A. Agency Distribution List

Appendix A Public Agencies Distribution List

FEDERAL AGENCIES

United States Fish and Wildlife Service
6010 Hidden Valley Road
Carlsbad, CA 92009

STATE AGENCIES AND PUBLIC OFFICIALS

State Clearinghouse
P.O. Box 3044
Sacramento, CA 95812-3044

County of Los Angeles
Registrar-Recorder/County Clerk
12400 Imperial Highway
P.O. Box 53592
Norwalk, California 90650

Edmund J. Pert, Regional Manager
California Department of Fish and Game
South Coast Region
4949 Viewridge Avenue
San Diego, CA 92123

Elmer Alvarez
Caltrans
District 7, Regional Planning, IGR/CEQA Branch
100 South Main Street
Los Angeles, CA 90012-3606

Al Padilla
California Coastal Commission
South Coast Area Office
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302

Office of Historic Preservation
California Department of Parks and Recreation
1416 9th Street, Room 1442-7
Sacramento, CA 95814

LOCAL AGENCIES AND PUBLIC OFFICIALS

Adrene K. Briones
Environmental Services Department
Los Angeles Dept of Water and Power
111 North Hope Street, Room 1348
Los Angeles, CA 90012

Los Angeles Dept. of Public Works
Bureau of Engineering
1149 S. Broadway, Suite 710, Mail Stop 311
Los Angeles, CA 90015

Los Angeles Department of City Planning
Attn: Jane Blumenfeld
200 N. Spring Street
Los Angeles, CA 90012

Bill Rosendahl
City Council District 11
200 N. Spring Street, Rm 415
Los Angeles, CA 90012

Eddie Guerrero Jr., P.E.
Los Angeles Department of Transportation
Mail Stop 769
7166 W. Manchester Avenue
Los Angeles, CA 90045

Paul Davis
Los Angeles Dept. of Recreation and Parks
1200 W. 7th Street Suite 700
Los Angeles, CA 90017

LA County Department of Beaches and Harbors
Administration Building
13837 Fiji Way,
Marina Del Rey, CA 90292

Los Angeles County Department of Regional Planning
Attn: Impact Analysis Section
320 West Temple Street, 13th Floor
Los Angeles, CA 90012

City of Culver City – City Hall
Attn: Planning Department
9770 Culver Blvd.,
Culver City, CA 90232

City of Inglewood Planning Division
One Manchester Blvd., 4th Floor
Inglewood CA, 90301

Santa Monica Planning and Community
Development Department – City Hall
1685 Main Street, Room 212
Santa Monica, CA 90401

El Segundo Planning and Safety Department
Attn: Kimberly Christensen
350 Main Street
El Segundo, CA 90245

LAWA
Attn: Planning – LAX
1 World Way
Los Angeles, CA 90045

Assemblyman Ted W. Lieu
District - 53
500 Center Street
El Segundo, CA 90245

Senator Jenny Oropeza
District - 28
2512 Artesia Blvd Suite 200
Redondo Beach, CA 90278

Film Actor's Workshop (Private)
2050 S Bundy Dr # 100
Los Angeles, CA 90025

Little Village Nursery School (Private)
11827 W Pico Blvd
Los Angeles, CA 90064

Poseidon School (Private)
11811 W Pico Blvd
Los Angeles, CA 90064

Mar Vista Elementary
3330 Granville Avenue
Los Angeles, CA 90066

Grand View Boulevard Elementary
3951 Grand View Boulevard
Los Angeles, CA 90066

Wildwood School (Private)
12201 Washington Pl
Los Angeles, CA 90066

Summit View (Private)
12101 W. Washington Boulevard
Los Angeles, CA 90066

Braddock Drive Elementary
Attn: Debra Randy
4711 Inglewood Blvd
Culver City, CA 90230

Stoner Avenue Elementary School
11735 Braddock Drive
Culver City, CA 90230

Playa Del Rey Elementary
Attn: Mary Pierce
12221 Juniette Street
Culver City, CA 90230

Westside Neighborhood School (Private)
5401 Beethoven Street
Los Angeles, CA 90066

Westchester Parents Nursery (Private)
7300 W Manchester Ave
Los Angeles, CA 90045

St Anastasia (Private)
8631 Stanmoor Dr
Los Angeles, CA 90045

Westchester High School
7400 W. Manchester Avenue
Los Angeles, CA 90045

Del Rey Christian Children's (Private)
8505 Saran Dr
Playa Del Rey, CA 90293

Anthony Morales, Chairperson
Gabrielino/Tongva San Gabriel Band of Mission
Indians
P.O. Box 693
San Gabriel, CA 91778

John Tommy Rosas, Tribal Administration
Tongva Ancestral Territorial Tribal Nation
(via email)
tattnlaw@gmail.com

Culver City Julian Dixon Library
4975 Overland Ave
Culver City, CA 90230
(310) 559-1676

El Segundo Public Library
111 W. Mariposa Ave
El Segundo, CA 90245

Marina Del Rey Library
4533 Admirality Way
Marina Del Rey, CA 90292

REGIONAL AGENCIES

Southern California
Association of Governments -
Government, Public & Regional Affairs
818 W. Seventh St, 12th Floor
Los Angeles, CA 90017-3435

SCAQMD
Steve Smith, Ph.D.
21865 East Copley Drive
Diamond Bar, CA 91765

NEIGHBORHOOD COUNCILS

Del Rey Neighborhood Council
Attn: Council President: Mark Redick
12820 Short Ave.
Los Angeles, 90066

Mar Vista Community Council
Attn: Chairman: Rob Kadota
P.O. Box 66871
Los Angeles, 90066

Neighborhood Council of Westchester-Playa Del Rey
Attn: President: Cyndi Hench
8726 S. Sepulveda Blvd. PMB A191
Los Angeles, CA 90045

West Los Angeles Neighborhood Council
Attn: Chairman Jay Handal
11901 Santa Monica Blvd. #427
Los Angeles, CA 90025

B. Air Quality Model Runs

CONSERVATIVE ESTIMATE OF UNMITIGATED CONSTRUCTION EMISSIONS (pounds per day)

	ROC	NO_X	CO	SO_X	PM_{10} [a]	$PM_{2.5}$ [a]	CO_2
Directional Drilling							
On-site Total	4.35	46.69	15.22	-	1.70	1.56	5,638.21
Off-Road Diesel	4.35	46.69	15.22	-	1.70	1.56	5,638.21
Off-site Total	0.05	0.09	1.57	-	0.01	0.01	186.59
Worker Trips	0.05	0.09	1.57	-	0.01	0.01	186.59
Grand Total	**4.40**	**46.78**	**16.79**	**-**	**1.71**	**1.57**	**5,824.80**
Trenching							
On-site Total	1.95	16.42	6.34	-	0.89	0.73	1,846.38
Fugitive Dust	-	-	-	-	0.12	0.03	-
Off-Road Diesel	1.95	16.42	6.34	-	0.77	0.70	1,846.38
Off-site Total	0.49	6.14	2.87	0.01	0.28	0.24	893.60
On-Road Diesel	0.47	6.11	2.35	0.01	0.28	0.24	831.40
Worker Trip	0.02	0.03	0.52	-	-	-	62.20
Grand Total	**2.44**	**22.56**	**9.21**	**0.01**	**1.17**	**0.97**	**2,739.98**
Paving							
On-site Total	2.40	14.38	8.19	-	1.26	1.16	1,128.11
Asphalt Off-Gas	0.02	-	-	-	-	-	-
Off-Road Diesel, Asphalt	2.38	14.38	8.19	-	1.26	1.16	1,128.11
Off-site Total	0.05	0.16	1.34	-	0.01	0.01	165.82
On-Road Diesel, Asphalt	0.01	0.08	0.03	-	-	-	10.33
Worker Trips, Asphalt	0.04	0.08	1.31	-	0.01	0.01	155.49
Grand Total	**2.45**	**14.54**	**9.53**	**-**	**1.27**	**1.17**	**1,293.93**
On-site Emissions Totals							
Directional Drilling	4.35	46.69	15.22	-	1.70	1.56	5,638.21
Trenching	1.95	16.42	6.34	-	0.89	0.73	1,846.38
Paving	2.40	14.38	8.19	-	1.26	1.16	1,128.11
Maximum On-site Emissions	**8.70**	**77.49**	**29.75**	**-**	**3.85**	**3.45**	**8,612.70**
Localized Significance Threshold[b]	--	91	554	--	4	3	--
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**
Regional Emissions Totals							
Directional Drilling	4.4	46.8	16.8	-	1.7	1.6	5,824.8
Trenching	2.4	22.6	9.2	0.0	1.2	1.0	2,740.0
Paving	2.5	14.5	9.5	-	1.3	1.2	1,293.9
Maximum Regional Emissions	**9**	**84**	**36**	**0**	**4**	**4**	**9,859**
Regional Significance Threshold	75	100	550	150	150	55	--
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

URBEMIS print-out sheets and fugitive PM calculation worksheet are included in Appendix A.

[a] Fugitive PM_{10} and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is located in SCAQMD SRA No. 2/3. These LSTs are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and project area that could be under construction on any given day (less than 1 acres).

CONSERVATIVE ESTIMATE OF MITIGATED CONSTRUCTION EMISSIONS (pounds per day)

	ROC	NO_X	CO	SO_X	PM_{10} [a]	$PM_{2.5}$ [a]	CO_2
Directional Drilling							
On-site Total	4.35	46.69	15.22	-	0.85	0.78	5,638.21
Off-Road Diesel	4.35	46.69	15.22	-	0.85	0.78	5,638.21
Off-site Total	0.05	0.09	1.57	-	0.01	0.01	186.59
Worker Trips	0.05	0.09	1.57	-	0.01	0.01	186.59
Grand Total	**4.40**	**46.78**	**16.79**	**-**	**0.86**	**0.79**	**5,824.80**
Trenching							
On-site Total	1.95	16.42	6.34	-	0.89	0.73	1,846.38
Fugitive Dust	-	-	-	-	0.12	0.03	-
Off-Road Diesel	1.95	16.42	6.34	-	0.77	0.70	1,846.38
Off-site Total	0.49	6.14	2.87	0.01	0.28	0.24	893.60
On-Road Diesel	0.47	6.11	2.35	0.01	0.28	0.24	831.40
Worker Trip	0.02	0.03	0.52	-	-	-	62.20
Grand Total	**2.44**	**22.56**	**9.21**	**0.01**	**1.17**	**0.97**	**2,739.98**
Paving							
On-site Total	2.40	14.38	8.19	-	1.26	1.16	1,128.11
Asphalt Off-Gas	0.02	-	-	-	-	-	-
Off-Road Diesel, Asphalt	2.38	14.38	8.19	-	1.26	1.16	1,128.11
Off-site Total	0.05	0.16	1.34	-	0.01	0.01	165.82
On-Road Diesel, Asphalt	0.01	0.08	0.03	-	-	-	10.33
Worker Trips, Asphalt	0.04	0.08	1.31	-	0.01	0.01	155.49
Grand Total	**2.45**	**14.54**	**9.53**	**-**	**1.27**	**1.17**	**1,293.93**
On-site Emissions Totals							
Directional Drilling	4.35	46.69	15.22	-	0.85	0.78	5,638.21
Trenching	1.95	16.42	6.34	-	0.89	0.73	1,846.38
Paving	2.40	14.38	8.19	-	1.26	1.16	1,128.11
Maximum On-site Emissions	**8.70**	**77.49**	**29.75**	**-**	**3.00**	**2.67**	**8,612.70**
Localized Significance Threshold[b]	--	91	554	--	4	3	--
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Regional Emissions Totals							
Directional Drilling	4.4	46.8	16.8	-	0.9	0.8	5,824.8
Trenching	2.4	22.6	9.2	0.0	1.2	1.0	2,740.0
Paving	2.5	14.5	9.5	-	1.3	1.2	1,293.9
Maximum Regional Emissions	**9**	**84**	**36**	**0**	**3**	**3**	**9,859**
Regional Significance Threshold	75	100	550	150	150	55	--
Exceed Threshold?	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Notes:

URBEMIS print-out sheets and fugitive PM calculation worksheet are included in Appendix A.

[a] Fugitive PM_{10} and $PM_{2.5}$ emissions estimates take into account compliance with SCAQMD Rule 403 requirements for fugitive dust suppression, which require that no visible dust be present beyond the site boundaries.

[b] The project site is located in SCAQMD SRA No. 2/3. These LSTs are based on the site location SRA, distance to nearest sensitive receptor location from the project site (25 meters), and project area that could be under construction on any given day (less than 1 acres).

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Combined Summer Emissions Reports (Pounds/Day)

File Name: G:\Los Angeles\3_Projects_Air Quality\Scattergood\URBEMIS\Scattergood.urb924

Project Name: Scattergood

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	4.87	37.10	18.74	0.01	0.16	2.29	2.45	0.04	2.10	2.14	4,033.91
2011 TOTALS (lbs/day unmitigated)	4.54	34.40	17.98	0.01	0.16	2.14	2.30	0.04	1.97	2.00	4,033.87
2012 TOTALS (lbs/day unmitigated)	4.29	31.82	17.29	0.01	0.16	1.96	2.12	0.04	1.80	1.84	4,033.83

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.06	0.05	0.51	0.00	0.10	0.02	59.93

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (lbs/day, unmitigated)	0.06	0.05	0.51	0.00	0.10	0.02	59.93

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 7/1/2010-12/31/2010 Active Days: 132	**4.87**	**37.10**	**18.74**	**0.01**	**0.16**	**2.29**	**2.45**	**0.04**	**2.10**	**2.14**	**4,033.91**

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Asphalt 07/01/2010-12/15/2012	2.44	14.54	9.53	0.00	0.01	1.27	1.28	0.00	1.17	1.17	1,293.94
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.38	14.38	8.19	0.00	0.00	1.26	1.26	0.00	1.16	1.16	1,128.11
Paving On Road Diesel	0.01	0.08	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.33
Paving Worker Trips	0.04	0.08	1.31	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.49
Mass Grading 07/01/2010-12/15/2012	2.43	22.56	9.21	0.01	0.15	1.02	1.17	0.04	0.94	0.97	2,739.97
Mass Grading Dust	0.00	0.00	0.00	0.00	0.12	0.00	0.12	0.03	0.00	0.03	0.00
Mass Grading Off Road Diesel	1.95	16.42	6.34	0.00	0.00	0.77	0.77	0.00	0.70	0.70	1,846.38
Mass Grading On Road Diesel	0.47	6.11	2.35	0.01	0.03	0.25	0.28	0.01	0.23	0.24	831.40
Mass Grading Worker Trips	0.02	0.03	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.20
Time Slice 1/3/2011-12/30/2011 Active Days: 260	4.54	34.40	17.98	**0.01**	**0.16**	2.14	2.30	**0.04**	1.97	2.00	4,033.87
Asphalt 07/01/2010-12/15/2012	2.29	13.77	9.35	0.00	0.01	1.22	1.22	0.00	1.12	1.12	1,293.90
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.23	13.64	8.10	0.00	0.00	1.21	1.21	0.00	1.11	1.11	1,128.11
Paving On Road Diesel	0.01	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.33
Paving Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46
Mass Grading 07/01/2010-12/15/2012	2.25	20.63	8.63	0.01	0.15	0.92	1.07	0.04	0.85	0.88	2,739.96
Mass Grading Dust	0.00	0.00	0.00	0.00	0.12	0.00	0.12	0.03	0.00	0.03	0.00
Mass Grading Off Road Diesel	1.81	15.10	6.03	0.00	0.00	0.70	0.70	0.00	0.64	0.64	1,846.38
Mass Grading On Road Diesel	0.43	5.50	2.11	0.01	0.03	0.22	0.25	0.01	0.20	0.21	831.40
Mass Grading Worker Trips	0.02	0.03	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.18
Time Slice 1/2/2012-12/14/2012 Active Days: 250	4.29	31.82	17.29	**0.01**	**0.16**	1.96	2.12	**0.04**	1.80	1.84	4,033.83
Asphalt 07/01/2010-12/15/2012	2.16	13.02	9.18	0.00	0.01	1.14	1.15	0.00	1.05	1.05	1,293.88
Paving Off-Gas	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.10	12.89	8.02	0.00	0.00	1.13	1.13	0.00	1.04	1.04	1,128.11
Paving On Road Diesel	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.33
Paving Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.43
Mass Grading 07/01/2010-12/15/2012	2.13	18.80	8.11	0.01	0.15	0.82	0.97	0.04	0.75	0.79	2,739.95

Mass Grading Dust	0.00	0.00	0.00	0.00	0.12	0.00	0.12	0.03	0.00	0.03	0.00
Mass Grading Off Road Diesel	1.72	13.88	5.77	0.00	0.00	0.62	0.62	0.00	0.57	0.57	1,846.38
Mass Grading On Road Diesel	0.39	4.90	1.89	0.01	0.03	0.19	0.22	0.01	0.18	0.19	831.40
Mass Grading Worker Trips	0.01	0.03	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	62.17

Phase Assumptions

Phase: Mass Grading 7/1/2010 - 12/15/2012 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0.01

Fugitive Dust Level of Detail: Default

12.22 lbs per acre-day

On Road Truck Travel (VMT): 196.16

Off-Road Equipment:

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 7/1/2010 - 12/15/2012 - Default Paving Description

Acres to be Paved: 4.36

Off-Road Equipment:

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Conduit	0.06	0.05	0.51	0.00	0.10	0.02	59.93

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TOTALS (lbs/day, unmitigated)	0.06	0.05	0.51	0.00	0.10	0.02	59.93

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Temperature (F): 80 Season: Summer

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Conduit		1.00	acres	4.36	4.36	57.99
					4.36	57.99

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.5	0.6	99.2	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.7	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	60.7	39.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

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	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Conduit				100.0	0.0	0.0

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\Los Angeles\3_Projects_Air Quality\Scattergood\URBEMIS\Scattergood.urb924

Project Name: Scattergood

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.32	2.45	1.24	0.00	0.01	0.15	0.16	0.00	0.14	0.14	266.24
2011 TOTALS (tons/year unmitigated)	0.59	4.47	2.34	0.00	0.02	0.28	0.30	0.00	0.26	0.26	524.40
2012 TOTALS (tons/year unmitigated)	0.54	3.98	2.16	0.00	0.02	0.24	0.26	0.00	0.22	0.23	504.23

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.01	0.01	0.09	0.00	0.02	0.00	10.59

SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10	PM2.5	CO2
TOTALS (tons/year, unmitigated)	0.01	0.01	0.09	0.00	0.02	0.00	10.59

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010	0.32	2.45	1.24	0.00	0.01	0.15	0.16	0.00	0.14	0.14	266.24

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Asphalt 07/01/2010-12/15/2012	0.16	0.96	0.63	0.00	0.00	0.08	0.08	0.00	0.08	0.08	85.40
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.16	0.95	0.54	0.00	0.00	0.08	0.08	0.00	0.08	0.08	74.46
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.68
Paving Worker Trips	0.00	0.01	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	10.26
Mass Grading 07/01/2010-12/15/2012	0.16	1.49	0.61	0.00	0.01	0.07	0.08	0.00	0.06	0.06	180.84
Mass Grading Dust	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.13	1.08	0.42	0.00	0.00	0.05	0.05	0.00	0.05	0.05	121.86
Mass Grading On Road Diesel	0.03	0.40	0.15	0.00	0.00	0.02	0.02	0.00	0.02	0.02	54.87
Mass Grading Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.11
2011	0.59	4.47	2.34	0.00	0.02	0.28	0.30	0.00	0.26	0.26	524.40
Asphalt 07/01/2010-12/15/2012	0.30	1.79	1.21	0.00	0.00	0.16	0.16	0.00	0.15	0.15	168.21
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.29	1.77	1.05	0.00	0.00	0.16	0.16	0.00	0.14	0.14	146.65
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.34
Paving Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	20.21
Mass Grading 07/01/2010-12/15/2012	0.29	2.68	1.12	0.00	0.02	0.12	0.14	0.00	0.11	0.11	356.19
Mass Grading Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.23	1.96	0.78	0.00	0.00	0.09	0.09	0.00	0.08	0.08	240.03
Mass Grading On Road Diesel	0.06	0.71	0.27	0.00	0.00	0.03	0.03	0.00	0.03	0.03	108.08
Mass Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.08
2012	0.54	3.98	2.16	0.00	0.02	0.24	0.26	0.00	0.22	0.23	504.23
Asphalt 07/01/2010-12/15/2012	0.27	1.63	1.15	0.00	0.00	0.14	0.14	0.00	0.13	0.13	161.73
Paving Off-Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.26	1.61	1.00	0.00	0.00	0.14	0.14	0.00	0.13	0.13	141.01
Paving On Road Diesel	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.29
Paving Worker Trips	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.43
Mass Grading 07/01/2010-12/15/2012	0.27	2.35	1.01	0.00	0.02	0.10	0.12	0.00	0.09	0.10	342.49

Mass Grading Dust	0.00	0.00	0.00	0.00	0.02	0.00	0.02	0.00	0.00	0.00	0.00
Mass Grading Off Road Diesel	0.22	1.74	0.72	0.00	0.00	0.08	0.08	0.00	0.07	0.07	230.80
Mass Grading On Road Diesel	0.05	0.61	0.24	0.00	0.00	0.02	0.03	0.00	0.02	0.02	103.92
Mass Grading Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.77

Phase Assumptions

Phase: Mass Grading 7/1/2010 - 12/15/2012 - Default Mass Site Grading/Excavation Description

Total Acres Disturbed: 0

Maximum Daily Acreage Disturbed: 0.01

Fugitive Dust Level of Detail: Default

12.22 lbs per acre-day

On Road Truck Travel (VMT): 196.16

Off-Road Equipment:

1 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Phase: Paving 7/1/2010 - 12/15/2012 - Default Paving Description

Acres to be Paved: 4.36

Off-Road Equipment:

1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day

1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day

1 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	CO	SO2	PM10	PM25	CO2
Conduit	0.01	0.01	0.09	0.00	0.02	0.00	10.59

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TOTALS (tons/year, unmitigated)	0.01	0.01	0.09	0.00	0.02	0.00	10.59

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2012 Season: Annual

Emfac: Version : Emfac2007 V2.3 Nov 1 2006

Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Conduit		1.00	acres	4.36	4.36	57.99
					4.36	57.99

Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	51.5	0.6	99.2	0.2
Light Truck < 3750 lbs	7.3	1.4	95.9	2.7
Light Truck 3751-5750 lbs	23.0	0.4	99.6	0.0
Med Truck 5751-8500 lbs	10.7	0.9	99.1	0.0
Lite-Heavy Truck 8501-10,000 lbs	1.6	0.0	81.2	18.8
Lite-Heavy Truck 10,001-14,000 lbs	0.5	0.0	60.0	40.0
Med-Heavy Truck 14,001-33,000 lbs	0.9	0.0	22.2	77.8
Heavy-Heavy Truck 33,001-60,000 lbs	0.5	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.8	60.7	39.3	0.0
School Bus	0.1	0.0	0.0	100.0
Motor Home	0.9	0.0	88.9	11.1

Travel Conditions

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	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	12.7	7.0	9.5	13.3	7.4	8.9
Rural Trip Length (miles)	17.6	12.1	14.9	15.4	9.6	12.6
Trip speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Conduit				100.0	0.0	0.0

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Urbemis 2007 Version 9.2.4

Combined Summer Emissions Reports (Pounds/Day)

File Name: G:\Los Angeles\3_Projects_Air Quality\Scattergood\ScattergoodDirectionalDrilling.urb924

Project Name: Scattergood Directional Drilling

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (lbs/day unmitigated)	4.40	46.78	16.80	0.00	0.01	1.70	1.71	0.00	1.57	1.57	5,824.80
2010 TOTALS (lbs/day mitigated)	4.40	46.78	16.80	0.00	0.01	0.85	0.86	0.00	0.79	0.79	5,824.80

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 7/1/2010-8/31/2010 Active Days: 44	**4.40**	**46.78**	**16.80**	**0.00**	**0.01**	**1.70**	**1.71**	**0.00**	**1.57**	**1.57**	**5,824.80**
Trenching 07/01/2010-08/31/2010	4.40	46.78	16.80	0.00	0.01	1.70	1.71	0.00	1.57	1.57	5,824.80
Trenching Off Road Diesel	4.35	46.69	15.22	0.00	0.00	1.70	1.70	0.00	1.56	1.56	5,638.21
Trenching Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59

Phase Assumptions

Phase: Trenching 7/1/2010 - 8/31/2010 - Default Trenching Description

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 6 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day

1 Pumps (53 hp) operating at a 0.74 load factor for 6 hours per day

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
Time Slice 7/1/2010-8/31/2010 Active Days: 44	**4.40**	**46.78**	**16.80**	**0.00**	**0.01**	0.85	0.86	**0.00**	0.79	0.79	**5,824.80**
Trenching 07/01/2010-08/31/2010	4.40	46.78	16.80	0.00	0.01	0.85	0.86	0.00	0.79	0.79	5,824.80
Trenching Off Road Diesel	4.35	46.69	15.22	0.00	0.00	0.85	0.85	0.00	0.78	0.78	5,638.21
Trenching Worker Trips	0.05	0.09	1.57	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.59

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Trenching 7/1/2010 - 8/31/2010 - Default Trenching Description

For Bore/Drill Rigs, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Generator Sets, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pumps, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

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Urbemis 2007 Version 9.2.4

Combined Annual Emissions Reports (Tons/Year)

File Name: G:\Los Angeles\3_Projects_Air Quality\Scattergood\ScattergoodDirectionalDrilling.urb924

Project Name: Scattergood Directional Drilling

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010 TOTALS (tons/year unmitigated)	0.10	1.03	0.37	0.00	0.00	0.04	0.04	0.00	0.03	0.03	128.15
2010 TOTALS (tons/year mitigated)	0.10	1.03	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	128.15
Percent Reduction	0.00	0.00	0.00	0.00	0.00	49.85	49.59	0.00	49.86	49.76	0.00

Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010	0.10	1.03	0.37	0.00	0.00	0.04	0.04	0.00	0.03	0.03	128.15
Trenching 07/01/2010-08/31/2010	0.10	1.03	0.37	0.00	0.00	0.04	0.04	0.00	0.03	0.03	128.15
Trenching Off Road Diesel	0.10	1.03	0.33	0.00	0.00	0.04	0.04	0.00	0.03	0.03	124.04
Trenching Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.11

Phase Assumptions

Phase: Trenching 7/1/2010 - 8/31/2010 - Default Trenching Description

Off-Road Equipment:

1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 6 hours per day

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

1 Generator Sets (549 hp) operating at a 0.74 load factor for 6 hours per day

2 Off Highway Trucks (479 hp) operating at a 0.57 load factor for 4 hours per day

1 Pumps (53 hp) operating at a 0.74 load factor for 6 hours per day

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Construction Mitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Annual Tons Per Year, Mitigated

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2010	0.10	1.03	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	128.15
Trenching 07/01/2010-08/31/2010	0.10	1.03	0.37	0.00	0.00	0.02	0.02	0.00	0.02	0.02	128.15
Trenching Off Road Diesel	0.10	1.03	0.33	0.00	0.00	0.02	0.02	0.00	0.02	0.02	124.04
Trenching Worker Trips	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.11

Construction Related Mitigation Measures

The following mitigation measures apply to Phase: Trenching 7/1/2010 - 8/31/2010 - Default Trenching Description

For Bore/Drill Rigs, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Generator Sets, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Pumps, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Cranes, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

For Off Highway Trucks, the Diesel Particulate Filter (DPF) 2nd Tier mitigation reduces emissions by:

PM10: 50% PM25: 50%

C. Biological Resources Assessment

Scattergood - Olympic Line I
Biological Resource Assessment

Prepared for:

City of Los Angeles Department of Water and Power
111 North Hope Street, Room 1044
Los Angeles, CA 90012
Contact: Adrene K. Briones

Prepared by:

ICF Jones & Stokes
1776 Park Avenue, Suite 146
Redlands, CA 92373
Contact: Mikael Romich
909/335-8600

August 2009

ICF Jones & Stokes. 2009. Scattergood - Olympic Line I Biological Resource Assessment. August. (ICF J&S 605.08.) Redlands, CA. Prepared for: City of Los Angeles Department of Water and Power.

Contents

Tables

Exhibits

Acronyms and Abbreviations

BMPs	best management practices
CDFG	California Department of Fish and Game
CEQA	California Environment Quality Act
CESA	California Endangered Species Act
CNDBB	California Natural Diversity Database
CNPS	California Native Plant Society
CWA	Clean Water Act
ESB	El Segundo blue butterfly
FESA	Federal Endangered Species Act
GIS	Geographical Information System
LADWP	Los Angeles Department of Water and Power
LAX	Los Angelese International Airport
MBTA	Migratory Bird Treaty Act
NPDES	National Pollution Discharge Elimination System
RWQCB	Regional Water Quality Control Board
RS-K	Receiving Station K
SGS	Scattergood Generating Station
SSC	California species of special concern
SWPPP	Stormwater pollution prevention plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

Executive Summary

Executive Summary

Summary

At the request of the Los Angeles Department of Water and Power (LADWP), ICF Jones & Stokes conducted a study of the natural resources occurring within the proposed disturbance corridor for an underground cable to connect the Scattergood Generating Station (SGS) and Receiving Station K (RS-K). The project is proposed to occur within the existing roadways, with an approximate 3-foot-wide and a 7 to 9 foot-deep trench. The proposed project also consists of approximately 50 maintenance holes, spaced 1,500 to 2,200 feet apart. The maintenance holes would be installed within the roadway with each requiring an excavation approximately 12 to 14 feet wide, 12 feet deep, and 36 to 38 feet long. Since all construction would occur within existing roadways, no direct impacts would occur to sensitive plant communities or habitat that would be used by sensitive species. The potential for indirect impacts to sensitive biological resources was analyzed based on a habitat assessment conducted within a 100-foot and 200-foot buffer to either side of the roadways. This analysis revealed that the entire section of the proposed transmission line north and east of the Lincoln Boulevard and Jefferson Boulevard intersection is developed and no indirect impacts to biological resources would occur. In addition, five of the eight proposed staging areas occur in developed parcels, and no direct or indirect impacts to sensitive biological resources are expected. The other three proposed staging areas occur within highly disturbed empty lots that are unvegetated and classified as ruderal land; no significant direct or indirect impacts to sensitive biological resources are expected.

Several habitat types commonly associated with sensitive species occur within the buffer south of the Lincoln Boulevard and Jefferson Boulevard intersection. These habitats include southern willow scrub, coastal freshwater marsh, southern foredune, and active coastal dunes. Southern willow scrub and coastal freshwater marsh is potentially suitable habitat for special-status species such as least bittern (*Ixobrychus exilis*), yellow warbler (*Dendroica petechia*), and south coast marsh vole (*Microtus californicus stephensi*). The southern foredune habitat is potentially suitable habitat for many special-status species, including El Sequndo dune flower (*Pholisma paniculatum*), El Segundo blue butterfly (*Euphilotes battoides allyni*), silvery legless lizard (*Anniella pulchra pulchra*), burrowing owl (*Athene cunicularia*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*).

For all the sensitive species with potential to occur, indirect impacts under the proposed project have been determined to be less than significant because of the current existing conditions along the roads. The roadways currently support high volumes of traffic that typically travel at high rates of speed (50 mph). In addition, there are regular aircraft disturbances, pedestrian beach traffic, beach grooming, pets, parked cars, mixed residential and commercial neighborhoods, and factories that all contribute to a baseline condition that is subjecting the biological resources to a relatively high level of baseline disturbance. Any sensitive species currently located adjacent to the roadways are anticipated to be acclimated or tolerant to the baseline conditions. The current project would not contribute significant additional amounts of indirect impacts when compared to the existing baseline condition. Nevertheless, the project should follow standard construction procedures, such as controlling fugitive dust and removing trash daily, to minimize potential indirect impacts in these areas.

During the habitat assessment, several drainages that are likely state and federal jurisdictional waters were observed to cross the proposed transmission line alignment. If construction of the transmission line disturbs any jurisdictional waters, it would be considered a potentially significant impact. A formal jurisdictional delineation would need to be completed in order to document relevant conditions, to calculate the total acreage of potential impacts, and to determine appropriate mitigation measures. This analysis would be utilized to acquire the appropriate regulatory permits, such as a 404 nationwide permit (U.S. Army Corps of Engineers [USACE]), a 1602 streambed alteration agreement (California Department of Fish and Game [CDFG]), and Regional Water Quality Control Board (RWQCB) 401 certification. The project proponent plans to avoid disturbing jurisdictional waters by placing the transmission line below or above the channel and no direct impacts are expected. To avoid potential indirect impacts to jurisdictional waters or wetlands, the project would require a stormwater pollution prevention plan (SWPPP) and best management practices (BMPs) designed to avoid areas outside the footprint. This would prevent any fuel, oil, or other construction material from entering the adjacent environment. In addition, in the event that dewatering activities will result in the discharge of groundwater into Ballona Freshwater Marsh, a dewatering plan and permit will be required. Due to the overall sensitivity of the Ballona Freshwater Marsh, it is recommended that a biological monitor be present for construction at the culvert that supplies the Ballona Freshwater Marsh with water. To ensure compliance with the SWPPP periodic biological monitoring (weekly) is also recommended in the event that the alignment is placed on the west side of Lincoln Boulevard, adjacent to the Ballona Freshwater Marsh .

The Inglewood Boulevard at Centinela Creek and Ballona Creek bridges are the only locations where the alignment could potentially directly impact nesting birds during directional drilling or placing conduit underneath the bridges. Potential impacts to nesting birds would be considered a significant impact. Therefore, construction of the transmission line across these bridges will occur outside the core avian nesting season (approximately February 1–August 31). If construction at these two bridges occurs between February 1 and August 31, a preconstruction survey for nesting birds would be conducted by a qualified biologist no more than 7 days prior to the start of construction. If nesting birds do or may occur on the bridge, a buffer around the nest(s) would be determined by a qualified biologist. All construction activities would occur outside of the buffer area to avoid potential indirect impacts until a qualified biologist has determined that the nesting is complete and that no new nesting activity has occurred within the buffer area. If any street trees require removal, these same avoidance measures would apply. Impacts on nesting birds would be less than significant with incorporation of these avoidance measures.

Chapter 1
Introduction

Chapter 1
Introduction

At the request of the Los Angeles Department of Water and Power (LADWP), ICF Jones & Stokes conducted a study of the natural resources present within the study area to provide the basis for evaluation of the potential biological resource impacts associated with the proposed installation of underground cables to connect the Scattergood Generating Station (SGS) and Receiving Station K (RS-K). This report provides a detailed description of existing biological conditions within the study area, which includes the project site, a 100-foot to 200-foot buffer on each side of the roadway, and eight potential construction staging areas.

Project Site Location

RS-K is located approximately 1 mile northwest of the Interstate 10 and Interstate 405 interchange, and the SGS is located about 1 mile southwest of Los Angeles International Airport (Exhibit 1). The proposed project extends from RS-K in the north to the SGS in the south, and from Inglewood Boulevard in the east, to Vista Del Mar in the west. Commercial and residential areas are directly adjacent both sides of most of the alignment.

The underground circuit route begins at RS-K near the intersection of West Olympic Boulevard and Centinela Avenue. It is proposed to head east along West Olympic Boulevard, southeast along South Bundy Drive, northeast along Ocean Park Boulevard, southeast along Armacost Avenue, northeast along National Boulevard, southeast along Inglewood Boulevard, southwest along West Jefferson Boulevard, southeast along Lincoln Boulevard, southwest along West 83rd Street, southeast along Rayford Drive, west along West Manchester Avenue, south along Vista del Mar Lane, southeast along Vista del Mar, north on West Grand Avenue, and finally terminating at the SGS.

The project site is located on the 7.5-minute U.S. Geological Survey (USGS) Venice, California and Beverley Hills, California quadrangles (Exhibit 2).

Project Description

The proposed project includes construction of approximately 12 miles of underground cable, connecting the SGS and RS-K. The primary objective of the project is to provide additional capacity to supplement the Scattergood – Olympic Line II, which also services RS-K. RS-K provides electrical service to the West Los Angeles area. The addition of the Scattergood – Olympic Line I would provide additional capacity at RS-K, thereby enhancing the reliability of electrical service to the West Los Angeles area.

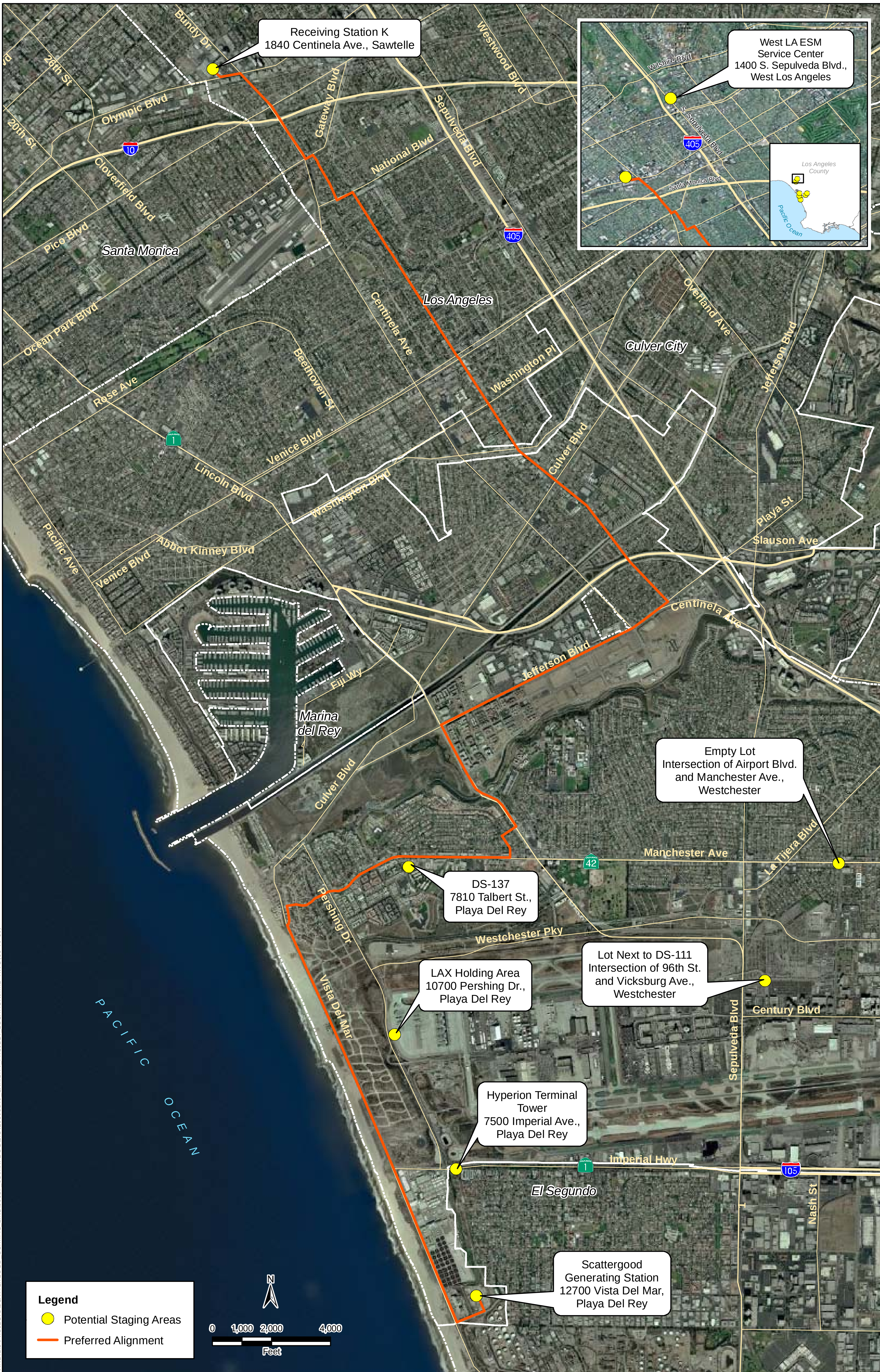
RS-K is located approximately 1 mile northwest of the Interstate 10 and Interstate 405 interchange, and the SGS is located about 1 mile southwest of Los Angeles International Airport. The proposed project extends from RS-K in the north to the SGS in the south, and from Inglewood Boulevard in the east, to Vista Del Mar in the west. Commercial and residential areas are directly adjacent on both sides of most of the alignment.

The underground circuit route begins at RS-K near the intersection of West Olympic Boulevard and Centinela Avenue. It is proposed to head east along West Olympic Boulevard, southeast along South Bundy Drive, northeast along Ocean Park Boulevard, southeast along Armacost Avenue, northeast along National Boulevard, southeast along Inglewood Boulevard, southwest along West Jefferson Boulevard, southeast along Lincoln Boulevard, southwest along West 83rd Street, southeast along Rayford Drive, west along West Manchester Avenue, south along Vista del Mar Lane, southeast along Vista del Mar, north on West Grand Ave and finally terminating at the SGS.

The underground transmission line would be placed in trenches located entirely underneath public roadway right of ways. At the Inglewood Boulevard Ballona Creek and Centinela Creek bridge crossings, LADWP may either: place the transmission line on the underside of the bridges using new conduits attached to the bridges; or use directional drilling techniques to bore a hole and pull the conduit underneath the Ballona Creek and Centinela Creek channels. The proposed project would be located almost entirely within the City of Los Angeles, with the exception of approximately 430 linear feet along Inglewood Boulevard just north and south of Washington Boulevard, which would be located in Culver City.

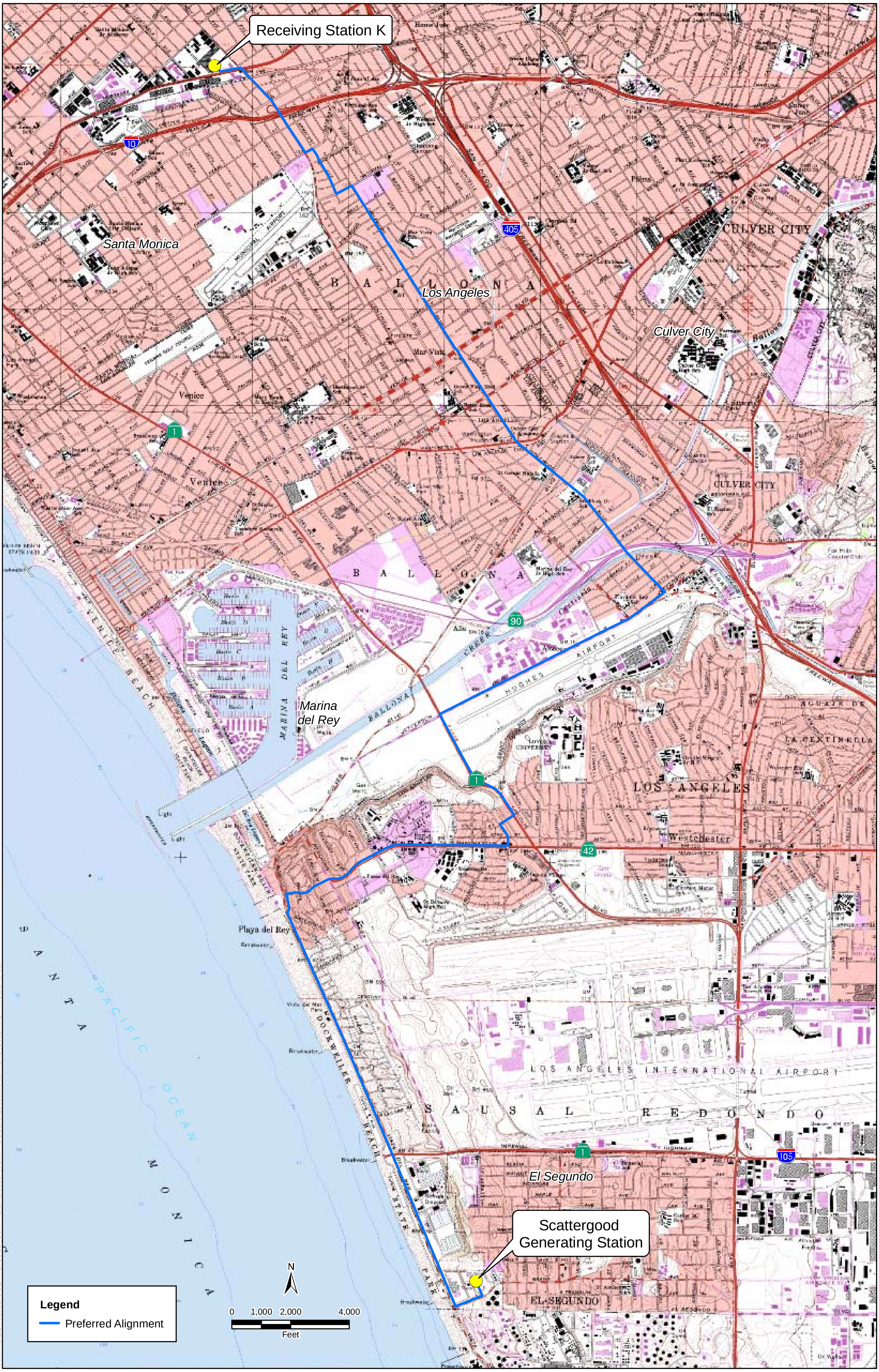
The proposed project consists of approximately 12 miles of 230 kV cable trenched underground using a 6-conduit concrete encased bank and maintenance hole system. Three of the fiber conduits would house power cables. The other three PVC conduits would house fiber optic cables. All conduits would be 6 inches in diameter.

The underground power cables would consist of a 2500 Kcmil copper conductor with plastic insulation, an external metallic covering for moisture protection, and an outer polyethylene jacket for corrosion protection. Underground power cable splices would be prefabricated and accessible through maintenance holes placed approximately every 1,500 to 2,200 feet along the alignment.



SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

Exhibit 1
Project Location
LADWP Scattergood Olympic Line



SOURCE: USGS Quad 7.5', California - Beverly Hills (1978), Venice (1978)

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Exhibit 2
USGS Map
LADWP Scattergood Olympic Line

The underground circuit route would be excavated within the roadway approximately 3 feet wide and 7 to 9 feet deep. The 6-conduit bank would be approximately 36 to 48 inches below ground surface, measured from street surface to the top of the conduit bank, and encased in concrete. The proposed project consists of approximately 40 maintenance holes, spaced 1,500 to 2,200 feet apart. The maintenance holes would be precast sections, installed within the roadway along the proposed project, with each requiring an excavation approximately 12 to 14 feet wide, 12 feet deep, and 36 to 38 feet long including perimeter shoring.

Construction

The proposed project would be constructed from mid-2010 through 2012, and the underground circuit would be put into service after construction and installation is complete in 2012. Construction would require 3 crews, with each crew consisting of 5 to 6 people.

Construction equipment would be staged in or near the project area in suitable locations that would be chosen by the construction contractor. Eight potential construction staging areas have been identified, including West LA ESM Service Center at 1400 South Sepulveda Boulevard in Los Angeles; RS-K at 1840 Centinela Avenue in Sawtelle; DS-137 at 7810 Talbert Street in Playa Del Rey; an empty lot at the intersection of Airport Boulevard and Manchester Avenue in Westchester; LAX Holding Area at 10700 Pershing Drive in Playa Del Rey; a lot next to DS-111 at the intersection of 96th Street and Vicksburg Avenue in Westchester; Hyperion Terminal Tower at 7500 Imperial Avenue in Playa Del Rey; and the Scattergood Generating Station at 12700 Vista Del Mar in Playa Del Rey.

Construction would occur during daytime hours from Monday through Saturday from 7:00 a.m. to 5:00 p.m. The construction schedule from 2010 to 2012 assumes that variances would be obtained for the Mayor's Executive Order, which allows in-street construction within the City of Los Angeles from Monday through Friday between the hours of 9:00 a.m. to 3:30 p.m. only. If variances were not obtained for part or all of the alignment, the construction schedule would be extended beyond 2012.

Construction would require trenching both the underground conduit alignment as well as the underground maintenance holes at predetermined intervals. The sequence in which the roadway segments along the alignment would be trenched for either the underground conduit or the maintenance holes would be determined by the construction contractor, and may not occur in specific geographic sequence.

Construction crews would lead the construction operation, potholing maintenance hole locations in order to verify the location of existing underground utilities. Once confirmed, crews will likely begin construction at RS-K and work towards Scattergood. No more than one and a half lanes would be closed where construction for the underground conduit occurs within the roadbed. Up to two lanes would be closed where construction for the maintenance holes occurs within the roadbed. Where construction would occur outside of the roadbed, the closure of sidewalks and a portion of the roadway adjacent to the construction activity may be required.

Crews trenching for the underground conduit would excavate soil using a backhoe in approximately 100 foot linear sections per crew per day, for an approximate total of 300 feet per day. Once a trench is excavated, the conduit would be put into place by hand, supported by spacers, and bonded. A ready mix-truck would be required at the site to bring in concrete to encase the conduits as well as a sand and cement slurry to backfill the trench. Excavated material would be hauled away by dump truck for disposal. Areas trenched for installation of pre-cast maintenance holes would require the closure of roadway lanes for approximately 2 to 5 days, depending upon soil conditions.

In the case of the Ballona Creek and Centinela Creek bridge crossings, the method of construction would depend upon LADWP's preferred channel crossing approach. In the event that conduits on the Inglewood Boulevard bridges would be used, construction crews would trench up to the bridge and install new conduits on the underside of the bridges. No additional construction activities would be required on either bridge or within the channels. In the event that LADWP determines that directional drilling would be the preferred option, construction crews would open a pit on both sides of the bridges and stage drill equipment near one of the pits. The drilling pits and equipment would be located within the existing roadway right-of-ways and would require the closure of one lane of the roadway, similar to the trenching activities described above. Drilling and the installation of the conduit would take approximately one week to one month depending upon soil and bedrock conditions.

The final step would be installation of the cable into the conduit, which would be conducted in segments between maintenance holes. First, the electrical cable would be lubricated with a soap/water solution and fed from one maintenance hole off a reel on a truck and pulled through the conduit to the next maintenance hole using a high tension machine. After the cable is pulled through to both sides of the maintenance holes, the cable would be spliced by the construction crews. Similar to the sequence of the underground conduit trenching, pulling, and splicing of the electrical cable would not need to occur in any particular geographic order, but may instead be completed in any order as deemed appropriate by the construction contractor.

Operation

Operation of the proposed project would involve aboveground activities around maintenance holes during periods of regular or emergency maintenance. These activities may require the temporary closure of a single roadway lane or sidewalk for the duration of the maintenance activity. No other operational activities resulting from the proposed project would occur along the proposed alignment.

Regulatory Framework

Potential impacts on biological resources as a result of the proposed project were analyzed based upon the environmental policies and regulations set forth by the potentially relevant laws, consisting of the federal Clean Water Act (CWA), the federal Endangered Species Act (FESA), the federal Migratory Bird Treaty Act (MBTA), California Department of Fish and Game (CDFG) statutes, including the California Endangered Species Act (CESA), and the California Environment Quality Act (CEQA).

Chapter 2
Methods

Chapter 2
Methods

Literature Search

Prior to the field visit, a literature review of biological resources in the project vicinity was conducted. The primary objective of the assessment was to document the existing habitat types and to evaluate the potential for occurrence of sensitive plant and animal species. For the purpose of this report, special-status species are defined as those protected by FESA or CESA, designated as California Species of Special Concern (SSC), designated as Fully Protected by CDFG; placed on Lists 1A, 1B, or 2 by the California Native Plant Society (CNPS); or designated as sensitive by the USFWS, California Natural Diversity Database (CNDBB), County, or regional planning documents. Sensitive biological resources potentially present on the site were identified using the following resources: CDFG Special Animals List (2009), CNDDB (2009), and CNPS (2009). There were also several earlier biological studies that have been completed in the area that were reviewed for sensitive species. These included the Final Environmental Impact Report (EIR) for the Los Angeles International Airport (LAX) Master Plan (City of Los Angeles 2004) and the Existing Conditions Report for the Ballona Wetlands Restoration Project (Philip Williams & Associates 2006). Some additional sensitive species were included in the review based on professional knowledge of biologists at ICF Jones & Stokes.

Vegetation communities in California have generally been classified by biologists according to either Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986) or Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995). Holland's descriptions were developed as part of the CNDDB, and Sawyer and Keeler-Wolf's manual was developed through CNPS. CDFG now has a list of terrestrial natural communities that supersedes all other lists developed by the CNDDB. It is based on Sawyer and Keeler-Wolf's manual, but it is also structured to be compatible with previous CNDDB lists such as Holland's. The habitat types within the project site were classified according to Holland (1986), and element codes are from Holland (1986), followed by Sawyer and Keeler-Wolf (1995). The habitat types were mapped from data gathered during the field visit, as well as existing plant community maps completed for the LAX Master Plan EIR (City of Los Angeles 2004) and the Ballona Freshwater Marsh (Philip Williams & Associates 2006).

Common plant species observed during the reconnaissance-level survey were identified by visual characteristics and morphology in the field and recorded in a field notebook. Uncommon and less familiar plants were identified off site using taxonomical guides. Taxonomic nomenclature used in this study follows Hickman (1993). Common plant names, when not available from Hickman (1993), were taken from Munz (1974). In this report, scientific names are provided immediately following common names of plant species for the first reference only.

