the south, and Encino to the north. From south to north, the SEA extends from the Pacific Ocean shoreline or urban-wildland interface of Malibu, through the unincorporated area of the Santa Monica Mountains proper, to the northern edge of the SEA extending along the undeveloped southern edge of the San Fernando Valley or irregularly along the Ventura-Los Angeles County line. It should be stated that this SEA recognizes the rare habitat of a small regional mountain range with a high diversity of topography and moisture regimes, and with vegetation adapted to a Mediterranean climate, which is globally rare, existing elsewhere only along western portions of continents at 30-40° latitude[1]. Although the habitats may seem common within the Santa Monica Mountains, in terms of limited indigenous global ranges of the constituent species, their special adaptations to climate, the relatively intact character of the habitats, and the plant assemblage of the Santa Monica Mountains are unique. Development within the SEA that extends the nearby expansive urban development of the Los Angeles Basin and San Fernando Valley needs to be carefully considered to preserve these special resources.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Thousand Oaks, Calabasas, Canoga Park, Triunfo Pass, Point Dume, Malibu, and Topanga.

Within the SEA boundary, there are a number of areas that are not a part of the SEA due to dense development. For example, La Sierra, Malibu Lake, and most of the City of Malibu have been excluded.

The majority of the SEA lies within the unincorporated area of the County. Other jurisdictions include the City of Malibu, the City of Los Angeles, City of Calabasas, the City of Agoura Hills, the City of Hidden Hills, and the City of Westlake Village.

From the Ventura-Los Angeles County line to the vicinity of Topanga Beach, the southern boundary of the SEA irregularly contacts the boundary of the Malibu Coastline CRA, which extends offshore about a 0.8 mile to capture the kelp beds and rich natural marine communities of and off the coastline of the Santa Monica Mountains. The sandy beaches along this SEA are the least disturbed beaches of the County, some of them completely natural. This is a remnant of the typical rock and sand shoreline that once occurred along the coast of Southern California. From Mugu Lagoon to Latigo Point (the County portion starting at the Ventura-Los Angeles County line and Leo Carillo State Beach), this is an ASBS (Area of Special Biological Significance), which is a marine area designated by the State Water Resources Control Board as having exceptionally good water quality and natural community features. Populated and disturbed areas along the shore are not included in the SEA.

[1] Six regions on Earth have a coastal climate where ocean currents mediate an equable climate yet cause most precipitation to occur outside the summer period of most intense sunlight and most vegetative growth for many plants. These are California, the Mediterranean Basin, portions of South Australia, South Africa, and Chile

Beginning at the intersection of the Ventura-Los Angeles County line and State Route-1, the southern area of the SEA includes all the terrestrial area of Leo Carrillo State Beach (a state park that has much beautiful upland acreage of grasslands, coastal chaparral, and an excellent riparian area of sycamore-oak forest along the Arroyo Sequit). The Arroyo Sequit from the coast to the junction of West and East forks and about a 0.5 mile of the West Fork are federally-designated critical habitat for the southern steelhead (*Oncorhynchus mykiss irideus*), which is a salmon that runs upstream for breeding, but spends most of its life in the ocean. The young fish, however, spend the first year of life in fresh water.

At the eastern boundary of Leo Carillo State Beach, an unnamed canyon is excluded from the SEA, but San Nicolas Canyon with its riparian woodland is included all the way to the shore. Urban areas to the east of San Nicolas Canyon are also excluded. The Los Alisos and Lechuza Canyon immediate drainages are included up to the highway. From Lechuza Canyon, the excluded area extends north to the southern border of Charmlee Natural Area (a County park supporting grasslands and chaparral). Much of the Encinal Canyon drainage is included in the SEA north of State Route-1, and the Steep Hill Canyon drainage is included north of State Route-1. Trancas Canyon is densely settled in the area near the coastline; only the steeper, natural section is included in the SEA. To the east, a large excluded area encompasses the dense habitation of the Malibu Riviera.

The SEA includes the riparian forest of Zuma Canyon as it exits onto the coastal plain, with a small sub-watershed designated critical habitat for the federally-endangered Braunton's milkvetch (*Astragalus brauntonii*). This rare plant is narrowly endemic to four mountain ranges of Southern California that have a particular marine-originated rock stratum of interbedded carbonates and sandstones.The SEA also includes portions of the riparian forest of Ramirez Canyon, where it has not been impacted by development in the Malibu Riviera. The natural area of Escondido Canyon and its 150 feet waterfall is included. Latigo Canyon is included north of State Route-1, where chaparral intergrades with walnut and oak woodlands along the drainages and north-facing slopes. East of Latigo Canyon, the boundary of the excluded area follows the ridges immediately north of State Route-1 to join the highway west of Solstice Canyon. Solstice Canyon and its County Park are included in the SEA. These support grasslands, chaparral, and a fine riparian area of sycamore-oak forest along Solstice Canyon. Puerco and Marie Canyon drainages are included north of State Route-1.

In the vicinity of Winter Canyon, the boundary follows Malibu Canyon Road to exclude the central community area of Malibu in another large island.A finger of the SEA extends through central Malibu along Malibu Creek in the area of Malibu Creek State Park and Malibu Lagoon State Beach to include the Creek and Malibu Lagoon south of Pacific Coast Highway. This is one of the points of contact between the Santa Monica Mountains SEA and the Malibu Coastline CRA. Malibu Creek from the shore to its major bend to the west in Malibu Canyon is federally-designated critical habitat for the southern steelhead. Coincident with the steelhead critical habitat along Malibu Creek and all brackish portions of the Malibu Lagoon are designated critical habitat for the endangered tidewater goby (*Eucyclogobius newberryi*). This little two-inch fish was once common in brackish water of coastal lagoons of streams the length of the State of California. This pristine habitat is disappearing

(the fish is apparently gone from San Francisco Bay), and any location where the tidewater goby is still found is a unique place.

The Malibu Lagoon is the only remaining intact coastal lagoon in the County[2], and still has its perennial stream to maintain the brackish conditions that are essential to the diverse and unique group of species of coastal lagoons. The federally-endangered southern steelhead passes through this lagoon on its upstream and downstream spawning runs, and its young fish (smolts) may spend some time in the lagoon before entering their oceanic habitat. The passage is critical habitat for the steelhead, as well as for the endangered tidewater goby (*Eucyclogobius newberryi*). This lagoon has one of the County's three [3] remaining saltmarshes, with dominant species of pickleweeds (*Arthrocnemum subterminale* and *Salicornia pacifica*). The Malibu Lagoon supports a good representation of coastal strand community (now groomed off many of the recreational beaches), is a resting stop on the Pacific Flyway (over 200 species of birds reported), and has many resident avian species. From fall to spring, it supports a flock of the federally-threatened western snowy plover (*Charadrius alexandrinus nivosus*), and there are recent indications that some may over-summer to breed (after a hiatus in breeding of many decades, Ryan Ecological Consulting, 2010). The pickleweed is valuable non-breeding habitat for the state-endangered Belding's savannah sparrow (*Passerculus sandwichensis beldingi*).

East of central Malibu, the excluded area borders primarily follow the less-inhabited ridges that border Carbon and Las Flores canyons and about a 0.5 mile north of State Route-1. East of Las Flores Canyon, the border of the excluded area follows a transmission line to skirt an old oil field. At the western ridge of Piedra Gorda, the SEA boundary follows the ridgeline southeast to State Route-1. From Piedra Gorda, the SEA boundary closely tracks State Route-1 along the substantial sea cliffs, avoiding two small developed areas north of the highway near the mouths of Pena and Tuna canyons. The SEA includes all of the meandering Topanga Canyon Creek at Topanga Beach. Upstream nearly to the community of Fernwood, Topanga Canyon is federally-designated critical habitat for the southern steelhead. Near the shore in Topanga Canyon Creek is critical habitat for the tidewater goby. This is the eastern point of contact between the Malibu Coastline CRA and SEA. It is also at this point where the shoreline where there are no more excluded areas.

The SEA includes Parker Mesa, north of State Route-1, and is coterminous with the boundary for the City of Los Angeles towards the north. About one mile north of the coast, the boundary extends to the east, contouring around the ridgelines that border the populated areas of Santa Ynez, Pulga, and Temescal canyons, with some residential areas on the ridges excluded from the SEA. These three canyons contain riparian oak and sycamore forests, which are a good variety of canyon habitats that include rocky outcrops and small waterfalls, are preserved in their upper reaches by inclusion in the Topanga State Park. The upstream areas of Santa Ynez, Pulga, and Temescal canyons that are uphill from the community of Palisades Highlands include much of federally-designated critical habitat for the Braunton's milkvetch. The boundary skirts Will Rogers State Park, but includes much

[2] Ballona Creek lagoon is also in Los Angeles County, but exists in a disturbed condition.

[3] The three areas with salt marsh in Los Angeles County are Alamitos Bay, Ballona Lagoon, and Malibu Lagoon.

of the unpopulated part of Rustic Canyon.

At Rustic Canyon, the boundary follows the eastern ridge to the north.Tracing the edge of development along the eastern slope of the canyon, the boundary continues north and eventually crosses over the ridgeline and into the undeveloped part of Sullivan Canyon. The boundary then follows the eastern slope of Sullivan Canyon and continues north along the ridgeline between Sullivan Canyon and Mandeville Canyon.After crossing the main ridge of the coastal zone and Mulholland Drive near San Vicente Mountain, the SEA boundary reaches and includes the sub-watershed of Encino Reservoir.

On the west side of Encino Reservoir, the SEA boundary turns west and follows the edge of development on the northern slopes of the Santa Monica Mountains that form the southern border of the San Fernando Valley.Some development is excluded on the east side of Topanga Canyon and the Calabasas Highlands area. The upper reaches of Topanga Canyon are included, and the SEA crosses the ridge to include the upper slopes of a natural drainage that is opposite to Topanga Canyon on the San Fernando Valley side.

West of Calabasas Park, the SEA boundary extends northeast and contours along the upper slopes of McCoy Canyon to include a finger of SEA on the north ridge of McCoy Canyon, which is part of state park land. On the west side of Calabasas Park and Hidden Hills, the boundary crosses State Route-101 along the western edge of development in Hidden Hills north to the County line. The undeveloped portion of Gates Canyon within the Simi Hills and its watershed is included north to the Ventura-Los Angeles County line, excluding a ridgetop island and developed portions of the City of Calabasas. A narrow finger of connection joins the portion of the SEA east of the City of Calabasas to the area west of the City, north of State Route-101 along a tributary of Las Virgenes Creek. Las Virgenes is an important tributary of Malibu Creek, and although this area is not in the coastal zone, it represents a portion of the upper coastal watershed. Further to the west, the boundary extends north again to encompass the open space from Las Virgenes Road along the Ventura-Los Angeles County line to the edge of development within the City of Agoura Hills. Within this portion of the SEA, Cheseboro Canyon contains fine natural, undeveloped sections of canyon just east of the City of Agoura Hills that are administered by both the NPS and the State Park system. The SEA includes all of undeveloped Cheseboro Canyon and the undeveloped western ridge of Cheseboro's important tributary, Palo Comado Canyon. This is the western terminus of the SEA that lies north of State Route-101.

An important feature of this area is a small tributary of Las Virgenes Creek (and ultimately Malibu Creek) named Liberty Canyon. The underpass of State Route-101 at Liberty Canyon Road along the drainage conveys relatively less vehicular traffic than other freeway crossings within several miles, and is one of the few active wildlife passage areas along the entire extent of State Route-101 through the Santa Monica Mountains. All other watercourse and street crossings of State Route-101 are very constrained or else entirely impassible for wildlife. There are widely documented concerns for the consequences of genetic isolation for the small band of mountain lions (*Puma concolor*) of the Santa Monica Mountains. Mountain lions that are known to use this area of the SEA to transit back and forth between the Santa Monica Mountains and the greater lion populations of the Simi Hills and north. The area north of the Liberty Canyon underpass is natural chaparral, watercourses, and grassland administered by the Santa Monica Mountains Conservancy. South of State Route-101, development is present with a very narrow corridor of natural habitat that includes valley oak (*Quercus lobata*) along the creek of Liberty Canyon.

A small island of developed area south of State Route-101 and along Liberty Canyon is excluded from the SEA. From the Liberty Canyon underpass south of State Route-101 the SEA boundary follows the north-facing side of an unnamed ridge at the southern end of the City of Agoura Hills towards the northern slopes of Ladyface Mountain.This is a chaparral-dominated area with numerous canyons and ridges supporting federally-threatened Agoura Hills dudleya (*Dudleya cymosa* ssp. *agourensis*), and one of the nine critical habitat areas in the County of Los Angeles and in the SEA for the state- and federally-endangered Lyon's pentachaeta (*Pentachaeta lyonii*), as well as other uncommon and rare plants, such as Fish's milkwort (*Polygala cornuta* var. *fishiae*), Sonoran maiden fern (*Thelypteris puberula* var. *sonorensis*), and the southern-most known occurrence of the California juniper (*Juniperus californica*) within the County. The SEA northern boundary crosses Kanan Dume Road in the area where Lindero Canyon formerly joined Medea Creek and continues its contour along the north-facing ridge of Ladyface Mountain, which also supports Agoura Hills dudleya, Lyon's pentachaeta, Ojai navarretia (*Navarretia ojaiensis*), and other rare and sensitive plants on its chaparral-covered slopes. A small area with development and fill along the south side of Kanan Dume Road has been excluded from the SEA.

The SEA boundary veers to the southwest to avoid the developed areas of Westlake Village, but includes Las Virgenes Reservoir in the SEA and three more of the critical habitat areas for the Lyon's pentachaeta. A finger includes an undeveloped section of Triunfo Canyon. A short distance southwest of Las Virgenes Reservoir, the boundary crosses Decker Canyon road and extends west to the Ventura-Los Angeles County line, which is another area of critical habitat for the Lyon's pentachaeta. Most of the critical habitat areas for Lyon's pentachaeta in the County are covered by the North Area Plan regulations for the Santa Monica Mountains, but some critical habitat areas also occur in the coastal zone. The boundary then follows the Ventura-Los Angeles County line to the southwest all the way to the coast and State Route-1 where the northern and the southern boundary join at Leo Carillo State Beach.

Wildlife Movement

The SEA contains major features that are important to wildlife movement. For the mammals and other large terrestrial wildlife, it is important to recognize the crossing area of State Route-101 freeway at Liberty Canyon, and this has been detailed in the General Boundary and Resources Description section. Future highway modifications in this far western area of the County may take the need for wildlife connectivity into account. On the eastern end of the mountains (separated from the SEA by the communities of Brentwood and Encino in the City of Los Angeles) the California Department of Transportation, or Caltrans, has undertaken widening conversion of one of the bridges to incorporate a vegetated area on the bridge that will encourage wildlife transit between the mountain sections west and east of Interstate-405. This is the first such endeavor in County.

The many natural drainages and ridgelines of the Santa Monica Mountains connect populations in a netlike web, and development should always take account of the importance of these natural areas to wildlife connectivity.

The major coastal drainages with natural habitat shading and cooling the waters support a very unique and rare wildlife movement, which is the spawning runs of the federally-endangered southern steelhead. Spawning run areas and young fish habitat are in critical habitat areas of Arroyo Sequit, Malibu, and Topanga Canyons. Historically, steelhead were known from Solstice and Zuma canyons

as well, and it is likely that all the major drainages that once had perennial water and extended to the shore in the rainy season supported this species.

Although wildlife movement is hampered by rural development in the SEA, animals are still able to move through the Santa Monica Mountains in many areas. Due to its large size and topographic complexity, linkages in many directions occur within the SEA. However, there are also various bottlenecks. Edelman (1990) identifies Malibu Creek State Park as the central core habitat area in the Santa Monica Mountains, serving as a connective hub between the Simi Hills to the north and the open space preserves of Topanga State Park to the east, and Mugu State Park to the west (which is near the Ventura-Los Angeles County line, but within Ventura County). These linkages allow movement among large open space areas within the SEA as well as between areas outside the SEA, such as the Simi Hills and the western extent of the Santa Monica Mountains in Ventura County. The genetic flow through these areas is crucial in maintaining the diversity and viability of the species within the Santa Monica Mountains. Open space linkages between Kanan Road and Calabasas Parkway along State Route-101, as indicated by the National Park Service, are of particular importance for continued connectivity of wildlife populations, due to a lack of alternative routes and encroachment of development (Nelson, 2000). Although there are significantly large open spaces within the SEA, maintaining habitat linkages between them is critical in providing for long-term sustainability. A wide variety of wildlife use linkages throughout the SEA, including mountain lion, coyote, mule deer, bobcat, and a number of medium-sized mammals.

Regional Biological Value

The SEA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE SANTA MONICA MOUNTAINS SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The SEA provides habitat for the following listed species: Lyon's pentachaeta (FE, SE); beach spectaclepod (ST); Blochman's dudleya (FT); marcescent dudleya (FT); Santa Monica dudleya (FT); Braunton's milk-vetch (FE); salt marsh bird's beak (FE, SE); tidewater goby (FE); steelhead – Southern California ESU (FE); western snowy plover (FT); western yellow-billed cuckoo (SE); southwestern willow flycatcher (FE, SE); American peregrine falcon (SE); bald eagle (FT); bank swallow (ST); California least tern (FE, SE); least Bell's vireo (FE, SE). The SEA contains designated critical habitat for Lyon's pentachaeta, Braunton's milk-vetch, tidewater goby, steelhead, and western snowy plover.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that	Met	Upper La Sierra Canyon contains an unusually rich and diverse stand of canyon flora, including marcescent dudleya, creek dogwood, and many unusually large specimens of other rare plant species; Malibu Lagoon is the only intact natural lagoon between Point Mugu in

	Criterion	Status	Justification
	are either unique or are restricted in distribution.		Ventura County and Anaheim Bay in Orange County; Malibu Canyon contains a unique mix of floral species that are uncommon in the region, such as black cottonwood and leather leaf ash, as well as a regionally unique mixture of inland and coastal species; regionally rare volcanic rock formations create unique communities where they occur.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Malibu Lagoon is the only natural lagoon in the County; upper La Sierra Canyon contains an unusually rich and diverse stand of canyon flora, including marcescent dudleya, creek dogwood, and many unusually large specimens of other rare plant species; and Malibu Canyon contains a regionally unique mix of floral species htat are uncommon in the County, such as black cottonwood and leather leaf ash, as well as a unique mix of inland and coastal species.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The Malibu Lagoon and the upstream riparian woodland in Malibu Creek is an important migrating bird refuge, with over 200 species recorded. Tuna and Pena canyons are an important area to migratory birds due to their combined qualities of healthy vegetation, riparian woodland, surface moisture, undeveloped land, and an unobstructed opening to the coast. The SEA also contains habitat linkages between large open space areas within the SEA and areas outside the SEA, such as the Simi Hills and the western extent of the Santa Monica Mountains in Ventura County. Such linkages are crucial in maintaining regional plant and animal population health and viability.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The SEA includes a myriad of unique and pristine natural areas that are important for nature study and scientific research; the range of extremes of many species, such as the California juniper, linear-leaved goldenbush, splendid mariposa lily (*Calochortus venustus*), and valley oak; and disjunct and unique populations of redshank, island mountain-mahogany, lyre snake, mountain quail, hirsute rain-beetle, and the Jerusalem cricket.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Zuma Canyon is one of the last major drainages in the Santa Monica Mountains with a year-round stream that supports a rich riparian community and remains in an undeveloped state; Cold Creek includes an excellent example of an undisturbed natural sandstone basin with springs and a perennial stream; Tuna and Pena canyons are the last drainages in the central and eastern Santa Monica Mountains that have no development between the canyon mouth at the coast and upper areas of the watershed; Palo Comado and Cheseboro canyons support one of the last examples of an oak woodland savannah of any significant size in the County; Temescal, Rustic, and Sullivan canyons represent contiguous, self-contained watersheds that are large enough to support representative samples of native flora and fauna; the area surrounding Encino Reservoir supports the best undisturbed stand of an inland chaparral, coastal sage scrub, and streamside vegetation remaining on the inland slope

Criterion		Status	Justification
			of the Santa Monica Mountains.

In conclusion, the area is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Santa Susana Mountains and Simi Hills SEA

Boundary and Resources Description

The Santa Susana Mountains and Simi Hills SEA is located northwest of the San Fernando Valley within unincorporated areas of the County and the City of Los Angeles, west of Chatsworth. The area is south of State Route-126 and the Santa Clara River, west of the Interstate-5, and includes much of the Santa Susana Mountains to the north, the Santa Susana Pass, Chatsworth Reservoir, and the eastern portion of the Simi Hills to the south. This SEA encompasses much of the natural area of the Santa Susana Mountains in the County. The north face of the Santa Susana Mountains is the southwestern watershed of the Santa Clara River in the County, and on the south face, the Santa Susana Mountains are part of the direct coastal watershed as well as part of the watershed of the Los Angeles River. The Simi Hills are part of the direct coastal drainage in their southern area. The variations in vegetation communities are extensive. The area in the Santa Susana Mountains covered by the SEA is considered an important connective wildlife corridor among the San Gabriel Mountains, the Santa Clara River, and the Santa Monica Mountains.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Calabasas, Canoga Park, Oat Mountain, Santa Susana, Val Verde, and Newhall.

The entire western boundary of the SEA follows the Ventura-Los Angeles County line from El Escorpion Park, west of the intersection of Valley Circle Boulevard and Vanowen Street in the West Hills community of the San Fernando Valley, and north to an area just south of the Santa Clara River near Salt Canyon Road. El Escorpion Park is adjacent to state park land just across the Ventura-Los Angeles County line. The small ridgeline where the SEA begins just south of El Escorpion Park separates the coastal drainage of Las Virgenes (tributary of Malibu Creek) from drainages that flow into the San Fernando Valley and the Los Angeles River. El Escorpion Park is at the southern end of Bell Canyon Park, which is also on Ventura-Los Angeles County line. The watercourse of Bell Canyon flows through the park. The SEA continues north, including the natural watershed of Dayton Canyon. Here on the southern side of Dayton Canyon is designated critical habitat for the Braunton's milk vetch (*Astragalus brauntonii*), which is alocoweed that prefers a substrate of intermixed sandstone and carbonate beds, which is probably deposited at the margins of a former seacoast.

The SEA circles around the community of Lakeside Park , which is excluded from the SEA, and then encircles and includes the Chatsworth Reservoir along boundaries of private property. The western boundary of the SEA follows the Ventura-Los Angeles County line, but bends to exclude development in upper Woolsey Canyon and Chatsworth Lake Manor.

From Chatsworth Reservoir, the SEA continues north with the west side along the Ventura-Los Angeles County line and the east side tracing natural habitat at the edge of the Simi Hills and the San Fernando Valley. The SEA extends eastward to include all of the Santa Susana Pass area, much of which is preserved in the Santa Susana Pass State Historic Park. Just across the Ventura-Los Angeles County line nearState Route-118 in Ventura County are Corriganville Park, a former and current natural movie production area, and Rocky Peak Park. Corriganville is a regional park of the City of Simi Hills; Rocky Peak Park is administered by the Santa Monica Mountains Conservancy. Rocky Peak Park is the former Runkle Ranch and stretches from State Route-118 five miles northward to Las Llajas Canyon. The Park is a vital wildlife habitat linkage between the Simi Hills and the Santa Susana Mountains. Spectacular sandstone boulders, outcroppings, oak savannahs, and perennial water sources provide diverse habitat for vertebrates and a number of rare plants. The Ventura-Los Angeles County line and the SEA boundary cross directly over Rocky Peak here.

A very important wildlife passage between the Santa Susana Mountains and the Simi Hills is just west of the Ventura-Los Angeles County line connecting Corriganville Park and the Runkle Ranch. It is a broad tunnel under the freeway, which enabled the connection of the property that was divided by constructing State Route-118. This tunnel connects dirt roads and trails on either side, and is regularly used by mountain lions and other wildlife.

Most of the SEA from State Route-118 northward is designated critical habitat for the coastal California gnatcatcher (*Polioptila californica californica*), which is a diminutive bird that is becoming rare due to loss of its preferred habitat, which is coastal sage scrub.The critical habitat for this bird extends across the Ventura-Los Angeles County line along the extent of the Santa Susana Mountains into Ventura County.

North of State Route-118, the SEA excludes development in the area of Hialeah Springs (but includes the springs), and circles round the development to include the more sparse settlement in the Deer Lake Highlands area. The SEA boundary goes north along the watercourse of Browns Canyon to the confluence with Mormon Canyon. Here the SEA boundary climbs the ridgeline that separate Browns Canyon and Mormon Canyon to include Browns Canyon and the Michael D. Antonovich RegionalPark at Joughin Ranch, and exclude the Mormon Canyon. Continuing up the ridge to its origin on the crest of Oat Mountain, the SEA boundary turns eastward along the ridgeline, excluding the oil fields in the upper reaches of Mormon Canyon and including the extensive natural areas of the north slope of the Santa Susana Mountains.

Along the Ventura-Los Angeles County line north of Rocky Peak, the SEA boundary crosses Blind Canyon (draining to San Fernando Valley), then Llajas Canyon (draining to Simi Valley and ultimately Mugu Lagoon), then El Toro and Chivo canyons (also draining to Mugu Lagoon). Northwest of Chivo, the crest of the Santa Susana Mountains is crossed, and drainages are tributaries of Salt Canyon and the Santa Clara River. The north edge of the critical habitat for the coastal California gnatcatcher is crossed near the crest, where the south-facing slopes that favor coastal sage scrub give way to the ridgeline and north-facing slopes that promote denser chaparral

and oak woodlands. At the northern boundary of the SEA, the Santa Clara River SEA is contiguous as is the critical habitat for the state and federally-endangered least Bell's vireo (*Vireo bellii pusillus)*, which is a small bird that usually nests next to perennial water.

From the northwesterly corner, the boundary travels east along the north side of Salt Canyon, and then along the northern side of the Salt Canyon East Fork. Where the East Fork turns south, the SEA boundary continues east to encompass the steeper southern areas along Potrero Canyon and all of the Pico Canyon drainage south of Potrero. The SEA boundary is truncated at the Stevenson Ranch development, including the Wickham Canyon tributary of Pico in the SEA, but excluding most of Dewitt Canyon. This boundary of the SEA is essentially following the northern edge of the Salt Creek open space that was approved with the Newhall Ranch Specific Plan. In the vicinity of Pico Canyon, the boundary continues eastward to encompass the Lyon Canyon watershed and an unnamed watershed just north of Lyon up to the west side of Interstate-5. Along Interstate-5, the SEA boundary continues along the line of natural vegetation (west and southwest side of Gavin Canyon) including the watersheds of tributaries Towsley, Wiley, Leaming, Rice, and East canyons. The boundary continues east along the western edge of Interstate-5 to an area just west of the City of Los Angeles line, near the interchange with State Route-14. Here the boundary excludes the drainage of Sunshine Canyon, which is involved in the Sunshine Canyon Landfill used by both the City of Los Angeles and the County. Critical habitat for the coastal California gnatcatcher is in the watersheds of Towsley, Wiley, Rice, and East canyons south of the Interstate-5 below about the 2400 feet elevation contour.

North across the Interstate-5 is the Newhall Wedge.The Newhall Wedge is a very rugged part of the Santa Susana Mountains, with substantial natural vegetation of oak woodlands, chaparral, and coastal sage scrub. The Newhall Wedge is truncated by the flood plains of tributaries of the South Fork of the Santa Clara River to the north, east and west, and these flood plains have had extensive development as the City of Santa Clarita(Gavin Canyon is one of these tributaries.). Important connective areas are the road crossings of the Interstate-5 and State Route-14. The connection to the Santa Clara River SEA is the Los Pinetos Road underpass of the State Route-14. Consistent wildlife movement has been recorded with motion-activated cameras there. The Weldon Canyon Road overpass of the Interstate-5 is another connection for the Newhall Wedge with the main part of the SEA. The Old Road underpass of the Interstate-5 is a broad connection. The Calgrove underpass is another broad connection, but busy with traffic.Natural areas are adjacent to all these under- and overpasses. The South Fork of the Santa Clara River is formed by the junction of Towsley, Wiley and East canyons in the northeast corner of Michael D. Antonovich Open Space. Its underpass of Interstate-5 has a natural bottom that is used frequently by wildlife, but on the east side of Interstate-5 there is a series of 15 feet drops and channeled sides, which make it unlikely that terrestrially-tied wildlife would continue into the populated parts of the City of Santa Clarita along the South Fork. Critical habitat for the coastal California gnatcatcher is in most of the Newhall Wedge part of the SEA between the Interstate-5 and the Sierra Highway that is just west of State Route-14.

On the west side of Sunshine Canyon, a broad lobe of the SEA extends along the ridgeline, which separates Sunshine and Bee Canyon to include Bee Canyon Park and Mission Point of O'Melveny Park. This is an area with walnut woodlands, oak woodlands, grasslands, and chaparral including coastal sage scrub, which is the diverse and green vegetation typical of the Santa Susana Mountains. Critical habitat for the coastal California gnatcatcher covers O'Melveny Park, except for the ridgeline of Mission Point, which is above the 2400 feet contour. The SEA boundary travels west from Mission Point along the ridgeline above the Aliso Canyon Oil Field and turns south at the

western edge of the Aliso Canyon Oil Field, along the ridgeline between Mormon and Browns canyons. Critical habitat for the coastal California gnatcatcher extends below about the 2400 feet contour (including Mormon and Browns canyons) and roughly is within the SEA north of State Route-118.

The SEA includes a variety of topographic features; the northern portion of the SEA encompasses Oat Mountain and much of the Santa Susana Mountains from the Ventura-Los Angeles County line east to Interstate-5. Portions of many of the canyons associated with the Santa Susana Mountains and Oat Mountain are also included, such as Salt Canyon, Potrero Canyon, Pico Canyon, Towsley Canyon, El Toro Canyon, Sulphur Canyon, Devil Canyon, Ybarra Canyon, Browns Canyon, Bee Canyon, and Mormon Canyon. Several perennial stream areas occur within these canyons, and there are many natural springs. The north slopes of the Santa Susana Mountains are within the Santa Clara River watershed, which drains the Los Padres National Forest to the north, the Angeles National Forest to the northeast and east, and the Santa Susana Mountains to the south and southeast. The remainder of the SEA is within the Los Angeles River watershed. The majority of the land in the SEA is natural open space with very sparse disturbances in the form of ranches, oil wells, and unimproved access roads. The SEA consists of east-west and northwest trending primary ridges and north-south trending secondary ridges.

The peak of Oat Mountain represents the highest point in the SEA at 3,747 feet above mean sea level (MSL). From Oat Mountain, one can appreciate the diverse influences that create extremely diverse habitat within this SEA. One can see downstream along the Santa Clara River to the mouth of the Pacific Ocean and to the northern Channel Islands. Across the San Fernando Valley are the Santa Monica Mountains, and the Simi Hills enclose the west end of the Valley. To the east are the ascending ridges of the San Gabriel Mountains, and to the northeast the Santa Clara River continues upstream towards the Antelope Valley and the Mojave Desert.Coastal, valley, montane, and desert influences all meet within this small mountain range.

Open space within the SEA supports this great variety of communities, but is dominated by chaparral, oak woodlands, coastal sage scrub, bigcone Douglas-fir-canyon oak woodland, and grasslands; however, there are numerous examples of special vegetation. Not uncommon are cherry woodlands, which are dominated by hollyleaf cherry (Prunus ilicifolia). These mountains are a meeting area of the (regular) Douglas fir (*Pseudotsuga menziesii*) and the bigcone Douglas-fir (*Pseudotsuga macrocarpa*). There are a number of special endemic plants, such as the Santa Susana tarplant (*Deinandra minthornii*), which is a tarplant like few others since it is perennial. Its distribution spreads through the Simi Hills and into the Santa Monica Mountains, but it is primarily at home among the sandstone boulders and terraces, which prevail in the Santa Susana Mountains. The Santa Susana Mountains are the only known place in the County with individuals of the uncommon Palmer's oak (*Quercus palmeri).* This desert oak can be very long-lived. A clone found in Riverside County was judged to have started from an acorn in the last Ice Age, over 10,000 years ago. Other oaks with groves in the Santa Susanas include coast live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), canyon live oak (*Q. chrysolepis*), scrub oak (*Quercus berberidifolia*), and interior live oak (*Q. wislezenii*). The numerous creeks and canyons support riparian scrub and woodland communities with oaks, sycamores, and willows. There are walnut woodlands of the California black walnut (*Juglans californica*) mixed with flowering ash (*Fraxinus dipetala*) and western blue elderberry (*Sambucus nigra* ssp. *caerulea*) and coast live oak. Flowering ash may be a tree up to 60 feet tall in the Santa Susana Mountains, whereas it usually is a low tree or even spindly shrub. The woodlands dominated by walnuts and flowering ash appear to be unique to the Santa Susana Mountains. The

bigcone Douglas-fir-canyon live oak forest at higher elevations represents one of the northwesternmost examples of this community. At its southern end, the SEA includes the eastern portion of the Simi Hills, including the east-facing slopes descending from Chatsworth Peak.Chatsworth Reservoir forms a portion of the south boundary and is currently dry, except for a small detention basin north of the reservoir.

Chatsworth Reservoir is now dry, having been taken out of service in the early 1970s due to seismic safety concerns. However, it retains a variety of interesting habitats, with avian communities of songbirds and waterfowl that benefit from the protection provided by fencing that still surrounds the reservoir. Hence, it is valuable for bird study by students, researchers, and naturalists. North of the reservoir proper and south of Valley Circle Boulevard is a pond and associated freshwater marsh, which supports numerous kinds of waterfowl during the spring and fall migration periods. The periphery of the reservoir is grassland and savannah, with a mixture of valley and coast live oaks (*Quercus lobata* and *Q. agrifolia*), some in small stands. The surrounding grassland and savannah are also important forage areas for migrating birds that roost in or near the wetlands, as well as year-round forage for resident species.

The majority of the SEA is within the unincorporated area of the County.

Wildlife Movement

The SEA includes several important linkages for wildlife movement.The Simi Hills and Santa Susana Mountains provide a vast open space corridor to foster wildlife movement between the Santa Monica Mountains to the south, San Gabriel Mountains to the east, and Los Padres National Forest to the north in the western San Gabriel Mountains of the Transverse Ranges.Dense, natural habitat associated with the majority of the SEA provides excellent opportunities for concealment and water sources, while the grasslands provide an abundance of prey.Examples of wildlife that use these linkages include mountain lion (*Puma concolor*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), and a number of medium-sized animals.

Regional Biological Value

The SEA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met described below.

CRITERIA ANALYSIS OF THE SANTA SUSANA MOUNTAINS AND SIMI HILLS SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	Most of the SEA has critical habitat for the coastal California gnatcatcher. A population of the Braunton's milkvetch has critical habitat in the Simi Hills part of the SEA.The SEA has robust populations of rare plants, such as the Plummer's mariposa lily and the Santa Susana tarplant..
	On a regional basis, biotic communities, vegetative associations,		The SEA contains habitat of the extremely rare Santa Susana tarplant. In addition, several plant communities within the SEA

	Criterion	Status	Justification
B)	and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	are CDFW highest inventory priority communities due to their restricted distribution in the Southern California region. These communities include coastal sage scrub, alluvial scrub, valley oak woodland, valley oak savannah, mainland cherry woodland, native grassland, southern willow scrub, and cottonwood-willow riparian forest.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	All of the plant communities and habitats mentioned above as being restricted in distribution on a regional basis are further restricted in distribution within the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The open space of the SEA allows for connectivity between the Santa Monica Mountains and the San Gabriel Mountains (both the eastern and western sections). Due to the development within the San FernandoValley and the valley of the Santa Clara River, this is an important corridor for gene flow and species movement.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The SEA contains several populations that are unusual or at the extreme ends of their distributions: Douglas-fir, both big cone and the Douglas-fir common to the north, and coastal California gnatcatcher at its western extent. Several unusual vegetation alliances are in the Mountains, for example groves of walnuts and flowering ash. Flowering ash within this SEA are uncommonly tall. The Santa Susana Mountains contain some representatives of the desert Palmer's oak, which is unusual in the County.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The relatively undisturbed nature and large size of the plant communities within the Santa Susana Mountains and Simi Hills provides many undisturbed examples of native, natural communities within the County.

In conclusion, the area is an SEA because it contains A) core habitats of listed species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are restricted in distribution in the County and regionally; D) an essential habitat linkage, which is limited in availability in the County; E) unusual populations at the extreme ends of their distributions that are of scientific interest; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Tujunga Valley and Hansen Dam SEA

Boundary and Resources Description

The Tujunga Valley and Hansen Dam SEA is located on the northern edge of the San Fernando

Valley. The SEA consists of the Tujunga Valley and Wash, starting in the riparian areas of the Big Tujunga, which is the main tributary of the Los Angeles River, within the Angeles National Forest and stretching to include Hansen Dam, Hansen Dam Flood Control Basin, Hansen Dam Park, Hansen Dam Golf Course, Tujunga Wash, and industrial areas downstream of the Hansen Dam. The SEA is entirely in the City of Los Angeles. Most of the part of the SEA upstream, including the Hansen Dam, is anAudubon Californiadesignated State Important Bird Area (IBA), which is part of the Los Angeles Flood Control Basin IBA. The Big Tujunga area is recognized for its great importance to migrating birds on the Pacific Flyway as well as the very rare habitat of alluvial fan scrub, which has uncommon resident birds. The Tujunga Wash above Hansen Dam and into the AngelesNational Forest beyond the SEA is designated critical habitat for the federally-threatened Santa Ana sucker (*Catastomus santaanae*). Two other fishes of the original native four for the Los Angeles River also occur in the Wash and upstream in the Big Tujunga: arroyo chub (*Gila orcuttii*) and an unnamed subspecies of the speckled dace group (*Rhinichthys osculus* ssp. 3).

The SEA is located within portions of the United States Geological Survey (USGS) 7.5' California Quadrangles: San Fernando, Sunland and Van Nuys.

The SEA boundary encompasses the Tujunga Valley Wash and the Hansen Dam Recreation area. The SEA begins in the Angeles National Forest downstream of the confluence of Pipe Canyon with the Big Tujunga, and generally includes the Wash area for much of its extent. The Wash most of the time has water, and from downstream at Hansen Lake (in the Hansen Dam Park) to beyond the upstream area of the SEA, is critical habitat for the federally-threatened Santa Ana sucker (*Catostomus santaanae*).This critical habitat extends beyond the SEA and beyond the Big Tujunga Dam to near the headwaters in both Mill Creek and the Upper Big Tujunga Canyon. The state fish species of concern, speckled dace (*Rhinichthys osculus* ssp. 3) and arroyo chub (*Gila orcuttii*) also occur here. A finger extends off the Wash, up a ridge with native chaparral habitat towards Mount Lukens. The boundary travels east to west, and the Wash receives multiple tributaries from the north and south as it flows west. The northeastern end of the Los Angeles Flood Basins IBA begins at about the crossing of Oro Vista Avenue over the Big Tujunga Wash. The clubhouse part of the Angeles National Golf Club next to Foothill Boulevard is excluded from the SEA, but most of the golfcourse, which has the natural braids of the wash running among its greens, is included in the SEA. East and adjacent to the golf course is a state reserve area for the state and federally-endangered slender-horned spineflower (*Dodecahema leptoceras*). This diminutive wash plant is known locally from Santa Clarita to the east end of the San Bernardino Mountains, and south to the Santa Ana Mountains. It is endangered due to all kinds of development that alters wash flood plains. The golf course area once had and may still have some plants.

The Wash, golf course, and the reserve area have an unusual remnant vegetation of alluvial fan scrub, with California junipers (*Juniperus californica*), cactus patches of prickly-pear (*Opuntia littoralis*) and cholla (*O. parryi*), in conjunction with the usual riparian and scrub plants. The very sensitive coastal cactus wren (*Campylorhynchus brunneicapillus sandiegensis*) is in residence in this area. The natural area of riparian vegetation is on the banks of the Wash, golf course, and reserve next to the Wash, as well as with a remnant native forest in the stream course of Haines Canyon Creek, which joins the Wash at the golf course. This kind of habitat, which once covered the bajada of coalescing coastal alluvial fans next to the mountains of the County has been nearly extirpated by development and flood control. It is only represented in a few places in the County. The San Gabriel Canyon SEA has another example at the Santa Fe Dam Recreation Area. Migratory waterfowl often use the ponds of the golf course that are filled by Haines Canyon Creek and the Big Tujunga. The

alluvial fan habitat mixed with riparian forest continues across the Interstate-210 as the Big Tujunga Wash approaches and flows into Hansen Dam Park.

The SEA has a broad undercrossing of the Interstate-210, which includes a braid of its tributary Haines Canyon Creek crossing under Foothill Boulevard next to Wentworth Street. The Wentworth Street undercrossing is important to wildlife, as it connects to somewhat dispersed horse ranchettes in the Shadow Hills and from there to the natural areas of the Verdugo Mountains and the Verdugo Mountains SEA. Mountain lions may live in the Verdugo Mountains, which would be an important connection for that population as well as for other animals and plants of the Verdugo Mountains.

The Hansen Dam Park is a meeting area for migratory birds with its perennial water and riparian forest that includes some giant sycamores (*Platanus racemosa*) and cottonwoods (*Populus fremontii*). It is a favorite of bird watchers, and the species list has about 260 species. Unusual species have been observed here, such as the federally-endangered coastal California gnatcatcher (*Polioptila californica californica*). Downstream of the Dam, the Hansen Dam Golf Course is included in the SEA, since the pools and mix of native riparian vegetation along with the ornamental vegetation attracts wildlife.The downstream side of the earthen Hansen Dam has been planted with coastal sage scrub, and may be attractive to the gnatcatcher. The quarry and recharge areas have many spots of willow scrub and occasional other native vegetation. The quarry and the recharge pool areas are included in the SEA up to the undercrossing of San Fernando Boulevard.

The area southwest of the Dam is used as a spreading ground. This has created several freshwater marsh areas that are used by marsh birds, migratory waterfowl, and shore birds. The area is also valuable as a wildlife corridor. The vegetation in the Tujunga Valley runs nearly uninterrupted from the foot of the Verdugo Mountains well up into the San Gabriel Mountains. The area has been recognized for its importance, and is used by the Audubon Society and local universities and colleges as a sample of a rapidly disappearing habitat type. As a result, the resources of the area are well known.

Wildlife Movement

Although wildlife movement is hampered by development surrounding the SEA to the south, animals are still able to move through the adjacent hills and valleys, and through the Verdugo Mountains, well up into the San Gabriel Mountains. Due to its large size and topographic complexity, many linkages are certain to occur within the SEA at various bottlenecks. These linkages allow movement between large open space areas within the SEA. Although there are significantly large open spaces within the SEA, contiguous habitat linkages between them are critical in reducing bottlenecks and providing for long-term sustainability. A wide variety of wildlife use linkages throughout the SEA, including mountain lion (*Puma concolor*), coyote, mule deer, bobcat (*Lynx rufus*), and a number of medium-sized mammals. The Wentworth Street underpass of Interstate-210 is a conduit for wildlife through the dispersed residential neighborhoods of the Shadow Hills. The Shadow Hills are the westernmost extent of the Verdugo Mountains, which provide a large area of natural habitat for wildlife.

Regional Biological Value

The SEA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE TUJUNGA VALLEY AND HANSEN DAM SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The Tujunga Valley Wash supports populations of the federally-endangered plants Nevin's barberry and slender-horned spineflower. Most of the SEA is critical habitat for the federally-threatened Santa Ana sucker. Two other sensitive native fishes, speckled dace and arroyo chub, co-occur with the sucker. Coastal California gnatcatcher may be a resident of the area.The coastal cactus wren nests in the alluvial fan vegetation of the SEA.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The stream is naturally perennial, but largely controlled by the upstream Big Tujunga Dam.Similar wash and floodplain habitat of these plants and fishes is under considerable pressure from development and from flood-control hard channelization throughout Southern California. The rarity of the vegetation extends to other biota that use these areas, and these plants are indicators for a widespread loss of this kind of habitat. Several birds considered species of special concern occur in the SEA. They typically occupy alluvial scrub areas, such as the outwash fans formerly found where mountain canyons exit onto the plain of the Los Angeles Basin, and are in this habitat in the SEA.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	The wash and floodplain habitat of these plants, fishes, and birds is under considerable pressure from development and for flood-control hard channelization throughout Los Angeles and is much diminished from the continuous habitat it once was.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	This SEA is located on one of the main tributaries of the Los Angeles River, Tujunga Canyon and connects with the Hansen Dam flood and recharge area. In spite of the channelization of the Los Angeles River, this area is still an important connecting and migration area for plants and wildlife between the San Gabriel Mountains, the Verdugo Mountains, and the San Fernando Valley. It is an important rest area for aerial fauna traveling between the Santa Monica Mountains and the San Gabriel Mountains.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The scarcity of natural alluvial wash and fan habitats in Los Angeles ensures that the remaining ones are good areas for scientific study of birds and other organisms that were once more common in the Los Angeles area.
F)	Areas that would provide for the	Met	The Tujunga Valley Wash is a relatively undisturbed

	preservation of relatively undisturbed examples of the original natural biotic communities in the County.		example of the alluvial washes and fans that once lined the mountains of Los Angeles. It is near a fresh water marsh area used as a spreading ground that is southwest of the dam. A fresh water marsh near the stream exit from the mountains would have been typical of the former configuration with faults along the mountain base, creating uneven ground that would contain marsh pockets. Now most of this type of area has been developed for residences, and most of the washes have been altered as flood control projects. The Wash, therefore, is important to preserve.

In conclusion, the area is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C), biotic communities, vegetative associations, and habitat of plant or animal species that are restricted in distribution on a regional basis and limited in availability in the County; D) habitat for breeding, feeding, resting, and migrating that is limited both in the County and regionally; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Valley Oaks Savannah SEA

Boundary and Resources Description

The Valley Oaks Savannah SEA is located north of the Santa Susana Mountains, approximately one mile south of the Santa Clara River and one mile north of Pico Canyon. The SEA is bordered on the east by Interstate-5 and is situated between Valencia Boulevard and Stevenson Ranch Parkway. To the west, the SEA is bordered by the foothills of the Santa Susana Mountains. The habitat within the SEA was once the emblem of Spanish California, with rolling hills, grasslands and spaced giant valley oaks. This was a chief habitat in the San Fernando Valley when it was filled with wildlife, such as herds of pronghorn. Under the influence of European settlers, these areas were at first cattle range, and then gradually developed into residential neighborhoods.

The SEA is located in the Newhall United States Geological Survey (USGS) 7.5' California Quadrangle.

The SEA is bordered to the east by Interstate-5 and is situated between Valencia Boulevard on the north and Stevenson Ranch Parkway on the south of the SEA. To the west, the SEA is bordered by the West Ridge residential area of Valencia to the north, and the foothills of the Santa Susana Mountains to the south. The SEA boundary outlines an irregular area of undisturbed grassland savannah with hundreds of valley oaks (*Quercus lobata*). In the north, the SEA includes a small part of the TPC of Valencia (a private golf club) that has retained a number of its valley oaks on the ridges between sections of the golf course. The topography is rolling ridges that trend northeast-southwest along the edge of development. The West Ridge development is on graded areas of those rolling ridges.

The SEA is almost completely undisturbed, except for a few dirt roads. This area contains one of the last remaining stands of valley oak (*Quercus lobata*) in the Santa Clarita Valley. The site consists of specimen trees scattered over the SEA. The adjoining natural hills to the southwest of the SEA have

a mixture of plants from the coastal sage chaparral scrub and chaparral communities, which are typical of those found in the Santa Clarita Valley. Other vegetation on the SEA in the southwest area includes coastal sage chaparral scrub and non-native grasses.

The majority of the SEA consists of undisturbed open space bordered by a few high density residential developments. Open space that adjoins the SEA to the southwest is mostly vegetated with dense stands of chaparral. Other types of vegetation, such as woodlands and grasslands, occur in smaller portions that are scattered throughout the adjacent land on moist or north-facing slopes and canyon bottoms. Lesser amounts of coastal sage chaparral scrub are also present, chiefly as an early successional community in areas that have been previously disturbed.

Wildlife Movement

Wildlife movement within the SEA is limited to local movement of foraging animals. Although the SEA does not support regional corridors itself, adjacent lands to the west and northwest may be important linkages for wildlife movement to and from the Santa Susana Mountains and the Santa Clara River. The location of the SEA, therefore, may be important as a corridor buffer and/or adjacent foraging grounds.

Regional Biological Value

The SEA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE VALLEY OAKS SAVANNAH SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The County considers oaks as indicators of the presence of important biological communities for preservation, and the uncommon valley oaks of the western areas of the County are especially valued.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The County has the southern boundary of occurrence for the valley oak, which has its core population in the California Central Valley. This makes the valley oak areas important for Southern California—they are very uncommon for the region as a whole.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The valley oak is uncommon in the County, and the western areas with this species are scattered.
	Habitat that at some point in the life cycle of a species or	Met	Oaks are the basic structure for complex communities of organisms. They form shelter and provide many ecosystem functions that

	Criterion	Status	Justification
D)	group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.		facilitate breeding, feeding, resting, and migration. As the basis of the community, it is important to conserve this habitat.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The valley oaks of the County are on the southern edge of the species' range. This makes them important as the extreme in physical and geographical limits for the scientific study of the species.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Although the SEA area is small, this savannah is natural and representative of a natural biotic community that has chiefly been lost in the County.

In conclusion, the area is an SEA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) a natural savannah of valley oaks, once a common habitat on the west side of the County.

Verdugo Mountains SEA

Boundary and Resources Description

The Verdugo Mountains SEA is located within the Verdugo Mountains. This SEA encompasses the Verdugo Mountains south of Interstate-210 and east of the Interstate-5, as well as a portion of these mountains north of Interstate-210.

The Verdugo Mountains are a wilderness island in the middle of the urbanized metropolitan area of the County, surrounded by the cities of Los Angeles, Burbank and Glendale. This area is cherished by the local communities, much of which are designated agricultural with many equestrian properties. The Verdugo Mountains have retained a rural atmosphere despite their proximity to urban Los Angeles. The Verdugo Mountains currently encompass wilderness area, which ranges through various chaparral, coastal sage chaparral scrub, southern willow scrub, coast live oak woodland and forest ecosystems, and many riparian areas with seasonal waterfalls. It is one of the few remaining natural regions in the Los Angeles area that supports abundant native wildlife and habitats, and also contains several rare

and sensitive plant and animal species. The geographic location of the Verdugo Mountains makes them important for scientific study, genetic interchange between otherwise isolated populations, and recreation for urban residents.

The SEA is located at least partially in each of the following United States Geological Survey (USGS) 7.5' California Quadrangles: Burbank, Sunland, and Pasadena.

The SEA is an island refuge, providing what remains of a link between plant and animal populations found in the Santa Monica and San Gabriel mountains. Genetic interchange, by way of this linkage is important in perpetuating the genetic variability in isolated populations, and the maintenance of healthy ecosystems. Chaparral and coastal sage chaparral scrub cover the hillsides of the mountains, with lush riparian vegetation, including California bay (*Umbellularia californica*), western sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia* var. *agrifolia*), ferns, and ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*), which are found in most of the stream drainages. These plant communities provide habitat that is essential to the diverse and abundant fauna that are found in the area. The mountains are also home to the northernmost population of mission manzanita (*Xylococcus bicolor*).

The proximity of the mountains to urban areas provides an excellent opportunity to study the interaction between wild animal populations and humans. The area has already been used for studies concerned with public health. The Interstate-210 crosses the northern edge and there is some intrusion of development along La Tuna Canyon Road. Residential development is beginning to trim the area and has been excluded from the SEA. However, present human use of the natural, native area has been low and has not significantly affected the natural resources found in the Verdugo Mountains.

The northernmost point of the SEA is in the Shadow Hills district of the City of Los Angeles at the west side of the undercrossing of Sunland/Foothill Boulevard beneath the Interstate-210. The freeway frontage is native vegetation and connective to the north with the Wentworth Streetundercrossing ofInterstate-210. The connection is through native vegetation along the freeway frontage and among dispersed equestrian ranchettes in the Shadow Hills. Wentworth Street ends a short distance east of Interstate-210 at the Angeles National Golf Club, which has its greens interspersed among braided stream courses of the Big Tujunga Canyon alluvial fan. The golf course is part of the SEA. The native vegetation along the freeway, at the restored County Public Works area on the north side of Wentworth, and the native vegetation among the residences of Shadow Hills is all considered an important conduit for wildlife traversing among the San Gabriel Mountains, the SEA, and the Verdugo Mountains.

The SEA boundary follows southward along the southwest side of the Interstate-210 for about a half mile and then crosses to the northeast side of Interstate-210, along a ridge that connects to slopes with natural, native habitat that continues east, along the southern border of the communities of Sunland and Tujunga. In the vicinity of Pasko Peak, the SEA border is drawn around development in the southern edge of the community of Tujunga. The SEA border recrosses the Interstate-210 and then La Tuna Canyon Road. The crossing boundary goes along the east side of a northern tributary of La Tuna Canyon.

A paved road goes along the streamcourse in La Tuna Canyon, and the SEA includes about two miles of native, natural vegetation bordered on the eastern, undeveloped section of the road. The developed western end of La Tuna Canyon Road is excluded from the SEA in a “cherry stem” configuration.

After crossing Interstate-210 and La Tuna Canyon Road, the SEA tracks the southern side of natural

habitat along the Interstate-210 for about a mile. The boundary trends irregularly southeast excludingdevelopment in the flatter areas that border the Verdugo Wash in the Verdugo City District of Glendale. The SEA includes the incised canyons of Sheep Corral, Cunningham, Henderson, Engleheard, and unnamed others, which are all tributaries of the channelized Verdugo Wash.

In the relatively narrowed area around the State Route-2 (Verdugo Canyon) between the San Rafael Hills on the west and the Verdugo Mountains on the East, the SEA continues irregularly south along the natural, native vegetation of the steep hillsides of the Verdugo Mountains that border Glendale. The SEA includes many unnamed canyons and also Ayars Canyon and Deer Creek at the end of Beaudry Boulevard. The unnamed canyon north of Dead Horse Canyon has a possible wildlands connection with the San Rafael Hills. Its northeast-facing slope along Sunshine Drive has chiefly native vegetation and ends in the Verdugo Park on Verdugo Boulevard. Across Verdugo Boulevardis Glendale Community College. The College's eastern border is a natural ridge that connects with the Mountain Avenue overpass of State Route-2 and native vegetation of the San Rafael Hills. Verdugo Boulevard and its development is a substantial block to terrestrial wildlife movement, but aerial fauna and plant seeds can connect fairly easily along this path. In the vicinity of Dead Horse Canyon, the SEA boundary turns generally westward and proceeds irregularly around development in Glendale, including natural parts of Toll, Hillcrest, Sherer, Idelwood, Pomeroy, Brand, and Childs canyons.

The lobe of the Verdugo Mountains between Hillcrest and Brand canyons is the area with the shortest possible traverse, which is a little less than two miles, to the Santa Monica Mountains in Griffith Park. Aerial fauna and plant seeds can easily make the journey, and the Los Angeles River channel at the base of the Santa Monica Mountains has developed a natural bottom and riparian habitat that must be inviting to migrants. A city park and a cemetery are on the route. The Verdugo Mountains are often viewed as one of the principle connections between the Santa Monica Mountains and the San Gabriel Mountains. However, it must be noted that this corridor is highly fragmented and probably impassable for most terrestrial wildlife.

Curving to the northwest in Burbank, the SEA boundary includes the natural, native vegetation of Elmwood, Story, Deer, and Sunset canyons. Sunset Canyon excludes a cherry-stem shaped area around adevelopment. The Wildwood Canyon Park is included in the SEA with its many stately sycamore and coast live oak trees along the narrow stream course. In Stough Canyon the DeBell Municipal Golf course is excluded, as is the paved section of Stough Canyon Road and the buildings of the Stough Canyon Nature Center; however, the hillsides around Stough Canyon Road are included with a lobe of the SEA including the west ridge of Stough. On the west side of this ridge are the excluded Starlight Bowl and a nearby landfill. Continuing northwest, the SEA includes the natural, undeveloped uppermost elevations of McClure, Brace, Cabrini canyons in Burbank, and Fisher, Jeffries, and Chandler canyons of Sun Valley.

North of Chandler is the developed south side of La Tuna Canyon Road, where the SEA boundary turns west along natural vegetation, using lot lines in part, which delineate the extent of fuel modification in this area of high fire hazard. The SEA boundary includes the north-facing south side of La Tuna Canyon for a distance of about three miles. The boundary crosses the road at the point where development stops and natural vegetation is on both sides of the road. From this point, the boundary continues the cherry-stem exclusion westward along the border of natural vegetation on the south-facing slope of La Tuna Canyon. Near the northwestern end of the Verdugo Mountains and La Tuna Canyon, the La Tuna stream joins the West Burbank Flood Control Channel. The SEA boundary includes the McDonald Creek drainage (tributary of La Tuna) and loops around the north ridge of McDonald Creek, changing

direction to the northeast. The SEA boundary includes the natural area along the northern edge of the Verdugo Mountains by again following the edge of development in the Shadow Hills district of the City of Los Angeles. The boundary joins the northernmost point of the SEA near the undercrossing of Interstate-210 for Sunland/Foothill Boulevard.

The SEA is wholly within incorporated boundaries (cities of Los Angeles, Glendale, and Burbank), but much is preserved in conservation easements under the guidance of the Santa Monica Mountains Conservancy.

Wildlife Movement

Although wildlife movement is hampered by adjacent rural development in proximity to the SEA, animals are still able to move through the Verdugo Mountains in many areas. Due to its large size and topographic complexity, many linkages occur within the SEA at various bottlenecks. These linkages allow movement between large open space areas within the SEA, as well as between areas outside the SEA toward the Angeles National Forest. The genetic flow through these areas is crucial in maintaining the diversity and viability of the species within the Verdugo Mountains. Some areas of probable, possible, and perhaps future connection have been indicated in the General Boundary and Resources section. Although there are significantly large open spaces within the SEA, contiguous habitat linkages between them is critical in reducing bottlenecks and providing for long-term sustainability. A wide variety of wildlife use linkages throughout the SEA, including mountain lion (*Puma concolor*), coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), bobcat (*Lynx rufus*), as well as a number of medium-sized mammals.

Regional Biological Value

The SEA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE VERDUGO MOUNTAINS SEA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Not Met	No critical habitats are designated within this SEA.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The Verdugo Mountains combined is an extensive, relatively undisturbed island of natural vegetation in an urbanized area, which is very rare in Southern California.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	The Verdugo Mountains combined is an extensive, relatively undisturbed island of natural chaparral and canyon vegetation. It is an important island refuge for migration among the mountain ranges of the northern portion of the County. Aerial animals and plant seeds can easily traverse the distances between the Verdugo Mountains and Santa Monica, Santa Susana, and the San Gabriel mountains. The Verdugo Mountains serve as the

			centerpiece of these connections. The hillsides are covered by chaparral and coastal sage chaparral scrub. The canyons' riparian vegetation includes California bay, sycamores, ferns and tiger lilies. These plant communities provide habitat that is essential to the diverse and abundant fauna found in the area.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The Verdugo Mountains serve asan arm of the San Gabriel Mountains, extending towards the eastern end of the Santa Monica Mountains in Griffith Park—only two miles distant. Aerial animals and plant seeds easily cross the gap. The Verdugo Mountains are exceedingly important for connections among the Santa Monica, Santa Susana, and the San Gabriel mountains. Genetic interchange, by way of this linkage, is important in perpetuating the genetic variability in isolated populations, which maintains healthy ecosystems and resilience to climate change.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The geographic location of the Verdugo Mountains makes them important for scientific study, genetic interchange between otherwise isolated populations, and recreation for urban residents. The area has already been used for studies concerned with public health.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	The Verdugo Mountains have been impacted by dirt roads, one paved road in Tuna Canyon, fuel breaks, transmission lines and isolated buildings for houses, radio towers, and water tanks.Because of their extent, however, the Verdugo Mountains are still consideredlargely natural and little impacted—a prime example of the chaparral and coastal sage chaparral scrub once prevalent in the County coastal areas.

In conclusion, the area is an SEA because it contains B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Coastal Resource Area Descriptions

The following are detailed descriptions of each of the nine Coastal Resource Areas:

Alamitos Bay CRA

Location

General

The Alamitos Bay CRA is located upstream of the Alamitos Bay Marina, off the Los Cerritos Channel of the City of Long Beach. The CRA boundaries encompass the Alamitos Bay salt marsh, which is one of three remaining examples of salt marshes found in the County. The entire CRA area has been identified by the California Audubon as a Globally Important Bird Area (IBA)—part of the Los Cerritos Wetlands and adjacent oil fields section of the Orange Coast Wetlands unit. The entire CRA is located within the United States Geological Survey (USGS) 7.5' California Los Alamitos Quadrangle.

General Boundary and Resources Description

The CRA boundaries generally follow the Alamitos Bay salt marsh area, which is bordered by an oil field, main artery roads, the Cerritos Channel, and residential development. The CRA is situated to the west of Studebaker Road, north of Westminster Avenue, east of Pacific Coast Highway and south of Loynes Drive and the Cerritos Channel within the City of Long Beach.

The CRA is one of three remaining examples of salt marsh found in the County, and the last remnant of the extensive salt marshes once found in Los Alamitos Bay. The majority of this vegetation type has been lost to urbanization, flood control projects, harbors, and marinas. It is one of the most productive ecological communities and is an important breeding ground for terrestrial and marine organisms, including the majority of commercial fishes. This is due in part to the estuaries and salt marshes interfacing between the terrestrial and marine worlds, and serving as important nutrient cycling centers for marine ecosystems. The Belding's savannah sparrow occurs in Alamitos Bay salt marsh. This species is restricted to salt marsh habitat, and has been placed on the state-endangered species list. The Orange Coast Wetlands IBA is believed to harbor one-eighth of the population of Belding's savannah sparrows, and there is a significant amount in Alamitos Bay. Least terns and other terns that breed in the area often use Alamitos Bay and the Cerritos arm as a foraging area. This type of habitat is an important wintering ground for migratory birds. It is estimated that in the fall and spring seasons, the Orange Coast Wetlands IBA hosts 15,000-20,000 individual migrating birds.

Vegetation

As discussed, the CRA encompasses the last remaining coastal salt marsh in Los Alamitos Bay's formerly extensive system of salt marshes and is one of only three such examples of this habitat remaining in County. Sensitive plant species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

<u>Coastal Salt Marsh</u>: Consists of salt-tolerant plants that are mostly low-growing herbaceous perennials that are found on the borders of marine salt water bodies. The duration and extent of tidal inundation or influence causes a graduation in the prevalence of various species within this community. In the Alamitos Bay wetlands, this includes cordgrass as the dominant species and depending on the conditions, pickleweed, salt grass, alkali heath and spearscale can also be found.

Corresponding MCV communities:

- Sarcocornia pacifica (Salicornia depressa) ([Salicornia pacifica, Salicornia depressa] pickleweed mats) Herbaceous Alliance

- Bolboschoenus maritimus (salt marsh bulrush marshes) Herbaceous Alliance

- Distichlis spicata (salt grass flats) Herbaceous Alliance
- Spartina foliosa (California cordgrass marsh) Herbaceous Alliance

Intertidal Flats: Brackish coastal wetlands of low-lying basins of high evaporation and infrequent inputs of freshwater with low-growing salt tolerant plants.

Corresponding MCV Communities:

- *Ruppia* (*cirrhosa, maritima*) (ditch-grass or widgeon-grass mats) Aquatic Herbaceous Alliance

Wildlife

Coastal salt marshes and estuaries are productive habitats, which are used for foraging and breeding grounds, for both resident and migrating wildlife species. Estuaries and coastal salt marshes are the interface between the terrestrial and marine worlds, and are important nutrient recycling centers for marine ecosystems. In the past, this habitat was once extensive in the Los Alamitos Bay area.

Although little documentation regarding the types of animals present has been found, based on the apparent health of the ecosystem, it may be assumed that fishes that are commonly found in the vicinity can also be found in the CRA. These may include species, such as arrow goby, California halibut, cheekspot goby, diamond turbot, queenfish, shadow goby, shiner perch, topsmelt, longjaw mudsucker, Pacific staghorn sculpin, and yellowfin goby.

Without more information, it is not possible to predict whether any reptiles or mammals can be found, but it is likely that amphibians, such as Baja California chorus frogs, are present.

The CRA habitat probably supports a variety of bird species found in the few coastalsaltmarshes that remain in coastal Southern California. Belding's savannahsparrow has been observed in the CRA. Shallow water habitat exists and would be expected to attract wading birds and ducks. Foraging habitat that is attractive to raptors appears to be present on the outside perimeter of the marsh.

Wildlife Movement

The CRA provides a variety of saltwater, estuarine, mudflat and freshwater marsh habitats, and is an important stopover for many migratory birds traveling the Pacific Flyway migration route. Its suitability for many fishes and invertebrates allows populations that are capable of supporting further colonization and expansion of range. The area does not fall within any identified terrestrial movement routes for wildlife.

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, and/or rare. This is due to the species' declining or limited population sizes, which usually results from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), and special groups, such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as

plant and animal species present, or potentially present within the CRA, which have been accorded special recognition.

Sensitive Plant Communities and Habitats

The CRA supports several habitat types considered sensitive by resource agencies. These are inventoried by California Department of Fish and Wildlife (CDFW) in the California Natural Diversity Database (CNDDB), or have been assigned a conservation status rank of 1 – 3 at the global or subnational scale. Conservation status ranks are assigned by CDFW, following methodology developed by NatureServe (http://www.natureserve.org/conservation-tools/standards-methods/conservation-status-assessment). Within this SEA, the CRA is configured to encompass the regionally significant community of a coastal salt marsh or coastal brackish marsh. This community or closely related designations are considered highest priority communities by the CDFW, indicating that they are declining in acreage throughout their range due to land use changes. The array and composition of these communities have been discussed in the Vegetation section. Changes to the classification system mentioned earlier in some cases divide plant communities into many possible vegetation alliances—not all of which may be considered sensitive. Previously listed communities with at least one sensitive alliance in the new format have been listed.

Sensitive Plant Species

The following special-status plant taxa have been reported or have the potential to occur within the CRA, based on known habitat requirements and geographic range information:

- Davidson's saltscale (*Atriplex serenana var. davidsonii*) RPR 1B.2
- Southern tarplant (*Centromadia parryi ssp. australis*) RPR 1B.1
- Salt marsh bird's-beak (*Chloropyron maritimum ssp. maritimum*) FE, SE, RPR 1B.2
- Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*) RPR 1B.1
- Coast woolly-heads (*Nemacaulis denudata var. denudata*) FT, RPR 1B.1
- California Orcutt grass (*Orcuttia californica*) FE, SE, RPR 2.1
- Estuary seablite (*Suaeda esteroa*) RPR 1B.2
- San Bernardino aster (*Symphyotrichum defoliatum*) RPR 1B.2

Sensitive Animal Species

The following special-status animal species are reported or are likely to be present within the CRA based on habitat requirements and known range attributes:

- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*) SE
- California least tern (*Sternula antillarum browni*) FE, SE, ABC, CDFW Fully Protected

CRA Regional Biological Value

The CRA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE ALAMITOS BAY CRA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	Los Alamitos Bay is one of only three remaining salt marshes found in the County, and a remnant of extensive salt marshes once found in its area. (The others are the Ballona Wetlands off of Santa Monica Bay and the Malibu Lagoon.) It is the type habitat of Belding's savannah sparrow, which is an endangered species that is still found in the much reduced habitat of the salt marshes of Southern California.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Salt marsh is reduced and fragmented from its former coverage in Southern California, so it is important to preserve any of these important estuarine areas.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Los Alamitos Bay is one of only three remaining salt marshes found in the County, which is a remnant of extensive salt marshes once found in the area.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The Belding's savannah sparrow lives its entire life in salt marshes and breeds, rests, and feeds in this area. Salt marshes are important nursery grounds for many marine animals, and diminished fisheries for many are attributed to the loss of salt marshes. Salt marshes are important habitat for migrating marine birds, which utilize the abundant forage produced by the marsh in the form of mud animals and insects.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	As one of only three salt marshes in the County, this area is scientifically interesting for the study of island bio-geography in that salt marshes are now islands, whereas they were once almost continuous in the seismically active coastline of Southern California. The three marshes differ from one another in dominant vegetation.
	Areas that would provide for the preservation of relatively		Los Alamitos Bay is one of only three remaining salt marshes found in the County, which is a remnant of extensive salt marshes once

Criterion		Status	Justification
F)	undisturbed examples of the original natural biotic communities in the County.	Met	found in its area. The majority of this habitat type has been lost to urbanization, flood control projects, harbors, and marinas. Salt marshes are a very productive vegetative community and an important breeding and nursery area for marine, marsh, and terrestrial animals—an ecotone where multiple habitats meet and combine resident biota. Many commercially valuable fishes start life in salt marshes.

In conclusion, the area described in this report is a CRA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; and D) concentrated breeding, feeding, resting, or migrating grounds that are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.

Ballona Wetlands CRA

Location

General

The Ballona Wetlands CRA is located south of Marina del Rey, north of Playa Del Rey, and west and northwest of Playa Vista. One extending arm reaches north to the State Route-90 overcrossing and another reaches south to include the restored freshwater marsh adjacent to the Playa Del Rey and Playa Vista districts of the City of Los Angeles. The Ballona Wetlands are a remnant of what was the County's largest coastal lagoon. The Ballona watershed covers over 130 square miles, and the lagoon area was so large (about 11-12 square miles) that it included freshwater peripheries. Incorporated in the lagoon complex were 10 kinds of habitat that ranged from coastal saltwater marsh to grassy prairie to oak and willow woodland adjacent to freshwater areas. The lagoon connected via Ballona Creek that sometimes was the Los Angeles River, to La Cienega, a large swampy area (about 13-14 square miles) that was north and east of the Baldwin Hills. The CRA lies at the base of the Ballona Creek watershed and includes part of the Ballona Creek flood control channel that drains the total of 130 square miles, from what is now a highly urbanized area. While the Ballona Wetlands ecosystem has been substantially degraded over the years due to human activity and urban development, it is still a rich ecological system that bridges the gap between aquatic marine and freshwater land environments. It provides crucial habitat for hundreds of plant and animal species.

The CRA is in part of the California Audubon-designated Ballona Wetlands State Important Bird Area (IBA). The IBA is more extensive than the CRA, and includes all of the Marina del Rey waterways, some of the Strand Beach to the south, Del Rey Lagoon and Ballona Lagoon, and extends up the Bluff Creek (source creek for the restored freshwater marsh) at the base of the south

Ballona bluff as far as Centinela Avenue. This area is very important to avian life and has a great diversity of bird types ranging from those associated with salt water marsh to those associated with freshwater marsh to raptors that feed over grasslands.

The CRA is located on unincorporated land in the community of Marina del Rey north of the Ballona Creek Channel and in the City of Los Angeles south of the Ballona Creek Channel. It is within the United States Geological Survey (USGS) 7.5' California Venice Quadrangle.

General Boundary and Resources Description

The CRA is surrounded by urban and residential uses. The CRA is bordered by Fiji Way in Marina del Rey on the northeast, and has an arm that extends northeast to the State Route-90 overcrossing. This arm includes an undeveloped area of mixed native and non-native shrubs and grasses, and is bordered by Culver Boulevard on its south edge. The north boundary crosses the Ballona Creek Channel directly south of the end of Fiji Way, and goes west on the south side of Ballona Creek, which delineates the CRA's western half. The boundary turns southward, then eastward at the development in Playa Del Rey. The boundary goes north to Jefferson Boulevard along a gas line road, and then continues eastward on the north side of Jefferson Boulevard, as far as the area that has been restored as a freshwater marsh. The boundary turns southward and eastward to enclose the freshwater marsh. At the boundary of the freshwater marsh along Lincoln Boulevard, the boundary follows the west side of Lincoln Boulevard crossing Jefferson Boulevard, Ballona Wetlands, and connecting to the south side of the north arm where it crosses Culver Boulevard. Most of the area is a mixture of native and non-native shrubs and grasses, with a strong influence of brackish conditions. The northern side of the Ballona Creek Channel was a tidal mud flat in the original Ballona Lagoon that received a large amount of the dredge spoil when Marina del Rey was created. However, there is enough natural forage in the wetlands to sustain a breeding colony of great blue herons and a breeding colony of black-crowned night herons in the trees of nearby Marina del Rey.

Ballona Wetlands is one of three remaining remnants of salt marsh in the County (the other two are Malibu Lagoon in the Santa Monica Mountains SEA and the Cerritos Channel salt marsh in the Alamitos Bay CRA). This type of habitat is one of the most productive in the world, and is used as a breeding ground by many marine and terrestrial organisms. Belding's savannah sparrow (*Passerculus sandwichensis beldingi*), which is a state-recognized endangered species, resides in the pickleweed flats on the south side of the Ballona Wetlands. The California least tern (*Sternula antillarum browni*) breeds in the sandy areas around Ballona Lagoon and on Venice Beach, and is recognized as an endangered species by the state and federal governments. The terns forage in the waterways that are included in the CRA.

The salt marsh, Ballona Creek Channel, Ballona Lagoon, and Del Rey Lagoon form an important complex of habitats that are heavily used by migratory birds. The area is recognized by ornithologists and bird watchers throughout the area for its rich birdlife during the spring and fall migrations, and during the winter season. This type of heavy use is common in salt marsh habitat, and has been made more intense by the loss of habitat in Marina del Rey, and throughout most of Southern California. This forces these birds to concentrate in the few remaining areas. Loss of this habitat type has led to reductions in the numbers of these birds present along the coast.

The salt marsh and lagoon at Ballona Creek are heavily used by academic institutions and conservation groups for educational field trips. This area serves as a type specimen of salt marsh

habitat, and is the only easily accessible example in the County.

Vegetation

There are two categories of habitat in the CRA: wetland and upland altered or created by filling and grading. The wetland is characterized by coastal salt marsh and freshwater marsh. The upland is represented by a disturbed coastal sage scrub, non-native annual grassland, and coastal bluff and dune scrub. Sensitive plant species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

Descriptions and general locations of the each plant community present within the CRA are given below.

Coastal Salt Marsh: Consists of salt tolerant plants that are mostly low-growing herbaceous perennials found on the borders of marine salt water bodies. The duration and extent of tidal inundation or influence causes a graduation of various species prevalence within this community. In the Ballona Wetlands this includes the areas where pickleweed (*Salicornia pacifica*) is a dominant species and depending on the conditions other plants such as California cordgrass (*Spartina foliosa*), salt grass (*Distichlis spicata*), alkali heath (*Frankenia salina*) and spearscale (*Atriplex prostrata*) can be found.

Corresponding MCV communities:

- Sarcocornia [Salicornia] pacifica (Salicornia depressa) (pickleweed mats) Herbaceous Alliance
- Bolboschoenus maritimus (salt marsh bulrush marshes) Herbaceous Alliance
- Distichlis spicata (salt grass flats) Herbaceous Alliance
- Spartina foliosa (California cordgrass marsh) Herbaceous Alliance

Intertidal Flat: Brackish coastal wetlands of low-lying basins of high evaporation and infrequent inputs of freshwater with low-growing salt tolerant plants.

Corresponding MCV Communities:

- *Ruppia* (*cirrhosa*, *maritima*) (ditch-grass or widgeon-grass mats) Aquatic Herbaceous Alliance

Freshwater Marsh: Develops in areas of still or slow-moving permanent freshwater. In the CRA, this community may be dominated by perennial, emergent cattails (*Typha* spp.), which reach a height of four to five meters and often form a closed canopy. Bulrushes (*Schoenoplectus* spp.) are dominant below the cattail canopy. Freshwater marsh is relatively uncommon; it occurs in small patches in natural or created sinks with water sources.

Corresponding MCV communities:

- *Lepidium latifolium* (perennial pepper weed patches) Semi-Natural Herbaceous Stands
- *Schoenoplectus californicus* (California bulrush marsh) Herbaceous Alliance

- *Typha* (*angustifolia*, *domingenis*, *latifolia*) (cattail marshes) Herbaceous Alliance
- *Sarcocornia* [*Salicornia*] *pacifica* (*Salicornia depressa*) (pickleweed mats) Herbaceous Alliance
- *Juncus articus* (var. *balticus, mexicanus*) [*Juncus balticus* ssp. *ater*, *J. mexicanus*] (Baltic and Mexican rush marshes) Herbaceous Alliance
- *Juncus effusus* (soft rush marshes) Herbaceous Alliance
- *Lemna (minor)* and relatives (duckweed blooms) Provisional Herbaceous Alliance

Coastal Sage Scrub: Occurs in Southern California where moisture is available in the upper horizons during the winter-spring growing season. Plants that are adapted to these conditions are a mixture of herbaceous and weakly woody, shrubby and drought deciduous types. This includes species such as California sagebrush (*Artemisia tridentata*), coyote brush (*Baccharis pilularis*) and laurel sumac (*Malosma laurina*).

Corresponding MCV communities:

- *Artemisia californica* (California sagebrush scrub) Shrubland Alliance
- *Artemisia californica-Salvia mellifera* (California sagebrush-black sage scrub) Shrubland Alliance
- *Artemisia californica-Eriogonum fasciculatum* (California sagebrush-California buckwheat scrub) Shrubland Alliance
- *Encelia californica* (California brittle bush scrub) Shrubland Alliance
- *Salvia mellifera* (black sage scrub) Shrubland Alliance
- *Eriogonum cinereum* (ashy buckwheat scrub) Shrubland Alliance
- *Eriogonum fasciculatum* (California buckwheat scrub) Shrubland Alliance
- *Hazardia squarrosa* (sawtooth goldenbush scrub) Shrubland Alliance
- *Lotus scoparius* [*Acmispon glaber*] (deer weed scrub) Shrubland Alliance
- *Lupinus albifrons* (silver bush lupine scrub) Shrubland Alliance

Coastal Bluff and Dune Scrub: A remnant of the El Segundo Dune system that occupied coastal areas along much of the Santa Monica Bay. The system consists of fine, sandy soil that dries rapidly. Plants typical of the dune scrub include dune buckwheat (*Eriogonum parvifolium*), rattle pod (*Astragalus trichopodus var. lonchus*), bladderpod (*Peritoma arborea*), deer weed (*Acmispon glaber*), sawtooth goldenbush (*Hazardia squarrosa*), and California sunflower (*Helianthus californicus*)

Corresponding MCV communities:

- *Baccharis pilularis* (coyote brush scub) Shrubland Alliance
- *Lupinus arboreus* (yellow bush lupine scrub) Shrubland Alliance and Semi-Natural Shrubland Stands
- *Lupinus chamissonis-Ericameria ericoides* (silver dune lupine–mock heather scrub) Shrubland Alliance

Non-native Grassland Communities: Consist of low, herbaceous vegetation that are dominated by invasive grasses that are primarily of Mediterranean origin, but can also harbor native forbs and bulbs, as well as naturalized annual forbs. Species found within this community include wild oat (*Avena fatua*), slender oat (*Avena barbata*), red brome (*Bromus madritensis ssp. rubens*), ripgut brome (*Bromus diandrus*), and herbs such as black mustard (*Brassica nigra*) and wild radish (*Raphanus raphanistrum*). This community can be found throughout the CRA, but are less common in the moist soils found in and close to the salt and fresh water marshes.

Corresponding MCV communities:

- *Avena* (*barbata*, *fatua*) Semi-Natural Herbaceous Stands
- *Brassica* (*nigra*) and other mustards Semi-Natural Herbaceous Stands
- *Bromus* (*diandrus*, *hordeaceus*) *-Brachypodium distachyon* Semi-Natural Herbaceous Stands
- *Bromus rubens-Schismus (arabicus, barbatus)* ([*Bromus madritensis* ssp. *rubens*] red brome or Mediterranean grass grasslands) Semi-Natural Herbaceous Stands
- *Centaurea (solstitialis, melitensis)* (yellow star-thistle fields) Semi-Natural Herbaceous Stands
- *Lolium perenne* [*Festuca perennis*] (perennial rye grass fields) Semi-Natural Herbaceous Stands

Wildlife

Coastal salt marshes are productive habitats that are used for foraging and breeding grounds, for both permanent resident and migrating wildlife species. The CRA is an important site due to the rarity of this type of habitat, which was once more extensive in Southern California.

Studies in the last 30 years in the vicinity have identified a total of 44 species of fishes. Types found include arrow goby (*Clevelandia ios*), California halibut (*Paralichthys californicus*), cheekspot goby (*Ilypnus gilberti*), diamond turbot (*Hypsopsetta guttulata*), queenfish (*Seriphus politus*), shadow goby (*Acentrogobius nebulosus*), shiner perch (*Cymatogaster aggregata*), topsmelt (*Atherinops affinis*), longjaw mudsucker (*Gillichthys mirabilis*), Pacific staghorn sculpin (*Leptocottus armatus*),and yellowfin goby (*Acanthogobius flavimanus*).

Many native species of reptiles and amphibians have been found in the CRA. These include common kingsnake, San Diego gopher snake (*Pituophis catenifer annectens*), western side-blotched lizard (*Uta stansburiana elegans*), San Diego alligator lizard (*Elgaria multicarinata webbii*), Great Basin fence lizard (*Sceloporus occidentalis longipes*), California slender salamander (*Batrachoseps*

attenuatus) and California legless lizard (*Anniella pulchra*). Baja California chorus frog (*Pseudacris hypochondriaca*) and California toad (*Anaxyrus halophilus*) are very common in season. No invasive species of amphibians or reptiles have been reported in the CRA.

Native species of mammals found included western harvest mouse (*Reithrodontomys megalotis* (*western harvest mouse*), Botta's pocket gopher (*Thomomys bottae*), desert cottontail (*Sylvilagus audubonii*), striped skunk (*Mephitis mephitis*), raccoon (*Procyon lotor*), California ground squirrel (*Spermophilus beecheyi*), and the sensitive species south coast marsh vole (*Microtus californicus stephensi*). Invasive species found include house mouse (*Mus musculus*), black rat (*Rattus rattus*), Norway rat (*R. norvegicus*), domestic cat (*Felis domesticus*), Virginia opossum (*Didelphis virginiana*), and domestic dog (*Canis familiaris*). Low populations of small mammals are likely to be due to depredation by introduced red foxes, which are an immediate threat to the continued viability of the Ballona ecosystem.

The Ballona Wetlands provide habitat for a variety of bird species attracted to the few coastal saltmarshes that remain in coastal Southern California. Shallow water habitat for wading birds and ducks occurs in the northwestern portion of the CRA. No deep water is present for diving ducks and other birds that dive from the surface for fish. Foraging habitat for most raptors occurs in the western portion. Many bird species forage in the CRA, and the wetlands are used during migration and nesting. A resident population of Belding's savannah sparrow, which is a state-endangered species, was present in 2006 and the state and federally-endangered California least tern and fully protected American peregrine falcon (*Falco peregrinus anatum*) have been known to forage in this CRA. In 2010, least Bell's vireos (*least Bell's vireo*) successfully nested at the freshwater marsh, and many migrants have been observed there.

Sensitive wildlife species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

Wildlife Movement

The CRA is an important stopover for many migratory birds traveling the Pacific Flyway migration route. For many birds this area, it is important because it provides a variety of salt-water, estuarine, mudflat and freshwater marsh habitats. It offers many fishes and invertebrates an opportunity to establish populations capable of supporting further colonization to expand their range. The area does not fall within any identified terrestrial movement routes for wildlife.

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, and/or rare. This is due to the species' declining or limited population sizes, which usually results from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), and special groups, such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as plant and animal species present, or potentially present within the CRA, which have been accorded special recognition.

Sensitive Plant Communities and Habitats

The CRA supports several habitat types considered sensitive by resource agencies. These are inventoried by California Department of Fish and Wildlife (CDFW) in the California Natural Diversity Database (CNDDB), or have been assigned a conservation status rank of 1 – 3 at the global or subnational scale. Conservation status ranks are assigned by CDFW, following methodology developed by NatureServe (http://www.natureserve.org/conservation-tools/standards-methods/conservation-status-assessment). Within this SEA, the CRA is configured to encompass regionally significant communities, which include pickleweed mats, salt marsh bulrush marshes, California cordgrass marsh, ditch-grass or widgeon-grass mats, California brittle bush scrub, ashy buckwheat scrub, sawtooth goldenbush scrub, and silver dune lupine–mock heather scrub. These communities, or closely related designations, are considered high priority communities by the CDFW, which indicates that they are experiencing a decline throughout their range. The array and composition of these communities has been discussed in the Vegetation section.

Changes to the classification system mentioned earlier in some cases divides plant communities into many possible vegetation alliance communities, not all of which may be considered sensitive. For this CRA description, previously listed communities with a least one sensitive alliance in the new format have been listed.

Sensitive Plant Species

The statuses of rare plants are hierarchically categorized by the CNPS using a rank and decimal system. The initial category level of Rare Plant Rank is indicated by the ranks 1A (presumed extinct),1B (rare or endangered in California and elsewhere), 2A (presumed extinct in California but extant elsewhere), 2B (rare or endangered in California but more common elsewhere), 3 (more information needed, a review list), and 4 (limited distribution). In cases where the CNPS has further identified the specific threat to the species, a decimal or Threat Code is added: .1 (seriously endangered in California), .2 (fairly endangered in California), or .3 (not very endangered in California).

The following special-status plant taxa have been reported or have the potential to occur within the CRA, based on known habitat requirements and geographic range information:

- Aphanisma (*Aphanisma blitoides*) RPR 1B.1
- Marsh sandwort (*Arenaria paludicola*) RPR FE, SE, 1B.1
- Ventura marsh milk-vetch (*Astragalus pycnostachyus var. lanosissimus*) FE, SE, RPR 1B.1
- South Coast saltscale (*Atriplex pacifica*) RPR 1B.2
- Parish's brittlescale (*Atriplex parishii*) RPR 1B.1
- Davidson's saltscale (*Atriplex serenana var. davidsonii*) RPR 1B.2
- Southern tarplant (*Centromadia parryi ssp. australis*) RPR 1B.1
- Orcutt's pincushion (*Chaenactis glabriuscula var. orcuttiana*) RPR 1B.1
- Coastal goosefoot (*Chenopodium littoreum*) RPR 1B.2

- Salt marsh bird's-beak (*Chloropyron maritimum ssp. maritimum*) FE, SE, RPR 1B.2
- Beach spectaclepod (*Dithyrea maritima*) ST, RPR 1B.1
- Los Angeles sunflower (*Helianthus nuttallii ssp. parishii*) RPR 1A
- Coulter's goldfields (*Lasthenia glabrata ssp. coulteri*) RPR 1B.1
- Mud nama (*Nama stenocarpum*) RPR 2B.2Gambel's water cress (*Nasturtium gambelii*) FE, SE, RPR 1B.1
- Coast woolly-heads (*Nemacaulis denudata var. denudata*) RPR 1B.2
- Ballona cinquefoil (*Potentilla multijuga*) RPR 1A
- Estuary seablite (*Suaeda esteroa*) RPR 1B.2

Sensitive Animal Species

The following special-status animal species are reported or are likely to be present within the CRA based on habitat requirements and known range attributes:

- Mimic tryonia (*Tryonia imitator*) CDFW Special Animals List
- Wandering skipper (*Panoquina errans*) CDFW Special Animals List
- Silvery legless lizard (*Anniella pulchra pulchra*) FSS, SSC
- Coastal whiptail (*Aspidoscelis tigris stejnegeri*) CDFW Special Animals List
- San Bernardino ringneck snake (*Diadophis punctatus modestus*) FSS
- Western pond turtle (*Emys marmorata*) BLMS, FSS, SSC
- Two-striped garter snake (*Thamnophis hammondii*) BLMS, FSS, SSC
- Tricolored blackbird (*Agelaius tricolor*) BCC, BLMS, SSC, USBC, AWL, ABC
- Burrowing owl (*Athene cunicularia*) BCC, BLMS, SSC
- Western snowy plover (*Charadrius alexandrinus nivosus*) FT, BCC, SSC, ABC, AWL, USBC
- California black rail (*Laterallus jamaicensis coturniculus*) BCC, ST, CDFW Fully Protected, USBC, AWL, ABC
- Belding’s savannah sparrow (*Passerculus sandwichensis beldingi*) SE
- California least tern (*Sternula antillarum browni*) FE, SE, CDFW Fully Protected, USBC, ABC
- Vireo bellii pusillus (*least Bell's vireo*) FE, SE, ABC

- South coast marsh vole (*Microtus californicus stephensi*) SSC
- Pacific pocket mouse (*Perognathus longimembris pacificus*) FE, SSC
- Southern California saltmarsh shrew (*Sorex ornatus salicornicus*) SSC

Regional Biological Value

The CRA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

Criteria Analysis of the Ballona Wetlands CRA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	Least Bell's vireos are beginning to use the restored freshwater marsh component for breeding. Given time, this could become one of the important breeding areas for them in the coastal area. Belding's savannah sparrow lives in the salt marsh savannah. Least terns breed nearby and forage year round in the shoal water areas of the CRA.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	There are three remaining salt marsh areas in the County: Cerritos Marsh in the Alamitos Bay CRA, Malibu Lagoon, and the CRA. In addition, there is a restored freshwater marsh on the periphery of Ballona Wetlands. The union of these two habitats is very rare in Southern California.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	There are three remaining salt marsh areas in the County: Malibu Lagoon, the marsh in Alamitos Bay CRA, and CRA. In addition there is a restored freshwater marsh on the periphery of Ballona Wetlands. Salt marsh coupled with freshwater marsh, is very rare in the County. There is no other such representation in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	Endangered least Bell's vireos are using the freshwater marsh for breeding—they do not commonly occur in saltwater marshes, but were probably common on the peripheries in the freshwater portions. This restoration returns some of the former diversity and adds an important area for breeding. Many commercially valuable marine fishes start life in salt and estuarine marsh areas. The Ballona Wetlands are an important stopover point for migrations on the Pacific Flyway.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical	Met	The union of the salt marsh and freshwater marsh habitats has no other representation in the County and is therefore of great scientific interest. As the only easily

	limitations, or represent unusual variation in a population or community.		accessible saltwater marsh, the Ballona Wetlands have great educational value. This kind of ecotone is usually in very short supply, and will always be an extreme kind of physical habitat, a meeting point for the coastal strand, the brackish area of the marsh, and the freshwater area of the upland.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	NotMet	Without implementation of restoration activities, this CRA does not provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.

In conclusion, the area is a CRA because it contains A) habitat that hosts breeding for the endangered least Bell's vireo; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are unique and are restricted in distribution in the County and regionally; and D) concentrated breeding, feeding, resting, and migrating grounds, which are limited in availability in the County; and E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community

El Segundo Dunes CRA

Location

General

The El Segundo Dunes CRA is located between the west end of the Los Angeles International Airport (LAX) and the Pacific Ocean. The CRA is the largest remaining coastal dune habitat in Southern California. The federally-endangered El Segundo blue (*Euphilotes battoides allyni*) butterfly lives its entire life in these dunes.

The entire CRA is located in the United States Geological Survey (USGS) 7.5' California Quadrangle of Venice.

General Boundary and Resources Description

The CRA boundaries are as follows: Sandpiper Street to the north, Pershing Drive to the east, Imperial Highway to the south, and Vista Del Mar Road to the west. This is the largest of four proposed critical habitat areas for the El Segundo blue butterfly. The Vista Del Mar Park on Vista Del Mar Road is excluded from the CRA.

The ecological significance of the El Segundo Dunes is recognized by both federal and state governments, as well as by the City and County of Los Angeles and the California Coastal Commission (CCC). The vegetation found here does not occur anywhere else in the County, and is uncommon throughout Southern California. The vegetation is southern dune scrub, which is adapted to sandy, well-drained soils. The vegetation shows zonation, changing gradually as one moves from the foredunes facing west and the ocean over the dune crest and into coastal sage scrub. Many plants and invertebrates are specifically adapted and restricted to this environment and are not found elsewhere. One of these endemic organisms is the El Segundo blue butterfly, a federally-endangered butterfly species. The distribution of this butterfly is entirely restricted to the El Segundo

Dunes and a few specks of dune habitat south to the edge of Malaga Cove (all once part of the El Segundo Dune sysytem). Because of its rarity and highly limited range, the butterfly is officially recognized as an endangered species by the U.S. Fish and Wildlife Service. This small piece of dune habitat is extremely valuable as the final example of a community that was once more common along the County and Southern California coastline.

Vegetation

Vegetation within the CRA is a remnant of a formerly more widespread distribution in the Los Angeles area of plant communities defined by their proximity to the immediate coast with its unique environmental conditions and sandy soils. The area has a long history of land disturbance and increasing isolation from related habitats. Today, the CRA has three plant communities with relatively few species. Importantly, the dune buckwheat (*Eriogonum parvifolium*), which is the only host plant for the larvae of the rare El Segundo blue butterfly, is found there, and the buckwheat population is isolated from other populations. Sensitive plant species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

Descriptions and general locations of the each plant community present within the CRA are given below.

Coastal Strand Vegetation: A community that occurs in the loose sand just above the high tide line of the beach. This community is characterized by a low species diversity because few plants can tolerate the harsh conditions on this dry, sandy, saline soil with buffeting by high winds, salt spray and high summer temperatures.

Corresponding MCV communities:

- Abronia latifolia – Ambrosia chamissonis (dune mat) Herbaceous Alliance
- Cakile (edentula, maritima) (sea rocket stands) Semi-Natural Provisional Herbaceous Alliance

Coastal Bluff and Dune Scrub: A remnant of the El Segundo Dune system that occupied coastal areas along much of the Santa Monica Bay. In the CRA, the coastal bluff and dune scrub is found in a strip along the immediate coastal sections of the CRA. The system consists of fine, sandy soil that dries rapidly. Plants typical of the dune scrub include dune buckwheat (*Eriogonum parvifolium*), rattle pod (*Astragalus trichopodus* var. *lonchus*), bladderpod (*Peritoma arborea*), deer weed (*Acmispon glaber*), sawtooth goldenbush (*Hazardia squarrosa*), and California sunflower (*Helianthus californicus*).

Corresponding MCV communities:

- *Baccharis pilularis* (coyote brush scrub) Shrubland Alliance
- *Lupinus arboreus* (yellow bush lupine scrub) Shrubland Alliance and Semi-Natural Shrubland Stands
- *Lupinus chamissonis-Ericameria ericoides* (silver dune lupine–mock heather scrub) Shrubland Alliance

Coastal Sage Chaparral Scrub: Characterized by the summer drought deciduous vegetation found near the Southern California coast of low, mostly soft-woody shrubs with bare ground underneath and between shrubs. This community is dominated by California sagebrush, California buckwheat (*Eriogonum fasciculatum*), black sage (*Salvia mellifera*), purple sage (*Salvia leucophylla*), and California brittle bush (*Encelia californica*) and intergrades with the coastal bluff and dune scrub near the shore and gradually becomes more evident near the crest of the site

Corresponding MCV communities:

- *Artemisia californica* (California sagebrush scrub) Shrubland Alliance
- *Artemisia californica-Salvia mellifera* (California sagebrush-black sage scrub) Shrubland Alliance
- *Artemisia californica-Eriogonum fasciculatum* (California sagebrush-California buckwheat scrub) Shrubland Alliance
- *Encelia californica* (California brittle bush scrub) Shrubland Alliance
- *Salvia mellifera* (black sage scrub) Shrubland Alliance
- *Eriogonum fasciculatum* (California buckwheat scrub) Shrubland Alliance
- *Hazardia squarrosa* (sawtooth goldenbush scrub) Shrubland Alliance
- *Lotus scoparius* [*Acmispon glaber*] (deer weed scrub) Shrubland Alliance
- *Lupinus albifrons* (silver bush lupine scrub) Shrubland Alliance

Wildlife

An assessment of wildlife is made difficult due to the lack of data but the animal populations within the CRA probably reflect a somewhat lower diversity and abundance for the habitat types present for several reasons, including: the small area of the dune habitat, the homogeneity of the topography and habitat, influences of edge effect from developments to the north and south, the ocean to the west and the impact of being under the flight paths of aircraft departing from LAX to the east.

One key occupant of the area is the El Segundo blue butterfly, which is found here and also in a very few other locations to the south in remnants of the former dune complex. The El Segundo blue butterfly co-occurs with the only known plant species that supports its complete lifecycle, the dune buckwheat (*Eriogonum parvifolium*). The adult butterfly uses the flowers as a major source of nectar, and the larvae feed only on the flowers and seeds.

Amphibian populations are generally scarce in beachfront communities and no riparian habitat is available within the CRA. Many essential reptilian habitat characteristics, such as open habitats that allow free movement and high visibility and small mammal burrows for cover and escape from predators and extreme weather, are present within the CRA. The scrubland habitats in the CRA probably provide foraging and cover habitat for year-round resident and seasonal resident song birds. In addition, the CRA provides some raptor foraging habitat, so they can be expected visitors.

Mammal populations probably reflect the generally disturbed environs influencing this CRA. Small mammals are expected to be uneven in their diversity, with more adaptive species and introduced European species occurring in higher numbers compared to others. Medium sized mammal populations are expected to exhibit the same characteristics. Resident large mammals are absent. Sensitive wildlife species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

Wildlife Movement

The CRA is on the Pacific Flyway migration route used by many birds seasonally. The dune habitat probably does not play an important role as a stopover because of its limited resources, due its small size; however, it will attract some birds because it is one of the few undeveloped places along the coast. The area does not fall within any identified terrestrial movement routes for wildlife.

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, and/or rare. This is due to the species' declining or limited population sizes, which usually results from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), and special groups, such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as plant and animal species present, or potentially present within the CRA, which have been accorded special recognition. When species are federally-listed as endangered or threatened, they often have federally-designated, geographically-specific "critical habitat areas." Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as "critical habitat" after a proposed Federal regulation is published by USFWS in the Federal Register and public comments on the proposal are recieved and considered. However, for species listed previous to 1978, critical habitat areas rarely are designated officially. Sometimes such areas are called "essential habitat," which would be the case here for the El Segundo blue butterfly.

Sensitive Plant Communities and Habitats

The CRA supports several habitat types considered sensitive by resource agencies. These are inventoried by California Department of Fish and Wildlife (CDFW) in the California Natural Diversity Database (CNDDB), or have been assigned a conservation status rank of 1 – 3 at the global or subnational scale. Conservation status ranks are assigned by CDFW, following methodology developed by NatureServe (http://www.natureserve.org/conservation-tools/standards-methods/conservation-status-assessment). Within this SEA, these include dune mat, silver dune lupine–mock heather scrub, California brittle bush scrub, and sawtooth goldenbush scrub. These communities, or closely related designations, are considered high priority communities by the CDFW, which indicates that they are experiencing a decline throughout their range. The array and composition of these communities has been discussed in the Vegetation section.

Sensitive Plant Species

The statuses of rare plants are hierarchically categorized by the CNPS using a rank and decimal system. The initial category level of Rare Plant Rank is indicated by the ranks 1A (presumed extinct), 1B (rare or endangered in California and elsewhere), 2A (presumed extinct in California but extant elsewhere), 2B (rare or endangered in California but more common elsewhere), 3 (more information needed, a review list), and 4 (limited distribution). In cases where the CNPS has further identified the specific threat to the species, a decimal or Threat Code is added: .1 (seriously endangered in California), .2 (fairly endangered in California), or .3 (not very endangered in California).

The following special-status plant taxa have been reported or have the potential to occur within the CRA, based on known habitat requirements and geographic range information:

- Aphanisma (*Aphanisma blitoides*) RPR 1B.1
- Coastal dunes milk-vetch (*Astragalus tener* var. *titi*) FE, SE, RPR 1B.1
- Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*) RPR 1B.1
- Beach spectaclepod (*Dithyrea maritima*) ST, RPR 1B.1
- Coulter's goldfields (*Lasthenia glabrata* ssp. *coulteri*) RPR 1B.1
- Brand's star phacelia (*Phacelia stellaris*) FC, RPR 1B.1

Sensitive Animal Species

The following special-status animal species are reported or are likely to be present within the CRA based on habitat requirements and known range attributes:

- Belkin's dune tabanid fly (*Brennania belkini*) CDFW Special Animals List
- Busck's gallmoth (*Carolella busckana*) CDFW Special Animals List
- Sandy beach tiger beetle (*Cicindela hirticollis gravida*) CDFW Special Animals List
- Senile tiger beetle (*Cicindela senilis frosti*) CDFW Special Animals List
- Globose dune beetle (*Coelus globosus*) CDFW Special Animals List
- Henne's eucosman moth (*Eucosma hennei*) CDFW Special Animals List
- El Segundo blue butterfly (*Euphilotes battoides allyni*) FE, Xerces: Critical
- Lange's El Segundo Dune weevil (*Onychobaris langei*) CDFW Special Animals List
- El Segundo flower-loving fly (*Rhaphiomidas terminatus terminatus*) CDFW Special Animals List
- Silvery legless lizard (*Anniella pulchra pulchra*) FSS, SSC
- Coastal whiptail (*Aspidoscelis tigris stejnegeri*) CDFW Special Animals List

- San Bernardino ringneck snake (*Diadophis punctatus modestus*) FSS
- Coast horned lizard (*Phrynosoma blainvillii*) BLMS, FSS, SSC
- Western snowy plover (*Charadrius alexandrinus nivosus*) FT, BCC, SSC, ABC, AWL, USBC
- California black rail (*Laterallus jamaicensis coturniculus*) BCC, ST, CDFW Fully Protected, USBC, AWL, ABC
- California least tern (*Sternula antillarum browni*) FE, SE, CDFW Fully Protected, USBC, ABC
- Pacific pocket mouse (*Perognathus longimembris pacificus*) FE, SSC

Regional Biological Value

The CRA meets several SEA designation criteria incorporating regional biological values. Each criterion and how it is met is described below.

Criteria Analysis of the El Segundo Dunes CRA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	The El Segundo Dunes is one of four known localities in the world where one can find the endangered El Segundo blue butterfly. All four areas are remnants of a once continuous three-mile system of seacoast dunes in the County. The blue's habitat is the coastal dune buckwheat, on which the butterfly lays its eggs and the larvae feed.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The southern dune scrub vegetation has become very uncommon in the Southern California region due to the conversion of the habitat to seacoast dwellings, hotels, and other development. The vegetation thrives on sandy, well-drained soils, and grades into coastal sage scrub on the inland side. Many plants and invertebrates are restricted to this environment and are not found elsewhere. This small piece of dune habitat is extremely valuable as the final example of a community that was once more common along the Southern California coast.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution	Met	The southern dune scrub vegetation found here on the three remnant localities of the El Segundo Dunes does not occur anywhere else in the County.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the	Met	A number of organisms call the sandy, well-drained soils of the El Segundo Dunes "home," and are restricted to this coastal environment. Like the El Segundo blue butterfly, their entire life cycles are here in thedunes.

	County.		
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	As a result of the uniqueness of this community and of the specializations of the organisms found here, the dunes have been closely scrutinized by biologists of many disciplines.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Not Met	Much of the original threemiles of dunes have been removed by development or disturbed. Scattered on the site are radio towers, roads, oil extraction equipment, and a reservoir. The vegetation is much impacted by human use, but can be restored. The designated area is the best remaining part of the original El Segundo Dunes.