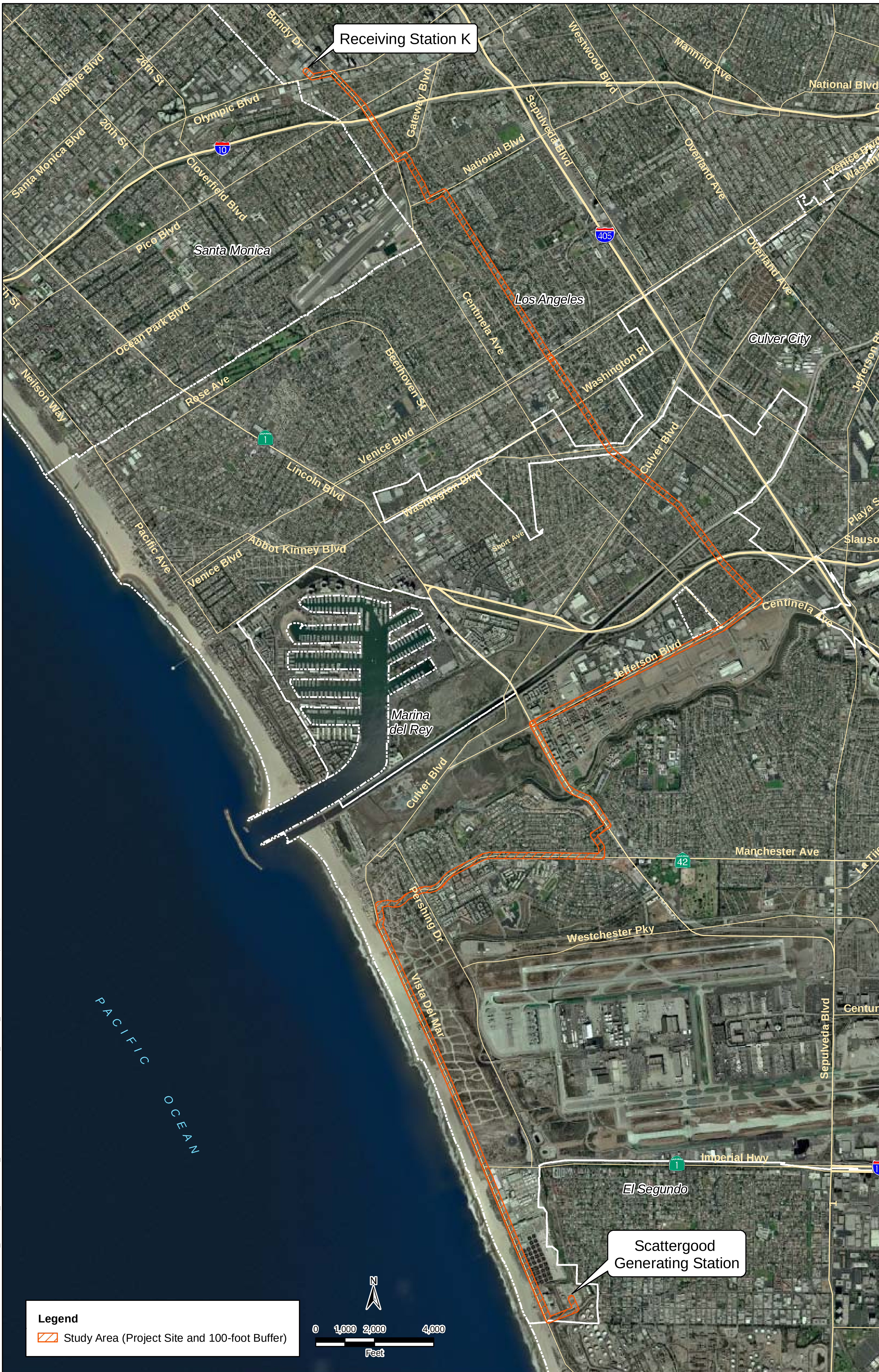
Field Investigation

ICF Jones & Stokes senior biologist Mikael Romich conducted a habitat assessment survey on August 27, 2008 from 07:00 to 14:00. Weather conditions at the start of the survey included fog, calm wind, and a temperature of 70 degrees Fahrenheit. Due to a project alignment revision, the study area was resurveyed on March 11, 2009. The study area included the project site, a 100-foot buffer (Exhibit 3), and eight potential staging areas (Exhibit 1). The buffer area was expanded to 200 feet adjacent to the Ballona Freshwater Marsh due to the large width of Lincoln Boulevard (approximately 120 feet) and the sensitivity of this habitat. The survey was conducted by vehicle and on foot. All plant and wildlife species observed, as well as dominant plant species within each habitat type, were recorded in a standardized field notebook. The data collected during these surveys were mapped on standard USGS 7.5-minute topographic maps and aerial photographs (scale – 1 inch = 500 feet).

Habitat types were delineated on an aerial photograph and then digitized into Geographical Information System (GIS) Arcview. Appendix A lists all the floral and faunal species observed during the field survey. Appendix B documents the current site conditions with a series of photographs captured during the field visit.

Significance of Project Impacts

Biological resource impacts can be considered direct, indirect, or cumulative. Direct impacts occur when biological resources are altered, disturbed, or destroyed during or after project implementation. Examples include clearing vegetation, encroaching into wetland buffers, diverting surface water flows, and the loss of individual species or their habitats during construction or over time. Indirect impacts occur when project-related activities affect biological resources in a manner that is not direct. Examples include elevated noise and dust levels, increased human activity, decreased water quality, and the introduction of invasive wildlife (i.e., domestic cats and dogs) and plants. Cumulative impacts occur when biological resources are either directly or indirectly impacted to a minor extent as a result of a specific project, but the project-related impacts are part of a larger pattern of similar minor impacts.



SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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Exhibit 3
Study Area
LADWP Scattergood Olympic Line

The overall result of these multiple minor impacts from separate projects is considered a cumulative impact to biological resources.

Biological resources impacts may also be classified as temporary or permanent. Temporary impacts can be direct or indirect and are considered short-term and reversible. Examples include elevated noise levels and increased levels of dust. Permanent impacts can be direct or indirect and are not considered reversible. Examples include the removal of vegetation from areas that will have permanent structures placed on them or landscaping an area with nonnative plant species.

Chapter 3
Existing Conditions

Chapter 3
Existing Conditions

Environmental Setting

The proposed transmission line would traverse a strictly urban environment east and north of the Lincoln Boulevard and Jefferson Boulevard intersection, where no special-status biological resources would be expected to occur. In addition, the proposed transmission line will be planned within existing roadways. However, along portions of Vista Del Mar Boulevard, the transmission line would be located adjacent to the El Segundo sand dunes, which are a sensitive beach dune habitat area. In addition, along portions of Lincoln Boulevard, the proposed transmission line would be located adjacent to the Ballona Freshwater Marsh, which contains sensitive jurisdictional habitats. Surrounding land uses in the southern portion of the transmission line alignment include developed land and open space, which includes Dockweiller Beach State Park, the City of Los Angeles El Segundo Blue Butterfly Habitat Restoration Area, and the recently created (2003) Ballona Freshwater Marsh mitigation area.

Five of the eight proposed construction staging areas would occur in areas that have been already developed. The remaining three proposed staging areas would occur within highly disturbed empty lots that are away from any sensitive habitats.

Habitat Types

Exhibit 4 shows the habitat types present within the study area. The entire project site is classified as developed, as is the 100-foot buffer east and north of Lincoln Boulevard and Jefferson Boulevard. The 100-foot and 200-foot buffer south of Lincoln Boulevard and Jefferson Boulevard consists of developed and undeveloped land, as detailed below.

Southern Foredune (21230; 21.100.00)

The southern foredune plant community, also known as the sand-verbena-beach bursage plant community (Sawyer and Keeler-Wolf 1995) is considered rare by the CDFG (2003). Southern foredune plant communities have relatively favorable conditions when compared to active coastal dunes that allow the establishment of plants, which reduces the amount of blowing sand and partially stabilizes the dune. This plant community is typically dominated by succulent perennial herbs and subshrubs. Species such as red sand verbena (*Abronia maritima*), beach bur (*Ambrosia* spp.), and sea rocket (*Cakile* spp.) usually occur in exposed sites, and pink sand verbena (*Abronia umbellata*) and morning-glory (*Calystegia* spp.) in less exposed sites. Southern foredunes may intergrade with southern dune scrub (21330; 21.100.10).

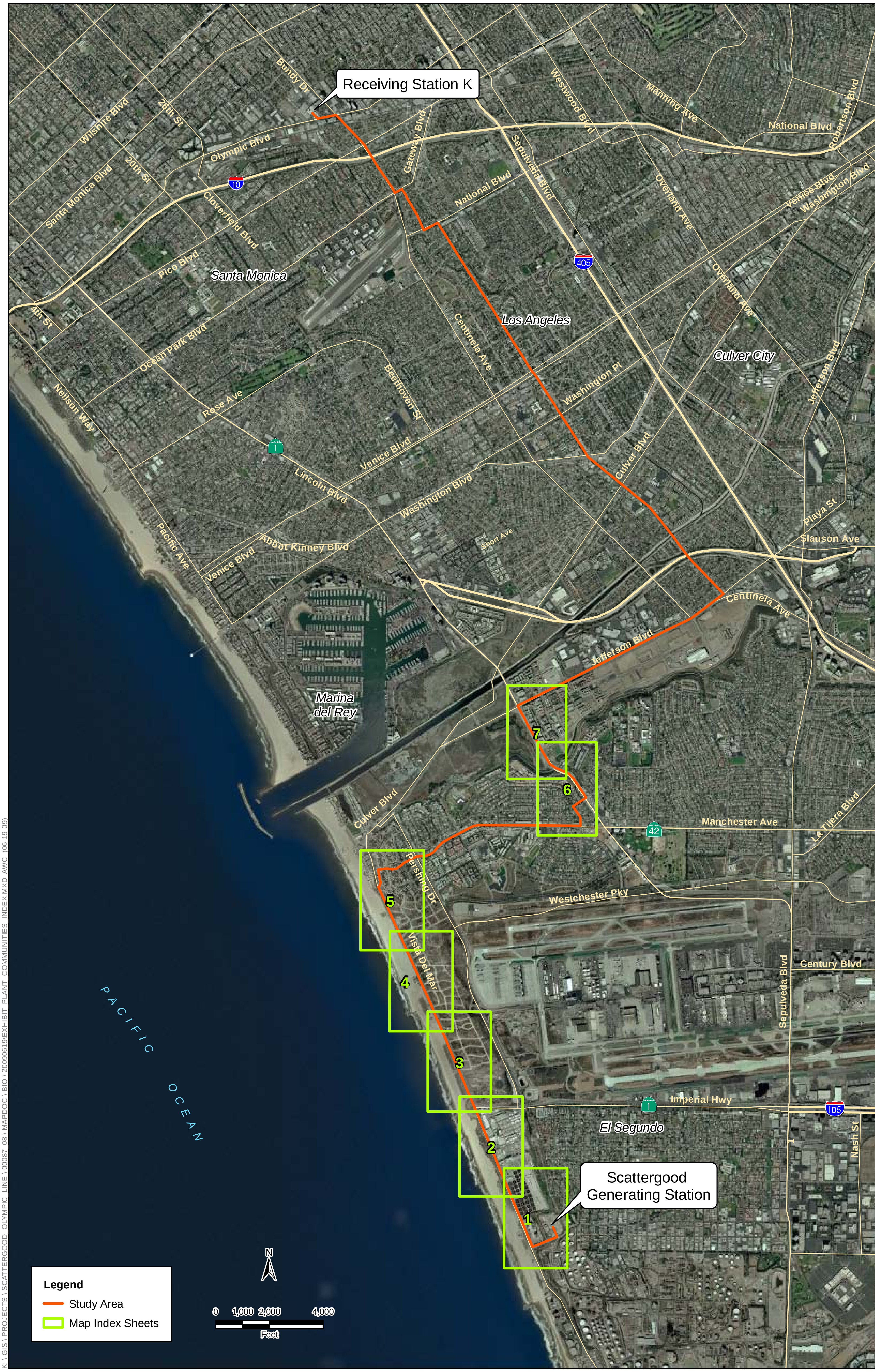
Species that have been identified (City of Los Angeles 2004) in the foredune habitat adjacent to the project site are: burbush (*Ambrosia chamissonis*), coast buckwheat (*Eriogonum parvifolium*), lemonade-berry (*Rhus integrifolia*), coast goldenbush (*Ericameria ericoides*), California encelia (*Encelia californica*), bladderpod (*Isomeris arborea*), prickly pear (*Opuntia littoralis*), groundsel (*Senecio flaccidus var. douglasii*), California poppy (*Eschscholzia californica*), wild morning glory (*Calystegia macrostegia*), Lewis' evening primrose (*Camissonia lewisii*), beach evening primrose (*Camissonia chieranthifolia*), deerweed (*Lotus scoparius*), bush lupine (*Lupinus chamissonis*), and pink sand verbena. Characteristic species not present on site include red sand verbena, beach morning glory (*Calystegia soldanella*), and beach spectacle-pod (*Dithyrea maritima*). Non-native species present include several species of iceplant (including *Carpobrotus edulis* and *C. aequilaterus*), and acacia (*Acacia cyclops* and *A. retinoides*).

This plant community occurs within the 100-foot buffer, to the east of Vista Del Mar Boulevard north of Imperial Highway and south of approximately Ocean Vista Boulevard (Exhibit 4).

Disturbed Southern Foredune

Disturbed southern foredune was formerly pristine, as evidenced by the sandy substrates and scattered coastal dune elements; however, acacia, ice plant, and exotic annual grass species currently dominate the vegetation (City of Los Angeles 2004). Native coastal dune vegetation is patchy, and includes burbush, beach evening primrose, bush lupine, pink sand verbena, and deerweed. Coast buckwheat is absent. There are remnant structures belonging to former residences, which include several walls, and abundant debris can be found among the sandy substrate.

This habitat type occurs within the 100-foot buffer, to the east of Vista Del Mar Boulevard, north of approximately Ocean Vista Boulevard, and south of Waterview Street (Exhibit 4). The west side of Vista Del Mar Boulevard is almost completely dominated by ice plant and is considered more disturbed than areas east of Vista Del Mar Boulevard.



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SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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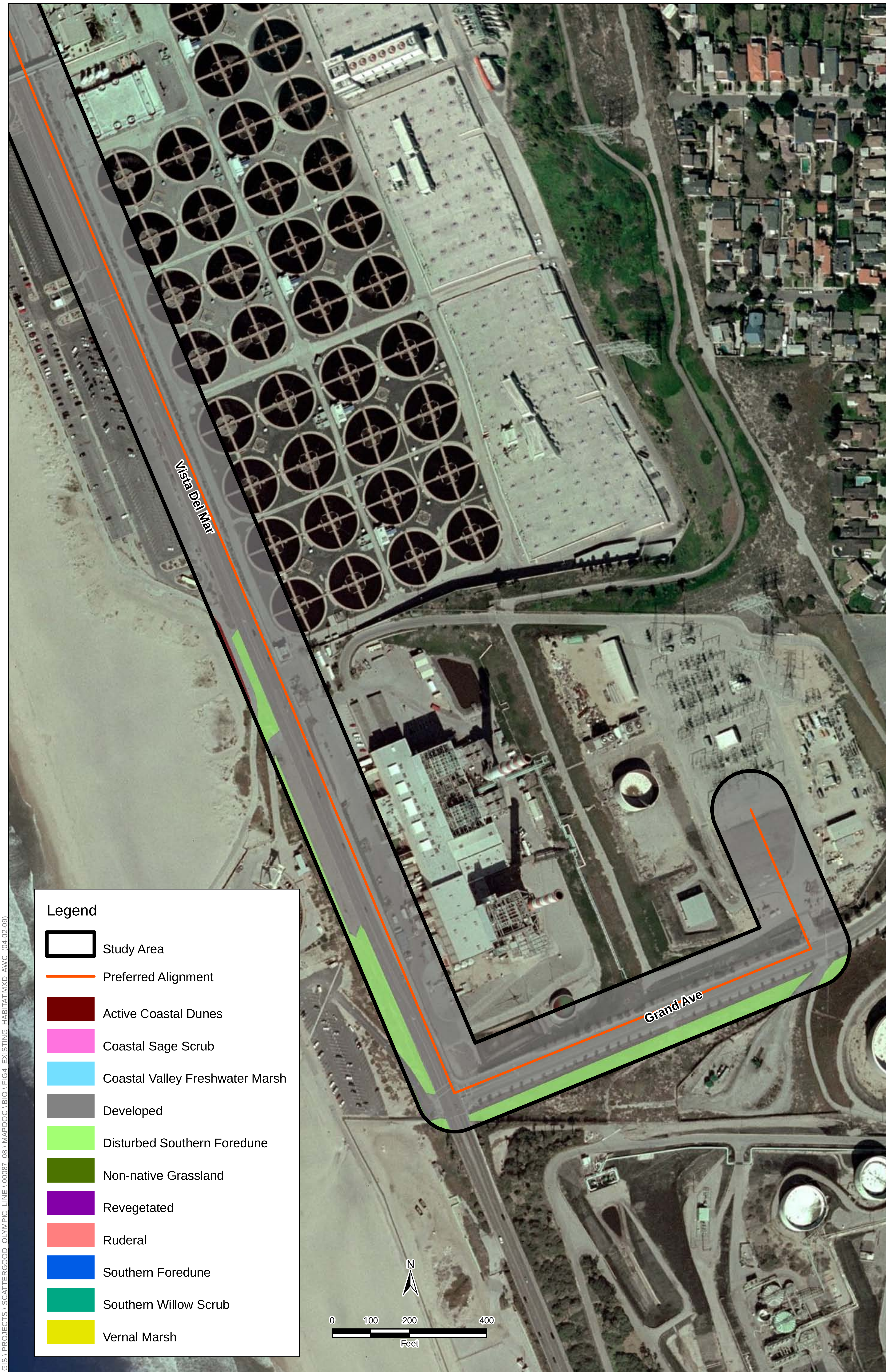
Exhibit 4 - Index Map
Plant Communities
LADWP Scattergood Olympic Line



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SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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Exhibit 4 - Sheet 1 of 7
Existing Habitat
LADWP Scattergood Olympic Line

SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

Exhibit 4 - Sheet 2 of 7
Existing Habitat
LADWP Scattergood Olympic Line

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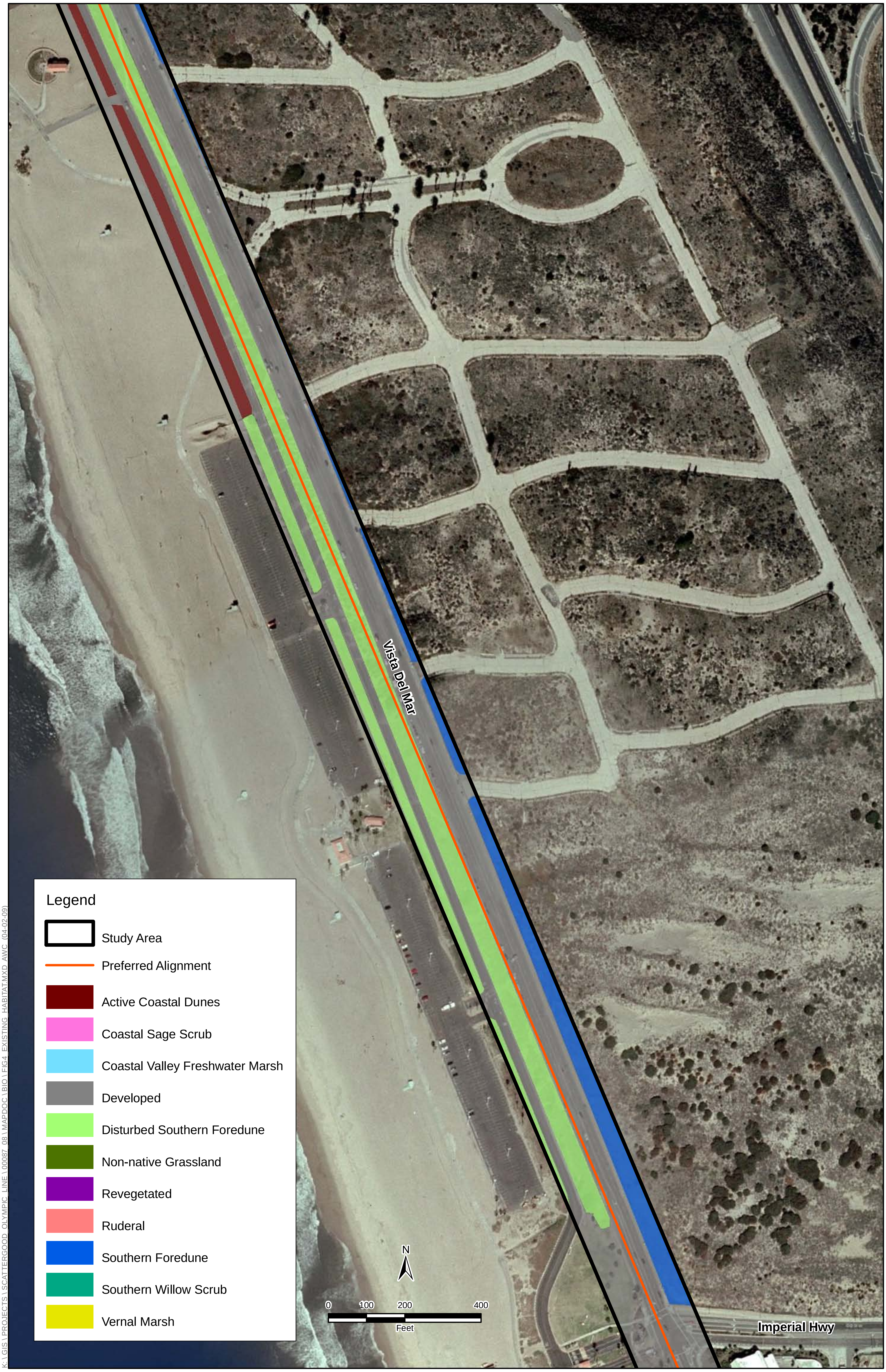

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SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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Exhibit 4 - Sheet 3 of 7
Existing Habitat
LADWP Scattergood Olympic Line

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SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

Exhibit 4 - Sheet 4 of 7
Existing Habitat
LADWP Scattergood Olympic Line

SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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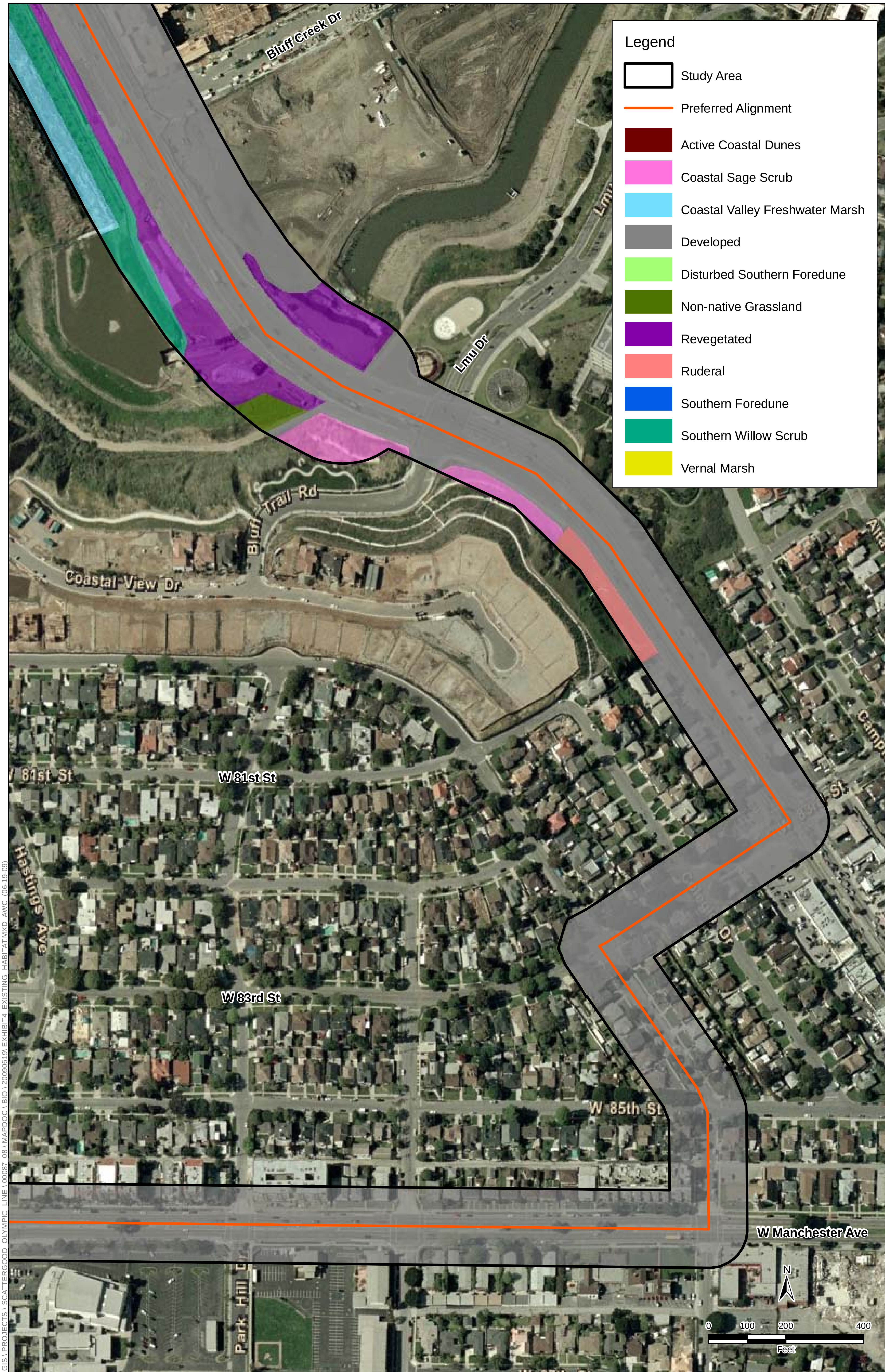
Exhibit 4 - Sheet 5 of 7
Existing Habitat
LADWP Scattergood Olympic Line



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SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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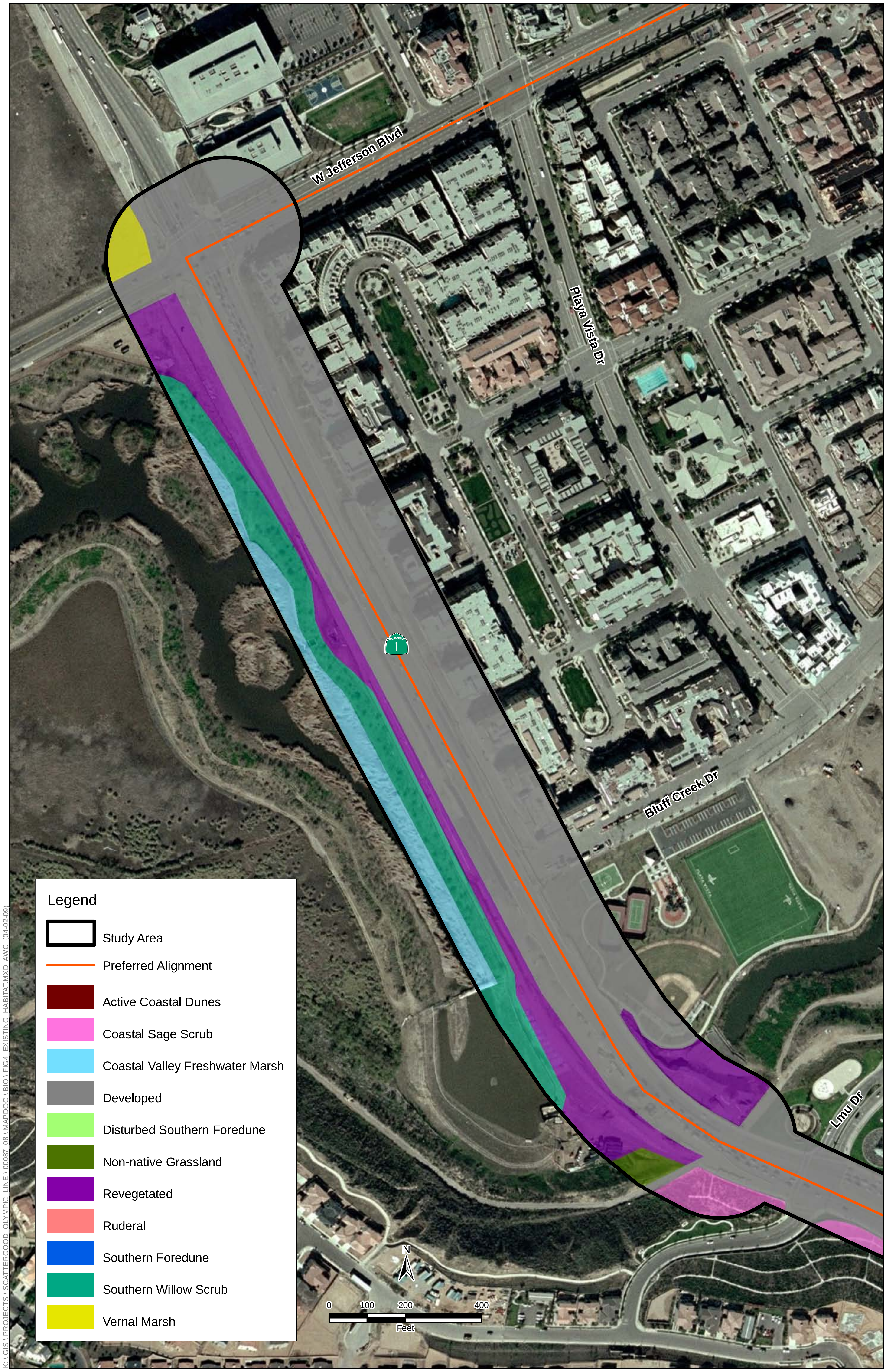
Exhibit 4 - Sheet 6 of 7
Existing Habitat
LADWP Scattergood Olympic Line



SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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Exhibit 4 - Sheet 7 of 7
Existing Habitat
LADWP Scattergood Olympic Line

Active Coastal Dunes (21100; 21.010.00)

The active coastal dune plant community is dominated by barren, mobile sand accumulations whose size and shape are determined by abiotic site factors rather than by stabilizing vegetation. There is typically no vegetation present and it is represented as a sandy beach. Adjacent to the project site and within the 100-foot buffer, it occurs west of Vista Del Mar Boulevard at Dockweiller Beach State Park (Exhibit 4).

Vernal Marsh (52500; 52.100.04)

Vernal marsh, also known as seasonal wetlands, are non-tidal wetlands and transitional habitats that are flooded to varying degrees by seasonal rainfall and runoff, but are greatly reduced or completely dry by summer. If there are sufficient salts in the soil, the seasonal wetland may support plant species more typical of coastal salt marsh, such as pickleweed, saltgrass, and alkali weed (*Cressa truxillensis*). If the soils do not contain salts or alkaline substances, the seasonal wetlands may support freshwater marsh species and a mixture of weedy opportunists. Characteristic species include sedges (*Carex* spp.), rushes (*Juncus* spp.), bulrushes (*Scirpus* spp.), downingia (*Downingia* spp.), button-celery (*Eryngium* spp.), and navarretia (*Navarretia* spp.).

Vernal marsh occurs adjacent to the project site within the 200-foot buffer northwest of Lincoln Boulevard and Jefferson Boulevard (Exhibit 4).

Coastal and Valley Freshwater Marsh (52410; 52.100.01)

Freshwater marshes occur in nutrient-rich soil that is saturated most or all of the year. The dominant plants of freshwater marsh communities are mostly perennial monocots that can reproduce vegetatively by underground rhizomes and grow to 4-5 meters tall. At the Ballona Freshwater Marsh, these areas are dominated by freshwater emergent monocots such as cattails (*Typha* spp.) and bulrushes (*Scirpus* spp.).

Within the study area, freshwater marsh habitat is limited to the inundated portions of the Ballona Freshwater Marsh that occurs to the west of Lincoln Boulevard. Freshwater marsh habitat is also present in the unnamed drainage that feeds the Ballona Freshwater Marsh, to the east of Lincoln Boulevard.

Southern Willow Scrub (61.208.00)

Southern willow scrub is classified as areas dominated by thickets of willows such as arroyo willow (*Salix lasiolepis*), narrow-leaved willow (*Salix exigua*), and red willow (*Salix laevigata*). It can also include species such as Fremont cottonwood (*Populus fremontii*) and California sycamore (*Platanus racemosa*). Willow scrub typically occurs in riparian corridors near freshwater sources.

Within the study area, southern willow scrub habitat is limited to the Ballona Freshwater Marsh that occurs to the west of Lincoln Boulevard. Southern willow scrub habitat is also present in the unnamed drainage that feeds the Ballona Freshwater Marsh, to the east of Lincoln Boulevard. Within the 200-foot buffer, the southern willow scrub is not well developed as it has only been recently created. Therefore, it lacks some of the vertical structure that is seen in more mature southern willow scrub habitats.

Coastal Sage Scrub (32300;32.190.00)

The coastal sage scrub in the study area occurs on cut slopes that have been created as part of development projects. These slopes are irrigated and have been planted with native shrub species. Species include California sagebrush (*Artemisia californica*), coyote bush (*Baccharis pilularis*), laurel sumac (*Malosma laurina*), and goldenbush species (*Ericameria* spp.). This habitat type was only found on the cut slopes associated with road and housing development projects in the 200-foot buffer area to the west of Lincoln Boulevard.

Non-Native Grassland (42200; 42.040.00)

The non-native grassland plant community is typically a dense to sparse cover of annual grasses with flowering culms 0.2 to 0.5 meter high, with numerous species of flowering native annual forbs, especially in years of high rainfall. Germination occurs with the onset of the late fall rains; growth, flowering, and seed-set occur from winter through spring. With few exceptions, the plants are dead through the summer-fall dry season. Cover during the spring will be from native and non-native annuals.

In the upland areas of the buffer, the dominant non-native grass species include wild oats (*Avena* spp.), bromes (*Bromus* spp.), barleys (*Hordeum* spp.), and ryegrass (*Lolium* spp.). Native species include tarweed (*Hemizonia* spp.) and nodding needlegrass (*Nasella cernua*). Native and non-native annual wildflowers may include sun cups (*Camissonia* spp.), popcorn flowers (*Cryptantha* spp.), lotus (*Lotus* spp.), plantains (*Plantago* spp.), and California croton (*Croton californica*).

Non-native grassland occurs adjacent to the project site and within the 200-foot buffer along Lincoln Boulevard, where upland areas are present (Exhibit 4).

Revegetated

There are two areas to either side of the culvert that carries water from an unnamed drainage to the Ballona Freshwater Marsh, to the north of the Lmu Drive and Lincoln Boulevard intersection, that appear to have been recently disturbed by road and culvert construction, and then revegetated. This area continues north along the west side of Lincoln Boulevard to Jefferson Boulevard (Exhibit 4), and occurs between the walking path and the sidewalk. These revegetated areas currently do not fit into a classification category. It is expected that as the vegetation matures, it may become a mixture of grasslands and/or southern willow scrub habitat. Due to the lack of complexity and proximity to Lincoln Boulevard, this habitat is not considered to currently support significant wildlife, but will become an important buffer to the Ballona Freshwater Marsh as it matures.

Ruderal

The ruderal habitat type is dominated by species, usually non-native, that are first to colonize disturbed lands. The disturbances are due to human influence, such as construction, dirt roads, or maintenance. Some ruderal invasive species have a competitive advantage over the natural species, and once established may permanently prevent a disturbed area from returning to its original state.

Within the buffer, several ruderal areas were observed. These appeared to be the result of ground disturbance at the edges of the road, various dirt roads, and post-construction areas. The dominant species included mustards (*Brassica* spp.). Two of the proposed construction staging areas occur in empty lots and contain disturbed unvegetated soils, which are probably the result of previous grading. These were classified as ruderal.

Developed

The entire project footprint is classified as developed. A majority of the 100- and 200-foot buffer is also developed, including all areas north and east of Lincoln Boulevard and Jefferson Boulevard. Developed areas within the project site and the 100- and 200-foot buffer include roadways, buildings, and parking lots. Five of the eight potential staging areas also occur in developed parcels. The hardscape associated with this community, largely paved and built areas, make it unsuitable to support vegetation. This classification also includes ornamental landscaping, such as lawns, trees, shrubs, groundcover, and annual plantings. Ornamental species observed include: magnolia (*Magnolia* spp.), oleander (*Nerium oleander*), olive (*Olea europaea*), bird of paradise (*Strelitzia reginae*), and hawthorn (*Rhaphiolepis* spp.).

Sensitive Plant Communities

The southern foredune and southern willow scrub plant communities are considered special communities that are either known or believed to be of high priority for inventory in CNDDB (CDFG 2003).

Sensitive Species

The table in Appendix C provides a complete list of the sensitive plant and wildlife species compiled during the database search and literature review, their status, habitat requirements, and potential to occur within the project site and 100- and 200-foot buffer (200 feet adjacent to the Ballona Freshwater Marsh). The following paragraphs highlight the threatened and endangered species within Appendix C, except those that have been determined as extirpated or absent with recent focused surveys.

Threatened and Endangered Species

El Segundo Blue Butterfly

The El Segundo Blue Butterfly (ESB) is a federally endangered species that inhabits what remains of the El Segundo sand dunes. The ESB emerges during summer when the flowers of its host plant, sea-cliff buckwheat (*Eriogonum parvifolium*), open. It spends virtually its entire life cycle in intimate association with the flowerheads of this plant. The adult life is only a few days, during which time it mates and lays eggs. The eggs hatch within a week or so of their deposition. The larvae feed on the flower heads of the host plant for approximately 1 month before they molt to their pupal stage.

El Segundo sand dunes and suitable ESB habitat occurs adjacent to the project site, east of Vista Del Mar Boulevard from Imperial Highway north to Napoleon Street. Along this stretch, habitat that has been confirmed to be occupied by ESB during previous surveys occurs to the east, within areas classified as southern foredune and disturbed southern foredune. These studies were in conjunction with the LAX Master Plan (City of Los Angeles 2004) and identified several blocks immediately adjacent to Vista Del Mar Boulevard that had high densities of ESB. Habitat to the west of Vista Del Mar is highly degraded with ice plant and does not support populations of buckwheat. Therefore, it would be considered of low suitability to ESB.

California Least Tern

California least tern nesting colonies are considered state and federally endangered. They nest from April through August along the coast of California from San Francisco south to Baja California, nesting on sparsely vegetated sandy beaches, salt flats, and dredged spoil in colonies.

Suitable nesting habitat for California least tern is present to the northwest of Culver Boulevard east of Nicholson Street, which historically supported a colony of 10 to 30 pairs. However, this colony has not been active since 1981, although one pair of terns nested there in 2001. This colony was believed to relocate to the Venice Beach site, north of the Marina Del Rey channel. The tidal channels north and south of Culver Boulevard, and Marina Ditch to the southwest of Lincoln Boulevard and Fiji Way, have been documented to support foraging habitat for the Venice Beach nesting colony.

Potential open water habitat for California least tern is present adjacent to the proposed transmission line only where Inglewood Boulevard crosses Ballona Creek. However, this section of Ballona Creek is concrete-lined and is not expected to provide foraging for California least tern.

California Brown Pelican

Nesting colonies and communal roosts of brown pelican are both state and federally listed as endangered, although there is now a proposed rule to delist the species (USFWS 2008). They do not breed on the mainland but nest colonially on the Channel Islands off the coast of southern California, on islands along the west coast of Baja California, and in the Gulf of California (Anderson and Gress 1983). After the breeding season, brown pelicans leave the islands and disperse along the entire California coast and thus are most common in southern California from June to October (Garrett and Dunn, 1981). The Marina Del Rey breakwater supports a large brown pelican roost, and they are consequently seen in the open waters of this area.

Potential open water habitat for California brown pelican is present adjacent to the proposed transmission line only where Inglewood Boulevard crosses Ballona Creek. However, this section of Ballona Creek is concrete-lined and is not expected to provide roosting habitat for brown pelican.

Belding’s Savannah Sparrow

Belding’s savannah sparrow is a state endangered species that inhabits coastal salt marshes year-round. Nesting occurs primarily in pickleweed habitat at the higher elevations of the salt marshes, above the reach of the highest spring tide. They eat a variety of crustaceans as well as seeds of pickleweed and may forage in other nearby habitats including along rock jetties

Suitable habitat for Belding's savannah sparrow occurs in the mid to high marsh area of the southern coastal salt marsh plant community. In 2005, focused surveys for Belding's savannah sparrow occurred in marsh habitat southeast of Ballona Creek and resulted in 11 breeding pairs. The study area does not overlap any habitat that would be considered suitable for Belding's savannah sparrow.

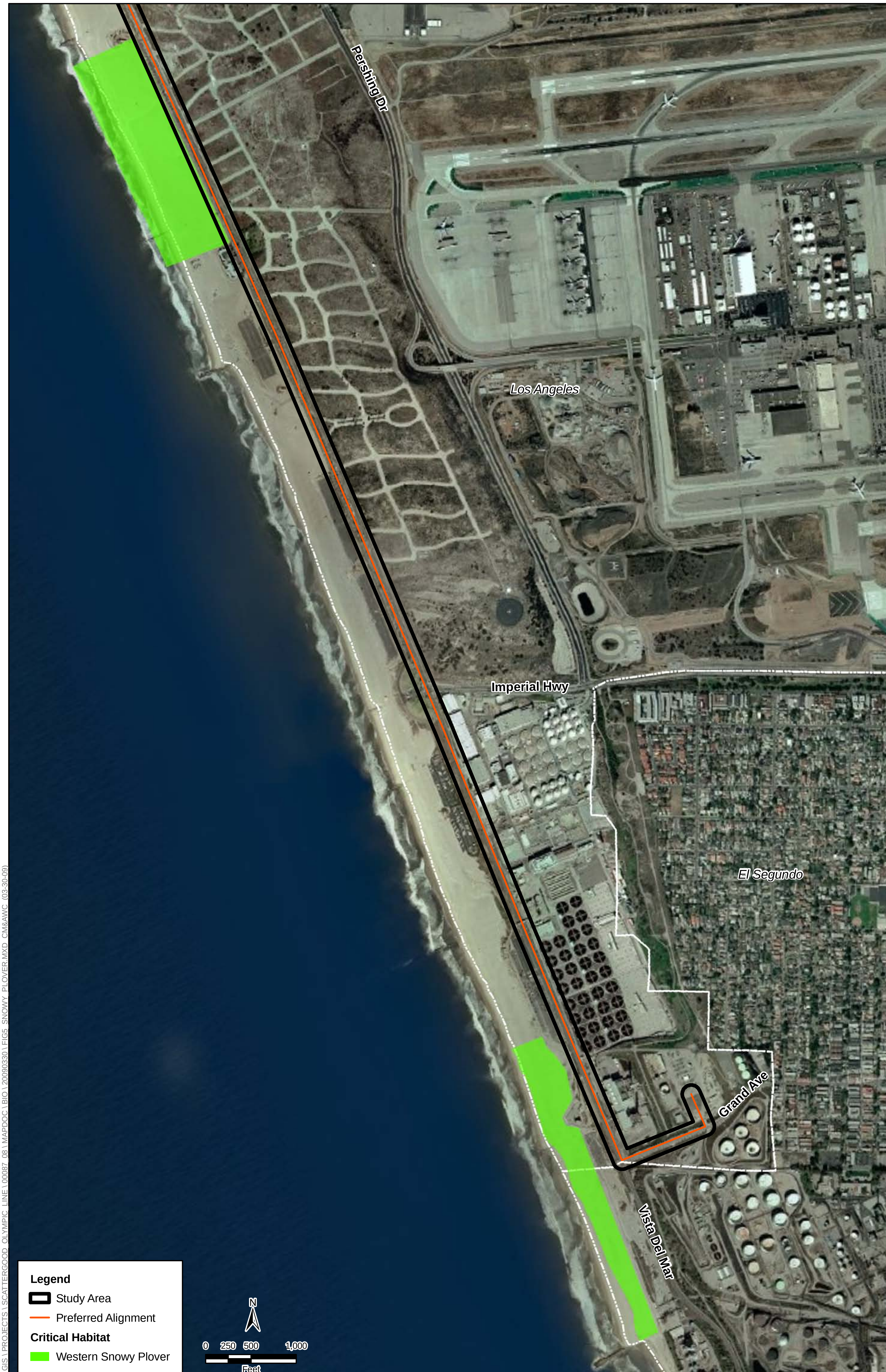
Western Snowy Plover

Western snowy plover (*Charadrius alexandrinus nivosus*) is a federally threatened species that breeds on the Pacific coast from southern Washington to southern Baja California. Primary nesting habitats include sand spits, dune-backed beaches, beaches at creek and river mouths, and saltpans at lagoons and estuaries. Nests generally consist of a shallow scrape lined with beach debris and typically occur in flat, open, sandy areas with little vegetation. Driftwood, kelp, and dune plants provide cover for chicks and harbor invertebrates, an important food source. Nests are usually found within 100 meters of water, whether ocean, lagoon, or river mouth.

Potential nesting habitat occurs adjacent to the project site, along Dockweiller Beach State Park on the west side of Vista Del Mar Boulevard, where an active coastal dune plant community exists. However, since 1949, there have been no documented cases of a snowy plover nesting within Los Angeles County. A systematic survey occurred along Los Angeles County beaches in 2007 (SWCA et al. 2007), and although no nest attempts were confirmed, there was evidence for one nest scrape in Dockweiller Beach State Park. In addition, during the 2007 survey, 21 snowy plovers were observed along this beach in early March, which is considered the start of the breeding season. The closest of these observations was approximately 300 feet from Vista Del Mar Boulevard. Therefore, the study area was determined not to overlap any habitat that would be considered suitable for western snowy plover.

Designated Critical Habitat

Critical habitat has been designated by the USFWS (2005) for western snowy plover, which does not overlap the study area (Exhibit 5). However, there are two polygons of critical habitat that occur west of Vista Del Mar Boulevard: Subunit 21B (43 acres) and Subunit 21C (24 acres). Essential habitat features in these subunits include a wide sandy beach with occasional surf-cast wrack supporting small invertebrates. The 2007 Los Angeles County-wide beach survey confirmed the presence of snowy plover within these critical habitat polygons (SWCA et al. 2007).



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SOURCE: ESRI USA Imagery (02/15/07, 0.3m); USFWS

Exhibit 5
Western Snowy Plover Critical Habitat
LADWP Scattergood Olympic Line

Jurisdictional Waters and Wetlands

During the habitat assessment, a number of drainages that are likely to be considered jurisdictional were observed to cross the proposed transmission line alignment. Some of these also support jurisdictional wetlands. These occur along Lincoln Boulevard and Inglewood Boulevard. Exhibit 6 shows the locations and Table 1 provides a summary of these drainages.

Table 1. Potential Jurisdictional Features Overlapping the Project Site

Detail	Description
Concrete Culvert	Connects an unnamed drainage from the east side of Lincoln Boulevard to the Ballona Freshwater Marsh. Freshwater is backing up on east side of Lincoln where wetland habitat now exists.
Steel Bridge	This bridge is located where Inglewood Boulevard crosses Ballona Creek.
Concrete Bridge	This bridge is located where Inglewood Boulevard crosses Centinela Creek.

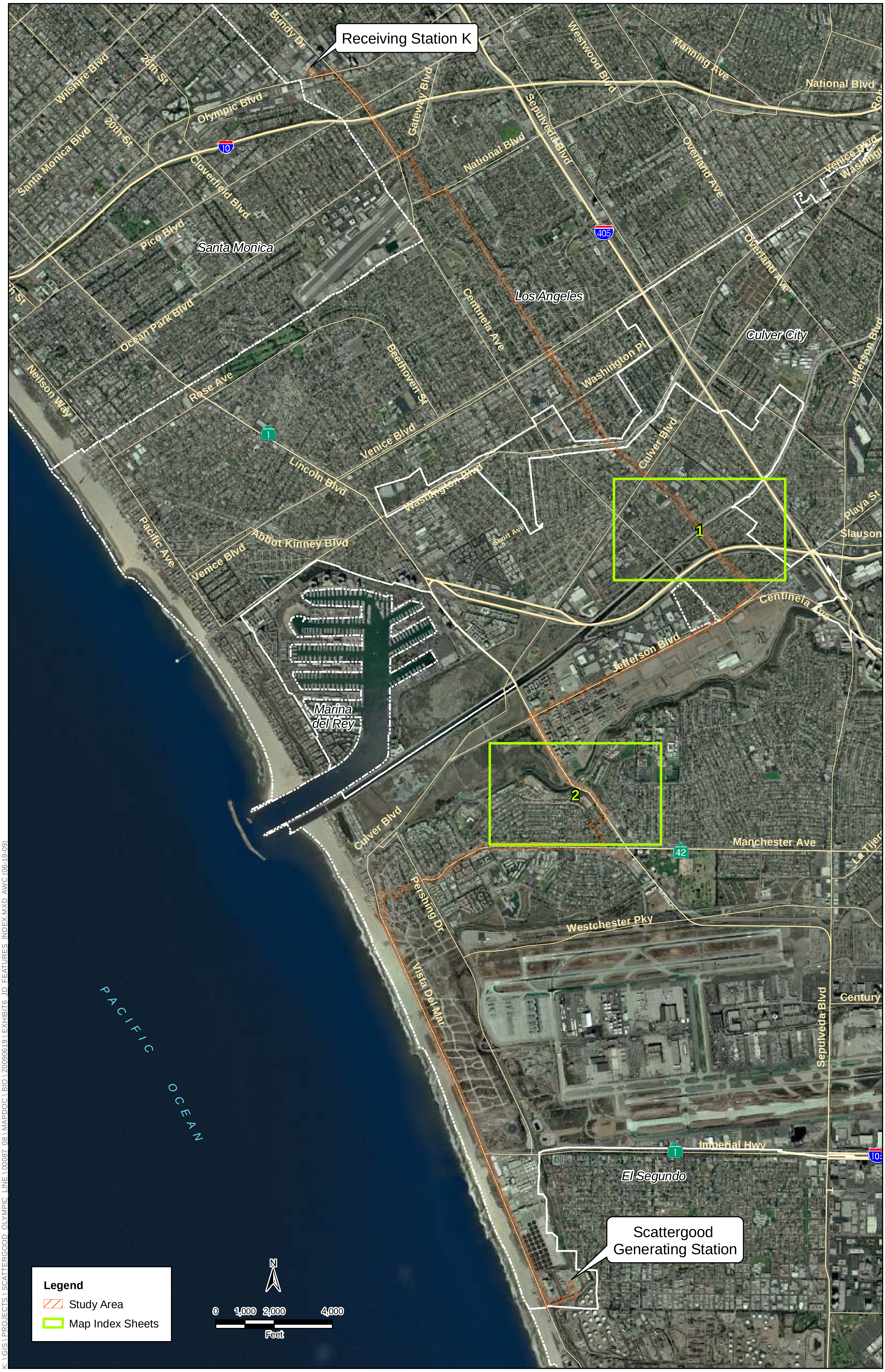
The water contained within or below each of the structures in Table 1 would be considered jurisdictional waters as there is clear evidence of a bed and bank, an ordinary high water mark, and a connection with the Pacific Ocean.

Wildlife Movement Corridors

The project does not overlap a documented regional wildlife corridor (South Coast Wildlands 2008) and is located in a heavily urbanized area of Los Angeles. Patches of habitat in this urban landscape are not linked together with similar habitat, but rather occur mostly isolated. On a smaller scale, sensitive wildlife species are expected to occasionally cross the alignment, particularly where the project crosses the unnamed drainage along Lincoln Boulevard, and potentially along Vista Del Mar Boulevard where it intersects sand dunes.

Nesting Birds

The Inglewood Boulevard at Ballona Creek and Centinela Creek bridges are the only locations where the alignment could potentially impact nesting birds during directional drilling or placing conduit underneath the bridges. However, during the habitat assessment, no evidence of nests at these bridges was observed. The street trees present in the median of Manchester Avenue could support nesting birds, but no project-related removal of vegetation is anticipated.



SOURCE: ESRI USA Imagery (02/15/07, 0.3m); ESRI Streetmap (2007)

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Exhibit 6 - Index Map
Potential Jurisdictional Features
LADWP Scattergood Olympic Line

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SOURCE: ESRI USA Imagery (02/15/07, 0.3m)

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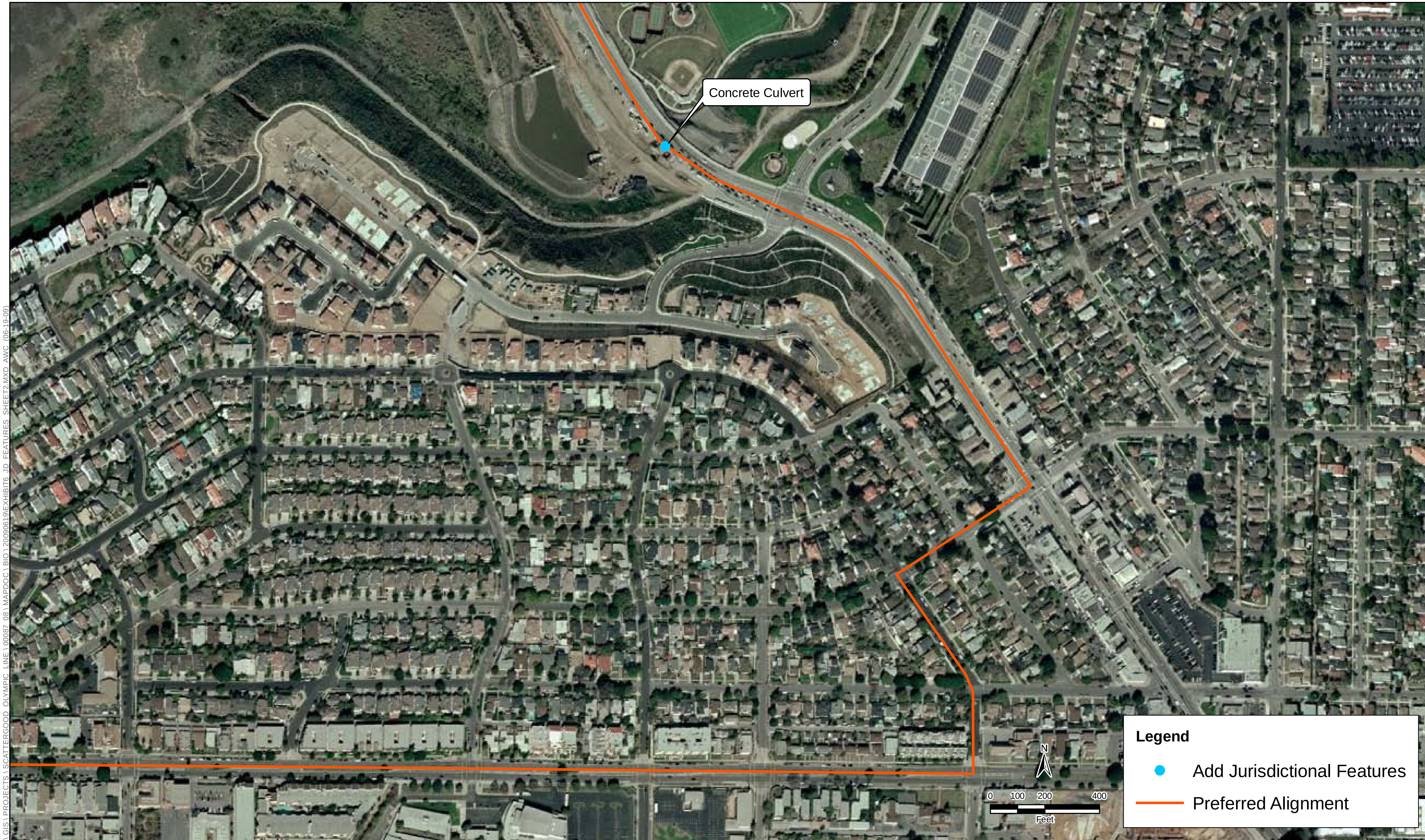
Exhibit 6 - Sheet 1 of 2
Potential Jurisdictional Features
LADWP Scattergood Olympic Line



SOURCE: ESRI USA Imagery (02/15/07, 0.3m)

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Exhibit 6 - Sheet 2 of 2
Potential Jurisdictional Features
LADWP Scattergood Olympic Line

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Chapter 4
Impact Analysis

Chapter 4
Impact Analysis

For the proposed project, it is assumed that the potential indirect impacts resulting from construction activities include dust, noise, vibration, and general human presence that may temporarily disrupt species and habitat vitality. The proposed project may also result in construction-related soil erosion and runoff. With respect to these latter factors, all project activities would be subject to the typical restrictions and requirements that address erosion and runoff, including the federal Clean Water Act, National Pollution Discharge Elimination System (NPDES), and preparation of a Stormwater Pollution Prevention Plan (SWPPP).

Sensitive Plant Communities

The southern foredune and southern willow scrub plant communities are considered rare by the CDFG (2003). No removal of vegetation has been proposed with this project. Therefore, no impacts are expected to occur to sensitive plant communities.

Sensitive Species

Threatened and Endangered Species

El Segundo Blue Butterfly

Potential direct impacts to ESB would be considered significant without mitigation. However, the project has been designed so that the transmission line would be placed entirely within the developed roadway or adjacent sidewalks. If no potential habitat for ESB is removed, no direct impacts would occur to this species. The project has the potential to indirectly impact ESB, particularly during the flight season. However, construction of the transmission line would occur in heavily traveled urban roadways. Therefore, the construction phase of this project is not expected to add to the existing baseline noise, motion, and other indirect disturbances. In fact, construction during ESB flight season could actually reduce mortality caused by vehicle collisions through a reduction of the overall traffic speed on roadways adjacent to suitable ESB habitat. Overall, potential indirect impacts to ESB from construction of the transmission line would be less than significant. Because the transmission line would be placed underground, no long-term impacts are expected.

California Least Tern

Potential direct impacts to California least tern nesting colonies would be considered significant without mitigation. However, the project has been designed so that the transmission line would be placed entirely within the developed roadway or adjacent sidewalks. Therefore, no direct impacts would occur to this species. The project does not have the potential to indirectly impact California least tern nesting colonies as none have been recently recorded adjacent to the study area. Even if breeding California least terns were present, the construction phase of this project is not expected to add to the existing noise, motion, and other indirect disturbances. Overall, potential indirect impacts to California least tern nesting colonies and foraging areas from construction of the transmission line would be less than significant. Because the transmission line would be placed underground, no long-term impacts are expected.

California Brown Pelican

Potential direct impacts to brown pelican colonies and communal roosts would be considered significant without mitigation. However, the project has been designed so that the transmission line would be placed entirely within the developed roadway or adjacent sidewalks. Therefore, no direct impacts would occur to this species. The project does not have the potential to indirectly impact California brown pelican communal roosts as none are located within 500 feet of the proposed transmission line. Therefore, the overall potential indirect impacts to California brown pelican from construction of the transmission line would be less than significant. Because the transmission line would be placed underground, no long-term impacts are expected.

Belding’s Savannah Sparrow

Potential direct impacts to Belding’s savannah sparrow would be considered significant without mitigation. However, the project has been designed so that the transmission line would be placed entirely within the developed roadway or adjacent sidewalks. If no potential habitat for Belding’s savannah sparrow is removed, no direct impacts would occur to this species. The project does not have the potential to indirectly impact Belding’s savannah sparrow, as the study area does not overlap any suitable southern coastal salt marsh habitat. Because the transmission line would be placed underground, no long-term impacts are expected.

Western Snowy Plover

Potential direct impacts to western snowy plover would be considered significant without mitigation. However, the project has been designed so that the transmission line would be placed entirely within the developed roadway or adjacent sidewalks. If no potential habitat for western snowy plover is removed, no direct impacts would occur to this species. The project has the potential to indirectly impact western snowy plover. However, construction of the transmission line would occur in heavily traveled roadways where a high level of urban disturbance exists as the baseline. Therefore, the construction phase of this project is not expected to add to the existing noise, motion, and other indirect disturbances. Overall, potential indirect impacts to western snowy plover from construction of the transmission line would be less than significant. Because the transmission line would be placed underground, no long-term impacts are expected.

Designated Critical Habitat

Critical habitat for western snowy plover (USFWS 2005) does not overlap the project site (Exhibit 5). The project would not reduce the amount of critical habitat, and no impacts would occur.

Jurisdictional Waters and Wetlands

A total of three potential jurisdictional water areas were identified within the proposed project disturbance corridor. The project proponent plans to avoid disturbing Centinela Creek and Ballona Creek by placing the transmission line through conduit underneath the existing bridges or by directional drilling beneath the channels. The cable installation on the bridge would not require any equipment placement within the stream channel and therefore, would not result in any direct or indirect impacts to jurisdictional waters or wetlands. If construction of the transmission line cannot avoid direct impacts to these areas (or the associated vegetation), these impacts could be considered potentially significant and may require mitigation.

Approximately 0.5 linear mile of the proposed project occurs within Lincoln Boulevard, which is adjacent to the Ballona Freshwater Marsh. The proposed project requires open trench excavation up to 9 feet deep within the roadways, and there is potential to encounter groundwater during the project excavation in these areas. Indirect impacts could occur to these adjacent wetlands through deposition of sediment-laden groundwater into habitat areas. These indirect impacts to adjacent vegetated wetlands habitats would be considered significant and would require mitigation.

Wildlife Movement Corridors

The project does not overlap a documented regional wildlife corridor and is proposed to occur entirely within existing roadways. Therefore, no direct impacts to wildlife movement corridors are expected.

Nesting Birds

Potential direct impacts to nesting birds would be considered significant and would require avoidance measures to reduce these impacts to a level below significance.

Chapter 5
Mitigation Measures

Chapter 5
Mitigation Measures

The proposed project would occur entirely within existing rights-of-way and is not anticipated to result in any significant direct impacts to any sensitive habitat or species. The potential for indirect impacts is considered less than significant for the majority of sensitive habitat and species due to the existing disturbance regime within the proposed project site. The project site consists of roadways that are heavily used by vehicles and people. In addition, the project is adjacent to other urban features that subject the roadway to an even higher degree of baseline disturbance. These include LAX, factories and plants, and residential and commercial developments. These would all contribute to the existing high levels of vibration, noise, dust, and motion.

Sensitive Species

Several mitigation measures are proposed in areas where potential impacts could have negative effects on special-status biological resources.

One potential indirect impact generated by the proposed project would be the generation of dust and trash during construction, which could exceed current conditions. During the project, standard construction practices would be enforced. This would include dust-control measures to reduce the amount of fugitive dust generated by the project, as well as daily removal of all trash so that predator species are not attracted and adjacent sensitive habitats are not polluted.

Jurisdictional Waters and Wetlands

The project proponent will design the project so that no direct impacts to potential jurisdictional waters would occur. No mitigation is required. However, it is recommended that the project proponent provide a biological monitor during the construction period when work is conducted at the culvert that supplies water to the Ballona Freshwater Marsh. In addition, if the alignment occurs on the west side of Culver Boulevard it is recommended that a biological monitor be present on the first day of construction in this area and then weekly (with at least two total visits) to ensure that no indirect impacts occur to sensitive habitats or waterways. If the alignment occurs on the east side of Culver Boulevard Boulevard, a biological monitor will not be required except during the culvert crossing.

During construction of the transmission line at Centinela Creek and Ballona Creek, which will be either by placing the transmission line through conduit underneath the existing bridges or by directional drilling, no equipment or construction material will be within the channel bottoms. In addition, no removal of the concrete channels may occur. If direct impacts to potential jurisdictional features located within the proposed project alignment cannot be avoided during the project design phase, a formal jurisdictional delineation would be completed to quantify any unavoidable direct impacts, and mitigation for any permanent impacts would be required. Temporary impacts (removal and replacement of the culverts without vegetated habitat impacts) would likely be self-mitigating but would require permits from the USACE, CDFG, and RWQCB prior to initiation of the work.

To prevent significant indirect impacts during project excavation to wetlands associated with the Ballona Freshwater Marsh that are adjacent to the proposed project corridor, the project proponent would complete a SWPPP including placement of BMPs (silt fencing, fiber rolls, sandbags) to prevent discharge of groundwater into adjacent areas and ensure compliance with National Pollutant Discharge Elimination System (NPDES) requirements. This would also prevent any fuel, oil, or other construction material from entering the adjacent environment. If the project proponent anticipates discharging groundwater into the Ballona Freshwater Marsh, a dewatering plan would be prepared and a permit obtained from the appropriate regulating agencies.

Nesting Birds

Potential direct impacts to nesting birds are considered significant under CEQA. Therefore, construction of the transmission line at the Inglewood Boulevard Ballona Creek and Centinela Creek bridges will occur outside the avian nesting season (approximately February 1–August 31) for conformance with the MBTA. If directional drilling or placing conduit underneath the bridges, or any related construction activities occur at the bridges between February 1 and August 31, a preconstruction survey for nesting birds would be conducted by a qualified biologist no more than 7 days prior to the start of construction. Although no project-related vegetation disturbance is anticipated, these avoidance measures would also apply if removal of street trees becomes necessary.

If nesting birds occur on the bridge, a buffer around the nest would be determined by a qualified biologist. All construction activities would occur outside the buffer area until a qualified biologist has determined that the nest is complete and that no new nesting activity has occurred within the buffer area.

Any potential direct impacts to nesting birds would be mitigated to a level below significance with incorporation of the above mitigation measure.

Chapter 6
Certification

Chapter 6

Certification

I hereby certify that the statements furnished above and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Date: August 28, 2009

Signed:

Mikael Romich, Senior Biologist

Chapter 7
References

Chapter 7

References

Anderson, DW, and F. Gress. 1983. Status of a northern population of California brown pelicans. Condor 85: 79-88.

Black, S. H., and D. M. Vaughan. 2005. Species Profile: Euphilotes battoides allyni. In Shepherd, M. D., D. M. Vaughan, and S.H. Black (Eds). Red List of Pollinator Insects of North America. CD-ROM Version 1 (May 2005). Portland, OR: The Xerces Society for Invertebrate Conservation.

California Natural Diversity Database (CNDDB). February 1, 2009. RareFind Version 3.1, California Department of Fish and Game (CDFG), Natural Heritage Division.

California Department of Fish and Game (CDFG). 2003 (September). List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. California Department of Fish and Game, Wildlife and Habitat Data Analysis Branch. Sacramento, CA.

California Department of Fish and Game (CDFG). February 2009. Special Animals. The Resources Agency State of California, Department of Fish and Game, Natural Diversity Data Base. Sacramento, CA. Accessed on line at: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/SPAnimals.pdf

California Native Plant Society. 2009. One Quadrangle search for Rare Plants for Venice. Accessed online at: http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi/Html?item=checkbox_9.htm#q9

California Native Plant Society (CNPS). 2009. Inventory of Rare and Endangered Plants (online edition, v7-09a). California Native Plant Society. Sacramento, CA. Accessed on Mon, Apr. 6, 2009 from http://www.cnps.org/inventory

City of Los Angeles. 1992. Los Angeles Airport/El Segundo Dunes Specific Plan. Los Angeles, California. June 28.

City of Los Angeles Department of Airports. 2004. Final Environmental Impact Report for the LAX Master Plan. Appendix J1 Biological Assessment Technical Report. Accessed at: http://www.laxmasterplan.org/pub_finalEIR.cfm

Garrett, K., and Dunn, J. 1981. Birds of Southern California: Status and Distribution. Los Angeles Audubon Society, Los Angeles, California.

Hickman, J.C. 1993. The Jepson Manual: Higher Plants of California. University of California Press. Berkeley, CA.

Holland, R.F. 1986. Preliminary Descriptions of the Terrestrial Natural Communities of California. Non-game Heritage Program. California Department of Fish and Game. Sacramento, CA.

Munz, P.A. 1974. A Flora of Southern California. University of California Press. Berkeley, CA.

National Geographic Society. 1987. National Geographic Society Field Guide to the Birds of North America. 2nd Edition. National Geographic Society, Washington DC.

Philip Williams & Associates, Ltd . August 2006. Ballona Wetland Existing Conditions DRAFT Report. Prepared for the Californai Sate Coastal Conservancy. Accessed at: http://www.santamonicabay.org/smbay/ProgramsProjects/HabitatRestorationProject/BallonaWetlandsRestoration/BallonaDocuments/tabid/153/Default.aspx

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, CA.

Skinner, M.W., and B.M. Pavlik. 1994. California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society. Special Publication, No. 1, 5th ed.

South Coast Wildlands. 2008. South Coast Missing Linkages: A Wildland Network for the South Coast Ecoregion. Accessed at: http://www.scwildlands.org/reports/SCMLRegionalReport.pdf

SWCA Environmental Consultants, Los Angeles Audubon, and Santa Monica Bay Audubon. October 8, 2007. The Western Snowy Plover in Los Angeles County, California: Winter–Spring 2007. Prepared for The California Department of Fish and Game Office of Spill Prevention and Response. Accessed at: http://www.losangelesaudubon.org/pdf/LACountySnowyPloverReport_web.pdf

U.S. Department of the Interior, Geological Survey. 1972. Vencice 7.5 minute USGS Quadrangle Map.

U.S. Fish and Wildlife Service. 1998. Recovery Plan for the El Segundo Blue Butterfly. (*Euphilotes battoides allyni*). Portland, Oregon. 67 pp.

U.S. Fish and Wildlife Service. 2005. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Pacific Coast Population of the Western Snowy Plover Federal Register 70 (188): 56969-57018.

U.S. Fish and Wildlife Service. 2007. Recovery Plan for the Pacific Coast Population of the Western Snowy Plover (*Charadrius alexandrinus nivosus*). In 2 volumes. Sacramento, California. xiv + 751 pages. Accessed at: http://ecos.fws.gov/docs/recovery_plan/070924.pdf

U.S. Fish and Wildlife Service. 2008. Endangered and Threatened Wildlife and Plants; 12 Month Petition Finding and Proposed Rule To Remove the Brown Pelican (Pelecanus occidentalis) From the Federal List of Endangered and Threatened Wildlife; Proposed Rule. Federal Register 73 (34): 9407-9433.

Appendix A

Flora and Fauna List

KINGDOM PLANTAE - PLANTS

PHYLUM LYCOPHYTA - CLUB-MOSSES ETC.

Pinaceae - Pine Family
Pinus spp.
Pine spp.

PHYLUM ANTHOPHYTA - ANGIOSPERMS

CLASS MAGNOLIOPSIDA - DICOTYLEDONS

Aizoaceae - Fig-Marigold Family
** *Carpobrotus spp.*
Fig spp.
* *Drosanthemum floribundum*
Flowery Ice Plant
** *Mesembryanthemum crystallinum*
Crystalline Ice Plant

Asteraceae - Sunflower Family
Acamptopappus sphaerocephalus
Desert Goldenhead
(*) *Achillea millefolium*
Common Yarrow
Achyrachaena mollis
Blow-wives
Acourtia microcephala
Sacapellote
** *Acroptilon repens*
Russian Knapweed
* *Ageratina adenophora*
Sticky Eupatorium
Agoseris grandiflora
Large-flowered Agoseris
Agoseris heterophylla
Woodland Agoseris
Agoseris retrorsa
Spear-leaved Agoseris
Amblyopappus pusillus
American Pineapple-plant
Ambrosia acanthicarpa]
Annual Bur-sage
Baccharis pilularis
Coyote Brush
Baccharis salicifolia
Mule Fat
Heterotheca grandiflora
Telegraph Weed
Jaumea carnosa
Marsh Jaumea
** *Picris echioides*
Bristly Ox-tongue

Boraginaceae - Borage Family
Plagiobothrys spp.
Popcorn Flower spp.

Brassicaceae - Mustard Family
** *Brassica nigra*
Black Mustard
** *Brassica rapa*
Field Mustard
** *Brassica tournefortii*

Capparaceae - Caper Family
(*) *Isomeris arboria*
Bladderpod

Chenopodiaceae - Goosefoot Family
Atriplex spp.
Saltbush spp.

Euphorbiaceae - Spurge Family
Croton californicus
California Croton

Myrtaceae - Myrtle Family
** *Eucalyptus spp.*
Blue Gum spp.

Oleaceae - Olive Family
** *Olea europaea*
European Olive

Onagraceae - Evening-primrose Family
Camissonia cheiranthifolia
Beach Sun-cup

Platanaceae - Sycamore Family
Platanus racemosa
California Sycamore

Plumbaginaceae - Leadwort Family
Limonium californicum
California Sea-lavender

Polygonaceae - Buckwheat Family
Eriogonum fasciculatum
California Buckwheat
Eriogonum parvifolium
Sea-cliff Buckwheat

Salicaceae - Willow Family
Populus fremontii
Fremont's Cottonwood
Salix exigua
Narrow-leaved Willow
Salix gooddingii
Goodding's Black Willow
Salix laevigata
Red Willow
Salix lasiolepis
Arroyo Willow

Solanaceae - Nightshade Family
** *Nicotiana glauca*
Tree Tobacco

CLASS LILIOPSIDA - MONOCOTYLEDONS

Arecaceae - Palm Family
** *Washingtonia robusta*
Mexican Fan Palm

Cyperaceae - Sedge Family
* *Cyperus spp.*
Sedge spp.
Eleocharis spp.
Spike-rush spp.
Scirpus americanus
Winged Three-square
Scirpus californicus
California Bulrush

Poaceae - Grass Family
** *Avena barbata*
Slender Oat
** *Avena fatua*
Wild Oat
** *Bromus hordeaceus*
Soft Chess
** *Cortaderia selloana*
Pampas Grass
** *Hordeum marinum*
Mediterranean Barley
* *Lolium perenne*
Perennial Ryegrass

Typhaceae - Cattail Family
Typha latifolia
Broad-leaved Cattail

KINGDOM ANIMALIA - ANIMALS

CLASS AVES - BIRDS

Podicipedidae - Grebe Family
Podilymbus podiceps
Pied-billed Grebe

Pelecanidae - Pelican Family
! *Pelecanus occidentalis californicus*
California Brown Pelican

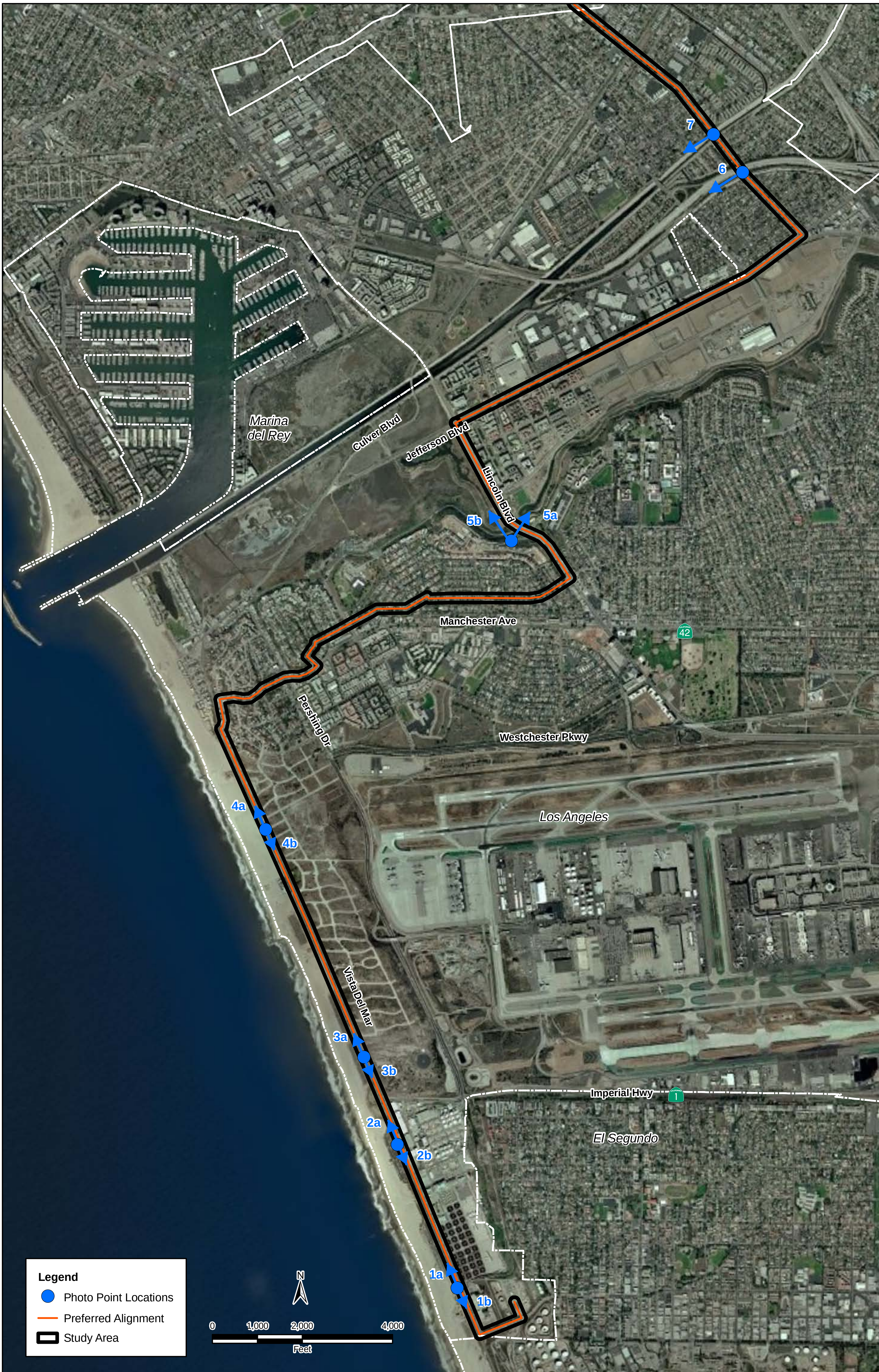
Phalacrocoracidae - Cormorant Family
Phalacrocorax auritus
Double-crested Cormorant

Rallidae - Rail and Coot Family
Fulica americana
American Coot

Fringillidae - Finch Family
Carpodacus mexicanus
House Finch

Appendix B

Site Photos



SOURCE: ESRI USA Imagery (02/15/07, 0.3m)

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Appendix B
Photo Point Locations
LADWP Scattergood Olympic Line

Photograph 1a


Photograph 1b

Appendix B
Site Photographs

Photograph 2a

Photograph 2b

Appendix B
Site Photographs

Photograph 3a

Photograph 3b

Photograph 4a

Photograph 4b

Photograph 5a. Unnamed drainage on east side of Lincoln Boulevard.


Photograph 5b. Ballona Marsh and associated habitats on the west side of Lincoln Boulevard.

Appendix B
Site Photographs

Photograph 6. West-facing view of the Inglewood Boulevard Centinela Creek Bridge.

Photograph 7. West-facing view of the Inglewood Boulevard Ballona Creek Bridge

Appendix C
Special-Status Species Information

Appendix C
Special-Status Species Information

This appendix addresses all species with applicable special regulatory or management status whose general range includes the study area or whose habitat occurs within or near the study area and/or vicinity. Information provided includes: 1) definitions of terms to describe likelihood of occurrence, 2) a table of special-status codes and their meanings, and 3) a species information table listing the English and scientific names, current special-status, likelihood of occurrence within the 100-foot and 200-foot buffers, and specific notes relevant to likelihood of occurrence. Table C-1 provides explanations of codes used in the special-status field of Table C-2. Judgments regarding likelihood of occurrence are based on evaluation of available biological information regarding regional and local conditions, species biology, available evaluations of the study area and vicinity, and professional experience conducting field investigations across California over many years. Though professional, such judgments are necessarily subjective at least in part.

Terms for Likelihood of Occurrence in the Study Area

Less than Reasonable

If the likelihood of occurrence is *less than reasonable*, the likelihood of occurrence, although remotely possible, is less than that required for any potentially applicable regulatory threshold. Further, the likelihood that the site is meaningfully valuable to any population(s) of this taxon is less than reasonable. The species may or may not include the study area within its current, general range. However, no appropriate, or adequately extensive, or effectively connected habitat is present. Neither the species nor any indication of its presence was detected. In some cases, based on the best available information, this likelihood may indicate that, the study area has a very high probability of being outside of the species' current range. In all of the above cases, the species may not be definitively ruled out but is strongly believed to be absent based on professional evaluation of all available evidence.

Low

If the likelihood of occurrence is *low*, occurrence of the species is reasonable but unlikely because of some combination of facts. For example, 1) the study area was the subject of unsuccessful searches conducted under relevant and reasonable circumstances, 2) potential habitat present is marginal or minimal in extent, 3) the best available information suggests the species is absent from the study area, and/or 4) available information sheds no clear light on the species likelihood on the study area, but it is known to be rare at best in the vicinity. Neither the species nor any indication of its presence was detected. Although individuals may have been missed, it is unlikely that substantial populations are present. Further evaluation should usually not be required for individual species.

Moderate

If the likelihood of occurrence is *moderate*, the study area is within the range of the species, and contains potentially appropriate habitat. Neither individuals nor diagnostic sign were detected. It is nevertheless reasonable that some individuals may have been overlooked. The best available information on the species with regard to the study area is either very uncertain, or may be equally weighted for and against occurrence. Depending upon local and special legal status, extent of habitat, and the nature and sensitivity of the project, focused surveys for the species may be warranted or presence may be assumed.

High

If the likelihood of occurrence is *high*, the study area is known to be within the range of the species, and contains potential habitat with a high likelihood of occupancy. Although no individuals or diagnostic sign were detected during current fieldwork by a qualified observer, the species is likely to be present to some degree given the best available information. Depending upon regulatory status, local rarity, public interest, extent of habitat on the study area, and the nature of potential project impacts, a substantial basis may exist for either conducting focused surveys for the species or for assuming presence.

Confirmed Present

If the likelihood of occurrence is *confirmed present*, a qualified biologist or other reliable source has confirmed the presence of the species and there is no specific evidence that the species has subsequently become absent. Depending on the species and other information available, it may or may not be possible to determine, without further studies, what portions of the study area are currently in use.

Table C-1. Status Code Explanations

Status code	Explanation
FE	Federally endangered
FT	Federally threatened
SE	State endangered
ST	State threatened
SSC	State species of special concern
CFP	California fully protected species
CNDDB	Tracked by the California Department of Fish and Game Natural Diversity Database, but with no other special regulatory or management status
1A	California Native Plant Society (CNPS) List 1A plant (“Plants presumed extinct in California”)
1B	CNPS List 1B plant (“Plants rare, threatened or endangered in California and elsewhere”)
2	CNPS List 2 plant (“Plants rare, threatened or endangered in California, but more common elsewhere”)
4	CNPS List 4 plant (“Plants in this category are of limited distribution or infrequent throughout a broader area in California, and their vulnerability or susceptibility to threat appears low at this time. While we cannot call these plants “rare” from a statewide perspective, they are uncommon enough that their status should be monitored regularly. Should the degree of endangerment or rarity of a List 4 plant change, we will transfer it to a more appropriate list or deleted from consideration.”)
.1	Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2	Fairly endangered in California (20-80% occurrences threatened)
.3	Not very endangered in California (<20% of occurrences threatened or no current threats known)
N/A	Not applicable

Table C-2. Special-Status Species Information for Study Area

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
PLANTS				
Ventura Marsh Milk-vetch (*Astragalus pycnostachyus* var. *lanosissimus*)	FE SE 1B.1	Historic records suggest that this variety occurred near coastal marshes or bodies of brackish water, often on well-drained substrates near the water table.	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
Coastal Dunes Milk-vetch (*Astragalus tener* var. *titi*)	FE SE 1B.1	Coastal dunes are the preferred habitat based on historical records.	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
Parish's Brittlescale (*Atriplex parishii*)	1B.1	Found in association with the alkali vernal pools, alkali annual grassland, alkali playa, and alkali scrub components of alkali vernal plains.	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
Lewis's Evening-primrose (*Camissonia lewisii*)	3	Occurs in very sandy areas near the coast, generally away from dense grasses and weeds.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Populations occur in Ballona Wetlands and LAX. Habitat requirements are absent from the area of disturbance but are present within the buffer.
Southern Tarplant (*Centromadia parryi* ssp. *australis*)	1B.1	Occurring along the margins of marshes and in grasslands and areas supporting vernal pools.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Population of 30 individuals occur in Ballona Wetlands, but none were found around LAX. Habitat requirements are absent from the area of disturbance but are present within the buffer.
Orcutt's Pincushion (*Chaenactis glabriuscula* var. *orcuttiana*)	1B.1	Occurs along coastal dunes and bluffs.	Less Than Reasonable	Not observed during numerous focused surveys in suitable habitat within the study area

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
San Fernando Valley Spineflower (*Chorizanthe parryi* var. *fernandina*)	FC SE 1B.1	Occurs in sandy places, generally in coastal scrub.	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
Salt Marsh Bird's Beak (*Cordylanthus maritimus* ssp. *maritimus*)	FE SE 1B.2	Occurs in salt marshes, particularly on slightly raised hummocks and terraces.	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
Beach Spectaclepod (*Dithyrea maritima*)	SE 1B.1	Occurs along coastal strands, coastal dunes, and scrub and sandy soils below 50 meters above mean sea level.	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
Many-stemmed Dudleya (*Dudleya multicaulis*)	1B.2	Often associated with clay soils in barrens, rocky places, or thinly vegetated openings in chaparral, coastal sage scrub, and southern needlegrass grasslands.	Less Than Reasonable	Study area is mostly developed and those areas that remain open lack potentially suitable habitat for this species
Suffrutescent Wallflower (*Erysimum insulare* ssp. *suffrutescens*)	4.2	Occurs along coastal strands, coastal dunes, and scrub.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	A small population of this species is reported in the area of the Ballona Wetlands. Habitat requirements are absent from the area of disturbance but are present within the buffer.
Los Angeles Sunflower (*Helianthus nuttallii* ssp. *parishii*)	1A	Prefers marshes and swamps (coastal salt and freshwater).	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
Coulter's Goldfields (*Lasthenia glabrata* ssp. *coulteri*)	1B.1	Occurs along ocean bluffs in coastal bluff scrub; on coastal dunes; and on ridge tops, clay soils, and alkaline low places in coastal scrub and valley and foothill grassland.	Less Than Reasonable	Considered extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
California Spineflower *Mucronea californica*	4.2	Inhabits coastal dune habitat and grassland.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Individuals located at LAX in 1998. Habitat requirements are absent from the area of disturbance but are present within the buffer.
Mud Nama *(Nama stenocarpum)*	2.2	Associated with intermittently wet areas in marshes and swamps and muddy embankments of ponds and lakes.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Although not reported during recent focused surveys, this species is still generally considered extant in the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Prostrate Vernal Pool Navarretia (*Navarretia prostrata*)	1B.1	Associated with vernal pools and moist places to 2000 feet above mean sea level.	Less Than Reasonable	Considered extirpated from the area and was not reported as occurring during focused surveys around Ballona Wetlands and LAX
Brand's Star Phacelia (*Phacelia stellaris*)	FC 1B.1	Occurs in open areas in coastal scrub and coastal dunes.	Less Than Reasonable	Likely extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX
El Sequndo Dune Flower (*Pholisma paniculatum*)	No listing	Inhabits El Segundo sand dunes.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Three individuals found at LAX in 1998. Habitat requirements are absent from the area of disturbance but are present within the buffer.
Ballona Cinquefoil (*Potentilla multijuga*)	1A	Associated with brackish marshes.	Less Than Reasonable	Likely extirpated from the area and was not observed during focused surveys around Ballona Wetlands and LAX

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Salt Marsh Checkerbloom (*Sidalcea neomexicana*)	2.2	Occurs in alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, and Mojavean desert scrub.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Although not reported during recent focused surveys, this species is still generally considered extant in the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Wooly Seablite (*Suaeda taxifolia*)	4.2	Usually restricted to coastal salt marshes, but is sometimes found in peripheral scrublands adjacent to salt marshes or as isolated plants along beaches.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Known to occur in the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
SNAILS				
Trask's Snail (*Helminthoglypta mulitjuga)*	No listing	El Segundo sand dunes.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Surveys conducted upon USFWS request, present in LA/El Segundo dunes. Habitat requirements are absent from disturbance area but are present within the buffer.
Tryonia Imitator (=California Brackishwater Snail) (*Mimic tryonia*)	CNDDB	Inhabits coastal lagoons, estuaries, and salt marshes from Sonoma County south to San Diego County.	Less Than Reasonable	Not observed in the area since the 1970's (CNDDB) and was not observed during focused surveys for the species in the recent past
ARACHNIDS				
Trapdoor Spider *(Aptosichus simus)*	No listing	Southern California coastal dunes.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Surveys conducted upon USFWS request, species detected during surveys in LA/El Segundo dunes. Habitat requirements are absent from disturbance area but are present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
El Segundo Crab Spider (*Ebo* new species)	No listing	Associated with buckwheat and coastal goldenbush in southern foredune and southern dune scrub plant communities.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Surveys conducted upon USFWS request, species detected during surveys in LA/El Segundo dunes. Habitat requirements are absent from disturbance area but are present within the buffer.
El Segundo Sun Spider (*Eremobates* new species)	No listing	El Segundo sand dunes.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Surveys conducted upon USFWS request, species detected during surveys in LA/El Segundo dunes. Habitat requirements are absent from disturbance area but are present within the buffer.
ANOSTRACANS				
Riverside Fairy Shrimp (*Strephtocephalus wootoni)*	FE	Species found in deep vernal pools, road cuts, and depressions that retain water through the warm weather of late April and May. Distribution is limited to discrete localities from Los Angeles County (LAX), Orange County, Riverside, and San Diego Counties south to Baja California.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Embedded cysts found in the LAX area; no suitable habitat present in the Ballona Wetland due to high salinities or inadequate length or depth of ponding; however, focused surveys needed to confirm this.
San Diego Fairy Shrimp *(Branchinecta sandiegonensis)*	FE	Found in shallow depressions containing a clay hard pan soil layer. Discontinuously distributed along coastal southern California and northern Baja California. They are most frequently found in San Diego County, but small populations occur in Orange County.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Occurs in the LAX area; no suitable habitat present in the Ballona Wetland due to high salinities or inadequate length or depth of ponding; however, focused surveys needed to confirm this.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
INSECTS				
Jerusalem Cricket Species (*Stenopelmatus* new species)	No listing	Although not specifically recognized as a sensitive species, this species is considered to be sensitive due to its restricted distribution in declining Southern California coastal habitats. Prefers southern foredune and southern dune scrub plant communities with sand.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Not observed during focused surveys in area of LAX; however, records exist for the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
El Segundo Jerusalem cricket (*Stenopelmatus* new species)	No listing	Although not specifically recognized as a sensitive species, this species is considered to be sensitive due to its restricted distribution in declining Southern California coastal habitats. Prefers southern foredune and southern dune scrub plant communities with sand.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Reported during focused surveys in area of LAX but no records for the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Sand Roach (*Arenivaga* new species)	No listing	Although not specifically recognized as a sensitive species, this species is considered to be sensitive due to its restricted distribution in declining Southern California coastal habitats. Prefers southern foredune and southern dune scrub plant communities with sand.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Not reported for LAX area but occurs in the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Dune Scarab Beetle *(Aegilla convexa)*	No listing	Beaches and sand dunes. Lives in burrows beneath the surface of the sand.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Surveys conducted upon USFWS request, species detected during surveys in LA/El Segundo dunes. Habitat requirements are absent from disturbance area but are present within the buffer.
Sandy Beach Tiger Beetle (*Cicindela hirticollis gravida*)	CNDDB	Inhabits clean, dry, light-colored sand in the upper zone of the beach dunes, usually close to non-brackish water.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Not observed during focused surveys in area of LAX, but may occur in Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Senile Tiger Beetle (*Cicindela senilis frosti*)	CNDDB	Found in the middle to upper parts of salt marshes.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Not observed during focused surveys in area of LAX; potentially suitable habitat present at Ballona Wetlands, but none reported. Habitat requirements are absent from disturbance area but may be present within the buffer.
Western Mudflat Tiger Beetle *(Cicindela trifasciata sigmoidea)*	No listing	Although not specifically recognized as a sensitive species, this beetle is considered to be sensitive due to its restricted distribution in declining Southern California coastal habitats. Occurs on mudflats.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Not observed during focused surveys in area of LAX, but has been observed at Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Globose Dune Beetle (*Coelus globosus*)	CNDDB	Inhabitant of coastal sand dune habitat, typically foredunes and sand hummocks, from Bodega Head in Sonoma County, south to Ensenada, Mexico.	**Less Than Reasonable** within area of disturbance; **High** within study area	Present during focused surveys in area of LAX and the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
South Coast Dune Beetle *(Psammodius macclayi)*	No listing	Associated with sand dune systems along the coast and floodplains of river systems.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Reported during focused surveys in area of LAX but no records for the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Lange's El Segundo Dune Weevil (*Onychobaris langei*)	CNDDB	Occurs in southern foredune and southern dune scrub plant communities.	**Less Than Reasonable** within area of disturbance; **Low** within study area	No records at LA/El Segundo dunes since 1938; however, species has been recorded in the Ballona Wetlands dune system. Habitat requirements are absent from disturbance area but are present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Dorothy's El Segundo Dune Weevil (*Trigonoscuta dorothea dorothea*)	CNDDB	Distributed only along coastal southern California from Point Dume to Point Fermin and is associated with southern dune scrub plant community.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Not observed during focused surveys in area of LAX; however, records exist for the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
El Segundo Scythrid Moth *(Scythris new species)*	No listing	Coastal sand dunes.	Less Than Reasonable	Surveys conducted in LAX area but not detected; historically present but may be extripated.
Ford's Dune Moth (*Psammobotys fordi*)	CNDDB	Coastal sand dune and sage scrub habitats.	Less Than Reasonable	Surveys conducted upon USFWS request, but not detected; historically present but may be extripated.
El Segundo Goat Moth (*Comadia intrusia*)	No listing	El Segundo sand dunes.	Less Than Reasonable	Surveys conducted upon USFWS request, but not detected; historically present but may be extripated.
Henne's Eucosman Moth (*Eucosma hennei*)	CNDDB	Endemic to the Los Angeles/El Segundo Dunes in Los Angeles County. Species has been collected from and identified at the dunes in 1984.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Despite no reports during focused surveys in area of LAX and no records for the Ballona Wetlands, may be extant. Habitat requirements are absent from disturbance area but are present within the buffer.
Busck's Gallmoth (*Carolella busckana*)	CNDDB	Type location for this species from El Segundo sand dunes.	Less Than Reasonable	Not reported from focused studies in the area; last reported occurrence in the area was in 1939 and is now likely extirpated.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
El Segundo Blue Butterfly (*Euphilotes battoides allyni*)	FE	Historically ranged over the entire Los Angeles/El Segundo Dunes and the northwestern Palos Verdes Peninsula in southwestern LA County. Currently distributed on three remnant habitats within its former range supporting coastal sand dunes with coast buckwheat (*Eriogonum parvifolium).*	**Less Than Reasonable** within area of disturbance; **High** within study area	Reported during focused surveys in area of LAX but no records for the Ballona Wetlands since the 1980's. Habitat requirements are absent from disturbance area but are present within the buffer.
Monarch Butterfly (*Danaus plexippus*)	CNDDB	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (e.g., eucalyptus, Monterey pine, and cypress).	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Not reported during focused surveys in LAX area; however, was observed roosting in a eucalyptus tree in the Ballona Wetlands. Habitat requirements are absent from disturbance area but may be present within the buffer.
Wandering (=saltmarsh) Skipper (*Panoquina errans*)	CNDDB	Distributed along a narrow coastal strip from Santa Barbara and Ventura to San Diego County. Often associated with host plant, saltgrass (*Distichlis spicata*).	**Less Than Reasonable** within area of disturbance; **Low** within study area	Not observed during focused surveys in area of LAX; however, records exist for the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Belkin's Dune Tabanid Fly (*Brennania belkini*)	CNDDB	Found in exposed sandy substrates within southern foredune and southern dune scrub plant communities.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Species observed in area of LAX, but not observed in area of Ballona Wetlands since mid-1980's. Habitat requirements are absent from disturbance area but are present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
BONY FISHES				
Tidewater Goby *(Eucyclogobius newberri)*	FE SSC	Found primarily in waters of coastal lagoons, estuaries, and marshes, and historically ranged from mouth of the Smith River, Del Norte County to northern San Diego County. The tidewater goby is currently found in only about 96 of 124 historic locations. The species is benthic in nature, living at the bottom of shallow brackish bodies of water, such as lagoons and in lower stream reaches where the water is fairly still but not stagnant.	Less Than Reasonable	Species was not observed during focused surveys in the Ballona Wetand area and is not expected due to the lack of suitable habitat conditions.
Steelhead Trout (*Oncorynchus mykiss)*	FE SSC	Thrive when dissolved oxygen concentration is at least 7 parts per million. In streams, deep low-velocity pools are important wintering habitats. Spawning habitat consists of gravel substrates free of excessive silt. They have been extirpated from at least 11 southern California streams: San Luis Rey River, San Mateo Creek, Santa Margarita River, Rincon Creek, Maria Ygnacio River, Los Angeles River, San Gabriel River, Santa Ana River, San Onofre Creek, San Juan Creek, San Diego River, and Sweetwater River.	Less Than Reasonable	Historically, likely occurred when the Los Angeles River emptied into the marsh during flood events; however, this species was not observed during surveys and is considered not to have any potential of occurrence due to the lack of suitable habitat conditions. .
AMPHIBIANS				
Arroyo Toad *(Bufo microscaphus californicus)*	FE SSC	Adults typically breed in overflow pools adjacent to the inflow channel of third or greater-order predator-free streams. Prefers exposed pools with a minimum of silt, and within a few hundred feet of fine sandy shores or central bars with stable terraces Young toads require moderately vegetated sandbars. Adult estivation sites are typically in stream terraces or uplands with friable soils, usually near active use areas but potentially more than 1 kilometer away.	Less Than Reasonable	Species was not observed during focused surveys in the Ballona Wetand area and is not expected due to the lack of suitable habitat conditions.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
California Red-legged Frog *(Rana aurora draytonii)*	FT SSC	Occurs very locally on the western slopes of the Sierra Nevada and the coastal foothills the length of the state, up to about 4,920 feet. Inhabit pools of streams, marshes, and ponds. Adults feed on a wide variety of aquatic prey, and will move up to a mile through riparian communities under wet conditions, such as rainfall. They prefer shorelines with extensive vegetation, and are vulnerable to the introduction of exotic competitors.	Less Than Reasonable	Species not observed in area of Ballona Wetlands open space and is not expected here based on the lack of suitable habitat conditions.
Western Spadefoot (*Spea* (= *Scaphiopus*) *hammondii*)	SSC	The known elevational range is from sea level to about 4,472 feet. Although they spend the great majority of their life outside water, they require temporary rain pools with water temperatures between 48° and 86° f. lasting upwards of 3 weeks. These pools must also lack predators of eggs and tadpoles. Vernal pools are occasionally occupied, but species must have access to friable soils for estivation during the dry season.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Species observed in area of LAX, but not observed in Ballona Wetlands and is not expected here based on the lack of suitable pooled water. Habitat requirements are absent from disturbance area but are present within the 100-foot buffer.
TURTLES				
Southwestern Pond Turtle (*Emys marmorata pallida*)	SSC	Locally uncommon in southern California, in association with permanent or nearly permanent water in a fairly wide variety of habitat types. They are omnivorous, taking a wide variety of plant and animal food. Pond turtles require basking sites such as partially submerged logs, rocks, mats of floating vegetation, or open mud banks.	Less Than Reasonable	Likely inhabited the original Ballona Wetlands freshwater marsh system, but no observations of this species has been reported. Likely extripated.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
REPTILES				
Silvery Legless Lizard (*Anniella pulchra pulchra*)	SSC	Prefers sandy or loose loamy soils under the sparse vegetation of beaches, chaparral, or pine-oak woodland, and open, well-shaded terraces in mature riparian natural communities. Leaf litter is commonly present. Soil characteristics, as well as requirements for soil moisture and relatively cool microclimates (about 93° f. maximum) limit distribution.	**Less Than Reasonable** within area of disturbance; **High** within study area	Recorded during focused surveys in area of LAX and in the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
San Diego Coast Horned Lizard (*Phrynosoma coronatum blainvillei*)	SSC	Found in a wide variety of communities, from grasslands and shrublands to woodlands. Critical factors are the presence of loose soils with a high sand fraction; an abundance of native harvester ants or other insects; and the availability of both sunny basking spots and dense cover for refuge. May not eat the introduced Argentine ant.	**Less Than Reasonable** within area of disturbance; **High** within study area	Recorded during focused surveys in area of LAX, but no reports exist for the Ballona Wetlands. Habitat requirements are absent from disturbance area but are present within the buffer.
Two-striped Garter Snake (*Thamnophis hammondii*)	SSC	Prefers water and is rarely found far from it, although it inhabits intermittent streams having rocky beds bordered by willow thickets. They will also inhabit large riverbeds if riparian vegetation is available, and even occur in artificial impoundments if both aquatic vegetation and suitable prey items are present.	Less Than Reasonable	Likely inhabited the original Ballona Wetlands freshwater marsh system, but no observations of this species has been reported. Likely extripated..
South Coast Garter Snake *(Thamnophis sirtalis ssp.)*	SSC	Endemic to coastal southern California from the Santa Clara River valley south to northern San Diego County. Maximum known elevation is about 2,270 feet. Prefers permanent water with riparian vegetation, adjacent marsh, and upland habitats.	Less Than Reasonable	Likely inhabited the original Ballona Wetlands freshwater marsh system, but no observations of this species has been reported. Likely extripated..