In conclusion, the area is a CRA because it contains A) core habitat for the federally-endangered El Segundo blue butterfly; B-C) beach dunes, a rare community both regionally and within the County; D) a habitat that is rare and necessary for the life cycle of the El Segundo blue butterfly and other dune insects and fauna; and E) the geographic limit of El Segundo Dunes, a rare habitat much studied by biologists.

Malibu Coastline CRA

Location

General

The Malibu Coastline CRA is located in the shoreline and offshore coastal area of Malibu, which is adjacent to the Santa Monica Mountains. The CRA supports significant areas of aquatic plant and other subtidal communities, which provide habitat for a variety of fishes, birds, marine mammals, and other wildlife. Rocky outcrops intermixed with sandy spaces are found to a depth of 600 feet, and the nearshore area down to about 100 feet depth is considered the most productive and dynamic of all the marine communities outside the tropics. All of the many offshore rocks within 12 nautical miles of the coast are part of the California Coastal National Monument that is managed by the Bureau of Land Management in the U.S. Department of the Interior.

The site is located in the Triunfo Pass, Point Dume, Malibu and Topanga Quadrangles of the United States Geological Survey (USGS) 7.5 Minute Map Series (USGS, 1964).

General Boundary and Resources Description

The CRA boundary encompasses parts of the shoreline and about a 0.8 mile offshore from Malibu. The CRA stretches between the Ventura-Los Angeles County line at Leo Carillo State Beach, all the way east to Topanga State Beach. The CRA is generally adjacent to the Santa Monica Mountains SEA and Point Dume CRA. Parts of the shore are included along many of the state beaches. The sandy beaches along this CRA are the least disturbed beaches of the County, some of them completely natural. This is the remnant of the typical rock and sand shoreline that once occurred all along the coast of Southern California. From Mugu Lagoon to Latigo Point (the County portion starting at the Ventura-Los Angeles County line), is an Area of Special Biological Significance

(ASBS), which is a marine area designated by the State Water Resources Control Board as having exceptionally good water quality and natural community features. Populated and disturbed areas along the shore are largely in the City of Malibu and excluded from the CRA.

This area is a relatively undisturbed coastal region where the upwelling of nutrient-rich waters and a variety of habitats support highly productive and extremely diverse marine communities. The area possesses some of the best kelp bed habitat south of Santa Barbara, and supports the only remaining natural kelp beds off the mainland coast of the County. These kelp bed areas may be one hundred times more productive than adjacent sand bottom communities, and they provide refuge, food, and nursery grounds for thousands of species.

Rocky outcrops alternate with sandy stretches along this coastline and subtidally, outcrops are found to a depth of 600 feet. The stability of the substrate and the variety of exposures provide microhabitats for a great number of organisms. Characteristically, rocky shorelines from the lower intertidal zone to about 100 foot depth can be the most biologically active areas in the world. The adjacent Point Dume CRA is one of the few places that rocky intertidal habitat occurs between Palos Verdes Peninsula and Point Mugu in Ventura County. The rocky tidepools off Point Dume, Big Rock Beach, and the promontory where Topanga Canyon Creek enters the ocean are some of the very best remaining rocky intertidal habitat in the County, and these are within the CRA. The Marine Life Protection Act designated protected area in Malibu to be the Point Dume State Marine Conservation Area (SMCA) between El Matador State Beach west of Point Dume to the west side of Point Dume, which is approximately three miles of coastline, with the conservation area extending in due north-south lines from mean high tide to about three nautical miles offshore. In the SMCA, fishing is restricted to certain species. From the west side of Point Dume to Paradise Cove on the east side is designated as the Point Dume State Marine Reserve (SMR), which has no fishing or other take allowed, and extends in due north-south lines (adjacent to the SMCA on the west) from the intertidal to offshore, which is about three nautical miles.

This coastline possesses the only undisturbed sandy beaches that remain in the County. Although very dynamic in physical stability, there is a biological, subtidal, sand-bottom community that has a great diversity of resident organisms and invertebrates ranging from bacteria through jellyfish, mollusks, and echinoderms, such as seastars, to fishes that habitually choose the sand-bottom substrate. An important micro-community of decomposers is present. Sandy beaches with their diverse invertebrate communities of interstitial organisms provide feeding areas for many bird species. In addition, the soft substrate offers a repository for eggs and nursery grounds for many species, including the grunion (*Leuresthes tenuis*) that spawns and deposits its eggs in the highest intertidal areas of the sand. This shoreline remains in essentially a native state as a remnant of what once was typical of rock and sand shoreline in Southern California. Artificial modifications have been limited to small local areas. West of Point Dume, some minor pollution does occur, but the kelp is healthy. East of Point Dume there is minor to moderate pollution, and kelp does not grow below 35 feet.

The CRA has critical habitat for the federally-threatened western snowy plover (*Charadrius alexandrinus nivosus*) along Zuma Beach and the northwest sandy area along Point Dume. This will eventually extend along the entire west side of the headland. The western snowy plover will also have critical habitat on the seaside of the barrier berm of the Malibu Lagoon. The snowy plover has over 300 individuals using the beaches of the County for winter roosts, and there is potential for some to over-summer and breed in the County after a hiatus of many decades (Ryan Ecological

Consulting, 2010).

Vegetation

The terrestrial component of this marine oriented CRA is limited to the narrow stretch of beach just above the high tide line. Sensitive plant species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

Coastal Strand Vegetation: A community that occurs in the loose sand just above the high tide line of the beach. This community is characterized by a low species diversity because few plants can tolerate the harsh conditions on this dry, sandy, saline soil of high winds, salt spray and high summer temperatures.

Corresponding MCV communities:

- *Abronia latifolia – Ambrosia* spp. (dune mat) Herbaceous Alliance
- *Cakile (edentula, maritima)* (sea rocket stands) Semi-Natural Provisional Herbaceous Alliance

Marine Resources

The Malibu coastline is a relatively undisturbed coastal region where the upwelling of nutrient-rich waters and a variety of habitats support highly productive and extremely diverse marine communities. The area possesses some of the best kelp bed habitat south of Santa Barbara, and the only remaining natural kelp beds on the mainline coast of the County. Rocky outcrops alternate with sandy stretches along this coastline and are found to a depth of 600 feet. This coastline also possesses the only undisturbed sandy beaches remaining in the County.

Surfgrass and Eelgrass Habitats: Characterized by two flowering plants that resemble grass and form dense beds on different substrates and in different conditions. Both types form highly productive habitats for unique assemblages of marine species. NOAA Fisheries and the CDFW consider surfgrass and eelgrass as valuable habitats that should be protected. Surfgrass occurs from Mean Lower Low Water (MLLW) to about 25 feet depth on rocky substrate. Locations known to support substantial surfgrass beds include rocky points and rocky subtidal areas of canyons all along the northern border of the CRA. Eelgrass grows on soft substrate and typically occurs in bays. A form of eelgrass (thought to be *Zostera pacifica)* is found on open coast sand bottom. Eelgrass is an important habitat that supports a community of diverse species from sessile to mobile invertebrates and certain fishes, such as pipefish. A subtidal eelgrass bed is in the lee of Lechuza Point between about 25 and 45 feet depth, and subtidal eelgrass may still occur off Los Alisos Canyon.

Community dominant plant:

- *Phyllospadix scouleri*, or Scouler's surf grass and *P. torrey* or Torrey's surfgrass
- *Zosterapacifica* (eelgrass)

Intertidal Zone Habitats: Consist of a variety of coastal habitats periodically covered and uncovered by waves and tides. The rocky shores support a rich assortment of plants and animals including green, brown, and red algae. A wide variety of sessile invertebrates compete for space with the

plants in this habitat. Mobile invertebrates, such as crabs and snails, can be found in great abundance. Fishes are limited to tidepools, although grunion do spawn and deposit their eggs in the high tide wash areas of sandy beaches. The sandy beaches have a diverse community of interstitial invertebrates. Shorebirds actively forage during low tide in all kinds of shoreline habitats. The federally-endangered black abalone (*Haliotuscracherodii* FE) was once abundant in this habitat all along the rocky coastlines of California. Whether it still persists in the Malibu coastline area is unknown, since its current populations are reduced and much more dispersed than before.

Nearshore Subtidal Habitat: Includes those marine habitats ranging from the lower level of the intertidal zone to 99 feet. This region supports a variety of assemblages of invertebrates and fishes, and in the CRA, this habitat is frequently dominated by giant kelp. Rocky areas have a diverse community of algae (in depths of sufficient light penetration), sessile and mobile invertebrates, and fishes. Subtidal areas are even more diverse than the intertidal areas, and this great variety can be appreciated by the examples of tidepools. There are a variety of subtidal sand-adapted organisms ranging from fishes to seastars, to many kinds of jellyfish, mollusks, and other invertebrates.

Kelp Forest Habitat: Giant kelp beds are located in many places along the CRA to a depth of approximately 99 feet in the ocean. The kelp beds are part of a productive habitat that provide food, attachment sites and shelter for invertebrates and fishes. Giant kelp, the dominant alga of this community, is the fastest lengthening organism known, and it thrives in nutrient-enriched waters of upwelling. It has been “clocked” at two feet per day extension of its stipe and blades. The kelp beds are an important nursery habitat and recruitment area for juvenile fishes and invertebrates. The National Oceanographic and Atmospheric Administration (NOAA) Fisheries as well as the CDFW consider kelp beds as sensitive, and lush kelp beds such as those from the Ventura-Los Angeles County line to Malibu Point are designated as ESHA (Environmentally Sensitive Habitat Areas, Malibu Local Coastal Plan, 1986).

Community dominant plant:

- Macrocystis pyrifera (Giant kelp)

Wildlife

The terrestrial and aerial wildlife found in the CRA is dependent on the two basic regimes found there: marine and shoreline terrestrial. The shoreline beaches and rocky intertidal are home to or visited by a wide variety of shorebirds, migrating birds and marine life. The sandy beaches with their shifting sands present an unstable substrate on which organisms can establish themselves, and their resident wildlife is a set of small specialists that live in the sand interstices. An important microcommunity of decomposers exists, which feed on the materials washed up by the waves.

The Malibu Coastline cliffs, bluffs, offshore rocks and beaches offer many undisturbed habitats for roosting, feeding and nesting by numerous kinds of shore– and seabirds. Sandy beaches provide feeding areas for many species. In addition, the soft substrate offers a repository for eggs and nursery grounds for many species.

The marine habitat has the greatest diversity of wildlife, with representatives from nearly all the phyla (major groupings of animals such as jellyfish, mollusks, echinoderms, etc.) and all parts of the food web (trophic levels) for several communities. Many of the marine phyla do not have terrestrial representatives. Some of the vertebrates, such as gray whales, and the plankton use the area as a

migratory corridor. The major vegetation communities, each with its own great diversity and all trophic levels, are the benthic algae of rocky substrates, the kelp beds based on giant kelp holding onto rocky subtidal substrate and extending into the water column, and the planktonic, based on photosynthesizers that are all microscopic.

Sensitive wildlife species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section of this document.

Wildlife Movement

The CRA is on the Pacific Flyway migration route used by many birds seasonally. This shoreline plays an important role as a stopover because of its extensive undisturbed marine resources. The offshore major part of the CRA is on the annual migration route of the California gray whale (*Eschrichtius robustus*), a CITES Appendix I animal (Convention on International Trade in Endangered Species, endangered status, no trade or harvest except by strictly controlled export and import permits issued in countries that are party to the convention and have legislation of adoption, which includes the U.S.). The gray whale migrates close to shore on its transit during the winter months from the Bering Sea to lagoons of Baja California. This is migration to the Baja lagoons for calving and breeding. The whales generally return north offshore. The area may well be a migration corridor for other marine animals, as this is part of the great Southern California Bight, which has an eddy circling counterclockwise to the north off the southward flow of the California Current. This flow brings marine organisms (fishes, invertebrates, and plants) that may have major population concentrations in the south to this part of their ocean habitat. Most of these organisms have a planktonic stage that is absolutely dependent on the current system to maintain their populations and distribution. Pollution of the ocean waters by development on land will have significant effects that may not be appreciated immediately because of the cryptic nature of subtidal animals and plants.

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, and/or rare. This is due to the species' declining or limited population sizes, which usually results from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), and special groups, such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as plant and animal species present, or potentially present within the CRA, which have been accorded special recognition. When species are federally-listed as endangered or threatened, they often have federally-designated, geographically-specific "critical habitat areas." Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as "critical habitat" after a proposed Federal regulation is published by USFWS in the Federal Register and public comments on the proposal are recieved and considered. There are two critical habitat areas for the western snowy plover in this CRA.

Sensitive Plant Communities and Habitats

The CRA supports no terrestrial habitat types considered sensitive by resource agencies, but the

California Department of Fish and Wildlife (CDFW) does not list intertidal or subtidal plants in its California Natural Diversity Data Base (CNDDB, 2011). NOAA Fisheries (National Oceanographic and Atmospheric Administration) as well as the CDFW do consider kelp beds as sensitive, and lush kelp beds such as those from the Ventura-Los Angeles County line to Malibu Point are designated as ESHAs by the County's Malibu Local Coastal Plan, 1986.

Kelp beds disappeared off of Palos Verdes Peninsula during the height of pollution by the White Point outfall in the mid 20th century. The Palos Verdes Peninsula's kelp beds are subsequently returning after reduction of pollution, some prodigious planting efforts, and incursion of the motile zoospores from areas like the Malibu coastline. The kelp beds are sensitive to effects like pollution and excessive sedimentation from development. They are one of the most productive communities of the world, and should be treated with care. Any development plan that might impact them, even with indirect effects, deserves scrutiny.

Sensitive Plant Species

NOAA Fisheries as well as the CDFW consider kelp beds as sensitive, and lush kelp beds, such as those from the Ventura-Los Angeles County line to Malibu Point, are designated as ESHA by the Malibu Local Coastal Plan, 1986. The principle structural component of Malibu offshore kelp beds is the giant kelp (*Macrocystis pyrifera*). NOAA Fisheries and the CDFW consider surfgrass a valuable habitat that should be protected. The principle structural component of surfgrass beds is Scouler's surf grass (*Phyllospadix scouleri*) and Torrey's surfgrass (*P. torreyi*).

Sensitive Animal Species

The western snowy plover (*Charadrius alexandrinus nivosus* [FT, CSC]*),* which feeds and resides in the wrack line areas,has designated critical habitat on Zuma Beach from Trancas Canyon to the northwestern side of Point Dume. This is proposed to expand to Point Dume. Critical habitat is also proposed to include Malibu Beach from Malibu Point to an area east of the pier, which is the seaward side of Malibu Lagoon. The Malibu Lagoon is part of the Santa Monica Mountains SEA, and the CRA is contiguous with the Santa Monica Mountains SEA at the barrier berm of the Lagoon.

The southern steelhead (*Oncorhynchus mykiss irideus* [FE, CSC]) lives in the oceanic and coastal waters for most of its life and uses the coastal streams for breeding and the first year of its young fish's lives. After one to two years in fresh water, the young fish change to smolts and make their run to the ocean, where they spend the majority of their lives. The lower Arroyo Sequit and its West Fork is designated critical habitat for the southern steelhead. This area has naturally occurring spawning beds and young fish habitat. The coastal ocean waters are within this CRA, and the linkage paths from the ocean to the coastal streams are within this CRA. The southern steelhead is known to currently use the Arroyo Sequit, Malibu Creek, and Topanga Canyon. Historically the steelhead was known from Solstice and Zuma canyons, and was probable in all the major drainages, which once had perennial water and extended to the shore in the rainy season.

The California gray whale (*Eschrichtius robustus* CITES Appendix I) uses this CRA during its calving-breeding migration cycle. The entire order of cetaceae (whales and beaked dolphins) is considered CITES Appendix I by the Australian rating system, the most stringent adoption.

The black abalone (*Haliotis cracherodii*) is a federally-endangered species and critically endangered species of the International Union for Conservation of Nature-Red List (IUCN). At one time, the black

abalone was plentiful in the rocky intertidal and nearshore rocky subtidal areas in the CRA, down to about 20 feet depth. Whether it still exists in the CRA is unknown, because its current occurrences are widely scattered and much reduced by overfishing and wasting disease.

- Black abalone (*Haliotis cracherodii*) FE
- Southern steelhead (*Oncorhynchus mykiss irideus)* FE, CSC
- Tidewater goby (*Eucyclogobius newberryi*) FE, SSC
- Western snowy plover (*Charadrius alexandrinus nivosus)* FT, CSC
- California gray whale (*Eschrichtius robustus*) CITES Appendix I

Regional Biological Value

The CRA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE MALIBU COASTLINE CRA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	California gray whale, tidewater goby, southern steelhead, western snowy plover, and black abalone, all spend critical periods of their life cycles in this CRA. Other CITES-listed marine mammals also use this CRA.
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	This area is a relatively undisturbed coastal region where the upwelling of nutrient-rich waters provides for highly productive and extremely diverse marine communities. The area possesses some of the best kelp bed habitat south of Santa Barbara and is recognized as ESHA by NOAA and CDFW. The Malibu coastline section from the Ventura-Los Angeles County line boundary, southeast to Latigo Point is recognized as one of the principal natural areas in the (coastal) State Water Quality Protection Area Program. It is area ASBS-24 (Area of Special Biological Significance). The CRA has critical habitat for the southern steelhead, tidewater goby, and the western snowy plover.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	This relatively undisturbed coastal region possesses some of the best kelp bed habitat south of Santa Barbara and supports the only remaining natural kelp beds off the mainland coast of the County. The kelp beds are recognized as ESHA by NOAA, CDFW, and the Malibu Local Coastal Program. It has critical habitat for the southern steelhead, tidewater goby, and the western snowy plover
		Met	This area protects the entry point of two of three of the (endangered) southern steelhead spawning streams in the County and provides

Criterion		Status	Justification
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.		connective area for the endangered tidewater goby, which breeds in the brackish-water areas of the streams of the Santa Monica Mountains. Kelpbeds are the macroforest of the ocean, and the habitat and breeding and/or spawning ground for many marine animals. The sandy beaches provide feeding areas for many bird species, and the soft substrate offers a repository for eggs and nursery grounds for many species. The migration of marine species occurs in this area for the California gray whale and for innumerable marine species whose plankton ride the ocean currents.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	As the main kelp bed of the County, this area is of great interest to marine scientists. It is also an edge kelp forest, separated by the long stretch of beaches of the Santa Monica Bay from the kelp beds of the Palos Verdes Peninsular area.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	This shoreline remains in essentially a native state as a remnant of what once was typical of rock and adjacent sand shoreline in Southern California. The coastline possesses the only complete, undisturbed sandy beaches remaining in the County. An important microcommunity of decomposers is present. Artificial modifications have been limited to small local areas. West of Point Dume, there is minor pollution; east of Point Dume, there is minor to moderate pollution, and kelp does not grow below 35 feet.

In conclusion, the area is a CRA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County, or regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Palos Verdes Peninsula and Coastline CRA

For a description of the resources in the Palos Verdes Peninsula and Coastline CRA, please refer to the description for the Palos Verdes Peninsula and Coastline SEA above.

Point Dume CRA

Location

General

The Point Dume Coastal Resource Area (CRA) is located on the Malibu coastline and forms the northern end of Santa Monica Bay. Zuma Beach lies to the immediate northwest. Paradise Cove is just east. The CRA is important as a headland on the Pacific Flyway, for its nearby marine and its terrestrial habitats, and for critical habitat of the western snowy plover.

The CRA is located in the Point Dume United States Geological Survey (USGS) 7.5' California Quadrangle.

General Boundary and Resources Description

This headland extends into Santa Monica Bay more than a mile beyond the rest of the Malibu coast, and it is located within the Pacific Flyway. The CRA consists of the rocky coastal headland edge and six fingers extending into the interior canyons on the headland. Point Dume is a significant headland used during migration times on the Pacific Flyway. Point Dume is the southernmost habitat for coastal cliff flora such as the giant coreopsis (*Leptosyne gigantea*) and sea-lettuce (*Dudleya caespitosa)*. The CRA is contiguous with the Malibu Coastline CRA, which has notable tidepools with rich marine habitat on the eastern side of Point Dume. Southern California is known for its extensive sandy beaches, so Point Dume, which is one of very few places with rocky intertidal habitat between Palos Verdes Peninsula and the middle coastline of Ventura County, is a rare habitat in the County. The limited public access, the coastal strand vegetation, and the canyon slopes covered by Venturan coastal sage scrub, protect the resource values of this headland, both terrestrial and marine. The terrestrial and marine habitats combined make Point Dume an exceptional and unique CRA. The Marine Life Protection Act designated protected area in Malibu to be the Point Dume State Marine Conservation Area (SMCA) between El Matador State Beach west of Point Dume to the west side of Point Dume (east end of Zuma Beach), approximately a three-mile coastline. In the Conservation area, take is limited to certain designated fish and squid species for a distance of three nautical miles proceeding due north-south out from the shore. Adjacent, from the west side of Point Dume to the east side of Point Dume at Paradise Cove is designated as the Point Dume State Marine Reserve (SMR), with no take extending to three nautical miles offshore. This includes very fine tidepools on the east side.

Point Dume is one of two remaining areas in the County where a diverse and healthy mixture of terrestrial and marine habitats can be found in close association. Point Dume incorporates the terrestrial habitats: the interior canyons, the unprotected rocky shore with numerous small caves, and the sandy beach pockets; and the Malibu Coastline CRA has the marine habitats that are adjacent: outlying reefs, rocks, kelp beds, and tide pools. The tide pools off of Point Dume are some of the very best remaining in the County. Due to strong upwelling along the coast bringing in nutrient-rich waters, the nearby marine habitat is characterized by highly diverse and productive marine communities. This relative healthiness of both the terrestrial and marine habitats is largely due to limited public access, which has protected the fragile marine and shoreline ecosystems.

Coastal strand vegetation is found on sandy beaches below bluffs that rise 100 to 200 feet above the coast. Giant coreopsis (*Leptosyne gigantea)* and sea-lettuce (*Dudleya caespitosa*) are found in these communities at the southern limit of their range. Several small drainages cut through the bluffs and extend over a mile inland. The slopes are covered by Venturan coastal sage scrub. The value of these communities is increased by the unique geographic position of Point Dume. The area is an important resting and jumping-off point for migratory birds. Without the remaining terrestrial habitats, this refuge would be lost.

The CRA will have critical habitat for the federally-threatened western snowy plover (*Charadrius alexandrinus nivosus*). Currently this critical habitat goes eastward from Trancas Beach, along Zuma Beach, and extends to the northwest sandy area along Point Dume. The plovers use the west sandy habitat of the Point Dume headland, and the critical habitat will eventually extend along the entire west side of the headland into the CRA. (The western snowy plover will also have critical habitat on the seaside of the barrier berm of the Malibu Lagoon.) The snowy plover has over 300 individuals using the beaches of the County for winter roosts, and there is potential for some to over-summer and breed in the County after a hiatus of many decades (Ryan Ecological Consulting, 2010).

Vegetation

Vegetation within the CRA is comprised of several community types. Coastal strand vegetation occurs along the immediate shore and on the cliffs and bluffs, overlooking the ocean coastal dune, and bluff scrub also can be found. In the ravines and upper slopes examples of Venturan coastal sage scrub intergrade with maritime succulent scrub. This is a type of coastal sage scrub, defined by the unusual giant coreopsis, which is found in some of the less disturbed areas of the CRA. Sensitive plant species and plant communities occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

Coastal Strand Vegetation: A community that occurs in the loose sand just above the high-tide line of the coast. This community is characterized by low species diversity because few plants can tolerate the harsh conditions on this dry, sandy, saline soil of high winds, salt spray and high summer temperatures.

Corresponding MCV communities:

- *Abronia latifolia – Ambrosia* spp. (dune mat) Herbaceous Alliance
- *Cakile (edentula, maritima)* (sea rocket stands) Semi-Natural Provisional Herbaceous Alliance

Coastal Bluff and Dune Scrub: Found on the cliffs and bluffs overlooking the ocean. This community formerly was found in many places along the coast, but is now restricted to a few locations. The system consists of fine, sandy soil that dries rapidly. Plants typical of the dune scrub include dune buckwheat, rattle-pod, bladderpod, deer weed, sawtooth goldenbush, and California sunflower.

Corresponding MCV communities:

- *Baccharis pilularis* (coyote brush scrub) Shrubland Alliance
- *Lupinus arboreus* (yellow bush lupine scrub) Shrubland Alliance and Semi-Natural Shrubland Stands
- *Lupinus chamissonis-Ericameria ericoides* (silver dune lupine–mock heather scrub) Shrubland Alliance

Venturan Coastal Sage Scrub: Characterized by the summer drought-deciduous vegetation found near the Southern California coast south of Ventura. It has low, mostly soft-woody shrubs with bare ground underneath and between shrubs. This community is dominated by California sagebrush,

California buckwheat, black sage, purple sage, and California encelia.

Corresponding MCV communities:

- *Artemisia californica* (California sagebrush scrub) Shrubland Alliance
- *Artemisia californica-Salvia mellifera* (California sagebrush-black sage scrub) Shrubland Alliance
- *Artemisia californica-Eriogonum fasciculatum* (California sagebrush-California buckwheat scrub) Shrubland Alliance
- *Encelia californica* (California brittle bush scrub) Shrubland Alliance
- *Salvia apiana* (white sage scrub) Shrubland Alliance
- *Salvia leucophylla* (purple sage scrub) Shrubland Alliance
- *Salvia mellifera* (black sage scrub) Shrubland Alliance
- *Eriogonum fasciculatum* (California buckwheat scrub) Shrubland Alliance
- *Hazardia squarrosa* (sawtooth goldenbush scrub) Shrubland Alliance
- *Lotus scoparius* ([*Acmispon glaber*] deerweed scrub) Shrubland Alliance
- *Lupinus albifrons* (silver-bush lupine scrub) Shrubland Alliance
- *Malacothamnus fasciculatus* (bush mallow scrub) Shrubland Alliance

Maritime Succulent Scrub: A form of coastal sage scrub with many members of that community, as well as one or more endemic succulent evergreen species. Examples of this can be found throughout the CRA.

Corresponding MCV communities:

- *Leptosyne gigantea* (giant coreopsis scrub) Shrubland Alliance
- *Opuntia littoralis* (coast prickly-pear scrub) Shrubland Alliance
- *Lycium californicum* (desert thorn scrub) Provisional Shrubland Alliance

Marine Resources

The Malibu coastline is a relatively undisturbed coastal region where upwelling of nutrient-rich waters and a variety of habitats support highly productive and extremely diverse marine communities. The terrestrial habitat (here the Point Dume headland) and the marine habitats are integrally tied to one another. Disruption in one will impact the other. The marine habitats feed the seabirds that use the headland, and marine organisms, such as the grunion (fish, *Leuresthes tenuis)* use the sandy shore for spawning. The headland protects the nearshore habitats and controls and

filters runoff so that the offshore habitats remain clean and have the terrestrial input of nutrients for which they are adapted. The nearby areas in the Malibu Coastline CRA possesses some of the best kelp bed habitat south of Santa Barbara, and the only remaining natural kelp beds on the mainland coast of the County. Rocky outcrops alternate with sandy stretches along this coastline and are found to a depth of 600 feet. The Point Dume headland typifies the alternating sand and rock on several scales. The Malibu coastline possesses the only complete, undisturbed sandy beaches remaining in the County. The west side of the headland has critical habitat for the snowy plover.

Intertidal Zone Habitats: Consist of a variety of coastal habitats that are periodically covered and uncovered by waves and tides. The rocky shores support a rich assortment of plants and animals including green, brown, and red algae. A wide variety of sessile invertebrates compete for space with the plants in this habitat. Mobile invertebrates, such as crabs and snails, can be found in great abundance. Fishes are chiefly limited to tidepools during high tide. (Grunion spawn on the high-tide areas of the sandy beach.) There is a community of small and microscopic organisms adapted to the interstices of the sand grains of the beach. Shorebirds actively forage in both rocky and sand areas during low tide. The rocky tidepools adjacent to the CRA on its east side are some of the finest remaining in the County. They are in the Malibu Coastline CRA and the Point Dume State Marine Reserve—no take of any kind is permitted.

Nearshore Subtidal Habitat: The Malibu Coastline CRA has many interactions with the biota of the CRA. Marine habitats include the rocky substrate of the lower level of the intertidal zone on the east side of Point Dume, to subtidal rocky areas that support a great diversity of invertebrates and fishes. Near the CRA this habitat is frequently dominated by giant kelp. The sandy offshore habitat on the west side of Point Dume has a wonderful variety of sand-adapted organisms, ranging from fishes to seastars, to many kinds of jellyfish, mollusks, and other invertebrates.

Kelp Forest Habitat: Giant kelp beds are located down to a depth of approximately 99 feet in the ocean surrounding Point Dume in the Malibu Coastline CRA. The kelp beds are part of one of the temperate zone's most productive habitats, by providing food, attachment sites and shelter for invertebrates and fishes. It is a supremely important nursery and recruitment habitat for juvenile fishes and invertebrates, and an important feeding area for seabirds that use Point Dume for roosting.

Wildlife

The wildlife found in the CRA is dependent upon the two basic regimes found there: marine and terrestrial. The shoreline and bluffs overlooking the coastal sections are home to or visited by a wide variety of shorebirds, migrating birds and marine life. The interior grasslands and ravines have a very different assemblage than other nearby coastal areas. The CRA ravines are separate and isolated from one another. They exhibit a reduced number of animal species than otherwise might be expected and probably suffer from the effects of fragmentation of a larger, more contiguous ecosystem.

Point Dume is a peninsula that projects its rocky cliff sides out into the Pacific Ocean relative to low bluffs and beaches to the east and west that are heavily impacted by human activity. Point Dume offers a variety of undisturbed habitats for marine and shorebirds. These cliffs and offshore rocks offer ideal roosting and feeding sites for numerous shorebirds, gulls, and other seabirds.

All wildlife species previously recorded, as well as those expected to occur, within the CRA are

indicated in the *Comprehensive Floral & Faunal Compendium* of the *Los Angeles County SEA Update Study 2000 Background Report*. Sensitive wildlife species occurring or potentially occurring within the CRA are discussed in the Sensitive Biological Resources section.

Wildlife Movement

The CRA is on the Pacific Flyway migration route used by many birds seasonally. It plays an important role as a stopover because of its extensive undisturbed marine resources. Point Dume does not fall within any identified terrestrial movement routes for wildlife because it is isolated by the ocean on one side, and miles of developed land on the remaining sides.

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, and/or rare. This is due to the species' declining or limited population sizes, which usually results from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), and special groups, such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as plant and animal species present, or potentially present within the CRA, which have been accorded special recognition. When species are federally-listed as endangered or threatened, they often have federally-designated, geographically-specific "critical habitat areas." Critical habitat is a specific geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery. An area is designated as "critical habitat" after a proposed Federal regulation is published by USFWS in the Federal Register and public comments on the proposal are recieved and considered. The CRA has proposed critical habitat for the federally-threatened western snowy plover.

Sensitive Plant Communities and Habitats

The CRA supports several habitat types considered sensitive by resource agencies. These are inventoried by California Department of Fish and Wildlife (CDFW) in the California Natural Diversity Database (CNDDB), or have been assigned a conservation status rank of 1 – 3 at the global or subnational scale. Conservation status ranks are assigned by CDFW, following methodology developed by NatureServe (http://www.natureserve.org/conservation-tools/standards-methods/conservation-status-assessment). The CNDDB includes state and federally-listed endangered, threatened, and rare vascular plants, as well as several sensitive vertebrate species. These communities include coastal sage chaparral scrub and maritime succulent scrub, which occur throughout the CRA. These communities, or closely related designations, are considered high priority communities by the CDFW, which indicates that they are experiencing a decline throughout their range. The array and composition of these communities has been discussed in the Vegetation section.

Sensitive Plant Species

The following special-status plant taxa have been reported or have the potential to occur within the CRA, based on known habitat requirements and geographic range information:

- Malibu baccharis (*Baccharis malibuensis*) RPR 1B.2
- Coulter's saltbush (*Atriplex coulteri*) RPR 1B.2
- Slender mariposa lily (*Calochortus clavatus* var*. gracilis*) RPR 1B.1
- Plummer's mariposa lily (*Calochortus plummerae*) RPR 4.2
- Parry's spineflower (*Chorizanthe parryi* var*. parryi*) RPR 1B.1
- Blochman's dudleya (*Dudleya blochmaniae* ssp. *blochmaniae*) RPR 1B.1
- Agoura Hills dudleya (*Dudleya cymosa* ssp*. agourensis*) FT, CSC, RPR 1B.2
- Marcescent dudleya (*Dudleya cymosa* ssp*. marcescens*) FT, SR, RPR 1B.2
- Lyon's pentachaeta (*Pentachaeta lyonii*) FE, SE, RPR 1B.1
- Sonoran maiden fern (*Thelypteris puberula* var*. sonorensis*) RPR 2.2

Sensitive Animal Species

The following special-status animal species are reported or are likely to be present within the CRA based on habitat requirements and known range attributes:

- Coast horned lizard (*Phrynosoma blainvillii*) CSC
- Two-striped garter snake (*Thamnophis hammondii*) CSC
- Western snowy plover (*Charadrius alexandrinus nivosus*) FT, CSC

Regional Biological Value

The CRA meets all SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE POINT DUME CRA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	This CRA includes habitat that is used by the western snowy plover (*Charadrius alexandrinus nivosus).* The west side of the headland includes federally-designated critical habitat that will expand into the CRA.
	On a regional basis, biotic communities, vegetative		The CRA has coastal bluff vegetation on 100-200 feet cliffs, and on the sandy beaches below, is good coastal strand vegetation and

	Criterion	Status	Justification
B)	associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	habitat. The southern limit of the range for two plants characteristic of the bluffs to the north, giant coreopsis and sea-lettuce is on Point Dume. On the east side of Point Dume, the Malibu Coastline CRA has an excellent rocky intertidal area, which is a habitat that is no longer common in Southern California.
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	Point Dume is one of the two remaining areas in the County where a diverse and healthy mixture of terrestrial Venturan coastal sage scrub and coastal strand vegetation are in close association with marine habitats. Its marine habitats consist of an unprotected rocky shore, with sandy beach pockets, and numerous small caves. The contiguous Malibu Coastline CRA hasoutlying reefs, rocks, and kelp beds. Due to strong upwelling along the coast, the waters are nutrient–rich and foster highly diverse and productive marine communities, which are protected somewhat by limited public access on the Point Dume headland.
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	The headland of Point Dume extends into Santa Monica Bay more than a mile beyond the rest of the Malibu coast, and it is located within the Pacific Flyway. As a result, the area is an important jumping off point for migratory birds. Without the remaining terrestrial habitats, this refuge would be lost.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The close association of native terrestrial vegetation and diverse marine habitats enriched by the nutrient upwelling make the Point Dume area scientifically important for the County. The southern-most point for giant coreopsis and sea lettuce are extreme points for vegetation that are more common to the north.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Met	Relative to other coastal areas, the terrestrial vegetation communities at Point Dume are in good condition, in spite of some degradation from increased runoff and human usage. The marine flora and fauna are in excellent condition, and the association is important to conservation of the County's biodiversity.

In conclusion, the area is a CRA because it contains A) core habitat of the western snowy plover, a federally-threatened species, B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are restricted in distribution in the County and also regionally restricted; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community; and F) areas that provide for the preservation of relatively undisturbed examples of original natural biotic communities in the County.

Santa Catalina Island CRA

For a description of the resources in the Santa Catalina Islands CRA, please refer to the description of Santa Catalina Island in Section V below.

Santa Monica Mountains CRA

For a description of the resources in the Santa Monica Mountains CRA, please refer to the description for the Santa Monica Mountains SEA above.

Terminal Island (Pier 400) CRA

Location

General

The Terminal Island (Pier 400) CRA is located in the southernmost part of the County within the Port of Los Angeles. Terminal Island (Pier 400) supports one of the few remaining areas for breeding utilized by the endangered least terns. The CRA is an artificial dredge spoil island located generally in San Pedro Bay within the Port of Los Angeles. Pier 400 is in the outer harbor area, and the least tern nesting area is on the southern end. It is protected from future development per inter-agency agreement among the Port of Los Angeles, U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and the U.S. Army Corps of Engineers. The area was specifically designed for least tern nesting and is maintained with buffer from the surrounding Port development, close range to foraging areas, and clearing of the flat sandy area to have little vegetation. During the nesting season (April-August) the site is designated as a no-trespassing area. When least terns nest outside the designated boundaries, a buffer is established for the nest(s) until the chicks are fledged. At other times, the Port may use the site for temporary purposes as long as it is restored prior to the following nesting season. The CRA corresponds directly to the California Audubon-designated Globally Important Bird Area (IBA), Pier 400 Tern Colony IBA.

The site is located in the Long Beach and San Pedro Quadrangles of the United States Geological Survey (USGS) 7.5 Minute Map Series (USGS, 1964).

General Boundary and Resources Description

The CRA is not on a natural island. It is an approximately 15-acre fenced area on the south end of Pier 400, part of Terminal Island, in the Los Angeles Harbor. The area is maintained, prepared, and monitored annually by the Port of Los Angeles for the least tern. The nesting site was created, along with the entire Pier 400 peninsula, of material dredged from the Los Angeles Harbor from 1995-2003. The substrate consists of sand with small rocks and many shell pieces. Non-native flora colonize the area every year. Every year before the breeding period, the Port of Los Angeles has the plants surveyed and then cleared to prepare the terrain for what least terns prefer—a flat sandy area that is virtually free of vegetation that the terns can scrape to provide a shallow depression for their eggs. The northern part of Pier 400 is now a shipping container terminal. There is an undeveloped area, covered with low, volunteer vegetation, west of the CRA that may someday be used by the Port. The CRA site has been used by the least tern for nesting since it was created in 1997. The CRA and the adjacent field on the west are separated and protected from Port activity by a chainlink fence with locked gate. In addition, the CRA has a peripheral chick fence to keep the chicks from

wandering off the CRA area.

Vegetation

The vegetation in this CRA was removed in 2003 and 2004 to allow additional nesting area for the least tern. The common species seen include sea rocket (*Cakile maritima*), tree tobacco (*Nicotiana glauca*), Bermuda grass (*Cynodon dactylon*), puncture vine (*Tribulus terrestris*), and sow thistle (*Sonchus oleraceus*). This removal was judged a success, and clearing has been continued in recent years. Sensitive plant communities have not been found on the site.

Wildlife

Wildlife diversity and abundance within the CRA is limited by its remote location, only accessible by terrestrial animals after traversing long distances through industrial facilities and the narrow, paved causeway of access. Feral cats, rats and mice, and birds associated with development in the region, such as gulls, crows, rock doves, house finches, house sparrows and mockingbirds have been recorded in the area. Native herons that could prey upon the least tern chicks have been observed in the area. The site was also used for breeding in 2011 by two other species that prefer bare, scraped areas: black skimmers (*Rynchops niger*) and Caspian terns (*Hydroprogne caspia*). Many types of shore birds are found nearby.

Wildlife Movement

The site is a low quality habitat for terrestrial animal foraging, and it does not lie within any identified terrestrial movement routes for wildlife. However, it is well located as a linkage site for migratory waterfowl and some birds, specifically the least tern. Surrounding bay waters on three sides provide suitable area for the least tern foraging. The principle prey items they seek are small, schooling fish that frequent the surface area of bay and estuarine waters.

Sensitive Biological Resources

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, and/or rare. This is due to the species' declining or limited population sizes, which usually results from habitat loss. Watch lists of such resources are maintained by the California Department of Fish and Wildlife (CDFW), the United States Fish and Wildlife Service (USFWS), and special groups, such as the California Native Plant Society (CNPS). The following sections indicate the habitats as well as plant and animal species present, or potentially present within the CRA, which have been accorded special recognition.

The site of this CRA is entirely artificial, but it provides the least terns the ideal kind of substrate they prefer: a flat sandy area, devoid of vegetation, that they can scrape for a nesting depression. Artificially created sites (inadvertently created by development) are frequently chosen for breeding by least terns. The site has been used by the least tern for nesting since it was created in 1997 and has been continually managed for this use.

Sensitive Plant Communities and Habitats

The CRA supports no habitat types considered sensitive by resource agencies, namely the CDFW

California Natural Diversity Data Base (CNDDB) [2011].

Sensitive Plant Species

No sensitive plants are expected to occur within this CRA.

Sensitive Animal Species

The California least tern (*Sternula antillarum browni*) is both state and federally-endangered. It nests in the CRA and forages in shallow water near the nest site. The western snowy plover (*Charadrius alexandrus nivosus*) is listed as a federally-threatened species and California species of concern, and migrants have been seen but have not nested. Black skimmers ([F-BCC, CA-SSC]) used the site for nesting in the 2011 season.

Regional Biological Value

The CRA meets several SEA designation criteria and supports many regional biological values. Each criterion and how it is met is described below.

CRITERIA ANALYSIS OF THE TERMINAL ISLAND (PIER 400) CRA

Criterion		Status	Justification
A)	The habitat of core populations of endangered or threatened plant or animal species.	Met	This area was set aside because endangered least terns use it for breeding in the summer. Their breeding depends on availability of forage fish, and they may not use the area consistently. In addition there may be some breeding by the black skimmer (bird of concern for the State and USFWS).
B)	On a regional basis, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	This area was set aside because endangered least terns use it for breeding in the summer. Their breeding depends on availability of forage fish, and they may not use the area consistently. In addition there may be some breeding by the black skimmer (bird of concern for the State and USFWS).
C)	Within the County, biotic communities, vegetative associations, and habitat of plant or animal species that are either unique or are restricted in distribution.	Met	The least tern typically breeds in flat sandy areas that are created by disturbance, but are free of disturbance and vegetation during the breeding period. The area needs to be close to a source of the terns' prey, which are small, estuarine or surface-schooling marine fishes. The choice breeding areas require no disturbance because the terns make an unsheltered scoop for a nest, and eggs and nestlings would be crushed by constant traffic of vehicles or pedestrians. This kind of habitat was once common along the beaches of Southern California, but has nearly disappeared as estuaries have been filled and channelized, and sandy beaches have become a favorite Southern California recreation area.

Criterion		Status	Justification
D)	Habitat that at some point in the life cycle of a species or group of species, serves as concentrated breeding, feeding, resting, or migrating grounds and is limited in availability either regionally or in the County.	Met	Los Angeles has many fine beaches that are potential nesting sites, but nearly all have become recreation areas. The terns have continued to use the areas with protection from disturbance, which are a small number compared to the previously available undisturbed sites.
E)	Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.	Met	The Terminal Island site is named as a CRA for the summer bird breeding that occurs.
F)	Areas that would provide for the preservation of relatively undisturbed examples of the original natural biotic communities in the County.	Not Met	Due to the artificial construct of the area, the CRA does not serve as a relatively undisturbed example of the original natural biotic communities in the County.

In conclusion, the area is a CRA because it contains A) the habitat of core populations of endangered and threatened plant and animal species; B-C) biotic communities, vegetative associations, and habitat of plant and animal species that are either unique or are restricted in distribution in the County and regionally; D) concentrated breeding, feeding, resting, or migrating grounds, which are limited in availability in the County; and E) biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent unusual variation in a population or community.

CRA DESCRIPTION SOURCES

Alamitos Bay CRA Sources

Baldwin, Bruce G., Douglas H. Goldman, David J. Keil, Robert Patterson, and Thomas J. Rosatti (editors, 2012) *The Jepson Manual: Vascular Plants of California, Thoroughly Revised and Expanded.* Second Edition. Jepson Herbarium, Berkeley, CA. 1600 pp., illus.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *Special Animals (898 taxa).* 60 pp.

California Department of Fish and Wildlife, Natural Diversity Database. April 2011. *Special Vascular Plants, Bryophytes, and Lichens List.* Quarterly publication. 71 pp.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *State and*

Federally Listed Endangered and Threatened Animals of California. 13 pp.

County of Los Angeles, Department of Regional Planning. 2006. *The Alamitos Bay SEA Description,* Los Angeles County, California.

Fish and Wildlife Services. 2000. *Federal Register*. "Endangered and Threatened Wildlife and Plants; Proposed Determination of Critical Habitat for the Coastal California Gnatcatcher; Proposed Rule". Fish and Wildlife Services; 32 pp.

Holland RF. *Preliminary descriptions of the terrestrial natural communities of California*. 1986 and 1992 Update. California Department of Fish and Wildlife unpublished report.

LSA Associates, Inc. October 2009. *Draft Environmental Impact Report: Alamitos Bay Marina Rehabilitation Project*, Prepared for the City of Long Beach.

Sawyer, Keeler-Wolf and Evens. 2009. *A Manual of California Vegetation, Second Edition* Sacramento: California Native Plant Society Press.

U.S. Fish and Wildlife Service. 1997. *Vernal Pools of Southern California Draft Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon. 113+pp.

Zedler, P.H. 1987. *The Ecology of Southern California Vernal Pools: A Community Profile*. U.S. Fish and Wildlife Service Biological. Report 85(7.11). 136 pp.

Ballona Wetlands CRA Sources

Baldwin, Bruce G., Douglas H. Goldman, David J. Keil, Robert Patterson, and Thomas J. Rosatti (editors, 2012) *The Jepson Manual: Vascular Plants of California, Thoroughly Revised and Expanded.* Second Edition. Jepson Herbarium, Berkeley, CA. 1600 pp., illus.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *Special Animals* (898 taxa). 60 pp.

California Department of Fish and Wildlife, Natural Diversity Database. April 2011. *Special Vascular Plants*, *Bryophytes*, *and Lichens List.* Quarterly publication. 71 pp.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *State and Federally Listed Endangered and Threatened Animals of California.* 13 pp.

County of Los Angeles, Department of Regional Planning. 2006. *The Ballona Wetlands SEA Description*, Los Angeles County, California.

Fish and Wildlife Services. 2000. *Federal Register*. "Endangered and Threatened Wildlife and Plants; Proposed Determination of Critical Habitat for the Coastal California Gnatcatcher; Proposed Rule". Fish and Wildlife Services; 32 pp.

Holland RF. *Preliminary descriptions of the terrestrial natural communities of California*. 1986 and 1992 Update. California Department of Fish and Wildlife unpublished report.

Philip Williams & Associates, Ltd. 2006. *Ballona Wetland Existing Conditions DRAFT Report*,

Section 5. Biological Resources. Prepared for California State Coastal Conservancy.

Sawyer, Keeler-Wolf and Evens. 2009. *A Manual of California Vegetation*, *Second Edition* Sacramento: California Native Plant Society Press.

U.S. Fish and Wildlife Service. 1997. *Vernal Pools of Southern California Draft Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon. 113+pp.

Zedler, P.H. 1987. *The Ecology of Southern California Vernal Pools: A Community Profile*. U.S. Fish and Wildlife Service Biological. Report 85(7.11). 136 pp.

El Segundo Dunes CRA Sources

Baldwin, Bruce G., Douglas H. Goldman, David J. Keil, Robert Patterson, and Thomas J. Rosatti (editors, 2012) *The Jepson Manual: Vascular Plants of California, Thoroughly Revised and Expanded.* Second Edition. Jepson Herbarium, Berkeley, CA. 1600 pp., illus.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *Special Animals* (898 taxa)*.* 60 pp.

California Department of Fish and Wildlife, Natural Diversity Database. April 2011. *Special Vascular Plants*, *Bryophytes*, *and Lichens List.* Quarterly publication. 71 pp.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *State and Federally Listed Endangered and Threatened Animals of California.* 13 pp.

County of Los Angeles, Department of Regional Planning. 2006. *The El Segundo Dunes SEA Description*,Los Angeles County, California.

England & Nelson Environmental Consultants. 1976. *Land Capability/Suitability Study*, *Los Angeles County General Plan Revision Program*, *Significant Ecological Areas Report*, Riverside, California.

Holland RF. *Preliminary descriptions of the terrestrial natural communities of California*. 1986 and 1992 Update. California Department of Fish and Wildlife unpublished report.

Sierra Delta Corporation. 1988. *Biota Report for Zond Systems*, *Inc.*, *Los Angeles Wind Electric Generating Station*, *Gorman*, *California*, *Conditional Use Permit 86453*,Las Vegas, Nevada.

Sapphos Environmental, Inc. January 2005. *Los Angeles/El Segundo Dunes Habitat Restoration Plan*. Prepared for Los Angeles World Airports and U.S. Department of Transportation, Federal Aviation Administration.

Sawyer, Keeler-Wolf and Evens. 2009. A Manual of California Vegetation, Second Edition Sacramento: California Native Plant Society Press.

Malibu Coastline CRA Sources

Baldwin, Bruce G., Douglas H. Goldman, David J. Keil, Robert Patterson, and Thomas J. Rosatti (editors, 2012) *The Jepson Manual: Vascular Plants of California*, *Thoroughly Revised and Expanded*. Second Edition. Jepson Herbarium, Berkeley, CA. 1600 pp., illus.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *Special Animals (898 taxa).* 60 pp.

California Department of Fish and Wildlife, Natural Diversity Database. April 2011. *Special Vascular Plants, Bryophytes, and Lichens List.* Quarterly publication. 71 pp.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *State and Federally Listed Endangered and Threatened Animals of California.* 13 pp.

City of Malibu. 2009. Malibu General Plan*, Section II, Elements of the General Plan, Chapter 3.0 Conservation Element, 3.2 Existing Natural Resources.*

City of Malibu. 2007. *Draft Proposed Environmentally Sensitive Habitat Areas (ESHA) Findings for the City of Malibu LCP.*

County of Los Angeles, Department of Regional Planning. 1986. *Malibu Local Coastal Program Land Use Plan*. Los Angeles County, California.

County of Los Angeles, Department of Regional Planning. 2006. *The Malibu Coastline SEA Description,* Los Angeles County, California.

Fish and Wildlife Services. 2000. *Federal Register*. "Endangered and Threatened Wildlife and Plants; Proposed Determination of Critical Habitat for the Coastal California Gnatcatcher; Proposed Rule". Fish and Wildlife Services; 32 pp.

Holland RF. *Preliminary descriptions of the terrestrial natural communities of California*. 1986 and 1992 Update. California Department of Fish and Wildlife unpublished report.

Ryan Ecological Consulting. 2010. The Western Snowy Plover in Los Angeles County, California. Report to California Department of Fish and Wildlife. 136 pp.

http://losangelesaudubon.org/images/stories/pdf/westernsnowyploverin%20losangelescounty.pdf

Sawyer, Keeler-Wolf and Evens. 2009. *A Manual of California Vegetation, Second Edition* Sacramento: California Native Plant Society Press.

U.S. Fish and Wildlife Service. 1997. *Vernal Pools of Southern California Draft Recovery Plan*. U.S. Fish and Wildlife Service, Portland, Oregon. 113+pp.

Zedler, P.H. 1987. *The Ecology of Southern California Vernal Pools: A Community Profile*. U.S. Fish and Wildlife Service Biological. Report 85(7.11). 136 pp.

Point Dume CRA Sources

Baldwin, Bruce G., Douglas H. Goldman, David J. Keil, Robert Patterson, and Thomas J. Rosatti(editors, 2012)*The Jepson Manual: Vascular Plants of California*, *Thoroughly Revised and Expanded*. Second Edition. Jepson Herbarium, Berkeley, CA. 1600 pp., illus.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *Special Animals (898 taxa).* 60 pp.

California Department of Fish and Wildlife, Natural Diversity Database. April 2011. *Special Vascular Plants, Bryophytes, and Lichens List.* Quarterly publication. 71 pp.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *State and Federally Listed Endangered and Threatened Animals of California.* 13 pp.

City of Malibu. 2009. Malibu General Plan*, Section II, Elements of the General Plan, Chapter 3.0 Conservation Element, 3.2 Existing Natural Resources.*

Holland RF. *Preliminary descriptions of the terrestrial natural communities of California*. 1986 and 1992 Update. California Department of Fish and Wildlife unpublished report.