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
BIRDS				
Brant (*Branta bernicla*)	SSC	An abundant small goose of the ocean shores, the Brant breeds in the high Arctic tundra and winters along both coasts. The species is a very locally common winter visitant along the coast.	**Less Than Reasonable** within area of disturbance; **Low** within study area as migrant/ winter forager	Does not nest in this area, although it has been observed wintering in area of Ballona Wetlands. Foraging habitat is absent from the disturbance area but present within the buffer.
Redhead (*Aythya americana*)	SSC	Breeds in central Alaska, the Great Plains, and locally throughout the West. Also in scattered localities around the Great Lakes. Winters in much of United States and Mexico with open water. Open marshes and ponds with some cover are required for nesting. In winter and migration deeper, more open lakes are inhabited.	**Less Than Reasonable** within area of disturbance; **Low** within study area as migrant	Does not nest in this area, although it is occasionally observed in Ballona Wetlands as a migrant.. Foraging habitat is absent from the disturbance area but present within the buffer.
California Brown Pelican (*Pelecanus occidentalis californicus*)	FE SE	Do not breed on the mainland but nest colonially on the Channel Islands off the coast of Southern California, on islands along the west coast of Baja California, and in the Gulf of California. After the breeding season, brown pelicans leave the islands and disperse along the entire California coast and thus are most common in Southern California from June to October.	**Less Than Reasonable** within area of disturbance; **Low** within study area for roosting and foraging.	The Marina Del Rey breakwater supports a large roosting site. Occasionally observed flying over Ballona Wetlands but known to forage in Ballona Creek. Habitat requirements for roosting are absent from disturbance area and 100-foot buffer. Suitable foraging habitat occurs in the buffer.
American Bittern *(Botaurus lentiginosus)*	CNDDB	Breeds in wetlands across most of the United States and Canada. Winters from the southern United States southward into Mexico and the Caribbean. Primarily a winter visitant and uncommon along the coast, but can remain casually through summer. Prefer dense beds of cattails and rushes in freshwater and brackish portions of estuaries.	**Less Than Reasonable** within area of disturbance; **Low** within study area	Not known to nest in this area, although it has been observed in the Ballona Wetland. Foraging habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Least Bittern (*Ixobrychus exilis*)	SSC	It is considered rare along the coast, but records exist from throughout the year. A rare species in the winter, it is more regular in the summer. Prefers freshwater or brackish marshes with tall emergent vegetation for nesting.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Records exist for the Ballona Wetlands freshwater marsh. Foraging and nesting habitat is absent from the disturbance area but present within the buffer.
White-faced Ibis *(Plegadis chihi)*	CNDDB	Breeds across western United States northward to Montana, eastward to western Louisiana, and southward to South America. Winters from southern California and Louisiana southward. Uncommon transient and very local winter visitant along the California coast.	**Less Than Reasonable** within area of disturbance; **Low** within study area as migrant	Does not nest in this area, although it is occasionally observed in Ballona Wetlands as a migrant.. Foraging habitat is absent from the disturbance area but present within the buffer.
Osprey *(Pandion haliaetus)*	CNDDB	This large, distinctive hawk is highly adapted to a diet consisting almost entirely of fish. One of the most widespread bird species in the world, it was formerly a common and widespread breeder in southern California, but no longer breeds regularly in California anywhere south of the northern San Francisco Bay.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area foraging	Regularly observed at Ballona Wetlands, but is not expected to breed here. Foraging habitat is absent from the disturbance area but present within the buffer.
White-tailed Kite (*Elanus leucurus*)	CFP	Found widely across California west of the Sierra Nevada and deserts, from north of the San Francisco Bay south into northern Baja California, Mexico. Nests are flimsy, often not lasting to the next breeding season, and are located low in trees and large shrubs near foraging areas in savannahs and at edges between open habitat and woodland or forest areas. Its diet is largely restricted to small mammals such as voles and mice.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area for foraging	Frequently observed foraging in area of Ballona Wetland, but has not nested. Foraging habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Northern Harrier (*Circus cyaneus*)	SSC	Hunts low to the ground mostly in open country. Small mammals are most common prey. It was formerly a fairly common breeder in much of coastal southern California, but now is nearly extirpated due to loss of native open habitats, especially marshes. It remains fairly common in open country with low human disturbance during migration and in winter.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area foraging	Winter residents are no longer documented in the Ballona Wetland area, although individual northern harriers are recorded regularly. Foraging habitat is absent from the disturbance area but present within the buffer.
Cooper's Hawk (*Accipiter cooperii*)	CNDDB	This medium sized hawk specializing in hunting small birds in closed quarters. It winters widely and fairly commonly in California as birds breeding to the north move in. In southern California, Cooper's hawks breed primarily in woodland habitats, especially riparian zones, but also oak woodland, walnut woodland, gum trees, and occasionally in dense, abandoned or otherwise undisturbed orchards.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area foraging, and **Low** as breeder	Species is regularly observed at Ballona Wetlands, and may nest in the eucalyptus grove or in adjacent residential areas. Suitable habitat is absent from the disturbance area but suitable foraging and nesting habitat may be present within the buffer.
American Peregrine Falcon (*Falco peregrinus anatum*)	SE ~~C~~FP	This subspecies breeds in small numbers through much of non-desert portions of California. Nesting was historically limited to tall cliffs and similar inaccessible situations although some individuals have used artificial structures in urban areas. Most foraging occurs in areas of accessible shore and open water with high densities of prey species. Within southern California the species remains generally rare.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area foraging	Species is regularly observed at Ballona Wetlands, but is not expected to breed here. Foraging habitat is absent from the disturbance area but present within the buffer.
California Black Rail (*Laterallus jamaicensis coturniculus*)	SFP ST	Black rail is the smallest rail in North America and has a wide distribution in both coastal and freshwater marshes. Black rails along the west coast tend to nest in the upper reaches of coastal saltmarshes, in areas dominated by rushes and sedges; pickleweed-dominated habitats support few rails.	Less Than Reasonable	Despite presence of suitable habitat at Ballona Wetlands, this species was not detected during focused surveys and is not expected due to the lack of well-developed coastal salt marsh habitat and the presence of red fox.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Light-footed Clapper Rail (*Rallus longirostris levipes*)	FE SE CFP	The light-footed clapper rail occurs along the Pacific Coast from Bahia de San Quintin, Baja California, north to Carpinteria Marsh, Santa Barbara County. It is a resident of coastal salt marshes of Southern California and occupies tidal habitats dominated by cordgrass (*Spartina* sp.) and pickleweed.	Less Than Reasonable	Despite presence of suitable habitat at Ballona Wetlands, this species was not detected during focused surveys and is not expected due to the lack of appropriate habitat and the presence of red fox.
Western Snowy Plover (*Charadrius alexandrinus nivosus*)	FT SSC	The coastal population of western snowy plover breeds along the Pacific coast from southern Washington to southern Baja California on sparsely vegetated beaches backed by dunes, dredged spoils, flats of salt evaporation ponds, and river bars. During winter months it withdraws from the northerly parts of its range southwards.	**Less Than Reasonable** within area of disturbance; **Low** within study area for foraging and nesting.	Despite potentially suitable habitat at Ballona Wetlands, breeders not detected during recent focused. Known to occur along Dockweiller State beach. Habitat requirements are absent from disturbance area. No nesting records exist within the buffer, although there is suitable foraging habitat.
Long-billed Curlew (*Numenius americanus*)	CNDDB	Breeds in open country from southeastern British Columbia eastward to central Nebraska, and southward to northeastern California and New Mexico. Winters from central California and coastal Texas southward through Mexico. Transients and wintering birds frequent coastal estuaries, agricultural fields, and less commonly sandy beaches.	**Less Than Reasonable** within area of disturbance; **Low** within study area as migrant/ winter forager	Does not nest in this area, although it has been observed wintering in area of Ballona Wetlands. Foraging habitat is absent from the disturbance area but present within the buffer.
California Least Tern (*Sternula antillarum browni*)	FE SFP SE	A migratory species that nests from April through August along the coast of California from San Francisco south to Baja California, nesting on sparsely vegetated sandy beaches, saltflats, and dredged spoil in colonies. It presumably winters in Central America or northern South America.	**Less Than Reasonable** within area of disturbance; **Low** within study area for nesting and foraging.	Observed during focused surveys in area of LAX; forages in the Ballona Wetlands and until the 1980's was documented as a breeder. Habitat requirements are absent from disturbance area. No recent nesting records exist within the buffer, although there is suitable foraging habitat.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Elegant Tern (*Sterna elegans*)	CNDDB	Currently found in only five colonies in North America: Isla Rasa and Isla Montague, the San Diego saltworks, Bolsa Chica, and Pier 400 Terminal Island. This species inhabits inshore coastal waters, bays, harbors, and estuaries.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a forager	Observed roosting in large numbers in the Ballona Wetlands, but are not known to breed at this location. Habitat requirements are absent from disturbance area. No nesting records exist within the buffer, although there is suitable foraging habitat.
Burrowing Owl (*Athene cunicularia*)	SSC	Widely but thinly scattered through much of the western United States into southern Canada. Generally, use burrows already dug by fossorial mammals, such as ground squirrels, but can also use natural cavities and even man-made structures, such as piles of concrete. They are nearly extirpated as a nesting species from many areas of coastal Southern California, but a small influx of burrowing owls occurs in the winter.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area	Species was present during focused surveys in area of LAX; and known to occur in Ballona Wetlands. Suitable habitat is absent from the disturbance area but present within the buffer.
Short-eared Owl (*Asio flammeus*)	SSC	This owl was once a locally uncommon breeder and a fairly common winter visitor and migrant in southern California. It is now apparently extirpated from the region as a breeder and only locally rare at other times. It is a ground-nester in marshes and open fields of native, or at least undisturbed, vegetation with limited predators.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a forager	Occasionally observed around Ballona Wetlands, but is not known to breed in this area. Foraging habitat is absent from the disturbance area but present within the buffer.
Long-eared Owl (*Asio otus*)	SSC	In southern California, breeds and roosts in riparian and oak forests, and hunts small mammals at night in adjacent open habitats. They are known to breed at several dozen locales in San Diego and Orange counties (Bloom 1994; personal communication, W. E. Haas), and probably do so in smaller numbers in other coastal southern California counties as well.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a forager	Although occasionally observed in the past, it is highly unlikely this species will currently breed or winter at Ballona Wetlands. Suitable habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Vaux's Swift *(Chaetura vauxi)*	SSC	Swifts spend most of their lives in flight, hunting small insects. Vaux's Swifts nest in snags in old growth forests from central California to southeast Alaska (as well as in Mexico southward), and winter from central Mexico to northern South America. They are fairly common as spring and fall migrants in southern California.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area as a migrant.	Species regularly observed in the areas of the Ballona Wetlands as a migrant. Suitable foraging habitat is absent from the disturbance area but present within the buffer.
Willow Flycatcher (*Empidonax traillii*)	SE	A broadly distributed species, breeding interruptedly across much of the United States and Canada. In California it is nearly restricted to the Sierra Nevada Mountains and a few populations scattered through southern California. Several subspecies are recognized. Southern California is within the range of the subspecies *E.t. extimus* (southwestern willow flycatcher); see the account below for more information on that subspecies. During migration, southern California is host to other subspecies of willow flycatcher passing between breeding areas farther north (Sierra Nevada north to Canada) and their winter range farther south (Central America). These migrants of other subspecies are found in a wide variety of habitats, and are uncommon to fairly common in spring and fall.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a migrant/breeder.	Migrants occasionally reported in the Ballona Wetland area; however, the study area is well outside of geographic breeding range for all subspecies except for southwestern willow flycatcher (see the account below for more information on that subspecies). Although the entire species is listed as endangered by the State of California, there is no protection of habitat for non-*extimus* migrants, and thus any such migrants that may occur provide no constraint to the project. Suitable habitat is absent from the disturbance area but present within the buffer.
Southwestern Willow Flycatcher (*Empidonax traillii extimus*)	FE SE	Occurs in riparian habitats along rivers, streams, or other wetlands, where dense growths of willows (*Salix* spp.), *Baccharis* spp., arrowweed, buttonbush, tamarisk, Russian olive, often with a scattered overstory of cottonwood. Throughout the range of *E.t. extimus*, these riparian habitats tend to be rare, widely separated, small and/or linear locales, separated by vast expanses of arid lands.	**Less Than** Reasonable	Surveys for this subspecies found it absent, and it is likely extripated. Suitable habitat is absent from the disturbance area and the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Loggerhead Shrike (*Lanius ludovicianus*)	SSC	Forages in open country of many types (including non-intensive agricultural areas) and nests in small trees and large shrubs, often at the edges of such open areas. Like most birds of prey, loggerhead shrikes generally occur at low densities. The species is widely distributed in southern California, with some seasonal movements evident.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area.	Species was present during surveys in area of LAX; and known to occur in Ballona Wetlands. Suitable habitat is absent within the disturbance area but present within the buffer.
Least Bell's Vireo (*Vireo bellii pusillus*)	FE SE	Prefer dense vegetation low in riparian zones for nesting. The average age of willow vegetation in the immediate vicinity of most nests was between 4 and 7 years. When mature riparian woodland is selected, vireos typically nest in areas with a substantial robust understory of willows, but will also use other plant species. Based on analysis of vireo habitat structure and composition, vireos select sites with large amounts of both shrub and tree cover, a large degree of vertical stratification, and small amounts of aquatic and herbaceous cover.	**Less Than Reasonable** within area of disturbance; **Low** within study area.	Species was observed historically at Ballona Wetlands, but not recently recorded as a breeder. Suitable habitat is only present in the buffer.
California Horned Lark (*Eremophila alpestris actia*)	CNDDB	Breeds throughout coastal California and the San Joaquin Valley. This small bird breeds in bare and short-grass areas in open grassland, desert washes, wetland edges, above tree line in mountains, along dirt roads and other disturbed areas, and even in recently burned areas. It is well-adapted to certain types of human disturbance, such as agriculture and cattle grazing, though it cannot tolerate intensive activity at the nest site, which is located directly on the ground.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a breeder.	Species was observed historically at Ballona Wetlands, but has not been detected following years of recent surveys; considered a species that could return following habitat restoration. Suitable habitat is absent from the disturbance area but present within the 100-foot buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Coastal California Gnatcatcher (*Polioptila californica californica*)	FT SSC	This species is a year-round resident of coastal sage scrub of several subtypes. This subspecies is found from the Mexican border north to southern and eastern Los Angeles County north to the San Jose Hills, with several small populations known north to the Moorpark area of Ventura County. Its range also extends into southwestern San Bernardino County and western Riverside County.	**Less Than Reasonable** within area of disturbance; **Low** within study area.	Species was observed historically at Ballona Wetlands, but has not been detected following years of recent surveys; considered a species that could return following habitat restoration. Suitable habitat is absent from the disturbance area. Cut-slopes that have been revegetated with coastal sage scrub provide suitable habitat within the buffer.
Yellow Warbler (*Dendroica petechia brewsteri*)	SSC	Nests uncommonly in the upper story of mature riparian communities, especially alder woodland and forest. It is also a common, widespread migrant in spring and fall, occupying varied habitats at that time. It is uncommon and local as a breeder in southern California, and extremely rare in winter.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a breeder.	Species regularly observed in the areas of the Ballona Wetlands as a migrant. Suitable habitat is absent from the disturbance area but is present within the 100-foot buffer.
Yellow-breasted Chat (*Icteria virens*)	SSC	Nests in extensive low thickets in riparian areas. It is a reclusive insectivore and has the unusual habit of singing both day and night. It is a local and uncommon breeder and rare migrant across southern California. Known elevation range extends from 180 to at least 4,700 feet.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a breeder.	Species was observed historically at Ballona Wetlands, but has not been detected following years of recent surveys; considered a species that could return following habitat restoration. Suitable habitat is absent from the disturbance area but is present in the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*)	SE	Several of the 17 sub-species of savannah sparrow (*Passerculus sandwichensis*) are residents of coastal salt marshes of the southwestern United States and Mexico. The Belding's savannah sparrow is found from Morro Bay south to El Rosario, Baja California and nests at Ballona Wetlands and several other coastal salt marshes in Southern California. Belding's savannah sparrows occupy coastal salt marshes and estuaries where pickleweed is dominant. They eat a variety of crustaceans as well as seeds of pickleweed and may forage in other nearby habitats including along rock jetties.	**Less Than Reasonable**	Present year-round and the only endangered bird species known to currently breed at Ballona Wetlands. Suitable habitat is absent from the disturbance area and buffer.
Large-billed Savannah Sparrow *(Passerculus sandwichensis rostratus)*	SSC	This subspecies was formerly common in winter along the length of the southern California coast in salt marshes and on beaches.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a forager.	Species was observed historically at Ballona Wetlands, but not recently. Suitable habitat is absent from the disturbance area but present within the buffer.
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)	SSC	Breeds in prairie wetlands and along other western lakes and marshes where tall reeds and rushes are present. Forages in wetlands and surrounding grasslands and croplands. Mainly a spring transient along southern California coast, although some birds winter in California.	**Less Than Reasonable** within area of disturbance; **Low** within study area as migrant.	Does not nest in this area, although it is occasionally observed in Ballona Wetlands as a migrant.. Foraging habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Tricolored Blackbird (*Agelaius tricolor*)	SSC	Most intensively colonial bird species in California, with males and females normally remaining in large flocks together year round. The species is nearly restricted to California, and apparently makes only relatively short-distance seasonal movements. Elevational range is believed to be from near sea level to at least 4,400 feet, though the highest recorded definite breeding site is apparently 3,400 feet. They nest in dense colonies in marshes and occasionally in moist thickets, agricultural fields, or vegetation of sewage treatment plants. They will readily use restored or created wetlands; they may use a site for many years or just one season, with productivity of young varying greatly from year to year.	**Less Than Reasonable** within area of disturbance; **Low** within study area as breeder/migrant.	Species was observed historically at Ballona Wetlands, but has not been detected following years of recent surveys; considered a species that could return following habitat restoration. Suitable habitat is absent from the disturbance area but present within the buffer.
MAMMALS				
Southern California Saltmarsh Shrew (*Sorex ornatus salicornicus*)	SSC	Occurs in the area of coastal marshes in Los Angeles, Orange and Ventura Counties.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area.	Species was present during surveys in area in Ballona Wetlands in salt grass. Suitable habitat is absent from the disturbance area but present within the buffer.
California leaf-nosed bat *(Macrotus californicus)*	SSC	This insectivorous bat is a maneuverable, low-flying forager that gleans and feeds on the ground and in the air. Roosts are in deep tunnels or caves, occasionally in buildings or bridges. It was formerly found throughout southern California, but is apparently now restricted to the deserts. Historical habitats utilized in coastal areas appear to be poorly known. The species is sensitive to disturbance at roosts, and the extensive human development of coastal southern California may be the cause of extirpation, though this is speculative.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a foraging migrant.	Bat surveys along the Ballona Wetland did not detect any species of bat; density of urban development precludes this species. Suitable foraging and day roosting habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Long-eared Myotis *(Myotis evotis)*	CNDDB	Found in a wide range of habitats, but is most commonly found in mixed coniferous forests, from humid coastal areas to montane forests. Elevation ranges from sea level on the Pacific Coast to 2,830 meters in the mountains of Wyoming. The habitat of *M. evotis* is largely dependent on what the bats use for their day roosts. Other places which function as day roosts are abandoned buildings, cracks in the ground, caves, mines, and loose bark on living and dead trees.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a migrant.	Bat surveys along the Ballona Wetland did not detect any species of bat. Suitable foraging and day roosting habitat is absent from the disturbance area but present within the buffer.
Yuma Myotis Bat (*Myotis yumanensis*)	CNDDB	Distribution of this species ranges across the western third of North America from British Columbia, Canada, to Baja California and southern Mexico. They occur in a variety of habitats including riparian, and scrublands and deserts, and forests. Mating typically occurs in the fall. Females give birth to one young from mid-spring to mid-summer in maternity colonies that may range in size to several thousand; males tend to roost singly in the summer. The species roosts in bridges, buildings, cliff crevices, caves, mines, and trees. Their diet is known to include caddis flies, midges, small moths and small beetles. After feeding, they periodically rest at night roosts where the food is digested.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a foraging migrant.	Bat surveys along the Ballona Wetland did not detect any species of bat. Suitable foraging and day roosting habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Townsend's Big-eared Bat *(Corynorhinus townsendii)*	SSC	Occurs throughout the drier portions of California, though details are scant. It is non-migratory, and hibernates from approximately October through April. A wide variety of natural communities are occupied, from mid-elevation forest downward, but mesic sites are preferred. Active year round, they capture prey from in flight, including gleaning from vegetation. They take a variety of prey, but primarily larger insects, especially moths. Flight is slow and maneuverable, and they are capable of hovering. Known roost sites have been in caves, lava tubes, mines, tunnels, buildings and other man-made structures.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a foraging resident.	Bat surveys along the Ballona Wetland did not detect any species of bat. Suitable foraging and day roosting habitat is absent from the disturbance area but present within the buffer.
Pallid Bat (*Antrozous pallidus pacificus*)	SSC	This bat species is widely distributed in the southwestern United States and northern Mexico. They are locally common across most of California except in the far northwest and in higher portions of the Sierra Nevada. Habitats utilized include a wide variety of grasslands, shrublands, woodlands, and forests, including mixed conifer forest. They appear to be most common in open, dry, rocky lowlands. Roosts are in caves, mines, as well as crevices in rocks, buildings and trees. This is a colonial species that forages low over open ground, often picking up beetles and other species of prey off the ground.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a foraging migrant.	Bat surveys along the Ballona Wetland did not detect any species of bat. Suitable foraging and day roosting habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Western Bonneted Bat (Western Mastiff Bat) (*Eumops perotis californicus*)	SSC	Primarily a cliff-dwelling species, where maternity colonies of 30 to several hundred (typically fewer than 100) roost generally under exfoliating rock slabs (e.g. granite, sandstone or columnar basalt). It has also been found in similarly crevices in large boulders and buildings. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 9.8 feet below the entrance for flight. Forages in broad open areas. Generally, this bat is found in a variety of habitats, from dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, montane meadows, and agricultural areas.	**Less Than Reasonable** within area of disturbance; **Low** within study area as a foraging migrant.	Bat surveys along the Ballona Wetland did not detect any species of bat. Suitable foraging and day roosting habitat is absent from the disturbance area but present within the buffer.
San Diego Black-tailed Jackrabbit (*Lepus californicus bennettii*)	SSC	This subspecies is distributed along the coastal slope from around Point Conception south into Baja California. It requires extensive open spaces, such as grasslands or open sage scrub, usually in fairly level situations. The presence of substantial available cover, either dense grasses or shrubs, appears to be important for day roosts and is often adjacent to more open foraging areas.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area.	Species was present during surveys in area of LAX; and known to occur in Ballona Wetlands. Suitable habitat is absent from the disturbance area but present within the buffer.

Table C-2. Continued

Species/Natural Communities	Special Status[1]	Habitat Use	Likelihood of Occurrence[2]	Rationale
Pacific Pocket Mouse *(Perognathus longimembris pacificus)*	FE SSC	The smallest of at least 15 described subspecies of *P. longimembris*. It possesses a fur-lined, external cheek pouch, and is more closely related to kangaroo rats than to other mice. It is an obligate resident of fine-grained sandy soils of Coastal Strand, Coastal Dunes, River and Marine Alluvium, and Coastal Sage Scrub in close proximity to the ocean, and has never been collected more than 2 miles (about 3 kilometers) from the coast or above 600 feet (about 180 meters) elevation. A nocturnal granivore specializing in the seeds of grasses and forbs, it has also been known to eat leafy vegetation and soil dwelling insects. Adapted to variable environmental conditions, this subspecies is known to dig burrows in which they store grain for the winter, and in which they alternate between periods of activity and torpor, estivation, or hibernation. Once known from eight separate coastal locations from around the southeast corner of the Palos Verdes Peninsula in Los Angeles County southeast to the Mexican border, this species was recently considered extinct, as no confirmed specimens were recorded between 1971 and its re-discovery in 1993.	Less Than Reasonable	Species was determined absent following extensive studies in the most suitable habitat in the area of LAX and Ballona Wetlands. Suitable habitat is absent from the disturbance area but present within the buffer.
South Coast Marsh Vole (*Microtus californicus stephensi)*)	SSC	Occurs in the area of tidal marshes in Los Angeles, Orange, and southern Ventura Counties.	**Less Than Reasonable** within area of disturbance; **Moderate** within study area.	Species was present during surveys in area in Ballona Wetlands in salt grass. Suitable habitat is absent from the disturbance area but present within the buffer.

D. Cultural Resources Report

cogstone

PALEONTOLOGY - ARCHAEOLOGY - HISTORY

CULTURAL RESOURCES ASSESSMENT FOR THE SCATTERGOOD OLYMPIC LINE 1 PROJECT, LOS ANGELES, CALIFORNIA

Prepared for:
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September 2009

Project Number: 1611
Type of Study: Paleontological & Archaeological Assessment (Phase I including survey)
Localities: LACM 1024
Sites: P-19-000054, 59, 60, 61, 62, 63, 64, 65, 66, 193, 194, 202, 203, 204, 206, 211, 212, 356, 382, 1018, 1118, 1698, 1716, 1932, 1933, 1934, 1970, 2345, 2379, 2385, 2386, 2676, 2768, 2769, 3784, 3803, 100115, 100116
USGS Quadrangle: Venice and Beverly Hills 7.5'
Area: Approximately 12 miles linear
Key Words: San Pedro Sand, Pleistocene, marine vertebrates, Tongva, Gabrielino, Holocene, Serra Springs, Ballona Wetlands, prehistoric habitation, historic residences, negative survey

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MANGEMENT SUMMARY

The purpose of this study was to determine the potential effects on archaeological resources of proposed construction activities in the Los Angeles and Culver cities, California. This study was requested by the Los Angeles Department of Water and Power to meet their responsibility as the lead agency under the California Environmental Quality Act (CEQA).

The proposed alignment consists largely of rock units too young to contain fossils. However potential fossil-bearing rocks up to 2 million years old outcrop in some areas. Fossils are known from eight Pleistocene Older Alluvial deposits in the vicinity of the project. Animals represented include extinct mammoth, bison, horse and American lion. A large number of Pleistocene marine fossils are known from the San Pedro Sand directly adjacent to the alternative project alignment. These fossils include marine mammals like seal and dolphin, numerous sea birds and very extensive groups of cartilaginous and boney fishes.

There are no recorded archaeological sites within the proposed alignment. Some 36 archaeological sites and two prehistoric isolates have been recorded within a one-mile radius of the project area. One historic structure is located along the northern common portion of the alignment. In addition there is one Los Angeles Historical Cultural Monument within a half-mile of the project alignment. There have been 124 previous archaeological studies within a one-mile radius of the current project boundaries. Abbreviated survey noted structures that may be historic adjacent to the project route.

The Native American Heritage Commission indicated that there are no known sacred lands in the vicinity. The Native American Heritage Commission requested that seven Native American tribes or individuals be contacted for further information. Two Native Americans responded with concerns about the project.

There is a known paleontological locality along Lincoln Blvd. Due to sensitive sediments in this portion of the project a paleontological management plan is required. This plan will be developed specifically for this portion of the project but will contain procedures to respond to unanticipated discoveries in other portion of the project.

The proposed route does not directly impact any known archaeological resources. However, unanticipated discoveries might occur. Retention of an on-call archaeologist is required. If Native American cultural resources are encountered, Native American monitors are required in the immediate vicinity.

INTRODUCTION

PURPOSE OF STUDY

The purpose of this study was to determine the potential effects on paleontological, archaeological and historic resources of proposed construction activities in the cities of Los Angeles and Culver City, California (Figure 1). This study was requested by the Los Angeles Department of Water and Power to meet their responsibility as the lead agency under the California Environmental Quality Act (CEQA).

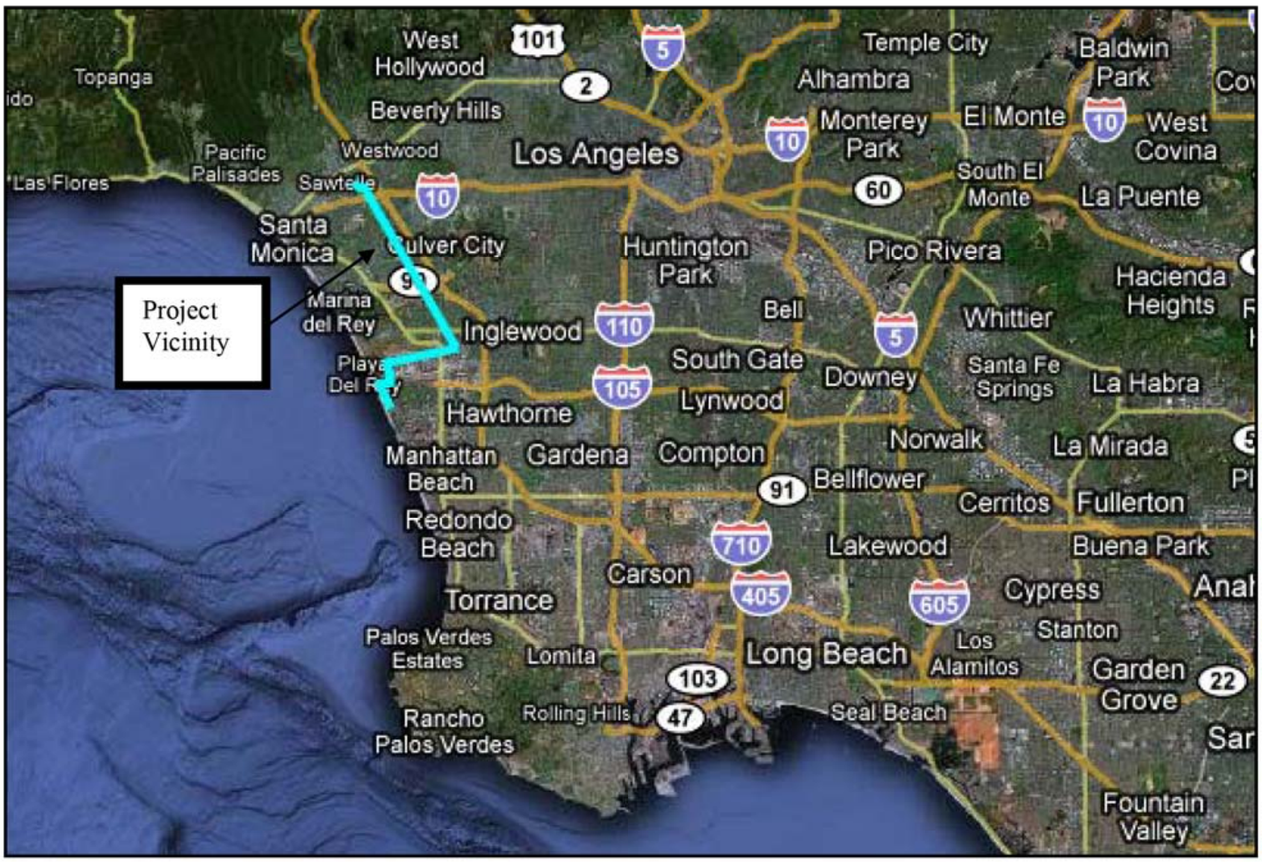

Figure 1. Project vicinity

PROJECT DESCRIPTION

The proposed project is located on the Venice and Beverly Hills 7.5 minute quadrangles in (1) Sections 3, 10 and 11, Township 3 South, Range 15 West and (2) Sections 3, 4, 10, 11, 13, 14, 23, 24, 26, 27 and 34, Township 2 South, Range 15 West.

The proposed project includes construction of approximately 12 miles of underground cable, connecting the Scattergood Generating Station (SGS) and Receiving Station K (RS-K). The primary objective of the project is to provide additional capacity to supplement the Scattergood Olympic Line II, which also services RS-K. RS-K provides electrical service to the West Los Angeles area. The addition of the Scattergood Olympic Line I would provide additional capacity at RS-K, thereby enhancing the reliability of electrical service to the West Los Angeles area. RS-K is located approximately 1 mile northwest of the Interstate 10 and Interstate 405 interchange, and the SGS is located about 1 mile southwest of Los Angeles International Airport. The proposed project extends from RS-K in the north to the SGS in the south, and from Inglewood Boulevard in the east, to Vista Del Mar in the west. Commercial and residential areas are directly adjacent on both sides of most of the alignment.

The underground circuit route begins at RS-K near the intersection of West Olympic Boulevard and Centinela Avenue. It is proposed to head east along West Olympic Boulevard, southeast along South Bundy Drive, northeast along Ocean Park Boulevard, southeast along Armacost Avenue, northeast along National Boulevard, southeast along Inglewood Boulevard, southwest along West Jefferson Boulevard, southeast along Lincoln Boulevard, southwest along West 83rd Street, southeast along Rayford Drive, west along West Manchester Avenue, south along Vista del Mar Lane, southeast along Vista del Mar, north on West Grand Ave and finally terminating at the SGS (Figure 2).

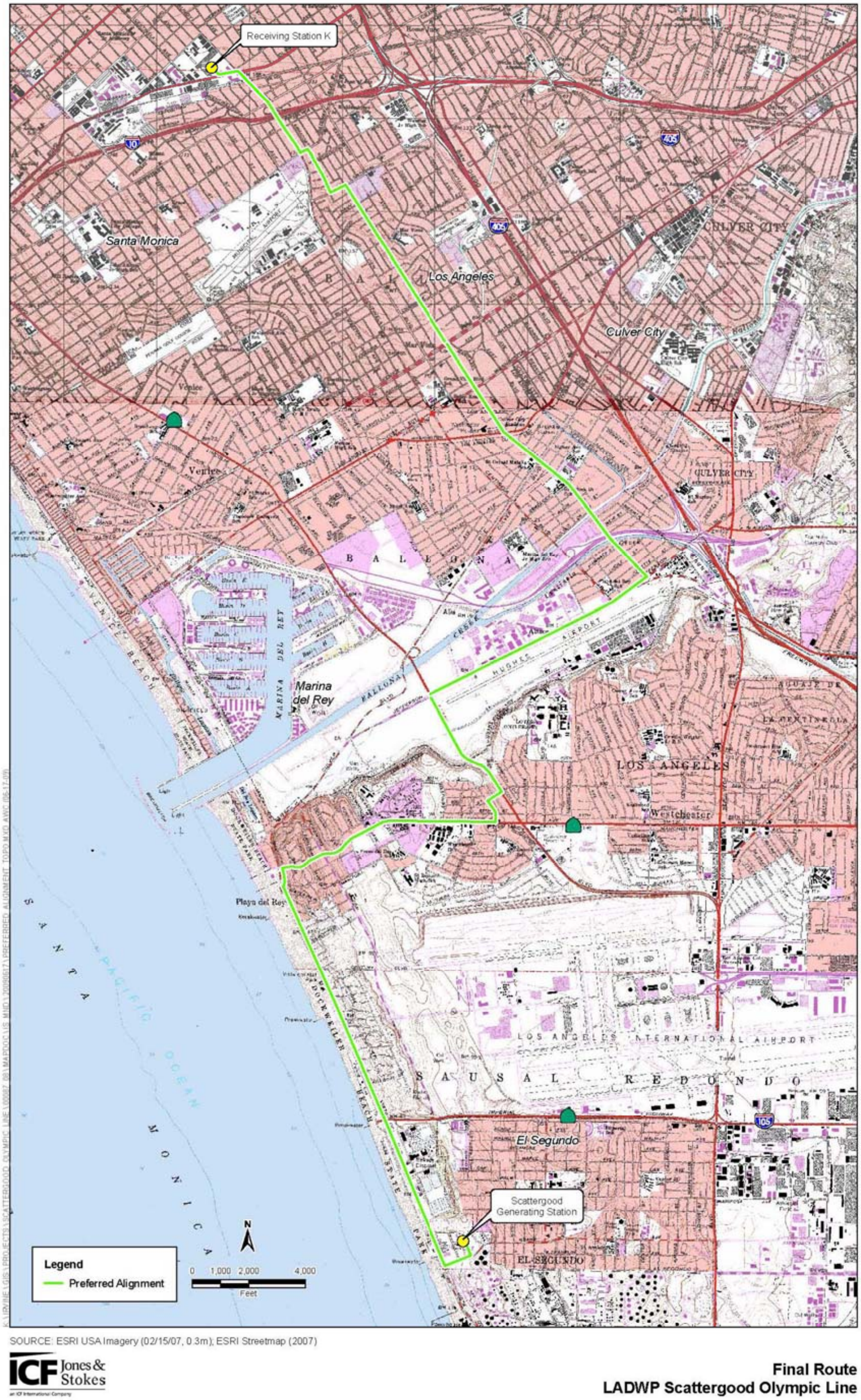

Figure 2. Project Route

The underground transmission line would be placed in trenches located entirely underneath public roadway right of ways. At Inglewood Boulevard bridge crossings at Ballona Creek and Centinela Creek locations, LADWP may either: place the transmission line on the underside of the bridges using new conduits attached to the bridges; or use directional drilling techniques to bore a hole and pull the conduit underneath the Ballona Creek and Centinela Creek channels. The proposed project would be located almost entirely within the City of Los Angeles, with the exception of approximately 430 linear feet along Inglewood Boulevard just north and south of Washington Boulevard, which would be located in Culver City.

The proposed project consists of approximately 12 miles of 230 kV cable trenched underground using a 6-conduit concrete encased bank and cable system. Three of the fiber conduits would house power cables. The other three PVC conduits would house fiber optic cables. All conduits would be 6 inches in diameter.

The underground power cables would consist of a 2500 Kcmil copper conductor with insulation, an external metallic covering for moisture protection, and an outer polyethylene jacket for corrosion protection. Underground power cable splices would be prefabricated and accessible through maintenance holes placed approximately every 1,500 to 2,200 feet along the alignment.

The underground circuit route would be excavated within the roadway approximately 3 feet wide and 7 to 9 feet deep. The 6-conduit bank would be approximately 36 to 48 inches below ground surface, measured from street surface to the top of the conduit bank, and encased in concrete.

The proposed project consists of approximately 45 maintenance holes, spaced 1,500 to 2,200 feet apart. The maintenance holes would be precast sections, installed within the roadway along the proposed project, with each requiring an excavation approximately 12 to 14 feet wide, 12 feet deep, and 36 to 38 feet long including perimeter shoring.

Construction

The proposed project would be constructed from mid-2010 through 2012, and the underground circuit would be put into service after construction is complete in 2012. Generation capacity upgrades to the SGS, which would not be part of the proposed project, should be completed in early 2013, after which the full capacity of the new underground circuit would be utilized. Construction would require 3 crews, with each crew consisting of 5 to 6 people.

Construction equipment would be staged in or near the project area in suitable locations that would be chosen by the construction contractor. Eight potential construction staging areas have been identified, including West LA ESM Service Center at 1400 South Sepulveda Boulevard in Los Angeles; RS-K at 1840 Centinela Avenue in Sawtelle; DS-137 at 7810 Talbert Street in Playa Del Rey; an empty lot at the intersection of Airport Boulevard and Manchester Avenue in Westchester; LAX Holding Area at 10700 Pershing Drive in Playa Del Rey; a lot next to DS-111 at the intersection of 96th Street and Vicksburg Avenue in Westchester; Hyperion Terminal Tower at 7500 Imperial Avenue in Playa Del Rey; and the Scattergood Generating Station at 12700 Vista Del Mar in Playa Del Rey.

Construction would occur during daytime hours from Monday through Saturday from 8:00 a.m. to 5:00 p.m. The construction schedule from 2010 to 2012 assumes that variances would be obtained for the Mayor’s Executive Order, which allows in-street construction within the City of Los Angeles from Monday through Friday between the hours of 9:00 a.m. to 3:30 p.m. only. If variances were not obtained for part or all of the alignment, the construction schedule would be extended beyond 2012.

Construction would require trenching both the underground conduit alignment as well as the underground maintenance holes at predetermined intervals. The sequence in which the roadway segments along the alignment would be trenched for either the underground conduit or the maintenance holes would be determined by the construction contractor, and may not occur in specific geographic sequence.

Construction crews would lead the construction operation, potholing maintenance hole locations in order to verify the location of existing underground utilities. Following this operation, additional crews would trench the area for conduit or a maintenance hole installation. No more than one lane would be closed where construction for the underground conduit occurs within the roadbed. Up to one and a half lanes would be closed where construction for the maintenance holes occurs within the roadbed. Where construction would occur outside of the roadbed, the closure of sidewalks and a portion of the roadway adjacent to the construction activity may be required.

Crews trenching for the underground conduit would excavate soil using a backhoe in approximately 100 foot linear sections per crew per day, for an approximate total of 300 feet per day. Once a trench is excavated, the conduit would be put into place by hand, supported by spacers, and bonded. A ready mix-truck would be required at the site to bring in concrete to encase the conduits as well as a sand and cement slurry to backfill the trench. Excavated material would be hauled away by dump truck for disposal. Areas trenched for installation of pre-cast maintenance holes would require the closure of roadway lanes for approximately 2 to 5 days, depending upon soil conditions.

In the case of the Ballona Creek and Centinela Creek bridge crossings, the method of construction would depend upon LADWP's preferred channel crossing approach. In the event that conduits on the Inglewood Boulevard bridges would be used, construction crews would trench up to the bridge and use the new conduits on the underside of the bridges. No additional construction activities would be required on either bridge or within the channels. In the event that LADWP determines that directional drilling would be the preferred option, construction crews would open a pit on both sides of the bridges and stage drill equipment near one of the pits. The drilling pits and equipment would be located within the existing roadway right-of-ways. If drilling were to occur within the roadway right-of-way it would require the closure of one lane of the roadway, similar to the trenching activities described above. Drilling and the installation of the conduit would take approximately one week to one month depending upon soil and bedrock conditions.

The final step would be installation of the cable into the conduit, which would be conducted in segments between maintenance holes. First, the electrical cable would be lubricated with a soap/water solution and fed from one maintenance hole off a reel on a truck and pulled through the conduit to the next maintenance hole using a high tension machine. After the cable is pulled through to both sides of the maintenance holes, the cable would be spliced by the construction crews. Similar to the sequence of the underground conduit trenching, pulling, and splicing of the electrical cable would not need to occur in any particular geographic order, but may instead be completed in any order as deemed appropriate by the construction contractor.

Operation

Operation of the proposed project would involve aboveground activities around maintenance holes during periods of regular or emergency maintenance. These activities may require the temporary closure of a single roadway lane or sidewalk for the duration of the maintenance activity. No other operational activities resulting from the proposed project would occur along the proposed alignment.

PROJECT PERSONNEL

Cogstone Resource Management conducted the cultural resource studies. Sherri Gust served as the Principal Investigator for the project, supervised all work, wrote the majority of the report, performed the final alignment survey and edited this report. Gust is a Registered Professional Archaeologist and Qualified Principal Paleontologist. She has an M.S. in Anatomy (Evolutionary Morphology) from the University of Southern California, a B.S. in Anthropology from the University of California at Davis and over twenty-eight years of experience in California.

Kim Scott wrote the geology and paleontology record search sections of the report. Scott has a B. S. in Geology with an emphasis in Paleontology from the University of California, Los Angeles and over 10 years of experience in California paleontology and geology. Amy Glover performed the initial field survey and prepared portions of the report. Glover has a B.S. in Biological Anthropology from the University of California at Riverside, cross-training in paleontology and four years of experience in southern California archaeology and paleontology. Further qualifications of Cogstone staff are provided (Appendix A).

REGULATORY ENVIRONMENT

CALIFORNIA ENVIRONMENTAL QUALITY ACT

CEQA declares that it is state policy to "take all action necessary to provide the people of this state with...historic environmental qualities." It further states that public or private projects financed or approved by the state are subject to environmental review by the state. All such projects, unless entitled to an exemption, may proceed only after this requirement has been satisfied. CEQA requires detailed studies that analyze the environmental effects of a proposed project. In the event that a project is determined to have a potential significant environmental effect, the act requires that alternative plans and mitigation measures be considered.

CEQA includes historic and archaeological resources as integral features of the environment. If paleontological resources are identified as being within the proposed project area, the sponsoring agency must take those resources into consideration when evaluating project effects. The level of consideration may vary with the importance of the resource.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The register is listing of all properties considered to be significant historical resources in the state. The California Register includes all properties listed or determined eligible for listing on the National Register, including properties evaluated under Section 106, and State Historical Landmarks from No. 770 on. The criteria for listing are the same as those of the National Register. The California Register statute specifically provides that historical resources listed, determined eligible for listing on the California Register by the State Historical Resources Commission, or resources that meet the California Register criteria are resources which must be given consideration under CEQA (see above). Other resources, such as resources listed on local registers of historic registers or in local surveys, may be listed if they are determined by the State Historic Resources Commission to be significant in accordance with criteria and procedures to be adopted by the Commission and are nominated; their listing in the California Register, is not automatic.

Resources eligible for listing include buildings, sites, structures, objects, or historic districts that retain historic integrity and are historically significant at the local, state or national level under one or more of the following four criteria:

A) It is associated with events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
B) It is associated with the lives of persons important to local, California, or national history;
C) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values; or
D) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to having significance, resources must have integrity for the period of significance. The period of significance is the date or span of time within which significant events transpired, or significant individuals made their important contributions. Integrity is the authenticity of a historical resource's physical identity as evidenced by the survival of characteristics or historic fabric that existed during the resource's period of significance. Alterations to a resource or changes in its use over time may have historical, cultural, or architectural significance. Simply, resources must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. A resource that has lost its historic character or appearance may still have sufficient integrity for the California Register, if, under Criterion D, it maintains the potential to yield significant scientific or historical information or specific data.

DEFINITION OF SIGNIFICANCE FOR PALEONTOLOGICAL RESOURCES

Only qualified, trained paleontologists with specific expertise in the type of fossils being evaluated can determine the scientific significance of paleontological resources. Fossils are considered to be significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;

2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;

3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;

4. The fossils demonstrate unusual or spectacular circumstances in the history of life;

5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

As so defined, significant paleontological resources are determined to be fossils or assemblages of fossils that are unique, unusual, rare, uncommon, or diagnostically important. Significant fossils can include remains of large to very small aquatic and terrestrial vertebrates or remains of plants and animals previously not represented in certain portions of the stratigraphy. Assemblages of fossils that might aid stratigraphic correlation, particularly those offering data for the interpretation of tectonic events, geomorphologic evolution, and paleoclimatology are also critically important. Paleontological remains are recognized as nonrenewable resources significant to the history of life (Scott and Springer 2003).

BACKGROUND

NATURAL SETTING

The project area is situated in the Los Angeles Basin, south of the Santa Monica Mountains and adjacent to the Pacific Ocean. The physiographical, geological and ecological zones represented in the project area are best described as alluvial valleys of the Los Angeles basin. The basin is bounded to the north by the Santa Monica Mountains, to the east by the Santa Ana Mountains and associated hills (Puente/Chino, San Jose, and Repetto), to the south by the San Joaquin Hills and the Pacific Ocean and to the west by the Palos Verdes Hills and the Pacific Ocean. This area is part of the California geomorphic province known as the Peninsular Ranges. The Peninsular Ranges are a series of ranges separated by northwest trending valleys, sub parallel to faults branching from the San Andreas Fault (Wagner 2002).

GEOLOGIC SETTING

The project route consists largely of rock units too young to contain fossils. However potential fossil-bearing rocks up to 1.8 million years old outcrop in some areas. The Pleistocene (1.8 million to 11,000 years old) rock units include San Pedro Sand, Older Alluvial Fan Deposits and Older Eolian Deposits (Dibblee 2007, Yerkes and Campbell 2005, Saucedo et al 2003). The Pleistocene to Holocene (126,000 to 2,000 years old) rock units include Younger Alluvial Flood Plain Deposits and Younger Eolian Deposits. Holocene deposits (<11,000 years old) include recent Alluvial Flood Plain Deposits, recent Beach Deposits, recent marshland Clay, recent Eolian Deposits, recent Alluvial Fan Deposits, and artificial (imported) fill (Figure 3).

Quaternary San Pedro Sand or San Pedro Formation (Qsp)

This unconsolidated, nearshore, marine sand was deposited between 1.8 million and 11,000 years ago (Dibblee 2007). Known for extremely well preserved marine invertebrates, the San Pedro Sand has also produced the remains of fish, birds, and mammals. Since the formation preserves sediments deposited just along the coast during the Pleistocene it preserves a unique and very poorly represented portion of California's paleontological history.

Quaternary Older Alluvial Fan (Qof)

Deposited during the middle to late Pleistocene, between 781,000 to 11,000 years ago, these old alluvial fans were emplaced at the mouths of canyons in the Santa Monica Mountains (GeoWhen 2008, Yerkes and Campbell 2005). These sediments include slightly to moderately lithified silts, sands and gravels with moderately to well developed paleosols (fossil soils; Yerkes and Campbell 2005).

Quaternary Older Eolian Deposits (Qoe)

Deposited during the middle to late Pleistocene, between 781,000 to 11,000 years ago, these are poorly consolidated wind blown dune materials (GeoWhen 2008, Saucedo et al 2003). Sediments include dense to very dense, well sorted sands and silts (Saucedo et al 2003).

Quaternary Younger Eolian Deposits (Qye)

Formed in the same manner as the older eolian deposits, the younger deposits differ in only that they are completely unconsolidated (Saucedo et al 2003). These deposits are between 126,000 to 2,000 years old and have the potential to contain the remains of extinct animals (GeoWhen 2008).

Quaternary Younger Alluvial Flood Plain Deposits (Qya)

Deposited in the flood plains adjacent to rivers that spill over during flash floods, these sediments are typically poorly consolidated, poorly sorted, silts and sands (Saucedo et al 2003). These deposits are between 126,000 to 2,000 years old and have the potential to contain the remains of extinct animals (GeoWhen 2008).

Quaternary Recent Alluvial Fans (Qf)

Formed in the same manner as the Quaternary old alluvial fans, these deposits are less than 11,000 years old (Yerkes and Campbell 2005). Although they are too young to contain the remains of extinct animals, they overlie the older deposits.

Quaternary Recent Eolian Deposits (Qe)

Wind blown dunes are usually composed of finer sands and silts. These deposits are unconsolidated but they do grade into older eolian sediments below (Saucedo et al 2003). Because these deposits are less than 11,000 years old they do not contain the remains of extinct animals, although they might contain the fossils of more recent animals or archaeological resources.

Quaternary Clay (Qc and Qpe)

These are recent estuary deposits, primarily unconsolidated clays, silts, and sands (Dibblee 2007, Saucedo et al 2003). Because these deposits are less than 11,000 years old they do not contain the remains of extinct animals, although they might contain the fossils of more recent animals or archaeological resources.

Quaternary Recent Beach Deposits (Qb)

Recent beach sands are composed of well sorted, unconsolidated, quartz-rich sands (Saucedo et al 2003). Because these deposits are less than 11,000 years old they do not contain the remains of extinct animals, although they might contain the fossils of more recent animals or archaeological resources.

Quaternary Alluvial Flood Plain Deposits (Qa)

Formed in the same manner as the Quaternary younger alluvial flood plain deposits, these sediments are less than 11,000 years old (Saucedo et al 2003). Although they are too young to contain the remains of extinct animals, they overlie the older deposits.

Artificial Fill (af)

Large deposits of fill imported by human activity (Saucedo et al 2003, Yerkes and Campbell 2005). Although these sediments may contain fossils, they have been moved from their original locations so they have lost most of their scientific value.

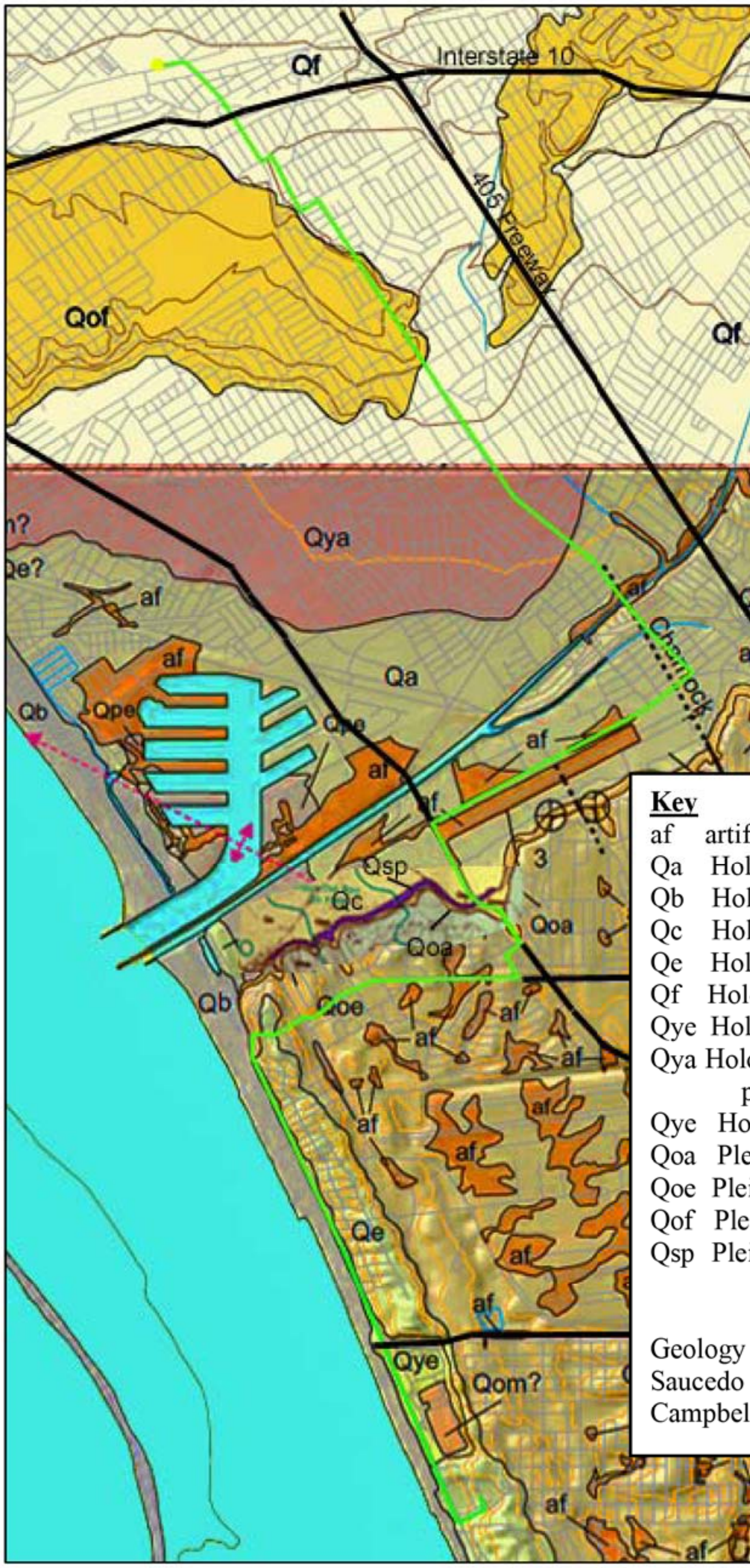

Figure 3. Geology of the project alignment

Key

af artificial fill
Qa Holocene alluvium
Qb Holocene beach deposit
Qc Holocene paralic estuary deposit
Qe Holocene eolian deposit
Qf Holocene alluvial fan
Qye Holocene to Pleistocene eolian deposit
Qya Holocene to Pleistocene alluvial flood plain deposit
Qye Holocene to Pleistocene eolian deposit
Qoa Pleistocene older alluvial fan
Qoe Pleistocene older eolian deposit
Qof Pleistocene older alluvial fan
Qsp Pleistocene San Pedro Sand

Geology base maps from Dibblee 2007, Saucedo et al 2003, andYerkes and Campbell 2005.

PALEONTOLOGICAL SETTING

During the Pleistocene Epoch (1.8 million to 10 thousand years ago) California made a transition from shallow marine to terrestrial as the ocean receded. In the Los Angeles area the developing terrestrial landscape had a climate that was moister than the present, with free flowing streams and relatively abundant standing water (Shaw and Quinn 1985).

A dynamic community of large animals migrated into southern California during this period attracted by the abundant resources and fleeing the ice sheet encroaching from the north. The community included large herbivores like North American native horses, camels and mastodon plus Eurasian immigrants like mammoth and bison. They were joined by immigrants from South America including ground sloths and llama. The herbivores were pursued by predators such as the short-faced bear, dire wolf, saber-toothed cat and American lion. Most of these large animals became extinct at the end of the Ice Age. However, the many types of smaller animals including rabbits, rodents, birds and snails mostly survive into present times.

PREHISTORIC BACKGROUND

NATURAL ENVIRONMENT IN PREHISTORIC ERA

The project area consists of coastal plain at the northern end, lowlying flat to wetland in the center and the El Segundo Sand Hills to the south. Freshwater sources were Ballona and Centinela creeks, which feed the Ballona wetlands, and drain an approximately 110-square-mile area, bounded on the south by the Westchester Bluffs and the Baldwin and Beverly Hills to the east and north. During much of the Holocene, however, Ballona Creek captured the flow of the much larger Los Angeles River, as evidenced by a massive submarine fan-delta off the coast. Subsequently the river channel shifted to drain due south to its modern terminus in San Pedro Bay (Altschul et al 2007).

At the end of the Pleistocene, what later became the Ballona Lagoon was open marine coast. By 7000 BP, sea levels were 10-15 m below current levels, and the shore line was at least 500 m further off shore than today. Paleoclimatic data based on pollen indicates that there was a dramatic increase in both annual temperature and precipitation between 8000 and 7000 BP, an event that corresponds to the establishment of a rich marsh in the Ballona area at base of the Westchester bluffs. At times, the flow of the Los Angeles River cut into the Westchester Bluffs, leaving marshy, vegetated areas along the eastern and southern portions of the bay. Drainage off the bluffs also cut side canyons, depositing sand and sediment in alluvial fans that created well-drained land surfaces at the edge of the marsh (Altschul et al 2007).

Prehistoric peoples created camps and villages in the vicinity of freshwater in the region (Figure 4). There is a freshwater spring about a mile north of the RS-K. There are numerous sites along Ballona and Centinella Creeks plus there are large sites on top of the Westchester Bluffs.

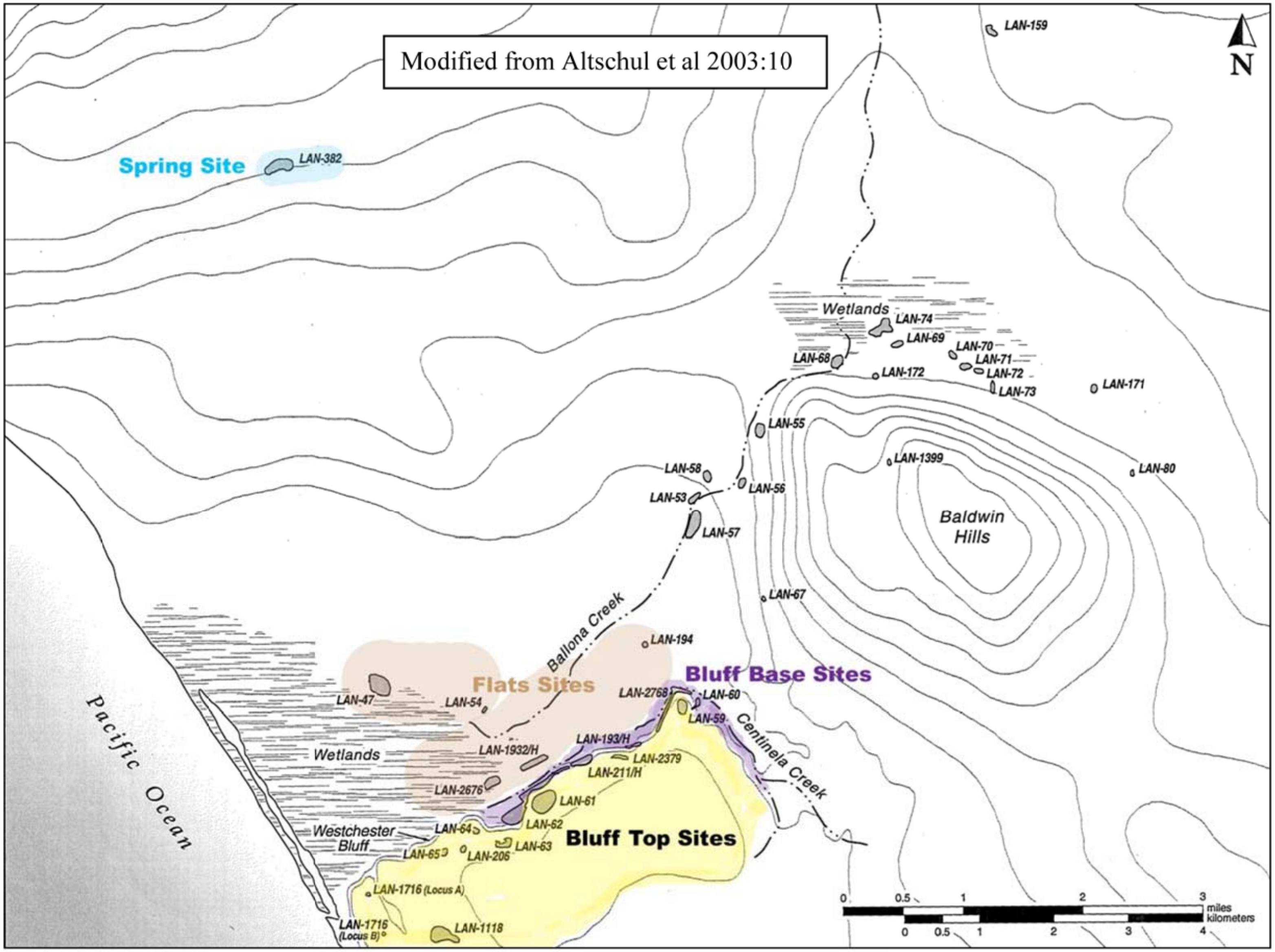

Figure 4. Known Archaeological Sites in region

PREHISTORIC CHRONOLOGY

Early Millingstone Period, 8,000 to 6,500 years BP

Archaeological evidence suggests a small and highly mobile population foraging on a seasonal basis. The earliest sites known in the project area are on the Westchester Bluffs. They are similar to other coastal sites of the period in emphasis on protein sources but differ in having high frequencies of sharks and rays from the lagoon. The abundance of scallops and oysters in these early collections is consistent with relatively open lagoon conditions (Altschul et al 2005, 2007).

Late Millingstone Period, 6,500 to 3,000 years BP

Archaeological evidence suggests a continued pattern of small, mobile foraging groups but location shifted to the base of the bluffs. This area would have provided the best locations for exploiting the marsh and the lagoon. Sites are dominated by shellfish and small mammals (Altschul et al 2005, 2007).

Intermediate Period, 3000 to 1000 years BP

Archaeological sites indicate the continuation of small, mobile foraging groups early in this period but later sites were relatively large and contain hearths, mortuary features, and houses. The later sites reflect a much broader strategy that targeted terrestrial mammals and birds from the freshwater marsh and coastal prairies, as well as fish and shellfish. Both bluff top, bluff base and flats sites were occupied with sharks and rays from the lagoon emphasized in bluff top sites and shellfish from the mudflats targeted at lagoon edge sites. The emergence of Venus clam as the predominant shellfish in almost all collections is consistent with the expansion of mudflats at this time. In addition, plant processing is evident (Altschul et al 2005, 2007).

Late Period, 1000 years BP to contact

Environmental change caused Ballona Lagoon to become a sediment-choked estuary. One large site on the flats and one large settlement nested along the base of the bluff remained occupied (Altschul et al 2005, 2007).

ETHNOGRAPHY

Archaic Culture

The nature of Native American cultural systems older than 3000 years before present in southern California remains poorly defined. Recently, it has been proposed that there may have been periodic movement of desert peoples into coastal areas as far back as 8,000 years before present (Altschul et al 2007).

Tongva (Gabrielino) Culture

The project area was within the territory of the Tongva (McCawley 1996) beginning approximately 3000 years before present. The name "Gabrielino" is Spanish in origin and was used in reference to the Native Americans associated with the Mission San Gabriel. It is unknown what these people called themselves before the Spanish arrived, but today they call themselves "Tongva", meaning "people of the earth" (Gabrielino/Tongva Tribal Council of San Gabriel n.d.).

The Tongva/Gabrielino speak a language that is part of the Takic language family originating in the Great Basin. Their prehistoric tool kit demonstrates strong links to other desert peoples (Altschul et al 2005, 2007). Their territory encompassed a vast area stretching from Topanga Canyon in the northwest, to the base of Mount Wilson in the north, to San Bernardino in the east, Aliso Creek in the southeast and the Southern Channel Islands, in all an area of more than 2,500 square miles (McCawley 1996). At European contact, the tribe consisted of more than 5,000 people living in various settlements throughout the area. Some of the villages could be quite large, housing up to 150 people. They thrived by exploiting the abundant and rich animal and plant resources available in the area.

HISTORIC BACKGROUND

SPANISH-MEXICAN PERIOD

The project area was crossed by the first overland trek through what is now Los Angeles County by Don Gaspar de Portola's expedition in 1769. The founding of the San Gabriel Mission in 1771 marked a period where the Tongva were brought into the confines of the mission and subjected to religious and occupational re-education. The Tongva population was ravaged by European diseases. The missions held the Tongva lands and utilized them for grazing.

When the missions were secularized in the 1830s, the lands were divided and granted to retired Mexican soldiers. The remaining Tongva were released and many found work on ranches and farms. From north to south, the land grants covering this project were (1) San Vicente y Santa Monica, (2) La Ballona and (3) Sausal Redondo (Figure 5; modified from 1901 USGS topo).