Ryan Ecological Consulting. 2010. The Western Snowy Plover in Los Angeles County, California. Report to California Department of Fish and Wildlife. 136 pp.

http://losangelesaudubon.org/images/stories/pdf/westernsnowyploverin%20losangelescounty.pdf

Sawyer, Keeler-Wolf and Evens. 2009. *A Manual of California Vegetation, Second Edition* Sacramento: California Native Plant Society Press.

U.S. Department of Commerce. National Oceanic and Atmospheric Administration. National Marine Sanctuary Program. 2008. *Channel Islands National Marine Sanctuary Management Plan/Final Environmental Impact Statement.* Silver Spring, MD

Terminal Island (Pier 400) CRA Sources

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *Special Animals (898 taxa).* 60 pp.

California Department of Fish and Wildlife, Natural Diversity Database. April 2011. *Special Vascular Plants, Bryophytes, and Lichens List.* Quarterly publication. 71 pp.

California Department of Fish and Wildlife, Natural Diversity Database. January 2011. *State and Federally Listed Endangered and Threatened Animals of California.* 13 pp.

County of Los Angeles, Department of Regional Planning. 2006. *The Pier 400, Terminal Island SEA Description,* Los Angeles County, California.

Holland RF. Preliminary descriptions of the terrestrial natural communities of California. 1986 and 1992 Update. California Department of Fish and Wildlife unpublished report.

Science Applications International Corporation. 2008. Draft Biological Assessment, Pacific L.A. Marine Terminal Crude Oil Terminal Project. Prepered for the U.S. Army Corps of Engineers, Los Angeles District and Port of Los Angeles, Harbor Department.

Sawyer, Keeler-Wolf and Evens. 2009. A Manual of California Vegetation, Second Edition Sacramento: California Native Plant Society Press.

V. Coastal Zone Resources

Coastal Zone Resources include natural resources in the the County's coastal areas, which are neither SEAs nor CRAs, and areas that contain SEAs or CRAs but are larger than one single SEA or CRA.

Ballona Wetlands

For a description of the resources in the Ballona Wetlands, please refer to the description for the Marina del Rey below, and the description for the Ballona Wetlands CRA in Section IV.

Marina del Rey[4]

Marina del Rey is a man-made feature that occupies part of the historical estuary near the mouth of Ballona Creek. Prior to the arrival of Europeans, the Ballona area was an ancient estuary of the Los Angeles River, with the mouth of the river entering the Pacific Ocean north of the Westchester Bluffs, forming a broad coastal plain with seasonal and permanent wetlands extending north and east toward higher ground in present-day Santa Monica.[5] A long range of natural sand dunes cut off the ocean from the majority of the low-lying ground, which featured a network of tidal channels and extensive salt marsh (i.e., the historical "Venice Marshes" or "Ballona Wetlands"). Until a flood in the early 1800s, the Los Angeles River emptied at Santa Monica Bay, along the current course of Ballona Creek.[6] The historical landscape along the coast west of present-day Lincoln Boulevard (i.e., an area encompassing all of Marina del Rey) likely consisted of wide tidal channels and mudflats, salt marshes, coastal dunes, pockets of freshwater and/or brackish marsh, as well as riparian scrub. Also present was a coastal prairie community described by researchers as far back as the 1930s (e.g., "the meadow" referred to by von Bloeker 1943[7]). These are generally the habitat types typical of coastal estuaries throughout Southern California and northwestern Baja California, Mexico.[8] Comparable coastal estuaries on broad plains in Southern California include Carpinteria Marsh,

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[4]Adapted from Hamilton, RA and Cooper, DS, 2010. Conservation and Management Plan for Marina del Rey, Los Angeles County, California. Prepared for the County Los Angeles Department of Beaches and Harbors and the Department of Regional Planning.

[5] Cooper, D. S. 2008. The use of historical data in the restoration of the avifauna of the Ballona Wetlands, Los Angeles County, California. Natural Areas Journal 28:83–90.

[6] Gumprecht B. 1999. The Los Angeles River: Its Life, Death, and Possible Rebirth. Johns Hopkins University Press, Baltimore, MD.

[7]von Bloeker, J. C. 1943. The fauna and flora of the El Segundo sand dunes: Birds of El Segundo and Playa del Rey. Bulletin of the Southern California Academy of Sciences 42:1–30 (Part 1) and 90–103 (Part 2).

[8] Grewell, B. J., Callaway, J. C., and Ferren, W. R., Jr. 2007. Estuarine wetlands. Pp. 124–154 in Terrestrial Vegetation of California (M. G. Barbour, T. Keeler-Wolf, and A. A. Schoenherr, eds.). University of California Press, Berkeley. Pickart, A. J., and Barbour, M. G. 2007. Beach and dune. Pp. 155–179 in Terrestrial Vegetation of California (M. G. Barbour, T. Keeler-Wolf, and A. A. Schoenherr, eds.). University of California Press, Berkeley.

Mugu Lagoon, AlamitosBay, Bolsa Chica, UpperNewportBay, and the Tijuana River Estuary.

By the mid-1900s, much of Ballona Creek had been excavated and routed through a channel, at first earthen (1920s), then concrete-lined (late 1930s), principally to control floods in the BallonaValley that regularly destroyed cropland and generally hindered development. The most serious and final impact to lower Ballona Creek and the majority of its natural wetlands came in the early 1960s, with the completion of Marina del Rey, which eliminated nearly all the functional wetlands north of the Ballona Creek channel and left only a small remnant to the south, along Culver Boulevard. However, just as the creation of Marina del Rey development entailed the elimination of certain natural habitats, it created novel ones, with the addition of hundreds of evergreen, semi-tropical, trees, as well as irrigated lawns and man-made structures.

Today the channel waters of Marina del Rey and its breakwater are designated by California Audubon as a part of the Ballona Wetlands State Important Bird Area (IBA), recognizing the important natural resources that still occur in this district of the County. The IBA includes the Ballona Lagoon in nearby Venice, the Del Rey Lagoon across Ballona Creek in Playa Del Rey, the least tern nesting area on Venice City Beach, the Strand Beach south of the Ballona Channel opening, the Ballona Channel, the Ballona Wetlands both north and south of the Ballona Channel, and Bluff Creek that feeds the Ballona Freshwater Marsh. The IBA designation recognizes this as a unit, all the parts contributing to the welfare of the whole. As an example, the federally-endangered least terns that breed on VeniceCityBeach need to forage widely, in all parts of the IBA waters and beyond in order to successfully raise their young to fledglings.

Vegetation

Vegetation of the Marina del Rey has not been formally described; however, the Conservation & Management Plan for Marina del Rey, Los Angeles County, California (Hamilton and Cooper, 2010.) discusses six areas within Marina del Rey with regard to their value as avian resource areas. Because no vegetation map has been prepared for the Marina, these areas are listed individually below, along with any corresponding natural or Semi-Natural vegetation types that are to be expected within each of the six areas.

Oxford Stormwater Retention Basin**:** Provides a flood-control function for the development and is lined with native and non-native species. The shoreline of the basin has been landscaped extensively with non-native trees and shrubs, especially small-flowered myoporum (*Myoporum laetum*). The myoporum landscaping currently in poor health, presumably due to an infestation of the myoporum thrip (*Klambothrips myopori*).

Corresponding MCV communities:

- *Schinus* (*molle*, *terebinthifolius*)-*Myoporum laetum* (Pepper tree or Myoporum groves) Semi-Natural Woodland Stands

- *Eucalyptus* (*globulus*, *camaldulensis*) (Eucalyptus groves) Semi-NaturalWoodland Stands

Ballona Lagoon: The northern extent of the former coastal lagoon at the mouth of the Ballona Wetlands, and now the southern extension of the “Grand Canal” in Venice (adjacent to and just west of Marina del Rey), this site has been known as “Ballona Lagoon” since 1996 when extensive habitat restoration was completed in an effort to bring back a native coastal scrub community. The lagoon is

tidal, and a band of mudflat is usually exposed around the entire lagoon, but only the upper/northern end drains completely except during the most extreme low tides. Saltmarsh vegetation forms a ring around the upper mudflat, below the coastal scrub.

Corresonding MCV communities

- *Schinus* (*molle*, *terebinthifolius*)-*Myoporum laetum* (pepper tree or myoporum groves) Semi-Natural Woodland Stands
- *Carpobrotus edulis* or other ice plants (ice plant mats) Semi-NaturalHerbaceous Stands
- *Sarcocornia pacifica* (*Salicornia depressa*) (pickleweed mats) Herbaceous Alliance
- Orcutt's pincushion (*Chaenactis glabriuscula* var. *orcuttiana*) new Alliance

Del Rey Lagoon: This area is entirely landscaped with lawn and ornamental non-native *Ficus* and *Acacia* trees.

Corresonding MCV communities: None at this time.

Ballona Wetlands: This, the main tidal marsh area remaining at Ballona, is located between the Ballona Creek channel and Culver Boulevard. It features extensive pickleweed (*Salicornia* spp.) marsh habitat, muddy tidal channels, and a large saltpan that is irregularly moistened by rain, dense fog, and high tides.

Corresonding MCV communities

- *Sarcocornia pacifica* (*Salicornia depressa*) (pickleweed mats) Herbaceous Alliance

Ballona Freshwater Marsh: This marsh, constructed in 2003 at the corner of Lincoln and Jefferson Boulevards, just south of Marina del Rey, supports large expanses of tules, cattails, and other freshwater marsh vegetation.

Corresonding MCV communities

- *Schoenoplectus acutus* (hardstem bulrush marsh) Herbaceous Alliance
- *Schoenoplectus californicus* (California bulrush marsh) Herbaceous Alliance
- *Typha* (*angustifolia*, *domingensis*, *latifolia*) (cattail marshes) Herbaceous Alliance

Centinela Confluence: This refers to the tidally-influenced confluence of Ballona Creek at the Centinela Channel, just south of the State Route-90 bridge. A patch of tall, lush grasses serves as a consistent roosting and foraging location for herons, egrets, brown pelicans, gulls, terns, and shorebirds.

Corresonding MCV communities: None at this time.

Wildlife

As reviewed by Cooper[9], many bird species associated with freshwater marsh, coastal lagoon, and riparian habitats were lost from the Ballona area during the early period of development (pre-1930s); many saltmarsh species, including waterfowl and shorebirds that occurred in large flocks, suffered heavy losses during the middle period (1940s to 1960s); and since the 1960s, many open-country species, particularly those of agricultural fields and extensive grasslands, have either been extirpated or experienced serious declines.

Cooper (2006[10]) documented the ongoing colonization of the local area by bird species that require tall trees for breeding and/or foraging, and by species frequently associated with human habitation. This colonization phenomenon has intensified as the Marina's non-native landscaping has matured, providing much more structural complexity than was present formerly, but at the expense of numerous species that depend on natural, wild habitats for their persistence in the landscape or for refueling during long migrations. Currently, the area is used extensively by nesting and foraging great blue heron (*Ardea herodias*), great egret (*A. alba*), snowy egret (*Egretta thula*), black-crowned night heron (*Nycticorax nycticorax*), and double-crested cormorant (*Phalacrocorax auritus*).

A well-documented least tern colony (federally and state-listed Endangered) is present nearby at Venice Beach and is known to have suffered predation by crows and black-crowned night herons, both of which are dependent on non-native landscaping and artificial structures within and surrounding Marina del Rey for nesting substrate.

Sensitive Biological Resources

The statuses of rare plants are hierarchically categorized by the CNPS using a rank and decimal system. The initial category level of Rare Plant Rank (RPR) is indicated by the ranks 1A (presumed extinct), 1B (rare or endangered in Californiaand elsewhere), 2A (presumed extinct in California but extant elsewhere), 2B (rare or endangered in California but more common elsewhere), 3 (more information needed, a review list), and 4 (limited distribution). In cases where the CNPS has further identified the specific threat to the species, a decimal or Threat Code is added: .1 (seriously endangered in California), .2 (fairly endangered in California), or .3 (not very endangered in California).

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[9] Cooper, D. S. 2008. The use of historical data in the restoration of the avifauna of the Ballona Wetlands, Los Angeles County, California. Natural Areas Journal 28:83–90.

[10] Cooper, D. S. 2006. Annotated checklist of extirpated, reestablished, and newly-colonized avian taxa of the Ballona Valley, Los Angeles County, California. Bulletin of the Southern California Academy of Sciences 105:91–112.

The following special-status plant taxa have been reported or have the potential to occur within the SEA, based on known habitat requirements and geographic range information:

- Southern tarplant (Centromadia parryi ssp. australis)RPR 1B.1
- Orcutt's pincushion (Chaenactis glabriuscula var. orcuttiana)RPR 1B.1
- Coastal goosefoot (Chenopodium littoreum)RPR 1B.2
- Coulter's goldfields (Lasthenia glabrata ssp. coulteri) RPR 1B.1
- Ballona cinquefoil (Potentilla multijuga)RPR 1A
- Estuary seablite (Suaeda esteroa)RPR 1B.2

The following special-status animal species are reported or are likely to be present within the SEA based on habitat requirements and known range attributes:

- Mimic tryonia (*Tryonia imitator*)CDFW Special Animals List
- Wandering skipper (*Panoquina errans*)CDFW Special Animals List
- Silvery legless lizard (*Anniella pulchra pulchra*)FSS, SSC
- Two-striped garter snake (*Thamnophis hammondii*)BLMS, FSS, SSC
- Tricolored blackbird (*Agelaius tricolor*)BCC, BLMS, SSC, USBC, AWL, ABC
- Western snowy plover (*Charadrius alexandrinus nivosus*)FT, BCC, SSC, ABC, AWL, USBC
- California black rail (*Laterallus jamaicensis coturniculus*)BCC, ST, CDFW Fully Protected, USBC, AWL, ABC
- Belding's savannah sparrow (*Passerculus sandwichensis beldingi*)SE
- California least tern (*Sternula antillarum browni*)FE, SE, CDFW Fully Protected, USBC, ABC
- South coast marsh vole (*Microtus californicus stephensi*)SSC
- Southern California saltmarsh shrew (*Sorex ornatus salicornicus*)SSC

San Clemente Island

San Clemente Island lies approximately 63 miles south of the City of Long Beach and 78 miles west of the City of San Diego. San Clemente Island is approximately 24 miles long and 5 miles across at its widest point. It has a land area of approximately 57 square miles. Since 1934, San Clemente Island has been owned and operated by the U.S. Navy. More than a dozen range and operational areas are clustered within a 60 mile radius of San Clemente Island. The Commander-in-Chief, Naval Forces, Pacific (CINCPACFLT) is the major claimant for San Clemente Island, and the Naval Air

Station, North Island (NASNI) is responsible for its administration.

The climate of the Island is classified as semi-arid, which is similar to the Southern California coastal areas, except for more fog and overcast weather and cooler year-round temperatures. Aided by the Santa Ana winds, temperatures exceeding 90 degrees occasionally occur between August and October. Rainfall is slight and occurs mostly between the months of November and April (San Clemente Island Master Plan).

The Island is a very important biological resource for the County, California, and the U.S. Any island is a microcosm of evolutionary processes, and studies of island biota lead to many insights on biological community processes—how food webs are structured and how to maintain them in the context of impacts. The Island has 14 endemic plants (known only from the Island; 6 of which are federally-endangered) and 29 other plants known only from the Island and other Channel Islands (the northern ones and Santa Catalina Island). Some of the Island's endemics have their closest relatives on islands off of Baja California, which is over 500 miles away, and not the nearest neighboring islands. The plants had a major setback with about 400 years of goat and pig grazing, but the Navy has finally removed the last of these (a goat in 1992), and plants have responded vigorously to predation relief in most cases.

There is multiple federal recognition of the Island's resources. The Island has endemic birds, notably the federally-endangered shrike (*Lanius ludovicianus mearnsi*) and the federally-threatened San Clemente sage sparrow (*Amphispiza belli clementeae*). The shrike crashed to a population of 14 birds in 1998, but with a Navy recovery program of incubating eggs, the shrikes have rebounded to about 200 individuals. The chief predators were or are the introduced black rat and feral cats, but the goats did major indirect damage by undermining and browsing the trees that the shrike needs to breed. The Island has an endemic federally-threatened Island night lizard (*Xantusia riversiana*), and a subspecies of the island fox (*Urocyon littoralis clementae*) that is state-threatened and monitored by the Navy. Although it does not include offshore reefs, rocks, and pinnacles under the jurisdiction of the armed forces, the California Coastal National Monument, under the Bureau of Land Management in the U.S. Department of the Interior, manages the rocks within one nautical mile of the coast of the Island under this program.

State recognition has been equally strong. The Island has many state-recognized sensitive species. The Island is designated by the California State Water Resources Control Board as an ASBS (Area of Special Biological Significance), which is a marine area with exceptionally good water quality and natural community features. Populated and disturbed areas along the shore are zones of exception, and there is one small designated area at the sewage outfall out of 100 natural gullies and ephemeral streams and 23 known Navy discharges. The Island is reputedly a favorite of snorkelers and divers for the marine life, and its waters are on the main migration path for the CITES Appendix I California gray whale (*Eschrichtius robustus*).

The Island and its nearshore out to about 0.8 mile offshore is designated by California Audubon as the San Clemente Island Globally Important Bird Area (IBA). Over 240 bird species regularly use the Island, and about 30 species inhabit the Island year-round.

The Island has unique features that are mysterious in some respects—phenomena waiting for discovery. The Island is nearly surrounded by sea cliffs, which in their steepness, provide the protection from predators (including introduced rats) that seabirds need for breeding. It is probable that some breeding by marine birds is unknown, since they often forage and return to feed their

offspring at night, which is a difficult phenomenon to observe for predators and humans alike. Colonies are yet to be discovered. A known marine bird that has this breeding pattern is the federal candidate for listing, Xantus' murrelet (*Synthliboramphus hypoleucus*). Because it is so distant from shore, this Island has many oceanic influences that are unique for the Channel Islands—much more than the other nearby islands. For example, an oceanic bird, the red-tailed tropic bird (*Phaethon rubricauda*), once had some breeding on Pyramid Head before this area became part of the shore bombardment range. The Ashy storm-petrel (*Oceanodroma homochroa*), which is a state species of concern and one of the rarest storm-petrels, is known to breed in the Seal Cove area, and could also be breeding elsewhere on the Island.

Vegetation

Despite the Island's barren look, a large variety of plant life is present. The Island harbors 14 endemic plants and 29 insular endemic plants restricted to the Channel Island system (San Clemente Island Master Plan).

Domestic animals introduced to the Island, including cats, pigs, and goats, have greatly impacted the native plant communities. Beginning in 1875, the introduction of Spanish goats drastically altered the ecological structure of the Island due to constant foraging and grazing. Native plants and animals were significantly reduced, which resulted in an effort to remove the goats from the Island. By 1992, the U.S. Fish and Wildlife Service removed all goats and pigs from the Island (USFWS, California Channel Islands Species Recovery Plan).

Plant communities on the Island were classified using standard methodology and terminology. Most of the communities discussed correspond directly with those listed in Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986 and 1992 update). Other communities are named based on dominant species within them and/or commonly used terminology. Descriptions and general locations of each plant community on the Island, including maritime desert scrub, maritime sage scrub, island woodland, grassland, coastal salt marsh, and disturbed areas are given below.

In recent years, ecologists have refined previous vegetation classification approaches to define communities primarily by their constituent plant assemblages, and have now widely adopted the classification system described by Sawyer, Keeler-Wolf and Evens in A Manual of California Vegetation, Second Edition 2009 (MCV). This has become the accepted standard recognized by the California Department of Fish and Wildlife, the California Native Plant Society and the U.S. Fish and Wildlife Service.

The important difference between current and earlier methods is that earlier classifications were based on a variety of factors, such as physiographic features, as in the case of vernal pools; or by specific plants, as in the case of coast live oak woodland; or by the use of commonly accepted terms, as in chaparral. In the MCV, plant communities are defined with more precision as botanical alliances where one, or occasionally two, plant species are dominant or co-dominant with a host of other possible associated plants. The MCV lists no one plant community called "chaparral" because in habitats of this type, any one of a variety of shrubs can be dominant and influence the character of the vegetation. For example, in a location where chamise (*Adenostoma fasciculatum*) is predominant, the alliance is classified as an *Adenostoma fasciculatum* Shrubland Alliance, while close by, greenbark ceanothus (*Ceanothus spinosus*) may emerge as the most common shrub and

this is termed a *Ceanothus spinosus* Shrubland Alliance.

The transition to the new MCV format is ongoing. Not all alliances have been fully described and new ones are still being recognized. As such, a significant amount of field work and site surveying for accuracy would be needed to verify all existing alliances on the Island, as well as extensive research to define every alliance in the new MCV plant communities' format. The more familiar nomenclatures will continue to be used for the Island when appropriate.

An effort has been made to conform to this new format. Descriptions and general locations of each plant community as described in the California Channel Islands Species Recovery Plan (USFWS, 1984) appear below. The plant communities correspond to the classifications used in that document. Each was considered baseline information and evaluated for the potential presence of alliances as described in the MCV. Alliances with matching profiles of the given criteria are listed. In many cases, only with further investigation can the presence of some alliances be confirmed. In addition, it should be noted that not all alliances are listed within this description as many alliances have yet to be defined and new alliances are still being discovered. Descriptions and general locations of the each plant community present on the Island are given below.

Maritime Desert Scrub - (Lycium Phase, Typical Phase, and Cholla Phase): Includes a mixture of low growing, dry-season deciduous scrubs and cactus located along the southern and western shores. The predominant deciduous shrubs include California desert-thorn (*Lycium californicum*) and island senecio (*Senecio lyonii*), while California brittle-bush (*Encelia californica*) and California sagebrush (*Artemisia californica*) are the predominant maritime sage scrub species. Coastal prickly-pear (*Opuntia littoralis*) also exists in abundance. The south-facing slopes at the southern end of the island are dominated by coastal cholla (*Cylindropuntia prolifera*), but box thorn and cunyado (*Bergerocactus emoryi*) also exist.

Corresponding MCV communities:

- *Lycium californicum* (California desert-thorn) Shrubland Provisional Alliance
- *Encelia californica* (California brittle bush scrub) Shrubland Alliance
- *Artemisia californica* (California sagebrush scrub) Shrubland Alliance
- *Opuntia littoralis* (coast prickly pear scrub) Shrubland Alliance

Maritime Sage Scrub: Located on steep eastern slopes and in some canyons on the west side of the Island. Lemonadeberry (*Rhus integrifolia*) can be found on both sides of the Island on relatively level ground. Many types of chaparral shrubs are present, including chamise, island ceanothus (*Ceanothus megacarpus* var. *insularis*), Catalina crossosoma (*Crossosoma californicum*), Channel Island tree poppy (*Dendromecon harfordii*), toyon (*Heteromeles arbutifolia*), laurel sumac (*Malosma laurina*), Catalina cherry (*Prunus ilicifolia* ssp. *lyonii*), island redberry (*Rhamnus pirifolia*), blue elderberry (*Sambucus nigra* var. *caerulea*), and poison oak (*Toxicodendrom diversilobum*).

Corresponding MCV communities:

- *Rhus integrifolia* (lemonade berry scrub) Shrubland Alliance

- *Ceanothus megacarpus* (big pod ceanothus chaparral) Shrubland Alliance

- *Malosma laurina* (laurel sumac scrub) Shrubland Alliance

Island Woodland: Located in the western and eastern canyons, is the only tree vegetation type present on the Island. It includes Catalina cherry, Santa Cruz Islandironwood (*Lyonothamnus floribundus* ssp. *aspleniifolius*), island oak (*Quercus tomentella*), blue elderberry, and toyon.

Corresponding MCV communities:

- *Prunus ilicifolia* (holly leaf cherry chaparral) Shrubland Alliance

- *Lyonothamnus floribundus* (Catalina ironwood groves) Woodland Special Stands

- *Quercus tomentella* (Island oak groves) Woodland Special Stands

Grasslands: Cover the central uplands of the Island. Although dominated by exotic annual herbs, scattered native wildflowers also exist. Native perennial needlegrass, larkspur, and brodiaea are also present.

Corresponding MCV communities:

- *Bromus (diandrus, hordeaceus)-Brachypodium distachyon* (annual brome grasslands) Semi-Natural Herbaceous Stands

- *Bromus rubens-Schismus* (arabicus, barbatus) (red brome or Mediterranean grass grasslands) Semi-Natural Herbaceous Stands

- *Lasthenia californica-Plantago erecta-Vulpia microstachys* (California goldfields-dwarf plantain-six-weeks fescue flower fields) Herbaceous Alliance

- *Nassella [Stipa] pulchra* (purple needlegrass grassland) Herbaceous Alliance

Coastal Strand and Dunes: Coastal strand and dune vegetation is restricted to small areas along the south and northwest coasts of the Island. Predominantly associated with sandy substrates, several species typical of this vegetation type also occur in scattered rocky areas behind beaches. Introduced crystalline iceplant (*Mesembryanthemum crystallinum*) and grasses are abundant.

Corresponding MCV communities:

- *Carpobrotus edulis* or other ice plants (ice plant mats) Semi-Natural Herbaceous Stands

- *Abronia latifolia - Ambrosia chamissonis* (dune mat) Herbaceous Alliance

Coastal Salt Marsh: Exist on the south side of the Island. These areas are proximate to the impact zone of the shore bombardment range, and therefore, the biological information is somewhat limited. However, pickleweed (*Salicornia pacifica*), alkali heath (*Frankenia salina*), saltgrass (*Distichlis spicata*), and California sea-blite (*Suaeda californica*)are known to exist.

Corresponding MCV communities:

- Sarcocornia [Salicornia] pacifica(Salicornia depressa)(pickleweed mats)Herbaceous Alliance
- Frankenia salina(alkali heath marsh)Herbaceous Alliance
- Distichlis spicata(salt grass flats)Herbaceous Alliance

Disturbed Areas: Mainly consist of plants that are native to the Old World. Once limited to ruderal areas, these areas have expanded and exotic species are now common throughout the Island.

Corresponding MCV communities:

- *Avena* (*barbata*, *fatua*)(wild oats grasslands)Semi-NaturalHerbaceous Stands
- *Brassica nigra* and other mustards (upland mustards)Semi-NaturalHerbaceous Stands
- *Bromus* (*diandrus*, *hordeaceus*)-*Brachypodium distachyon* (annual brome grasslands)Semi-NaturalHerbaceous Stands
- *Bromus rubens-Schismus* (*arabicus*, *barbatus*)(red brome or Mediterranean grass grasslands)Semi-NaturalHerbaceous Stands

(USFWS, California Channel Islands Species Recovery Plan)

Wildlife

An abundance of marine mammals thrive in waters surrounding the Island. The most prominent are the California sea lion (*Zalophus californianus*) and the harbor seal (*Phoca vitulina*); however, porpoises and whales are frequently sighted. The Island is in the path of a migration route, which along with great depths and caves, creates a rich and varied marine environment (San Clemente Island Master Plan).

The Island supports a unique assortment of terrestrial fauna. There are two lizard species on the Island: western side-blotched lizard (*Uta stansburiana elegans*) and the San Clemente Island night lizard (*Xantusia riversiana reticulata*). As many as 240 bird species inhabit the Island at various periods of the year. Around 30 species breed on the Island, while the other species are mainly migrants. Some of the bird species include island horned lark (*Eremophila alpestris insularis*), western meadowlark (*Sturnella neglecta*), white-crowned sparrow (*Zonotrichia leucophrys*), American kestrel (*Falco sparverius*), Gambel's quail (*Callipepla gambelii*), and the exotic chukar (*Alectoris chukar*). Waterbirds are attracted to the rocky shore of the Island, which provides opportunities for foraging and resting. Some of the waterbirds on the Island include western gull (*Larus occidentalis*), Brandt's cormorant (*Phalacrocorax penicillatus*), California brown pelican (*Pelecanus occidentalis californicus*), royal tern (*Thalasseus maximus*), black oystercatcher (*Haematopus bachmani*), and Xantus' murrelet (*Synthliboramphus hypoleucus*)(USFWS, California Channel Islands Species Recovery Plan).

The Island is also home to the following bat species: California myotis (*Myotis californicus*), fringed myotis (*M. thysanodes*), Townsend's big-earned bat (*Corynorhinus townsendii townsendii*), and Mexican free-tailed bat (*Tadarida brasiliensis*). The San Clemente deer mouse (*Peromyscus maniculatus clementis*) is also native to the Island. One of the most notable mammals on the Island

is the San Clemente Island fox (*Urocyon littoralis clementae*), which inhabits most of the Island (USFWS, California Channel Islands Species Recovery Plan).

Sensitive Biological Resources

The statuses of rare plants are hierarchically categorized by the CNPS using a rank and decimal system. The initial category level of Rare Plant Rank (RPR) is indicated by the ranks 1A (presumed extinct), 1B (rare or endangered in Californiaand elsewhere), 2A (presumed extinct in California but extant elsewhere), 2B (rare or endangered in California but more common elsewhere), 3 (more information needed, a review list), and 4 (limited distribution). In cases where the CNPS has further identified the specific threat to the species, a decimal or Threat Code is added: .1 (seriously endangered in California), .2 (fairly endangered in California), or .3 (not very endangered in California).

The following special-status plant taxa have been reported or have the potential to occur on San Clemente Island, based on known habitat requirements and geographic range information:[11]

- Woven-spored lichen (*Texosporium sancti-jacobi*) CDFW Special Plants List, RPR 1B.2
- Red sand-verbena (*Abronia maritima*)RPR 4.2
- San Clemente Island bird's-foot trefoil (*Acmispon argophyllus* var. *adsurgens*)SE, RPR 1B.1
- San Clemente Island lotus (*Acmispon dendroideus* var. *traskiae*)FE, SE, RPR 1B.1
- Aphanisma (*Aphanisma blitoides*) RPR 1B.1
- Island sagebrush (*Artemisia nesiotica*) RPR 4.3
- San Miguel Island milk-vetch (*Astragalus miguelensis*) RPR 4.3
- San Clemente Island milk-vetch (*Astragalus nevinii*) RPR 1B.2
- Coulter's saltbush (*Atriplex coulteri*) RPR 1B.2
- South Coast saltscale (*Atriplex pacifica*) RPR 1B.2

[11] Status abbreviations: ABC: American Bird Conservancy Green List; BLMS: Bureau of Land Management Sensitive Species; CDF: California Department of Forestry and Fire Protection Sensitive Species; CDFW: California Department of Fish and Wildlife; FD: Federally delisted; FE: Federally listed as Endangered; FSS: USDA Forest Service Sensitive Species; FT: Federally listed as Threatened; RPR: Rare Plant Rank; SE: State-listed as Endangered; SD: State delisted; SSC: CDFW Species of Special Concern; WBWG: Western Bat Working Group: High, Medium or Low priority

- Golden-spined cereus (*Bergerocactus emoryi*) RPR 2.2
- Island morning-glory (*Calystegia macrostegia* ssp. *amplissima*) RPR 4.3
- San Clemente Island evening-primrose (*Camissonia guadalupensis* ssp. *clementina*) RPR 1B.2
- San Clemente Island paintbrush (*Castilleja grisea*) FE, SE, RPR 1B.2
- Island ceanothus (*Ceanothus megacarpus* var. *insularis*) RPR 4.3
- Seaside cistanthe (*Cistanthe maritima*) RPR 4.2
- Nevin's woolly sunflower (*Constancea nevinii*) RPR 1B.3
- Small-flowered morning-glory (*Convolvulus simulans*) RPR 4.2
- Catalina crossosoma (*Crossosoma californicum*) RPR 1B.2
- Trask's cryptantha (*Cryptantha traskiae*) RPR 1B.1
- Island tarplant (*Deinandra clementina*) RPR 4.3
- San Clemente Island larkspur (*Delphinium variegatum* ssp. *kinkiense*) FE, SE, RPR 1B.1
- Thorne's royal larkspur (*Delphinium variegatum* ssp. *thornei*) RPR 1B.1
- South island bush-poppy (*Dendromecon harfordii* var. *rhamnoides*) RPR 1B.1
- Bright green dudleya (*Dudleya virens* ssp. *virens*) RPR 1B.2
- San Clemente Island buckwheat (*Eriogonum giganteum* var. *formosum*) RPR 1B.2
- Island buckwheat (*Eriogonum grande* var. *grande*) RPR 4.2
- Island poppy (*Eschscholzia ramosa*) RPR 4.3
- Cliff spurge (*Euphorbia misera*) RPR 2.2
- San Clemente Island bedstraw (*Galium catalinense* ssp. *acrispum*) SE, RPR 1B.2
- Showy island snapdragon (*Gambelia speciosa*) RPR 1B.2
- Nevin's gilia (*Gilia nevinii*) RPR 4.3
- San Clemente Island hazardia (*Hazardia cana*) RPR 1B.2
- Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) RPR 1B.2
- Island jepsonia (*Jepsonia malvifolia*) RPR 4.2

- Southern island mallow (*Lavatera assurgentiflora* ssp. *glabra*) RPR 1B.1
- Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*) RPR 1B.2
- Pygmy leptosiphon (*Leptosiphon pygmaeus* ssp. *pygmaeus*) RPR 1B.2
- San Clemente Island woodland star (*Lithophragma maximum*) FE, SE, RPR 1B.1
- San Nicolas Island lomatium (*Lomatium insulare*) RPR 1B.2
- Guadalupe Island lupine (*Lupinus guadalupensis*) RPR 1B.2
- Santa Catalina Island desert-thorn (*Lycium brevipes* var. *hassei*) RPR 1B.1
- California box-thorn (*Lycium californicum*) RPR 4.2
- Santa Cruz Island ironwood (*Lyonothamnus floribundus* ssp. *aspleniifolius*) RPR 1B.2
- San Clemente Island bush-mallow (*Malacothamnus clementinus*) FE, SE, RPR 1B.1
- Leafy malacothrix (*Malacothrix foliosa* ssp. *foliosa*) RPR 4.2
- Dunedelion (*Malacothrix incana*) RPR 4.3
- Small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*) RPR 4.2
- Island bush monkeyflower (*Mimulus flemingii*) RPR 4.3
- Blair's munzothamnus (*Munzothamnus blairii*) RPR 1B.2
- Mud nama (*Nama stenocarpum*) RPR 2B.2
- Many-flowered phacelia (*Phacelia floribunda*) RPR 1B.2
- Island oak (*Quercus tomentella*) RPR 4.2
- Island redberry (*Rhamnus pirifolia*) RPR 4.2
- Santa Catalina figwort (*Scrophularia villosa*) RPR 1B.2
- Santa Cruz Island rock cress (*Sibara filifolia*) FE, RPR 1B.1
- Woolly seablite (*Suaeda taxifolia*) RPR 4.2
- Southern island clover (*Trifolium palmeri*) RPR 4.2
- San Clemente Island brodiaea (*Brodiaea kinkiensis*) RPR 1B.2
- California dissanthelium (*Dissanthelium californicum*)RPR 1B.2

- Vernal barley (*Hordeum intercedens*) RPR 3.2
- Appressed muhly (*Muhlenbergia appressa*) RPR 2.2
- San Clemente Island triteleia (*Triteleia clementina*) RPR 1B.2

The following special-status animal species are reported or are likely to be present on San Clemente Island based on habitat requirements and known range attributes:

- San Clemente Islandsnail (*Micrarionta gabbi*) CDFW Special Animals List
- San Clemente Island blunt-top snail (*Sterkia clementina*) CDFW Special Animals List
- Horseshoe snail (*Xerarionta intercisa*) CDFW Special Animals List
- Senile tiger beetle (*Cicindela senilis frosti*) CDFW Special Animals List
- Island night lizard (*Xantusia riversiana*) FT
- San Clemente sage sparrow (*Amphispiza belli clementeae*) FT, BCC, SSC, ABC
- Western snowy plover (*Charadrius alexandrinus nivosus*) FT, BCC, SSC, ABC, AWL, USBC
- San Clemente loggerhead shrike (*Lanius ludovicianus mearnsi*) FE, SSC
- Ashy storm-petrel (*Oceanodroma homochroa*) BCC, SSC, ABC
- Xantus' murrelet (*Synthliboramphus hypoleucus*) FC, BCC, ST, ABC
- San Clemente Island fox (*Urocyon littoralis clementae*) ST

Santa Catalina Island

Santa Catalina Island, part of the Channel Islands chain, is approximately 21 miles long and 8 miles wide. The Island consists of two parts connected by a low-lying isthmus at Two Harbors. The larger (southeastern) portion can be generally characterized by rolling hills with a gradual decent into the sea. The smaller (northwestern) portion is extremely steep and rugged with steep shoreline palisades. Level terrain on the Island is limited to the floors of a few large coastal canyons and areas, such as Avalon, Pebbly Beach, White's Landing, Middle Ranch, Two Harbors, and Emerald Bay. Mount Orizaba, which is located in the central portion of the Island, represents the highest peak at 2,069 feet above mean sea level (MSL).

The climate of the Island is similar to the mainland with wet mild winters and long dry periods. The majority of the Island is relatively undisturbed, consisting of grasslands, coastal sage scrub, woodlands, and chaparral. Disturbed areas include minor camping areas, paved roads, dirt roads, radio tower pads, reservoirs and a landfill.

Because of habitation, proximity to Los Angeles, the work of the Catalina Island Conservancy, and the Wrigley Marine Science Center, the Island has been studied more than any of the other

California offshore islands, with national, state, and County recognition in many ways. Nationally, all of the many offshore rocks and islets within 12 nautical miles of the coast are part of the California Coastal National Monument, which is managed by the Bureau of Land Management in the U.S. Department of the Interior. Of the 64 State-recognized sensitive plants, 3 are federally endangered and 1 is federally threatened. Two vertebrates have federal status: the federal candidate marine bird Xantus' murrelet (*Synthliboramphus hypoleucus*) and the federally-endangered Santa Catalina Island fox (*Urocyon littoralis catalinae*). The fox has recently recovered from an epidemic of distemper by a combination of the luck, in that the northwestern population was so isolated and hardly suffered, and by managed captive breeding.

The State Water Resources Control Board has named a number of areas as ASBS (Area of Special Biological Significance) for the water quality and the coincident diversity of the marine resources. These are the Northwest Santa Catalina Island ASBS #25 (20.9 miles of coastline from Isthmus Cove to Catalina Head), the Southeast Santa Catalina Island ASBS #28 (2.9 miles centered on Seal Rocks), the Western Santa Catalina ASBS #26 (4 miles of coastline from Little Harbor south to Ben Weston Beach), and the Farnsworth Bank ASBS #27 (37 acres on a submerged pinnacle, about 60 feet deep at the top, and covered with many kinds of encrusting organisms, such as the purple hydrocoral *Allopora californica*).

The State has also designated a number of State Marine Conservation Areas (SMCA) and three *de facto* State Marine Reserves (SMR) around the Island. In these conservation areas, the take method and what may be fished is limited very specifically and differs for each area. (1) Centered on Farnsworth Bank is the Farnsworth Offshore SMCA that extends from 1 to 3 nautical miles offshore and (2) the Farnsworth Onshore SMCA that extends from the coastline to meet the Farnsworth Offshore SMCA about 1 nautical mile. (3) All of CatHarbor on the south side of the Isthmus is in Cat Harbor SMCA with take restricted to recreational fishing for marine aquatic plants and finfish. (4) Arrow Point to Lion Head Point SMCA extends from mean high tide out to 1000 feet offshore. (5) Bird Rock SMCA is centered on Bird Rock off the northwest coast and extends from the offshore boundary of Blue Cavern SMCA to 3 nautical miles offshore, with boundaries drawn due N-S off the end points of Blue Cavern SMCA. (6) Blue Cavern SMCA is really a reserve, with no take allowed even of sport fish. (7) Long Point SMR has no take allowed, which is usual for reserves. (8) Casino Point SMCA on the north end of AvalonBay is really a reserve, with no take allowed. (9) Lover's Cove SMCA on the south side of Avalon Bay has common provisions, but includes the unusual one of the allowance of fish feeding (for the viewers on the glass-bottomed boats).

The California Department of Fish and Wildlife maintains a list of sensitive species (all rare and uncommon), which includes those designated federally. There are 64 plants, 5 snails, and 5 vertebrates listed for the Island.

California Audubon has designated the Island and its surrounding waters to about 0.8 miles offshore as part of the Northern Channel Islands Globally Important Bird Area (IBA).

The County requires special biological review of development on the Island if the project involves a parcel that has a designated Significant Ecological Area (SEA). These areas were all specified on the basis of significant island vegetation, and in a few cases, included marine algae. There are 37 designated SEAs on the Island: Arrow Point; Avalon Canyon; Toyon Canyon; Ben Weston Beach-Mills Landing-Sentinel Rock; Bird Rock; Black Point, Black Jack Mountain and Echo Lake; Blue Cavern Point-Fishermans Cove; Buffalo Springs Reservoirs; Bulrush Canyon; Cactus Peak; Cape

Canyon; Cherry Valley; Cottonwood Canyon; Descanso Canyon; Fourth of July Cove; Gallagher Canyon; Geiger Coves; Haypress Area-Hamilton Canyon; Indian Rock; Isthmus; Isthmus Canyon; Johnsons Landing; Little Harbor-Shark Harbor-Indian Head Point; Middle Ranch Canyon; Mount Orizaba; Parsons Landing; Pebbly Beach Canyon; Renton Mine Road; Silver Peak; Skull Canyon; Sweetwater Canyon; White Cove; and Wild Boar Gully.

Vegetation

Vegetation on the Island is composed of a large variety of plant community types. The rugged topography, steep and rocky shoreline, and generally undisturbed condition of the Island has produced a unique diversity of vegetative communities. Historically, the Island was mostly brushland dominated by chamise (*Adenostoma fasciculatum*) and island ceanothus (*Ceanothus megacarpus* var. *insularis*) on the northern slopes, and California sagebrush (*Artemisia californica*) and Santa Catalina Island buckwheat (*Eriogonum giganteum* var. *giganteum*) on the south-facing slopes. Following the introduction of feral herbivores (goats, pigs, deer, and bison), this brushland was replaced in most areas by island scrub oak (*Quercus pacifica*), laurel sumac (*Malosma laurina*), toyon (*Heteromeles arbutifolia*), lemonadeberry (*Rhus integrifolia*), black sage (*Salvia mellifera*), and white sage (*S. apiana*), which dominate today. The lack of a significant fire history and minimal differences in vegetation along elevation gradients (due to an abundance of moisture) has resulted in slope orientation as a major determinant for species presence/absence.

Plant communities on the Island were classified using standard methodology and terminology. Most of the communities discussed correspond directly with those listed in Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986 and 1992 update). Other communities are named based on dominant species within them and/or commonly used terminology. Descriptions and general locations of each plant community on the Island, including maritime succulent scrub, southern coastal bluff scrub, island chaparral, island oak woodland, ironwood woodland, island cherry woodland, non-native grassland, native grassland, and disturbed are given below.

In recent years, ecologists have refined previous vegetation classification approaches to define communities primarily by their constituent plant assemblages, and have now widely adopted the classification system described by Sawyer, Keeler-Wolf and Evens in A Manual of California Vegetation, Second Edition 2009 (MCV). This has become the accepted standard recognized by the California Department of Fish and Wildlife, the California Native Plant Society and the United States Fish and Wildlife Service.

The important difference between current and earlier methods is that earlier classifications were based on a variety of factors, such as physiographic features, as in the case of vernal pools; or by specific plants, as in the case of coast live oak woodland;or by the use of commonly accepted terms, as in chaparral. In the MCV, plant communities are defined with more precision as botanical alliances where one, or occasionally two, plant species are dominant or co-dominant with a host of other possible associated plants. The MCV lists no one plant community called chaparral because in habitats of this type any one of a variety of shrubs can be dominant and influence the character of the vegetation. For example, in a location where chamise (*Adenostoma fasciculatum*) is predominant it is classified as an *Adenostoma fasciculatum* Shrubland Alliance, while close by greenbark ceanothus (*Ceanothus spinosus*) may emerge as the most common shrub and this is termed a *Ceanothus spinosus* Shrubland Alliance.

The transition to the new MCV format is ongoing. Not all alliances have been fully described and new ones are still being recognized. As such, a significant amount of field work and site surveying for accuracy would be needed to verify all existing alliances on the Island, as well as extensive research to define every alliance in the new MCV plant communities' format. The more familiar nomenclatures will continue to be used for the Island when appropriate.

An effort has been made to conform to this new format. Descriptions and general locations of each plant community as described in the California Channel Islands Species Recovery Plan (USFWS, 1984) appear below. The plant communities correspond to classifications used in that document. Each was considered baseline information and evaluated for the potential presence of alliances as described in the MCV. Alliances with matching profiles of given criteria are listed. In many cases only with further investigation can the presence of some alliances be confirmed. In addition, it should be noted that not all alliances are listed within this description, as many alliances have yet to be defined and new alliances are still being discovered. Descriptions and general locations of the each plant community present on the Island are given below.

Maritime Succulent Scrub: A low, open scrub of soft-leaved shrubs and herbs with a rich admixture of stem and leaf succulents occurring on steep coastal slopes. This community is dominated by California sagebrush and coastal prickly-pear (*Opuntia littoralis*), which is located mainly on the exposed, dry south-facing slopes typically with well-drained soils. Other species associated with this community include Catalina crossosoma (*Crossosoma californica*), California brittle-bush (*Encelia californica*), Santa Catalina Island buckwheat, bedstraw (*Galium* spp.), island broom (*Acmispon dendroideus* var. *dendroideus*), laurel sumac, lemonadeberry, and black sage.

Corresponding MCV communities:

- *Artemisia californica* (California sagebrush scrub) Shrubland Alliance
- *Opuntia littoralis* (coast prickly pear scrub) Shrubland Alliance
- *Encelia californica* (California brittle bush scrub) Shrubland Alliance
- *Deinandra clementina-Eriogonum giganteum* (island buckwheat-island tarplant scrub) Provisional Shrubland Alliance
- *Malosma laurina* (laurel sumac scrub) Shrubland Alliance
- *Rhus integrifolia* (lemonade berry scrub) Shrubland Alliance
- Salvia mellifera (black sage scrub) Shrubland Alliance

Southern Coastal Bluff Scrub**:** A low scrub community adapted to exposed areas with nearly constant winds and high salt content. It consists of the largest reservoir of sensitive species and island endemics due to its location within inaccessible areas. This community is dominated by giant coreopsis (*Leptosyne gigantea*), Catalina crossosoma, *Dudleya* spp., Santa Catalina Island buckwheat, and island tarplant (*Deinandra clementina*)(David Carroll and Associates (DCA), 1994). Southern coastal bluff scrub, which occurs on the precipitous cliff, faces typically near the mouths of canyons and adjacent to some of the Island's disturbed areas on the steep seaward (east-facing) slopes and bluffs.

Corresponding MCV communities:

- *Leptosyne gigantea* (giant coreopsis scrub) Shrubland Alliance
- *Deinandra clementina-Eriogonum giganteum* (island buckwheat-island tarplant scrub) ProvisionalShrubland Alliance

Island Chaparral**:** Consists of tall broad-leaved shrubs that form a dense cover on steep slopes. Dominant species found within this community include island and MacDonald's scrub oaks (*Quercus pacifica* and *Q. macdonaldii*), feltleaf ceanothus (*Ceanothus arboreus*), chamise, island red berry, and Santa Catalina Island manzanita (*Arctostaphylos catalinae*). Island chaparral occupies canyon bottoms, most of the higher elevations, and steep, north-facing slopes.

Corresponding MCV communities:

- *Quercus pacifica* (island scrub oak chaparral) Shrubland Alliance
- *Ceanothus megacarpus* (big pod ceanothus chaparral) Shrubland Alliance
- *Adenostoma fasciculatum* (chamise chaparral) Shrubland Alliance

Island Oak Woodland: Dominated by canyon oak (*Quercus chrysolepis*) with a poorly developed shrub layer, which includes wild blackberry (*Rubus ursinus*), poison oak, heart-leaved penstemon (*Keckiella cordifolia*), and southern chaparral honeysuckle(*Lonicera subspicata* var. *denudata*). Some island oak woodlands along riparian habitat include scattered arroyo willows (*Salix lasiolepis*). This community occurs in relatively moist, protected canyon bottoms with rich alluvial soils.

Corresponding MCV communities:

- *Quercus chrysolepis* (canyon live oak forest)Forest Alliance

Island Ironwood Forest: An upland community characterized by a dominance of Catalina ironwood (*Lyonothamnus floribundus* ssp. *floribundus*).The Island endemic is a broad-leaved tree and occurs in groves of 50-100 trees located along the north- and east-facing slopes (DCA 1994). Other species occasionally associated with the ironwood forest include island scrub oak and Santa Catalina Islandmanzanita. The understory is sparse, supporting a number of herbaceous annuals and ferns. This community is typically found in protected canyons with rich alluvial soils in the northern portion of theIsland.

Corresponding MCV communities:

- *Lyonothamnus floribundus* (Catalina ironwood groves) Woodland Special Stands

Island Cherry Woodland: An open, dense woodland dominated by Catalina cherry (*Prunus ilicifolia* ssp. *lyonii*) with an understory consisting of Santa Catalina figwort (*Scrophularia villosa*), cudweed (*Gnaphalium* spp.), common chickweed (*Cerastium glomeratum*), wild cucumber (*Marah macrocarpa*), Santa Catalina Island bushmallow (*Malacothamnus fasciculatus* var. *catalinensis*), island morning-glory (*Calystegia macrostegia* ssp. *amplissima*), and many of weedy forb and grass species. This community occurs mostly along riparian habitats and in valley/canyon bottoms in the

northern portion of the Island.

Corresponding MCV communities:

- *Prunus ilicifolia* (Holly leaf cherry chaparral) Shrubland Alliance

Grassland: Consist of low, herbaceous vegetation that are dominated by grasses, but generally also harbor native forbs and bulbs as well as naturalized annual forbs. Non-native grassland consists of dominant invasive annual grasses that are primarily of Mediterranean origin. Dominant species found within this community include slender oats (*Avena barbata*), wild oats (*A. fatua*), ripgut brome (*Bromus diandrus*), red brome (*B. madritensis* ssp. *rubens*), and wild mustards (*Brassica*, *Hirschfeldia*, and *Sisymbrium* spp.). Non-native grasslands are located in small patches throughout the Island; along many of the ridges and gentle slopes with shallow clay or clay loam substrates; and in more significant acreage, on rolling hills in the southeastern portion of the Island. Native grassland consists of at least 10 percent cover of native grass species with the remaining coverage similar to non-native grasslands. Small patches of native grassland can be found on the Island mostly mixed with non-native grasslands.

Corresponding MCV communities:

- *Avena* (*barbata*, *fatua*) (Wild oats grasslands) Semi-Natural Herbaceous Stands

- *Bromus* (*diandrus*, *hordeaceus*) *-Brachypodium distachyon* (Annual brome grasslands) Semi-NaturalHerbaceous Stands

- *Bromus rubens-Schismus* (*arabicus*, *barbatus*) (Red brome or Mediterranean grass grasslands) Semi-NaturalHerbaceous Stands

- *Brassica nigra* and other mustards (Upland mustards) Semi-Natural Herbaceous Stands

Disturbed Areas: Areas that either completely lack vegetation or are dominated by ruderal species within developed areas. Vegetation typically include horehound (*Marrubium vulgare*) and tree tobacco (*Nicotiana glauca*). Several disturbed areas occur throughout the Island and take the form of residential developments, paved roads, fire breaks, dirt access roads, trails, and other similarly disturbed areas.

Corresponding MCV communities: None at this time.

Wildlife

Wildlife on the Island is diverse and abundant due to the large acreage of natural open space and the diversity of habitat types. While a few wildlife species are entirely dependent on a single vegetative community, the vegetation communities within the area and adjoining areas constitute a functional ecosystem for a variety of wildlife species.