Figure 5. Mexican Land Grants

All were used primarily for grazing cattle herds although some agriculture also took place. Use of San Vicente de Santa Monica was granted in the early 1830s to Francisco Sepulveda and he petitioned for permanent title in 1839. La Ballona was utilized in the early 1800s by Agustin Machado and Felipe Talamantes and they were granted title in 1839. Sausal Redondo was granted to Antonio Ygnacio Avila in 1837.

TRANSITION PERIOD

As California became part of the United States, the Mexican land grants were challenged in the courts at the same time as the territory suffered a long drought. Many Californios incurred debt and were forced to sell their lands.

In 1872 the Sepulveda family sold Rancho San Vicente de Santa Monica to Robert S. Baker and his wife Arcadia Bandini Sterns Baker. In 1874 the couple sold a half interest in the land to John Paul Jones, a silver magnate from Nevada.

The owners of La Ballona died in the late 1850s-early 1860s leaving their land to be subdivided by the courts among 39 heirs. By the end of the century, very little of the original rancho belonged to the Machado or Talamantes families.

In 1868 the Avila family heirs sold Sausal Redondo to Sir Robert Burnett. He leased, and by the 1880s, eventually sold Sausal Redondo to Daniel Freeman, a local businessman (Loyola 2008a).

AMERICAN PERIOD

Northern Project Area

By 1875 the former Rancho San Vicente de Santa Monica had a coastal wharf and a town called Santa Monica had been developed. By 1887 Jones and Baker won the right to donate 600+ acres of land to the Federal Government to establish the Pacific Branch of the National Soldiers' Home of Disabled Veterans from the Civil War. The establishment of the Soldiers' Home meant that a town would be needed near the site for the people who worked there. In 1895 a little town was plotted below the great gates of the Soldiers' Home on Ohio Ave. The town was originally named Barrett, but was changed to Sawtelle in 1899, after W.E. Sawtelle, a local banker (Mar Vista Historical Society 2005).

Central Project Area

The former Rancho La Ballona continued in mostly rural ranching and agricultural uses by heirs of the original owners in this period. A detailed history is available (Swanson 1992:51-90). One unique feature during this period was the establishment of Camp Latham in September of 1861 on Ballona Creek, near the modern intersection of Washington and Sepulveda. The purpose of this camp was to prevent a Confederate invasion of southern California. The camp housed 1,200 trainees for the California Volunteers for about a year before it was moved to Camp Drum at Wilmington, where the water supply was better (Swanson 1992:61).

Southern Project Area

After Freeman assumed ownership of Sausal Redondo, he raised sheep on the land until the drought of 1874-1876 forced him to turn to dry farming. The experiment was a success and by 1880 the ranch was producing a million bushels of barley a year (LAX 2008a).

20TH CENTURY

Northern Project Area

Residential development burgeoned in the 1920s, particularly south of Sawtelle in the new Mar Vista neighborhood. Mar Vista has commercial development along Inglewood Blvd. where the project route runs but is also known for waves of home development dating to the 1920s, late 1940s and 1960s (Mar Vista Historical Society 2005). Between 1916 to about 1925 residents of the communities from Beverly Hills to the sea voted to merge with Los Angeles to obtain better city services, including water and power.

Central Project Area

The Ballona flats continued to be used for agriculture. In the 1930s oil wells and refineries were established but mostly along the coast, with developing manufacturing concerns. The increasing urban development led to the channelization of Ballona Creek. Between 1920 and 1935 the creek was channelized and was soon a rowing course used by sculling crews from the surrounding universities (Robinson 1939:126; Figure 6).

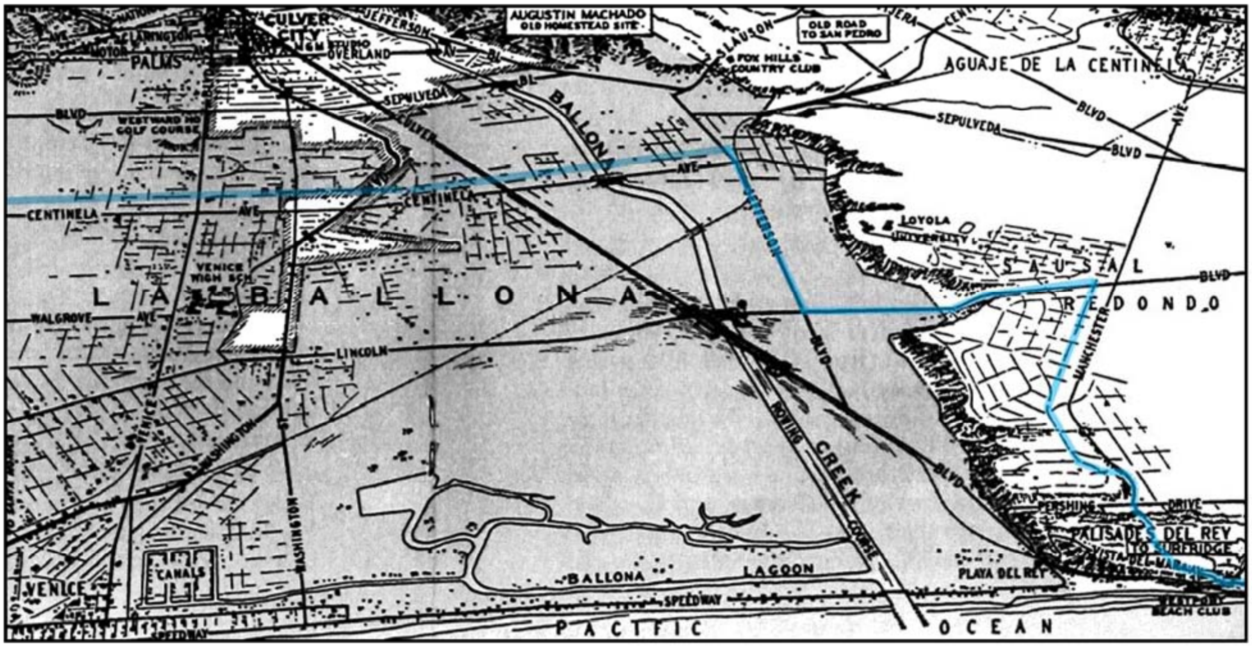

Figure 6. Central Project Area Circa 1930s

Howard Hughes developed his aircraft complex on both sides of Ballona Creek in what is now Playa Vista. There were additional aircraft facilities on Lincoln and Washington. The aircraft industries created environmental problems as did the oil and industrial manufacturing concerns.

Southern Project Area

The area was broken up and sold to various companies over a fifteen year period bridging the turn-of-the-century. The coast view area was developed with homes beginning in the 1920s by companies like Dickinson and Gillespie. This included Playa del Rey, Palisades del Rey and Surfridge. More inland, Harry Culver gifted two religious universities with 100 acres each in 1927 provided a permanent building was erected within a year (Loyola 200b). This was the beginning of Loyola Marymount University. The other organization did not put up a building and that land was eventually developed as homes and businesses.

Inland and south large tracts were owned by Andrew Bennet and later, James Martin and his Los Angeles Extension Company. The land continued to be leased to tenant farmers growing wheat, barley, and lima beans. During the 1920s pioneer aviators used a small portion of this property as a makeshift landing strip. In 1927 a group of prominent local citizens and the Los Angeles City Council became interested in the creation of a municipal airport. In 1928 The City leased 640 acres, called Mines Field, for the City's airport (LAX 2008a).

The City then purchased the airport in 1937. The airport expanded by purchasing 1860 acres to the west in 1945. The name was changed to Los Angeles International Airport in 1949 (LAX 2008b). In the late 1960s to early 1970s Los Angeles International Airport purchased the entire neighborhoods of Palisades del Rey and Surfridge, about 470 acres, under the path of plane traffic (Westchester Parkway to Imperial, Vista del Mar to Pershing Dr.) to eliminate noise concerns (Ferrell 2001). The area is protected butterfly habitat.

The project area south of LAX was developed as an industrial complex. Hyperion Treatment Plant (HTP) is the City's oldest and largest wastewater treatment facility. The plant has been operating since 1894. Initially built as a raw sewage discharge point into the Santa Monica Bay, it had been upgraded over the years to partial secondary treatment (1950), and most recently to full secondary treatment (1998). South of Hyperion, Scattergood Generating Station was built in 1939. Scattergood operates on natural gas. Adjacent are the Chevron oil refinery and the El Segundo Power Plant.

RECORD SEARCHES

PALEONTOLOGICAL RESULTS

Records were searched at the Natural History Museum of Los Angeles County Department of Vertebrate Paleontology (LACM), the Natural History Museum of Los Angeles County Department of Invertebrate Paleontology (LACMIP), the University of California Museum of Paleontology (UCMP) and in the literature.

Fossils are known from eight middle to late Pleistocene Older Alluvial deposits in the vicinity of the project (Table 1, Appendix B, Jefferson 1991b). Depth of these discoveries ranged from 6 to 40+ feet below the surface. Animals represented include extinct mammoth, bison, horse and American lion. In addition, a number of small mammals, birds, reptiles, amphibians and fish fossils are known that represent animals which are still found locally. See Appendix B for scientific names.

A very large number of Pleistocene marine fossils are known from one locality, LACM 1024, in the San Pedro Sand directly adjacent to the project route along Lincoln Blvd. (Table 2, Appendix B). Depth of these discoveries ranged from 2 to 4 feet below the surface. These fossils include marine mammals like seal and dolphin, numerous sea birds and very extensive groups of cartilaginous and boney fishes.

Table 1. Recorded Paleontological Resources in Older Alluvium

Common name	LACM 7332	LACM 5833	LACM 5501	LACM 5462	LACM 4250	LACM 3789	LACM 3264	LACM 1180 /4942
MAMMALS								
Mammoth (extinct)	x				x	x	x	x
Bison (extinct)								x
Horse (extinct)		x	x					x
American lion (extinct)				x				
Coyote			x					
Jackrabbit								x
Brush rabbit			x					
Wood rat		x	x					
Kangaroo rat		x						
Meadow vole		x	x					
Pocket gopher		x	x					
Heteromyid rodent			x					
Deer mouse			x					
BIRDS								
Eared grebe			x					
Plover			x					
Duck			x					
REPTILES								
Pond Turtle			x					
Lizard			x					
Colubrid snake			x					
AMPHIBIANS								
Toad			x					
Newt			x					
BONEY FISH								
Speckled sanddab						x		

Table 2. Recorded paleontological resources in San Pedro Sand near project

Common name
MAMMALS
Harbor seal
Dolphin
BIRDS
Duck (extinct)
Common murre
Common raven
Booby (extinct)
Western grebe
Short-Tailed Albatross
Sooty shearwater
Black-vented shearwater
CARTILAGENOUS FISHES
Narrow tooth shark
Dusky shark
Soupfin shark
Pacific sharpnose shark
Smooth hammerhead shark
Sevengill shark
Common thresher shark
Great white shark
Bonito shark
Bat ray
Pacific angel shark
Round Stingray
Skate
BONEY FISHES
Topsmelt
Jacksmelt
California grunion
Specklefin midshipman
Plainfin midshipman
Deepbody anchovy
Northern anchovy
Pacific hake
Northern lampfish
California lanternfish
Black-fin cusk eel
Scripps cusk eel
Taylor's cusk eel
Jackmackerel
Shiner surfperch
Bay goby
Lesser goby
David's sargo
California sargo
Sheephead
Noble croaker
Reticulated croaker
White croaker
California corbina
Little croaker
Spotfin croaker
Queenfish
Yellowfin croaker
Sand bass
California barracuda
Swordfish
California halibut
Pacific sanddab
Speckled sanddab
California tonguefish
Slender sole
English sole
Spotted turbot
Pacific argentine
Poacher
Roughback sculpin
Yellowchin sculpin
Bocaccio
Rockfish
Lumptail searobin
Shortspine combfish
INVERTEBRATES
Rochefort clam (extinct)
Bornia clam (extinct)

ARCHAEOLOGICAL AND HISTORICAL RESULTS

A search for archaeological and historic records was completed at the South Central Coastal Information Center at California State University at Fullerton by Sherri Gust (route alternatives) and Amy Glover (final route). A one-mile radius around the proposed project boundaries was searched for prehistoric resources and a half-mile radius was used for historic resources.

Records on file at the Information Center show no recorded archaeological sites within the final route boundaries. In addition, the two sites directly adjacent to the project route have been destroyed by development following full archaeological data recovery.

Some 36 archaeological sites and two prehistoric isolates have been recorded within a one-mile radius of the project area. This total does not include two sites subsequently determined to be natural features (Table 3). One historic structure is located along the northern portion of the alignment. Only one Los Angeles Historical Cultural Monument is within a half-mile of the project alignment: LAHCM 696, the Jones and Emmons Building, in the Beverly Hills quadrangle.

Sites within one mile of northern portion of alignment

The Spring Site (CA-LAN-382) is about 1 mile north of Receiving Station K in the Sawtelle neighborhood of Los Angeles. This prehistoric village site with burials has been partially destroyed but portions may be preserved under the buildings of University High School. The spring itself is a California Historical Landmark known as Friar Junipero Serra Springs. It is reported to have been a stop of the Portola Expedition.

The California Historic Resources Inventory lists record 136777 as a historic 1924 house located at 2489 Bundy Dr. This house is on the northern end of the alignment.

Table 3. Recorded sites within a one-mile radius of the project

Primary (P-19-)	Trinomial (CA-LAN-)	Description	Date	Fig. 4 Location	Area
Northern					
[136777]	none	Historic House 2489 Bundy Dr. (1924)	2003		Sawtelle
000382	382	Prehistoric habitation with burials	1969	Spring	Sawtelle
003803	3803	Historic segment of Southern Pacific Railroad ROW	2008		Palms
Central					
001698	1698	Shell in imported fill	1989		Playa Vista
000054	54	Prehistoric habitation	1949	Flats	Playa Vista
000356	356	Prehistoric habitation with possible burial	1960		Playa Vista
002676	2676	Prehistoric habitation	1998	Flats	Playa Vista
001933	1933	Redeposited historic (20th C.) landfill	1990		Playa Vista
001932	1932	Prehistoric habitation	1990	Flats	Playa Vista
000211	211	Prehistoric habitation	1953	Bluff Base	Playa Vista
002769	2769	Prehistoric habitation with burials	1999		Playa Vista
000060	60	Prehistoric habitation	1950	Bluff Base	Playa Vista
000194	194	Sand lens with one flake and possibly worked bone	1965	Flats	Westchester
000059	59	Prehistoric habitation	1950	Bluff Top	Westchester
002768		Prehistoric habitation debris	1999	Bluff Base	Westchester
000212	212	Prehistoric habitation	1953		Westchester
000193	193	Prehistoric habitation	1952	Bluff Base	Westchester
002379	2379	Shell midden with prehistoric tools	1995	Bluff Top	Westchester
Southern					
000061	61	Prehistoric habitation	1950	Bluff Top	Westchester
000062	62	Prehistoric habitation	1950	Bluff Top	Westchester
000063	63	Prehistoric habitation	1950	Bluff Top	Westchester
000064	64	Prehistoric habitation	1950	Bluff Top	Westchester
000065	65	Prehistoric habitation		Bluff Top	Westchester
000206	206	Prehistoric habitation	1953	Bluff Top	Westchester
001018	1018	Shell midden	1979		Westchester
001934	1934H	Historic trash scatter	none		Westchester
000204	204	Prehistoric habitation	1953		Playa del Rey
000203	203	Prehistoric habitation	1953		Playa del Rey
003784	3784	Historic (1885-1920) trashpit	2008		Playa del Rey
001970	1970	Oil industry structural remnants (1920-50s)	1990		Playa del Rey
001716	1716	Prehistoric habitation	1990	Bluff Top	Playa del Rey
000066	66	Prehistoric habitation	1959		Playa del Rey
001118	1118	Prehistoric habitation	1981	Bluff Top	LAX
100116		Isolated chipped stone	1995		LAX
002385	2385	Redeposited historic (20th C.) landfill	1995		LAX
100115		Isolated chipped stone	1995		LAX
002345	2345	Prehistoric habitation	1995		LAX
000202	202	Natural erosion of paleontological shell	1953		LAX
002386	2386	WWII observation bunker (intact)	1995		LAX

A portion of the historic Southern Pacific Railroad ROW (CA-LAN-3803) lies in the Palms neighborhood of Los Angeles, east of the alignment. Known as the "Santa Monica Air Line", the tracks were in use between 1875 and 1986. Portions of the tracks are embossed with dates ranging from 1910 to 1922.

Sites within one mile of central portion of alignment

At the interface between Marina del Rey and Playa Vista a shell scatter was recorded as an archaeological site (CA-LAN-1698). It was subsequently determined that the shell had been imported into the area in fill and was not an archaeological site.

The portion of Playa Vista north of Ballona Creek and east of Lincoln, has two recorded archaeological sites. Both were discovered after they had been deeply impacted by truck farming. The first is a prehistoric habitation (CA-LAN-54) with ground stone, flaked stone and shellfish recovered. The second (CA-LAN-356) consisted of shell midden.

The portion of Playa Vista south of Jefferson and east of Lincoln is the historic Hughes Aircraft Complex. The portion of the complex beyond this project's one mile radius has many historic standing structures and abundant archaeological sites. The old runways of the complex once covered the portion within our one mile radius. Archaeological sites were located beneath the fill for the runways. These sites include CA-LAN-2676, -1932 and -1933. All were discovered during monitoring. 2676 artifacts recovered included flakes, cores, bifaces, ground stone and Olivella beads. Shellfish included Venus clam, scallops and oysters plus fish, mammal, bird and reptile bone typical of a wetland.

CA-LAN-1932 had a superficial layer of redeposited historic fill of 50 centimeters overlying a disturbed prehistoric habitation site. Radiocarbon dates indicate late to proto-historic period. Subsistence remains indicated a high percentage of land mammals, birds and boney fish but not exploitation of the lagoon environment (Altschul et al 2003:167) CA-LAN-1933 consisted entirely of a meter deep layer of secondarily redeposited historic fill with glass, ceramics, metal, rubber and wood. Artifact dates were from about 1900-1930s.

The additional portion of the historic Hughes Aircraft Complex between Centinella Creek and the base of the Westchester Bluffs contained additional sites (CA-LAN-1934, 211, 2769, 62). CA-LAN-211 has components as old as 2000 years before present and as young as A. D. 1800 (Altschul et al 2003:245). The site has glass beads, a flaked tool of glass and butchered remains of domestic animals. In additional, the site demonstrates a shift away from lagoon use to open coastal fishing and increased exploitation of birds including swans, plus pronghorn antelope and abalone. The stone tool assemblage shows increased use of smaller, portable tools mostly of basalt and chert.

CA-LAN-2769 contained a low-density cultural deposit that appeared to be highly disturbed (Altschul et al 2003:247). No temporally diagnostic artifacts were recovered but the assemblage is comparable to other Late period collections in abundance of small chert and chalcedony tools. The subsistence remains indicate continuing use of the bay and estuary species with small amounts of fish and birds.

CA-LAN-62 was reoccupied periodically from 5000 to 500 years before present (Altschul 2007). The site contained mostly terrestrial mammal remains with few lagoon species and a high percentage of the bone was burned (Altschul et al 2003:166).

CA-LAN-1934 was another layer of redeposited historic fill containing glass, ceramics, wood, metal and some Pismo clam. The fill dates to the first half of the 20th Century.

Directly north of the Hughes Aircraft Complex and underneath the Marina Freeway is CA-LAN-194, The site consisted of a sand lens with one flake and possibly worked bone, at a depth of three to four feet.

CA-LAN-193 is located directly south of the Hughes Aircraft Complex, at the mouth of a small ravine opening on Centinela Creek and is a Flats Site. This habitation site contained artifacts such as projectile points, shell, fish hooks, beads, pendant awls and reportedly human skeletal remains.

Two sites consisting of habitation debris (CA-LAN-60 and CA-LAN-2768) are located on the far eastern side of the Flats Sites area, southeast of Jefferson Boulevard and southwest of Inglewood Boulevard. CA-LAN-60 was documented as containing shell, flakes, mortar fragments, hammerstones, a chopper and pieces of steatite. A human skull and some associated post-cranial fragments were also recovered from this site. CA-LAN-2768 consisted of similar materials.

Sites within one mile of southern portion of alignment

CA-LAN-1018 appears to have consisted of redeposited secondary fill as it is described as shell midden with a large quantity of historic buttons. CA-LAN-212 was recorded as a sparse shell midden that could not be relocated in recent years.

Five sites, CA-LAN-61, 63, 64, 65 and 206, are situated along the top edge of the Ballona escarpment and all except CA-LAN-65 were investigated as part of the Playa Vista archaeological project. CA-LAN-64 and 206 date between 6,500 to 8,000 years before present and demonstrate an emphasis on fish and shellfish. Portions of CA-LAN-61 date between 3-5 thousand years before present. CA-LAN-61, 63 and 64 were all occupied between 1-3 thousand years before present. The later sites demonstrate subsistence based on sharks and rays from the lagoon below. In addition, all demonstrate highly diverse activity areas representing permanent habitation sites including community trash dumps, hundreds of thermal features (cooking), a milling area with large numbers of deliberately broken implements smeared with ochre, cremated human remains and burials in clusters and plant procurement areas around water in natural depressions (Altschul et al 2007:38).

CA-LAN-2379 is located on the crest of the bluff, overlooking the Hughes Aircraft Complex. The east end of this site contained a shell midden, while the west portion contained manos, a metate fragment, a hammerstone fragment, flakes and a chopper.

CA-LAN-59 is also situated along the top edge of the Ballona escarpment, but is on the far northeastern end of the Bluff Top Sites area. This large habitation site was described as including a shell midden, flakes and various tools such as points, manos, pestles, hammerstones and scrapers. The site was completely destroyed by bulldozing.

CA-LAN-203 and 204 are sites with some shell and stone tools recorded in the vicinity of Manchester Blvd. in Playa del Rey. They could not be relocated in recent years.

CA-LAN-3784 consisted of domestic animal food refuse and glass and ceramic artifacts dating to the early 20th Century. The site was located about eight feet below the modern surface and represents household trash. CA-LAN-1970 consists of concrete footing for oil drilling rigs 1920s-1950s near Culver Blvd. The area was subsequently utilized as a trash dump.

CA-LAN-1716 consists of two widely spaced loci that do not meet SHPO requirements for an archaeological site (cluster of three artifacts minimum) and should have been recorded as isolates. One locus consists of two chipped stone flakes and the other of a single piece of shell.

CA-LAN-66 was a shell midden reported to have been destroyed in the 1920s by construction of the Westport Beach Club. The area is still covered by buildings.

CA-LAN-1118 was recorded as shell midden with lithic debitage. A 1995 site update indicates that Westchester Blvd. was constructed directly through the heart of the site but that intact subsurface deposits may be present.

The remaining LAX sites are not located in areas near the proposed project. Isolate 100116 consists of a waste flake of chipped stone west of Pershing Drive. CA-LAN-2385 consists of secondarily redeposited 20th Century landfill south of Westchester Parkway. Isolate 100115 was close to CA-LAN-2385 and consists of a flake of chipped stone. CA-LAN-2345 was recorded as a large prehistoric site consisting of shell, bone, chipped stone tools, ground stone tools and fire affected rock. CA-LAN-202 was recorded as shell midden but later determined to be natural erosion of paleontological shell. CA-LA-2386 was recorded as an intact World War II observation bunker.
Previous archaeological studies within a one-mile radius of the current project boundaries number 124 (Table 4). Many of these were done when the project area was much less developed.

Table 4. Previous studies within a one-mile radius of the project

Ref (LA-)	Title	Authors	Quad	Date
96	Archaeological Study of LAX	Leonard, Nelson N. III	Venice	N/A
125	Hyperion Plant	Leonard, Nelson N. III	Venice	1975
188	Evaluation of the Area Known As Tentative Tract 31351, Los Angeles County, an Environmental Impact Report	Hector-Kaufman, Susan	Venice	1976
211	Archaeological Test Excavations on the Property Proposed for the Hughes Aircraft Company Headquarters Facility Los Angeles, California	Dillon, Brian D.	Venice	1982
309	Archaeological Reconnaissance Report for Areas Relating to the North Outfall Replacement Sewer Project, Los Angeles County, California.	Wlodarski, Robert J.	Holly-wood Beverly Hills	1987
340	No Title	Robinson, R. W.	Venice	1982
352	Survey of Northwest Corner of Santa Monica Municipal Airport	Breece, William H.	Beverly Hills	1978
436	Archaeological Assessment of the Summa Corporation Property, Culver City, Los Angeles County	Pence, Robert L.	Venice	1979
462	An Archaeological Resource Survey and Impact Assessment of Tract No. 25635, Los Angeles County	Hector, Susan M.	Venice	1979
513	Archaeological Survey Report on TT 35495, A 7.11-Acre Parcel of Land on Manchester Boulevard in the Playa del Rey area of the County of Los Angeles, California	Desautels, Roger J.	Venice	1979
676	Cultural Resource Survey and Impact Assessment for Tentative Tract No. 39621 in the City and County Of Los Angeles, California	Singer, Clay A.	Beverly Hills	1980
724	Archaeological Investigations of the Hammack Street Site, LAN-194	King, Chester	Venice	1967
729	Mare Vista Site (193)	Peck, Stuart L.	Venice	1947
748	Surface Collection from Loyola University Site, Los Angeles County (CA-LAN-61)	Schofield, George T.	Venice	1964
750	Recording by Pictures, the Collection of William Deane of the Hughes Aircraft Site	Marlys, Thiel	Venice	1953
751	Preliminary Report on the Archaeology of the La Ballona Creek Area, Los Angeles County	Belous, Russell E. Charles E. Rozaire	Beverly Hills Venice	1950
798	Archaeological Investigations at the Westport Beach Club in Playa del Rey, Los Angeles County, California---Phase I Report	Singer, Clay A.	Venice	1980
839	Preliminary Notes of an Archaeological Reconnaissance of Indian Camp Sites in the Baldwin Hills-Ballona Creek Region of Los Angeles County, California	Farmer, Malcolm F.	Venice Beverly Hills	1936
873	Cultural Resource Survey and Impact Assessment for a Lot at 373-375 Fowling Street, Playa del Rey, Los Angeles County	Singer, Clay A.	Venice	1980
876	Extended Survey Report on LAN-216 for the Proposed Sepulveda Boulevard Ramp Relocation	Huey, Gene	Venice	1980

Ref (LA-)	Title	Authors	Quad	Date
947	An Archaeological Resource Survey and Impact Assessment of Tentative Tract #41395, Lots 13 & 11 of Block 56 of the Artesian Tract AT 1441-1445 Barry Avenue, Los Angeles, CA	Dillon, Brian D.	Beverly Hills	1981
1121	An Archaeological Resource Survey and Impact Assessment of Tentative Tract #28355 in the City of Los Angeles, California	Dillon, Brian D.	Beverly Hills	1981
1143	Letter to Mr. Mohr regarding Los Angeles City Project No. 51319, located in Los Angeles, California	Rechtman, Robert B.	Venice	1981
1173	An Archaeological Resource Survey and Impact Assessment of A Parcel Near Centinela and Ballona Creeks in the City of Los Angeles, CA	Dillon, Brian D	Venice	1982
1202	An Evaluation of the Archaeological Resources on the Property Proposed for the Hughes Aircraft Company Headquarters Facility, Los Angeles	Dillon, Brian D.	Venice	1982
1209	Archaeological Test Excavation Report: The Site of the New Hughes Aircraft Company Headquarters Near LAN-61 in Los Angeles, California	Van Horn, David M	Venice	1983
1249	An Assessment of the Archaeological Resources on the Property Proposed for the Project Title Protection Lincoln Blvd, CA	Aycock, Richard D.	Venice	1983
1282	An Archaeological Assessment of the Playa Sol Project in the City of Los Angeles	Padon, Beth	Venice	1983
1321	Mitigation of Impacts to Cultural Resources: Salvage Excavations at the Hughes Site (LAN-59)	Van Horn, David M.	Venice	1984
1444	Report to the LAN-61 Board of Senior Advisors: the Location and Condition of LAN-62	Dillon, B.D., D.M. Van Horn and J.R. Murray	Venice	1983
1512	Surface Mapping and Auger Sampling at LAN-63 and LAN-64, City of Los Angeles	Van Horn, David M.	Venice	1986
1613	Archaeological Survey Report: A 30+/- Tract A at the Northwest Corner of Manchester & Hastings Avenues in the City of Los Angeles	Van Horn, David M.	Venice	1983
1614	Archaeological Test Report: A 30+/- Acre Parcel of Property at the Corner of Manchester and Hastings Avenues in the City of Los Angeles	Brown, Robert S.	Venice	1983
1619	An Archaeological Resource Survey and Impact Assessment of the Jefferson Boulevard Site	McAuley, Tamara K	Venice	1986
1625	Archaeological Survey of Manhattan State Beach, Los Angeles County, California	Woodward, Jim	Venice	1987
1721	Archaeological Test Excavation at 1327 Westgate Avenue, Los Angeles, California	Van Horn, David M.	Beverly Hills	1989
1970	The Loyola Marymount Archaeological Project: Salvage Excavations at LAN-61A	Van Horn, David M.	Venice	1985
1975	Cultural Resource Survey and Clearance Report for the Proposed American Telephone and Telegraph Los Angeles Airport Central Office to the Santa Monica Central Office Fiberoptic Commmunication Route	Neuenschwander, Neal J.	Beverly Hills, Venice	1989
2256	City of Los Angeles Palisades Street Maintenance Yard Examination	Atwood, John E.	Beverly Hills	1991
2304	City of Los Angeles Palisades Street Maintenance Yard Examination	Atwood, John E.	Beverly Hills	1991

Ref (LA-)	Title	Authors	Quad	Date
2445	Shovel Testing at Two Sites CA-LAN-1698 and CA-LAN-1018 Los Angeles County	Peak, Ann	Venice	1990
2830	Hughes Aircraft Company Site, Playa Del Rey, California	Peck, Stuart L.	Venice	1947
2950	Consolidated Report: Cultural Resource Studies for the Proposed Pacific Pipeline Project	N/A	N/A	1992
2990	The Cantilena Site (CA-LAN-60): Data Recovery at a Middle Period, Creek-edge Site in the Ballona Wetlands, Los Angeles County, California	Grenda, Donn R., Jeffrey A. Homburg and Jeffrey H. Altschul	Venice	1994
3494	Archaeological Impact Statement development of the Hyperion Treatment Plant Secondary Treatment Facility W.O. 31225, Located at 12000 Vista Del Mar, Playa del Rey	Briuer, Frederick L.	Venice	1976
3506	UCAS-1963-X2 Venice Boulevard, Route 163, Los Angeles County	Sweet, R. K.	Beverly Hills Venice	1963
3511	Assessment of the Archaeological Impact by the Development of the Waste Water Facilities	Romani, John F.	Multi-ple	1977
3583	The Los Angeles Basin and Vicinity: A Gazetteer and Compilation of Archaeological Site Information	Bucknam, Bonnie M.	Multi-ple	1974
3673	Historic Property Survey Report North Outfall Relief Sewer (NORS)	N/A	Multi-ple	1987
3729	Historic Property Survey Bundy Drive - North of Wilshire Boulevard to South of La Grange	N/A	Beverly Hills	1977
3861	A Phase 1 Archaeological Study for the New Studio Project Subsequent EIR, Culver City, County of Los Angeles, California	Wlodarski, Robert J.	Venice	1998
3872	Archaeological Assessment for Pacific Bell Mobile Services Facility LA-268-02, 2419 Michigan Ave., Santa Monica, Ca.	McLean, Deborah K.	Beverly Hills	1998
3898	Proposal for Archaeological Investigations In the Area of Hammock Street and Port Drive (VII-L.A.-90,405; Lincoln Blvd. to Slauson Avenue)	N/A	Venice	N/A
3911	Historical Property Survey Centinela Avenue From Washington Boulevard To Short Avenue – W.O. 61779	N/A	Venice	N/A
4051	Evaluation of the Potential Impact on Archaeological Resources of the Proposed Hyperion Treatment Plant-Interim Sludge Processing and Disposal System	D'Altroy, Terence N.	Venice	Nd
4053	Archaeological Monitoring of the Median Bike Path and Walkway Improvements Along Culver Boulevard and McConnell Avenue, Los Angeles, California	Turner, Robin D.	Venice, Beverly Hills	1998
4100	Hughes Aircraft Company: Written Historical and Descriptive Data	Unknown	Venice	Nd
4239	Historical Property Survey Report West Los Angeles Veloway Project	ENVICOM	Beverly Hills	1989
4548	Hughes Aircraft Company Site, Playa Del Rey, California	Ariss, R.M.	Venice	1948
4549	Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA 420-01, in the County of Los Angeles, California	Duke, Curt	Beverly Hills	1999
4646	Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA 451-12 County of Los Angeles, California	Duke, Curt	Venice	1999

Ref (LA-)	Title	Authors	Quad	Date
4725	West Bluffs Project Subsequent Draft Environmental Impact Report	Planning Consultants Research	Venice	1998
4861	Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA 483-03, in the County of Los Angeles, California	Duke, Curt	Venice	2000
4863	Cultural Resource Assessment Cingular Wireless Facility No. LA 905-06 Los Angeles County, California	Wallock, Nicole	Venice	2001
4864	Cultural Resource Assessment Cingular Wireless Facility No. Sm 002-04, Los Angeles County, California	Wallock, Nicole	Venice	2001
4867	Cultural Resource Assessment Cingular Wireless Facility No. La 913-13, Los Angeles County, California	Wallock, Nicole	Venice	2001
4868	Cultural Resources Records Search and Paleontologic Resources Literature Review Report for the Sempra Energy Gas Lease Sale Project Area, Playa Del Rey and a Portion of the City of Los Angeles, Los Angeles County, California	Shepard, Richard S.	Venice	2000
4891	A Proposed High Occupancy Vehicle Lane Between I-105 and SR-90 on I-405 in the City of Los Angeles, Los Angeles County, California	Sylvia, Barbara	Inglewood, Venice	2000
4907	Phase I Archaeological Investigation of Limited Areas Within the Los Angeles Department of Water & Power's Harbor, Scattergood & Valley Generating Stations Los Angeles County, California	Maki, Mary K.	Torrance, Van Nuys, Venice	2000
4908	Historic Property Survey Report	Kane, Diane	Beverly Hills, Venice	1999
4910	Paleontological and Archaeological Resources Reconnaissance of the Los Angeles International Airport(LAX) Property, Los Angeles County, California	Raschke, Rod and Ron Bissell	Venice, Inglewood	1995
5009	Cultural Resource Assessment for Modifications to Pacific Bell Wireless Facility LA 607-03, County of Los Angeles, CA	Lapin, Philippe	Beverly Hills	2000
5010	Cultural Resource Assessment for Modifications to Pacific Bell Wireless Facility LA 906-01, County of Los Angeles, CA	Lapin, Philippe	Beverly Hills	2000
5016	Negative Archaeological Survey Report: 19590k	Iverson, Gary	Beverly Hills	1999
5031	Cultural Resource Assessment for Pacific Bell Wireless Facility LA 910-01, County of Los Angeles, CA	Lapin, Philippe	Beverly Hills	2000
5036	Cultural Resource Assessment for AT&T Wireless Facility Number R328, County of Los Angeles, CA	Lapin, Philippe	Beverly Hills	2000
5556	Historic Property Survey: Vista del Mar - Culver Boulevard to Napoleon Street	Tillman, Donald C.	Venice	1977
5559	Cultural Resource Assessment for AT&T Wireless Services Facility Number R319, County of Los Angeles, California	Curt, Duke	Venice	2000
5561	Cultural Resource Assessment for Pacific Bell Wireless Facility LA- 306-03, County of Los Angeles, California	Curt, Duke	Venice	2000
5565	Extended Survey Report on LAN-216 for the Proposed Sepulveda Boulevard Ramp Relocation 07-LA-405 P.M. 24.3/25.9 07218-217601	Huey, Gene and John Romani	Venice	1980

Ref (LA-)	Title	Authors	Quad	Date
5708	Review of Cultural Resource Assessment/Evaluation for NEXTEL Communications Site CA-6518-D, Los Angeles, Los Angeles County, California	McKenna, Jeanette A	Venice	2002
5711	Negative Archaeological Survey Report: to Widen Jefferson Boulevard On-ramp to South Bound Route 405 Within Existing State-owned Right-of-way	Sylvia, Barbara	Venice	2002
5732	1517 Franklin Street Housing Project, Santa Monica	Maki, Mary K.	Beverly Hills	2002
5757	Negative Archaeological Survey Report - Widening and Signal Upgrades on the West Side of the Intersection at Lincoln Boulevard and Mindanao Way, Remove the Raised Islands on Lincoln Blvd. Between Fiji Way and Mindanao Way, Re-Stripe Lincoln Blvd.	Iverson, Gary	Venice	1998
5759	Cultural Resources Assessment Cingular Wireless Facility No. LA 905-06 Los Angeles County, California	Duke, Curt	Venice	2001
5760	Cultural Resource Assessment AT&T Wireless Services Facility No. 04135 Los Angeles County, California	Duke, Curt	Venice	2002
6002	Excavation at the Del Rey Site (Lan-63) and the Bluff site (Lan-64) in the City of Los Angeles	Van Horn, David M.	Venice	1987
6003	Cultural Resources Records Search And Literature Review Report For An AT & T Telecommunications Facility: Number D092 Jefferson Boulevard In The City Of Inglewood, Los Angeles County, California	Mason, Roger D.	Venice	2001
6004	Proposed AT & T Antenna Facility D092, Jefferson Boulevard, City of Inglewood, Los Angeles County, California	Mason, Roger D.	Venice	2001
6005	Excavations at the Del Rey Site (LAN-63) and the Bluff Site (LAN-64) in the City of Los Angeles	Van Horn, David M.	Venice	1987
6237	Historic Property Survey Report Addendum Regarding Weschester Center Freeway Facilities	Robinson, R.W.	Venice	1984
6238	Historic Property Survey Report Regarding Westchester Center Freeway Facilities Los Angeles County	Robinson, R.W.	Venice	1984
6239	Segundo Power Redevelopment Project cultural Resources (Archaeological Resources) Appendix J of Application for Certification	Wesson, Alex Bass, Bryon Hatoff, Brian	Venice	2002
6240	El Segundo Power Redevelopment Project Historic Resources (Built Environment) Appendix K of Application for Certification	Bunse, Meta	Venice	2000
6243	Cultural Resource Assessment AT & T Wireless Services Facility No. 05195C Los Angeles County, California	Duke, Curt	Venice	2002
6244	Cultural Resource Assessment AT & T Wireless Services Facility No. D092.2 Los Angeles County, California	Duke, Curt	Venice	2002
6245	Cultural Resource Assessment Cingular Wireless Facility No. SM 225-02 Los Angeles County, California	Duke, Curt and Judith Marvin	Venice	2002
6246	Cultural Resources for Proposed Expansion of Westchester High School, 7400 W. Manchester Avenue, in the City of Los Angeles	McKenna, Jeanette A.	Venice	2002
6247	Cultural Resources Venice High School Site 13000 Venice Blvd. in the City of Los Angeles	McKenna, Jeanette A.	Venice	2002
6480	Cultural Resource Assessment for AT&T Fixed Wireless Services Facility Number LA-043a, County of Los Angeles, California	Duke, Curt	Beverly Hills	2001

Ref (LA-)	Title	Authors	Quad	Date
6488	Resource Assessment Cingular Wireless Facility No. LA 906-11 Los Angeles County, California	Duke, Curt	Beverly Hills	2001
6491	Highway Project to Add High Occupancy Vehicle (HOV) Lane to Northbound Route 405 from 0.5 km south of 1-10 to Ventura Boulevard in Los Angeles County	Sriro, Adam	Beverly Hills	2001
6498	Highway Project Involving the Upgrading of An Intersection Within the City of Santa Monica, Located Between San Vicente Blvd.	McKenna, Jeanette A.	Beverly Hills	2002
6504	Cultural Resource Assessment for Pacific Bell Wireless Facility LA 907-01, County of Los Angeles, California	Duke, Curt	Beverly Hills	2000
6505	Highway Project of Replacing the Existing Overhead Reflective Sign Panels In-Kind with Retro-Reflective Panels	Smith, Philomene C.	Beverly Hills	2000
6508	Cultural Resource Assessment for Pacific Bell Mobile Services Facility LA 908-01, County of Los Angeles, California	Lapin, Philippe	Beverly Hills	2000
6524	2402-2410 Kansas Avenue Rehabilitation Project, Santa Monica	Maki, Mary K.	Beverly Hills	2001
6714	Relocation of Access Center & Daybreak Shelter and Creation of Westside Safe Haven Project, City of Santa Monica	Maki, Mary K.	Beverly Hills	2003
6904	Playa Vista Archaeological and Historical Project at the Base of the Bluff, Archaeological Inventory and Evaluation Along Lower Centinela Creek, Marina Del Rey, California	Altschul, J. H., A. Q. Stoll, D. R. Grenda and R. Ciolek-Torrello	Venice	2003
6905	Hughes Industrial Historic District Historic Resource Treatment Plan Volume One	Unknown	Venice	1998
7185	Archaeological Investigation for Venice Pumping Plant Dual Force Main Project	Foster, John M.	Venice	2004
7548	Albertine/CA-8284b Telecommunications Facility 2810 Whittier Blvd., Los Angeles, CA County of Los Angeles	Billat, Scott	Los Angeles	2004
7722	Records Search Results for the Chevron El Segundo Refinery, El Segundo, Los Angeles County	Maki, Mary K.	Venice	2005
7724	Playa Vista Archaeological and Historical Project Evaluation of SR10, a Nonarchaeological Assemblage in the Ballona Wetlands, Marina del Rey, California	Keller, Angela H.	Venice	1999
7725	Playa Vista Archaeological and Historical Project, Los Angeles County, California	Altschul, Jeffrey H.	Venice	2001
7726	Playa Vista Archaeological and Historical Project On Ballona Creek Archaeological Treatment Plan for CA-LAN-54, Marina del Rey, California	Vargas, Benjamin R. Altschul, Jeffrey H.	Venice	2005
7851	Archaeological and Historical Evaluations for the Proposed Airport Surveillance Detection Equipment, Model 3X (ASDE-3X) To Serve Los Angeles International Airport (LAX), Los Angeles County, California	Getchell, Barbie S. John E. Atwood	Venice	2006
7932	A Phase-1 Archaeological Study for the Culver West Alexander Park Improvement Project, 4162 Wade Street, Culver City, California	Boxt, Matthew A.	Venice	2006
7939	Historic Property Survey Report for the Route 1 Widening Project Between Culver Boulevard and Jefferson Boulevard in Los Angeles County, CA	Kane, Diane	Venice	2000

Ref (LA-)	Title	Authors	Quad	Date
7953	Archaeological Monitoring Report University High School Project, Los Angeles, California	Messick, Peter & Roberta S. Greenwood	Beverly Hills	2006
8661	Records Search for Bechtel Project #951004138c, Rhythm and Hughes,, Los Angeles, California	Allen, Kathleen C.	Venice	2003
9333	Determination of Eligibility Report Hughes Industrial Historic District	Unknown	Venice	1995
9414	2320 34th Street Renovation Project, City of Santa Monica	Maki, Mary K.	Beverly Hills	2008
9453	Exposition Corridor Transit Project Phase 2 Archaeological Survey Report	Ehringer, Candice and Monica Strauss	Beverly Hills	2008

NATIVE AMERICAN CONSULTATION

The Native American Heritage Commission (NAHC) indicated that there are known cultural resources within a half mile of the final project route on July 27, 2009 (Appendix C). The Native American Heritage Commission requested that seven Native American tribes or individuals be contacted for further information. Requests for information on heritage resources were mailed or emailed to these parties on July 28, 2009.

Responses were received by phone from Johntommy Rosas, a Tongva, and Anthony Morales, Chief of the Gabrielino/Tongva Mission Indians of San Gabriel. No specific information about heritage resources was provided but general concerns about the area were voiced. Both Mr. Rosas and Mr. Morales ask to be listed as stakeholders and contacted about project environmental documents, hearings and progress.

SURVEY

SURVEY METHODS

Cogstone Resource Management conducted limited survey of the proposed project alternatives on August 26, 2008 and of the final route on March 31, 2009. Since most of the project alignment will impact paved streets, the survey consisted of driving the route but performing pedestrian inspection of open ground surface. The overall percent of ground visibility was very low due to pavement, other hardscaping and structures.

SURVEY RESULTS

Survey of the final route began at Receiving Station K located at the corner of Centinela Ave. and Olympic Blvd., progressed east on Olympic Blvd. and then south on Bundy Dr. At Ocean Park Blvd. the route turns east for a block, south along Armacost Ave., east along National Blvd. and then south on Inglewood Blvd. Major streets and intersections had mixed commercial and retail businesses. Most of the remaining area contained homes of mixed vintage but all apparently 20th century in age.

The route then continues south on Inglewood then west on Jefferson Blvd. through commercial and high density residential areas. The route turns south on Lincoln Blvd. past Loyola Marymount University. It then turns west on 83rd St. for a block, south on Rayford Drive, then west on Manchester Ave. This area is mostly residential with commercial and retail on Manchester Ave. The route then progresses south on Vista del Mar Lane with beaches to the west and fenced LAX property to the east. The route then turns east at West Grand Ave. and enters the Scattergood Generating Station.

No cultural resources were observed and nothing was collected. Since the project will consist of cutting existing surface streets and trenching under the roadway, there will be no effect on existing buildings.

POTENTIAL RESOURCES

Paleontological, archaeological and historical resources are considered to be significant if they possess integrity and may contribute information important in prehistory or history. Based on the prior research and survey results, the potential to impact resources is discussed below.

PALEONTOLOGICAL RESOURCES

There is a known paleontological locality along Lincoln Blvd. in sediments, San Pedro Sand, with high sensitivity for paleontological resources. In addition, it is possible that directional drilling under two creeks might impact the San Pedro Sand. It is considered unlikely that significant resources would be impacted by the drilling since both creeks have undergone extensive modification in modern times.

ARCHAEOLOGICAL RESOURCES

The final route was redesigned to avoid all archaeological sites and thus no impacts to archaeological resources are anticipated. In addition, possible directional drilling under two creeks could reveal unanticipated archaeological materials. It is considered unlikely that significant resources would be impacted by the drilling since both creeks have undergone extensive modification in modern times.

HISTORICAL RESOURCES

The only recorded historic structure is a house on Bundy Drive along the route at the northern end. Other houses and structures which might be more than 50 years old were observed adjacent to the project route. Since the project will consists of cutting existing surface streets and trenching under the roadway, there will be no effect on existing buildings.

IMPACTS AND MITIGATION

Impact CR-1. Planned excavation to a depth of 7-8 feet along Lincoln Blvd. may create adverse impacts to paleontological resources in sediments of the San Pedro Sand which have very high paleontological sensitivity.

Mitigation Measure CR-1

- This measure applies only to the work along Lincoln Blvd.
- Prior to construction, a qualified principal paleontologist would be retained by LADWP to implement mitigation and maintain professional standards of work.
- The paleontologist would prepare and present paleontological resources tailgate training for earthmoving personnel working on the Lincoln Blvd. portion of the project.
- The paleontologist will prepare and implement a paleontological management plan including:
  - detailed information on specific areas to be monitored,
  - procedures for monitoring to include criteria and process to divert earthmoving to allow for recovery of resources,
  - a discovery treatment plan including evaluation procedures and criteria, locality documentation with stratigraphic samples, dating and scientific samples, macrofossil collection procedures and collection of matrix samples for microfossils up to 6000 pounds per locality,
  - laboratory processing of paleontological resources including cleaning, stabilization and permanent preservation and identification by experts,
  - research design and potential analyses to be performed,
  - signed curation agreements with the Natural History Museum of Los Angeles County for fossil invertebrates and vertebrates,
  - requirements for the final technical report to include a list of all specimens recovered with all specialists report as appendices.

Impact CR-2. The final route is not anticipated to have any impacts on archaeological or historic resources but planned excavation to a depth of 7-8 feet along the final route could reveal unanticipated archaeological discoveries.

Mitigation Measure CR-2

- Prior to construction, a qualified principal archaeologist would be retained on-call by LADWP to respond in the event of unanticipated discoveries.
- The archaeologist will prepare a archaeological discovery treatment plan including evaluation procedures and criteria and which will detail circumstances under which documentation, dating and scientific samples, laboratory processing including including cleaning, cataloging, identification by experts, curation, and reporting will be necessary. The plan will also require Native American monitors if Native American cultural resources are discovered.

REFERENCES CITED

Altschul, J., R. Ciolek-Torrello, D. Grenda, J. Homburg, S. Benaron and A. Stoll
2005 Ballona Archaeology: a decade of multidisciplinary research. *Proceedings of Society for California Archaeology* 18:283-301.

Altschul, J., J. Douglass, R. Ciolek-Torrello, S. Van Galder, B. Vargas, K. Hull, D. Grenda, J. Homburg, M. Palacios-Fest, S. Shelley, A. Keller and D. Maxwell
2007 Life at the Nexus of Wetlands and Coastal Prairie, West Los Angeles. *Proceedings of Society for California Archaeology* 20:34-42.

Altschul, J., J. Homburg and R. Ciolek-Torrello
1992 Life in the Ballona: Archaeological Investigations at the Admiralty Site (CA-LAN-47) and the Channel Gateway Site (CA-LAN-1596H). *Statistical Research Technical Series* 33: 1-509.

Altschul, J., A. Stoll, D. Grenda and R. Ciolek-Torrelo
2003 At the Base of the Bluff: Archaeological Inventory and Evaluation along Lower Centinela Creek, Marina del Rey, California. *Statistical Research Playa Vista Monograph Series, Test Excavation Report* 4:1-400.

California Department of Transportation
2003 Paleontology, Online Environmental Handbook, Vol. 1, Chapter 8. http://www.dot.ca.gov/ser/vol1/sec3/physical/Ch08Paleo/chap08paleo.htm

Dott, R.H. and D. Prothero
1994 *Evolution of the Earth*. McGraw-Hill Inc, New York.

Gabrielino/Tongva Tribal Council of San Gabriel
n.d. Gabrielino/Tongva of San Gabriel. Available at http://www.tongva.com.

GeoWhen
2007 Online geologic timeline. http://www.stratigraphy.org/geowhen/index.html

Hay, O.P.
1927 The Pleistocene of the western region of North America and its vertebrate animals. *Carnegie Institute of Washington Publication* 322(B), 346pp.

Jefferson, G.T.
1991a A Catalogue of late Quaternary Vertebrates from California: Part one, nonmarine lower vertebrate and avian taxa. *Natural History Museum of Los Angeles, Technical Report* #5.
1991b A Catalogue of late Quaternary Vertebrates from California: Part two, Mammals. *Natural History Museum of Los Angeles, Technical Report #7*.

Levine, Harvey
1969 A Review of Indian Burial Findings at Marina del Rey. Marina del Rey Reporter January 1969. CHRIS Report LA 3495.

LACMIP
2007 Los Angeles County Museum, Invertebrate Paleontology online database: http://ip.nhm.org/

McCawley, William
1996 *First Angelinos: the Gabrielino Indians of Los Angeles*. Malki Museum Press/Ballena Press, Banning, CA.

McLeod, S.A.
2008 Vertebrate paleontology records check for paleontological resources for the proposed Scattergood pipeline project, Cogstone project #1611, Los Angeles County, project area. On file at Cogstone, Santa Ana, CA.

Saucedo, G.J., Greene, H.G., Kennedy, M.P., and S.P. Bezore
2003 Geologic map of the Long Beach 30’ x 60’ quadrangle, California; 1:100,000 scale. Version 1.0. California Geologic Survey; online at http://www.conservation.ca.gov/cgs/rgm/preliminary_geologic_maps.htm

Scott, E.G. and K.B. Springer.
2003 CEQA and fossil preservation in California. *The Environmental Monitor*. Fall 2003.

Shaw, C. A., and J. P. Quinn.
1986 Rancho La Brea: a look at coastal southern California's past. *California Geology* 29:123-133.

Ferrell, David
2001 Once Vibrant Beach Colony a Ghost Town: Broken streets and a butterfly preserve are about all that remains of a neighborhood that once stood under the flight paths of LAX take-offs. *Los Angeles Times* August 30, section B2.

Loyola Marymount University Library
2008a Freeman Papers. http://www.lmu.edu/Page8644.aspx
2008b Online Exhibit on Burns and Palisades del Rey. (http://157.242.56.37/exhibits/burns/loyola.htm)

Swanson, Mark
1992 Archival Research. In Life in the Ballona. Altschul, J. et al. *Statistical Research Technical Series* 33: 51-90.

LAX
2008a Early History. http://www.lawa.org/lax/laxHistory.cfm
2008b Timeline. http://www.lawa.org/lax/LAXShowHistory.cfm?SubmitDate=SEARCH

Robinson, W. W.
1939 *Ranchos Become Cities*. San Pasqual Press, Pasadena.

APPENDIX A. QUALIFICATIONS

SHERRI GUST

Cogstone Paleontology Archaeology History

Registered Professional Archaeologist & Qualified Paleontologist

EDUCATION

1994 M. S., Anatomy and Cell Biology (Evolutionary Morphology), University of Southern California, Los Angeles

1979 B. S., Anthropology (Physical), University of California, Davis

SUMMARY QUALIFICATIONS

Gust has more than 28 years of experience in California, acknowledged credentials for meeting national standards and is certified/qualified in all southern California cities and counties that maintain lists.

SELECTED REPORTS AND PROJECTS

2009 Gust, S. **Cultural Resources Assessment for the La Paz Road at Interstate 5 Improvements Project, Cities of Laguna Niguel and Mission Viejo, California.** Performed background research, record searches, Native American consultation and field survey to produce a Historic Properties Survey Report with appended Archaeological Survey Report for interchange improvements for Caltrans District 12 under subcontract to PB Americas.

2009 Gust, S. and K. Scott. **Archaeological and Paleontological Evaluation Report and Recommendations for the Irvine Business Complex, City of Irvine, California.** Performed background research, paleontological and archaeological record searches, Native American consultation, extensive review of previous reports within the complex, identified sensitive areas, assessed the potential to yield resources and provided an evaluation the effectiveness of prior mitigation requirement tracking for a 2,800 acre commercial area with influx of high density housing for the City of Irvine under subcontract to The Planning Center.

2008 Gust, S., and K. Scott. **Paleontological and Archaeological Assessment and Mitigation Plan for the Cold Canyon Landfill Expansion Project, San Luis Obispo, California**. Performed paleontological and archaeological record searches, Native American consultation, research, survey and prepared assessment, impact analysis and EIR section for County of San Luis Obispo under subcontract to the Morro Group.

2007 Gust, S., S. McCormick and K. Scott. **Paleontological and Archaeological Assessment Report for the Metrolink Expansion Services Project at Fullerton Station, City of Fullerton, California**. Performed record searches, Native American consultation and survey and prepared evaluation report for OCTA under contract to Parsons Brinckerhoff Orange.

2007 Gust, S. **Paleontological and Archaeological Literature Review for the Sea Lab Desalizination Plant, City of Redondo Beach, California.** Performed archaeological and paleontological record search and literature review, evaluation of resources, and prepared final assessment report with recommendations for mitigation for the West Basin Municipal Water District under contract to RBF Consulting.