The analysis of invertebrates is severely limited due to the lack of data. The Island, however, supports healthy populations of a diverse assortment of countless invertebrate species. Amphibian populations are generally abundant and diverse due to the high moisture content provided under the shade of woodlands and the abundance of drainages. Many essential reptilian habitat characteristics

are present. These include open habitats that allow free movement and high visibility and small mammal burrows for cover and escape from predators and extreme weather. These characteristics as well as the variety of habitat types present are likely to support a wide variety of reptilian species.

The scrubland, woodland, riparian, and grassland habitats provide foraging and cover habitat for year-round residents, seasonal residents, and migrating song birds. In addition, several year-round water sources and abundant raptor foraging, perching, and nesting habitat are located throughout the area. The combination of these resources as well as the confluence of many community types provides for a high diversity of bird species. Unlike other taxonomic groups, mammal populations are diverse and reflective of the unique island habitat types.

Wildlife Movement

Wildlife movement occurs throughout the Island. Concentrated movement corridors or bottlenecks are uncommon on the Island due to the abundance of uninterrupted open space and the lack of disturbed areas. In general, movement takes place in large drainages, along ridgelines, and along dirt roads. However, the small isthmus at Two Harbors represents a significant reduction in the ability for animals to move freely between the two parts of the Island. Movement across the isthmus has been further restricted by human encroachment of the Two Harbors community and Island visitors. Although a lack of movement across the isthmus may isolate some animal populations and reduce the genetic diversity on either side, this division has provided a unique opportunity for restoration by isolating and removing feral animals from the Island.

Sensitive Biological Resources

The statuses of rare plants are hierarchically categorized by the CNPS using a rank and decimal system. The initial category level of Rare Plant Rank is indicated by ranks 1A (presumed extinct), 1B (rare or endangered in Californiaand elsewhere), 2 (rare or endangered in California but more common elsewhere), 3 (more information needed, a review list), and 4 (limited distribution). In cases where the CNPS has further identified the specific threat to the species, a decimal or Threat Code is added: .1 (seriously endangered in California), .2 (fairly endangered in California)or .3 (not very endangered in California).

The following special-status plant taxa have been reported or have the potential to occur on Santa Catalina Island, based on known habitat requirements and geographic range information:

- Baja rock lichen (*Graphis saxorum*) CDFW Special Plants List
- Red sand-verbena (*Abronia maritima*) RPR 4.2
- Island broom (*Acmispon dendroideus* var. *dendroideus*) RPR 4.2
- Aphanisma (*Aphanisma blitoides*) RPR 1B.1
- Santa Catalina Island manzanita (*Arctostaphylos catalinae*) RPR 1B.2
- Coulter's saltbush (*Atriplex coulteri*) RPR 1B.2
- South Coast saltscale (*Atriplex pacifica*) RPR 1B.2

- Davidson's saltscale (*Atriplex serenana* var. *davidsonii*) RPR 1B.2
- Golden-spined cereus (*Bergerocactus emoryi*) RPR 2.2
- Round-leaved filaree (*California macrophylla*) RPR 1B.1
- Island ceanothus (*Ceanothus megacarpus* var. *insularis*) RPR 4.3
- Southern tarplant (*Centromadia parryi* ssp. *australis*) RPR 1B.1
- Island mountain-mahogany (*Cercocarpus betuloides* var. *blancheae*) RPR 4.3
- Catalina Island mountain-mahogany (*Cercocarpus traskiae*) FE, SE, RPR 1B.1
- Seaside cistanthe (*Cistanthe maritima*) RPR 4.2
- Nevin's woolly sunflower (*Constancea nevinii*) RPR 1B.3
- Small-flowered morning-glory (*Convolvulus simulans*) RPR 4.2
- Catalina crossosoma (*Crossosoma californicum*) RPR 1B.2
- Island tarplant (*Deinandra clementina*) RPR 4.3
- South island bush-poppy (*Dendromecon harfordii* var. *rhamnoides*) RPR 1B.1
- Western dichondra (*Dichondra occidentalis*) RPR 4.2
- Beach spectaclepod (*Dithyrea maritima*) ST, 1B.1
- Greene's dudleya (*Dudleya greenei*) RPR 4.2
- Catalina Island dudleya (*Dudleya virens* ssp. *hassei*) RPR 1B.2
- Island green dudleya (*Dudleya virens* ssp. *insularis*) RPR 1B.2
- Bright green dudleya (*Dudleya virens* ssp. *virens*) RPR 1B.2
- Santa Catalina Island buckwheat (*Eriogonum giganteum* var. *giganteum*) RPR 4.3
- Island buckwheat (*Eriogonum grande* var. *grande*) RPR 4.2
- Island poppy (*Eschscholzia ramosa*) RPR 4.3
- Cliff spurge (*Euphorbia misera*) RPR 2.2
- Santa Catalina Island bedstraw (*Galium catalinense* ssp. *catalinense*) RPR 1B.2
- Nuttall's island bedstraw (*Galium nuttallii* ssp. *insulare*) RPR 4.3

- Showy island snapdragon (*Gambelia speciosa*) RPR 1B.2
- Nevin's gilia (*Gilia nevinii*) RPR 4.3
- Palmer's grapplinghook (*Harpagonella palmeri*) RPR 4.2
- Island rush-rose (*Helianthemum greenei*) FT, RPR 1B.2
- Decumbent goldenbush (*Isocoma menziesii* var. *decumbens*) RPR 1B.2
- Island jepsonia (*Jepsonia malvifolia*) RPR 4.2
- Southern island mallow (*Lavatera assurgentiflora* ssp. *glabra*) RPR 1B.1
- Fragrant pitcher sage (*Lepechinia fragrans*) RPR 4.2
- Santa Barbara honeysuckle (*Lonicera subspicata* var. *subspicata*) RPR 1B.2
- Santa Catalina Island desert-thorn (*Lycium brevipes* var. *hassei*) RPR 1B.1
- California box-thorn (*Lycium californicum*) RPR 4.2
- Santa Catalina Island ironwood (*Lyonothamnus floribundus* ssp. *floribundus*) RPR 1B.2
- Small-flowered microseris (*Microseris douglasii* ssp. *platycarpha*) RPR 4.2
- Santa Catalina Island monkeyflower (*Mimulus traskiae*) RPR 1A
- Coast woolly-heads (*Nemacaulis denudata* var. *denudata*) RPR 1B.2
- Short-lobed broomrape (*Orobanche parishii* ssp. *brachyloba*) RPR 4.2
- Lyon's pentachaeta (*Pentachaeta lyonii*) FE, SE, RPR 1B.1
- Engelmann oak (*Quercus engelmannii*) RPR 4.2
- Island scrub oak (*Quercus pacifica*) RPR 4.2
- Island oak (*Quercus tomentella*) RPR 4.2
- Island redberry (*Rhamnus pirifolia*) RPR 4.2
- Santa Catalina Island currant (*Ribes viburnifolium*) RPR 1B.2
- Santa Catalina figwort (*Scrophularia villosa*) RPR 1B.2
- Chaparral ragwort (*Senecio aphanactis*) RPR 2B.2
- Santa Cruz Island rock cress (*Sibara filifolia*) FE, RPR 1B.1

- Wallace's nightshade (*Solanum wallacei*) RPR 1B.1
- Woolly seablite (*Suaeda taxifolia*) RPR 4.2
- Southern island clover (*Trifolium palmeri*) RPR 4.2
- Catalina mariposa lily (*Calochortus catalinae*) RPR 4.2
- California dissanthelium (*Dissanthelium californicum*) RPR 1B.2
- Vernal barley (*Hordeum intercedens*) RPR 3.2
- Chaparral rein orchid (*Piperia cooperi*) RPR 4.2

The following special-status animal species are reported or are likely to be present on Santa Catalina Island based on habitat requirements and known range attributes:

- Santa Catalina lancetooth (*Haplotrema catalinense*) CDFW Special Animals List
- Shepard's snail (*Pristiloma shepardae*) CDFW Special Animals List
- Catalina mountainsnail (*Radiocentrum avalonense*) CDFW Special Animals List
- San Clemente Island blunt-top snail (*Sterkia clementina*) CDFW Special Animals List
- Sandy beach tiger beetle (*Cicindela hirticollis gravida*) CDFW Special Animals List
- Santa Catalina garter snake (*Thamnophis hammondii* ssp.) CDFW Special Animals List
- Bald eagle (*Haliaeetus leucocephalus*) SE, CDF, CDFW Fully Protected
- Xantus' murrelet (*Synthliboramphus hypoleucus*) FC, BCC, ST, ABC
- Santa Catalina Island shrew (*Sorex ornatus willetti*) SSC
- Santa Catalina Island fox (*Urocyon littoralis catalinae*) FE, ST

Santa Monica Mountains

For a description of the resources in the Santa Monica Mountains, please refer to the description for the Santa Monica Mountains Significant Ecological Area (SEA) in Section IV.

VI. Watersheds

Antelope ValleyWatershed

The southern half of the Lahontan hydrologic region is located in the Antelope Valley. Unlike the coastal watersheds in Los AngelesCounty, it is a closed basin onthe edge of the Mojave Desert, having no outlet to the ocean or major river system. Numerous streams drain the north-facing San

Gabriel Mountains, carrying rainfall and snow melt from the Angeles National Forest into the Antelope Valley. Significant stream systems in the Antelope Valley are Amaroosa Creek, Big Rock Creek, and Little Rock Creek.

During most years, the rainfall in the Antelope Valley is scant, averaging less than eightinches per year. Every few years, major storms cause flooding, sending sheets of water flow across the eastern portion of the Antelope Valley to the dry lakebeds of Rosamond and Rodgers lakes in Kern County. Uninhibited by development, the sheet flow filters into the groundwater basin or evaporates on the lakebeds, leaving the surface smooth and flat. This natural runoff process is important for two reasons: 1) it benefits the local communities with groundwater recharge; and 2) it seasonally resurfaces the dry lake beds, which are used for aircraft landings at Edwards Air Force Base.

The Lahontan Regional Water Quality Control Board monitors the Antelope Valley watershed through its Basin Plan for the region. The Basin Plan calls for land use controls to help reduce pollutants in stormwater runoff. In particular, the Basin Plan advocates for limiting impervious surfaces, restoring natural vegetation and protecting the headwaters of stream channels and riparian areas.

Los Angeles River Watershed

The Los Angeles River watershed covers approximately 870 square miles, a small part of which extends into Ventura County. It includes the San Fernando Valley and is the largest watershed in the Los Angeles Basin. The river extends 51 stream miles, from the confluence of Bell Creek and Arroyo Calabasas, to the Pacific Ocean. The first 32 miles of the river flow through the cities of Los Angeles, Burbank, and Glendale, and then, subsequently, through Vernon, Commerce, Maywood, Bell, Bell Gardens, Lynwood, Compton, South Gate, Paramount, Cudahy, and Long Beach. Numerous tributaries feed the Los Angeles River, as it flows through the San Fernando Valley and the coastal plain to the Long Beach Harbor. These tributaries include Tujunga Wash, Verdugo Wash, Arroyo Seco, Rio Hondo, and Compton Creek. Several important biotic communities exist in the northern tributaries that feed the river, including freshwater marsh areas in Tujunga Canyon and the Hansen Flood Control Basin. The natural habitat in these tributaries provides a semi-protected corridor for wildlife between the Angeles National Forest, Santa Monica Mountains National Area, and the Los Angeles River.

By 1960, the Los Angeles River was lined with concrete along most of its length by the U.S. Army Corps of Engineers in order to prevent the loss of lives and property from flood damage. As a result, the Los Angeles River's sole purpose for years was efficient water conveyance—carrying stormwater from the land to the ocean as quickly as possible. Efforts continue under the auspices of the Los Angeles County Flood Control District to capture as much stormwater as possible and redirect it to regional groundwater recharge areas to replenish groundwater basins, saving thousands of acre-feet of water every year.

The volume of pollutants that enters the Los Angeles River is extremely high due to accumulated urban stormwater runoff from the hundreds of square miles of impervious land uses that flank the Los AngelesRiver. To address these problems, the County, the Flood Control District, local jurisdictions, a variety of stakeholders, and the Los Angeles Regional Water Quality Control Board are implementing programs to reduce the number and concentration of pollutants that enter the Los Angeles River.

Over the past two decades, interest the Los Angeles River's recreational and ecological functions has reemerged, culminating in a riverwide planning effort in the 1990s, which resulted in the adoption of the *Los Angeles River Master Plan* by the Board of Supervisors in 1996. The Plan was created through a cooperative effort by the County and many river stakeholder groups for the enhancement of aesthetic, recreational, flood protection and environmental functions of the Los Angeles River. The Plan seeks to do so by expanding bikeway, walking and equestrian trails to and along the Los Angeles River, enhancing existing trails and habitat with landscaping, and promoting economic development opportunities. Since the adoption of the Plan, an advisory committee has overseen many new projects, including bike trails, pocket parks, equestrian trail enhancements, art and signage. So much public interest in the river has been generated that many more improvements are anticipated in the future. The County's Bicycle Master Plan also prioritizes the Los Angeles River bike path.

The County is also working with various organizations and agencies that are involved in watershed-related planning activities, such as the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, the Council for Watershed Health, and the Flood Control District. The attention being paid to the watershed has resulted in a better understanding of its functions and generated an unprecedented network of residents, private organizations and government entities dedicated to watershed management. The County has also partnered with the City of Los Angeles on implementation of its 2007 Los Angeles River Revitalization Master Plan.Subsequently, the County Board of Supervisors and Los Angeles City Council adopted the Los Angeles River Memorandum of Understanding, which established the Los Angeles River Cooperation Committee to prioritize cooperative implementation of Los Angeles River projects. In addition, the County is a partner in the U.S. Army Corps of Engineers' Los Angeles River Ecosystem Restoration Feasibility Study (started in 2006 for which the City of Los Angeles is serving as primary local sponsor). The County is also a partner with the U.S. Bureau of Reclamation on the Los Angeles Basin Study to prioritize stormwater capture and infiltration that will result in watershed-wide conservation.

Compton Creek Sub-Watershed

Compton Creek drains an area of approximately 42 square miles, including portions of the cities of Carson, Compton, Long Beach, Los Angeles, Lynwood, and South Gate and portions of the unincorporated communities of Florence-Firestone, Willowbrook, and Rancho Dominguez. Compton Creek drains into the Los Angeles River, which then empties into San Pedro Bay at the eastern edge of Long Beach Harbor.

With more than 700,000 residents, the Compton Creek watershed is highly urbanized and most of its drainage courses are lined with concrete. Approximately 97 percent of the land area is occupied by homes, businesses, roads, and similar uses. As a result of excess levels of trash and coliform bacteria, surface and groundwater quality in Compton Creek has been degraded, natural hydrologic functions modified, and plant and wildlife diversity reduced.

In recent years, various groups, cities, and agencies have worked to transform Compton Creek into a valued community asset, improve and expand open space, optimize water resources, preserve and restore habitat, and create a network of trails and bike paths. Some of these efforts have been informally coordinated, in recognition of the potential to extend benefits beyond the borders of individual cities, create opportunities to leverage benefits, and maximize funding resources.

Los Angeles Harbor Watershed

The major river system within the area that drains to Los Angeles Harbor is the Dominguez Channel. The Dominguez Channel watershed, part of the larger Los Angeles Harbor watershed, is located within the southern portion of Los Angeles County and encompasses approximately 110 square miles of intensely urban area. Approximately 81 percent of the watershed is developed. Residential development covers nearly 40 percent of the watershed, and another 41 percent is made up by industrial, commercial and transportation uses. With a population of nearly 1 million, considerable demands are made on infrastructure and services within the watershed. Local water supply is limited and the majority of water use is provided by imported sources. Parkland and open space are in short supply and generally are deficient. Another significant stream system within the Los Angeles Harbor watershed is the Wilmington Drain.

There are significant stormwater pollution issues in this watershed. For example, old waste disposal practices have left DDT and PCBs deposited in the channel bottom, which are carried to the harbor in land and aquatic sediment swept up and re-suspended by stormwater.

Nine unincorporated areas are located within this urban-industrial watershed and each of these areas affects and is affected by the health and function of Dominguez Channel and its tributaries.

San Gabriel River Watershed

The San Gabriel River watershed encompasses part of the Angeles National Forest, the San Gabriel Valley, and large urban areas in southeast portion of Los AngelesCounty. It is bounded by the Los Angeles River on much of its western flank, and extends to San Bernardino and Orange counties. Totaling more than 640 square miles, the watershed has extensive areas of un-channeled tributaries, which support riparian and woodland habitats. Its northern reaches in the Angeles National Forest are dramatically different from the developed 167 square miles in the Los Angeles Basin. The U.S. Congress has preserved two wilderness areas within this watershed: the San Gabriel Wilderness Area, 36,215 acresalong the west fork of the San Gabriel River, and Sheep Mountain Wilderness Area, 31,680 acres along the east fork of the San Gabriel River.

The main watercourse in this watershed is the San Gabriel River. The San Gabriel River extends 59 stream miles from the Angeles National Forest to the Pacific Ocean, draining 350 square miles of land. It also recharges groundwater tables in several basins. The major tributaries that feed the San Gabriel River include Coyote Creek, Walnut Creek, Puente Creek and San Jose Creek. The upper section of the San Gabriel River and its tributaries are still considered relatively pristine. However, intensive recreational use and erosion due to wildfires in this area may threaten water quality and wildlife that depend on the river. The middle section of the river has been extensively modified throughout the San Gabriel Valley to diminish flood damage and encourage groundwater recharge. The lower section, similar to the Los Angeles River, is lined with concrete from Firestone Boulevard to the bay. In contrast to the upper and middle sections of the river, dry weatherflow in the lower section stems primarily from urban runoff and treated effluent from municipal wastewater treatment facilities.

A clear link exists between the health of this watershed and the quality of life for millions of Los Angeles County residents. The upper reaches of the San Gabriel River support wildlife, deliver drinking water and provide a myriad of recreational opportunities. To protect and enhance the multiple benefits of this resource a riverwide planning effort entitled *San Gabriel River Master Plan*

was adopted in 2006. This effort, spearheaded by the County, brings together a dynamic group of stakeholders, including the 13 cities along the San Gabriel River, residents, environmental groups and many business and community leaders.

The County is working with stakeholders, such as the San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, the Santa Monica Mountains Conservancy, and the Flood Control District. Together, stakeholders developed a watershed and open space plan in 2001 entitled *Common Ground: From the Mountains to the Sea* that provides general guidelines for improvement of the San Gabriel and Lower Los Angeles Rivers watersheds through community development, public awareness, preservation of open space and creation of recreational opportunities—particularly along the rivers.

Santa Clara River Watershed

The Santa Clara River watershed is an extensive hydrologic system that encompasses the western portion of the Angeles National Forest in Los Angeles County and the eastern portion of Los Padres National Forest in Ventura County. The Santa Clara River—an essential component of this watershed—recharges local groundwater, provides riparian habitat and supplies water to downstream agricultural lands in Ventura County. It is the largest relatively unaltered river system in Southern California, and the single most important natural wildlife corridor in Los Angeles County. The Santa Clara River and its tributaries provide drainage for approximately 654 square miles of the upper watershed within Los Angeles County. The Santa Clara River's major tributaries include Soledad Canyon, Castaic Creek, San Francisquito Canyon Creek, Bouquet Canyon Creek, Sand Canyon Creek, Mint Canyon Creek and Santa Clara River South Fork. Several endangered species are found in this watershed, including thearroyo toad and the unarmored three-spine stickleback. Another important stretch of the Santa Clara River supports a variety of riparian-obligate songbirds and birds of prey between Castaic Junction and Blue Cut near the Ventura County line, where the groundwater basin thins and narrows, forcing groundwater toward the surface.

A link exists between the health of this watershed, particularly its tributaries, and development in the area. Urban expansion in the 1990s and early 2000s impacted the watershed on several levels, including a reduction in local water supplies and disappearing open space. Furthermore, the land use activities in this area have created many square miles of impervious surfaces, which have created more urban runoff and reduced the amount of water that would naturally percolate into groundwater basins. By employing watershed management techniques, the County aims to curb this trend.

Santa Monica BayCoastal Watersheds

The County, other agencies, cities, and stakeholders coordinate the management of the coastal watersheds of Santa Monica Bay as two distinct management areas, due to the vast differences in land use and population density: North Santa Monica Bay watersheds (North Bay) and the South Santa Monica Bay watersheds (South Bay). The North Bay consists of the Malibu Creek and Topanga Creek watersheds as well as sixteen other rural coastal watersheds. North Bay watersheds are primarily natural open space with low-density residential developments. The South Bay includes Ballona Creek watershed, Marina del Rey, and 10 urban coastal sub-watersheds. Although vastly different from one another, these watersheds have a direct impact on the quality and quantity of water delivered to the Santa Monica Bay. The Malibu Creek watershed traverses a rural

mountainous area, while the Ballona Creek watershed is comprised of intensely urban development.

The coastal watersheds of the Santa Monica Bay extend from the Ventura County-Los Angeles County line to outer Cabrillo Beach in San Pedro. This length includes 44 beaches along 55 miles of coastline, attracting over 55 million beach visitors each year. While the Malibu Creek and Ballona Creek watersheds also drain to Santa Monica Bay, they are typically managed as separate areas due to their significant size.

Ballona Creek Sub-Watershed

The Ballona Creek watershed is located in the western portion of Los Angeles County and is approximately 130 square miles in size. It is highly urbanized and home to more than 1.6 million residents. It includes the cities of Beverly Hills and West Hollywood; portions of the cities of Culver City, Inglewood, Los Angeles, Santa Monica; Caltrans facilities; the Ballona Wetlands, and the unincorporated communities of Marina del Rey, Baldwin Hills, Ladera Heights and a portion of Playa Del Rey. Centinela Creek, Sepulveda Canyon Channel and Benedict Canyon Channel are significant tributaries of Ballona Creek.

Over the years, the urbanization of the Ballona Creek watershed routed many small tributaries through storm drains. These storm drains collect runoff from city streets and carry it to major tributaries and eventually to Ballona Creek, which flows into the Santa Monica Bay. Major contributors to the impaired water quality in Ballona Creek are urban runoff and illegal dumping. These pollutants significantly contribute to pollution in the Santa Monica Bay, degrading ecosystems and recreational opportunities.

The Ballona Creek Trash TMDL became effective on August 11, 2005. To comply with this regulation, the County adopted an aggressive strategy to reduce the amount of trash entering Ballona Creek from unincorporated areas.

Malibu Creek Sub-Watershed

Malibu Creek watershed is the largest rural watershed in North Santa Monica Bay. It is approximately 109 square miles and consists of over 75 percent natural open space. The Malibu Creek watershed encompasses a major portion of the Santa Monica Mountains and is one of many sub-watersheds that drain the mountain range. Over the past twenty years, the number of residents living in the Malibu Creek watershed has doubled. This growth and development has increased runoff, sedimentation and demand for imported water, and caused various tributaries that feed Malibu Creek to be channelized. As a result, the natural flow of water within the watershed has changed, degrading oak and riparian woodlands, steelhead trout populations, and the Malibu Lagoon.

The primary watercourse draining this watershed is Malibu Creek, which flows into Malibu Lagoon. The health and function of Malibu Creek and its tributaries is an important issue as these waterways drain 109 square miles of the watershed into Malibu Lagoon and the Santa Monica Bay—a National

Estuary.[12] Two important plant communities comprise the lagoon: the coastal salt marsh and coastal strand, and over 200 species of birds use the lagoon as a refuge.

A clear link exists between the health of Malibu Creek watershed, particularly Malibu Creek, and development in the mountains. Land use activities account for about half of all pollutants that enter the Malibu watershed drainage. Pollution sources include roadway runoff, septic system overflow, new construction, and vegetation clearance.

The Santa Monica Mountains North Area Plan, adopted by the Board of Supervisors in 2000, and the 1986 Local Coastal Plan address the adverse affect of development on the Santa Monica Mountains. These plans, which cover portions of the mountains north of the coastal zone, significantly restrict the potential number of dwelling units that may be built in the mountains. The guiding principle of the plan is to let the land dictate the site and type of development that should be allowed.

Marina del Rey Sub-Watershed

The Marina del Rey watershed is approximately twosquare miles in size and its drainage area is mostly within the City of Los Angeles. The unincorporated marina and harbor were mainly constructed from remnants of the Ballona Creek Wetlands and Estuary.

VI. Agricultural Resources

Agricultural Resource Areas Methodology

Figure 9.5in the Conservation and Natural Resources Element shows the County's Agricultural Resource Areas (ARAs), where the County promotes the preservation of agricultural activities. The ARA boundaries were derived from farmland identified by the State Department of Conservation, including Prime Farmland, Farmland of Statewide Importance, Farmland of Local Importance, and Unique Farmland. In addition, the ARAs include lands that received permits from the Los Angeles County Agricultural Commissioner/Weights and Measures.

To reflect changes in land uses and address environmental concerns, the following were excluded from the ARAs:

- Significant Ecological Areas (SEA) and Ecological Transition Areas (ETA);
- Approved specific plan areas;
- Approved large-scale renewable energy facilities;
- Lands outside of the Santa Clarita and Antelope Valleys, where farming is concentrated; and

[12] The Santa Monica Bay is designated a National estuary under the U.S. EPA's National Estuaries Program.

- Lands that are designated Public and Semi-Public (P).

Data from the U.S. Census of Agriculture

Table E.1: Change in Number and Acreage of Farms in Los Angeles County, 1987-2007

	1987	**1992**	**1997**	**2002**	**2007**
Farms (number)	2,035	1,446	1,226	1,543	1,734
Change from previous year	-	-589	-220	317	191
Percent change from previous year	-	-28.94%	-15.21%	25.86%	12.38%
Land in farms (acres)	280,156	183,569	130,838	111,458	108,463
Change from previous year	-	-96,587	-52,731	-19,380	-2,995
Percent change from previous year	-	-34.48%	-28.73%	-14.81%	-2.69%

Source: U.S. Census of Agriculture, 1987-2007.

Appendix F: Parks and Recreation Element Resources

I. Los Angeles County Parks and Recreation Inventory

Table F.1: Los Angeles County Parks and Recreation Inventory

Park Name	Planning Area	Park Classification	Type	Acre(s)
15614 S Washington Ave	Metro	Undeveloped		0.4
2247 East 119th Street (Faith and Hope)	Metro	Undeveloped		0.5
72nd Street Staging Area	Gateway	Special Use	Regional	3.0
Acton Park	Antelope Valley	Community	Local	14.0
Acton Wash Wildlife Sanctuary	Antelope Valley	Special Use	Regional	75.4
Adventure Park	Gateway	Community	Local	14.6
Allen J. Martin Park	East San Gabriel Valley	Neighborhood	Local	6.8
Alondra Community Regional Park	South Bay	Community Regional	Regional	53.1
Alondra Golf Course	South Bay	Special Use	Regional	164.0
Alpine Butte Wildlife Sanctuary	Antelope Valley	Special Use	Regional	323.2
Altadena Golf Course	West San Gabriel Valley	Special Use	Regional	69.1
Amelia Mayberry Park	Gateway	Community	Local	14.4

Amigo Park	Gateway	Neighborhood	Local	4.5
Apollo Community Regional Park	Antelope Valley	Community Regional	Regional	54.5
Arboretum and Botanic Garden	West San Gabriel Valley	Special Use	Regional	119.4
Arcadia Community Regional Park	West San Gabriel Valley	Community Regional	Regional	52.6
Athens Park	Metro	Community Regional	Regional	18.7
Atlantic Avenue Park	Metro	Neighborhood	Local	2.0
Avenue Park	East San Gabriel Valley	Neighborhood	Local	5.0
Avocado Heights Park	East San Gabriel Valley	Neighborhood	Local	8.1
Bassett Park	East San Gabriel Valley	Neighborhood	Local	9.8
Belvedere Community Regional Park	Metro	Community Regional	Regional	30.7
Big Rock Wash Wildlife Sanctuary	Antelope Valley	Special Use	Regional	160.8
Bill Blevins Park	East San Gabriel Valley	Neighborhood	Local	5.3
Blalock Wildlife Sanctuary	Antelope Valley	Special Use	Regional	140.4
Bodger Park	South Bay	Community	Local	12.4
Butte Valley Wildflower Sanctuary	Antelope Valley	Special Use	Regional	350.5

Calabasas Peak	Santa Monica Mountains	Undeveloped		120.0
Carl O. Gerhardy Wildlife Sanctuary	Antelope Valley	Special Use	Regional	546.9
Carolyn Rosas Park	East San Gabriel Valley	Neighborhood	Local	7.1
Casa Del Caballero	West San Gabriel Valley	Undeveloped		0.8
Castaic Lake State Recreation Area	Santa Clarita Valley	Regional	Regional	12657.8
Castaic Regional Sports Complex	Santa Clarita Valley	Community Regional	Regional	53.7
Cerritos Community Regional Park	Gateway	Community Regional	Regional	63.0
Charles S. Farnsworth Park	West San Gabriel Valley	Community	Local	14.7
Charles White Park	West San Gabriel Valley	Neighborhood	Local	6.1
Charter Oak Park	East San Gabriel Valley	Community	Local	11.8
Chateau Calabasas	Santa Monica Mountains	Undeveloped		79.8
Chester Washington Golf Course	Metro	Special Use	Regional	124.9
Cima Mesa Park	Antelope Valley	Undeveloped		9.3
City Terrace Park	Metro	Community	Local	15.3

Col. Leon H. Washington Park	Metro	Neighborhood	Local	15.7
Cold Creek Canyon	Santa Monica Mountains	Undeveloped		135.7
Countrywood Park	East San Gabriel Valley	Neighborhood	Local	6.2
Crescenta Valley Community Regional Park	West San Gabriel Valley	Community Regional	Regional	38.3
Dalton Park	East San Gabriel Valley	Neighborhood	Local	5.2
Deane Dana Friendship Natural Area and Nature Center	South Bay	Special Use	Regional	131.1
Del Aire Park	South Bay	Neighborhood	Local	7.0
Del Valle Park	Santa Clarita Valley	Neighborhood	Local	5.5
Descanso Gardens	West San Gabriel Valley	Special Use	Regional	148.6
Devil's Punchbowl Natural Area and Nature Center	Antelope Valley	Special Use	Regional	1299.9
Dexter Park	San Fernando Valley	Community Regional	Regional	39.6
Diamond Bar Golf Course	East San Gabriel Valley	Special Use	Regional	188.3
Dr. Richard H. Rioux Memorial Park	Santa Clarita Valley	Neighborhood	Local	16.7
Earvin "Magic" Johnson Recreation Area	Metro	Community Regional	Regional	103.9

East Rancho Dominguez Park	Gateway	Neighborhood	Local	5.5
Eastside Eddie Heredia Boxing Club	Metro	Special Use	Local	0.2
Eaton Canyon Golf Course	West San Gabriel Valley	Special Use	Regional	101.5
Eaton Canyon Natural Area and Nature Center	West San Gabriel Valley	Special Use	Regional	214.5
Eaton Canyon Staging Area	West San Gabriel Valley	Special Use	Regional	5.8
El Cariso Community Regional Park	San Fernando Valley	Community Regional	Regional	79.7
El Cariso Golf Course	San Fernando Valley	Special Use	Regional	128.8
El Parque Nuestro	Metro	Pocket	local	0.6
Enterprise Park	Metro	Community	Local	10.0
Eugene A. Obregon Park	Metro	Neighborhood	Local	10.9
Everett Martin Park	Antelope Valley	Neighborhood	Local	5.8
Frank G. Bonelli Equestrian Center	East San Gabriel Valley	Special Use	Regional	0.0*
Frank G. Bonelli Regional Park	East San Gabriel Valley	Regional	Regional	1797.3
Franklin D. Roosevelt Park	Metro	Community Regional	Regional	24.3
Ganesha Park	West San Gabriel Valley	Node	Local	0.6

George Lane Park	Antelope Valley	Community	Local	13.7
George R Bones Wildlife Sanctuary	Antelope Valley	Special Use	Regional	99.6
George Washington Carver Park	Metro	Neighborhood	Local	7.0
Gloria Heer Park	East San Gabriel Valley	Neighborhood	Local	10.4
Hacienda Heights Community and Recreation Center	East San Gabriel Valley	Undeveloped		7.4
Hasley Canyon Equestrian Center	Santa Clarita Valley	Special Use	Regional	67.0
Hasley Canyon Park	Santa Clarita Valley	Neighborhood	Local	5.4
Helen Keller Park	Metro	Neighborhood	Local	9.6
Highland Camrose Park	Westside	Neighborhood	Local	2.2
Hollywood Bowl	Westside	Special Use	Regional	69.0
Jackie Robinson Park	Antelope Valley	Neighborhood	Local	9.2
Jackrabbit Flats Wildlife Sanctuary	Antelope Valley	Special Use	Regional	114.4
Jake Kuredjian Park	Santa Clarita Valley	Neighborhood	Local	5.7
Jesse Owens Community Regional Park	Metro	Community Regional	Regional	16.9
John Anson Ford Amphitheatre	Metro	Special Use	Regional	31.4
Kenneth Hahn State Recreation Area	Westside	Regional	Regional	338.0

Knollwood Golf Course	San Fernando Valley	Special Use	Regional	204.2
Knollwood Pool	San Fernando Valley	Special Use	Regional	0.1
La Brea Greenbelt	Westside	Undeveloped		22.0
La Cienega between 129th & 141st (Wiseburn)	South Bay	Undeveloped		5.0
La Mirada Community Regional Park	Gateway	Regional	Regional	75.7
La Mirada Golf Course	Gateway	Special Use	Regional	133.8
La Sierra Canyon Wetlands	Santa Monica Mountains	Undeveloped		28.1
Ladera Park	Westside	Community	Local	15.8
Lakewood Golf Course	Gateway	Special Use	Regional	195.8
Lario Staging Area	West San Gabriel Valley	Special Use	Regional	42.5
Lennox Park	South Bay	Neighborhood	Local	5.6
Lincoln SPS Staging Area	West San Gabriel Valley	Special Use	Regional	2.7
Loma Alta Park	West San Gabriel Valley	Community	Local	21.1
Longview Wildlife Sanctuary	Antelope Valley	Special Use	Regional	139.3
Los Amigos Golf Course	Gateway	Special Use	Regional	147.7

Los Pinetos Staging Area	San Fernando Valley	Special Use	Regional	2.7
Los Robles Park	East San Gabriel Valley	Neighborhood	Local	5.0
Los Verdes Golf Course	South Bay	Special Use	Regional	162.7
Lyman Staging Area	East San Gabriel Valley	Special Use	Regional	1.3
Maggie Hathaway Golf Course	Metro	Special Use	Regional	12.7
Manzanita Park	East San Gabriel Valley	Community	Local	12.1
Marshall Canyon Equestrian Center	East San Gabriel Valley	Special Use	Regional	5.8
Marshall Canyon Golf Course	East San Gabriel Valley	Special Use	Regional	186.2
Marshall Canyon Regional Park & Nursery	East San Gabriel Valley	Special Use	Regional	118.7
Marshall Canyon Staging Area	East San Gabriel Valley	Special Use	Regional	1.9
Martin Luther King Jr. Fitness Garden	Metro	Pocket	Local	0.3
Mary M. Bethune Park	Metro	Neighborhood	Local	5.3
Mattie M Primmer Park (AKA Avenue T Park)	Antelope Valley	Undeveloped		3.0
McNees Park	Gateway	Pocket	Local	0.6

Mescal Wildlife Sanctuary	Antelope Valley	Special Use	Regional	99.4
Michillinda Park	West San Gabriel Valley	Pocket	Local	2.2
Mira Vista Park	San Fernando Valley	Node	Local	0.2
Mona Park	Metro	Neighborhood	Local	7.8
Monteith Parkway	Westside	Pocket	Local	0.6
Monument Park	West San Gabriel Valley	Node	Local	0.4
Mountain Meadows Golf Course	East San Gabriel Valley	Special Use	Regional	178.4
Neenach Habitat Preserve	Antelope Valley	Special Use	Regional	40.1
Orange Grove Park	East San Gabriel Valley	Undeveloped		5.4
Pamela County Park	West San Gabriel Valley	Neighborhood	Local	3.0
Park Learning Grove County Park	South Bay	Pocket	Local	0.5
Parque de los Suenos	Metro	Pocket	Local	1.6
Pathfinder Community Regional Park	East San Gabriel Valley	Community Regional	Regional	28.2
Pearblossom County Park	Antelope Valley	Neighborhood	Local	7.7
Peck Road Water Conservation Park	West San Gabriel Valley	Regional	Regional	150.1

Pepperbrook Park	East San Gabriel Valley	Neighborhood	Local	5.1
Peter F. Schabarum Equestrian Center	East San Gabriel Valley	Special Use	Regional	0.0*
Peter F. Schabarum Regional Park	East San Gabriel Valley	Regional	Regional	574.7
Phacelia Wildflower Sanctuary	Antelope Valley	Special Use	Regional	160.5
Pickens Canyon Park	West San Gabriel Valley	Node	Local	0.2
Pico Canyon Park	Santa Clarita Valley	Neighborhood	Local	21.3
Pioneer Park	Antelope Valley	Undeveloped		4.7
Placerita Canyon Natural Area and Nature Center	Santa Clarita Valley	Special Use	Regional	517.9
Rimgrove Park	East San Gabriel Valley	Neighborhood	Local	9.6
Rowland Heights Park	East San Gabriel Valley	Community	Local	10.2
Roy Campanella Park	Metro	Neighborhood	Local	10.1
Ruben F Salazar Park	Metro	Neighborhood	Local	7.9
Rueben Ingold Parkway	Westside	Pocket	Local	3.5
Saddle Peak	San Fernando Valley	Undeveloped		9.6

San Angelo Park	East San Gabriel Valley	Neighborhood	Local	9.3
San Dimas Canyon Community Regional Park	East San Gabriel Valley	Regional	Regional	129.1
San Dimas Canyon Natural Area and Nature Center	East San Gabriel Valley	Special Use	Regional	110.0
San Dimas Staging Area	East San Gabriel Valley	Special Use	Regional	0.1
San Jose Creek Park	East San Gabriel Valley	Special Use	regional	2.9
Santa Anita Golf Course	West San Gabriel Valley	Special Use	Regional	130.0
Santa Fe Dam Recreational Area	West San Gabriel Valley	Regional	Regional	989.0
Saybrook Park	Metro	Neighborhood	Local	7.1
Secret Valley	San Fernando Valley	Undeveloped		41.9
Shady Bend (Llano Del Rio)	Antelope Valley	Undeveloped		40.0
Sorensen Park	Gateway	Community	Local	11.4
South Coast Botanic Garden	South Bay	Special Use	Regional	81.8
Stephen Sorensen Park	Antelope Valley	Community Regional	Regional	108.0
Stoneview	Westside	Undeveloped		5.0

Sunshine Park	East San Gabriel Valley	Neighborhood	Local	9.4
Ted Watkins Memorial Park	Metro	Community Regional	Regional	29.8
Tesoro Adobe Historic Park	Santa Clarita Valley	Special Use	Regional	2.3
Theodore Payne Wildlife Sanctuary	Antelope Valley	Special Use	Regional	156.9
Thomas S. Burton Park	East San Gabriel Valley	Neighborhood	Local	11.8
Trailview Park	East San Gabriel Valley	Pocket	Local	50.8
Tujunga Ponds Wildlife Sanctuary	San Fernando Valley	Special Use	Regional	12.9
Two Strike County Park	West San Gabriel Valley	Neighborhood	Local	8.2
Val Verde Community Regional Park	Santa Clarita Valley	Community Regional	Regional	57.9
Valley Center Staging Area	East San Gabriel Valley	Special Use		1.1
Valleydale Park	East San Gabriel Valley	Neighborhood	Local	9.1
Vasquez Rocks Natural Area and Nature Center	Santa Clarita Valley	Special Use	Regional	912.9
Veterans Memorial Community Regional Park	San Fernando Valley	Community Regional	Regional	96.7
Victoria Community Regional Park	Gateway	Community Regional	Regional	33.9

Victoria Golf Course	Gateway	Special Use	Regional	161.7
Virginia Robinson Gardens	Westside	Special Use	Regional	6.6
Walnut Creek Community Regional Park	East San Gabriel Valley	Regional	Regional	117.0
Walnut Nature Park	Metro	Special Use	Regional	4.5
West Creek Park	Santa Clarita Valley	Community	Local	16.9
Whittier Narrows Equestrian Center	West San Gabriel Valley	Special Use	Regional	18.0
Whittier Narrows Golf Course	West San Gabriel Valley	Special Use	Regional	277.8
Whittier Narrows Natural Area and Nature Center	West San Gabriel Valley	Special Use	Regional	133.0
Whittier Narrows Recreation Area	West San Gabriel Valley	Regional	Regional	972.7
William S. Hart Regional Park	Santa Clarita Valley	Special Use	Regional	156.0
William Steinmetz Park	East San Gabriel Valley	Community	Local	11.5
Woods Avenue Park	Gateway	Node	Local	0.2
Workman Mill Staging Area	Gateway	Special Use	Regional	1.5

*Acreage included in Regional Park

Appendix G: Noise Element Resources

I. Sound Descriptors

Sound may be described by three variables: amplitude, frequency, and time pattern.

Amplitude

Sound pressure is the amplitude or measure of the difference between atmosphere pressure (with no sound present) and total pressure (with sound present). Although there are measures of sound amplitude, sound pressure is the fundamental measure and is the basic ingredient of the various measurement descriptors.

The unit of sound pressure is the decibel (dB) scale. The decibel scale is a logarithmic, not linear scale. A logarithmic scale is used because the range of sound intensities is so great that it is convenient to compress the scale to encompass all the sounds that need to be measured. The human ear has a wide range of responses to sound amplitude. Sharp, painful sound is 10 million times greater in sound pressure than the least audible sound. In decibels, this 10 million to 1 ratio is simplified logarithmically to 140 dB.

Another property of the decibel scale is that the sound pressure levels of two separate sounds are not directly (arithmetically) additive. For example, if a sound of 70 dB is added to another sound of 70 dB, the total is only a 3-decibel increase (73 dB), not a doubling to 140 dB. Furthermore, if two sounds are of different levels, the lower level adds less to the higher as this difference increases. If the difference is as much as 10 dB, the lower level adds almost nothing to the higher level. In other words, adding a 60-decibel sound to a 70-decibel sound only increases the total sound pressure level by less than 0.5-decibel.

Frequency

The rate at which a sound source vibrates, or makes the air vibrate, determines frequency. The unit of time is usually one second and the term “Hertz” (Hz) is used to designate the number of cycles per second.

The human ear and that of most animals has a wide range of responses. Humans can identify sounds with frequencies from about 16 Hz to 20,000 Hz. Because pure tones are relatively rare in life situations, most sounds consist of a complex mixture of multiple frequencies.

Time Pattern

Sound may be described in terms of its pattern of time and level: continuity, fluctuation, impulsiveness, intermittency. Continuous sounds are those produced for relatively long periods at a constant level, such as the ringing of a telephone or aircraft take-offs and landings. Impulse noises are sounds that are produced in an extremely short span of time, such as a pistol shot or a hand clap. Fluctuating sounds vary in level over time, such as the loudness of traffic sounds at a busy intersection.

II. Noise Measurement

Noise measurements are made in accordance with existing standards and regulations. Sound is measured by a sound level meter (SLM), which is a device that can give the measured sound pressure level (SPL). The County Noise Control Ordinance specifies that an SLM needs to satisfy the requirements pertinent for type S2A meters, in accordance with the American National Standards Institutes (ANSI) specifications or the most recent revision (1985 ANSI S1.4A).

In accordance with the County Noise Control Ordinance, noise measurements in the field are made utilizing a SLM set at A-weighting scale on the “slow mode” meter response, except for impulsive noise (in which case, the SLM is set on “fast mode”). In general, the noise level is measured 4 to 5 feet above the ground, and 10 feet or more from the nearest reflective surface (i.e., walls), where possible.

The following are the basic measurements of noise:

Ambient Noise

Ambient noise is the composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL)

CNEL is the average equivalent A-weighted sound level during a 24-hour day that is obtained after the addition of 5 decibels to sound levels in the evening, from 7 p.m. to 10 p.m., and after the addition of 10 decibels to sound levels in the evening, from 10 p.m. to 7 a.m. The CNEL metric isused by the California Aeronautics Code for the evaluation of noise impacts at airports. Local compliance with state airport standard requires that community noise levels be expressed in CNEL.

Decibel, dB

A unit measurement describing the amplitude of sound, equal to 20 times the logarithm to the base of 10, or the ratio of the pressure of the sound measured to the reference pressure, which are 20 micropascals.

Impulsive Noise

Impulsive noise is noise from impacts or explosions (e.g., from a pile driver), punch press or gunshot. The County Noise Control Ordinance defines impulsive noise as a sound of short duration that is usually less than one second and of high intensity, with an abrupt onset and rapid decay.

Intrusive Noise

Intrusive noise refers to the noise that intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, time of occurrence, tonal or informational content,and the prevailing noise level.

Leq

Leq is the equivalent energy level. The sound level corresponding to a steady state sound level that contains the same total energy as a time varying signal over a given sample period. Leq is typically computed over 1, 8 and 24-hour sample periods.

Day-Night Average Level (Ldn)

Ldn is the average equivalent A-weighted sound level during a 24-hour day that is obtained after the addition of 10 decibels to sound levels in the evening, after 10 p.m. and before 7 a.m. The Ldn represents a simplification of the CNEL measure.

Noise Contours

Noise contours are lines drawn about a noise source that indicates equal levels of noise exposure.

Pure Tone

Pure tone is a sound that is made up of only one frequency. The County Noise Control Ordinance defines pure tone noise as any sound that can be judged as audible as a single pitch or a set of single pitches.

Statistical Values

Statistical values are statistical methods used to account for the variance in noise levels throughout a given measurement period. L(%) is a way of expressing the noise level that is exceeded for a percentage of time in a given measurement period. For example, the County uses the L50 as a statistical value. Thirty minutes is 50 percent of 60 minutes, so the L50 is the noise level that is equal to or exceeded for 30 minutes in a 60 minute measuring period.

Weighted Level

Weighted level is the sound level in decibels as measured on a sound level meter using the A-weighting filter network. This filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear, which gives a good correlation with subjective reactions to noise.

III. Federal Guidelines

Table G.1: Federal Guidelines for Acceptable Environmental Noise Levels

Authority and SpecifiedSound Levels (dBA)	Criteria Objectives
EPA Levels Document (1974)	
55 dBA Ldn outdoors	For the protection of public health and welfare with an adequate

45 dBA Ldn indoors	margin of safety.
Federal Inter-Agency Committee on Noise (FICON)	
65 dBA Ldn outdoors	Generally compatible for residential development.
>65 – 75 dBA	Residential use discouraged.
HUD	
65 dBA Ldn outdoors	Acceptable for housing without special acoustical consideration.
>65 – 75 dBA Ldn outdoors	Normally unacceptable, but acceptable with acoustical sound isolation.
>75 dBA Ldn outdoors	Unacceptable, but acceptable with acoustical isolation and the existence of overriding benefits.
FHWA	
57 dBA Ldn (1H) 60 dBA Ldn (1h) outdoors	Activity category "A": Lands on which serenity and quiet are of extraordinary significance.
67 dBA Ldn (1h) 70 dBA Ldn (1h) outdoors	Activity category "B": Picnic areas, recreation areas, residences, motels, schools, churches, libraries, and hospitals.
72 dBA Ldn (1h) 75 dBA Ldn (1h) outdoors	Activity category "C": Developed lands not in Categories "A" and "B" above.
52 dBA Ldn (1h) outdoors	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals and auditoriums.
FAA	
65 dBA Ldn outdoors	Compatible for residential, public and commercial uses.
>65 – 70 dBA Ldn outdoors	Compatible for commercial building uses. Compatible for public building use with 25 dBA building envelope aircraft noise reduction (NR). Not compatible for residential, but interior acceptable with 25 dBA building envelope NR.

>70 – 75 dBA Ldn outdoors	Compatible for commercial building use with 25 dBA building envelope NR. Compatible for public building use with 30 dBA building envelope aircraft noise reduction (NR). Not compatible for residential, but interior acceptable with 30 dBA building envelope NR.
>75 – 80 dBA Ldn outdoors	Compatible for commercial building use with 30 dBA building envelope NR. Not compatible for public building use. Not compatible for residential, but interior acceptable with 35 dBA building envelope NR.
>80 dBA Ldn outdoors	Not acceptable for commercial, public, or residential use buildings.

IV. Noise Barriers

Noise barriers include any man-made or natural feature that blocks or diminishes sound in its path from the source to the receiver, with concrete block walls and earthen berms being the more common kinds of man-made construction. A noise barrier reduces sound levels by breaking the direct line of sight between the noise source and the receiver. Effectiveness of noise mitigation barriers is primarily a function of height, the location in relation to the sound source and, to a lesser degree, the shape of the edge of the barrier. Since walls have a finite height, sound energy reaches the receptor by bending (diffraction) over the top of any barrier at a reduced intensity. An analysis based on application of the FHWA TNM "Look-up Tables"[13] demonstrates the effectiveness of noise barriers of varying heights at controlling noise from a sample of traffic, consisting of 1,000 automobiles traveling at 60 mph with the receptor at a distance of 100 meters (340 feet). The difference between a "no barrier" scenario and one with a 2 meter-high (6.5 feet) barrier results in an auditory noticeable condition, a decrease of approximately 7 dBA. The noise insertion loss resulting from the installation of a 3-meter high (9.8 feet) barrier is even more dramatic, lowering ambient noise levels by 12 dBA.

Also, the precise location of barriers between the sound source and the receptor plays a pivotal role in sound attenuation. Studies cited by Caltrans indicate that the bestresults to minimize noise are

[13] FHWA. Traffic Noise Model, 1998.

obtained when the noise barrier is either close to either the sound source or to the receptor. Finally, the shape of barriers has an additional, substantial effect on noise attenuation and sound propagation. Most traffic noise prediction models factor in smooth edges on the noise barriers. However, research has shown that increased noise attenuation can be achieved with jagged edges on the noise barriers to create greater diffraction of the sound path. Results to date show "significant improvement (3-8 dB) for a barrier with a random edge profile compared to one of the same average height with a straight edge."[14]

Noise barriers (sound walls) are the most widely used method of mitigating noise from traffic. Caltrans characterizes noise barriers as the most reasonable noise abatement option available to the State to reduce highway and freeway noise.[15] This is due to barrier insertion being very effective in reducing noise sources that are close to the ground. Also, established land use patterns often pose constraints at the site of many proposed mitigation measures. In other words, there is no available land for any other mitigation technique other than a noise barrier. Thus, construction of noise barriers is limited to those situations where other alternatives, such as open space, do not exist due to the lack of available land or space. Overall, public reaction to highway noise barriers appears to be generally positive, although some residents have argued that aesthetics or view protection values are often sacrificed. In this regard, it should be noted that Caltrans has discovered that vegetation as a factor in noise attenuation does not appear to be significant, and it takes either a considerable depth of plant material or a considerable density of it for any substantial attenuation of sound.

[14] "Noise Barriers with Random Edge Profiles", Acoustical Society of America's 129th Meeting, May – June 1995; see "Jagged-edge Noise Barriers" in ICA/ASA 98' Lay Language Papers, June 1998.

[15] Technical Noise Supplement, Caltrans, October 1998, Section N-6000.

Appendix H: Safety Element Resources

I. Active Faults

Cabrillo Fault

The Cabrillo Fault consists of several en echelon strands striking 20 to 25 degrees west of north and dipping 50 to 75 degrees (Ziony and Yerkes, 1985). The onshore portion of the fault lies on the Palos Verdes Peninsula and extends offshore into the San Pedro Bay.