KIM SCOTT

Cogstone Paleontology Archaeology History

Field & Lab Director for Paleontology

EDUCATION

Exp. 2009 M.S., Biology, with paleontology emphasis (in progress), CSU San Bernardino.

2000 B.S., Geology with paleontology emphasis, UCLA.

SUMMARY QUALIFICATIONS

Scott has more than 14 years of experience in California paleontology. She is a qualified geologist and paleontologist with extensive survey, monitoring and fossil salvage experience. In addition she has special skills in fossil preparation (cleaning and stabilization) and preparation of stratigraphic sections and other documentation for fossil localities.

SELECTED PROJECTS

2008 Gust, S. and K. Scott. **Paleontological Assessment for the Exposition Transit Corridor Westside Extension (Expo LRT Phase II), Cities of Los Angeles and Santa Monica, California**. Cogstone performed paleontological record searches and survey and prepared an assessment report including evaluation of alternatives plus a mitigation plan for the Expo Authority under subcontract to EDAW.

2007 Scott, K. and S. Gust. **Paleontological Resources Management Plan for the Tehachapi Renewable Transmission Project (Antelope Transmission Project) Segment 1, Los Angeles County, California with updated paleontological assessment.** Cogstone performed paleontological record searches, background research, prepared an assessment of the potential resources including a sensitivity map, arranged a repository, and prepared a comprehensive management plan for Southern California Edison under subcontract to Pacific Legacy.

2007 Scott, K. and S. Gust. **Paleontological Mitigation Report for the Walker Ridge Safety/Rehabilitation Project, Lake County, California**. Cogstone provided paleontological monitors, fossil recovery, fossil preparation, a final interpretive report and transported fossils to an accredited repository for curation for Caltrans District 3 (acting for District 1) under subcontract to Pacific Legacy.

2007 Scott, K. and S. Gust. **Paleontological Mitigation Report for the Highway 138 Expansion West Project, San Bernardino County, California**. Cogstone developed and implemented a sampling plan in lieu of monitoring, recovered fossils, prepared and identified fossils, prepared the final report including interpretation and arranged curation of significant fossils recovered for Caltrans District 8 under subcontract partially to Applied Earthworks and partially to ECORP.

2006 Scott, K. and S. Gust. **Paleontological Resources of the Interstate 80 Median and Auxillary Lanes Project, Sacramento, California: an abbreviated combination Paleontological Identification Report, Paleontological Evaluation Report and Paleontological Mitigation Plan.** Cogstone performed paleontological record searches, research, survey and prepared a combined report and mitigation plan for Caltrans District 3 under subcontract to URS Oakland.

AMY GLOVER

Cogstone Paleontology Archaeology History

Archaeologist and Laboratory Supervisor

EDUCATION

2004 B.S. Anthropology (Biological), University of California, Riverside

2004 Archaeological Collections Management Internship, San Diego Archaeological Center

SUMMARY QUALIFICATIONS

Glover has more than 4 years of experience in California, and knowledge in lab procedures, including the preparation of collections for curation. Glover also participates in fieldwork and specializes in historic artifacts.

SELECTED PROJECTS AND REPORTS

2009 Gust, S., A. Glover and V. Harper. **Phase I Cultural Resources Assessment Report for the Yorba Elementary school Project in Corona, California**. Performed archaeological record searches, Native American consultation, research, survey and prepared assessment report for and under contract to the Corona-Norco Unified School District.

2008 Glover, A. and S. Gust. **Phase I Archaeological Assessment Report for the Emerald Meadows Ranch West Project in Riverside County, CA. Performed archaeological record search, Native American consultation, research, survey and prepared assessment report for the County of Riverside under contract to Route 60, LLC.**

2008 Glover, A., V. Harper and S. Gust. **Phase I Cultural Resources Assessment Report for the Norco High School Project in Norco, California**. Performed archaeological record searches, Native American consultation, research, survey and prepared assessment report for and under contract to the Corona-Norco Unified School District.

2008 Glover, A. and S. Gust. **Archaeological Assessment of the Pico Canyon Project, Los Angeles County, CA.** Performed archaeological record search, research and prepared assessment with recommendations for the Army Corps of Engineers under contract to Southern California Gas.

2008 Gust, S. and A. Glover. **Supplemental Cultural Resources Assessment, Segment 1, Section 1, Tehachapi Renewable Transmission Project, Variance for Wire Stringing Location Near Construction Tower 25, Los Angeles County, California.** Cogstone performed archaeological and paleontological pedestrian survey and prepared supplemental cultural resources assessment report for CPUC and California Edison under subcontract to Pacific Legacy.

2007 Gust, S., A. Glover and K. Houck. **The Historic Los Angeles Cemetery (CA-LAN-3553), Los Angeles Metro Gold Line Project, East Portal Area, Los Angeles, California.** Performed archaeological data recovery and field lab supervision, catalogued, identified and analyzed Euro-American and Chinese artifacts from over 150 human interments for the Metropolitan Transportation Authority.

APPENDIX B: PALEO RECORDS SEARCH RESULTS

Natural History
Museum
of Los Angeles County
900 Exposition Boulevard • Los Angeles, CA 90007

Vertebrate Paleontology Section
Telephone: (213) 763-3325
FAX: (213) 746-7431
e-mail: smcleod@nhm.org

27 March 2009

Cogstone Resource Management, Inc.
1801 East Parkcourt Place, Bldg. B, Suite 102
Santa Ana, CA 92701

Attn: Sherri Gust

re: Vertebrate Paleontology Records Check for paleontological resources for the proposed revised Scattergood pipeline project, Cogstone Project # 1611, Los Angeles County, project area

Dear Sherri:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for the proposed revised Scattergood pipeline project, Cogstone Project # 1611, Los Angeles County, project area as outlined on the portions of the Beverly Hills and Venice USGS topographic quadrangle maps that you sent to me via e-mail on 6 March 2009. We have one vertebrate fossil locality that lies within or adjacent to the proposed project areas, and we have other localities nearby from the same sedimentary deposits that occur in the proposed project areas.

From the northern terminus of the revised alternative alignment route of the proposed project area, the surficial deposits consist of younger Quaternary Alluvium southward to about the intersection of Stanwood Drive and Inglewood Boulevard. In the slightly more elevated terrain southward to about Victoria Avenue the surface deposits consist of older Quaternary Alluvium. Southward to Jefferson Boulevard, west to the intersection with Lincoln Boulevard, then southward to the Westchester bluffs above the Ballona wetlands west of Hughes Airport, the surficial deposits in this portion of the proposed project area consist entirely of younger Quaternary Alluvium. As the alternative alignment route climbs the Westchester Bluffs southward along Lincoln Boulevard, it crosses older Quaternary deposits of the San Pedro Sand at the base of the bluffs, then older Quaternary Alluvium and finally older Quaternary dune sands on the top of the bluffs. West of Pershing Drive this route crosses landslide rubble from the Westchester Bluffs and continues across either this material or active beach sands southward along Vista Del Mar until it encounters surface deposits of older Quaternary dune sands just north of Grand Avenue to the terminus off of Grand Avenue.

The younger Quaternary deposits found at the surface in the proposed project area, including the lower lying portions in the north, the Quaternary dune sands on the Westchester bluffs, and the active beach sands adjacent to the bluff landslides along Vista Del Mar, typically do not contain significant vertebrate fossils, at least in the uppermost layers, and we have no vertebrate fossil localities anywhere nearby from such deposits. But the older Quaternary deposits, exposed in the slightly elevated terrain near the Santa Monica Airport, probably occur at relatively shallow depth beneath the surficial younger Quaternary deposits in the north portion of the proposed project areas and the Quaternary dune sands on the Westchester Bluffs in the southern portion.

In the northern portion of the proposed project area our closest vertebrate fossil locality in these older Quaternary deposits is LACM 5462, west-southwest of the northern terminus of the proposed project areas along Michigan Avenue east of Cloverfield Boulevard between Olympic Boulevard and the Santa Monica Freeway (I-10), and is particularly noteworthy because a specimen of extinct lion, *Felis atrox*, was recovered from this locality at a depth of only six feet. Our next closest fossil vertebrate localities in older Quaternary deposits are LACM 5833, north-northeast of the proposed project area south of Wilshire Boulevard between Thayer and Westholme Avenues, that produced fossil specimens of horse, *Equus*, kangaroo rat, *Dipodomys*, wood rat, *Neotoma*, meadow vole, *Microtus*, and pocket gopher, *Thomomys*, and LACM 5501, northeast of the proposed project area south of Olympic Boulevard between Avenue of the Stars and Century Park East, that produced fossil specimens of pond turtle, *Clemmys marmorata*, dog, *Canis*, and horse, *Equus*, at shallow but unstated depth. Farther east we have numerous localities in the older Quaternary sediments that have produced fossil specimens typical of the fauna from the Rancho La Brea asphalt deposits, that itself is about six miles east-northeast of the proposed project areas.

In the southern portion of the proposed project areas our closest vertebrate fossil localities from these older Quaternary deposits occur east of the proposed project areas in or around the Los Angeles International Airport. These localities include LACM 3264, in the middle of the Los Angeles International Airport approximately 450 feet south of Century Boulevard and 2000 feet west of Sepulveda Boulevard, that produced a fossil proboscidean, Proboscidea, at a depth of 25 feet below the surface; locality LACM 7332, further east of locality LACM 3264 at the northwest side of West Century Boulevard and Bellanca Avenue, that produced a fossil baby mammoth, *Mammuthus*, at a depth of 40 feet below street grade; locality LACM 3789, further north of locality LACM 7332 at 8734 Bellanca Avenue south of Manchester Avenue, that produced fossil mammoth, *Mammuthus*, rodent, Rodentia, and even a speckled sanddab, *Citharichthys stigmaeus*, at a depth of 14 feet below the surface; and two localities, LACM 1180 and LACM 4942, immediately northwest of locality LACM 3789 on the northeast and southeast sides respectively of Airport Boulevard at the intersection with Manchester Avenue, that produced fossil specimens of horse, *Equus*, mammoth, *Mammuthus*, bison, *Bison*, and rabbit, *Lepus*, at depths of 13 to 16 feet below the surface.

The San Pedro Sand is exposed in the lower slopes of the Westchester Bluffs west of Loyola University and almost certainly occurs at depth throughout the Westchester Bluff highlands. We have one vertebrate fossil locality, LACM 1024, from the San Pedro Sand either within or adjacent to the revised alternative alignment route where Lincoln Boulevard crosses the Westchester Bluffs. Locality LACM 1024 produced an extensive fauna of marine invertebrates and vertebrates from a stratum of coarse sand or fine gravel only 2-4 feet below the sloped surface. The fossil vertebrate fauna from this locality is provided in an appendix, along with an indication of which taxa from LACM 1024 have been described in the scientific literature and a list of the publications citing those specimens. In addition to numerous published specimens, three extinct species are based on holotype specimens (name-bearing specimens for species new to science) from locality LACM 1024: *Rochefortia reyana*, *Bornia cooki*, and *Moris reyana*. The former two are veneroid bivalves [clams] and the latter is a sulid bird [a gannet or booby].

Surface grading or very shallow excavations in the younger Quaternary deposits exposed throughout most of the proposed project areas probably will not uncover significant vertebrate fossils. Deeper excavations that extend down into older Quaternary deposits, however, may well encounter significant fossil vertebrate remains. Therefore, any substantial excavations below the uppermost few feet in the proposed project area should be monitored closely to quickly and professionally recover any fossil remains discovered while not impeding development. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project areas covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,

Samuel A. McLeod

Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosures: appendices; draft invoice

Fossil Vertebrate Fauna from locality LACM 1024

Chondrichthyes					
Carcharhiniformes					
Carcharhinidae					
	Carcharhinus	*brachyurus*	- Narrowtooth Shark		
	Carcharhinus	*obscurus*	- Dusky Shark	- Figured	
	Galeorhinus	*zyopterus*	- Soupfin Shark	- Figured	
	Rhizoprionodon	*longurio*	- Pacific Sharpnose Shark	- Figured	
Sphyrnidae					
	Sphyrna	*zygaena*	- Smooth Hammerhead Shark	- Figured	
Hexanchiformes					
Hexanchidae					
	Notorhynchus	*maculatus*	- Sevengill Shark	- Figured	
Lamniformes					
Alopiidae					
	Alopias	*vulpinus*	- Common Thresher Shark	- Figured	
Lamnidae					
	Carcharodon	*carcharias*	- Great White Shark		
	Isurus	*glaucus*	- Bonito Shark		
Myliobatiformes					
Myliobatidae					
	Myliobatis	*californica*	- Bat Ray	- Figured	
Urolophidae					
	Urolophus	*halleri*	- Round Stingray	- Figured	
Rajiformes					
Rajidae					
	Raja		- Skate		
Squatiniformes					
Squatinidae					
	Squatina	*californica*	- Pacific Angel Shark	- Figured	
Osteichthyes					
Atheriniformes					
Atherinidae					
	Atherinops	*affinis*	- Topsmelt		
	Atherinopsis	*californiensis*	- Jacksmelt	- Figured	
	Leuresthes	*tenuis*	- California Grunion		
Batrachoidiformes					
Batrachoididae					
	Porichthys	*myriaster*	- Specklefin Midshipman	- Figured	
	Porichthys	*notatus*	- Plainfin Midshipman	- Figured	

Osteichthyes			
Clupeiformes			
Engraulidae			
Anchoa	*compressa*	- Deepbody Anchovy	- Figured
Engraulis	*mordax*	- Northern Anchovy	- Figured
Gadiformes			
Merlucciidae			
Merluccius	*productus*	- Pacific Hake	
Myctophiformes			
Myctophidae			
Stenobrachius	*leucopsarus*	- Northern Lampfish	- Figured
Symbolophorus	*californiensis*	- California Lanternfish	- Figured
Ophidiiformes			
Ophidiidae			
Lepophidium	*negropinna*	- Black-fin Cusk-Eel	- Figured
Otophidium	*scrippsae*	- Scripps Cusk-Eel	- Figured
Otophidium	*taylori*	- Taylor's Cusk-Eel	- Figured
Perciformes			
Carangidae			
Trachurus	*symmetricus*	- Jackmackerel	- Figured
Embiotocidae			
Cymatogaster	*aggregata*	- Shiner Surfperch	- Figured
Gobiidae			
Lepidogobius	*lepidus*	- Bay Goby	- Figured
Lepidogobius	*tenuis*	- Lesser Goby	
Haemulidae			
Anisotremus	*davidsoni*	- David's Sargo	
Xenistius	*californiensis*	- California Sargo	
Labridae			
Pimelometopon	*pulchrum*	- Sheepshead	
Sciaenidae			
Cynoscion	*nobilis*	- Noble Croaker	
Cynoscion	*reticulatus*	- Reticulated Croaker	- Figured
Genyonemus	*lineatus*	- White Croaker	- Figured
Menticirrhus	*undulatus*	- California Corbina	- Figured
Micropogon	*ectenes*	- Little Croaker	- Figured
Roncador	*stearnsi*	- Spotfin Croaker	- Figured
Seriphus	*politus*	- Queenfish	- Figured
Umbrina	*roncador*	- Yellowfin Croaker	
Serranidae			
Paralabrax		- Sand Bass	- Figured
Sphyraenidae			
Sphyraena	*argentea*	- California Barracuda	
Xiphiidae			
Coelorhynchus	*scaphopsis*	- Swordfish	- Figured

Osteichthyes			
Pleuronectiformes			
Bothidae			
Paralichthys	*californicus*	- California Halibut	- Figured
Citharidae			
Citharichthys	*sordidus*	- Pacific Sanddab	- Figured
Citharichthys	*stigmaeus*	- Spackeled Sanddab	- Figured
Cynoglossidae			
Symphurus	*atricauda*	- California Tonguefish	- Figured
Pleuronectidae			
Lyopsetta	*exilis*	- Slender Sole	
Parophrys	*vetulus*	- English Sole	
Pleuronichthys	*ritteri*	- Spotted Turbot	
Salmoniformes			
Argentinidae			
Argentina	*sialis*	- Pacific Argentine	- Figured
Scorpaeniformes			
Agonidae			
Occa	*verrucosa*	- Poacher	- Figured
Cottidae			
Chitonotus	*pugetensis*	- Roughback Sculpin	- Figured
Icelinus	*quadriseriatus*	- Yellowchin Sculpin	- Figured
Scorpaenidae			
Sebastes	*paucispinis*	- Bocaccio	
Sebastes	*rhodochloris*	- Rockfish	
Triglidae			
Prionotus	*stephanophrys*	- Lumptail Searobin	- Figured
Zaniolepidae			
Zaniolepis	*latipinnus*	- Shortspine Combfish	- Figured

Aves			
Anseriformes			
Anatidae			
Chendytes	*lawi*	- extinct duck	- Figured
Charadriiformes			
Alcidae			
Uria	*aalge*	- Common Murre	
Passeriformes			
Corvidae			
Corvus	*corax*	- Common Raven	
Pelecaniformes			
Sulidae			
Morus	*reyana*	- extinct booby	**HOLOTYPE**
Podicipediformes			
Podicipedidae			
Aechmophorus	*occidentalis*	- Western Grebe	
Procellariiformes			
Diomedeidae			
Diomedea	*albatrus*	- Short-tailed Albatross	
Procellariidae			
Puffinus	*griseus*	- Sooty Shearwater	
Puffinus	*opisthomelas*	- Black-vented Shearwater	
Mammalia			
Carnivora			
Phocidae			
Phoca	*vitulina*	- Harbor Seal	- Figured
Cetacea			
Delphinidae		- dolphin	
Rodentia			
Geomyidae			
Thomomys		- pocket gopher	

Scientific Literature citing specimens from locality LACM 1024

Barnes, Lawrence G. and Edward D. Mitchell. 1975. Late Cenozoic Northeast Pacific Phocidae. Rapp. P.-V. Reun. Cons. Int. Exp. Mer., 169:34-42.

Fitch, John E. 1964. The fish fauna of the Playa del Rey locality, a southern California marine Pleistocene deposit. Contributions in Science, Natural History Museum of Los Angeles County, 82:1-35.

Fitch, John E. 1966. Additional fish remains, mostly otoliths, from a Pleistocene deposit at Playa del Rey, California. Contributions in Science, Natural History Museum of Los Angeles County, 82:1-35.

Howard, Hildegarde. 1936. A new fossil bird locality near Playa Del Rey, California, with description of a new species of sulid. The Condor, 38:211-214.

Howard, Hildegarde. 1947. Wing elements assigned to *Chendytes*. The Condor, 49(2):76-77.

Howard, Hildegarde. 1949. Avian fossils from the marine Pleistocene of southern California. The Condor, 51(1):20-28.

Howard, Hildegarde. 1955. New records and a new species of *Chendytes*, an extinct genus of diving geese. Condor, 57(3):135-143.

Miyazaki: S. et al. 1994. Summary of the fossil record of pinnipeds of Japan, and comparisons with that from the eastern North Pacific. Island Arc, 3(4):361-372.

Willett, George. 1937. An Upper Pleistocene fauna from the Baldwin Hills, Los Angeles County, California. Transactions of the San Diego Society of Natural History, 8(30:379-406.

APPENDIX C: NATIVE AMERICAN HERITAGE COMMISSION

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
ds_nahc@pacbell.net

July 27, 2009

Ms. Sharri Gust, RPA
COGSTONE HERITAGE RESOURCES MANAGEMENT
1618 W. Taft Avenue
Orange, CA 92865

Sent by FAX to: 714-974-8303
No. of Pages: 3

Re: Request for a Sacred Lands File search and Native American Contacts List **for the Scattergood Project, No. 1611:** located in the Culver City Area; Los Angeles County, California

Dear Ms. Gust:

The Native American Heritage Commission (NAHC) was able to perform a record search of its Sacred Lands File (SLF), pursuant to CA Public Resources Code §5097.94(a), for the affected project area (APE) requested. The SLF search **did** indicate the presence of Native American cultural resources within one-half mile radius of the project area (APE) of the proposed project (APE).. This letter includes state and federal statutes relating to Native American historic properties of religious and cultural significance to American Indian tribes and individuals as 'consulting parties' under both state and federal law.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the names of the nearest tribes and interested Native American individuals that the NAHC recommends as 'consulting parties,' for this purpose, that may have knowledge of the religious and cultural significance of the historic properties in the project area (e.g. APE). We recommend that you contact persons on the attached list of Native American contacts. A Native American Tribe or Tribal Elder may be the only source of information about a cultural resource.. Furthermore we suggest that you contact the California Historic Resources Information System (CHRIS) at the Office of Historic Preservation Coordinator's office (at (916) 653-7278, for referral to the nearest Information Center of which there are 11..

Consultation with tribes and interested Native American consulting parties, on the NAHC list ,should be conducted in compliance with the requirements of federal NEPA (42 U.S.C. 4321-43351) and Section 106 and 4(f) of federal NHPA (16 U.S.C. 470 [f)]*et se),* and NAGPRA (25 U.S.C. 3001-3013), as appropriate..

Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 5097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

The response to this search for Native American cultural resources is conducted in the NAHC Sacred Lands Inventory, established by the California Legislature (CA Public Resources Code §5097.94(a) and is exempt from the CA Public Records Act (c.f. California Government Code §6254.10) although Native Americans on the attached contact list may wish to reveal the nature of identified cultural resources/historic properties. Confidentiality of "historic properties of religious and cultural significance' may also be protected the under Section 304 of the NHPA or at the Secretary of the Interior' discretion if not eligible for listing on the National Register of Historic Places. The Secretary may also be advised by the federal Indian Religious Freedom Act (cf. 42 U.S.C, 1996) in issuing a decision on whether or not to disclose items of religious and/or cultural significance identified in or near the APE and possibly threatened by proposed project activity.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton
Program Analyst

Attachment: Native American Contacts List (NOTE: we further recommend that other forms of 'proof of mailing or proof of contact be utilized instead of 'Return Receipt Requested' Certified or Registered Mail.) Further, we suggest a follow-up telephone call to the contacts if the replies are not received or need clarification.

Native American Contact
Los Angeles County
July 27, 2009

LA City/County Native American Indian Comm
Ron Andrade, Director
3175 West 6th Street, Rm. 403
Los Angeles , CA 90020
(213) 351-5324
(213) 386-3995 FAX

Gabrielino Tongva Nation
Sam Dunlap, Tribal Secretary
P.O. Box 86908 — Gabrielino Tongva
Los Angeles , CA 90086
samdunlap@earthlink.net
(909) 262-9351 - cell

Ti'At Society
Cindi Alvitre
6515 E. Seaside Walk, #C — Gabrielino
Long Beach , CA 90803
calvitre@yahoo.com
(714) 504-2468 Cell

Gabrielino Tongva Indians of California Tribal Council
Robert Dorame, Tribal Chair/Cultural Resources
P.O. Box 490 — Gabrielino Tongva
Bellflower , CA 90707
gtongva@verizon.net
562-761-6417 - voice
562-925-7989 - fax

Tongva Ancestral Territorial Tribal Nation
John Tommy Rosas, Tribal Admin.
, — Gabrielino Tongva
tattnlaw@gmail.com
310-570-6567

Gabrielino-Tongva Tribe
Bernie Acuna
501 Santa Monica Blvd, # 500 — Gabrielino
Santa Monica , CA 90401
(310) 587-2203
(310) 428-7720 - cell
(310) 587-2281

Gabrieleno/Tongva San Gabriel Band of Mission
Anthony Morales, Chairperson
PO Box 693 — Gabrielino Tongva
San Gabriel , CA 91778
(828) 286-1262 -FAX
(626) 286-1632
(626) 286-1758 - Home
(626) 286-1262 Fax

E. Geology Report

PRELIMINARY GEOTECHNICAL EVALUATION
SCATTERGOOD – OLYMPIC
LINE 1 TRANSMISSION LINE
LOS ANGELES DEPARTMENT
OF WATER AND POWER
LOS ANGELES, CALIFORNIA

PREPARED FOR:
ICF Jones & Stokes
1 Ada, Suite 100
Irvine, California 92618

PREPARED BY:
Ninyo & Moore
Geotechnical and Environmental Sciences Consultants
475 Goddard, Suite 200
Irvine, California 92618

August 28, 2009
Project No. 207479001

Geotechnical and Environmental Sciences Consultants

August 28, 2009
Project No. 207479001

Ms. Rachel Struglia, PhD
ICF Jones & Stokes
1 Ada, Suite 100
Irvine, California 92618

Subject: Preliminary Geotechnical Evaluation
Los Angeles Department of Water and Power
Scattergood – Olympic Line 1 Transmission Line
Los Angeles, California

Dear Ms. Struglia:

In accordance with your request and authorization, Ninyo & Moore has performed a preliminary geotechnical evaluation for the proposed Scattergood – Olympic Line 1 Transmission Line located in Los Angeles, California. Our study was conducted in general accordance with the scope of services presented in our agreement dated July 8, 2008. We understand that the results of this study will be utilized in the preparation of environmental planning documents for the project.

We appreciate the opportunity to provide geotechnical consulting services on this project.

Sincerely,
NINYO & MOORE

PROFESSIONAL GEOLOGIST
MICHAEL E. ROGERS
No. 2364
CERTIFIED
ENGINEERING
GEOLOGIST
Exp. 6/30/11
STATE OF CALIFORNIA

Michael E. Rogers, C.E.G.
Senior Project Geologist

Carol A. Price, C.E.G.
Principal Geologist

REGISTERED PROFESSIONAL ENGINEER
JALAL VAKILI
No. C45350
Exp. 6/30/10
CIVIL
STATE OF CALIFORNIA

Jalal Vakili, Ph.D., P.E.
Principal Engineer

EBP/MER/CAP/JV/mlc

Distribution: (1) Addressee (via email)

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1. INTRODUCTION

In accordance with your request and authorization, Ninyo & Moore has performed a preliminary geotechnical evaluation for the proposed Scattergood – Olympic Line 1 transmission line for the Los Angeles Department of Water and Power (LADWP). The proposed underground transmission line will be located in approximately 12 miles of existing roadways between the West Los Angeles and El Segundo areas of Los Angeles, California (Figure 1). In accordance with the California Environmental Quality Act (CEQA), this report includes geotechnical evaluation of the impacts associated with potential geologic and seismic hazards for the proposed project alignment.

The purpose of our study was to evaluate the geologic and geotechnical conditions along the proposed Scattergood – Olympic Line 1 transmission line alignment in order to make a preliminary assessment of potential geologic and seismic impacts relative to development of the proposed project. Our geotechnical evaluation was based on review of readily available published geotechnical literature pertinent to the project alignment and site reconnaissance to develop preliminary conclusions regarding the proposed project's impact on the geologic environment and the potential geologic hazards that may affect the project. Where appropriate, recommendations to mitigate potential geologic hazards, as noted in this report, have been provided.

2. SCOPE OF SERVICES

Ninyo & Moore's scope of services has included review of geotechnical background materials and geologic reconnaissance of the proposed transmission line alignment. Specifically, we have performed the following tasks:

- Review of readily available geologic maps, seismic data, published geotechnical literature, aerial photographs, and in-house information.
- Geotechnical site reconnaissance by representatives from Ninyo & Moore conducted on August 15, 2008, February 24, 2009, and June 3, 2009, to observe and document the existing surface conditions along the proposed alignment.
- Assessment of the general geologic conditions and seismic hazards affecting the area and evaluation of their potential impacts on the project.
- Compilation and analysis of existing geotechnical data pertaining to the project alignment.

- Preparation of this report presenting the results of our study, as well as our conclusions and recommendations relative to the geotechnical aspects of the proposed transmission line to be included in the environmental planning documents.

3. PROJECT DESCRIPTION

The LADWP is proposing to construct an approximately 12-mile-long transmission line from the Scattergood Generating Station to RS-K in the West Los Angeles area (Olympic Substation). The route will follow both commercial and residential areas, and will consist of approximately 12 miles of new underground conduit and cable system in existing street right-of-way areas. The proposed alignment for the transmission line provided to us for our evaluation is shown on Figure 1.

Construction of the underground transmission line will involve trenching in existing paved streets and sidewalk areas. The transmission line conduit will be approximately 3 to 5 feet below the existing ground surface. We anticipate that earthwork for development of the proposed project will generally involve removal of trench materials, and pavement and hardscape repairs. Trenches for the proposed transmission line would be approximately 3 feet wide and up to approximately 7 to 9 feet below the roadway. Construction of manhole access vaults will involve excavations up to approximately 12 feet deep. At the Inglewood Boulevard Ballona Creek and Centinela Creek bridge crossings, LADWP may either: place the transmission line on the underside of the bridges using new conduits attached to the bridges; or use directional drilling techniques to bore a hole and pull the conduit underneath the Ballona Creek and Centinela Creek channels.

4. SITE DESCRIPTION

The proposed Scattergood – Olympic Line 1 transmission line is situated on the coastal plain of the Los Angeles basin and extends from the Scattergood Generating Station in El Segundo northward through Playa del Rey, Playa Vista, and Mar Vista to the Olympic Substation in West Los Angeles. The proposed alignment is situated within varying geologic environments that include an elevated coastal terrace in El Segundo and Playa del Rey; wetland areas in Playa Vista; and an alluvial floodplain with elevated marine terraces in West Los Angeles. Topographic gradients of the majority of the proposed alignment areas are gentle. Gentle to moderately steep topographic gradients exist in the hilly areas of the project including portions of Playa del Rey and Mar Vista. Elevations along the project alignment vary from approximately 4 feet relative to mean sea level (MSL) near Ballona Creek in Playa Vista to approximate elevation 155 MSL near the Olympic Substation.

The proposed project alignment is situated within developed street areas that are generally bounded by commercial and residential properties, property adjacent to the Los Angeles International Airport in El Segundo, and wetland and other undeveloped areas in Playa del Rey/Playa Vista.

The proposed alignment begins at the Scattergood Generating Station and follows Vista Del Mar north along the elevated coastal terrace in El Segundo and Playa del Rey. The proposed route then extends east across the coastal terrace on residential streets and along West Manchester Avenue in Playa del Rey, and then north along Lincoln Boulevard down to the Ballona wetlands in Playa Vista. The alignment crosses alluvial floodplain areas as it extends eastward on Jefferson Boulevard through the low-lying Playa Vista community and then northward on Inglewood Boulevard. The alignment ascends the elevated marine terrace of the Mar Vista Hill area north of Venice Boulevard. North of Mar Vista Hill, the alignment descends onto alluvial floodplain areas along Bundy Drive and Olympic Boulevard in West Los Angeles.

5. GEOLOGY

5.1. Regional Geology

The proposed transmission line alignment is located within the Peninsular Ranges Geomorphic Province of southern California. This geomorphic province encompasses an area that extends approximately 125 miles from the Transverse Ranges and the Los Angeles Basin south to the Mexican border, and beyond another approximately 775 miles to the tip of Baja California. The Peninsular Ranges province varies in width from approximately 30 to

100 miles and is characterized by northwest-trending mountain range blocks separated by similarly trending northwest-trending faults (Norris and Webb, 1990).

The predominant rock type that underlies the Peninsular Ranges province is a Cretaceous-age igneous rock (granitic rock) referred to as the Southern California batholith. Older Jurassic-age metavolcanic and metasedimentary rocks and older Paleozoic limestone, altered schist, and gneiss are present within the province. Cretaceous-age marine sedimentary rocks and younger Tertiary-age rocks comprised of volcanic, marine, and non-marine sediments overlie the older rocks (Norris and Webb, 1990). More recent Quaternary sediments, primarily of alluvial origin, comprise the low-lying valley and drainage areas within the region, including the Los Angeles basin where the project is located.

Active northwest-trending fault zones in the Peninsular Ranges province include the Newport-Inglewood fault zone, Elsinore fault zone (Whittier fault), and San Jacinto fault zone. The northern boundary of the Province is formed by the Transverse Ranges Southern Boundary fault system which includes the active Malibu, Santa Monica, Hollywood, and Raymond faults (Dolan, et al, 2000a). The active San Andreas fault zone is located northeast of the province within the adjacent Colorado Desert Geomorphic Province. The predominant major tectonic activity associated with these and other faults within this regional tectonic framework is right-lateral, strike-slip movement (Norris and Webb, 1990).

5.2. Site Geology

Geologic mapping of the project area indicates that the proposed alignment is underlain by Quaternary-age sediments. A regional geologic map showing the proposed alignment is shown on Figure 2. Detailed mapping indicates that geologic units underlying the proposed alignment include the following: older and younger eolian (wind-blown) deposits on the elevated coastal terrace of the El Segundo and Playa del Rey areas; alluvial deposits (older and younger) in the low-lying Ballona Creek drainage area in Playa Vista and Mar Vista; and older marine terrace deposits and younger alluvium in the Mar Vista and West Los Angeles areas.

The older eolian and alluvial deposits typically consist of dense to very dense sand and silty sand (California Division of Mines and Geology [CDMG], 1998c), and younger eolian deposits consist of fine sand (CDMG, 1998b). These younger eolian deposits are typically poorly consolidated. The younger alluvium typically consists of soft clay, silt, and loose to moderately dense sand (CDMG, 1998c). The older marine terrace deposits typically consist of medium dense to dense fine sand, silty sand, silt, and clay with some gravel (CDMG, 1998b). Fill soils are expected to be present along the project alignment, generally related to previous development, utilities and roadway construction.

Some steep slopes are present on the coastal bluffs along Vista Del Mar and Lincoln Boulevard adjacent to the proposed alignment. No active landslides are mapped along the alignment, and no landslides were observed during our site reconnaissance. Our reconnaissance did not indicate the presence of faulting or surface rupture along the proposed alignment.

Portions of the proposed alignment are located in a designated methane zone and methane buffer zone (City of Los Angeles, 2004). The approximate limits of these zones in the project vicinity are shown on Figure 3.

5.3. Groundwater

Based on review of the State of California Seismic Hazard Evaluation reports, the historic high groundwater level along the proposed alignment is reported to range from a depth of approximately 5 feet to 40 feet below the ground surface (CDMG, 1998b, and CDMG, 1998c). Groundwater is anticipated to be shallow (on the order of 5 feet deep or shallower) along low-lying portions of the proposed alignment located in the Playa Vista and Mar Vista areas. It should be noted that fluctuations in the level of groundwater may occur due to variations in ground surface topography, groundwater pumping, tidal fluctuations, subsurface stratification, rainfall, irrigation practices, and other factors which may not have been evident at the time of our evaluation. Shallow perched conditions may also be present.

6. FAULTING AND SEISMICITY

6.1. Regional Seismicity

The Scattergood – Olympic Line 1 transmission line alignment is located in a seismically active area, as is the majority of southern California. The numerous faults in southern California include active, potentially active, and inactive faults. As defined by the California Geological Survey (CGS), active faults are faults that have ruptured within Holocene time, or within approximately the last 11,000 years. Potentially active faults are those that show evidence of movement during Quaternary time (approximately the last 1.6 million years), but for which evidence of Holocene movement has not been established. Inactive faults have not moved in the last approximately 1.6 million years.

Based on our background review and site reconnaissance, the ground surface in the vicinity of the proposed alignment is not transected by known active or potentially active faults. Portions of the proposed alignment are located within a State of California Seismic Hazard Zone designated as an area where historic occurrence of liquefaction, or local geological, geotechnical, and groundwater conditions indicate a potential for permanent ground displacements (CDMG, 1999). The alignment is not located within an Earthquake Fault Zone (Alquist-Priolo Special Studies Zone, Hart and Bryant, 1997). However, the alignment is located in a seismically active area, and the potential for strong ground motion is considered high. Figure 4 shows the approximate alignment relative to the principal faults in the region.

Based on our document review, the potentially active Santa Monica fault zone is located approximately 0.7 mile north of the Olympic Substation. The active Palos Verdes fault zone is located approximately 3.7 miles southwest of the Scattergood Generating Station. The active Newport-Inglewood fault zone is located approximately 3 to 4 miles east of the proposed alignment. Known active faults within approximately 20 miles of the proposed alignment include the Santa Monica, Palos Verdes, Newport-Inglewood, Malibu Coast, Hollywood, Northridge, Puente Hills Blind Thrust, Upper Elysian Park Blind Thrust, Verdugo, Raymond, and Sierra Madre Faults (Table 1). These and other principal nearby active faults are discussed in further detail in the following sections. Based on the proximity and number of known active and potentially active faults within the general region, it is reasonable to expect a strong ground motion seismic event during the lifetime of structures for the proposed project. In general, potential hazards associated with seismic activity include strong ground motion, ground surface rupture, seismically induced liquefaction, and landsliding. These hazards are discussed in further detail below.

Table 1 lists selected principal known active faults that may affect the subject site, the maximum moment magnitude (M_{max}) as published by the CGS (2003), and the type of fault as defined in Table 16A-U of the California Building Code (CBC, 2007). The approximate fault to site distance was calculated by the computer program FRISKSP (Blake, 2001).

Table 1 – Principal Active Faults

Fault	Maximum Moment Magnitude (M_{max}) [1]	Approximate Fault-to-Site Distance miles (kilometers) [2]	
		Scattergood Generating Station	Olympic Substation
Santa Monica	6.6	8.7 (14.0)	0.7 (1.1)
Palos Verdes	7.3	3.7 (6.0)	8.8 (14.2)
Newport-Inglewood (Los Angeles Basin)	7.1	6.0 (9.6)	4.0 (6.4)
Malibu Coast	6.7	9.9 (16.0)	4.2 (6.8)
Hollywood	6.4	11.5 (18.5)	4.6 (7.4)
Northridge (E. Oak Ridge)	7.0	16.2 (26.0)	8.0 (12.9)
Puente Hills Blind Thrust	7.1	12.1 (19.5)	9.4 (15.1)
Upper Elysian Park Blind Thrust	6.4	14.9 (24.0)	10.7 (17.3)
Raymond	6.5	18.2 (29.3)	14.8 (23.8)
Sierra Madre	7.2	24.3 (39.1)	19.1 (30.8)
Whittier (Elsinore Fault Zone)	6.8	23.8 (38.3)	25.4 (40.9)
San Andreas – 1857 Rupture	7.8	47.2 (75.9)	40.8 (65.6)

Notes:
[1] Blake, 2001
[2] Cao, et al., 2003

6.2. Principal Regional Faults

Principal active faults in the region that may affect the site are described in the following sections.

6.2.1. Malibu-Santa Monica-Raymond Fault Zone

The Malibu Coast, Santa Monica, Hollywood, and Raymond faults are considered a fault zone that is a subsystem of the Transverse Ranges Southern Boundary fault system (Dolan, et al, 2000a). The fault zone extends sub-parallel to the Malibu coastline easterly along the south side of the Santa Monica Mountains through Malibu, Santa Monica, West Los Angeles, and Hollywood. The fault system exhibits reverse left-lateral movement and is considered capable of generating earthquakes ranging from M 6.4 to 6.7 in the project area (Cao, 2003).

6.2.2. Palos Verdes Fault Zone

The active Palos Verdes fault extends approximately 50 miles from the Palos Verdes Peninsula to offshore (southeast) of the project site. This right-reverse fault has a slip rate of approximately 3 mm per year and is considered capable of generating about a Mmax 7.3 earthquake (Cao, 2003).

6.2.3. Newport-Inglewood Fault Zone

The Newport-Inglewood fault zone is a major tectonic structure in the Los Angeles Basin and consists of a series of northwest-trending, right-lateral, strike-slip fault segments that extend from the southern edge of the Santa Monica Mountains southeast to offshore from Newport Beach. The Newport-Inglewood fault zone was the source of the 1933 Long Beach earthquake with a measured magnitude of M 6.4 (Southern California Earthquake Center [SCEC], 2004). The Newport-Inglewood fault is considered capable of generating about a Mmax 7.1 earthquake (Cao, 2003). The fault is approximately 41 miles in length and has a slip rate of approximately 1 millimeter (mm) per year (Cao, 2003).

6.2.4. Northridge (East Oak Ridge) Fault

The Northridge (East Oak Ridge) fault is an active reverse thrust fault approximately 56 miles long located on Oak Ridge near the communities of Santa Paula and Fillmore, northwest of the community of Northridge. This fault was associated with the 1994 M 6.7 Northridge earthquake (SCEC, 2004). The Northridge (East Oak Ridge) fault is considered capable of generating about a Mmax 7.0 earthquake, and the slip rate of the fault is estimated to be 4.0 mm per year (Cao, 2003).

6.2.5. Puente Hills Blind Thrust Fault

The Puente Hills Blind Thrust Fault (PHT) is an active reverse thrust fault that does not reach the surface (blind) and extends for more than 25 miles in the northern Los Angeles Basin from downtown Los Angeles east to northern Orange County. The fault consists of three distinct segments. From west to east, the segments are known as the Los Angeles, Santa Fe Springs, and Coyote Hills segments. Studies have indicated that the PHT generated the 1987 Whittier Narrows earthquake which occurred on the Santa Fe Springs segment of this fault system (SCEC, 2004). Although not presently designated an Earthquake Fault Zone due to the lack of a well-defined surface trace, this fault is considered active (Shaw, et al, 2002) and capable of generating moderate (M 6.5-6.6) earthquakes every approximately 400 to 1,320 years for single-segment earthquakes and strong earthquakes (M 7.1) every approximately 780 to 2,600 years for multi-segment earthquakes (Shaw, et al, 2002). The slip rate of the fault is estimated to be 0.7 mm per year (Cao, 2003).

6.2.6. Upper Elysian Park Blind Thrust

The Upper Elysian Park Blind Thrust is a reverse thrust fault that does not reach the surface (blind). Geomorphic evidence of this fault at the surface is the Elysian Park anticline that extends for approximately 12.4 miles from the Hollywood fault on the northeast through the Silver Lake district and the cities of South Pasadena and Alhambra to San Gabriel on the east (Yeats, 2005). Although not presently designated an Earthquake Fault Zone due to the lack of a well-defined surface trace, this fault is considered active (Oskin, et al., 2000) and capable of producing moderate earthquakes (M 6.2-6.7) every 500 to 1,300 years on average. It is likely, therefore, that this fault could generate ground shaking in the project area.

6.2.7. Sierra Madre Fault Zone

The Sierra Madre fault zone is composed of a series of active reverse faults. The approximately 35-mile-long fault zone is located approximately between the cities of Sunland and Azusa along the foothills of the San Gabriel Mountains. The Sierra Madre fault is considered capable of generating about a M_{max} 7.2 earthquake, and the slip rate of the fault is estimated to be 2 mm per year (Cao, 2003).

6.2.8. Whittier Fault (Elsinore Fault Zone)

The Whittier fault is a right-lateral, strike-slip fault zone that extends approximately 24 miles from Whittier Narrows in Los Angeles County, southeast to Santa Ana Canyon where it merges with the Elsinore fault zone. The Whittier fault zone is considered capable of generating a M_{max} 6.8 earthquake and has a slip rate of approximately 2.5 mm per year (Cao, 2003).

6.2.9. San Andreas Fault Zone

The San Andreas fault zone has long been recognized as the dominant seismotectonic feature in California. This right-lateral, strike-slip fault is over 700 miles long and strikes northwest through the state from the Gulf of California to north of San Francisco. Two of California's three largest historic earthquakes, the 1906 San Francisco earthquake and the 1857 Forth Tejon earthquake, occurred along the San Andreas fault (SCEC, 2004). The slip rate of the fault is estimated to be 30 mm per year (Cao, 2003). The fault is considered capable of producing earthquakes in excess of Mmax 7.4, and the average frequency of earthquakes along this segment of the San Andreas fault is approximately 140 years (SCEC, 2004).

7. METHODOLOGY FOR GEOLOGIC IMPACT AND HAZARD ANALYSES

The proposed project has been evaluated with respect to its potential impacts on the geologic environment, as outlined by the CEQA. Additionally, the impacts of potential geologic hazards on the proposed project have been evaluated. Potential project impacts and geologic hazards are based on our geologic and seismic review of readily available published geotechnical literature pertinent to the proposed project. These include, but are not limited to, the safety elements of the general plans for the County of Los Angeles, aerial photographs, State of California Earthquake Fault Zone Maps (Alquist-Priolo Special Studies Zone Maps), State of California Seismic Hazards Zones Maps, geologic and topographic maps, and other publications by the CGS and United States Geological Survey (USGS).

8. THRESHOLDS OF SIGNIFICANCE

According to Appendix G of the CEQA guidelines (CERES, 2005b), a project is considered to have a geologic impact if its implementation would result in or expose people/structures to potential substantial adverse effects, including the risk of loss, injury, or death involving hazards involving one or more of the geologic conditions presented in Table 2. Table 2 also presents the impact potential as defined by CEQA associated with each of the geologic conditions discussed in the following sections.

Table 2 – Summary of Potential Geologic Impacts/Hazards

Geologic Condition	Impact Potential[1]			
	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Surface Fault Rupture			x	
Seismic Ground Shaking		x		
Liquefaction		x		
Landslides			x	
Soil Erosion		x		
Subsidence			x	
Soil Settlement		x		
Expansive Soil		x		
Corrosive Soil		x		
Methane Zones		x		

Table 2 – Summary of Potential Geologic Impacts/Hazards

Geologic Condition	Impact Potential[1]			
	Potentially Significant Impact	Less than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
Shallow Groundwater		x		
Distinctive Geologic or Physical Feature				x
Excavations		x		
Dam Inundation				x
Seiches and Tsunamis			x	
Loss of Mineral Resources				x

Note:
[1]Reference: CERES, 2005b, Appendix G – Environmental Checklist Form, Final Text, dated October 26.
Website: http://ceres.ca.gov/topic/envlaw/ceqa/guidelines/appendices.html

9. POTENTIAL GEOLOGIC AND SEISMIC IMPACTS/HAZARDS

Based on our review of geologic and seismic background information and geotechnical site reconnaissance, the proposed transmission line alignment is not anticipated to have a significant impact on the geologic environment. However, the proposed transmission project may be subjected to potential impacts from geologic and seismic hazards. Potential impacts related to the proposed project based on our geologic and seismic review are provided in the following sections.

9.1. Surface Fault Rupture

Surface fault rupture is the offset or rupturing of the ground surface by relative displacement across a fault during an earthquake. The project alignment is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zones), as shown on Figure 5. Based on current published fault studies and geologic maps, the proposed project site is not mapped as underlain by a known active fault. Therefore, the potential for impacts related to surface fault rupture is considered to be less than significant. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

9.2. Seismic Ground Shaking

The seismic hazard likely to impact the project site is ground shaking during an earthquake on one of the nearby or distant active faults. The level of ground shaking at a given location depends on many factors, including the size and type of earthquake, distance from the earthquake, and subsurface geologic conditions. The size and type of construction also affects how particular structures perform during ground shaking.

In order to evaluate the level of ground shaking that might be anticipated along the proposed alignment due to the extent of the area, estimated peak horizontal ground acceleration (PGA) data available from the USGS was reviewed (USGS, 2008). These data indicate that the proposed alignment is located in an area where PGA that would be anticipated during an earthquake range from 0.4g to 0.5g (40 to 50 percent of the acceleration due to gravity).

In order to evaluate the level of ground shaking that might be anticipated at the Scattergood Generating Station and Olympic Substation, site specific analysis was performed. The 2007 California Building Code (CBC) recommends that the design of structures be based on the horizontal peak ground acceleration (PGA) having a 2 percent probability of exceedance in 50 years which is defined as the Maximum Considered Earthquake (MCE). The statistical return period for PGA_{MCE} is approximately 2,475 years.

The probabilistic PGA_{MCE} for the Scattergood Generating Station was calculated as 0.62g using the United States Geological Survey (USGS, 2008) ground motion calculator (web-based). The design PGA was estimated to be 0.41g using the USGS ground motion calculator. The probabilistic PGA_{MCE} for the Olympic Substation in West Los Angeles was calculated as 0.74g using the United States Geological Survey (USGS, 2008) ground motion calculator (web-based). The design PGA was estimated to be 0.49g using the USGS ground motion calculator. These estimates of ground motion do not include near-source factors that may be applicable to the design of structures on site. The requirements of the governing jurisdictions and the 2007 CBC should be considered in project design.

The potential impacts due to ground shaking should be evaluated prior to design and construction of project improvements and incorporated into the design. Therefore, the potential impacts due to ground shaking are considered to have a less than significant impact with mitigation incorporation.

9.3. Liquefaction

Liquefaction is a phenomenon in which soil loses its shear strength for short periods of time during an earthquake. Ground shaking of sufficient duration results in the loss of grain-to-grain contact, due to a rapid increase in pore water pressure, causing the soil to behave as a fluid for short periods of time. The effects of liquefaction may include excessive total and/or differential settlement of structures founded on the liquefying soils. To be susceptible to liquefaction, a soil is typically cohesionless, with a grain-size distribution of a specified range (generally sand and silt), loose to medium dense, below the groundwater table, and subjected to a sufficient magnitude and duration of ground shaking.

According to Seismic Hazards Zones Maps published by the State of California (CDMG, 1999a, and CDMG, 1999b), two separate areas of the proposed alignment are mapped within areas that are considered susceptible to liquefaction. One area is at the north end of the alignment and includes the Olympic Substation. The second mapped area is located in the Playa Vista and Mar Vista area of the project. The approximate limits of the potential liquefaction zones are shown on Figure 6. Additionally, groundwater, which is a component of liquefaction susceptibility at shallow depths, is reported to be less than approximately 40 feet below the ground surface along the proposed alignment. Assessment of the liquefaction potential would be evaluated prior to design and construction of project improvements and incorporated into the design, as needed. Therefore, the potential impacts due to liquefaction are considered to have a less than significant impact with mitigation incorporation.

9.4. Landslides

Landslides, slope failures, and mudflows of earth materials predominately occur where slopes are too steep and/or the earth materials too weak to support themselves. Landslides may also occur by seismic ground shaking.

Landslides were not observed along the proposed alignment during our site reconnaissance, and are not mapped along the alignment on geologic maps reviewed as part of our study. However, according to Seismic Hazards Zones Maps published by the State of California (CDMG, 1999a, and CDMG, 1999b), the proposed transmission line is located adjacent to coastal bluff areas along Vista Del Mar and Lincoln Boulevard where the potential for earthquake-induced landslide movement is mapped (Figure 7). It is not anticipated that significant slopes will be created for project implementation. Assessment of the potential for landslides and earthquake-induced landslides would be evaluated prior to design and construction of project improvements and incorporated into the project design. The proposed project would not result in, or expose people to, significant impacts related to on- or off-site landslides or mudflows.

9.5. Soil Erosion

Soil erosion refers to the process by which soil or earth material is loosened or dissolved and removed from its original location. Erosion can occur by many different processes and may occur at the project site where bare soil is exposed to moving water or wind. Future construction activities related to the project alignment may result in ground surface disruption during excavation of trenches that would create the potential for erosion to occur. However, the erosion potential when the transmission line improvements are developed will be relatively minor due to the anticipated covering of construction areas with structures, pavements, and associated hardscape and landscaped areas. Potential soil erosion related to the project development is considered to have a less than significant impact with mitigation incorporation.

9.6. Subsidence

Subsidence is typically associated with areas of groundwater withdrawal or other fluid withdrawal from the ground such as oil and natural gas, and could cause damage to project improvements, including foundations, structures, pavements, and other hardscape features. Our background review did not indicate that subsidence has been recently reported in the project area. Therefore, potential subsidence is considered to have a less than significant impact.

9.7. Soil Settlement

Loose natural soils or undocumented/poorly compacted fill may be present in some areas along the alignment. Compressible natural soils and poorly compacted fills pose the risk of adverse settlement under static loads imposed by new fills or structures. Differential settlement of soils can cause damage to project improvements, including foundations, structures, pavements, and other hardscape features. Assessment of the potential for soils prone to settlement would be evaluated prior to design and construction of project improvements. Therefore, the potential for soil settlement is considered to have a less than significant impact with mitigation incorporation.

9.8. Expansive Soils

Expansive soils generally result from specific clay minerals that have the capacity to shrink or swell in response to changes in moisture content. The ability of clayey soil to change volume can result in uplift or cracking to foundation elements or other rigid structures, such as sidewalks or slabs, founded on these soils. Expansive soils may be present in geologic units that underlie the project site. Assessment of the potential for expansive soils would be evaluated during the design phase of the project. Therefore, the potential for expansive soils is considered to have a less than significant impact with mitigation incorporation.

9.9. Corrosive Soils

The project site is located in a geologic environment that could potentially contain soil conditions that are corrosive to buried concrete and metals. Corrosive soil conditions may exacerbate the corrosion hazard to pipelines, foundations, and other buried improvements. Assessment of the potential for corrosive soils would be evaluated during the design phase of the project. Therefore, potential soil corrosivity is considered to have a less than significant impact during construction with mitigation incorporation.

9.10. Methane Zones

Portions of the proposed alignment in the Playa del Rey, Playa Vista and El Segundo areas are located in a City of Los Angeles methane zone and City of Los Angeles methane buffer zone as shown on Figure 3 (City of Los Angeles, 2004). The Scattergood Generating Station is located in a methane zone. Methane gas in the soil could have an impact on conditions during construction of the proposed project during trenching, directional drilling or other subsurface construction activities. Assessment of the potential for methane gas would be evaluated during the design phase of the project and monitored during construction, as needed. Therefore, the potential for methane is considered to have a less than significant impact with mitigation incorporation.

9.11. Groundwater

Based on our background review, historic high groundwater is reported to range from approximately 5 to 40 feet deep (CDMG, 1998a, and 1998b) along the proposed alignment. Subsurface construction activities for the project will consist of excavations for the transmission line and utility (manhole) vaults up to approximately 12 feet deep, and may include directional drilling beneath the Ballona Creek and Centinela Creek bridges. Based on the anticipated depth of construction activities in areas where shallow groundwater is reported, groundwater could be encountered during construction. Shallow groundwater, if encountered, can impact the stability of trench and foundation excavations and can impact existing improvements, as well as the methods and costs of construction. Prior to design and construction, a geotechnical engineering evaluation should be undertaken to assess the groundwater conditions along the proposed alignment so that earthwork and foundation systems can be appropriately designed and constructed. Therefore, the potential impacts related to shallow groundwater are considered to be less than significant with mitigation.

Groundwater levels may be influenced by seasonal variations, precipitation, irrigation, soil/rock types, groundwater pumping, and other factors and are subject to fluctuations. Shallow perched conditions or seepage may be present in places.

9.12. Distinctive Geologic or Topographic Features

This potential geologic impact refers to the proposed project's potential to cover or modify one or more distinct prominent geologic or topographic features. Rock exposures or other prominent geologic features were not observed on the surface along the proposed alignment and are not anticipated at shallow depth. The existing topography of the proposed alignment is comprised of relatively flat gradients and gentle to moderate slopes, and the alignment is located on paved streets. Prominent topographic features were not observed at the site. The proposed construction will result in minor grading and trenching activities but will be matched with surrounding street gradients and is not anticipated to significantly alter the existing topography. Therefore, the proposed project would not result in impacts related to the alteration or modification of prominent geologic or topographic features.

9.13. Excavations

Earthwork for development of the proposed project will generally involve removal of trench materials, and pavement and hardscape repairs. Trenches for the proposed transmission line would be approximately 3 feet wide and up to approximately 7 to 9 feet deep below the roadway. Construction of manhole access vaults will involve excavations up to approximately 12 feet deep. Based on our background review and site reconnaissance, we anticipate that the materials encountered in excavations along the proposed alignment will generally vary from sands, silt and clay. The materials anticipated will generally be comprised of relatively soft sediments and soils, and excavations in these materials are considered feasible with conventional grading equipment. However, areas of cemented soils could present excavation difficulty if encountered along the project alignment. The excavatibility of materials at the site would result in a less than significant impact to the proposed project.