Cucamonga Fault

The Cucamonga Fault Zone consists of one to three subparallel anastomosing strands of up to one kilometer in width and measuring between 20 and 25 kilometers in length (Morton and Matti, 1987; Wesnousky, 1987; Ziony and Yerkes, 1985). This segment is sometimes referred to as Sierra Madre Fault Segment E. The frontal fault zone in this area strikes about 70 degrees east of north and has moderate to steep northerly dips. Some workers confinethis fault zone segment to the frontal southern margin of the San Gabriel and San Bernardino Mountains, from San Antonio Canyon to the west and Lytle Creek to the east (Morton and Matti, 1987; Smith, 1977; Lamar, et al., 1973). Morton and Matti (1987) suggest, however, that because of the complex structural relations at the west end, the Fault could be interpreted to extend farther west and merge with the Sierra Madre Fault System as a through-going, segmented, frontal fault system.

Hollywood Fault

The Hollywood Fault is mapped as a narrow strand that trends along the southern front of the Santa Monica Mountains (Ziony and Yerkes, 1985; Weber, et al., 1980). Ziony and Yerkes (1985) list the fault as having reverse or reverse-oblique motion. The eastern segment of the Hollywood Fault Zone trends throughthe Repetto Hills as a complex series of faults and folds within the Puente Formation. In this area, the fault and several splays are in close proximity to the Raymond Fault (which is an Alquist Priolo-Earthquake Fault Zone, or APEFZ). Physiographic features such as scarps and inclined spurs are interpreted as evidence of Holocene movement along the eastern 17 kilometers of the Hollywood Fault (Ziony and Yerkes, 1985; Weber, et al., 1980). The age of movement along the western portion of the Hollywood Fault is not reported, suggesting the Fault has been inactive for the last 750,000 years.

Holser Fault

The Holser Fault is a south dipping reverse fault consisting of several closely spaced strands that strike from 80 degrees east of north to 70 degrees west of north (Ziony and Yerkes, 1985; Winterer and Durham, 1962). The Fault Zone is as much as 1.5 kilometers wide along its western portion. The portion of the Fault transecting the County is approximately 13 kilometers long.

Ziony and Yerkes (1985) list offset stratigraphy and physiography as clear evidence of Late Quaternary movement. The Fault is shown as active for the following reasons: 1) the Fault is associated with known active faults, accommodating the north-south shortening between the San Cayetanoand Santa Susana faults in a complex zone of south-dipping reverse faults (Yeats, 1987;

Yeats et al., 1985; Ziony and Jones, 1989; Smith, 1977); 2) the Fault intersects an APSSZ fault; and 3) geomorphic evidence (i.e.,drainage control of several streams including Piru Creek) supports a Holocene, or at least Late Quaternary age for the Holser Fault (Yeats et al, 1985).

Although no Holocene deposits are known, to date, to be displaced by the Fault (Allan Seward, 1990 personal communication), no published trenching program has conclusively shown the Fault Zone to be inactive. Trenching across the APSSZ segment of the San Gabriel Fault may have indirectly proven that the Fault is active, since the San Gabriel Fault may be a reactivated tear fault in the Holser Thrust System (Tom Rockwell, 1990 personal communication).

Llano Fault

The Llano Fault is located west of Victorville in the Mojave Desert. The Fault strikes 65 degrees west of north along a single-strand with a presumed dip to the southwest (Ziony and Yerkes, 1985). The reverse fault shows evidence of Holocene monoclinal folding and is shown as active by Ziony and Jones (1989).

Malibu Coast Fault

The onshore Malibu Coast Fault consists of several subparallel strands trending east-west along the southern margin of the western Santa Monica Mountains. The onshore Fault Zone is comprised of reverse faults with dips averaging between 45and 80 degrees to the north, with zones of deformation as wide 0.5 kilometers (Ziony and Yerkes, 1985). There is an offshore portion of the Fault merging with the northern strand of the Santa Monica Fault, as interpreted by Weber (1980) and Crook and Ward (1983).

As early as 1965, Wentworth and Yerkes (1965) reported that the fault cut terrace deposits older than 25,000 years. The State fault evaluation conductedin 1977 concluded that the Fault was well-defined, but because no Holocene displacement had been documented, the Fault was not zoned within the APSSZ Act. Such evidence has recently been reported for a portion of the Fault located at the intersection of Kanan Dume Road and Pacific Coast Highway. Converse Consultants, working with Dr. Roy Schlemon, have found evidence of Holocene displacement within colluvial soils determined to be 5,000 to 6,000 years old at this location (oral communication, Greg Rzonak, 1988).

Mission Hills Fault

The Mission Hills Fault trends east-northeast to east-west for 10 kilometers along the south side of Mission Hills. The Fault is expressed by young fault morphology in some instances. The width has been described as a single-strand occurring within a zone as narrow as 150 feet (Ziony and Yerkes, 1985). Smith (1978) has interpreted the age of the Fault as late Pleistocene; however, Slosson (1977) and Kowalewsky (1978) documented Holocene rupture based on evidence of bedrock thrust over Holocene-aged soil. Ziony and Jones (1989) concur with a possible Holocene Age.

Newport-Inglewood Fault Zone

The trace of the Newport-Inglewood Fault Zone is marked by a series of low-lying hills including the Cheviot Hills, Baldwin Hills, Rosecrans Hills, Dominquez Hills, Signal Hill, and Reservoir Hill. These hills are sites of oil fields in which faulted anticlines form structural traps. The Fault Zone consists of a set of left stepping, discontinuous faults, which indicates a through-going right-lateral strike-slip

fault at depth. Harding (1973) indicates that the Fault Zone is a nearly-vertical, right-lateral strike-slip fault atdepth. The Fault Zone is covered under the APSSZ Act. Five separate en echelon faults comprise the Fault Zone in the County. These faults are as follows (Ziony and Yerkes, 1985):

- **Inglewood:** Northwest-trending fault with stratigraphic evidence of late Quaternary movement and recent physiographic features. Normal to normal-right-oblique sense of movement. Possible source of 1920 earthquake.
- **Potrero:** Northwest trending fault with normal to normal-right-oblique sense of movement with Late Quaternary physiographic features and groundwater impediments along trace in late Quaternary alluvial deposits (Poland and others, 1959). Numerous small earthquakes nearby.
- **Avalon-Compton:** Northwest-trending, vertical fault, which experienced movement in 1941 and 1944. Has reverse-right-oblique sense of movement and Late Quaternary physiographic features and groundwater impediments (Poland and others, 1959).
- **Cherry-Hill:** Northwest-trending near vertical fault with reverse-right-oblique sense of movement. Late Quaternary activity evidenced by offset stratigraphy, physiographic features, and groundwater impediments. Numerous small earthquakeseast of trace.
- **Reservoir Hill-Seal Beach:** Northwest-trending, near vertical fault with normal-right-obliqueor right-lateral strike-slip sense of movement. Late Quaternary activity is evidenced by offset stratigraphy, physiographic features, and groundwater impediments. Numerous small earthquakes east of trace.

North Hollywood Fault

The North Hollywood Fault, listed as a “possible fault in North Hollywood" byZiony and Yerkes (1985), dips vertically along a single-strand approximately 2 kilometers in length. This Fault is but one of many groundwater impediments (faults) within the San Fernando Valley; however, Weber, et al., (1980) noted that the Fault formed an ENE-trending, linear break in topography on older quadrangle maps published in 1901 and 1926. Weber (1980) noted that because the south-facing physiographic lineament apparently offset youthful deposits of the Tujunga Wash, the fault may be Holocene in age.

Northridge Hills Fault

The Northridge Hills Fault consists of nine en echelon strands each with zonesapproximately 0.7 kilometers wide (Ziony and Yerkes, 1985). The Fault Zone strikes 70 to 80degrees west of north through the central San Fernando Valley. The style of slip is probably reverse, with a dip of 35 degrees north near the surface and 80 degrees north at depth (Ziony and Yerkes, 1985). Several aftershocks of the 1971 San Fernando Earthquake occurred coincident with the subsurface extension of the fault (Ziony and Yerkes, 1985). The Fault has been described as Late Quaternary Age by many workers (Ziony, et al., 1974; Barnhardt and Slosson, 1973; Wentworth and Yerkes, 1971); however, Ziony and Yerkes (1985) have reinterpreted groundwater offset data and fault physiography to suggest possible Holocene Age activity. Additional evidence of activity is the folding and warping of Holocene and Pleistocene Age sediments exposed during trench excavations by George Larson (Jerry Treiman, 1989; personal communication). Ziony and Jones (1989) show the Fault as possibly Holocene.

Palos Verdes Fault Zone

The portion of the Palos Verdes Fault Zone in the County can be discussedin terms of three separate segments: 1) the San Pedro Bay segment, 2) the onshore segment, and 3) the Santa Monica Bay segment (Ziony and Yerkes, 1985*).*

All segments are believed to possess reverse right oblique or reverse motion (Ziony and Yerkes, 1987). The San Pedro Bay segment is characterized as a complex zone of en echelon faults with evidence of offset Holocene stratigraphy (Fischer, et al., 1987). Fischer and others (1987) state that the eastern faults of the zone displace seismic reflectors or horizons that represent Holocene surficial sediments.

The onshore segment of the Palos Verdes Fault Zone is depicted by Ziony and Jones (1989) as Late Quaternary; however, Woodward and Clyde (1983) point to several factors that suggest Holocene displacements have occurred along the Palos Verdes Peninsula. These factors include the extensive deformation of the 120,000 year old terrace and apparent Holocene folding of the Gaffy anticline, a probable drag feature related to movement on the Palos Verdes Fault. This portion of the Fault is considered active despite the lack of unequivocal evidence for Holocene displacement.

The Santa Monica Bay segment is inferred to be a Late Quaternary feature by Zionyand Yerkes, (1985); however, increased seismicity in this offshore area, especially in association with the longest, single coherent strand in Santa Monica Bay, suggests that this segment is active.

Raymond Fault Zone

The Raymond Fault Zone consists of one to three strands, which diverge from the Sierra Madre Fault Zone in the area of Monrovia and trend to South Pasadena. Ziony and Yerkes (1985) indicate that the sense of movement on the Fault is reverse-left-oblique.Crook, et al., (1987) have presented a detailed description of numerous physiographic features that attest to the Fault's recent activity. The most impressive feature is the nearly continuous fault scarp between Monrovia Canyon and Arroyo Seco. The Fault displaces recent alluvium and forms a significant groundwater barrier, which has been the subject of several previous studies.

Numerous trench studies and radiometric dating of exposed sediments has allowed definition of five major seismic events in the last 36,000 to 155,000 years B.P., and an additional three events, which cannot be dated precisely in the last 29,000 years (Crook, et al., 1987). Crook, et al., (1987) infer an average recurrence interval of 3,000 years, with an average vertical displacement of 0.4 meters per event. A maximum credible earthquake of ML6-3/4 can reasonably be assumed if the entire 22 kilometer length of the Fault were to break. Crook, et al., (1987) have also recognized a scarp feature in alluvium on the south side of the Raymond Fault in the South Pasadena area. This Fault, named the York Boulevard Fault, lies outside of the APSSZ, but due to its close proximity, is identified as active.

Redondo Canyon Fault

The Redondo Canyon Fault is presumed to be a single strand, which strikes 80 to 85 degrees east of north as it trends offshore from a point just north of the Palos Verdes Peninsula down Redondo Canyon. The fault length is approximately 13 kilometers and the dip is unknown. Scattered small earthquakes have occurred near the fault trace.

San Andreas Fault Zone

The San Andreas Fault Zone extends from northwest to southeast across the County. Numerous fault related geomorphic features, such as linear troughs are present over much of its length. The sense of displacement on the Fault is right-lateral strike-slip and most faults within the zone are vertical (ZionyandYerkes, 1985). The California Geological Survey (formerly known as the California Division of Mines and Geology) has completed a multi-year study of the San Andreas Fault through which detailed maps of the Fault Zone and the geologic units they affect have been compiled (Barrows, 1979; Beeby, 1979; Kahle, 1980; Barrows, et al., 1985).

Activity along the San Andreas Fault Zone has been recorded during historic events, including the Magnitude 7.1, 1989 Lorna Prieta Earthquake, the 1906 Magnitude 8 earthquake in San Francisco, and the 1857 Magnitude 7.9 Fort Tejon event. The segment in the County is one of eight discrete fault segments, with each segment exhibiting a unique character and return period for damaging earthquakes along strike of the more than 1,000 kilometer long fault. The 1857 event is believed to have ruptured the section in County.

Offset stratigraphy of Holocene deposits provides evidence that rupture occurson the San Andreas Fault at Pallet Creek on the average of every 145 to 200 years (Seih, 1984). This work has given rise to an assessment that the Mojave Segment stands a 30 percent chance of being the origin of a 7.5 Magnitude earthquake by the year 2018 (Davis, et al., 1988).

San Antonio Fault

The San Antonio Fault is not well studied. It is a left-lateral strike slip fault interposed and oblique to the San Andreas and Sierra Madre/Cucamonga Fault Zones. On the basis of seismicity data, Hauksson (in press) has suggested that it maybe a northern segment of the San Jose Fault, which has been associated with significant seismicity. However, it is its suspect relationship (tear fault) with the Cucamonga and the Sierra Madre faults, and reports of fault trench evidence showing left-lateral displacement of the Cucamonga Fault by the San Antonio Fault, that suggest the fault should be considered active; at least until detailed investigation proves otherwise.

San Fernando Fault Zone

The San Fernando Fault was not known until February 9, 1971, at which time it ruptured and caused extensive damage in the northern and eastern San Fernando Valley. The San Fernando Fault is comprised of five major reverse-left-oblique en echelon strands that vary in strike from 75 degrees east of north to 70 degrees west of north. The Fault dips 50 degrees north near the surface and shallows to 35 degrees north at depth. The total length is at least 17 kilometers (Ziony and Yerkes, 1985).

The five segments consist of:

- **Reservoir Segment:** Extends from the lower Van Norman reservoir embankment eastward along the east flank of a series of low hills where it meets the Mission Wells segment.
- **Mission Wells Segment:** Located 1.5 kilometers east of Lower Van Norman Lake. Small south facing scarps define the trends of the fault segment. Surface cracks from the 1971 earthquake displayed left lateral offsets (USGS, 1971).

- **Sylmar Segment:** Well-defined zone of fractures that extends from the southern corner of Hubbard Street and Glenoaks Boulevard to south of Lopez Dam. The zone generally ranges from 75 to more than 200 meters in width (USGS, 1971).
- **Tujunga Thrust:** Extends along the base of the hills on the north side of Tujunga Valley eastward into Little Tujunga Canyon.
- **Lake View Segment:** Continuation of Tujunga segment, trends eastward along the low hills from Little Tujunga Wash to Big Tujunga Wash.

These faults were zoned within the APSSZ Act in 1976. It is generally recognized that the eastern fault segments are structurally related to the Sierra Madre Fault System; however, the structural relationship of the western segment is less well-defined. The western San Fernando segment may have structural ties to the Mission Hills Fault.

San Gabriel Fault

The San Gabriel Fault is reported by Ziony and Yerkes (1985) to consist of a zone of en echelon strands striking 45 to 65 degrees west of north with dips between 50 to 80 degrees toward the north. The Fault displays a complex sense of movement that appears to change from one section of the fault to another (Stitt, 1986). The San Gabriel Fault has been divided by various workers into a number of different segmentation schemes (Ehlig, 1973; Weber, 1979; Ziony andYerkes, 1985; Stitt, 1986; Wesnousky, 1987).

Recent exploratory subsurface work near Castaic indicates that a portion of the segment cuts Holocene alluvium dated by radiocarbon methods as 8140 ± B.P., 777 ± 60 years B.P., and 3500 ± 250 years B.P. (Cotton, 1986). The State has designated a 10 kilometer portion of the San Gabriel Fault that includes this site as an APSSZ fault. Stitt (1986) has stated that the segment of the San Gabriel Fault to the northwest is apparently not Late Quaternary because the fault is buried by the Plio-Pleistocene Hungry Valley Formation. However, Roquemore, 1989 (personal communication) has submitted evidence for Holocene movement in the Violin Canyon area to the APSSZ fault evaluation program in apparent contradiction to Stitt's (1986) interpretation. In light of this evidence, the active segment of the San Gabriel Fault is extended to Violin Canyon. Ziony and Jones (1989) concur with this interpretation. Segment SG-B is arbitrarily extended to the southeast until the San Gabriel splits into the Dillon and Demille Fault. Weber (1979) notes that the evidence for the recency of faulting becomes less clear-cut at this point. The geomorphic and stratigraphic evidence documented by Weber (1979) still suggests Late Quaternary movement.

Santa Susana Fault

The Santa Susana Fault dips north along the southern flank of the Santa Monica Mountains, extending eastward until it merges with the Sierra Madre Fault System (Yeats, 1987). Wenousky (1986) and Ziony and Yerkes (1985) assign a length of 38 kilometers and 28 kilometers, respectively. The Fault dips 0 to 30 degrees in the near surface, which results in a fault zone width between 0.25 and 1.5 kilometers (Ziony and Yerkes, 1985).

The eastern portion of the Fault experienced reverse-left-oblique sympathetic rupture during the 1971 San Fernando Earthquake (Saul and Weber, 1975). This portion of the Fault has been designated an APSSZ fault. To the west of the APSSZ, in the Porter Ranch area, subsurface trench investigations have revealed minor faults within terrace deposits. No faulting was observed within an

overlying fanglomerate that was carbon-dated as 10,010± 580 years y.b.p. (Lung and Weick, 1987). However, massive landsliding and bedding plane faulting have been prevented an unequivocal determinations of the age of faulting for this portion of the fault. Based on this uncertainty, the western portion of the fault is considered active.

Sierra Madre Fault System

The Sierra Madre Fault System lies at the southern base of the San GabrielMountains. Ziony and Yerkes (1985) indicate that the Fault System consists of one to five anastomosing strands in a zone as wide as one kilometer. The Fault System has a reverse sense of slip and forms a complex zone with two identified sections. Each section consists of a mechanically coherent salient (Crook, et al., 1987). These sections extend: 1) from Mount Wilson to Big Tujunga Canyon (14 kilometers); and 2) from Big Tujunga Canyon to Arroyo Seco (17 kilometers). Crook, et al., (1987) estimate a maximum credible earthquake of magnitude (ML) 7 for these segments, and an average recurrence interval between major shocks longerthan 5,000 years.

The fault segments in numerous places have juxtaposed basement bedrock over alluvium and dip northerly below the steep topographic front of the San Gabriel Mountains. Barriers to groundwater flow have been cited as evidence of alluvial-buried faults of the Sierra Madre Fault System (Proctor and Kalin, 1965; Shelton, 1955). Offset Holocene deposits are reported along the two segments and have been designated as APSSZ faults. The mechanically distinct segments are designated active. Note that the APSSZ segment is correctly identified as a segment of the Sierra Madre Fault and not as the Mount LukensThrust, as described by Smith, 1978.

Verdugo Fault

The VerdugoFault trends northward along the west flank of the Verdugo Mountainsand separates a Precambrian Age basement complex on the east from alluvial and sedimentary Tertiary strata on the west. The Fault consists of multiple strandsin a zone 0.5 to 1.0 kilometers in width as evidenced by southwest facing scarps in alluvium in the Burbank area (Ziony and Yerkes, 1985; Weber, et al., 1980). The fault apparently dips 45 to 60 degrees to the northeast and forms groundwater cascades in the alluvium north of the terminus of the Verdugo Mountains. On the north, the Fault may curve westward and join the Mission Hills Fault. To the southeast of the Verdugo Mountains, the Fault becomes less well-defined and shallows in dip as it trends through Verdugo Wash where it apparently connects with the Eagle Rock Fault. Groundwater cascades and surface scarps are evidence of recent activity along the Fault (Weber, et al., 1980).

Whittier Fault Zone

The Whittier Fault Zone consists of one to three subparallel strands in a zone as wideas 1.2 kilometers. The length of the Whittier Fault to the point where it merges with the Elsinore Fault Zone is approximately 45 kilometers; however, Wesnousky (1986) has defined a longer Whittier segment (74 kilometers). The 14 kilometer length within the County strikes 65 to 85 degrees to the northwest and dips 65 to 80 degrees to the north. The sense of movement on the Whittier Fault is believed to be reverse right oblique (Ziony and Yerkes, 1985), or nearly pure right slip (Gath and Rockwell, in press). Evidence of offset Holocene stratigraphy northwest of Brea Canyon in Orange County is recognized by Ziony and Jones (1989); however, these workers interpret the northwesternmost portion of the Whittier Fault in the County as late Quaternary. Gath, et al., (1988) and Leighton, et

al., (1987) have uncovered evidence of offset Holocene stratigraphy four kilometers east of the City of Whittier in Arroyo San Miguel near Colima Boulevard. Based on these trench studies, the Fault is considered active along its entire length in the County.

FAULT DESCRIPTION SOURCES

Barnhart, J. T., and Slosson, J. E., 1973, The Northridge Hills and Associated Faults – A Zone of High Seismic Probability: in Moran, D. E., Slosson,J. E., Stone, R. 0., and Yelverton, G. A., eds., Geology, Seismicity, and Environmental Impact: Association of Engineering Geologists, Los Angeles, California, p. 253-256.

Barrows, A., Kahle, R., Saul, R., and Weber, F. H., 1975, Geologic Map of the San Fernando Earthquake Area: in Oakshott G. B., ed., San Fernando, California, Earthquake of February 9, 1981: California Division of Mines and Geology, Bulletin 196, Plate 2.

Barrows, A. G., 1979, Geology and Fault Activity of the Valyermo Segment of the San Andreas Fault Zone, Los Angeles County, California: California Division of Mines and Geology, Open File Report 79-1 LA 49.

-------, 1985, Earthquake Hazards and Tectonic History of the San Andreas Fault Zone, Los Angeles County, California: California Division of Mines and Geology, Open File Report 85-10 LA, 250 p.

Beeby, D. J., 1979, Geology and Fault Activity of the Lake Hughes Segment of the San Andreas Fault Zone, Los Angeles County, California: California Division of Mines and Geology, Open File Report 79-2 LA, 35 p.

Cotton, W. R. 1986, Holocene Paleoseismology of the San Gabriel Fault, Saugus/Castaic Area, Los Angeles County, California: in Neotectonics and Faulting in Southern California; Geological Society of America Guidebook, p. 33-41.

Crook, R., Jr., and Ward, K., 1983, Seismicity of the Santa Monica and Hollywood Faults, Determined by Trenching: U.S. Geological Survey Final Technical Report, Contract No. 14-08-0001-20523, 26 p., 5 Pl.

Crook, R., Jr., et al., 1987, Quaternary Geology and Seismic Hazard of the Sierra Madre and Associated Faults, Western San Gabriel Mountains,California: U.S. Geological Survey, Professional Paper 1339, p. 27-64,Scale 1:24,000.

Davis, R. E., 1988, Probabilities of Large Earthquakes Occurring in Californiaon the San Andreas Fault; U.S. Geological Survey, Open File Report88-398, (Preliminary Report of the Working Group on Earthquake Probabilities), 62 p.

de Hartog JJ, Boogaard H, Nijland H, and G Hoek. Do the Health Benefits of Cycling Outweigh the Risks? Environmental Health Perspectives. 2010; 118(8): 1109-1116.

Fischer, P. J., Rudot, J. H., and Ticken, L, 1979, Recognition of Active(Holocene) Faulting, Southern California Borderland (Abstract), Geological Society of America Abstracts with Programs, Vol. II, No.3,p. 78.

Kowalewsky, D. B., 1978, Indications of Holocene Activity Along Branches of the Mission Hills Fault West of Balboa Boulevard: in Geologic Guide and Engineering Geology, Los Angeles Metropolitan Area: Association of Engineering Geologists, Annual California Section Conference, 1st, Los Angeles, California, 1978, Guidebook p. 53-63.

Lamar, D. L., Merifield, P. M., and Proctor, R. J., 1973, Earthquake Recurrence Intervals on Major Faults in Southern California: in Moran, D. E.Slosson, J. Eo, Stone, R. 0., and Yelverton, C. A., eds., Geology, Seismicity, and Environmental Impact Los Angeles, California: Association of Engineering Geologists, p. 265-276.

Lung, R., and Weick, R., 1987, Exploratory Trenching of the Santa Susana Faultin Los Angeles and Ventura Counties: in Recent Reverse Faulting in the Transverse Ranges, California: U.S. Geological Survey, Professional Paper 1229, 65-70 p., No Map.

McConnell R, Berhane K, Gilliland F, London SJ, Islam T, Gauderman WJ, Avol E, Margolis HG, Peters JM. Asthma in exercising children exposed to ozone: a cohort study. Lancet. 2002 Feb 2;359 (9304):386-91.

Morton, D. M., and Matti, J. C., 1987, The Cucamonga Fault Zone, Pt. 1, Geologic Setting History of Quaternary Faulting in Recent Reverse Faulting in the Transverse Ranges, California: U.S. Geological Survey, Professional Paper 1339, 179-202 p., No Map.

Poland, J. F., 1959a, Hydrology of the Long Beach-Santa Ana Area, California: U.S. Geological Survey, Water Supply Paper 1471, 257 p., Plates 1-20.

------- 1959b, Geologic Map of the Coastal Zone of the Long Beach-Santa Ana Area, California: Showing location of Water Wells, Plate 1, Scale1:13, 680.

Proctor, R. J., and Kalin, D. C, 1965, Geologic Map and Section along the 6.2 Mile Glendora Tunnel: The Metropolitan Water District of Southern California: Unpublished Map, Map Scale 1:12,000 (Available in A-PFiles).

Shelton, J., 1955, Glendora Volcanic Rocks, Los Angeles Basin: Geological Society of America, Bulletin Vol. 66, Plate 1, Scale 1:24,000.

Sieh, K., 1984, Lateral Offsets and Revised Dates of Large Prehistoric Earthquakes at Pallett Creek, Southern California: Journal of Geophysical Research, Vol. 89, No. B9, p. 7641-7670.

Slosson and Associates, 1977, Geologic/Seismic Investigation, Proposed North of Rinaldi Street School Site, Mayerling Street, Granada Hills, California: Unpublished Consulting Report, 22 p. 5 Appendices, 7 Figures.

Smith, D. P., 1977a, Fault Evaluation Report 39: California Division of Mines and Geology [Cucamonga Fault].

-------, 1978a, Fault Evaluation Report 69: California Division of Mines and Geology [Fault Group, Sierra Madre Fault, San Antonio Fault, Sawpit Canyon Fault, South Branch San Gabriel, JPL Fault, Mt. Lukens Thrust].

Smith, T. C., 1978a, Fault Evaluation Report 73: California Division of Mines and Geology [Mission

Hills Fault].

Stitt, L. T., 1986, Structural History of the San Gabriel Fault and Other Neogene Structures of the Central Transverse Ranges: in Neotectonics and Faulting in Southern California: Geological Society of America, Cordilleran 82nd Meeting, 43-74 p., No map.

U.S. Geological Survey, 1971, Surface Faulting in the San Fernando, California Earthquake of February 9, 1971: Geological Survey, Professional Paper 733, p. 55-76.

Weber, 1980a, Geological Features Related to Character and Recency of Movement Along Faults, North Central Los Angeles County, California: in Weber,F. H., Jr., Bennett, J. H., Chapman, R. H., Chase, G. W., and Saul, R. B., eds., Earthquake Hazards Associated with the Verdugo-EagleRock and Benedict Canyon Fault Zones, Los Angeles County, California: California Division of Mines and Geology, Open File Report 80-10 LA, BI-BI16 p., Plate 1, Scale 1:24,000.

------- 1980b, Landsliding and Flooding in Southern California During the Winter of 1979-1980: California Division of Mines and Geology, Open File Report 80-3, 67 p.

Wentworth, C. M., Ziony, J. I., Buchanan, J. M., 1970, Preliminary Geologic Environmental Map of the Greater Los Angeles Areas, California: U.S. Geological Survey TID-25363, 41 p., Map Scale 1:250,000.

Wentworth, C. M., and Yerkes, R. F., 1971, Geologic Setting and Activity ofFaults in the San Fernando Area, of California: in The San Fernando, Earthquake of February 9, 1971: U.S. Geological Survey, Professional Paper 733, p. 6-16.

Wesnousky, S. G., 1986, Earthquakes, Quaternary Faults, and Seismic Hazard in California: Journal of Geophysical Research, Vol 91, No. B12,p. 12,587 - 12, 631.

Winterer, E. L., and Durham, D. L., 1962, Geology of Southeastern Ventura Basin, Los Angeles County, California: U.S. Geological Survey, Professional Paper 334-H, Scale 1:24,000.

Yeats, R. S., 1987, Late Cenozoic Structure of the Santa Susana Fault Zone: in Recent Reverse Faulting in the Transverse Ranges, California: U.S. Geological Survey, Professional Paper 1339, p. 137-160, Plate 9.1.,Scale 1:24,000.

Yerkes, R. F., and Wentworth, C. M., 1965, Structure, Quaternary History, and General Geology of the Corral Canyon Area, Los Angeles County, California: U.S. Geological Survey, Open File Report 864, 215 p.

Ziony, J. and Jones, L., 1989, Map Showing Late Quaternary Faults and 1978 through 1984 Seismicity of the Los Angeles Region, California: U.S. Geological Survey, MF 1964, 1:250,000.

Ziony, J., and Yerkes, R., 1985, Evaluating Earthquake and Surface Faulting Potential: in Ziony, ed., Evaluating Earthquake Hazards in the Los Angeles Region, an Earth-Science Perspective: U.S. Geological Survey, Professional Paper *1360,* p. 43-92.

II. Awareness Floodplain Mapping

The intent of the Awareness Floodplain Mapping project by the California Department of Water Resources (DWR) is to identify all pertinent flood hazard areas by 2015 for areas that are not mapped under the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP). The Awareness project will also provide the community and residents with an additional tool in understanding potential flood hazards currently not mapped as a regulated floodplain. The awareness maps identify the 100-year flood hazard areas using approximate assessment procedures. These floodplains will be shown as flood prone areas without specific depths and other flood hazard data. Awareness floodplain maps will be added as they become available.

Figure H.1 identifies the currently mapped Awareness Floodplains for the unincorporated areas mapped in the following USGS quadrangles: Neenach School, Rosamond Lake, Redman, Burnt Peak, Lake Hughes, Del Sur, Lancaster West, Lancaster East, Alpine Butte, Hi Vista, Adobe Mountain, Warm Springs Mountain, Green Valley, Sleepy Valley, Ritter Ridge, Littlerock, Lovejoy Buttes, El Mirage, Newhall, Mint Canyon, Agua Dulce, Acton, Pacifico Mountain, Juniper Hills, Valyermo, Mescal Creek, Oat Mountain, San Fernando, Sunland, Condor Peak, Crystal Lake, Mount San Antonio, Burbank, Mt. Wilson, and Glendora.

For more information, please visit DWR's web site at: http://www.water.ca.gov/floodmgmt/lrafmo/fmb/fes/awareness_floodplain_maps/los_angeles.

Figure H.1: Awareness Floodplain Map

III. Development in Flood Hazard Zones

Figures H.2 through H.4 represent existing and planned developments, and streets, which are located within the County's flood hazard zones.

Figure H.2: Existing Development in Flood Hazard Zones

Figure H.3: Planned Development in Flood Hazard Zones

Figure H.4: Streets in Flood Hazard Zones

IV. Flood Repetitive Loss Sites

As of January 3, 2011, FEMA identified 55 repetitive loss properties located within the unincorporated areas of the County. The County has since reduced this number to 43 repetitive loss properties by clarifying property locations or incorporating flood hazard mitigation measures. The County adopted a Floodplain Management Plan on May 11, 2010 to mitigate the flooding of 35 repetitive loss properties.

For more information on the County's repetitive loss sites, please refer to the County's All-Hazard Mitigation Plan, which is available on the CEO's web site at http://lacoa.org/hazmit.htm.

V. Regulatory Agencies for Flood Management, Protection, and

Financial Assistance

Table H.5: Federal, State, and Local Agencies Responsible for Flood Management, Protection, and Financial Assistance

Agency	Type
U.S. Army Corps of Engineers	Federal
Federal Emergency Management Agency	Federal
U.S. Bureau of Reclamation	Federal
Natural Resources Conservation Service	Federal
U.S. Fish and Wildlife Service	Federal
National Marine Fisheries Service	Federal
U.S. Environmental Protection Agency	Federal
U.S. Geological Survey	Federal
U.S. Small Business Administration	Federal
U.S. Department of Housing and Urban Development	Federal
California Department of Water Resources	State
California Water Commission	State
State Water Resources Control Board	State
California Department of Fish and Wildlife	State
State Lands Commission	State
California Emergency Management Agency	State
California Department of Housing and Community Development	State
California Department of Real Estate	State
Los Angeles County Department of Public Works	Local

Los Angeles County Flood Control District	Local
Los Angeles Office of Emergency Management	Local

VI. Historic Wildfires in Los Angeles County

Table H.6: Los Angeles County Wildfire Incident Statistics, 2007-2011

Fire Name	**Year**	**Acres Burned**	**Structures**	
			Damaged	*Destroyed*
Buckweed/ Agua Dulce	2007	38,356	30	43
Canyon	2007	4,500	14	8
Magic	2007	2,824	0	0
Ranch	2007	58,401	2	10
Meadow Ridge	2007	20	0	0
October	2007	100	0	0
Sayre	2008	11,262	0	634
Sesnon	2008	14,703	11	78
Marek	2008	4,824	10	42
Osito	2009	304	0	0
Morris	2009	2,168	0	0
Station	2009	160,577	57	209
Crown	2010	14,000	6	10
Briggs	2010	530	0	0
Oasis	2011	355	0	0
Wagon Wheel	2011	500	0	0
Mint	2011	634	0	0

Totals		**314,058**	**130**	**1,034**

Source: Cal Fire Fire Incident Reports

*Data on structures damaged and destroyed was not available for all wildfires, just for the ones listed above.

Table H.7: Acres Burned in Los Angeles County, 2004-2013

Year	Unincorporated Areas	Other Jurisdictions	All Jurisdictions
2004	34,354	362	34,715
2005	5,221	23,835	29,056
2006	7,355	164	7,519
2007	116,894	2,231	119,125
2008	30,714	402	31,116
2009	162,266	871	163,136
2010	1,514	45	1,559
2011	1,813	64	1,883
2012	5,077	885	5,962
2013	31,464	282	31,746
Totals	**396,672**	**29,141**	**425,817**

Source: Los Angeles County Fire Department, Information Management Section, 2013.

VII. Fire Department Functions

The following provides an overview of applicable functions of the County of Los Angeles Fire Department:

1. **Fire Prevention Division:** This Division is responsible for conducting plan checks for building, processes and fire extinguishing systems. The Division coordinates with building and safety officials, federal, state, city and County officials to implement the Title 26 Building (Wildland-Urban Interface and Chapter 7A) and the County Fire Code, Title 32.

   The Fire Prevention Division also focuses on educating the community about the benefits of proper safety practices and identifying and eliminating all types of hazardous conditions, which pose a threat to life, the environment and property. Commercial, industrial, and residential development and operations are processed and inspected.

2. **Forestry Division:** The Forestry Division enforces and observes all orders and ordinances of the Board of Supervisors pertaining to forest, brush, and other fires, and all statutes relating to prevention or extinguishment of forest, brush or grass fires. The Division cooperates with the State Forester and the Federal Forest Supervisors in the prevention and suppression of forest fires in the County of Los Angeles. The Forestry Division inspects private lands for the purpose of determining if a fire hazard exists. Where it is found that a fire hazard exists, the County Forester orders the owner or person responsible to abate or diminish such hazard. County Foresters educate the public about fire prevention and the conservation of natural resources, and disseminate such information by means of lectures, motion pictures, slides or other projection of pictures, displays and exhibits, or by any other appropriate means. The Forestry Division program areas are:

   Conservation Education

   Urban and Wildland Forestry Programs

   Fire Hazard Reduction Programs

   Oak Tree Ordinance

   Fire Weather/Fire Danger

   Emergency Incident Services

   Wildland Urban Interface/Fire Safety Organizations

   - **Environmental Review Unit:** This unit works with the Department of Regional Planning (DRP) to implement existing environmental ordinances. The unit personnel review all County Oak Tree Permit applications submitted to DRP, and develop recommendations for implementation. Additionally, the unit personnel produce environmental documentation and recommendations, such as non-significant impact documents, negative declarations and mitigation measures consistent with California Environmental Quality Act (CEQA) mandates for construction projects and developments. The County Forester and Fire Warden are also represented on the Subdivision Committee, which advises the Regional Planning Commission and Hearing Examiner (Title 21, Subdivisions, Section 21.12.010).

   - **Fuel Modification Unit:** This unit provides guidelines and reviews the landscape and irrigation plans submitted by the property owner for approval before construction or remodeling of a structure. As described in the Strategic Fire Plan, the objective of the Fuel Modification Unit is to create the defensible space necessary for effective fire protection in newly constructed and/or remodeled homes within the Department's Fire Hazard Severity Zones (FHSZ). Fuel modification reduces the radiant and convective heat, and provides valuable defensible space for firefighters to make an effective stand against an approaching fire front. Fuel modification zones are strategically placed as a buffer to open space or areas of natural vegetation and

generally would occur surrounding the perimeter of a subdivision, commercial development, or isolated development of a single-family dwelling.

- **Brush Clearance Unit:** The Brush Clearance Program is a joint effort between the Fire Department and the County of Los Angeles Department of Agricultural Commissioner/Weights and Measures, Weed Hazard and Pest Abatement Bureau (Weed Abatement Division). This unified enforcement legally declares both improved and unimproved properties a public nuisance, and where necessary, requires the clearance of hazardous vegetation. The Department's Brush Clearance Unit enforces the Fire Code as it relates to brush clearance on improved parcels, coordinates inspections and compliance efforts with fire station personnel, and provides annual brush clearance training to fire station personnel.

- **Fire Plan Unit/Fire Safe Councils:** The Fire Plan Unit coordinates countywide projects and provides direction in the planning of pre-fire projects.

  Fire Safe Councils are grassroots community-based organizations that share the objective of making California's communities less vulnerable to catastrophic wildfire. Fire Safe Councils accomplish this objective through education programs and fire hazard reduction projects such as shaded fuel breaks or home structure hardening to protect area residents against an oncoming wildfire and to provide fire fighters with a place to fight the oncoming fire.

  The Fire Plan Unit supports the fire prevention efforts of the local Fire Safe Councils, assisting with project planning and implementation. Projects include hazardous tree and plant removal and trimming as well as fuel break treatment. A list of geographically-specific fire risk reduction projects (operational and proposed) is published annually in the Strategic Fire Plan.

Fire Prevention and Habitat Protection

Many locations in Very High Fire Hazard Severity Zones have unique biological features or sensitive species that the County Fire Department considers during fuel modification projects. It is now typically routine for discretionary approvals for County-approved projects that pre-project implementation nesting bird surveys be conducted in compliance with Section 3503 of the California Fish and Game Code and the Migratory Bird Treaty Act. The County has a GIS-based, interactive web tool developed as a cooperative effort between the California Department of Pesticide Regulation and the Los Angeles County Departments of Regional Planning and Agricultural Commissioner/Weights & Measures (ACWM). Using updated habitat data from the Department of Fish and Game Natural Diversity Database, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, the potential habitat for every known endangered, threatened or rare (ETR) species in Los Angeles County can be identified using a web tool called ZAPUR-NET. Using data from ZAPUR-NET as well as other information, an ACWM biologist can determine if vegetation clearance in a given area will have a likely negative impact on any ETR species.

VIII. Post-Fire Safety, Recovery and Maintenance

The Fire Department's Forestry Division implements post-fire reforestation projects to create resilient landscapes and restore functioning ecosystems. For example, the Forestry Division operates nurseries to supply native plants for revegetation of burned areas.

The Fire Department uses Cal MAPPER (CAL FIRE's Management Activity Project Planning Event Reporter) as the Department's designated GIS database for collecting activity and fiscal data on forest and fuels reduction projects executed through the County. CAL MAPPER assists with project planning and maintenance, risk assessment, performance measures and emergency response.

The following are additional programs at the County for Post-Fire Safety, Recovery, and Maintenance:

- **Coordinated Agency Recovery Effort (C.A.R.E):** During storm season there is an elevated risk of flooding, as well as an increased threat of mud and debris flows, particularly in foothill communities and in communities below recent wildfire burn areas. After the 2009 Station Fire, the Los Angeles County Public Works Department developed the Coordinated Agency Recovery Effort (C.A.R.E.), a multi-agency media and community outreach campaign. C.A.R.E. partners include County Public Works, Sheriff's and Fire Departments, the County Office of Emergency Management, the U.S. Forest Service, U.S. Geological Survey, the National Incident Management Organization, the National Weather Service, the California Department of Transportation (Caltrans), the American Red Cross, and the City of Los Angeles. C.A.R.E. program elements and community resources include a speakers' bureau for community meetings; educational/storm preparation materials; and information on road closures and evacuations, weather forecasts and updates, and links to other emergency response and recovery agencies. In addition, C.A.R.E.'s eNotfiy System allows at-risk residents to register to receive storm-related updates and alerts. More information on C.A.R.E. is available at http://dpw.lacounty.gov/care/.

- **Burned Area Emergency Response (BAER) and State Emergency Assessment Teams (SEATs):** While many wildfires cause little damage to the land and pose few threats to fish, wildlife and people downstream, some fires create situations that require special efforts to prevent further catastrophic damage after the fire. Loss of vegetation exposes soil to erosion; runoff may increase and cause flash flooding; sediments may move downstream and damage houses or fill reservoirs; and put endangered species and community water supplies may be at risk.

  The Burned Area Emergency Response (BAER) federal program and State Emergency Assessment Teams (SEAT) program address these situations with the goal of protecting life, property, water quality, and deteriorated ecosystems from further damage after the fire is out. Concern for possible post-fire effects on fish, wildlife, archeological sites and endangered species is often a primary consideration in the development of BAER and SEAT plans.

- **Wildland-Urban Interface Fire Safety Organizations:** The Fire Department is represented

in many local collaborative fire safety and prevention efforts. These include the following:

California Fire Safe Council (CFSC)

California Fire Safe Council's mission is to "mobilize Californians to protect their homes, communities and environment from wildfires." California Fire Safe Council was formed as a committee of the California Department of Forestry and Fire Protection (CDF) (now called CAL FIRE) in 1993 and its intent was to bring together governmental agencies and corporations to provide education to the residents of California on the dangers of wildfires and how they could be prevented. For more information, please visit www.cafiresafecouncil.org.

Santa Monica Mountains Fire Safe Alliance (SMMFSA)

The mission of the Santa Monica Mountains Fire Safe Alliance, a collaboration of related public agencies, departments, and communities, is to find solutions and resources for property owners and land managers to improve stewardship in the wildland-urban interface. Integration of best management practices will create defensible space while protecting wildland. The Alliance will help create safer communities and protect natural areas by involving and educating stakeholders, sharing information, and locating and providing beneficial resources.

Southern California Regional Area Safety Task Force (SoCal RAST)

The SoCal RAST is an organization formed to speak with a unified, forward-thinking voice to facilitate regional collaborative fire shed management, planning, and local implementation activities that foster safe and sustainable communities. Members include invited entities from federal, state, and county or multi-county levels. In addition, other participants include Fire Safe Councils and business that deal with related issues. For more information, please visit www.socalrast.org.

Sustainable and Fire Safe Landscapes (S.A.F.E. Landscapes)

Fire safety in the wildland-urban interface starts in the home, with the use of fire-resistant building materials and architectural features, practices to avoid starting fires in and around the home, and a household fire response plan. University of California Cooperative Extension provides information on maintaining sustainable and fire-safe landscapes in the home and beyond.. For more information, please visit http://ucanr.edu/sites/SAFELandscapes/.

Los Angeles County Weed Management Area (LAWMA)

The WMA brings together local landowners, managers, and stewards to coordinate efforts and expertise against invasive plant species. For more information, please visit www.lacountywma.org.

Center for Invasive Species Research (CISR)

Inadvertent introductions of exotic insect pests, plant diseases, weeds, and other noxious organisms (e.g., exotic crabs and mussels) pose a major and continuing threat to California's

agricultural, urban, and natural environments as well as the state's precious supplies of fresh water. The Center for Invasive Species Research, based at the University of California, Riverside, provides a forward-looking approach to managing invasions by exotic pests and diseases. The Fire Department's Forestry Division alerts CISR when invasive species are discovered. For more information, please visit http://cisr.ucr.edu/.

Appendix I: Public Services and Facilities Element Resources

I. Imported Water Sources

Colorado River Aqueduct

To alleviate some of the financial burden of importing water from the Colorado River, Los Angeles and several other cities formed the Metropolitan Water District of Southern California under the California Metropolitan Water District Act of 1927. The 242-mile long Colorado River Aqueduct carries a billion gallons (2,778 acre-feet) of water daily to Southern California. Los Angeles County relies on the Colorado River Aqueduct for some of its water supply.

California, along with a number of other states, shares water that is diverted from the Colorado River. Over the past few decades, California has been utilizing more than its allocation of 4.4 million acre-feet of water annually from the Colorado River. Water agencies throughout California, including the Metropolitan Water District, are implementing programs to reduce water drawn from this source to the initial allocation agreement, through water banking, conservation, and recycling.

State Water Project

Following World War II, the California Legislature approved the Burns-Porter Act, which commits the State to the development of a 440-mile aqueduct system that would bring rainwater and snowmelt from Northern California to Southern California. Since 1972, the State Water Project has delivered water to 29 water agencies along the route, including the Antelope Valley-East Kern Water Agency, Castaic Lake Water Agency, Metropolitan Water District, and the San Gabriel Valley Municipal Water District. The delivery capacity of the State Water Project is currently 2.4 million acre-feet annually, of which water agencies in Los Angeles County are granted a portion, depending on their contract with the State and available supply.

II. Water Suppliers

There are several water suppliers that serve the unincorporated areas of Los Angeles County: The following section shows a partial list of these suppliers:

Antelope Valley-East Kern Water Agency

The Antelope Valley-East Kern Water Agency (AVEK) holds the third largest entitlement to water from the State Water Project; only the Metropolitan Water District and Kern Water Company have higher entitlements. AVEK's district boundaries extend 2400 square miles from the Antelope Valley in Los Angeles County and well into Kern County. Since 1953, AVEK has brought water to major consumers, including farmers and Edwards Air Force Base. AVEK imports 75,000 acre-feet of water into its district annually. However, demand for water in the Antelope Valley is higher than current delivery capacities.

Castaic Lake Water Agency

The Castaic Lake Water Agency (CLWA) monitors groundwater and provides imported water from the State Water Project to four retail water purveyors for distribution in the Santa Clarita Valley: the Los Angeles County Waterworks District 36, Newhall County Water District, Santa Clarita Water Company, and Valencia Water Company. These agencies collect and maintain data on precipitation, groundwater quality, consumption rates, and surface water delivery throughout the Santa Clarita Valley. The data serves as an indicator of overall water conditions, and is used to project available water supplies and prevent over-drafting of valley groundwater basins.

The Santa Clarita Valley extracts approximately 40 percent of its water supply from groundwater basins. Historically, water use in the Santa Clara Valley was predominantly agricultural. Today, urban development is the primary user, and irrigation demands are expected to continue to decline as the urban areas in the Santa Clarita Valley expand.

Littlerock Creek Irrigation District

The Littlerock Creek Irrigation District (LCID) is a public entity that was created in the late 1880s. LCID was instrumental, along with the Palmdale Water District, in constructing the Littlerock Dam. The completion of Littlerock Dam in 1924 made it possible to store water runoff from the Angeles National Forest.

Metropolitan Water District

The Metropolitan Water District (MWD) serves a vast area of California's southern coast region, from Oxnard to Mexico's border, and supplies water to most of the southern portion of Los Angeles County. It was created in 1928 to develop, store, and distribute water at wholesale rates to its member agencies, who in turn distribute the water to end users. Twenty-seven member agencies contract with MWD and together serve approximately 300 cities and unincorporated communities in Southern California.

The MWD is responsible for purchasing much of Southern California's water from the Colorado River and State Water Project to meet the region's growing demand. The MWD is Southern California's primary water wholesaler, supplying member cities and water districts with approximately two million acre-feet, or 650 billion gallons of water, annually. One acre-foot of water is equivalent to the amount of water covering an acre of land—about the size of a football field—one foot deep.

Palmdale Water District

The Palmdale Water District is one of the oldest water districts in the Antelope Valley. It began in the late 1800s as a water provider for agricultural irrigation. What started as a wooden trestle carrying creek water for farms is now an underground canal feeding Palmdale Lake with water from the Littlerock Dam. Much of this water supplies the expanding urban population in the Antelope Valley. In 1963, the Palmdale Water District began purchasing water from the State Water Project to supplement groundwater and water from Littlerock Dam.

Appendix J: Economic Development Element Resources

I. Industrial Land Analysis

Introduction

This analysis, which was developed in cooperation with the Los Angeles County Community Development Commission (CDC) and the Los Angeles County Economic Development Corporation (LAEDC) in 2008, inventories and analyzes existing industrial land uses, zoning, and policies to inform site-specific policy recommendations. These recommendations have in part informed the development of the General Plan Land Use Policy Map and related policies in the General Plan.

Industrial Land Classifications

For this analysis, industrial lands were classified into the following districts:

- **Employment Protection Districts**: These areas represent economically viable industrial and employment-rich lands, where industrial zoning and industrial land use designations should remain, and where policies to protect industrial land from non-industrial uses should be enforced.

- **Industrial Flex Districts**: These are areas that could allow for development of non-industrial uses and mixed-uses, where appropriate, but also allow light industrial or office/professional uses that are compatible with residential uses. These recommendations may call for a change in land use designation and/or zoning and will be implemented through community-based planning efforts.

- **Industrial Opportunity Areas:** These areas meet the criteria for Employment Protection Districts, and are covered by an existing or a draft community-based plan. They should be designated EPD when the community-based plan is updated or created.

The Industrial Land Analysis includes correction areas within each study area. These correction areas identify individual uses or specific parcels where previous land use decisions have resulted in incompatible land use patterns and require a zone and/or land use change.

This analysis considered industrially-designated and zoned land in the following unincorporated communities:

- Avocado Heights
- Covina Islands
- East Los Angeles
- East Pasadena-East San Gabriel
- Florence-Firestone
- Hacienda Heights
- Lennox
- Lopez Canyon

- North Whittier
- Rancho Dominguez
- Rowland Heights
- South San Jose Islands - South Walnut
- South Whittier - Sunshine Acres
- West Carson
- West Puente Valley
- West Rancho Dominguez - Victoria
- West Whittier - Los Nietos
- Whittier Narrows - South El Monte
- Willowbrook

Methodology

LA PLAN (a subsidiary of LAEDC) staff conducted field surveys of industrial land in select study areas. The field survey considered the following variables:

- Current conditions and use of the industrial site and/or industrial district;
- Current conditions of the land uses adjacent to the industrial site and/or industrial district;
- Development and/or redevelopment activities taking place in the vicinity of the industrial site and/or the industrial district;
- Real estate market data (local industrial vacancy and absorption figures at the time of the study).
- Absorption rate, which is the historical amount of square footage absorbed over a period of time; and
- Utilization and/or “high use” of the land. Utilization can be a comparative term in relation to adjoining uses or simply a matter of the amount of building on a given parcel. For this analysis, many parcels were considered underutilized due to the poor condition of the facilities in an area, with good access and visibility, and with an occasional upgraded industrial facility close by.

The staff also reviewed the sites using GIS and aerial photographs.

Study Areas

Avocado Heights

Avocado Heights consists of five study areas. Nearly all of the industrially-zoned land in Avocado Heights is occupied by operating businesses; however, on many parcels, the utilization of industrial land is low when compared to surrounding industrial land in other local jurisdictions. Avocado Heights presents opportunities for significant rehabilitation to generate cleaner industrial and/or office and professional uses.