Loose, sandy soils may be encountered along the proposed alignment during construction excavations. Excavations for proposed project improvements adjacent to existing streets, sidewalks, or structures will need to be performed with care to reduce the potential for differential movement of existing improvements located near the excavations. With appropriate mitigation incorporation during construction, excavations would result in a less than significant impact to surrounding improvements.

We anticipate that the areas of construction will be cordoned off during construction operations, such that the public will not be exposed to the impacts of excavations. Construction personnel may be exposed to the impacts of excavations, and appropriate mitigative safety techniques would result in a less than significant impact to site personnel. Since excavations will be filled following construction, the proposed project would not result or expose people to impacts related to excavations after construction of the project.

9.14. Dam Inundation

Based on our review of the County of Los Angeles Department of Regional Planning's Safety Element (1990), a portion of the proposed alignment in the low-lying Playa Vista area is located within several potential dam failure inundation zones, including the dams for Franklin Canyon Reservoir, Hollywood Reservoir, Silver Lake Reservoir, and Hansen Lake. The Scattergood Generating Station and Olympic Substation are not located in a potential dam failure inundation zone. Dams in California are monitored by various governmental agencies (such as the State of California Division of Safety of Dams and the U.S. Army Corps of Engineers) to guard against the threat of dam failure. Current design and construction practices, and ongoing programs of review, modification, seismic retrofitting or total reconstruction of existing dams are intended to see that dams are capable of withstanding the maximum credible earthquake for the site. In addition, a flood control channel system is provided in the site vicinity to alleviate flooding conditions. Due to the regulatory monitoring of dams and typical flood control measures that exist, the impact of inundation due to dam failure is not considered a significant constraint to the project. In addition, the transmission line will be underground. Therefore, the proposed project would not likely result or expose people to impacts related to dam failure inundation.

9.15. Seiches and Tsunamis

Tsunamis are open-sea tidal waves generated by earthquakes. Tsunami damage is typically confined to low-lying coastal areas. Water surge caused by tsunamis is measured by distance of run-up on the shore. A portion of the proposed alignment in the low-lying Playa Vista area is located within a potential tsunami run-up zone and is considered to be susceptible to tsunami inundation (County of Los Angeles, 1990). The Scattergood Generating Station and Olympic Substation are not located in a potential tsunami run-up zone. Since the transmission line will be underground, the proposed project would not result in, or expose people to, impacts related to tsunamis.

A seiche is the seismically induced sloshing of water in a large enclosed basin, such as a lake, reservoir, or bay. There are no reservoirs or lakes in the vicinity of the proposed alignment. Therefore, the potential impacts on the proposed project related to seiches is considered low, and the proposed project would not result in, or expose people to, impacts related to seiches.

9.16. Mineral Resources

The CGS and the State Mining and Geology Board (SMGB) classify the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act of 1975 (SMARA). The SMGB uses a classification system that divides land into four Mineral Resource Zones (MRZ) that have been designated based on quality and significance of mineral resources (CDMG, 1983). According to the State of California (CDMG, 1994), the proposed alignment is located in areas classified as MRZ-1 and MRZ–3. MRZ-1 is defined as “areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence.” MRZ-3 is defined as “areas containing mineral deposits the significance of which cannot be evaluated from available data.” Therefore, the potential of the project to result in the loss of availability of a known mineral resource is not considered a significant impact.

10. RECOMMENDATIONS FOR MITIGATION

The potential geologic and seismic hazards described above may be mitigated by employing sound engineering practice in the design and construction of the new transmission line and facilities. This practice may include the performance of site-specific geotechnical and seismic hazards analyses prior to the construction of the proposed transmission line, as appropriate. Typical techniques to mitigate potential hazards that may be encountered during the construction of the improvements are described in the following sections.

10.1. Seismic Ground Shaking

Techniques to reduce the potential impacts of seismic ground shaking would be achieved through project design and construction. During the design phase, site-specific geotechnical evaluations could be performed to obtain detailed subsurface soil and geologic data, including evaluation of the site-specific ground motion anticipated for the site. Structural elements could then be designed to resist or accommodate appropriate site-specific ground motions and conform to the current City of Los Angeles Brown Book for Public Works Construction (City of Los Angeles, 2009), Section S-601 seismic design standards.

10.2. Liquefaction

To further evaluate the potential liquefaction hazard for the project, subsurface evaluation could be performed. Site-specific evaluation of the potential liquefaction hazard could be performed prior to design and construction so that, in the event a liquefaction hazard exists, appropriate structural design and mitigation techniques can be implemented.

Site-specific geotechnical evaluations to assess the liquefaction and dynamic settlement characteristics of the on-site soils would include drilling of exploratory borings, evaluation of groundwater depths, and laboratory testing of soils. Mitigation for liquefaction may include in-situ ground modification, removal of liquefiable layers and replacement with compacted fill, or support of improvements with foundations designed specifically for liquefaction.

10.3. Soil Erosion

Construction at the project site is anticipated to create the potential for soil erosion during excavation, grading, and trenching activities. However, with the implementation of appropriate procedures during construction, soil erosion can be limited to within the site boundaries. Examples of these procedures would include surface drainage measures for erosion due to water, such as the use of sandbags and plastic sheeting, and wetting of soil surfaces to mitigate wind-related erosion.

10.4. Soil Settlement

During the design phase of the project, a site-specific geotechnical evaluation could be performed to evaluate the presence of settlement-prone soils at the site. The settlement potential of the materials could be evaluated in areas of proposed improvements, and, if the potential exceeds acceptable tolerances for the project improvements, then remedial measures could be incorporated into the design and construction. Possible mitigation techniques include overexcavation and recompaction, and compaction grouting.

10.5. Expansive Soils

Site-specific evaluations could be conducted during the design phase of the project to evaluate the extent to which expansive soils are present at the site. Where expansive soil conditions are found to occur and are considered detrimental to proposed improvements, mitigation techniques such as overexcavation and replacement with non-expansive soil, chemical treatment (e.g., lime or cement), moisture adjustments, and/or specific structural design for expansive soil conditions could be developed during the design phase.

10.6. Corrosive Soils

The project site is located in a geologic environment that could potentially contain soil conditions that are corrosive to buried concrete and metals. The degree of potential corrosivity of soils could be evaluated by site-specific analysis during design of the project. Typical mitigation techniques for corrosive soil include epoxy and metallic protective coatings, the use of alternative (corrosion resistant) materials, and selection of the type of cement and water/cement ratio. Concrete resistant to sulfate exposure and corrosion protection for metals could be used where appropriate for underground structures in areas where corrosive groundwater or soil could potentially cause deterioration. Specific techniques to mitigate the potential effects of corrosive soils can be developed in the design phase of project improvements.

10.7. Methane Zones

The potential for methane gas in the soil that could be encountered during construction of the proposed transmission line project should be evaluated prior to design of the project. Soil testing prior to construction can be conducted to evaluate the potential for methane, and mitigation techniques developed for construction. Mitigation during construction may involve air and soil monitoring, and specialized ventilation and construction practices, as needed.

10.8. Shallow Groundwater

Techniques to mitigate potential shallow groundwater conditions may include: shoring/casing of excavations below the groundwater table; pumping groundwater from excavations to keep levels below a specified depth; using dewatering wells to pump groundwater out of the ground and lower the groundwater table at specified locations.

10.9. Excavations

The potential for damage to surrounding improvements and structures resulting from excavation operations for the project could be monitored for movement with a variety of instrumentation. If, during the course of construction, the instrumentation detects ground movement that exceeds a predetermined value, the work should stop and the contractor's methods should be reviewed and changes would be made, as appropriate. Typical monitoring methods include installation of ground survey points around the outside of the excavation to monitor settlement and/or placing monitoring points on nearby structures to monitor performance of the structures.

Difficult construction excavation is not anticipated but may be encountered due to the presence of cemented soils at the site. To further evaluate the potential for difficult excavation during future construction, subsurface evaluation could be performed during the design phase. During the design phase of the project, site-specific geotechnical evaluations could be performed to assess the excavatibility of the earth units. This may include drilling of exploratory borings and/or test pits to evaluate ground conditions for excavation capability.

11. LIMITATIONS

The geotechnical analyses presented in this report have been conducted in accordance with current engineering practice and the standard of care exercised by reputable geotechnical consultants performing similar tasks in this area. No other warranty, implied or expressed, is made regarding the conclusions, recommendations, and professional opinions expressed in this report. Our preliminary conclusions and recommendations are based on a review of readily available geotechnical literature, geologic data, and an analysis of the observed conditions. Variations may exist and conditions not observed or described in this report may be encountered.

12. REFERENCES

Blake, T.F., 2001, FRISKSP (Version 4.00), A Computer Program for the Probabilistic Estimation of Peak Acceleration and Uniform Hazard Spectra Using 3-D Faults as Earthquake Sources.

California Building Code, 2007 Edition, Based on 2006 International Building Code, effective January 1, 2008.

California Department of Conservation, Division of Mines and Geology (CDMG), 1983, Guidelines for Classification and Designation of Mineral Lands, Special Publication 51.

California Department of Conservation, Division of Mines and Geology, 1994, Update of Mineral Land Classification of Portland Cement Concrete Aggregate in Ventura, Los Angeles, and Orange Counties, California, Part II – Los Angeles County, Open File Report 94-14.

California Department of Conservation, Division of Mines and Geology, 1997, Guidelines for Evaluating and Mitigating Seismic Hazards in California: Special Publication 117, 74 pp.

California Department of Conservation, Division of Mines and Geology, 1998a, Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada: International Conference of Building Officials, dated February.

California Department of Conservation, Division of Mines and Geology, State of California, 1998b, Seismic Hazard Evaluation of the Beverly Hills 7.5-Minute Quadrangle, Los Angeles County, California: Open-File Report 98-14.

California Department of Conservation, Division of Mines and Geology, State of California, 1998c, Seismic Hazard Evaluation of the Venice 7.5-Minute Quadrangle, Los Angeles County, California: Open-File Report 98-27

California Department of Conservation, Division of Mines and Geology, State of California, 1999a, Seismic Hazard Zones Official Map, Beverly Hills Quadrangle, 7.5-Minute Series: Scale 1:24,000, Open-File Report 98-14, dated March 25.

California Department of Conservation, Division of Mines and Geology, State of California, 1999b, Seismic Hazard Zones Official Map, Venice Quadrangle, 7.5-Minute Series: Scale 1:24,000, Open-File Report 98-27, dated March 25.

California Department of Conservation, Division of Mines and Geology, 2000, Guidelines for Evaluating the Hazard of Surface Fault Rupture: Division of Mines and Geology Note 49.

California Environmental Resources Evaluation System (CERES), 2005a, The California Environmental Quality Act, Title 14; California Code of Regulations, Chapter 3; Guidelines for Implementation of the California Environmental Quality Act, Article 9; Contents of Environmental Impact Reports, Final Text dated May 25, Website: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/art9.html.

California Environmental Resources Evaluation System (CERES), 2005b, The California Environmental Quality Act, CEQA Guidelines Appendices, Appendix G – Environmental Checklist Form, Final Text dated May 25, Website: http://ceres.ca.gov/topic/env_law/ceqa/guidelines/appendices.html.

Cao, Tianqing, Bryant, William A., Rowshandel, Badie, Branum, David, and Wills, Christopher J., 2003, The Revised 2002 California Probabilistic Seismic Hazard Maps, Adapted by California Geological Survey (CGS), dated June.

City of Los Angeles, 1996, Safety Element of the Los Angeles City General Plan, Department of City Planning Los Angeles, California, adapted on November 26.

City of Los Angeles, Bureau of Engineering, 2004, Methane and Methane Buffer Zones, Basic Grid Map, dated March 31.

City of Los Angeles, Department of Public Works, 2009, "Brown Book", Additions and Amendments to the 2006 Edition and 2008 Cumulative Supplement of the Standard Specifications for Public Works Construction, dated August 3.

County of Los Angeles Department of Regional Planning, 1990, Los Angeles County Safety Element, Scale 1 inch = 2 miles.

Dibblee, T.W., Jr., 1991, Geologic Map of the Beverly Hills and Van Nuys (South 1/2) Quadrangles, Los Angeles County, California: Dibblee Foundation, DF-31, Scale 1:24,000.

Dolan, J.F., Sieh K., Rockwell, T.K., 2000a, Late Quaternary Activity and Seismic Potential of the Santa Monica Fault System, Los Angeles, California: Geological Society of America Bulletin, Vol. 112, Issue: 10, pp. 1559-1581, dated October.

Dolan, J.F., Sieh K., Rockwell, T.K., 2000b, Active Tectonics, Paleoseismology, and A Seismic Hazards of the Hollywood Fault, Northern Los Angeles Basin, California: Geological Society of America Bulletin, Vol. 109, Issue: 12, pp. 1595-1616.

Dolan, J.F., Christofferson S.A., Shaw, J.H., 2003, Recognition of Paleoearthquakes on the Puente Hills Blind Thrust Fault, California (Abstract),: Science, Vol. 300, p. 5616.

Google Earth, 2009, http://earth.google.com.

Hart, E.W., and Bryant, W.A., 1997, Fault-Rupture Hazard Zones in California, Alquist-Priolo Special Studies Zone Act of 1972 with Index to Special Studies Zones Maps: California Division of Mines and Geology, Special Publication 42.

ICF Jones & Stokes, 2008, Subconsultant Consulting Services Agreement (T&M – NTE) between Jones & Stokes Associates, Inc. and Ninyo & Moore, dated July 16.

ICF Jones & Stokes, 2009a, Subconsultant Consulting Services Agreement dated 7/16/2008 ("Agreement"), J&S Project No. 00605.08, Amendment No. 1, dated February 16.

ICF Jones & Stokes, 2009b, Final Route, LADWP Scattergood Olympic Line, dated February 23.

Jennings, C.W., 1962, Geologic Map of California, Long Beach Sheet, Olaf P. Jenkins Edition: California Division of Mines and Geology, Scale 1:250,000.

Jennings, C.W., 1994, Fault Activity Map of California and Adjacent Areas: California Division of Mines and Geology, California Geologic Data Map Series, Map No. 6, Scale 1:750,000.

Ninyo & Moore, 2007, Revised Proposal for Geotechnical and Environmental Consulting Services, Los Angeles Department of Water and Power, Scattergood – Olympic Line 1 Transmission Line, Los Angeles, California, Proposal No. P-13529, dated November 15.

Norris, R.M., and Webb, R.W., 1990, Geology of California: John Wiley & Sons, 541 pp.

Oskin, M., Sieh, K., Rockwell T., Miller G., Guptill P., Curtis, M., MCardle, S., Elliot, P., 2000, Active Parasitic Folds on the Elysian Park Anticline: Implications for Seismic Hazard in Central Los Angeles, California (Abstract), Journal: Geological Society of America Bulletin, Vol. 112, Issue 15, pp. 693-707.

Peterson, M.D., Bryant, W.A., Cramer, C.H., Cao, T., Reichle, M.S., 1996, Probabilistic Seismic Hazard Assessment for the State of California: California Department of Conservation Division of Mines and Geology Open File Report 96-08, and United States Department of the Interior United States Geological Survey Open File Report 96-706.

Pratt, P.L., Shaw, J.H., Dolan, J.F., Christofferson, S.A., Williams, R.A., Odum, J.K., Plesch, A., 2002, Shallow Seismic Imaging of Folds Above the Puente Hills Blind-Thrust Fault, Los Angeles, California: Geophysical Research Letter, Vol. 29, No. 9, 1304, pp. 18-1 through 18-4.

Shaw, J.H., Plesch, A., Dolan, J.F., Pratt, T.L., Fiore, P., 2002, Puente Hills Blind-Thrust System, Los Angeles, California: Bulletin of the Seismological Society of America, Vol. 92, No. 8, pp. 2946-2960.

Southern California Earthquake Center, 2004, Index of Faults of California: http://www.data.scec.org/fault_index/, dated June 17.

State of California, 1986, Special Studies Zones, Beverly Hills Quadrangle, 7.5 Minute Series: Scale 1:24,000, dated July 1.

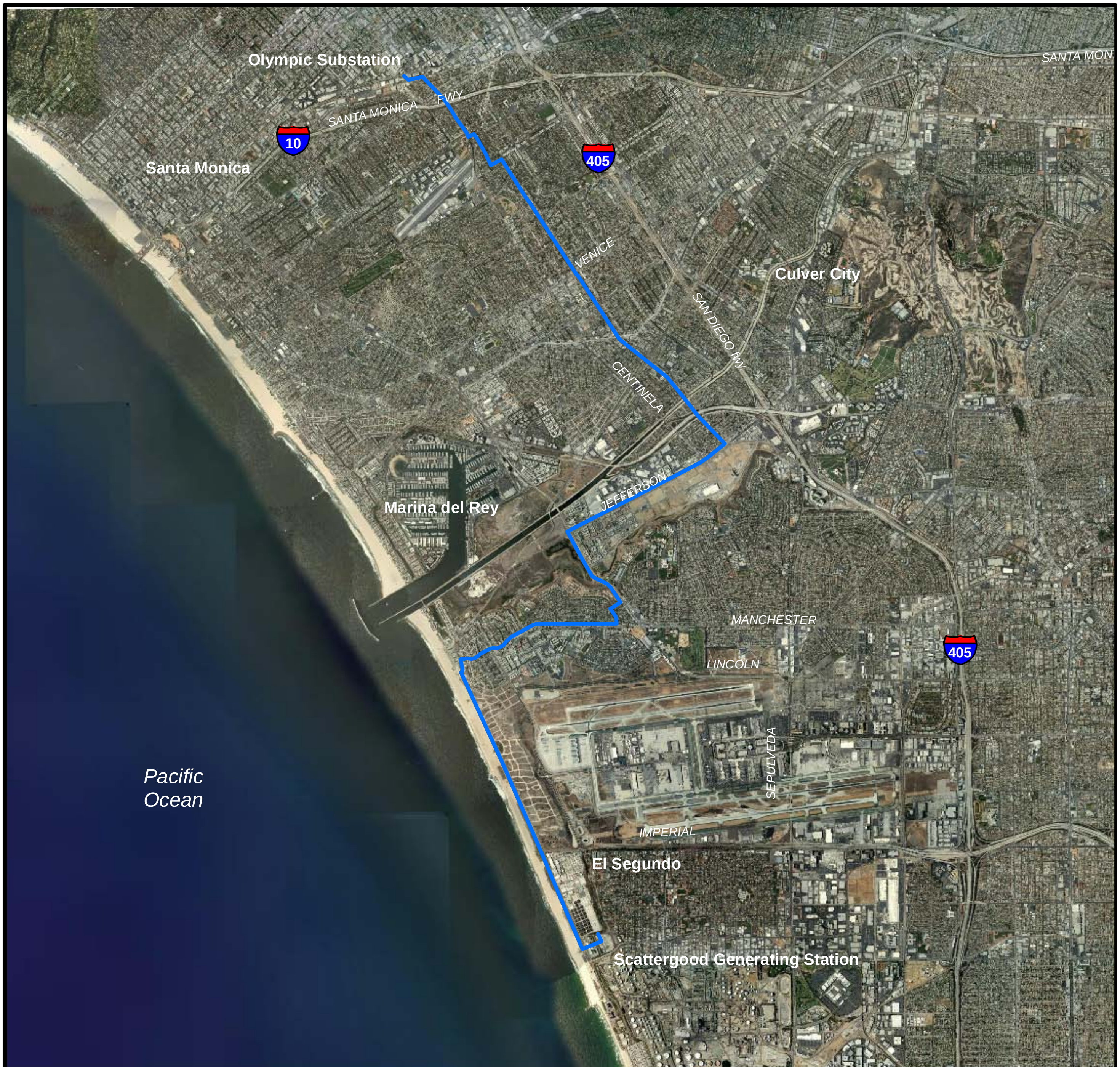
United States Geological Survey, 2008, Earthquake Ground Motion Parameter Java Application, Java Ground Motion Parameter Calculator – Version 5.0.8; http://earthquake.usgs.gov/research/hazmaps/design/.

United States Geological Survey, 1966 (Photorevised 1981), Beverly Hills, California Quadrangle Map, 7.5 Minute Series: Scale 1:24,000.

United States Geological Survey, 1964 (Photorevised 1981), Venice, California Quadrangle Map, 7.5 Minute Series: Scale 1:24,000.

Yeats, R.S., compiler, 2005, Active Faults in the Los Angeles Metropolitan Region, Southern California Earthquake Center Group C, Website: http://www.scec.org/research/ special/SCE001activefaultsLA.pdf.

AERIAL PHOTOGRAPHS				
Source	**Date**	**Flight**	**Numbers**	**Scale**
USDA	11-4-52	AXJ-4K	69 to 77	1:20,000



SOURCE: JONES & STOKES, GOOGLE EARTH, 2009

LEGEND

CIRCUIT ROUTE

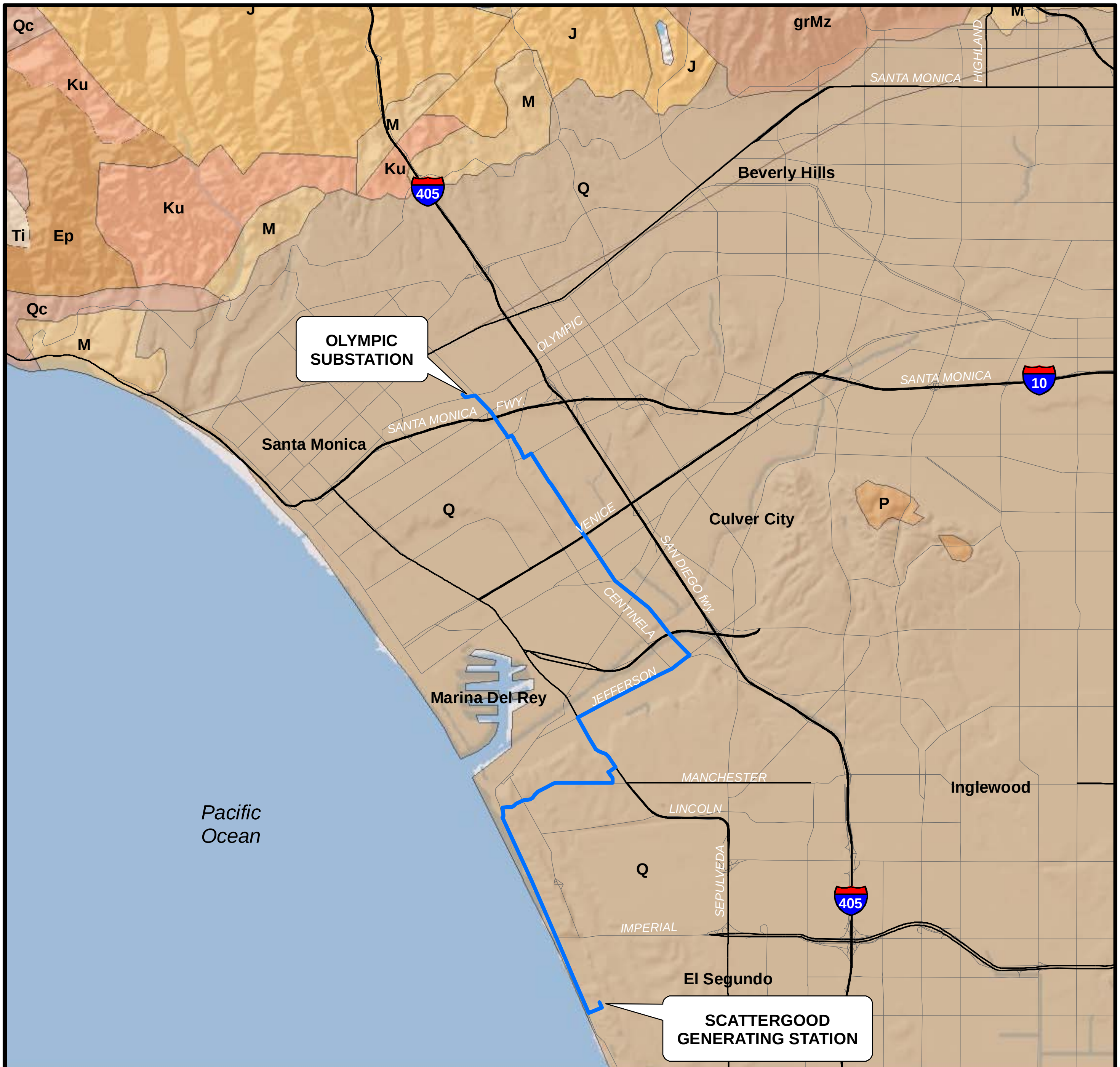
N

0 6,000 12,000 Feet

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Friday, August 21, 2009 9:35:04 AM 207479001-Scattergood\Fig1_slm.mxd

Ninyo & Moore		SITE LOCATION MAP	FIGURE
PROJECT NO.	DATE	SCATTERGOOD-OLYMPIC TRANSMISSION LINE LOS ANGELES, CALIFORNIA	1
207479001	8/09		



GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI); JONES & STOKES
REFERENCE: JENNINGS, 1962, GEOLOGIC MAP OF CALIFORNIA, LONG BEACH SHEET; 1969, GEOLOGIC MAP OF CALIFORNIA, LOS ANGELES SHEET

LEGEND

CIRCUIT ROUTE

GEOLOGIC UNITS

Q	QUATERNARY SEDIMENTS	Ep	PALEOCENE MARINE
Qc	PLEISTOCENE NON-MARINE	Ti	TERTIARY VOLCANIC ROCKS
P	PLIOCENE MARINE	gr/grMz	MESOZOIC GRANITIC ROCKS
M	MIOCENE MARINE	Ku	CRETACEOUS MARINE
		J	JURASSIC MARINE

N

0 6,000 12,000 Feet

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore

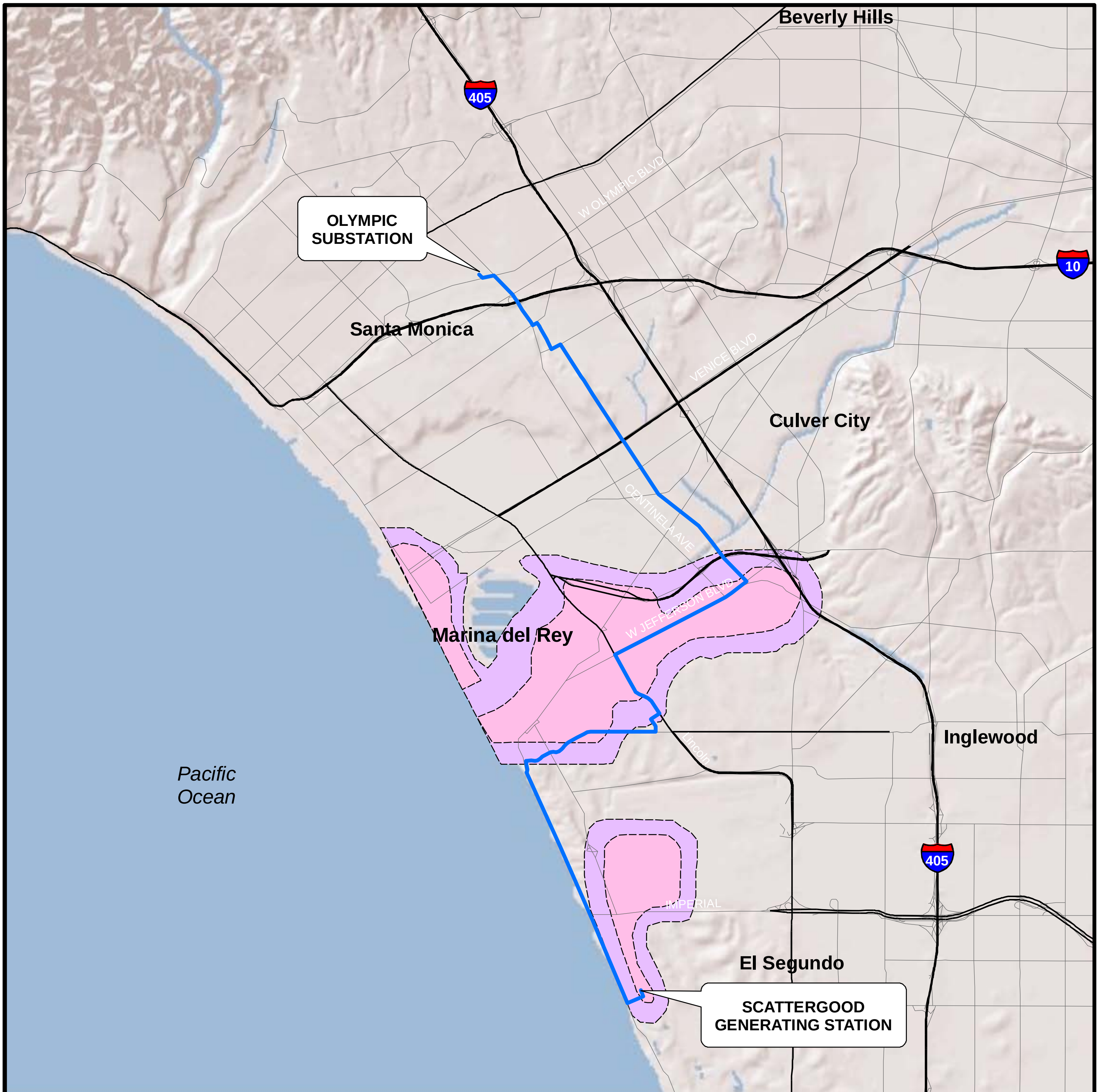
GEOLOGIC MAP

FIGURE 2

PROJECT NO.	DATE
207479001	8/09

SCATTERGOOD-OLYMPIC TRANSMISSION LINE
LOS ANGELES, CALIFORNIA

Friday, August 21, 2009 10:20:50 AM 207479001-Scattergood\Fig2_Geology.mxd



LEGEND

- CIRCUIT ROUTE
- METHANE BUFFER ZONE
- METHANE ZONE

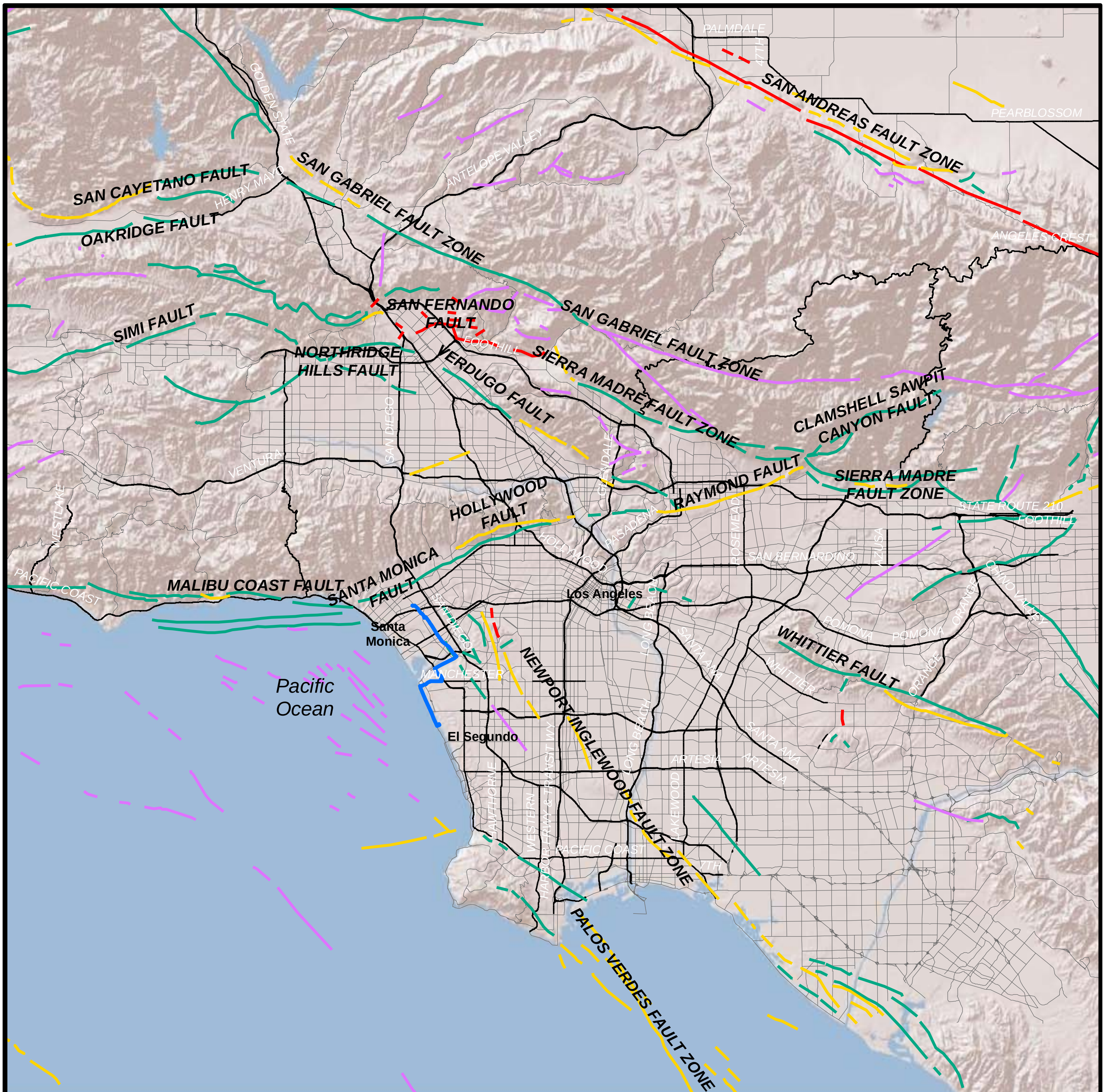
N

0 5,000 10,000 Feet

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE
METHANE ZONES ARE SHOWN WITHIN PROJECT ALIGNMENTS (OTHER MAPPED ZONES EXIST)

Friday, August 21, 2009 10:40:39 AM 207479001-Scattergood\Fig3_Methane.mxd

Ninyo & Moore		METHANE AND METHANE BUFFER ZONES MAP	FIGURE
PROJECT NO.	DATE	SCATTERGOOD-OLYMPIC TRANSMISSION LINE LOS ANGELES, CALIFORNIA	3
207479001	8/09		



GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI); JONES & STOKES
REFERENCE: JENNINGS, 1994, FAULT ACTIVITY MAP OF CALIFORNIA AND ADJACENT AREAS

LEGEND

CIRCUIT ROUTE

FAULT ACTIVITY:

HISTORICALLY	LATE QUATERNARY
HOLOCENE	QUATERNARY

N

0 2.5 5 10 15 Miles

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore

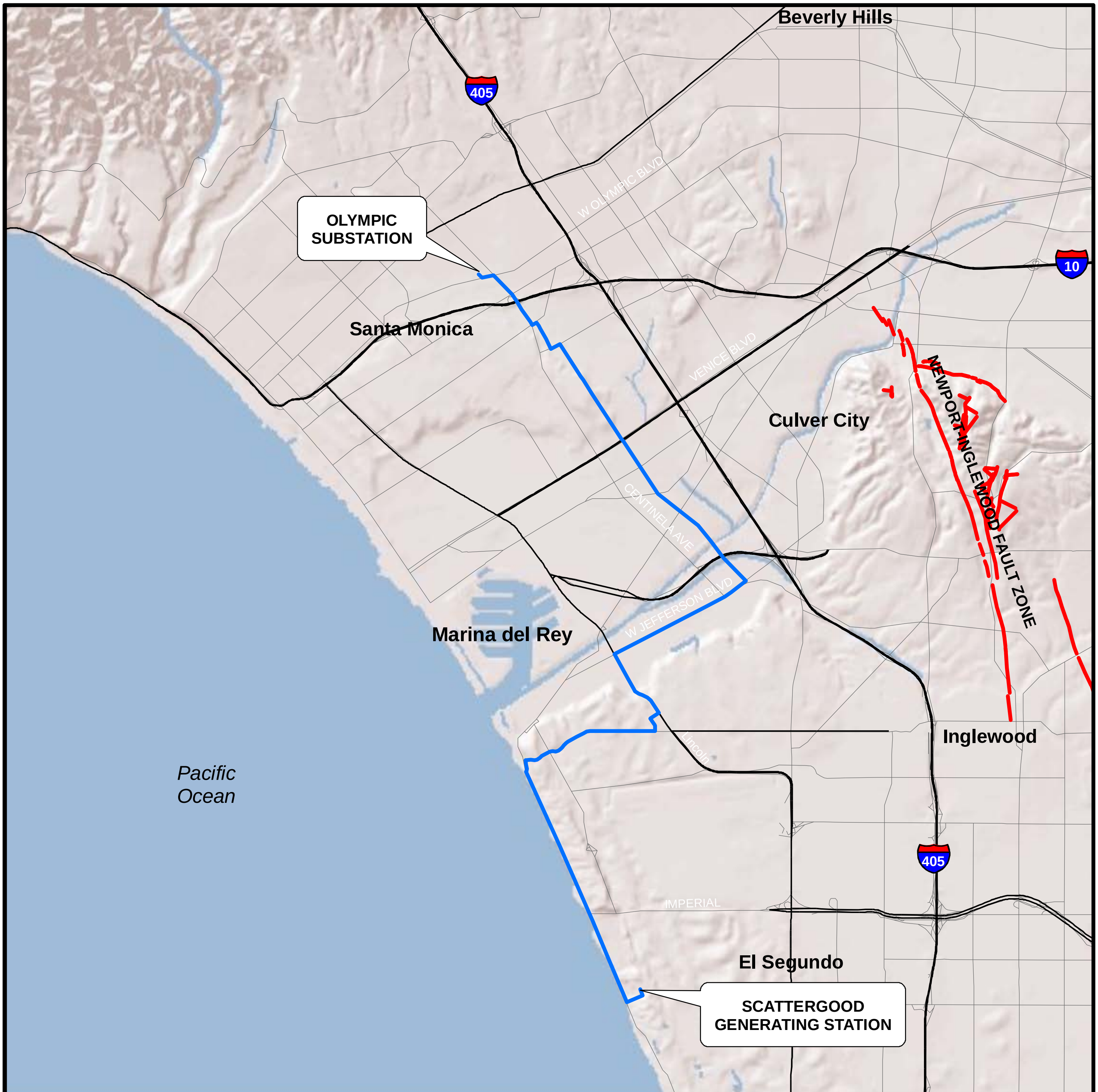
FAULT LOCATION MAP

FIGURE **4**

PROJECT NO.	DATE
207479001	8/09

SCATTERGOOD-OLYMPIC TRANSMISSION LINE
LOS ANGELES, CALIFORNIA

Friday, August 21, 2009 10:46:17 AM 207479001-Scattergood\Fig4_Faults.mxd



GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI); JONES & STOKES

LEGEND

- CIRCUIT ROUTE
- EARTHQUAKE FAULT ZONES (FORMERLY ALQUIST-PRIOLO SPECIAL STUDIES ZONES)

N

0 5,000 10,000 Feet

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore		EARTHQUAKE FAULT ZONES MAP	FIGURE
PROJECT NO.	DATE	SCATTERGOOD-OLYMPIC TRANSMISSION LINE LOS ANGELES, CALIFORNIA	5
207479001	8/09		

GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI); JONES & STOKES

LEGEND

CIRCUIT ROUTE

LIQUEFACTION AREAS WHERE HISTORIC OCCURRENCE OF LIQUEFACTION, OR LOCAL GEOLOGIC, GEOTECHNICAL AND GROUNDWATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED BY PUBLIC RESOURCES CODE SECTION 2693(c) WOULD BE REQUIRED.

N

0 5,000 10,000 Feet

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Friday, August 21, 2009 11:11:08 AM 207479001-Scattergood\Fig6_Liquefacation.mxd JDL

Ninyo & Moore	LIQUEFACTION HAZARD ZONES MAP	FIGURE
PROJECT NO. / DATE	SCATTERGOOD-OLYMPIC TRANSMISSION LINE LOS ANGELES, CALIFORNIA	6
207171001 / 8/09		

GIS DATA SOURCE: CALIFORNIA GEOLOGICAL SURVEY (CGS); ENVIRONMENTAL SYSTEMS RESEARCH INSTITUTE (ESRI); JONES & STOKES

LEGEND

CIRCUIT ROUTE

EARTHQUAKE-INDUCED LANDSLIDE AREAS WHERE PREVIOUS OCCURRENCE OF LANDSLIDE MOVEMENT, OR LOCAL TOPOGRAPHIC, GEOLOGIC, GEOTECHNICAL AND SUBSURFACE WATER CONDITIONS INDICATE A POTENTIAL FOR PERMANENT GROUND DISPLACEMENTS SUCH THAT MITIGATION AS DEFINED BY PUBLIC RESOURCES CODE SECTION 2693(c) WOULD BE REQUIRED.

N

0 5,000 10,000 Feet

NOTE: ALL DIMENSIONS, DIRECTIONS, AND LOCATIONS ARE APPROXIMATE

Ninyo & Moore

EARTHQUAKE - INDUCED LANDSLIDE HAZARD ZONES MAP

FIGURE 7

PROJECT NO.	DATE
207479001	8/09

SCATTERGOOD-OLYPIC TRANSMISSION LINE
LOS ANGELES, CALIFORNIA

Friday, August 21, 2009 11:21:20 AM 207479001-Scattergood\Fig7_Landslide.mxd

F. California Coastal Commission Exemption Letter

STATE OF CALIFORNIA - NATURAL RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

CALIFORNIA COASTAL COMMISSION
South Coast Area Office
200 Oceangate, Suite 1000
Long Beach, CA 90802-4302
(562) 590-5071

EXEMPTION LETTER

Date:	April 7, 2009
Reference Number:	5-09-043X
Applicant Name:	City of Los Angeles, Department of Water and Power
Project Location:	Grand Avenue, Vista Del Mar, Vista Del Mar Lane, Manchester Boulevard, in Playa Del Rey, City of Los Angeles.
Project Description:	Installation of an underground electrical service line to improve reliability of existing service. Line will be placed within road right-of-ways.

This is to certify that this location and/or proposed project has been reviewed by the staff of the Coastal Commission. A coastal development permit is not necessary for the reasons checked below:

___ The site is not located within the coastal zone as established by the California Coastal Act of 1976, as amended.

___ The proposed development is included in Categorical Exclusion No.______ adopted by the California Coastal Commission.

___ The proposed development is judged to be repair or maintenance activity not resulting in an addition to or enlargement or expansion of the object of such activities and not involving any risk of substantial adverse environmental impact (Section 30610(d) of Coastal Act).

___ The proposed development is an improvement to an existing single family residence (Section 30610(a) of the Coastal Act) and not located in the area between the sea and the first public road or within 300 feet of the inland extent of any beach (whichever is greater) (Section 13250(b)(4) of 14 Cal. Admin. Code).

___ The proposed development is an improvement to an existing single family residence and is located in the area between the sea and the first public road or within 300 feet of the inland extent of any beach (whichever is greater) but is not a) an increase of 10% or more of internal floor area, b) an increase in height over 10%, or c) a significant non-attached structure (Sections 30610(a) of Coastal Act and Section 13250(b)(4) of Administrative Regulations).

___ The proposed development is an interior modification to an existing use with no change in the density or intensity of use (Section 30106 of Coastal Act).

___ The proposed development involves the installation, testing and placement in service of a necessary utility connection between an existing service facility and development approved in accordance with coastal development permit requirements, pursuant to Coastal Act Section 30610(f).

___ The proposed development is an improvement to a structure other than a single family residence or public works facility and is not subject to a permit requirement (Section 13253 of Administrative Regulations).

___ The proposed development is the rebuilding of a structure, other than a public works facility, destroyed by natural disaster. The replacement conforms to all of the requirements of Coastal Act Section 30610(g).

_x_ Other: The proposed development is a public utility improvement to meet increased demand of existing customers in order to maintain the existing standard of service.

Please be advised that only the project described above is exempt from the permit requirements of the Coastal Act. Any change in the project may cause it to lose its exempt status. This certification is based on information provided by the recipient of this letter. If, at a later date, this information is found to be incorrect or incomplete, this letter will become invalid, and any development occurring at that time must cease until a coastal development permit is obtained.

Sincerely,

PETER M. DOUGLAS
Executive Director

Al J. Padilla
Coastal Program Analyst

G. Noise Measurement Location Photos

ST-1a facing east

ST-1a facing north

ST-1a facing south

ST-1a facing west

ST-1b facing east

ST-1b facing north

ST-1b facing south

ST-1b facing west

ST-2a facing southwest

ST-2a facing west

ST-2b facing east

ST-2b facing north

ST-2b facing south

ST-2b facing west

ST-6a facing east

ST-6a facing north

ST-6a facing southeast

ST-7a facing east

ST-7a facing north


ST-7a facing south

ST-7a facing west

ST-8a facing east


ST-8a facing north


ST-8a facing south

ST-8a facing west

ST-9a facing east


ST-9a facing north


ST-9a facing south

ST-9a facing west

H. Traffic Study

DRAFT

TRAFFIC STUDY
FOR THE
SCATTERGOOD OLYMPIC POWERLINE PROJECT

JUNE 2009

PREPARED FOR

ICF JONES & STOKES

PREPARED BY

FEHR & PEERS
TRANSPORTATION CONSULTANTS

SCATTERGOOD RELATED PROJECTS LIST AND TRIP GENERATION

Map No. Number	PROJECT	LOCATION	USE	SIZE	WEEKDAY TRIPS: AVERAGE DAILY TRIPS	A.M. PEAK HOUR: IN	A.M. PEAK HOUR: OUT	A.M. PEAK HOUR: TOTAL	P.M. PEAK HOUR: IN	P.M. PEAK HOUR: OUT	P.M. PEAK HOUR: TOTAL
1	Storage[1]	1707 Cloverfield Blvd	Additional self-storage	31.4 KSF	0	3	2	5	4	4	8
2	Condominium[1]	1940 Cloverfield Blvd	Condominium	16 DU	94	1	6	7	6	3	9
3	Residential[1]	2345 Virginia Ave	Condominiums/Apartments	92 DU	580	7	36	44	34	18	52
		1942 High Place	remove existing use	27 DU	-181	-3	-11	-14	-11	-6	-17
4	Condominium[1]	2323 28th Street	Residential	8 DU	47	1	3	4	3	1	4
			remove existing use	-2 DU	-19	-1	-1	-2	-1	-1	-2
5	Lantana East[1]	3030 Olympic Blvd.	Entertainment post production	61.1 KSF	513	68	10	78	12	60	72
6	Lantana South[1]	3131 Exposition	Entertainment post production	99 KSF	1,454	188	26	214	29	142	171
7	New Roads[1]	3131 Olympic Blvd.	Private school	115.3 KSF	842	107	66	172	49	33	81
8	Condominium[1]	2301 33rd Street	Residential	6 DU	35	1	2	3	2	1	3
9	Mixed-Use[1]	3205 Pico Blvd.	Residential	1 DU	7	0	1	1	1	0	1
10	Airport Park Expansion[1]	Santa Monica Airport	City park	4 acre	205	4	4	8	8	8	16
			Dog park	1 acre	225	20	15	35	30	10	40
			Recreation field	1 acre	198	0	0	0	28	38	66
			remove existing shuttle lot	-310 spaces	-946	-66	-6	-72	-32	-57	-89
11	Playa Vista Phase II - Mixed Use[2]	s/o Jefferson; Westlawn Ave	mixed use		24,220	557	1,049	1,626	1,275	1,027	2,302
			Office	175 KSF							
			Apartment	2600 DU							
			Shopping Center	150 KSF							
			Community Serving Uses	40 KSF							
12	Mixed Use[3]	3025 Olympic Blvd	Mixed use		2,439	35	107	142	133	90	223
			Residential	184 DU							
			Live/Work	56 DU							
			Retail/Restaurant	5 KSF							
13	Retail[3]	11840 Olympic Blvd.	Retail (with credit for existing use)	86 KSF	5,536	12	46	58	252	195	447
14	Walk-In Bank	7215 Manchester Ave	Bank	5 KSF	607	8	8	16	33	32	65
TOTALS					35,856	942	1,363	2,325	1,855	1,598	3,452

Notes:

1 Project data taken from City of Santa Monica Traffix Database and corresponding Cumulative Developments Project List as of December 8, 2008.

2 Project data taken from *Traffic Impact Study for the Project at Lincoln Boulevard/Manchester Ave*, Crain & Associates, September 2008.