Figure J.1: Avocado Heights Study Area 1

Study Area 1: The industrial district in study area 1 runs along Valley Boulevard and contains industrial uses, along with a few supporting commercial businesses. The parcels are adjacent to rehabilitated and high-use industrial parcels in the City of Industry to the south, and the City of La Puente to the north, and a Union Pacific rail line that runs parallel to Valley Boulevard. The existing

businesses and the level of industrial activity in the region, in addition to the large parcel sizes, demonstrate the viability of the industrial land. The industrial parcels and uses are not comparable with the surrounding industrial uses in other local jurisdictions, and incentives for redevelopment and rehabilitation of the industrial parcels in study area 1 are recommended. Additionally, future residential uses should not be allowed in these intensive industrial districts. The mobilehome park should retain its industrial land use designation and zoning.

Recommendation: Employment Protection District

Figure J.2: Avocado Heights Study Area 2

Study Area 2: The current land use is industrial. The parcels are surrounded by high-use industrial parcels in the City of Industry on all sides, except for the residential uses in Avocado Heights, whichborder the northwest portion of study area 2. The existing businesses and the level of industrial activity in the region, in addition to the large parcel sizes, demonstrate the viability of the industrial land.

Recommendation: Employment Protection District

Figure J.3: Avocado Heights Study Area 3

Study Area 3: The industrial district in study area 3 runs along Valley Boulevard and is bisected by Workman Mill Road to the north. The land use and zoning are industrial, and the majority of the area has industrial uses. The northern, eastern, and westernportions of study area 3 house intensive industrial uses in the City of Industry and the City of La Puente.The southern portion contains low-density, single family residential uses in Avocado Heights. North of Workman Mill Road, all of the industrially designated parcels are used for commercial, office, or residential purposes.The existing businesses and the level of industrial activity in the region, in addition to the large parcel sizes, demonstrate the viability of the industrial land. The industrial parcels and uses, such as auto salvage operations, are not comparable with the surrounding industrial uses in other local jurisdictions, and are located adjacent to residential uses. Incentives for redevelopment and rehabilitation of the industrial parcels in study area 3 are recommended.

Recommendation: Employment Protection District

Correction: North of Workman Mill Road, change land use and zoning to commercial and residential, as appropriate.

Figure J.4: Avocado Heights Study Area 4

Study Area 4: The industrial parcels in study area 4 are shallow and run along Valley Boulevard. To the north of the study areaare rehabilitated and high-use industrial parcels in the City of Industry and a Union Pacific rail line. Directly across from Valley Boulevard lies a row of commercial uses backed by low-density, singlefamily residences. The current land uses on the parcels in the study area are industrial. However, the existing businesses and the level of industrial activity are not comparable with the surrounding industrial uses, and the shallow parcel sizes will make it difficult for any future high-use industrial redevelopment. There is opportunity for redevelopment of the study area, as it can house supportive commercial uses for the adjacent, high-employment work sites. Due to its proximity to the rail line and the presence of adjacent industrial uses, residential uses are not recommended in the study area.

Recommendation: Industrial Flex District

Figure J.5: Avocado Heights Study Area 5

Study Area 5: The industrial district in study area 5 lies directly east of the San Gabriel River and the Interstate-605, and is surrounded by intensive industrial uses in the City of Industry. The current uses in the study area are industrial. Businesses have rehabilitated these industrial lands and they stand at a high-use. The large parcel sizes, current use and access to transportation routes demonstrate the viability of the industrial land. The parcels in the northeast corner of the study area are shared with the City of Industry. This can add complications to any future redevelopment of the parcel.

Recommendation: Employment Protection District

Bandini Islands

Figure J.6: Bandini Islands Study Area

Study Area: This study area is a small unincorporated island surrounded by high-use industrial parcels in the City of Vernon. The parcels are zoned industrial and used for truck storage for the parcel delivery terminal across the street in the City of Vernon's jurisdiction. Since the study area is part of a bigger industrial hub in the City of Vernon, these parcels should remain industrially zoned.

Recommendation: Employment Protection District

Covina Islands

Figure J.7: Covina Islands Study Area

Study Area: There is one small industrial district in the Covina Islands along Arrow Highway at the intersection of Barranca Avenue. The current uses in the study area are a mix of commercial, light industrial and automobile repair related services. There are highly utilized industrial uses to the east in the City of Glendora, while residential, commercial and public uses surround the study area in other directions. The intersection of Arrow Highway and Barranca Avenue primarily contains commercial and residential uses. There is an inconsistency in the Category 1 (Low Density Residential) land use designation and the M-1 (Light Manufacturing) zoning. Although the current uses in the study area are not employment-rich, the site location makes it ideal for future industrial redevelopment since the San Dimas Wash serves as a buffer to minimize the impacts of industrial uses on the residential uses to the south in the City of Covina.

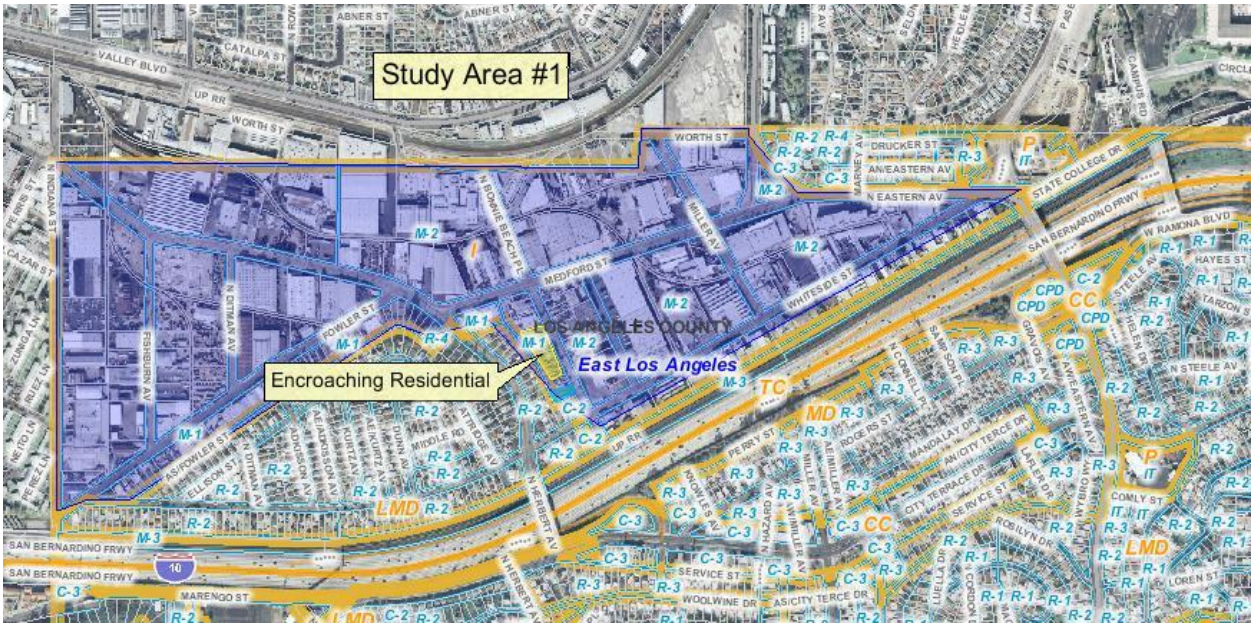
Recommendation: Employment Protection District

Correction: Change the land use designation to Light Industrial.

East Los Angeles

East Los Angeles has two primary areas of industrial activity and several narrow corridors that ar ezoned CM (Commercial-Manufacturing). The CM-zoned corridors primarily house commercial-based businesses that are interspersed with low-volume, light industrial activity. Both of the industrial districts in East Los Angeles continue to extend outside of the unincorporated area borders. However, in East Los Angeles, the industrial uses, building conditions, and utilization rates vary greatly from surrounding local jurisdictions. As with other industrial districts in the unincorporated areas, residential properties are mixed in and around industrial properties.

Figure J.8: East Los Angeles Study Area 1



Study Area 1: Study area 1 is the (former) Whiteside Redevelopment Project Area for the County. The current land use in the study area 1 is a combination of light and heavy industrial uses. The study areais prime industrial land and is recommended to be an Industrial Opportunity Area. Between N. Herbert Avenue and Bonnie Beach is a residential pocket that is surrounded by heavy industrial uses. It is recommended that this type of development be prohibited in important industrial districts.

Recommendation: Industrial Opportunity Area

Figure J.9: East Los Angeles Study Area 2

Study Area 2: The industrial district in study area 2 lies directly north of a large railroad yard and rail line, and other heavy industrial properties to the south in the City of Commerce, and is a combination of industrial, commercial, and residential uses. To the east and north, the study area 2 is adjacent to medium-density residential neighborhoods. These industrial parcels aresmaller than the adjacent industrial parcels, and their proximity to residential uses inhibits high-volume, heavy industrial uses. A transition to a higher and better use of industrial mixed use and commercial support uses is recommended for this area. The area with larger industrial lots in the southern portion of the study area that is adjacent to the rail yards should be protected for industrial use.

Recommendation: Industrial Opportunity Area in sub-area, with the remaining areas as an Industrial Flex District

Correction: Designate the land use and zone for the park along Bonnie Beach Place as Open Space Parks and Recreation (OS-PR).

East Pasadena -East San Gabriel

Figure J.10: East Pasadena – East San Gabriel Study Area

Study Area: East Pasadena-East San Gabriel has one small industrial district. The study area lies north of a Union Pacific rail line and the City of Rosemead. The current uses in the study area are industrial warehousing and food processing businesses. While the parcels in the City of Rosemead are large-lot industrial uses with some local-serving commercial sites, industrial parcels in the study area are separated from the large industrial lots in the city limit by the rail line. There are single family residential neighborhoods immediately north of the study area. Due to the proximity to the residential uses, further studies should be conducted to assess future opportunities of converting the parcels in this study area into other uses, desirably uses that would act as a buffer between the residential neighborhoods in the north and the industrial uses in the City of Rosemead.

Recommendation: Industrial Flex District

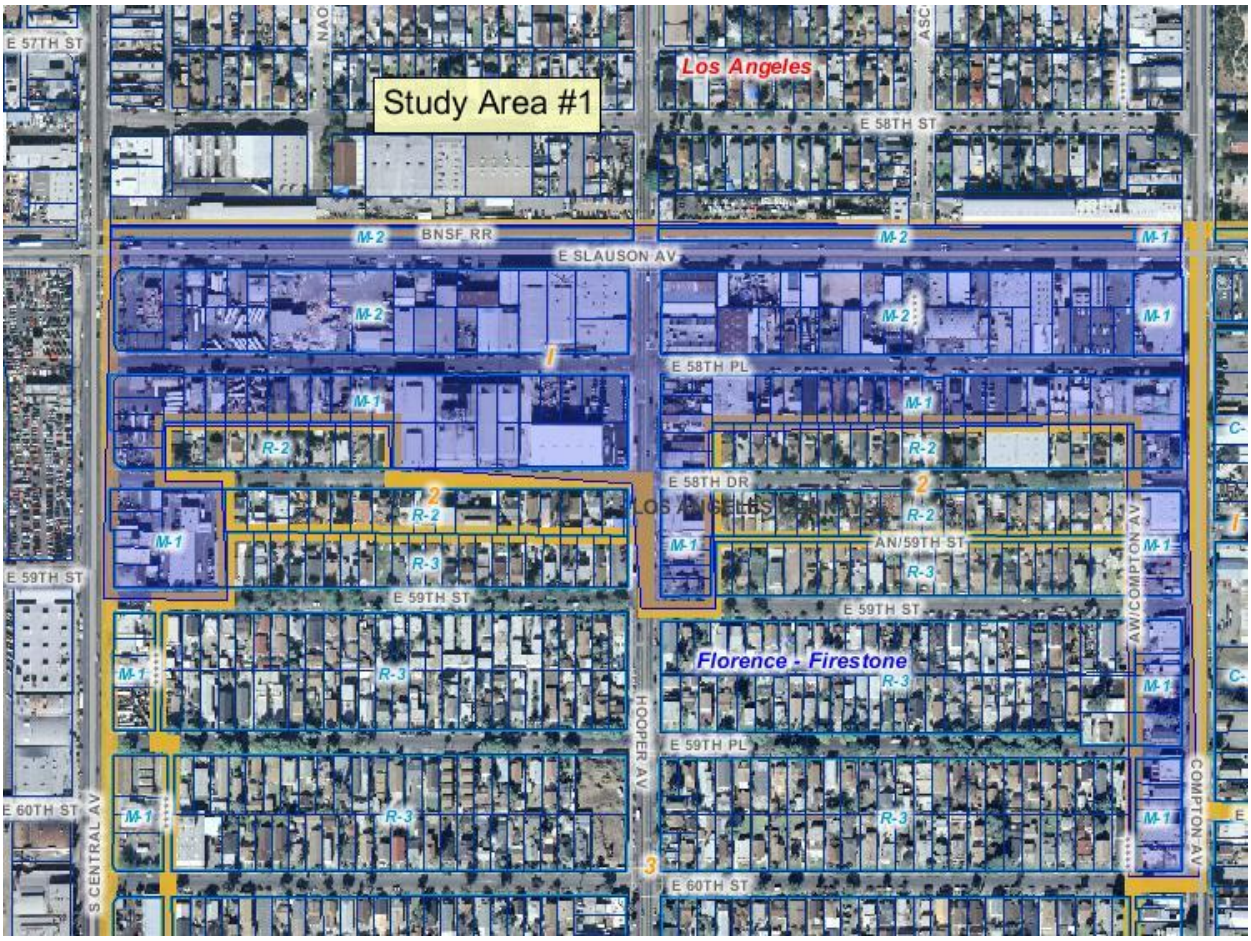
Correction: The study area has a land use designation of Category 1 (Low Density Residential) that should be changed to Light Industrial (IL).

Florence-Firestone

Much of the economic activity in Florence-Firestone is considered local in nature, with services such as recycling, machinery parts and maintenance, and auto uses serving nearby industrial districts and communities. Commercial services and light industrial activities, such as pallet yards and warehousing, are scattered in between singlefamily homes. Because of the prominence and adjacency of lower density residential uses, there are conflicts between noxious uses and housing. Compared to the industrial areas within surrounding cities, the industrial land in Florence-Firestone is less-intense, providing fewer jobs and income opportunities for businesses.

There are several nodes of industrial activity in Florence-Firestone. The areas around the Alameda Corridor, particularly south of Florence Avenue, contain the highest density of industrial employment. Municipal policies along the Alameda Corridor typically support the allocation of adjacent land for industrial uses, both to mitigate environmental hazards to households, as well as to use rail infrastructure to promote economic development activities.

Figure J.11: Florence-Firestone Study Area 1

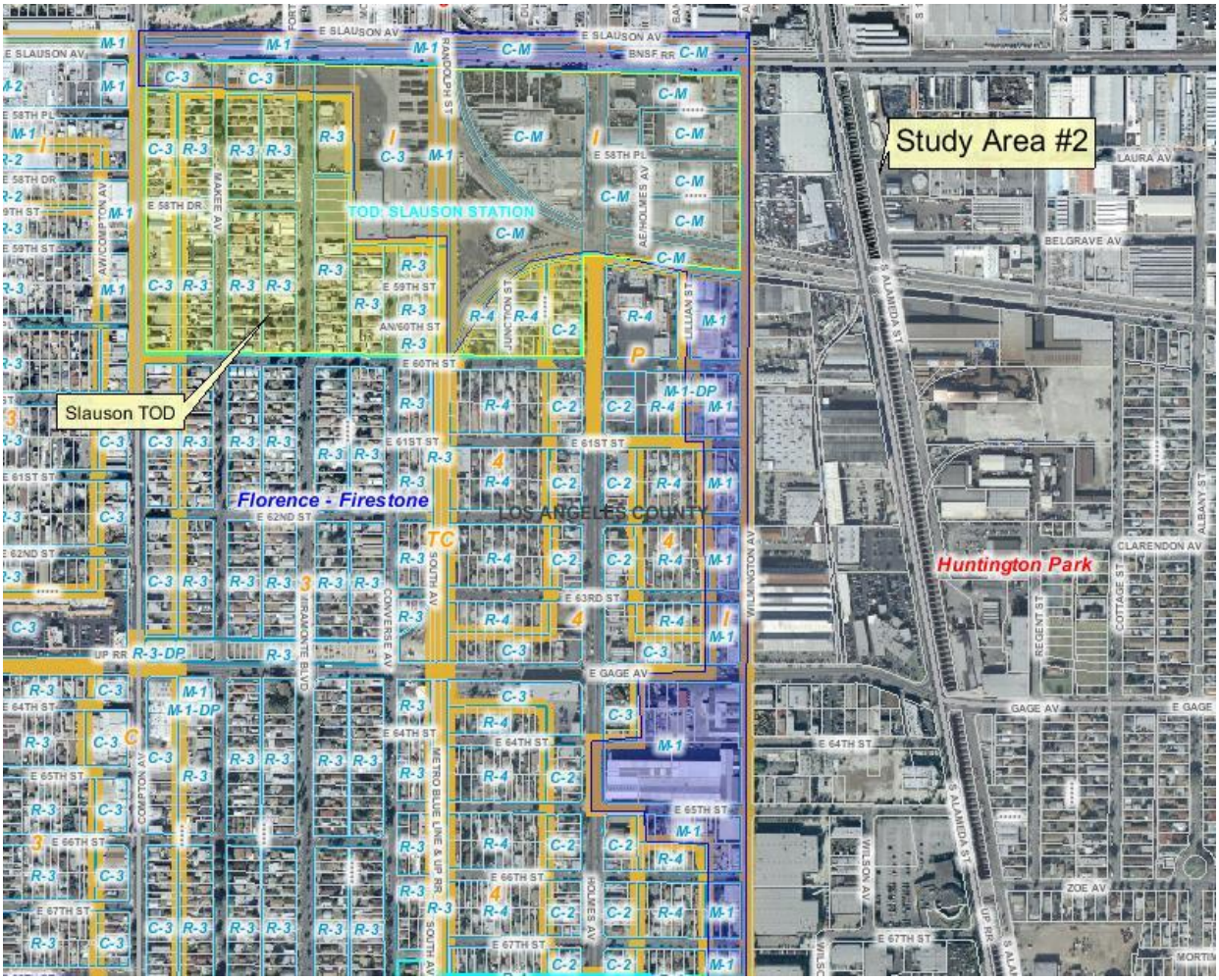


Study Area 1: The existing industrial uses in study area 1 are primarily small businesses on small

lots that are directly adjacent to residential areas. The majority of the uses are not employment-richbusinesses—a large number of auto dismantling, recycling and other low-intensity uses exist. The conditions of these structures indicate age and a lack of investment. Across Central Avenue and immediately west of the study area in the City of Los Angeles is a higher-intensity industrial area containing transportation and warehousing activities. To the north of the study area across Slauson Avenue is a combination of residential, commercial and small industrial uses. Slauson Avenue also contains the right-of-way of the Burlington Northern – Santa Fe Railroad, which Metro is studying as a future light-rail transit corridor. Just south of the study area within Florence-Firestone along east 58th Drive, there are a number of residential properties adjacent to industrial uses. There are opportunities to explore the conversion of the study area to allow for office and professional mixed uses, with additional opportunities for redevelopment of underutilized industrial parcels along both Central Avenue and Compton Avenue.

Recommendation: Industrial Flex District

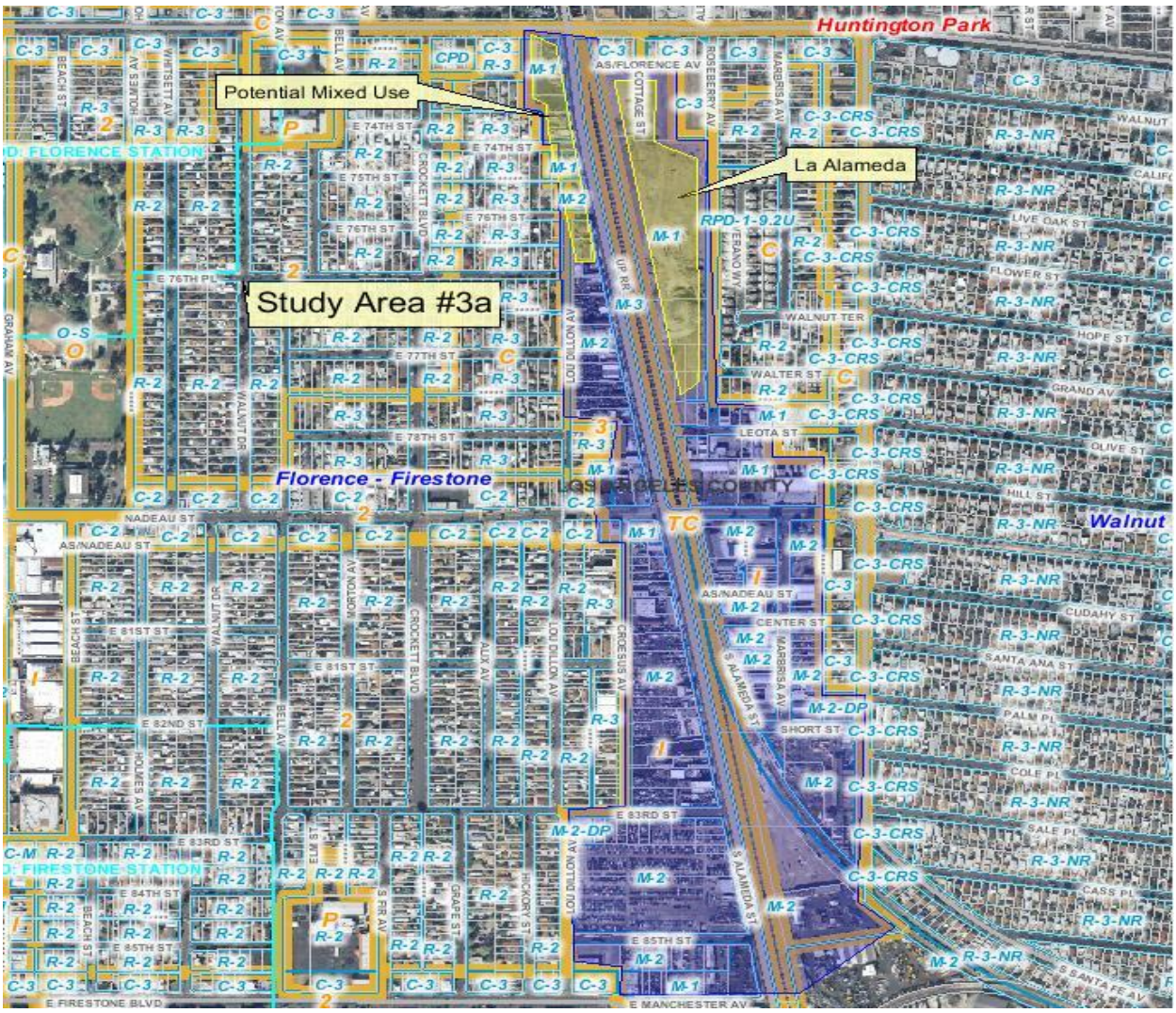
Figure J.12: Florence-Firestone Study Area 2



Study Area 2: Study area 2 consists of a mix of heavy and light industrial uses, truck storage, scrap/auto metal dismantling and similar businesses, which are primarily on small parcels. A portion of the industrial land in the study area is located within the Slauson Station TOD, which is intended to promote mixed uses and increased residential activity around transit nodes. However, there is very little residential or commercial activity currently in the study area or in the TOD. The City of Huntington Park and the Alameda Corridor lie east of the study area across Wilmington Avenue. Both the City and the Alameda Corridor Transportation Authority have policies to encourage industrial activity along the corridor. The City's redevelopment of older warehouses has attracted higher-intensity and employment-rich uses. It is recommended to explore higher uses of land in the study area to support transit-oriented development or the possibility of an industrial TOD.

Recommendation: Industrial Flex District

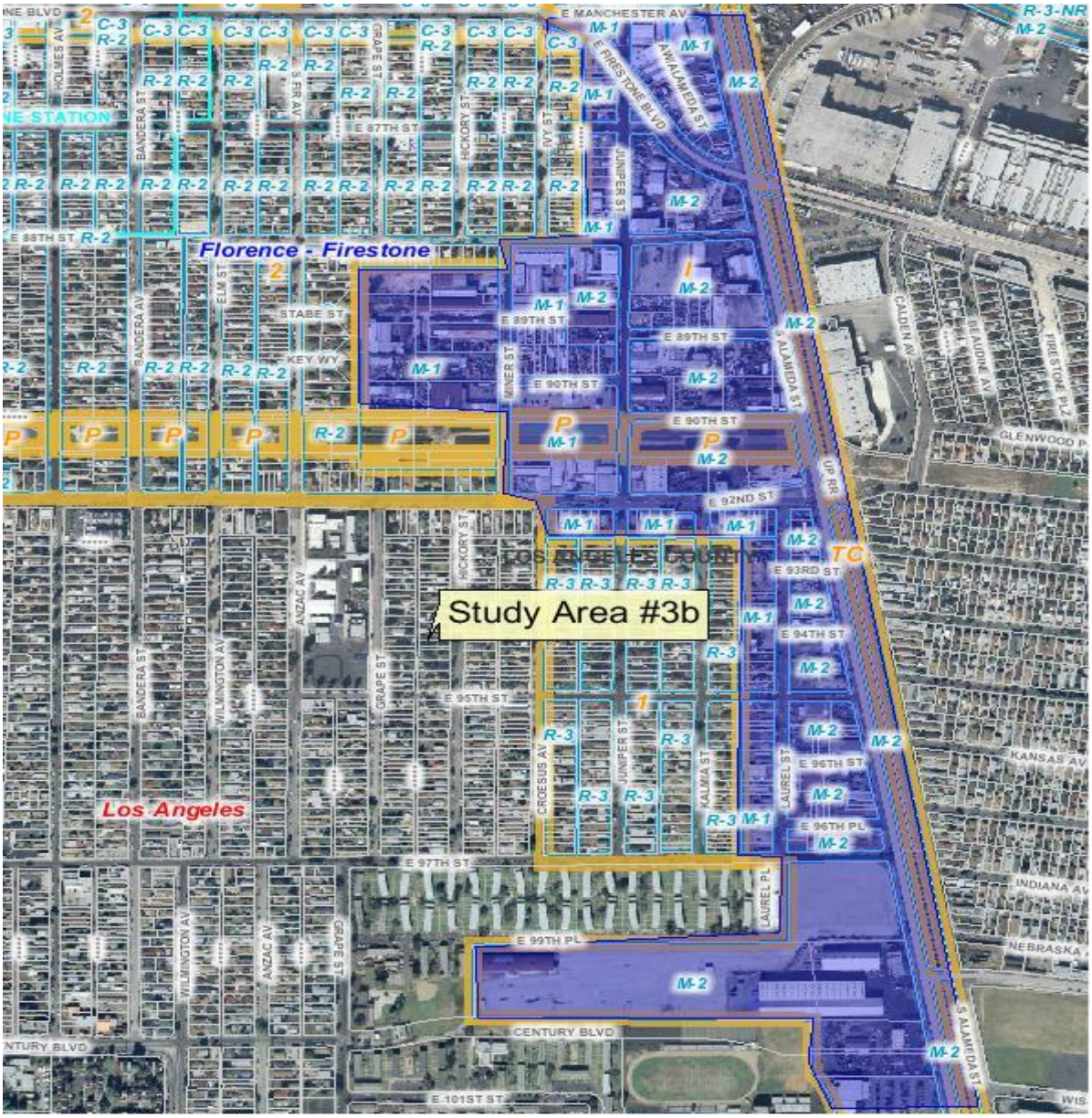
Figure J.13: Florence-Firestone Study Area 3a



Study Area 3a: Study area 3ais bounded to the north by Florence Avenue. The La Alameda Shopping Center is the result of the conversion of several large industrial parcels into a commercial strip shopping center. Thiscommercial center could provide an anchor to spur redevelopment activities on surrounding industrial land, although the further conversion of other large industrial properties in the area to commercial uses is not recommended. The study arearuns along the Alameda Corridor. The study area contains valuable, viable industrial land in proximity to transit, as well as adjacency to rehabilitated industrial land in the City of South Gate. The industrial uses across from the La Alameda Shopping Center are small, shallow parcels that consist primarily of auto dismantling businesses directly adjacent to residential neighborhoods. South of Nadeau Street, the industrial lands on both sides of Alameda Street offer greater opportunity for industrial redevelopment due to the larger size of the underutilized parcels. The existing industrial uses in the study area are low intensity development.

Recommendation: Industrial Flex District across from the La Alameda Shopping Center, with the remaining areas as an Industrial Opportunity Area.

Figure J.14: Florence-Firestone Study Area 3b



Study Area 3b: Study area 3b lies between E. Manchester Avenue/Firestone Boulevard to the north and E. 103rd Street to the south, and continues along Alameda Street and the Alameda Corridor. The study area provides immediate development opportunities because of its proximity to Interstate-105, the size of the parcels, and the distance from residential uses. The industrial parcels and uses are not comparable with the surrounding industrial uses in other local jurisdictions, and are characterized by auto dismantling and metal scrapping businesses. Incentives for redevelopment and rehabilitation of the industrial parcels in the study area are recommended.

Recommendation: Industrial Opportunity Area

Figure J.15: Florence-Firestone Study Area 4

Figure J.16: Florence-Firestone Study Area 5

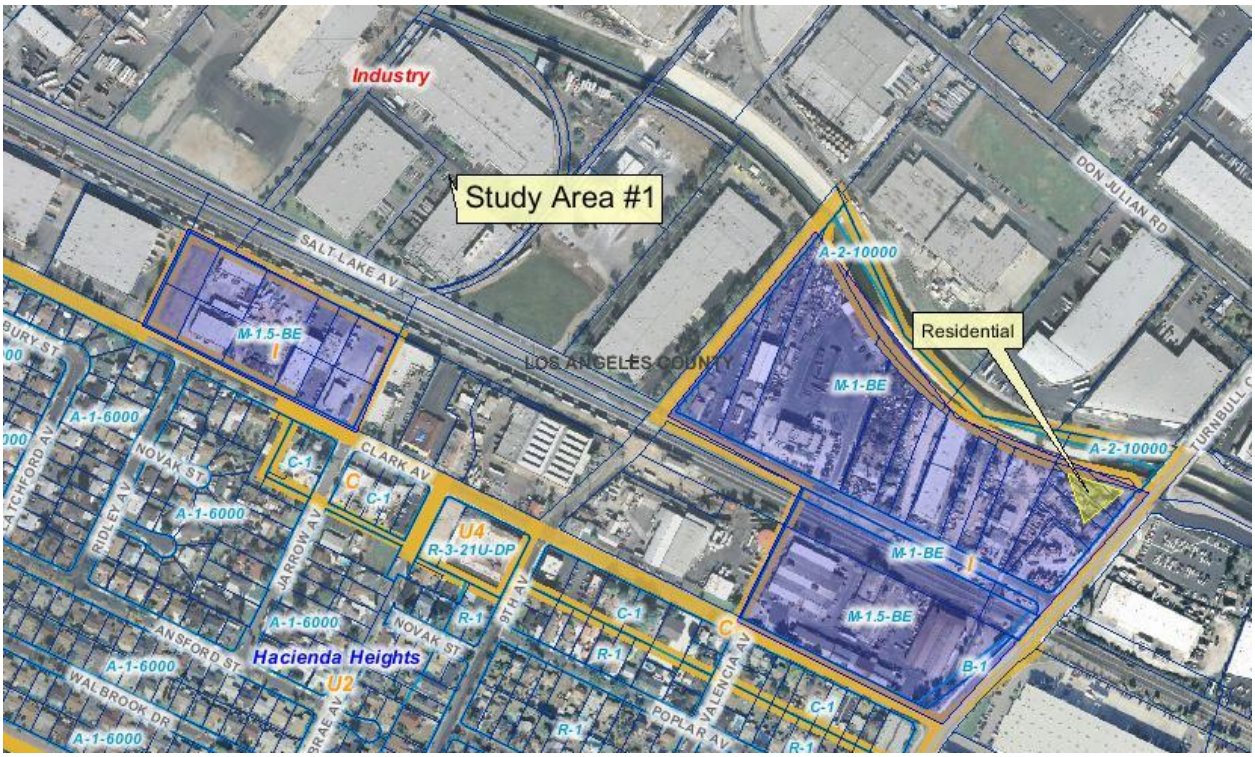
Study Areas 4 and 5: Study areas 4 and 5 lie along the Metro Blue Line transit corridor, and both are adjacent to parks and residential uses. The majority of uses in the study areas are industrial or commercial-manufacturing related. However, due to their proximity to transit, existing residential uses, and TODs, it is recommended that opportunities for transition to mixed-uses and other higher

potential uses be considered.

Recommendation: Industrial Flex Districts

Hacienda Heights

Figure J.17: Hacienda Heights Study Area



Study Area: Hacienda Heights has one industrial area that lies adjacent to heavily industrialized districts in the City of Industry to the north. To the south of the study area lies a strip of neighborhood commercial uses that is backed by residential neighborhoods. The Hacienda Heights industrial parcels are being fully utilized for industrial purposes, except for a few residential properties in the northeast corner of the area. These parcels should remain industrially zoned.

Recommendation: Industrial Opportunity Area

Lennox

Figure J.18: Lennox Study Area

Study Area: Lennox has one long industrial area that is separated from the rest of the community by Interstate-405. It lies adjacent to other highly industrialized uses that are directly adjacent to LAX.

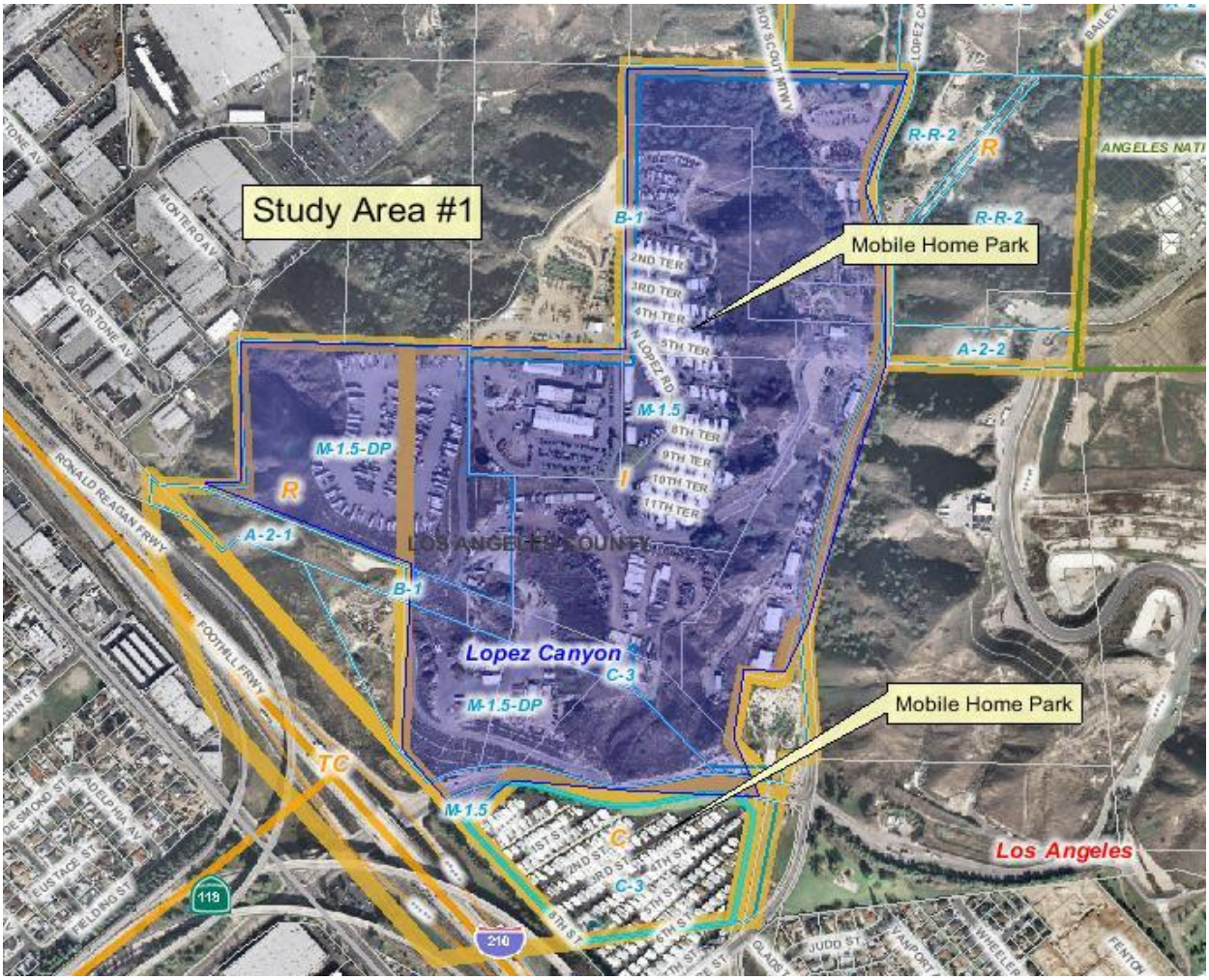
The northern portion of the study area contains one large industrially designated parcel that is used for public storage, a hotel, and some residential units. Public storage is a high-intensity use of land that is not employment-rich. Large-scale public storage uses are not recommended for industrial districts. Due to the proximity to the freeway and to the LAX landing strips, it is recommended that further residential uses not be allowed and that the study area be protected for long-term industrial uses.

Recommendation: Employment Protection District

Correction: The northern portion of study area, from W. 104th Street to Century Boulevard, should be redesignated with commercial and residential land use designations, as appropriate. There is also one area west of the freeway that has an Industrial (I) land use designation, but contains a residential use that should be corrected.

Lopez Canyon

Figure J.19: Lopez Canyon Study Area



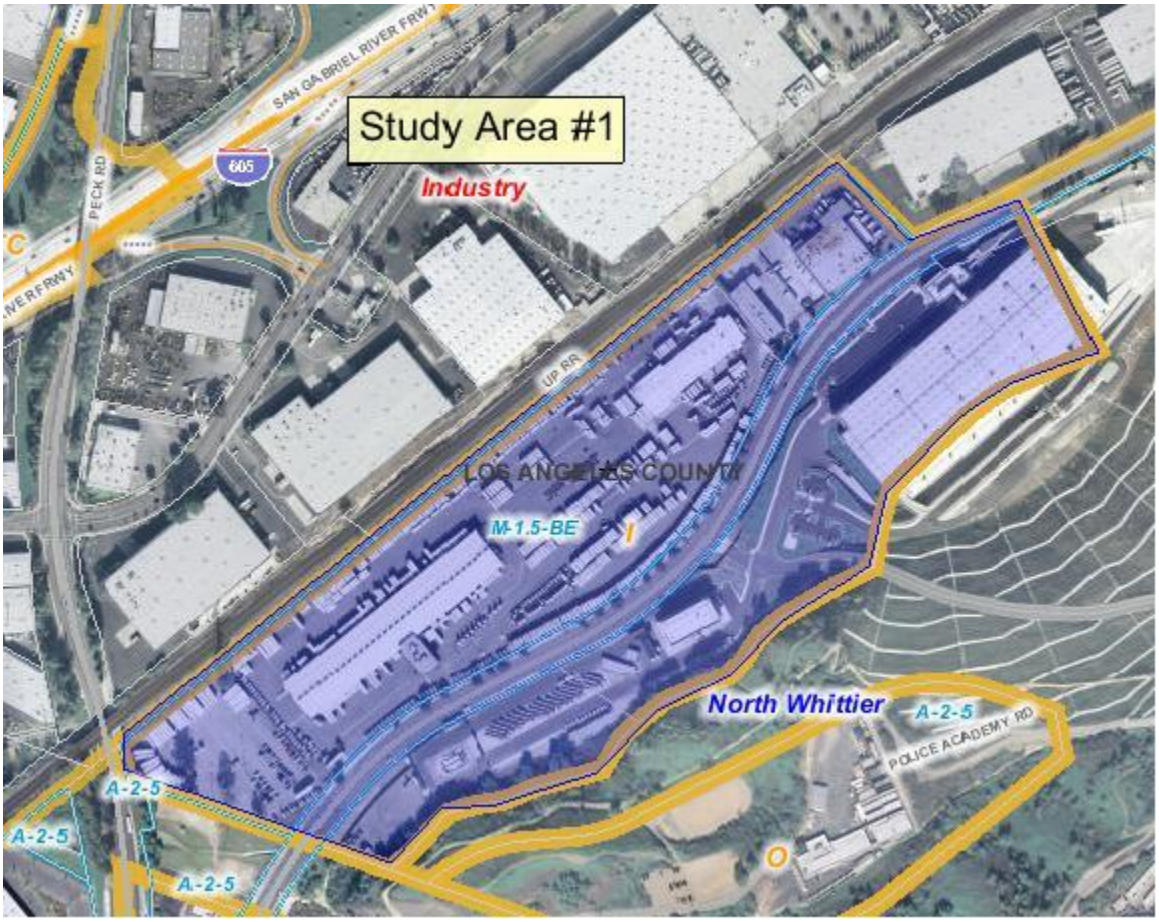
Study Area: The study area in Lopez Canyon lies directly north of Interstate-210 on sloping hills that lead into the Angeles National Forest. The majority of the southern portion of the study area is surrounded by industrial uses in the City of Los Angeles. Between the study area and Interstate-210 is a parcel designated Commercial (C), which is a large mobilehome park, and in the middle of the industrial district is another mobilehome park. The industrial parcels and uses are not comparablewith the surrounding industrial uses in the City of Los Angeles, and the hilly terrain precludes large-scale residential development. The western portion ofthe study area has a land use designation of Rural (R) with an M-1.5 DP (Restricted Heavy Manufacturing) zone.

Recommendation: Employment Protection District

Correction: Change the Rural (R) land use designation to Light Industrial (IL).

North Whittier

Figure J.20: North Whittier Study Area 1



Study Area 1: The industrial district in North Whittier lies directly southeast of the Interstate-605 and high-level industrial uses in the City of Industry. The Puente Hills Landfill lies directly south of the study area. The existing industrial uses in the study area are rehabilitated, and are surrounded by other industrial uses and a rail line.

Recommendation: Employment Protection District

Figure J.21: North Whittier Study Area 2

Study Area 2: Study area 2 only contains two parcels, which are part of the construction equipment sale and rental business located on the adjacent parcels in the City of Industry. Interstate-605 also separates these parcels from the residential areas to the west.

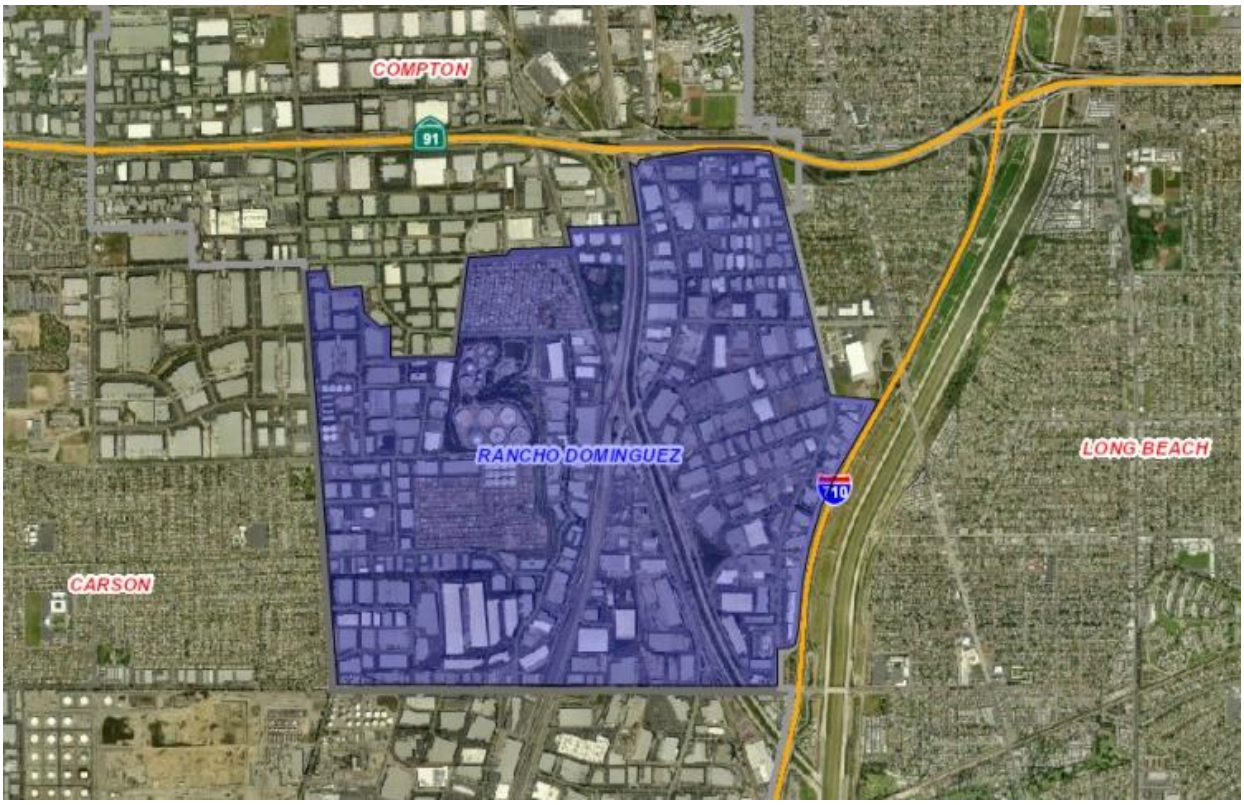
Recommendation: Employment Protection District

Correction: Change the land use designation and zoning to industrial.

Rancho Dominguez

Rancho Dominguez is a highly industrialized and employment-rich area, with direct access to the ports of Los Angeles and Long Beach, the Alameda Corridor, and the Interstate-710.

Figure J.22: Rancho Dominguez Study Area



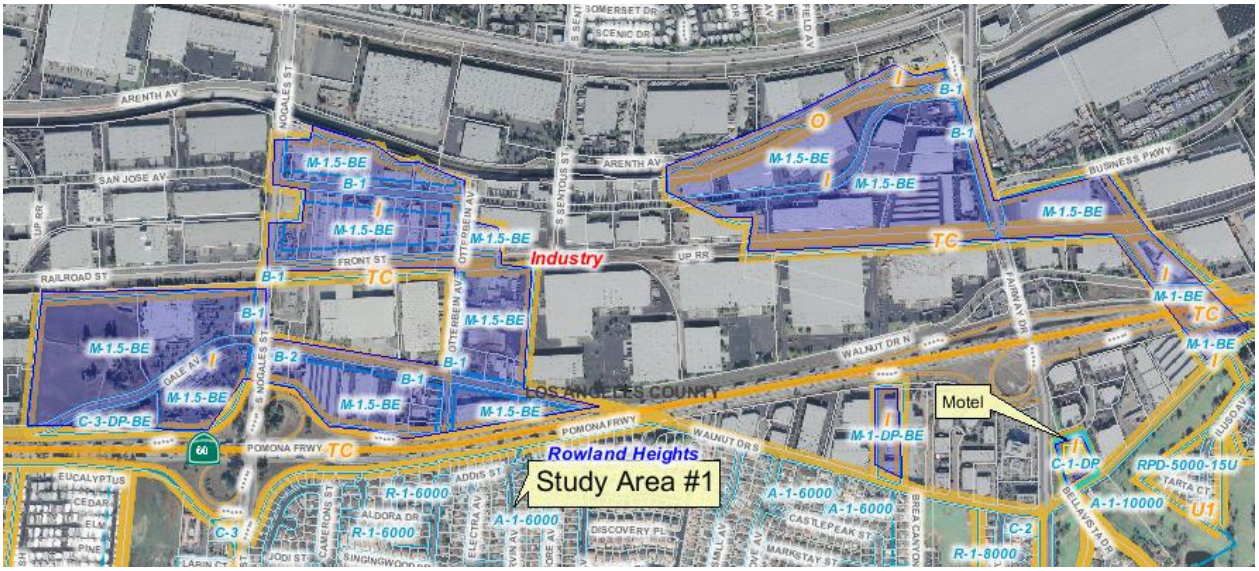
Study Area: The majority of the existing industrial uses in the study area are rehabilitated. However, there are a number of industrial parcels that could be rehabilitated for higher and better uses. This is important industrial land that is employment-rich and important on a regional economic scale. All

efforts should be made to preserve the viability of the industrial land in Rancho Dominguez. Of concern are two major mobilehome parks and a historical seminary/museum that are entirely surrounded by heavy and light industrial uses. It is recommended that future projects of this nature not be allowed in these areas and that opportunities for relocation of the mobilehome parks are pursued.

Recommendation: Employment Protection District

Rowland Heights

Figure J.23: Rowland Heights Study Area



Study Area: The study areais being fully utilized for industrial purposes. The one exception is a motel sitting on an industrial parcel as noted on the map above with a C-1-DP (Restricted Business) zone. The properties surrounding the industrial parcels in Rowland Heights are similarly heavy industrial. The study area has access to State Route-60and to a Union Pacific rail line. State Route-60 also provides a wide buffer from the residential uses in Rowland Heights. This is viable industrial land that should be protected.

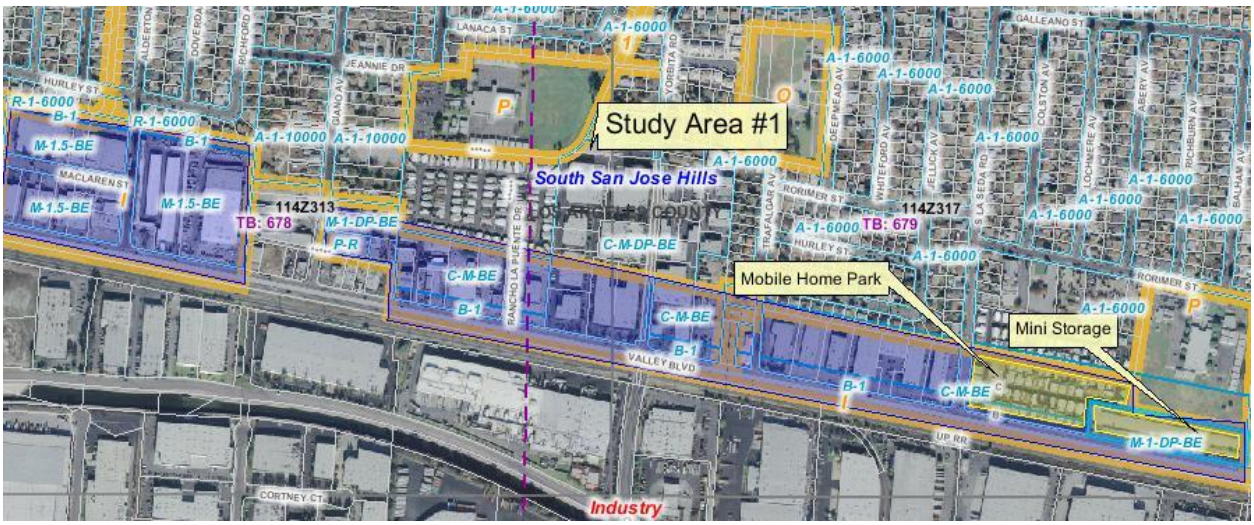
Recommendation: Industrial Opportunity Area

Correction: Change motel parcel to a commercial land use.

South San Jose Hills – South Walnut

South San Jose Hills–South Walnut contains two study areas. Both areas stretch along Valley Boulevard and containa mix of commercial and industrial uses.

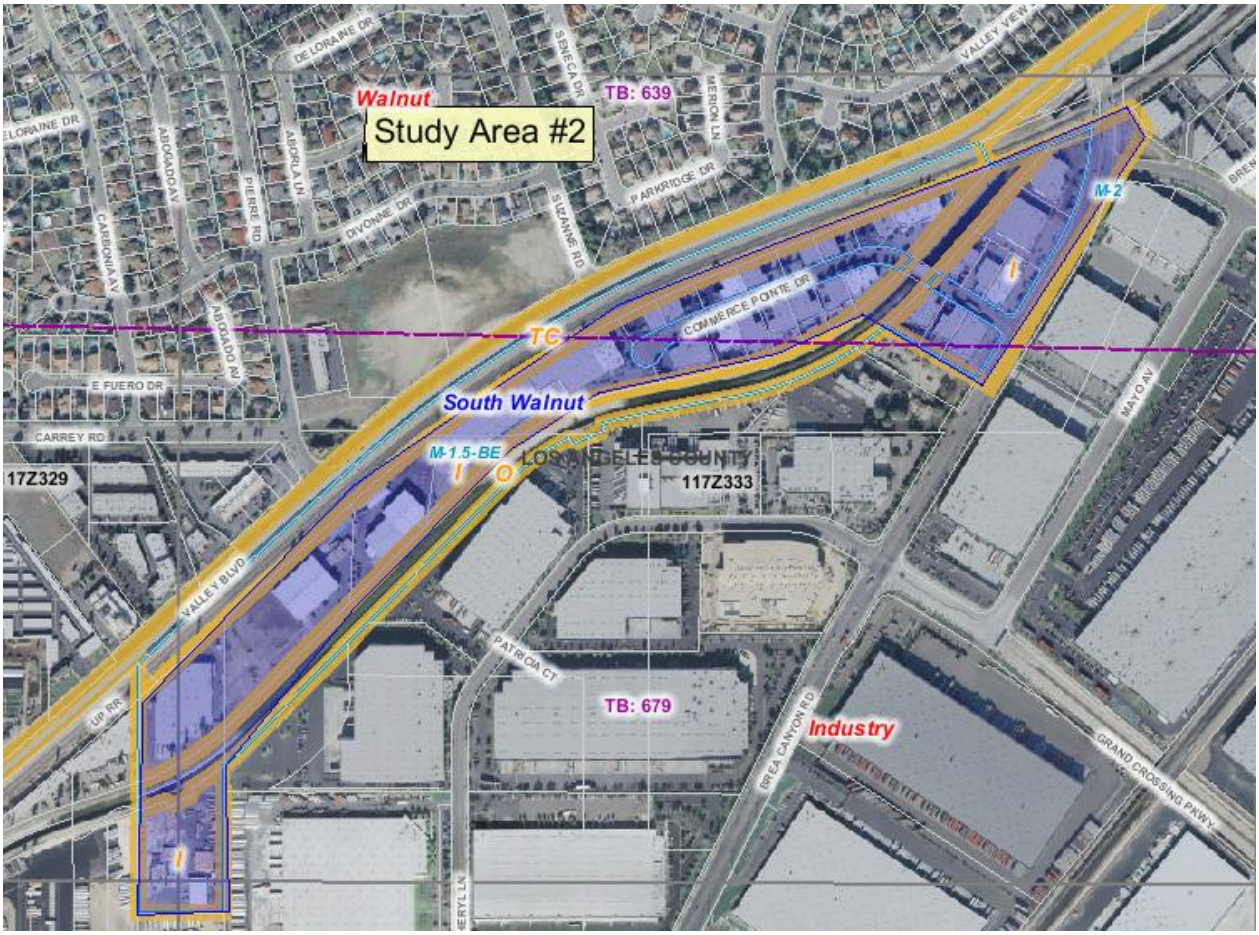
Figure J.24: South San Jose Hills – South Walnut Study Area 1



Study Area 1: The study area stretches along Valley Boulevard and is bordered to the north by low to medium density residential neighborhoods, and to the south by heavily industrialized parcels in the City of Industry. Much of the study area is zoned for C-M (Commercial Manufacturing), which allows for less intensive industrial uses as well as other non-industrial uses. Auto repair, auto sale, churches, mobilehome park, and a large self-service storage facility are some of the non-industrial uses found in this area.

Recommendation: Industrial Flex District

Figure J.25: South San Jose Hills – South Walnut Study Area 2



Study Area 2: Study area 2 in South Walnut is an industrial district that stretches along Valley Boulevard and is bordered to the north by low to medium density residential neighborhoods in the City of Walnut, and to the south by heavily industrialized parcels in the City of Industry. The parcels in the study area are high-use, valuable industrial lands that are well-buffered from adjacent residential uses.

Recommendation: Employment Protection District

Figure J.26: South San Jose Hills – South Walnut Study Area 3

Study Area 3: Study area 3 in South Walnut is a small piece of an unincorporated parcel, which is part of an industrial park in the City of Walnut.

Recommendation: Employment Protection District

Correction: Rezone the parcel to industrial.

Figure J.27: South San Jose Hills – South Walnut Study Area 4

Study Area 4: Study area 4 in South Walnut stretches along Valley Boulevard and is bordered to the south by heavily industrialized parcels in the City of Industry. These parcels are currently used for auto body and towing services. They are well-buffered from the residential uses to the north in the City of Walnut.

Recommendation: Employment Protection District

Corrections: Rezone some parcels in the study area from A-2-5 (Heavy Agricultural) to industrial.

Figure J.28: South San Jose Hills – South Walnut Study Area 5

Study Area 5: Study area 5 in South Walnut is an industrial district surrounded by high-use industrial parcels in the City of Industry on all sides. The uses in the study area are industrial, warehousing, or manufacturing related.

Recommendation: Employment Protection District

South Whittier – Sunshine Acres

Figure J.29: South Whittier – Sunshine Acres Study Area 1

Study Area 1: Study area 1 is an industrial district that is located at the intersection of Florence/Mill Avenues and Telegraph Road and is surrounded by residential and commercial uses on all sides. The majority of parcels in the study area have already been converted to commercial or commercial/office uses. The land use designation of Category 1 (Low Density Residential) is also inconsistent with the M-1 (Light Manufacturing) zoning designation.

Correction: Change zoning and land use designations of commercial parcels along Telegraph Road to commercial, and change land use designations of industrial parcels along Florence Avenue to Industrial.

Figure J.30: South Whittier – Sunshine Acres Study Area 2

Study Area 2: Study area 2 in South Whittier–Sunshine Acres is located along the Imperial Highway and lies directly north of high-use industrial parcels in the City of Santa Fe Springs. Residential uses and a few commercial parcels lie within the study area, and to the north, northeast and northwest of thestudy area. There are inconsistencies between the Category 1 land use designation (Low Density Residential) and many of the parcels zoned M-1 (Light Manufacturing). There is a mix of light industrial uses and autorelated businesses on the M-1 and commercially-zoned parcels, and their proximity to the large-scale industrial uses to the south demonstrate the viability of the industrial land. It is recommended that the industrial uses be supported, and efforts be made to rehabilitate these parcels to be compatible with the higher-use industrial activities to the south.

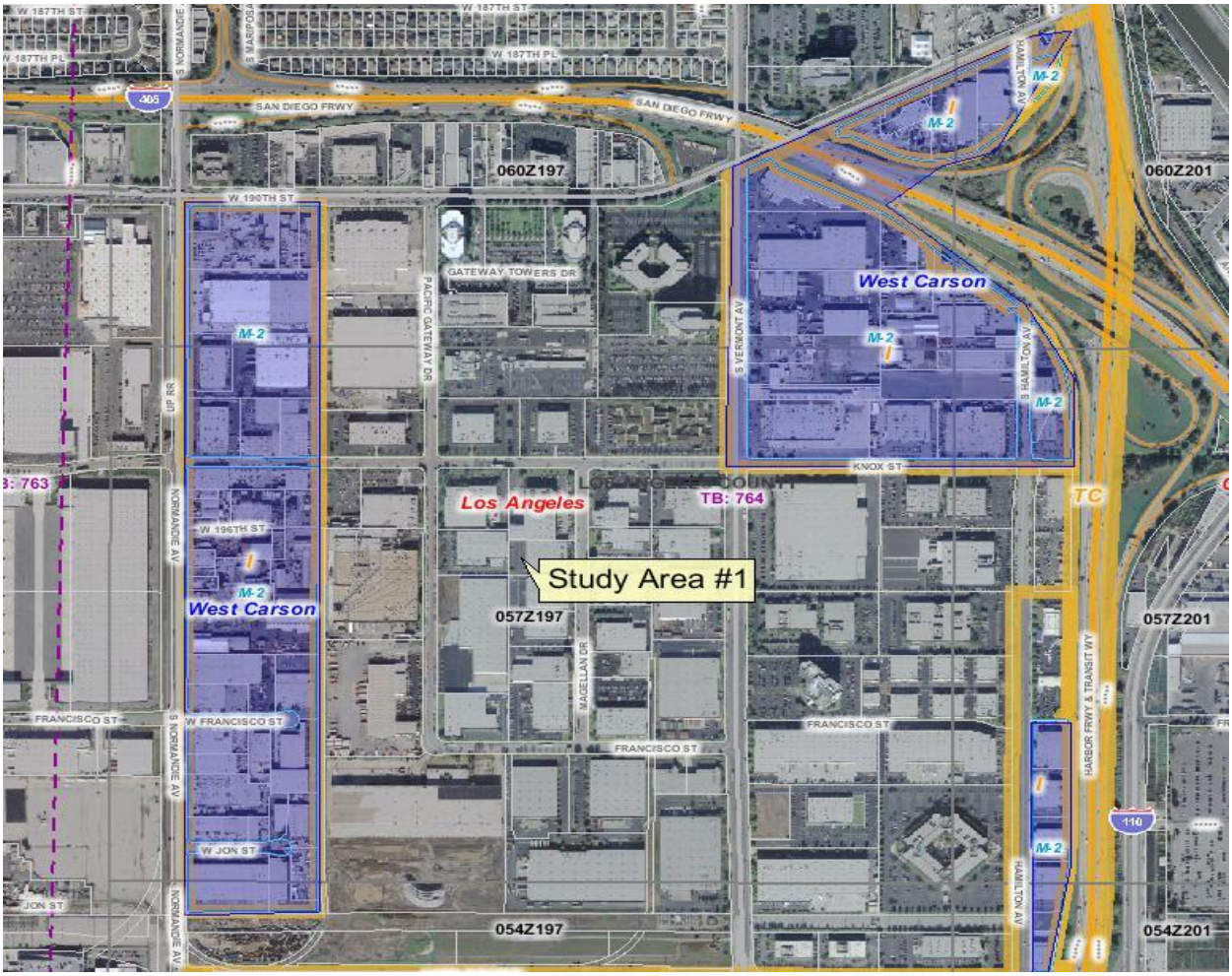
Recommendation: Employment Protection District

Correction: Change all industrial parcels to Light Industrial (IL) land use designation. Change the zoning for the residential parcel north of Leffingwell Road and south of Placide Drive to A-1 (Light Agricultural). Change commercial parcels to commercial land use designation. Change industrial parcels to light industrial zoning.

West Carson

There are several, diverse industrial districts located throughout West Carson. The proximity to the Interstate-110 and Interstate-405 and to the industrial corridor leading out of the ports of Los Angeles and Long Beach present West Carson with a number of opportunities and challenges. The Los Angeles County Harbor-UCLA Medical Center complex in the heart of West Carson also provides an anchor for future development and redevelopment activities.

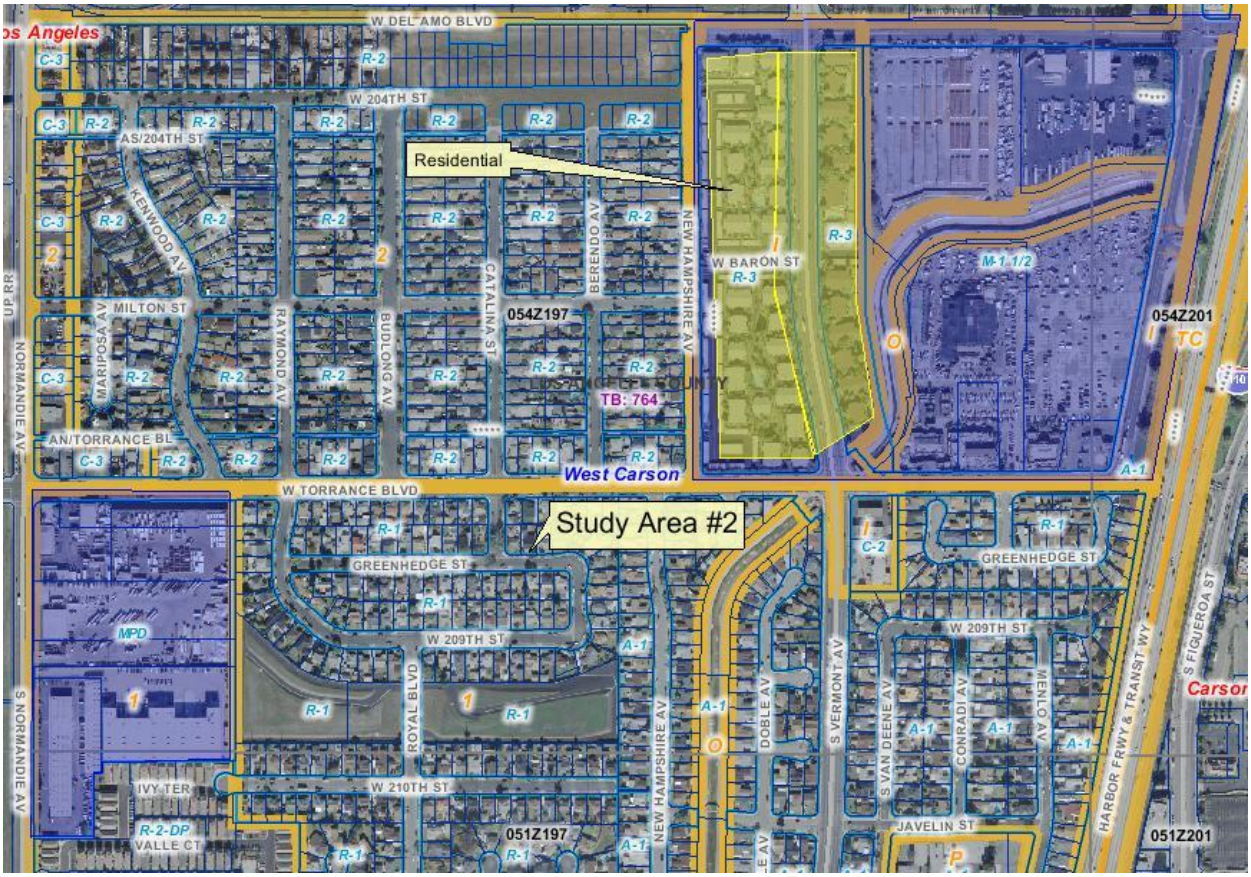
Figure J.31: West Carson Study Area 1



Study Area 1: Study area 1 lies south of Interstate-405, west of Interstate-110 and north of Del Amo Boulevard. The non-contiguous industrial parcels in the study area are heavily industrialized and surrounded by similar industrial uses. These are viable, employment-rich industrial lands with access to freeways.

Recommendation: Employment Protection District

Figure J.32: West Carson Study Area 2



Study Area 2: There are two non-contiguous industrial areas in study area 2. The one south of West Del Amo Boulevard and east of New Hampshire Avenue consists of a large, high-density residential project, a shopping center, and a large industrial parcel currently used for self storage and boat and vehicle storage. For the high-density residential project, the land use is Industrial (I), and the zoning is R-3 (Limited Multiple Residential). This area should be redesignated as residential. The large industrial parcel, due to its large size and relatively good condition, should be protected. Also, there is one small industrial block with a C-2 (Neighborhood Business) zone south of Torrance Boulevard that is currently a gas station and store.

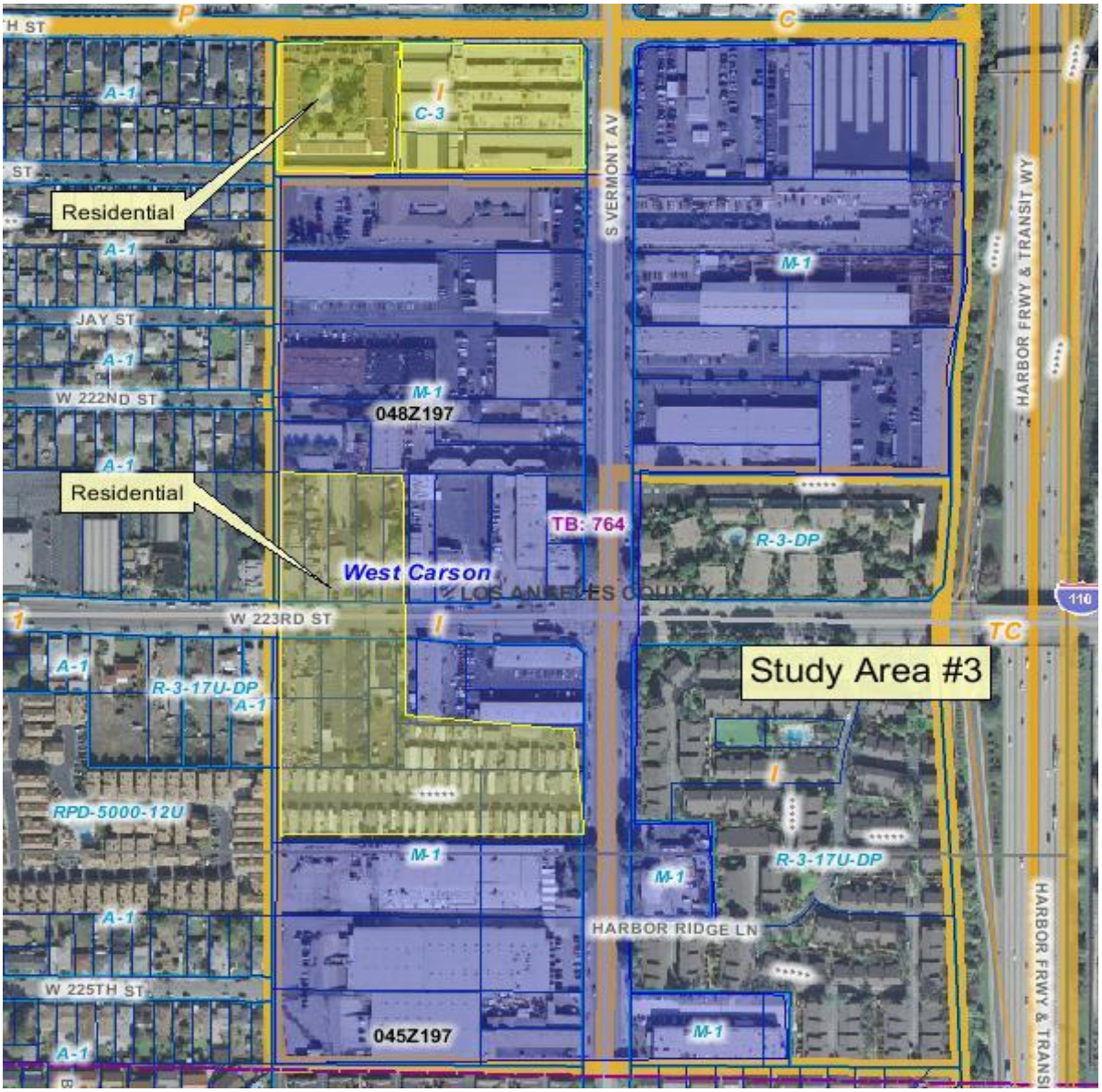
The industrial parcels south of West Torrance Boulevard and east of South Normandie Avenue are large in size and in relatively good condition. However, they are surrounded by residential developments to the east, south and westin the City of Los Angeles, and by commercial and residential uses to the north. While this area should be designated industrial to reflect the existing industrial uses, further studies should be conducted to assess future opportunities of converting these parcels into residential uses.

Recommendation: Employment Protection District and Industrial Flex District

Correction: Redesignate residential projects to residential (H30). Also, change the parcels with C-2

(Neighborhood Business) zoning south of Torrance Boulevard to commercial land use designations. The land use designation for the industrial parcels along Normandie Avenue should be changed from Category 1 (Low Density Residential) to an industrial land use designation.

Figure J.33: West Carson Study Area 3

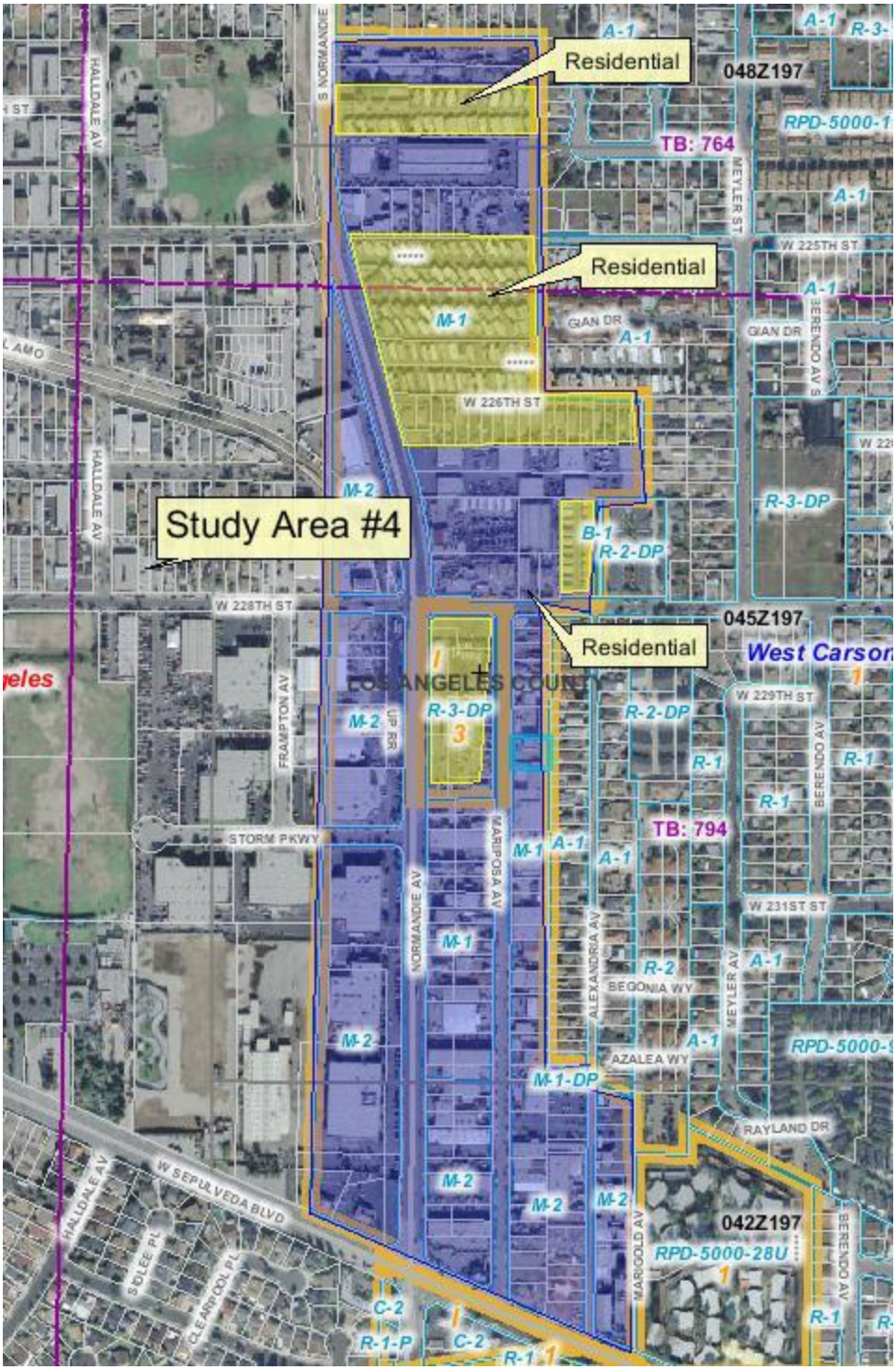


Study Area 3: Study area 3 has seen a significant amount of land conversions, from industrial to residential uses. There are also commercial uses dispersed throughout the study area on industrially zoned parcels. The existing industrial uses are viable and in relatively good condition. However, the study areais in close proximity to the Harbor-UCLA Medical Center complex and is seeing a significant amount of large-scale residential development. There are major opportunities in this area for mixed-use development, including light industrial or research/support uses for the medical center.

Recommendation: Industrial Flex District

Correction: Change parcels with an Industrial (I) land use designation, which have been converted to other uses, to a residential land use designation (H18 and H30).

Figure J.34: West Carson Study Area 4



Study Area 4: Study area 4 has also seen a significant amount of industrial land converted to residential uses, and these are recommended to be Industrial Flex Districts. One project has created a residential island in the middle of the entire industrial district. It is recommended that residential projects surrounded by industrial land not be allowed in the future. There are several automotive wreckage and other types of businesses in the northern portion of the study area, and the new townhome project in the middle of this district could be a good reason to attempt some rehabilitation of underutilized properties. Along both sides of Normandie Avenue in the southern portion of the study area, the industrial uses that remain are viable and in relatively good condition, and are adjacent to industrial parcels in the City of Los Angeles.

Recommendation: Employment Protection District and Industrial Flex District

Figure J.35: West Carson Study Area 5

Study Area 5: Study area 5 is a long industrial district between Vermont Avenue and Interstate-110. It lies adjacent to heavy industrial uses across the freeway in the City of Carson. The study areahas good access to the freeway and is close to the ports of Long Beach and Los Angeles. The industrial uses that are in the northern portion of the study area are viable and in relatively good condition. The southern portion of the study area has large industrial parcels that are currently underutilized.

Recommendation: Employment Protection District

West Puente Valley

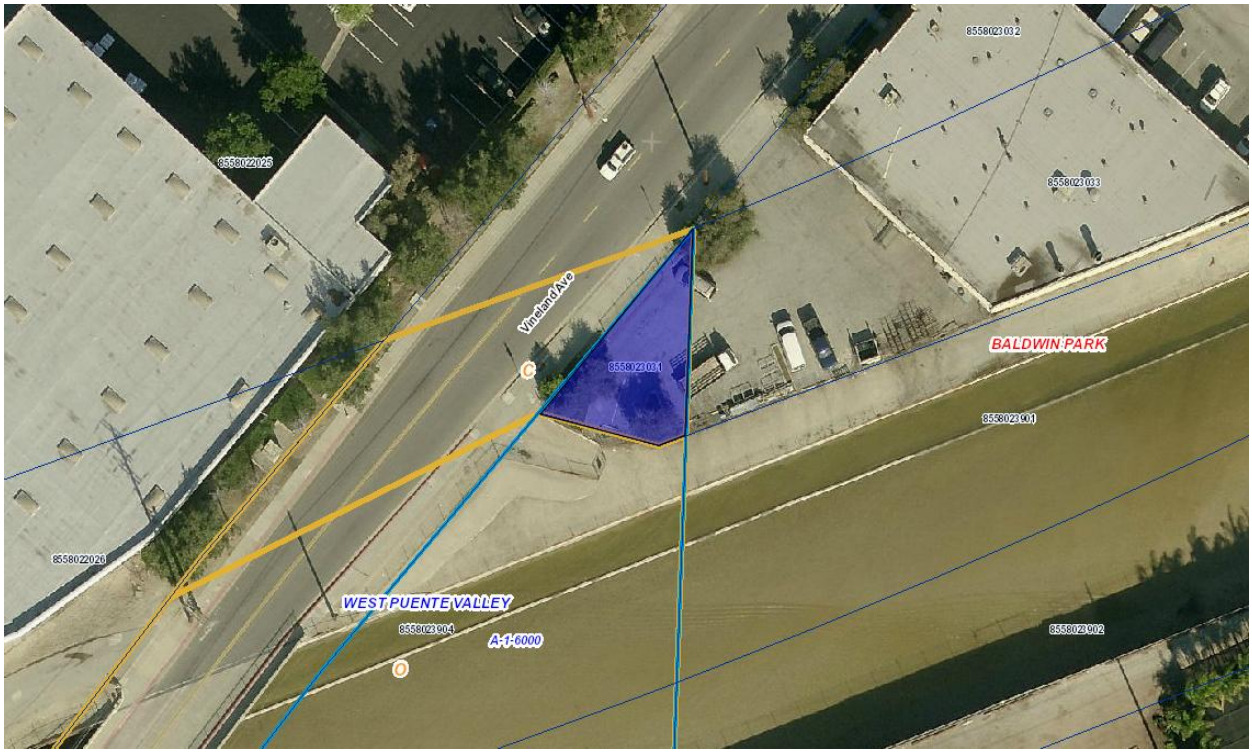
Figure J.36: West Puente Valley Study Area 1

Study Area 1: The one industrial district in West Puente Valley is fully occupied and used for industrial purposes. The adjacent property within the unincorporated area is residential. The adjacent properties that are not in the unincorporated area contain a school, large industrial businesses, and an open air flea market that is also used as a drive-in theater. There is an inconsistency between the Category 1 (Low Density Residential) land use designation and the M 1.5 (Light Manufacturing) zones.

Recommendation: Employment Protection District

Correction: Change the land use designation to Light Industrial (IL).

Figure J.37: West Puente Valley Study Area 2



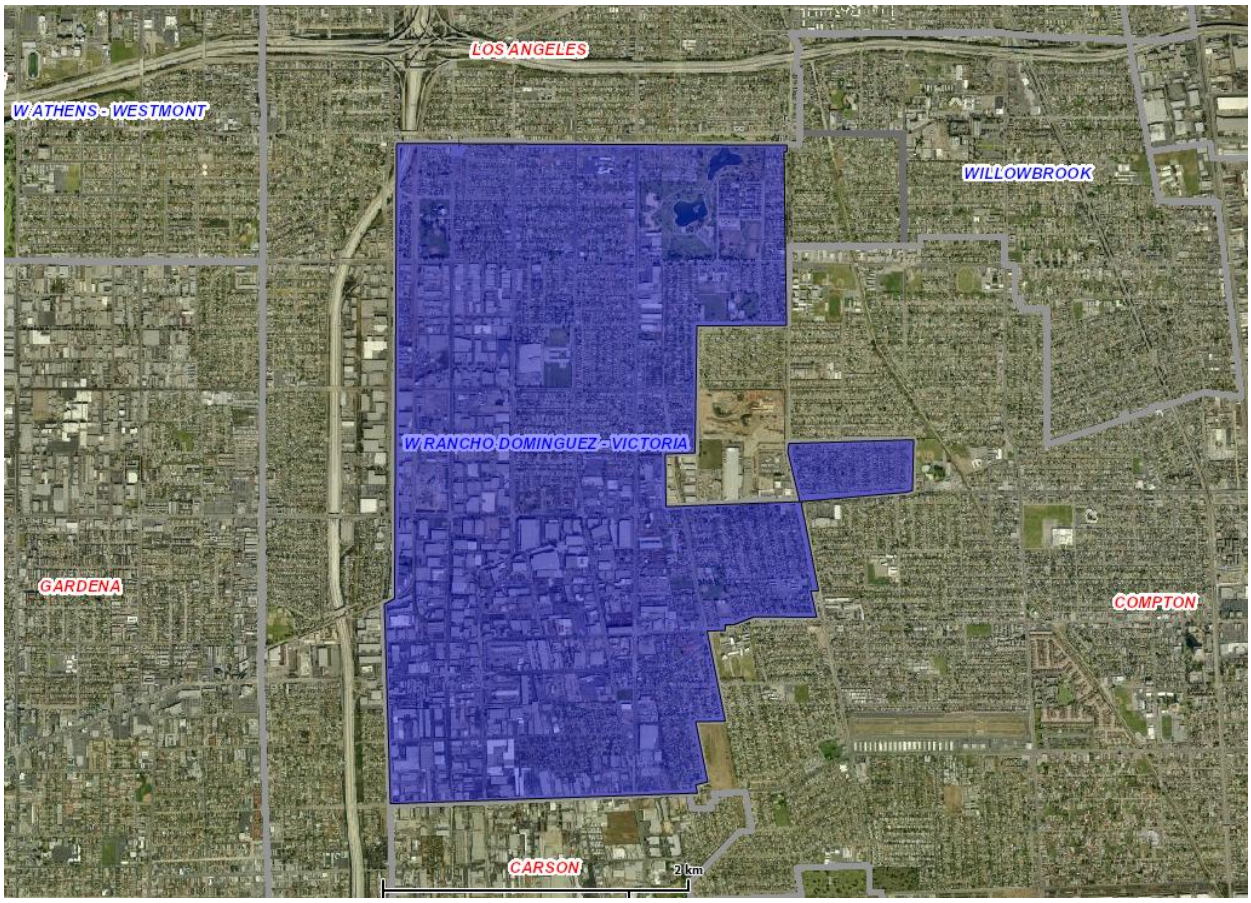
Study Area 2: Study area 2 in West Puente Valley is one isolated unincorporated parcel, which is part of a warehousing facility in the industrial district in the City of Baldwin Park.

Recommendation: Employment Protection District

Correction: Change the land use designation and zoning to industrial.

West Rancho Dominguez - Victoria

Figure J.38: West Rancho Dominguez – Victoria Study Area



Study Area: West Rancho Dominguez-Victoria has a large industrial district with a variety of facilities, in varying degrees of usage and conditions. The size and density of the area, the large industrial parcels, and its proximity to adjacent industrial districts shows that the industrial area is viable and should be protected. There is one residential project in the study area that is surrounded by heavy and light industrial uses. Future projects of this nature should be restricted in this area.

Recommendation: Employment Protection District

West Whittier – Los Nietos

Figure J.39: West Whittier – Los Nietos Study Area 1

Study Area 1: The industrial district in West Whittier–Los Nietos is fully utilized for industrial purposes. Across Washington Boulevard is another high-use industrial district. Residential uses surround the rest of study area 1. Rehabilitation could be beneficial for some structures, especially those near adjacent residential uses, and the industrial section between Chatfield Avenue and Sorenson Avenue has some residential pockets. The existing industrial uses are viable and are appropriate for the area. There are some plan and zone inconsistencies between the Category 1 (Low Residential Density) land use designation and the industrial zoning.

Recommendation: Employment Protection District

Correction: Change land use designation to Light Industrial (IL).

Figure J.40: West Whittier – Los Nietos Study Area 2

Study Area 2: Study area 2 lies just north of Whittier Boulevard between Interstate-605 to the east and the San Gabriel River to the west. The two residential areas need to be redesignated from Industrial (I) to single family residential (H9).

Correction: Change land use designation to single family residential (H9).

Figure J.41: West Whittier – Los Nietos Study Area 3

Study Area 3: Although the current uses in study area 3 are a mix of commercial, light industrial and single family residences, the study area is currently zoned Light Industrial (M-1-BE) and is bordered to the east and south by heavily industrialized parcels in the City of Santa Fe Springs.

Recommendation: Employment Protection District

Correction: Change all parcels to Light Industrial (IL) land use designation.

Whittier Narrows / South El Monte

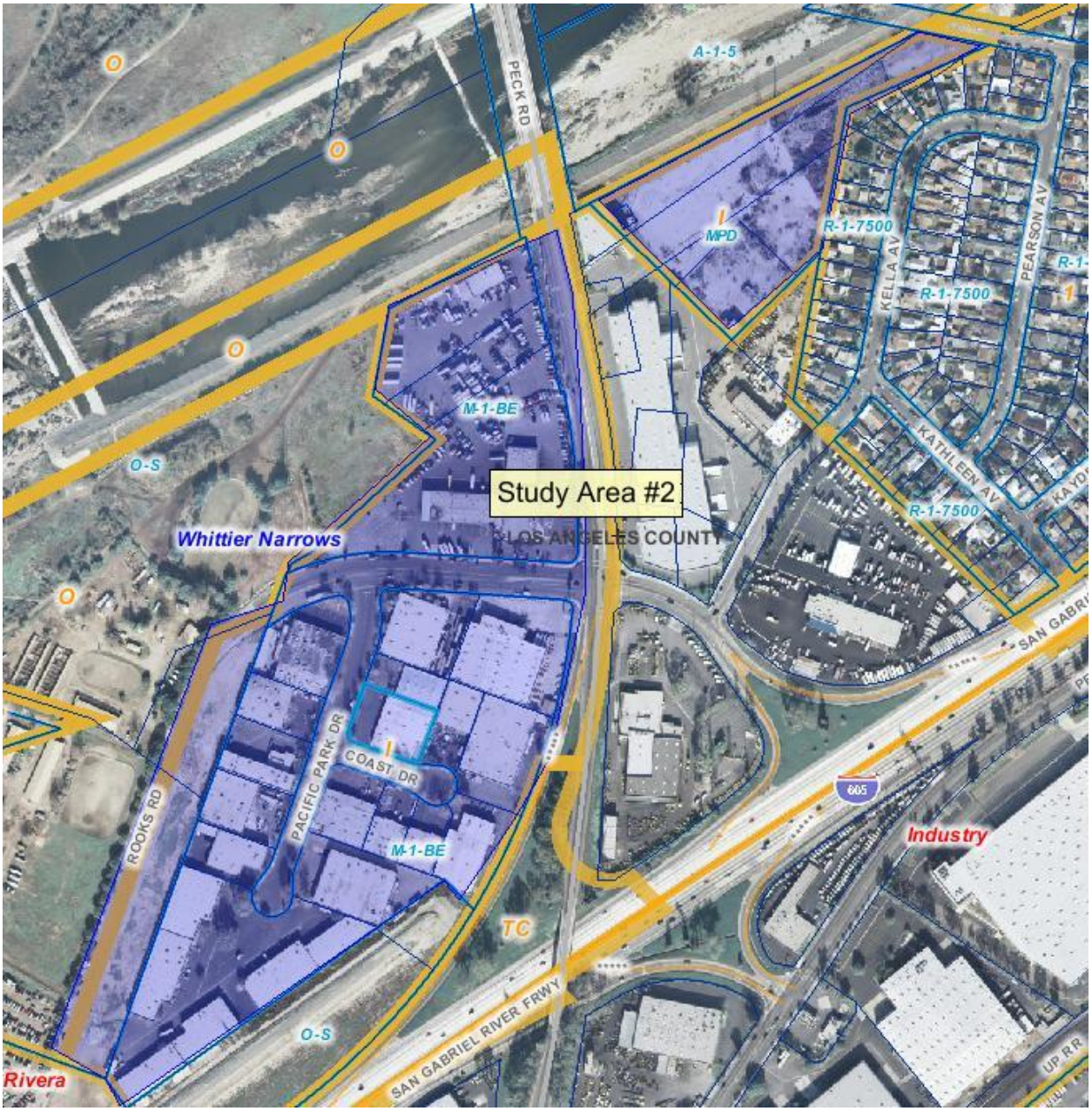
Figure J.42: Whittier Narrows/South El Monte Study Area 1

Study Area 1: The majority of study area 1 is used by the Los Angeles County Sanitation Districts, and the existing industrial use is updated and fully utilizes the property. The industrial parcels are adjacent to both industrial and residential districts, with many natural borders already formed. There is close access to State Route-60 and Interstate-605. Little development is necessary or possible. There area few areas with land use and zoning inconsistencies.

Recommendation: Employment Protection District

Correction: Along the north side of State Route-60, the R-A (Residential-Agricultural) zones should be changed to industrial zones. South of the freeway, there is a large parcel with an M-1-DP (Light Manufacturing) zone, with a Category 1 (Low Residential Density) land use designation that should be changed to a Light Industrial (IL) land use. The two parcels at the intersection of Workman Mill Road and the water channel are residential and commercial uses and their land use designation and zones should be changed.

Figure J.43: Whittier Narrows/South El Monte Study Area 2



Study Area 2: Study area 2 is located north of Interstate-605 and is used for industrial purposes. The area is surrounded by industrial parcels and has access to Interstate-605. The existing industrial uses are in good condition and viable.

Recommendation: Employment Protection District

Willowbrook

Figure J.44: Willowbrook Study Area 1

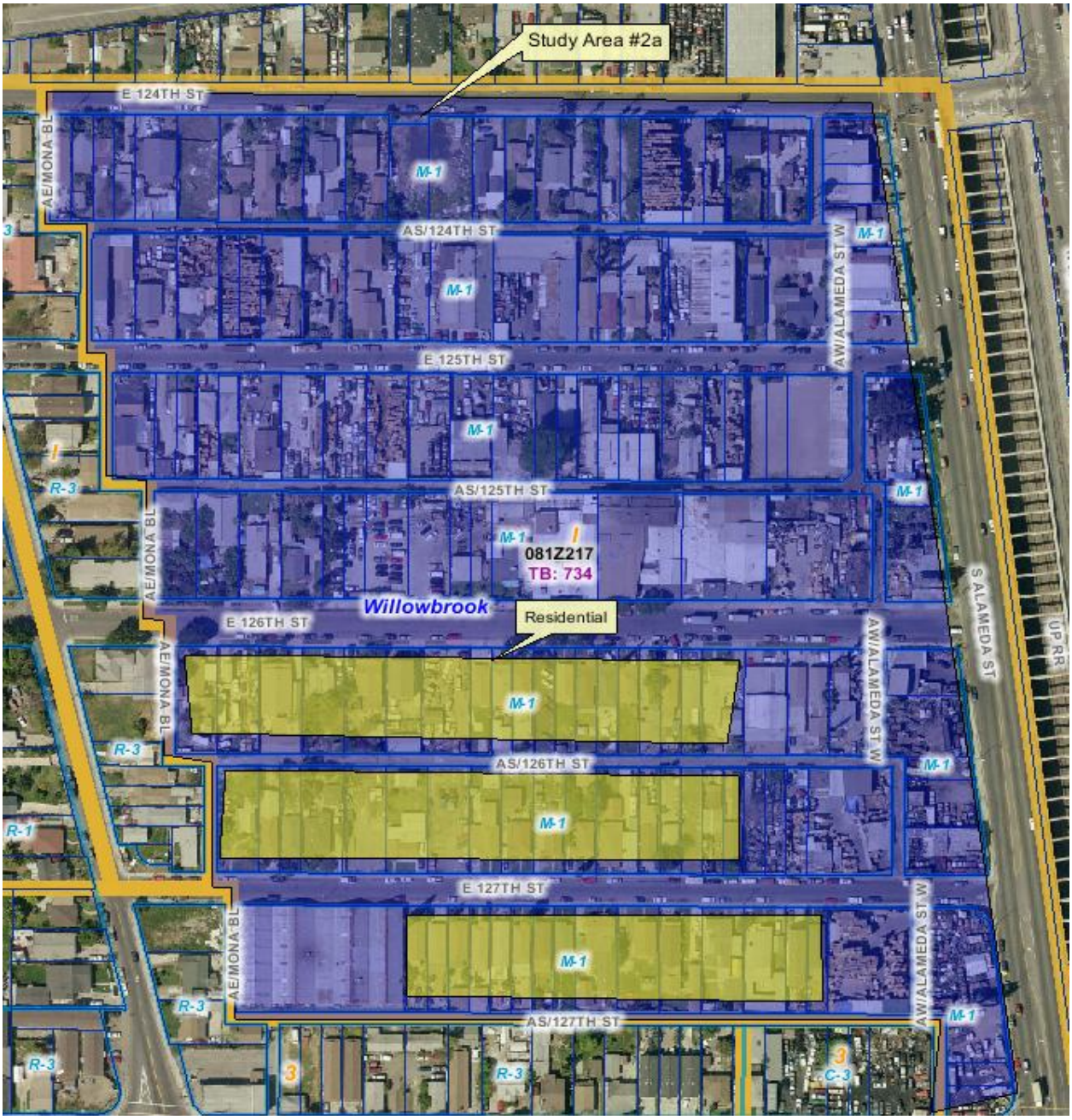
Study Area 1: Study area 1 is located north of Interstate-105 and is bordered by the Alameda Corridor to the east and S. Mona Boulevard to the west. To the north of the study area, in the City of

Los Angeles, is a large lumber company. Much of the western portion of the study area is developed with single and multifamily residential uses. The Industrial land use designations and the residential zoning are inconsistent. These areas should be changed to residential (H18 or H30), depending on the existing density. Another correction area is an R-2 (Two Family Residential) zoned parcel that is owned by the Los Angeles Unified School District and is currently developed as a school. The remaining parcels in the study area are developed with light industrial, warehousing and distribution, or light manufacturing uses. There are many potential conflicts with auto-related and salvaging businesses near residential neighborhoods. However, the proximity to the Alameda Corridor warrants the protection of the remaining industrial parcels.

Recommendation: Industrial Flex District

Correction: Residential areas need a change in land use designation to residential (H18 or H30). Change R-2 (Two Family Residential) parcel owned by LAUSD to public/semi-public (P) land use designation.

Figure J.45: Willowbrook Study Area 2a

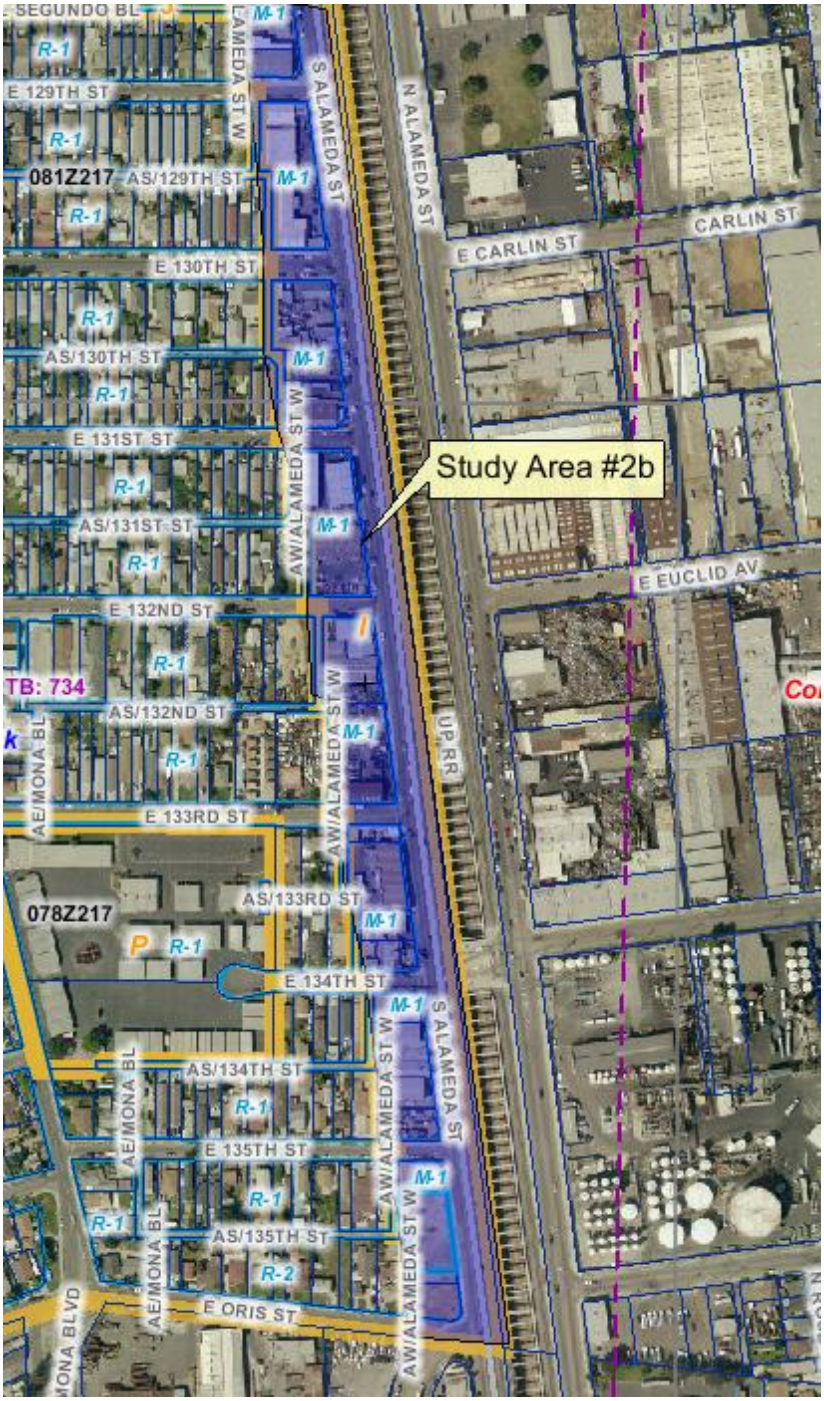


Study Area 2a: Study area 2a extends from E. 124th Street to the north, and El Segundo Boulevard to the south. The eastern portion of the study area is bordered by the Alameda Corridor. To the west of this study area are residential uses. This area is filled with light manufacturing and other industrial uses. There are numerous parcels used for storage and auto-related uses, which are not employment-rich uses. There are also somefamily and multifamily residential dwellings that are

surrounded by industrial uses throughout the study area. Due to potential conflicts with industrial uses near residences, the study area is recommended to be an Industrial Flex District.

Recommendation: Industrial Flex District

Figure J.46: Willowbrook Study Area 2b



Study Area 2b: Study area 2b in Willowbrook is a narrow area consisting of industrial uses that extends along the Alameda Corridor, from El Segundo Boulevard to the north, down to Oris Street to

the south. Dense single family neighborhoods lie west of the study area, while across the Alameda Corridor to the east, are light and heavy industrial uses in the City of Compton. All of the industrially zoned parcels in the study area are being used for light manufacturing and other industrial purposes. Due to potential conflicts with industrial uses near residences, the study area is recommended to be an Industrial Flex District.

Recommendation: Industrial Flex District

II. General Policy Recommendations

The following general policy recommendations are based on the analysis of industrial land in the unincorporated areas:

Disparity in Site Conditions

In comparison to industrial land in some of the unincorporated areas, industrial areas in adjacent cities are in better physical condition and have had greater success in targeting higher-uses and more employment-rich industrial businesses. Despite the sometimes less-desirable site conditions, the industrial land in the unincorporated areas is valuable and strategically located, and therefore should not be converted to non-industrial uses. However, significant economic and physical improvements are needed to make these areas competitive in attracting target industries, as outlined in the Economic Development Element.

Recommendation:

- In collaboration with stakeholders, implement incentives, create programs, and apply for grants for the rehabilitation and upgrading of underutilized industrial areas.

Allowable Uses

The industrial districts have many industrial parcels with low-job generating uses, such as auto scrap yards, salvage sites, truck or auto storage businesses, and both small and large-scale public storage sites. These uses on industrial lands are in a much higher proportion to that of adjacent local jurisdictions.

Recommendations:

- Clarify the intended uses for the industrial land use categories, and revise the industrial zones to limit or discourage low-job generating uses, such as public storage sites.

- Implement regulations to limit the number of low-jobs generating businesses in a given area through community-based planning efforts.

Residential Uses

The analysis highlights several parcels in industrial areas where a residential project is entirely surrounded by industrial uses. There are also several instances of large mobilehome parks situated on some of the most valuable industrial land in the unincorporated areas. Similarly, many industrial districts and some heavy industrial uses are directly adjacent to residential neighborhoods. Allowing

residential uses in industrial areas creates numerous compatibility issues, including exposure to noise, toxins, safety concerns, and other environmental impacts, and creates tension between the residential community and industrial business owners and their operations. The County should provide clear policy direction to maintain industrial lands for employment-rich uses, but also to restrict residential uses in heavily industrial districts and appropriately buffer industrial districts from residential neighborhoods.

Recommendations:

- Restrict residential uses in Employment Protection Districts, and ensure that the zoning for theseareas limits the ability to convert these lands into non-industrial uses. Create and implement a buffer zone around Employment Protection Districts.

- Allow mixed-uses, supporting commercial development and residential uses near industrial uses only inIndustrial Flex Districts, and establish clear guidelines for development to ensure compatibility between mixed-uses and industrial uses.

- For mobilehome parks and other residential uses in Employment Protection Districts, work with stakeholders to identify opportunities to relocate existing residential uses.