3 Project data taken from *Westside Medical - Stonebridge*, Hirsch/Green Transportation Consultants, March 2007.

ATTACHMENT A

TRAFFIC COUNTS

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: OLYMPIC BOULEVARD WEST OF BUNDY DRIVE
DATE: WEDNESDAY DECEMBER 10, 2008

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	30	23	15	10	78
1:00	14	11	10	16	51
2:00	10	5	6	5	26
3:00	6	12	1	6	25
4:00	23	2	5	8	38
5:00	9	21	28	22	80
6:00	26	39	52	63	180
7:00	82	120	170	242	614
8:00	272	268	340	295	1175
9:00	300	280	267	271	1118
10:00	232	246	218	230	926
11:00	252	244	310	312	1118
12:00	316	312	310	348	1286
13:00	346	341	308	333	1328
14:00	328	320	323	316	1287
15:00	397	418	400	420	1635
16:00	384	402	373	430	1589
17:00	406	386	432	322	1546
18:00	312	342	329	386	1369
19:00	423	322	272	218	1235
20:00	204	186	146	146	682
21:00	147	106	81	78	412
22:00	63	52	49	38	202
23:00	40	37	15	22	114
				TOTAL	18114
AM PEAK HOUR		0830-0930			
VOLUME		1215			
PM PEAK HOUR		1645-1745			
VOLUME		1654			

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	23	9	12	12	56
1:00	12	12	6	12	42
2:00	12	12	6	4	34
3:00	4	4	2	3	13
4:00	10	12	1	12	35
5:00	12	10	32	56	110
6:00	65	74	100	160	399
7:00	208	286	364	438	1296
8:00	370	364	349	452	1535
9:00	388	430	368	400	1586
10:00	336	287	307	288	1218
11:00	296	291	280	289	1156
12:00	310	282	340	312	1244
13:00	322	328	308	342	1300
14:00	324	336	366	359	1385
15:00	364	320	355	328	1367
16:00	356	324	338	292	1310
17:00	353	318	385	340	1396
18:00	392	356	382	361	1491
19:00	372	294	224	230	1120
20:00	156	158	105	128	547
21:00	122	108	96	109	435
22:00	94	84	66	65	309
23:00	57	48	28	29	162
				TOTAL	19546
AM PEAK HOUR		0845-0945			
VOLUME		1638			
PM PEAK HOUR		1800-1900			
VOLUME		1491			

TOTAL BI-DIRECTIONAL VOLUME	37660

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: BUNDY DRIVE NORTH OF PICO BOULEVARD
DATE: WEDNESDAY DECEMBER 10, 2008

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	52	46	35	68	201
1:00	75	54	57	44	230
2:00	41	31	32	38	142
3:00	32	28	19	21	100
4:00	57	44	25	62	188
5:00	72	72	137	222	503
6:00	200	232	244	332	1008
7:00	336	359	422	401	1518
8:00	412	401	436	502	1751
9:00	480	445	413	426	1764
10:00	442	366	386	370	1564
11:00	340	354	308	360	1362
12:00	356	344	365	365	1430
13:00	354	347	360	334	1395
14:00	392	286	383	382	1443
15:00	414	405	358	387	1564
16:00	405	375	370	362	1512
17:00	389	354	381	358	1482
18:00	360	344	367	388	1459
19:00	399	446	390	328	1563
20:00	313	260	197	236	1006
21:00	212	190	152	162	716
22:00	132	166	156	106	560
23:00	118	86	66	70	340
				TOTAL	24801

AM PEAK HOUR	0830-0930
VOLUME	1863
PM PEAK HOUR	1845-1945
VOLUME	1623

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	92	74	46	42	254
1:00	29	33	32	30	124
2:00	23	24	33	23	103
3:00	22	15	4	10	51
4:00	13	13	21	21	68
5:00	18	25	40	39	122
6:00	72	90	94	153	409
7:00	186	220	216	269	891
8:00	274	316	274	272	1136
9:00	362	374	286	292	1314
10:00	266	242	294	276	1078
11:00	256	374	380	306	1316
12:00	336	337	391	328	1392
13:00	362	338	330	310	1340
14:00	385	316	334	340	1375
15:00	350	334	310	321	1315
16:00	333	342	350	328	1353
17:00	328	302	319	326	1275
18:00	351	328	388	449	1516
19:00	470	462	382	332	1646
20:00	294	286	242	220	1042
21:00	234	204	168	179	785
22:00	170	165	135	130	600
23:00	124	88	76	78	366
				TOTAL	20871

AM PEAK HOUR	1100-1200
VOLUME	1316
PM PEAK HOUR	1830-1930
VOLUME	1769

TOTAL BI-DIRECTIONAL VOLUME	45672

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: BUNDY DRIVE NORTH OF OCEAN PARK BOULEVARD
DATE: WEDNESDAY DECEMBER 10, 2008

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	41	32	34	16	123
1:00	19	12	12	23	66
2:00	12	8	14	15	49
3:00	8	9	22	19	58
4:00	14	15	24	23	76
5:00	30	46	72	94	242
6:00	104	144	245	304	797
7:00	374	328	410	407	1519
8:00	400	364	373	400	1537
9:00	370	400	364	349	1483
10:00	354	308	302	309	1273
11:00	323	294	276	300	1193
12:00	284	322	316	298	1220
13:00	284	284	315	306	1189
14:00	307	248	310	308	1173
15:00	331	338	318	326	1313
16:00	312	333	316	294	1255
17:00	330	320	314	348	1312
18:00	306	352	280	354	1292
19:00	337	336	310	244	1227
20:00	232	208	185	176	801
21:00	187	168	133	151	639
22:00	140	130	120	111	501
23:00	86	76	52	43	257
				TOTAL	20595

AM PEAK HOUR	0730-0830
VOLUME	1581
PM PEAK HOUR	1845-1945
VOLUME	1337

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	66	64	41	40	211
1:00	36	16	26	16	94
2:00	23	16	12	12	63
3:00	12	10	14	10	46
4:00	18	10	14	13	55
5:00	22	31	50	70	173
6:00	86	106	120	132	444
7:00	191	215	221	256	883
8:00	254	279	280	258	1071
9:00	271	254	280	290	1095
10:00	238	245	233	270	986
11:00	248	249	243	300	1040
12:00	308	316	262	300	1186
13:00	268	330	267	315	1180
14:00	256	277	312	338	1183
15:00	402	366	368	368	1504
16:00	421	401	418	420	1660
17:00	401	416	408	430	1655
18:00	414	439	402	434	1689
19:00	412	358	295	306	1371
20:00	274	234	186	184	878
21:00	200	179	176	164	719
22:00	174	162	161	125	622
23:00	100	104	80	64	348
				TOTAL	20156

AM PEAK HOUR	0900-1000
VOLUME	1095
PM PEAK HOUR	1730-1830
VOLUME	1691

TOTAL BI-DIRECTIONAL VOLUME	40751

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: OCEAN PARK BOULEVARD WEST OF ARMACOST AVENUE
DATE: WEDNESDAY DECEMBER 10, 2008

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	10	12	18	12	52
1:00	8	3	4	2	17
2:00	7	7	5	3	22
3:00	4	3	4	4	15
4:00	3	2	1	5	11
5:00	10	11	12	12	45
6:00	23	36	46	60	165
7:00	86	106	124	139	455
8:00	154	176	190	192	712
9:00	178	152	138	140	608
10:00	116	105	111	87	419
11:00	110	105	99	137	451
12:00	131	160	124	143	558
13:00	149	135	122	114	520
14:00	107	132	158	151	548
15:00	158	172	200	216	746
16:00	212	218	184	237	851
17:00	206	252	267	265	990
18:00	269	292	240	224	1025
19:00	194	167	142	106	609
20:00	109	86	75	71	341
21:00	84	63	52	43	242
22:00	60	46	53	33	192
23:00	22	20	28	12	82
				TOTAL	9676

AM PEAK HOUR	0815-0915
VOLUME	736
PM PEAK HOUR	1730-1830
VOLUME	1093

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	23	8	13	9	53
1:00	12	4	4	3	23
2:00	5	3	2	3	13
3:00	3	2	4	2	11
4:00	2	4	4	8	18
5:00	6	10	20	21	57
6:00	24	28	38	54	144
7:00	78	110	150	160	498
8:00	156	178	148	158	640
9:00	140	124	128	114	506
10:00	127	86	109	115	437
11:00	100	104	88	122	414
12:00	120	126	120	152	518
13:00	113	119	130	146	508
14:00	132	135	116	121	504
15:00	130	139	100	123	492
16:00	128	130	134	140	532
17:00	143	148	140	150	581
18:00	144	160	168	147	619
19:00	122	134	100	82	438
20:00	92	90	67	82	331
21:00	63	76	59	51	249
22:00	60	54	50	38	202
23:00	32	40	23	23	118
				TOTAL	7906

AM PEAK HOUR	0730-0830
VOLUME	644
PM PEAK HOUR	1745-1845
VOLUME	622

TOTAL BI-DIRECTIONAL VOLUME	17582

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: ARMACOST AVENUE NORTH OF NATIONAL BOULEVARD
DATE: THURSDAY DECEMBER 11, 2008

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	1	2	0	0	3
1:00	0	2	0	0	2
2:00	1	0	0	0	1
3:00	0	0	0	0	0
4:00	0	0	0	0	0
5:00	0	0	0	0	0
6:00	1	6	3	1	11
7:00	6	9	28	24	67
8:00	38	39	34	36	147
9:00	23	16	10	8	57
10:00	10	3	9	3	25
11:00	3	6	7	6	22
12:00	5	4	12	8	29
13:00	7	16	15	8	46
14:00	10	12	3	6	31
15:00	10	9	8	13	40
16:00	6	10	6	12	34
17:00	12	12	12	10	46
18:00	3	8	6	9	26
19:00	8	8	5	5	26
20:00	4	1	1	2	8
21:00	0	2	1	2	5
22:00	6	3	1	2	12
23:00	2	2	0	2	6
				TOTAL	644

AM PEAK HOUR	0800-0900
VOLUME	147
PM PEAK HOUR	1315-1415
VOLUME	49

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	2	0	1	1	4
1:00	0	0	0	0	0
2:00	0	0	0	0	0
3:00	0	0	0	1	1
4:00	0	1	0	0	1
5:00	1	0	2	0	3
6:00	2	2	2	4	10
7:00	6	4	3	2	15
8:00	10	12	10	12	44
9:00	2	4	6	4	16
10:00	4	4	4	4	16
11:00	6	2	0	6	14
12:00	6	8	8	7	29
13:00	6	2	0	4	12
14:00	7	9	12	16	44
15:00	20	18	28	24	90
16:00	16	22	16	28	82
17:00	30	26	42	37	135
18:00	43	44	37	30	154
19:00	17	15	17	9	58
20:00	7	5	5	4	21
21:00	3	2	4	2	11
22:00	2	1	5	4	12
23:00	1	1	2	0	4
				TOTAL	776

AM PEAK HOUR	0800-0900
VOLUME	44
PM PEAK HOUR	1730-1830
VOLUME	166

TOTAL BI-DIRECTIONAL VOLUME	1420

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: NATIONAL BOUELVERD WEST OF INGLEWOOD BOULEVARD
DATE: TUESDAY MARCH 10, 2009

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	11	12	6	9	38
1:00	7	8	11	5	31
2:00	3	4	2	3	12
3:00	4	1	3	1	9
4:00	1	4	3	5	13
5:00	7	9	10	18	44
6:00	18	23	32	59	132
7:00	87	132	192	205	616
8:00	238	212	216	181	847
9:00	158	172	152	126	608
10:00	106	118	93	112	429
11:00	106	122	89	122	439
12:00	146	124	128	122	520
13:00	118	116	110	112	456
14:00	116	132	124	144	516
15:00	140	123	160	163	586
16:00	162	148	173	154	637
17:00	153	166	148	160	627
18:00	148	150	154	153	605
19:00	138	141	118	80	477
20:00	104	88	82	56	330
21:00	78	72	59	34	243
22:00	48	52	26	26	152
23:00	21	17	16	28	82
				TOTAL	8449

AM PEAK HOUR	0745-0845
VOLUME	871
PM PEAK HOUR	1545-1645
VOLUME	646

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	14	10	15	7	46
1:00	12	2	5	5	24
2:00	4	3	2	5	14
3:00	0	0	5	4	9
4:00	1	5	6	8	20
5:00	10	9	16	24	59
6:00	30	32	48	50	160
7:00	64	102	116	148	430
8:00	135	156	106	144	541
9:00	132	132	94	90	448
10:00	90	88	95	80	353
11:00	78	115	106	122	421
12:00	130	149	116	112	507
13:00	106	123	105	122	456
14:00	112	134	122	138	506
15:00	110	146	158	160	574
16:00	142	132	166	174	614
17:00	163	200	214	193	770
18:00	180	148	182	122	632
19:00	134	147	101	102	484
20:00	86	86	72	76	320
21:00	93	64	63	46	266
22:00	52	40	36	28	156
23:00	30	25	14	15	84
				TOTAL	7894

AM PEAK HOUR	0730-0830
VOLUME	555
PM PEAK HOUR	1715-1815
VOLUME	787

TOTAL BI-DIRECTIONAL VOLUME	16343

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVARD NORTH OF NAVY STREET
DATE: THURSDAY MARCH 12, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	1	4	0	1	6
1:00	0	0	0	5	5
2:00	0	1	0	0	1
3:00	1	0	0	0	1
4:00	0	0	0	0	0
5:00	0	0	1	1	2
6:00	5	2	3	2	12
7:00	20	15	19	22	76
8:00	25	24	30	16	95
9:00	18	12	21	15	66
10:00	20	20	18	18	76
11:00	16	18	19	21	74
12:00	23	23	28	12	86
13:00	23	22	28	24	97
14:00	28	28	43	34	133
15:00	42	31	42	49	164
16:00	60	66	71	91	288
17:00	100	96	113	122	431
18:00	96	71	76	45	288
19:00	45	33	36	19	133
20:00	13	16	16	13	58
21:00	12	12	16	23	63
22:00	14	8	9	14	45
23:00	10	6	4	1	21
				TOTAL	2221

AM PEAK HOUR	0745-0845
VOLUME	101
PM PEAK HOUR	1700-1800
VOLUME	431

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	1	0	0	0	1
1:00	2	0	0	0	2
2:00	0	1	1	0	2
3:00	0	0	0	2	2
4:00	0	0	0	2	2
5:00	0	2	8	7	17
6:00	3	3	18	18	42
7:00	45	81	132	140	398
8:00	142	178	132	150	602
9:00	100	80	75	48	303
10:00	40	35	38	46	159
11:00	35	26	36	37	134
12:00	42	36	37	32	147
13:00	36	36	30	26	128
14:00	29	39	42	56	166
15:00	39	44	48	40	171
16:00	47	46	42	50	185
17:00	60	52	46	52	210
18:00	46	44	47	34	171
19:00	36	29	16	20	101
20:00	15	6	14	9	44
21:00	13	10	4	4	31
22:00	0	12	12	8	32
23:00	2	2	5	2	11
				TOTAL	3061

AM PEAK HOUR	0800-0900
VOLUME	602
PM PEAK HOUR	1700-1800
VOLUME	210

TOTAL BI-DIRECTIONAL VOLUME	5282

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVARD NORTH OF PALM BOULEVARD
DATE: TUESDAY MARCH 10, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	1	6	0	2	9
1:00	1	2	0	0	3
2:00	0	0	1	0	1
3:00	0	0	0	0	0
4:00	1	0	0	0	1
5:00	1	0	3	3	7
6:00	4	5	7	23	39
7:00	34	62	96	108	300
8:00	128	122	111	105	466
9:00	79	64	64	43	250
10:00	45	24	20	18	107
11:00	26	22	24	22	94
12:00	22	23	21	18	84
13:00	24	28	22	18	92
14:00	25	22	26	32	105
15:00	36	24	31	46	137
16:00	28	43	40	26	137
17:00	42	48	42	54	186
18:00	40	41	36	30	147
19:00	30	20	16	18	84
20:00	14	19	8	4	45
21:00	13	12	12	4	41
22:00	4	6	5	2	17
23:00	5	3	3	2	13
				TOTAL	2365
AM PEAK HOUR	0745-0845				
VOLUME	469				
PM PEAK HOUR	1700-1800				
VOLUME	186				

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	1	3	1	3	8
1:00	3	1	2	2	8
2:00	0	0	0	0	0
3:00	0	0	2	0	2
4:00	0	0	0	0	0
5:00	2	0	2	1	5
6:00	0	1	4	7	12
7:00	3	9	12	23	47
8:00	18	21	23	22	84
9:00	13	20	16	12	61
10:00	8	17	23	13	61
11:00	12	10	10	16	48
12:00	20	22	24	24	90
13:00	23	32	24	16	95
14:00	18	36	28	32	114
15:00	28	32	46	58	164
16:00	62	68	72	92	294
17:00	88	104	94	100	386
18:00	86	88	72	47	293
19:00	29	36	32	22	119
20:00	14	19	14	10	57
21:00	12	12	10	8	42
22:00	13	8	4	1	26
23:00	5	2	4	4	15
				TOTAL	2031
AM PEAK HOUR	0745-0845				
VOLUME	85				
PM PEAK HOUR	1700-1800				
VOLUME	386				

TOTAL BI-DIRECTIONAL VOLUME	4396

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVRD NORTH OF VENICE BOULEVARD
DATE: TUESDAY MARCH 10, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	8	1	3	17
1:00	3	4	1	1	9
2:00	3	1	4	0	8
3:00	1	2	0	0	3
4:00	0	0	4	1	5
5:00	1	1	3	1	6
6:00	12	6	24	33	75
7:00	45	78	119	124	366
8:00	146	135	142	122	545
9:00	93	82	64	59	298
10:00	39	34	29	38	140
11:00	40	34	23	43	140
12:00	32	48	47	36	163
13:00	51	33	34	35	153
14:00	28	42	51	55	176
15:00	47	52	52	82	233
16:00	47	58	63	67	235
17:00	66	73	70	65	274
18:00	70	40	62	53	225
19:00	31	34	40	30	135
20:00	28	14	22	16	80
21:00	21	20	18	11	70
22:00	8	12	8	10	38
23:00	12	2	4	3	21
				TOTAL	3415

AM PEAK HOUR	0745-0845
VOLUME	547
PM PEAK HOUR	1715-1815
VOLUME	278

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	7	6	0	3	16
1:00	3	3	1	0	7
2:00	1	1	2	1	5
3:00	0	2	0	2	4
4:00	0	2	2	1	5
5:00	1	1	2	3	7
6:00	5	5	4	5	19
7:00	7	16	24	38	85
8:00	43	42	50	52	187
9:00	50	52	42	42	186
10:00	32	32	39	26	129
11:00	33	26	28	24	111
12:00	29	32	34	36	131
13:00	38	39	36	39	152
14:00	32	42	61	64	199
15:00	48	43	60	78	229
16:00	64	60	91	84	299
17:00	90	100	100	96	386
18:00	90	84	67	75	316
19:00	59	50	38	20	167
20:00	23	18	19	14	74
21:00	10	9	10	11	40
22:00	12	13	9	10	44
23:00	8	13	5	6	32
				TOTAL	2830

AM PEAK HOUR	0830-0930
VOLUME	204
PM PEAK HOUR	1700-1800
VOLUME	386

TOTAL BI-DIRECTIONAL VOLUME	6245

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVARD NORTH OF WASHINGTON PLACE
DATE: TUESDAY MARCH 10, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	6	7	5	1	19
1:00	3	4	6	4	17
2:00	4	1	3	0	8
3:00	2	2	0	1	5
4:00	1	0	2	4	7
5:00	2	4	5	6	17
6:00	15	10	39	47	111
7:00	82	132	178	152	544
8:00	196	164	162	156	678
9:00	116	116	88	96	416
10:00	60	67	45	63	235
11:00	64	70	56	65	255
12:00	59	79	66	80	284
13:00	60	64	60	82	266
14:00	53	76	74	89	292
15:00	87	85	92	95	359
16:00	85	90	89	100	364
17:00	92	100	122	108	422
18:00	97	74	94	83	348
19:00	74	58	48	49	229
20:00	38	28	23	32	121
21:00	32	28	28	21	109
22:00	22	23	18	10	73
23:00	14	10	2	0	26
				TOTAL	5205

AM PEAK HOUR	0730-0830
VOLUME	690
PM PEAK HOUR	1715-1815
VOLUME	427

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	10	2	6	6	24
1:00	7	4	6	7	24
2:00	2	2	2	1	7
3:00	2	3	2	0	7
4:00	0	2	4	1	7
5:00	3	1	3	5	12
6:00	8	10	12	21	51
7:00	26	24	50	72	172
8:00	88	86	82	58	314
9:00	66	64	58	44	232
10:00	52	58	62	60	232
11:00	58	55	53	56	222
12:00	59	66	68	86	279
13:00	74	85	92	80	331
14:00	87	94	80	97	358
15:00	94	132	106	122	454
16:00	113	130	150	132	525
17:00	128	139	156	147	570
18:00	146	144	120	100	510
19:00	70	95	65	82	312
20:00	56	52	45	44	197
21:00	48	38	37	32	155
22:00	23	20	18	10	71
23:00	9	10	12	12	43
				TOTAL	5109

AM PEAK HOUR	0745-0845
VOLUME	328
PM PEAK HOUR	1730-1830
VOLUME	593

TOTAL BI-DIRECTIONAL VOLUME	10314

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVARD NORTH OF WASHINGTON BOULEVARD
DATE: TUESDAY MARCH 10, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	3	6	5	2	16
1:00	4	3	1	3	11
2:00	4	3	2	0	9
3:00	2	2	0	3	7
4:00	2	2	2	2	8
5:00	2	2	6	8	18
6:00	22	15	44	62	143
7:00	87	121	164	120	492
8:00	161	152	130	130	573
9:00	106	106	92	83	387
10:00	70	60	55	66	251
11:00	66	77	66	58	267
12:00	58	75	74	73	280
13:00	56	64	54	78	252
14:00	52	60	74	88	274
15:00	86	78	95	106	365
16:00	106	105	90	109	410
17:00	108	110	104	100	422
18:00	96	64	90	94	344
19:00	80	63	52	49	244
20:00	34	34	38	36	142
21:00	35	29	30	22	116
22:00	22	22	22	6	72
23:00	12	14	1	12	39
				TOTAL	5142

AM PEAK HOUR	0730-0830
VOLUME	597
PM PEAK HOUR	1645-1745
VOLUME	431

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	12	1	6	9	28
1:00	5	3	3	3	14
2:00	4	2	2	1	9
3:00	3	0	1	1	5
4:00	0	0	4	3	7
5:00	6	2	5	5	18
6:00	7	15	16	23	61
7:00	30	51	100	115	296
8:00	114	132	100	90	436
9:00	92	78	70	56	296
10:00	67	50	73	68	258
11:00	48	55	60	55	218
12:00	81	58	74	106	319
13:00	71	94	100	74	339
14:00	89	123	96	132	440
15:00	124	172	156	148	600
16:00	122	138	166	156	582
17:00	156	156	174	204	690
18:00	164	202	139	112	617
19:00	90	94	66	80	330
20:00	58	43	38	30	169
21:00	39	36	25	22	122
22:00	28	24	22	14	88
23:00	1	10	0	9	20
				TOTAL	5962

AM PEAK HOUR	0730-0830
VOLUME	461
PM PEAK HOUR	1730-1830
VOLUME	744

TOTAL BI-DIRECTIONAL VOLUME	11104

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVARD NORTH OF CULVER BOULEVARD
DATE: TUESDAY MARCH 10, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	6	6	5	6	23
1:00	7	8	2	6	23
2:00	5	1	5	0	11
3:00	2	6	2	3	13
4:00	1	1	6	6	14
5:00	5	3	12	22	42
6:00	22	42	67	98	229
7:00	163	242	328	338	1071
8:00	313	301	254	240	1108
9:00	192	192	145	130	659
10:00	120	116	114	136	486
11:00	130	115	114	102	461
12:00	105	120	132	132	489
13:00	122	122	122	132	498
14:00	99	130	156	178	563
15:00	182	158	163	178	681
16:00	156	180	183	196	715
17:00	174	184	180	193	731
18:00	171	162	150	158	641
19:00	119	124	94	100	437
20:00	76	70	68	61	275
21:00	67	56	53	44	220
22:00	48	46	46	21	161
23:00	28	12	16	13	69
				TOTAL	9620

AM PEAK HOUR	0730-0830
VOLUME	1280
PM PEAK HOUR	1630-1730
VOLUME	737

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	14	11	10	5	40
1:00	6	5	6	5	22
2:00	5	3	0	5	13
3:00	2	3	1	4	10
4:00	1	1	6	3	11
5:00	6	12	13	18	49
6:00	22	22	43	61	148
7:00	78	102	156	304	640
8:00	236	150	140	128	654
9:00	130	100	86	104	420
10:00	95	80	108	109	392
11:00	102	94	83	103	382
12:00	103	108	112	124	447
13:00	108	166	130	136	540
14:00	133	143	122	162	560
15:00	222	286	236	244	988
16:00	228	236	266	273	1003
17:00	292	286	264	279	1121
18:00	242	262	225	222	951
19:00	152	130	119	106	507
20:00	88	74	52	58	272
21:00	66	55	43	37	201
22:00	38	30	35	23	126
23:00	10	15	9	12	46
				TOTAL	9543

AM PEAK HOUR	0730-0830
VOLUME	846
PM PEAK HOUR	1700-1800
VOLUME	1121

TOTAL BI-DIRECTIONAL VOLUME	19163

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVARD BETWEEN NORTH CULVER DRIVE AND SOUTH CULVER DRIVE
DATE: TUESDAY MARCH 10, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	10	8	3	7	28
1:00	7	7	7	4	25
2:00	4	1	4	5	14
3:00	2	2	1	8	13
4:00	4	1	8	2	15
5:00	9	3	13	18	43
6:00	34	37	60	113	244
7:00	191	216	266	290	963
8:00	253	240	224	226	943
9:00	149	134	120	98	501
10:00	96	89	90	78	353
11:00	86	82	84	80	332
12:00	88	88	110	100	386
13:00	108	84	108	94	394
14:00	84	122	124	122	452
15:00	100	122	123	132	477
16:00	136	148	130	142	556
17:00	140	176	142	140	598
18:00	133	132	128	112	505
19:00	87	114	86	76	363
20:00	60	52	48	46	206
21:00	60	44	43	38	185
22:00	38	48	40	12	138
23:00	12	18	10	12	52
				TOTAL	7786

AM PEAK HOUR	0730-0830
VOLUME	1049
PM PEAK HOUR	1645-1745
VOLUME	600

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	12	10	13	11	46
1:00	13	7	4	3	27
2:00	4	5	2	2	13
3:00	1	5	2	4	12
4:00	5	3	10	10	28
5:00	9	14	11	22	56
6:00	25	28	38	46	137
7:00	58	72	93	118	341
8:00	124	126	120	100	470
9:00	95	97	72	70	334
10:00	72	70	72	74	288
11:00	67	94	58	77	296
12:00	64	88	81	86	319
13:00	90	102	110	102	404
14:00	106	136	102	120	464
15:00	110	159	164	167	600
16:00	172	165	184	199	720
17:00	185	176	175	218	754
18:00	192	222	158	140	712
19:00	138	112	97	54	401
20:00	74	60	43	57	234
21:00	56	31	37	29	153
22:00	29	29	21	18	97
23:00	10	10	10	12	42
				TOTAL	6948

AM PEAK HOUR	0745-0845
VOLUME	488
PM PEAK HOUR	1730-1830
VOLUME	807

TOTAL BI-DIRECTIONAL VOLUME	14734

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: INGLEWOOD BOULEVARD NORTH OF JEFFERSON BOULEVARD
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	5	6	5	4	20
1:00	3	5	2	3	13
2:00	4	2	3	2	11
3:00	1	1	2	4	8
4:00	5	3	2	6	16
5:00	4	5	12	12	33
6:00	23	35	65	122	245
7:00	222	200	245	300	967
8:00	254	244	230	222	950
9:00	156	144	121	100	521
10:00	100	90	95	77	362
11:00	85	80	65	76	306
12:00	100	85	122	102	409
13:00	122	100	100	100	422
14:00	86	121	100	142	449
15:00	112	100	124	132	468
16:00	144	145	135	144	568
17:00	132	175	144	143	594
18:00	122	132	132	122	508
19:00	100	100	65	60	325
20:00	44	43	42	45	174
21:00	32	21	22	23	98
22:00	23	34	32	32	121
23:00	12	10	6	5	33
				TOTAL	7621

AM PEAK HOUR	0730-0830
VOLUME	1043
PM PEAK HOUR	1645-1745
VOLUME	595

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	10	3	0	4	17
1:00	2	3	4	2	11
2:00	3	4	2	1	10
3:00	2	3	4	3	12
4:00	2	1	2	2	7
5:00	3	10	23	21	57
6:00	22	32	32	44	130
7:00	46	76	78	122	322
8:00	124	122	123	122	491
9:00	102	122	76	76	376
10:00	75	56	76	79	286
11:00	65	64	43	42	214
12:00	44	45	56	55	200
13:00	58	90	100	102	350
14:00	100	122	100	104	426
15:00	122	144	153	155	574
16:00	167	155	144	132	598
17:00	122	121	175	190	608
18:00	202	195	165	144	706
19:00	123	122	132	54	431
20:00	53	43	42	45	183
21:00	46	32	31	33	142
22:00	32	30	21	21	104
23:00	22	23	10	12	67
				TOTAL	6322

AM PEAK HOUR	0745-0845
VOLUME	491
PM PEAK HOUR	1730-1830
VOLUME	762

TOTAL BI-DIRECTIONAL VOLUME	13943

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: JEFFERSON BOULEVARD EAST OF CENTINELA AVENUE
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	56	40	28	19	143
1:00	23	23	19	22	87
2:00	18	12	21	13	64
3:00	9	10	16	8	43
4:00	15	12	16	19	62
5:00	28	18	42	62	150
6:00	67	63	114	138	382
7:00	178	229	235	338	980
8:00	341	336	336	311	1324
9:00	260	254	222	237	973
10:00	230	240	240	282	992
11:00	230	253	278	256	1017
12:00	272	290	320	325	1207
13:00	304	334	300	283	1221
14:00	298	296	370	354	1318
15:00	414	366	382	359	1521
16:00	378	394	409	400	1581
17:00	402	440	438	430	1710
18:00	430	411	345	344	1530
19:00	332	330	246	222	1130
20:00	222	223	180	173	798
21:00	172	142	140	166	620
22:00	156	148	101	91	496
23:00	106	70	65	66	307
				TOTAL	19656

AM PEAK HOUR	0745-0845
VOLUME	1351
PM PEAK HOUR	1715-1815
VOLUME	1738

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	42	28	30	28	128
1:00	18	18	18	23	77
2:00	22	21	18	14	75
3:00	22	12	14	29	77
4:00	10	10	21	43	84
5:00	48	58	106	164	376
6:00	184	174	220	280	858
7:00	302	307	349	391	1349
8:00	406	358	381	428	1573
9:00	428	342	300	310	1380
10:00	282	252	264	270	1068
11:00	282	260	256	254	1052
12:00	316	284	308	312	1220
13:00	318	328	318	268	1232
14:00	326	254	292	284	1156
15:00	281	317	308	286	1192
16:00	312	316	292	271	1191
17:00	326	332	318	318	1294
18:00	284	302	330	292	1208
19:00	292	252	212	220	976
20:00	202	190	146	146	684
21:00	140	143	166	140	589
22:00	149	100	104	86	439
23:00	84	56	62	38	240
				TOTAL	19518

AM PEAK HOUR	0815-0915
VOLUME	1595
PM PEAK HOUR	1700-1800
VOLUME	1294

TOTAL BI-DIRECTIONAL VOLUME	39174

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: JEFFERSON BOULEVARD EAST OF GROSVENOR BOULEVARD
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	61	40	23	23	147
1:00	19	25	19	17	80
2:00	15	16	19	12	62
3:00	4	18	12	16	50
4:00	14	13	13	21	61
5:00	28	28	52	64	172
6:00	72	85	151	167	475
7:00	219	292	302	340	1153
8:00	390	347	370	320	1427
9:00	270	246	266	213	995
10:00	247	252	244	258	1001
11:00	254	244	300	249	1047
12:00	288	310	330	290	1218
13:00	322	268	286	272	1148
14:00	328	282	322	322	1254
15:00	318	280	310	290	1198
16:00	350	332	350	289	1321
17:00	424	408	350	376	1558
18:00	400	364	296	270	1330
19:00	300	252	225	208	985
20:00	222	228	172	150	772
21:00	183	143	164	156	646
22:00	168	125	103	86	482
23:00	96	70	58	48	272
				TOTAL	18854

AM PEAK HOUR	0745-0845
VOLUME	1447
PM PEAK HOUR	1700-1800
VOLUME	1558

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	46	34	38	34	152
1:00	19	19	24	36	98
2:00	31	28	18	20	97
3:00	14	20	19	37	90
4:00	18	16	22	51	107
5:00	45	65	102	210	422
6:00	140	157	196	234	727
7:00	258	248	292	396	1194
8:00	412	370	453	499	1734
9:00	528	406	352	373	1659
10:00	312	288	307	302	1209
11:00	282	274	279	282	1117
12:00	310	316	324	335	1285
13:00	358	358	350	333	1399
14:00	314	284	308	315	1221
15:00	302	305	332	322	1261
16:00	330	300	283	303	1216
17:00	320	328	325	356	1329
18:00	323	340	362	340	1365
19:00	362	325	255	283	1225
20:00	250	245	187	168	850
21:00	184	188	202	160	734
22:00	172	125	112	96	505
23:00	100	78	64	53	295
				TOTAL	21291

AM PEAK HOUR	0830-0930
VOLUME	1886
PM PEAK HOUR	1815-1915
VOLUME	1404

TOTAL BI-DIRECTIONAL VOLUME	40145

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: JEFFERSON BOULEVARD EAST OF LINCOLN BOULEVARD
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	32	37	31	31	131
1:00	22	19	22	18	81
2:00	18	12	4	5	39
3:00	5	12	10	18	45
4:00	10	10	5	14	39
5:00	15	21	40	68	144
6:00	47	92	106	144	389
7:00	138	216	255	311	920
8:00	322	288	322	344	1276
9:00	330	255	254	262	1101
10:00	238	240	197	233	908
11:00	196	195	222	237	850
12:00	250	262	268	272	1052
13:00	280	266	228	245	1019
14:00	236	260	246	284	1026
15:00	268	260	222	246	996
16:00	263	249	256	249	1017
17:00	262	260	284	250	1056
18:00	259	238	222	196	915
19:00	223	228	190	208	849
20:00	186	168	158	144	656
21:00	146	146	148	147	587
22:00	122	122	75	80	399
23:00	59	56	42	38	195
				TOTAL	15690

AM PEAK HOUR	0815-0915
VOLUME	1284
PM PEAK HOUR	1230-1330
VOLUME	1086

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	37	31	31	20	119
1:00	16	15	13	18	62
2:00	11	12	18	17	58
3:00	20	23	17	9	69
4:00	15	14	12	13	54
5:00	20	19	44	44	127
6:00	70	84	105	124	383
7:00	130	168	224	300	822
8:00	280	253	294	276	1103
9:00	187	206	238	220	851
10:00	166	222	222	238	848
11:00	222	281	265	288	1056
12:00	337	332	306	300	1275
13:00	304	333	284	252	1173
14:00	290	232	308	260	1090
15:00	278	248	285	274	1085
16:00	322	302	306	290	1220
17:00	340	376	338	341	1395
18:00	358	342	358	340	1398
19:00	304	266	222	224	1016
20:00	172	188	143	150	653
21:00	170	130	149	122	571
22:00	132	100	94	74	400
23:00	64	64	39	52	219
				TOTAL	17047

AM PEAK HOUR	0745-0845
VOLUME	1127
PM PEAK HOUR	1715-1815
VOLUME	1413

TOTAL BI-DIRECTIONAL VOLUME	32737

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: LINCOLN BOULEVARD SOUTH OF JEFFERSON BOULEVARD
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	58	57	48	31	194
1:00	32	32	22	25	111
2:00	21	20	18	10	69
3:00	10	14	9	14	47
4:00	22	14	25	28	89
5:00	42	66	98	108	314
6:00	156	203	340	458	1157
7:00	550	703	720	700	2673
8:00	622	638	608	572	2440
9:00	472	450	456	369	1747
10:00	374	388	344	374	1480
11:00	331	354	365	360	1410
12:00	404	434	368	390	1596
13:00	409	362	350	358	1479
14:00	311	333	364	386	1394
15:00	397	406	405	419	1627
16:00	440	490	441	489	1860
17:00	448	561	535	488	2032
18:00	458	414	447	388	1707
19:00	440	396	282	336	1454
20:00	312	323	284	254	1173
21:00	288	242	282	272	1084
22:00	305	204	156	140	805
23:00	120	126	105	75	426
				TOTAL	28368

AM PEAK HOUR	0715-0815
VOLUME	2745
PM PEAK HOUR	1715-1815
VOLUME	2042

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	46	40	35	30	151
1:00	32	21	14	29	96
2:00	28	23	22	20	93
3:00	6	10	21	16	53
4:00	20	24	30	42	116
5:00	57	60	90	96	303
6:00	118	155	189	220	682
7:00	222	268	370	472	1332
8:00	368	392	382	392	1534
9:00	368	345	289	288	1290
10:00	258	271	276	284	1089
11:00	250	304	308	300	1162
12:00	348	331	354	322	1355
13:00	368	416	352	364	1500
14:00	371	334	402	3559	4666
15:00	437	426	430	466	1759
16:00	500	464	484	500	1948
17:00	515	553	497	536	2101
18:00	538	550	452	497	2037
19:00	458	430	403	379	1670
20:00	329	272	272	270	1143
21:00	248	222	245	230	945
22:00	186	202	179	128	695
23:00	115	105	96	82	398
				TOTAL	28118

AM PEAK HOUR	0745-0845
VOLUME	1614
PM PEAK HOUR	1445-1545
VOLUME	4852

TOTAL BI-DIRECTIONAL VOLUME	56486

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: LINCOLN BOULEVARD NORTH OF 83RD STREET
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	52	62	52	37	203
1:00	34	36	28	31	129
2:00	22	20	21	10	73
3:00	13	8	13	21	55
4:00	22	14	28	46	110
5:00	38	70	104	123	335
6:00	153	220	346	468	1187
7:00	549	700	742	747	2738
8:00	707	648	600	618	2573
9:00	524	488	482	399	1893
10:00	394	404	380	382	1560
11:00	328	362	350	375	1415
12:00	390	400	362	390	1542
13:00	404	387	371	360	1522
14:00	308	364	364	390	1426
15:00	363	399	388	472	1622
16:00	428	462	441	460	1791
17:00	442	520	486	473	1921
18:00	440	420	424	388	1672
19:00	430	354	267	332	1383
20:00	298	292	270	252	1112
21:00	274	220	230	252	976
22:00	266	196	156	138	756
23:00	128	132	108	78	446
				TOTAL	28440

AM PEAK HOUR	0715-0815
VOLUME	2896
PM PEAK HOUR	1700-1800
VOLUME	1921

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	64	44	48	46	202
1:00	31	28	24	30	113
2:00	30	23	16	22	91
3:00	12	12	18	14	56
4:00	19	22	30	34	105
5:00	44	61	88	94	287
6:00	110	114	180	217	621
7:00	188	235	301	400	1124
8:00	363	352	336	330	1381
9:00	300	293	286	264	1143
10:00	260	218	244	268	990
11:00	228	280	298	290	1096
12:00	323	354	330	308	1315
13:00	298	369	298	332	1297
14:00	338	350	365	378	1431
15:00	398	438	408	440	1684
16:00	487	486	470	508	1951
17:00	522	565	539	552	2178
18:00	531	512	500	433	1976
19:00	423	448	374	414	1659
20:00	337	248	286	254	1125
21:00	266	216	280	235	997
22:00	199	183	186	156	724
23:00	123	119	102	110	454
				TOTAL	24000

AM PEAK HOUR	0745-0845
VOLUME	1451
PM PEAK HOUR	1715-1815
VOLUME	2187

TOTAL BI-DIRECTIONAL VOLUME	52440

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: 83RD STREET EAST OF RAYFORD DRIVE
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	4	1	5	0	10
1:00	1	3	1	0	5
2:00	1	0	0	0	1
3:00	1	0	1	1	3
4:00	0	2	3	1	6
5:00	4	8	3	14	29
6:00	13	29	32	56	130
7:00	80	80	108	146	414
8:00	114	126	116	89	445
9:00	79	78	66	60	283
10:00	65	50	44	50	209
11:00	38	35	38	44	155
12:00	52	52	44	53	201
13:00	61	44	48	38	191
14:00	33	43	46	66	188
15:00	108	61	49	59	277
16:00	50	43	52	47	192
17:00	42	55	70	34	201
18:00	56	50	36	38	180
19:00	24	28	28	12	92
20:00	25	24	22	22	93
21:00	12	10	9	12	43
22:00	10	12	10	13	45
23:00	10	4	7	4	25
				TOTAL	3418

AM PEAK HOUR	0745-0845
VOLUME	502
PM PEAK HOUR	1445-1545
VOLUME	284

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	11	5	4	7	27
1:00	3	3	1	4	11
2:00	4	2	2	2	10
3:00	0	0	2	0	2
4:00	1	1	0	0	2
5:00	3	0	1	1	5
6:00	4	13	11	16	44
7:00	15	28	71	104	218
8:00	48	50	32	23	153
9:00	31	30	23	38	122
10:00	23	28	30	30	111
11:00	43	37	28	28	136
12:00	42	52	44	44	182
13:00	40	41	41	43	165
14:00	47	42	52	64	205
15:00	60	64	50	55	229
16:00	60	66	65	60	251
17:00	74	78	67	84	303
18:00	61	63	70	56	250
19:00	51	81	51	53	236
20:00	46	38	36	36	156
21:00	36	28	36	30	130
22:00	39	25	24	10	98
23:00	11	8	16	14	49
				TOTAL	3095

AM PEAK HOUR	0730-0830
VOLUME	273
PM PEAK HOUR	1700-1800
VOLUME	303

TOTAL BI-DIRECTIONAL VOLUME	6513

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD OLYMPIC LINE
LOCATION: MANCHESTER AVENUE BETWEEN
HASTINGS AVENUE AND PARK HILL DRIVE
DATE: TUESDAY JUNE 2, 2009

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	18	13	12	12	55
1:00	6	15	9	1	31
2:00	5	6	4	3	18
3:00	2	8	2	3	15
4:00	2	6	4	5	17
5:00	11	13	12	22	58
6:00	40	40	38	47	165
7:00	74	85	123	154	436
8:00	138	152	128	122	540
9:00	75	102	82	94	353
10:00	84	84	76	80	324
11:00	74	64	97	84	319
12:00	106	86	76	92	360
13:00	106	122	100	132	460
14:00	109	84	100	112	405
15:00	86	100	100	100	386
16:00	82	82	86	90	340
17:00	100	90	92	100	382
18:00	106	100	94	100	400
19:00	100	94	74	85	353
20:00	70	72	50	48	240
21:00	65	64	44	44	217
22:00	40	44	39	28	151
23:00	23	31	29	23	106
				TOTAL	6131

AM PEAK HOUR	0745-0845
VOLUME	572
PM PEAK HOUR	1315-1415
VOLUME	463

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	12	23	12	12	59
1:00	12	10	12	2	36
2:00	4	10	2	8	24
3:00	3	3	7	4	17
4:00	3	6	0	2	11
5:00	6	12	12	11	41
6:00	23	30	22	30	105
7:00	50	64	122	168	404
8:00	146	82	78	62	368
9:00	74	63	70	72	279
10:00	64	82	84	77	307
11:00	52	75	80	88	295
12:00	100	90	83	78	351
13:00	108	120	135	132	495
14:00	122	84	76	103	385
15:00	87	104	88	100	379
16:00	97	100	102	100	399
17:00	102	100	112	142	456
18:00	130	132	112	106	480
19:00	112	100	106	100	418
20:00	86	78	74	74	312
21:00	80	64	72	63	279
22:00	50	52	44	25	171
23:00	32	33	33	18	116
				TOTAL	6187

AM PEAK HOUR	0730-0830
VOLUME	518
PM PEAK HOUR	1730-1830
VOLUME	516

TOTAL BI-DIRECTIONAL VOLUME	12318

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: MANCHESTER AVENUE EAST OF PERSHING DRIVE
DATE: THURSDAY MARCH 5, 2009

DIRECTION:	EB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	19	22	15	6	62
1:00	12	9	19	9	49
2:00	6	7	4	1	18
3:00	1	2	2	3	8
4:00	3	1	1	2	7
5:00	5	5	8	12	30
6:00	20	28	28	28	104
7:00	42	34	68	100	244
8:00	90	72	62	76	300
9:00	66	66	71	57	260
10:00	70	64	68	62	264
11:00	58	56	59	72	245
12:00	66	67	78	82	293
13:00	81	98	86	77	342
14:00	86	69	104	104	363
15:00	90	82	87	85	344
16:00	112	102	118	122	454
17:00	146	146	151	168	611
18:00	156	153	123	132	564
19:00	112	100	122	100	434
20:00	112	100	109	92	413
21:00	74	86	76	71	307
22:00	48	65	50	40	203
23:00	44	46	33	28	151
				TOTAL	6070

AM PEAK HOUR	0730-0830
VOLUME	330
PM PEAK HOUR	1730-1830
VOLUME	628

DIRECTION:	WB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	9	19	9	8	45
1:00	7	7	4	3	21
2:00	1	3	3	6	13
3:00	0	1	1	4	6
4:00	2	2	6	7	17
5:00	15	18	23	31	87
6:00	33	48	66	72	219
7:00	118	108	122	123	471
8:00	128	150	153	120	551
9:00	121	114	108	96	439
10:00	108	83	79	96	366
11:00	76	77	96	93	342
12:00	90	84	92	100	366
13:00	82	98	89	93	362
14:00	72	70	97	100	339
15:00	100	88	63	95	346
16:00	72	90	86	84	332
17:00	92	82	106	85	365
18:00	114	86	87	90	377
19:00	82	78	76	63	299
20:00	57	53	42	47	199
21:00	46	45	36	30	157
22:00	40	31	30	26	127
23:00	21	15	16	11	63
				TOTAL	5909

AM PEAK HOUR	0745-0845
VOLUME	554
PM PEAK HOUR	1730-1830
VOLUME	391

TOTAL BI-DIRECTIONAL VOLUME	11979

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: VISTA DEL MAR NORTH OF SANDPIPER STREET
DATE: THURSDAY MARCH 12, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	6	8	12	12	38
1:00	2	6	6	3	17
2:00	5	5	5	3	18
3:00	1	1	2	2	6
4:00	1	5	9	12	27
5:00	10	13	31	32	86
6:00	60	112	136	183	491
7:00	240	339	270	318	1167
8:00	300	346	342	262	1250
9:00	260	208	183	153	804
10:00	138	130	128	110	506
11:00	122	122	139	122	505
12:00	108	114	111	80	413
13:00	102	124	104	105	435
14:00	104	111	114	109	438
15:00	102	122	134	128	486
16:00	133	120	122	148	523
17:00	154	150	145	144	593
18:00	146	172	128	128	574
19:00	121	87	86	70	364
20:00	64	61	53	46	224
21:00	41	47	34	28	150
22:00	40	33	28	24	125
23:00	28	28	15	10	81
				TOTAL	9321
AM PEAK HOUR		0745-0845			
VOLUME		1306			
PM PEAK HOUR		1730-1830			
VOLUME		607			

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	14	9	12	10	45
1:00	8	7	8	4	27
2:00	1	4	1	2	8
3:00	4	2	0	3	9
4:00	3	1	2	4	10
5:00	8	22	18	22	70
6:00	23	49	28	40	140
7:00	56	74	85	102	317
8:00	94	96	96	104	390
9:00	73	68	54	82	277
10:00	52	59	80	88	279
11:00	72	70	74	83	299
12:00	73	96	94	105	368
13:00	92	96	82	90	360
14:00	89	116	104	134	443
15:00	111	146	144	172	573
16:00	156	190	238	225	809
17:00	207	253	244	307	1011
18:00	278	257	267	248	1050
19:00	222	159	140	102	623
20:00	100	94	72	60	326
21:00	62	42	58	60	222
22:00	48	35	43	32	158
23:00	26	20	18	15	79
				TOTAL	7893
AM PEAK HOUR			0800-0900		
VOLUME			390		
PM PEAK HOUR			1745-1845		
VOLUME			1109		

TOTAL BI-DIRECTIONAL VOLUME	17214

WILTEC

Phone: (626) 564-1944 Fax: (626) 564-0969

24-HOUR ADT COUNT SUMMARY

CLIENT: FEHR & PEERS
PROJECT: SCATTERGOOD TRAFFIC COUNTS
LOCATION: VISTA DEL MAR NORTH OF IMPERIAL HIGHWAY
DATE: THURSDAY MARCH 12, 2009

DIRECTION:	NB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	15	20	13	10	58
1:00	9	9	8	4	30
2:00	6	5	1	2	14
3:00	7	2	2	2	13
4:00	5	9	10	12	36
5:00	25	50	56	68	199
6:00	102	150	186	218	656
7:00	322	384	320	365	1391
8:00	396	494	454	364	1708
9:00	341	270	239	181	1031
10:00	200	194	180	168	742
11:00	158	156	203	150	667
12:00	132	154	131	132	549
13:00	138	164	150	154	606
14:00	125	152	174	204	655
15:00	156	185	179	222	742
16:00	176	212	178	167	733
17:00	182	156	194	156	688
18:00	156	119	102	111	488
19:00	119	102	111	100	432
20:00	72	100	73	54	299
21:00	54	70	59	46	229
22:00	55	47	36	39	177
23:00	38	32	19	23	112
				TOTAL	12255

AM PEAK HOUR	0745-0845
VOLUME	1709
PM PEAK HOUR	1530-1630
VOLUME	789

DIRECTION:	SB				
TIME	00-15	15-30	30-45	45-60	HOUR TOTALS
0:00	22	14	15	14	65
1:00	16	8	10	7	41
2:00	2	2	4	2	10
3:00	3	1	1	5	10
4:00	3	1	4	11	19
5:00	17	38	45	67	167
6:00	48	70	62	64	244
7:00	75	83	90	106	354
8:00	96	88	63	109	356
9:00	81	76	86	87	330
10:00	64	68	92	89	313
11:00	76	78	97	97	348
12:00	77	99	91	97	364
13:00	94	89	90	100	373
14:00	98	114	100	132	444
15:00	114	122	148	177	561
16:00	172	192	203	233	800
17:00	224	274	300	280	1078
18:00	304	274	282	256	1116
19:00	224	196	160	140	720
20:00	123	121	89	108	441
21:00	80	76	90	99	345
22:00	82	58	67	68	275
23:00	46	31	33	36	146
				TOTAL	8920

AM PEAK HOUR	0730-0830
VOLUME	380
PM PEAK HOUR	1715-1815
VOLUME	1158

TOTAL BI-DIRECTIONAL VOLUME	21175

ATTACHMENT B

- LEVEL OF SERVICE DEFINITIONS FOR ARTERIAL STREET SEGMENTS
- EXISTING SURFACE STREET CHARACTERISTICS
- EXISTING STUDY ROADWAY SEGMENT PEAK HOUR VOLUMES AND LEVELS OF SERVICE
- FUTURE NO BUILD ROADWAY SEGMENT PEAK HOUR VOLUMES AND LEVELS OF SERVICE
- FUTURE WITH PROJECT ROADWAY SEGMENT PEAK HOUR VOLUMES AND LEVELS OF SERVICE

TABLE A: LEVEL OF SERVICE DEFINITIONS FOR ARTERIAL STREET SEGMENTS

Level of Service	Volume/Capacity Ratio	Definition
A	0.00 - 0.600	EXCELLENT. Primarily free-flow conditions at about 90 percent of free-flow speed. Vehicles are completely free to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
B	0.601 - 0.700	VERY GOOD. Reasonably unimpeded flow at about 70 percent of free-flow speed. Ability to maneuver is only slightly restricted and delay at intersections is not bothersome.
C	0.701 - 0.800	GOOD. Stable operations at about 50 percent of free-flow speed. Ability to maneuver and change lanes may be restricted at mid-block locations. Motorists will begin to experience tension while driving.
D	0.801 - 0.900	FAIR. Small increases in flow begin to cause substantial increases in intersection approach delay. Ability to maneuver becomes more diffi-cult, with speeds about 40 percent of free-flow speed.
E	0.901 - 1.000	POOR. Characterized by significant delays at inter-sec-tion approaches and travel speeds about one-third of free-flow speed. Ability to maneuver is severely restricted and driver tension is high.
F	>1.000	FAILURE. Extremely low travel speeds and un-sta-ble traffic flow. Characterized by long delays at intersection approaches, severe difficulty in ma-neuvering between lanes, and extremely high driver tension.

Source: Adapted from *Highway Capacity Manual,* Transportation Research Board, 2000.

TABLE B
EXISTING SURFACE STREET CHARACTERISTICS

Segment	From	To	Functional Classification	Lane NB/EB	Lane SB/WB	Median Type	Parking Restrictions NB/EB	Parking Restrictions SB/WB	Speed Limit
Olympic Blvd	Centinela Ave	Bundy Dr	Major Hwy Class II	3	3	2LT	MP 2hr 8am - 6pm	MP 30min or 2hr 8am-6pm	
Bundy Dr	Olympic Blvd	Pico Blvd	Secondary	2	2	DY	PA	PA	35
	Pico	10-E On/Ramp	Secondary	2	2	DY	NSAT	NSAT	35
	10-E On/Ramp	Pearl	Major Hwy Class II	2	2	2LT	PA	PA	35
	Pearl	Ocean Park	Major Hwy Class II	2	2	2LT	PA	PA	35
Ocean Park Ave	Bundy Dr	Armacost Ave	Major Hwy Class II	2	2	DY	NSAT	PA	25
Armacost Ave	Ocean Park	National Blvd	Local	1	1	UD	PA	PA	25
National Blvd	Armacost/Dahlgren Ave	Grand View Blvd	Secondary	2	2	DY	PA	PA	25
Inglewood Blvd	National Blvd	Rose Ave	Collector	1	1	SDY	PA	PA	30
	Rose Ave	Lawler St	Collector	1	1	DY	PA	PA	25
	Lawler St	Palms Ave	Collector	1	1	SDY	PA	PA	25
	Palms Ave	Charnock Rd	Collector	1	1	SDY/DY	PA	PA	25
	Charnock Rd	Venice Blvd	Collector	1	1	DY	SC 8AM-10AM Mon	SC 8AM-10AM Tuesdays	25
	Venice Blvd	Pacific Ave	Secondary	1	1	DY	NP 8am - 6pm	NP 8am-6pm	30
	Pacific Ave	Washington Pl	Secondary	1	1	SDY	SC 8AM-10AM Thurs	SC 8AM-10AM Wednesdays	30
	Washington Pl	Sylvester Ave	Collector	1	1	SDY	SC 8AM-10AM Thurs	SC 8AM-10AM Wednesdays	30
	Sylvester Ave	Washington Blvd	Collector	1	1	UD	SC 8AM-10AM Thurs	NSAT	30
	Washington Blvd	Culver Blvd	Secondary	2	2	DY	SC 10am-12pm Thurs/PA 1hr 8am-6pm	SC 10am-12pm Wed/PA 1hr 8am-6pm	25
	Culver Blvd	Lindblade St	Secondary	2	2	DY	SC 10am-12pm Wed	SC 10am-12pm Thurs	25
	Lindblade St	Braddock Dr	Secondary	2	2	DY	SC 10am-12pm Wed	NSAT 7am-5pm School Days	25
	Braddock Dr	Jefferson Blvd	Secondary	2	2	DY	SC 10am-12pm Thurs	10am-12pm Wed SS	35
Jefferson Blvd	Inglewood Ave	Centinela Ave	Major Hwy Class II	3	3	2LT	NSAT	SC 10am-12pm Thurs/PA 15min 8am-6pm	40
	Centinela Ave	Grossner Ave	Major Hwy Class II	3	3	RM	NSAT	TANSAT 3pm-6pm	40
	Grossner Ave	Lincoln Ave	Major Hwy Class II	3	3	RM	PA	TANSAT	40
Lincoln Blvd	Jefferson Blvd	Bluff Trail Rd	Major Hwy Class I	4	4	RM	NSAT	NSAT	45
	Bluff Trail Rd	83rd St	Major Hwy Class I	3	3	RM	TANSAT	TANSAT	45
83rd St	Lincoln Blvd	Colegio Dr	Collector	1	1	DY	PA	NSAT	30
	Colegio Dr	Rayford Dr	Collector	1	1	DY	PA	PS	25
Rayford Dr	83rd St	Manchester Ave	Local	1	1	SDY	PA	PA	25
Manchester Ave	Rayford Dr	Park Hill Dr	Major Hwy Class II	2	2	RM	PA	PA	25
	Park Hill Dr	Hastings Ave	Major Hwy Class II	2	2	RM	NSAT 7am - 5pm School Days	PA	25
	Hastings Ave	Delgany Ave	Major Hwy Class II	2	2	RM	PA	PA	25
	Delgany Ave	Pershing Dr	Major Hwy Class II	2	2	RM	SC 12pm-2:30pm Wed	SC 12pm-2:30pm Thurs	25
	Pershing Dr	Earldom Ave	Major Hwy Class II	1	1	2LT	PA	PA	25
	Earldom Ave	Vista del Mar Ln	Major Hwy Class II	1	1	UD	PA	PA	25
Vista del Mar Ln	Manchester Ave	Vista del Mar	Collector	1	1	SDY	PA	PA	25
Vista del Mar	Vista del Mar Ln/Waterview St	Napoleon St	Major Hwy Class II	2	2	DY	NP 10pm-6am/NSAT	NP 10pm-6am/NSAT	35
	Napoleon St	Grand Ave	Major Hwy Class II	2	2	DY	NP 10pm-6am/NSAT	NP 10pm-6am/NSAT	40
Grand Ave	Vista del Mar	Scattergood driveway	Local	1	1	DY	NSAT	NSAT	25

PARKING: PA = Parking Allowed
NSAT = No Stopping Any Time
TANSAT = Tow Away No Stopping Any Time
MP = Metered Parking
SZ = School Zone
PE = Permit Exempt
SC = Street Cleaning
NP = No Parking

MEDIAN/CENTERLINE: DY = Double Yellow
SDY = Single Dashed Yellow
2LT = Dual Left Turn
UD = Undivided Lane
RM = Raise Median

TABLE C
EXISTING STUDY ROADWAY SEGMENT PEAK HOUR VOLUMES AND LEVELS OF SERVICE

Segment #	Location	From	To	EXISTING (2008) PEAK HOUR TRAFFIC VOLUMES				EXISTING ROADWAY CAPACITY					EXISTING ROADWAY PEAK HOUR LEVEL OF SERVICE							
													NB/EB				SB/WB			
				NB/EB		SB/WB			NB/EB		SB/WB		AM		PM		AM		PM	
				AM	PM	AM	PM	Roadway Classification	No. of Lanes	Capacity	No. of Lanes	Capacity	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1	Olympic Blvd	Centinela Ave	Bundy Dr	1,175	1,589	1,535	1,310	Major Hwy Class II	3	2,400	3	2,400	0.49	A	0.66	B	0.64	B	0.55	A
2	Bundy Dr	Olympic Blvd	Pico Blvd	1,751	1,512	1,136	1,353	Secondary	2	1,500	2	1,500	1.17	F	1.01	F	0.76	C	0.90	E
3	Bundy Dr	Pico Blvd	Ocean Park Blvd	1,537	1,255	1,071	1,660	Major Hwy Class II	2	1,600	2	1,600	0.96	E	0.78	C	0.67	B	1.04	F
4	Ocean Park Blvd	Bundy Dr	Armacost Ave	712	851	640	532	Major Hwy Class II	2	1,600	2	1,600	0.45	A	0.53	A	0.40	A	0.33	A
5	Armacost Ave	Ocean Park Blvd	National Blvd	147	34	44	82	Local	1	600	1	600	0.25	A	0.06	A	0.07	A	0.14	A
6	National Blvd	Armacost Ave	Inglewood Blvd	847	637	541	614	Secondary	2	1,500	2	1,500	0.56	A	0.42	A	0.36	A	0.41	A
7	Inglewood Blvd	National Blvd	Rose Ave	95	288	602	185	Collector	1	650	1	650	0.15	A	0.44	A	0.93	E	0.28	A
8	Inglewood Blvd	Rose Ave	Palms Blvd	466	137	84	294	Collector	1	650	1	650	0.72	C	0.21	A	0.13	A	0.45	A
9	Inglewood Blvd	Palms Blvd	Venice Blvd	545	235	187	299	Collector	1	650	1	650	0.84	D	0.36	A	0.29	A	0.46	A
10	Inglewood Blvd	Venice Blvd	Washington Pl	679	364	314	525	Secondary	1	750	1	750	0.91	E	0.49	A	0.42	A	0.70	B
11	Inglewood Blvd	Washington Pl	Washington Blvd	573	410	436	582	Collector	1	650	1	650	0.88	D	0.63	B	0.67	B	0.90	D
12	Inglewood Blvd	Washington Blvd	Culver Blvd	1,108	715	654	1,003	Secondary	2	1,500	2	1,500	0.74	C	0.48	A	0.44	A	0.67	B
13	Inglewood Blvd	Culver Blvd	Culver Dr	943	556	470	720	Secondary	2	1,500	2	1,500	0.63	B	0.37	A	0.31	A	0.48	A
14	Inglewood Blvd	Culver Dr	Jefferson Blvd	950	568	491	598	Secondary	2	1,500	2	1,500	0.63	B	0.38	A	0.33	A	0.40	A
15	Jefferson Blvd	Inglewood Blvd	Centinela Ave	1,324	1,581	1,573	1,191	Major Hwy Class II	3	2,400	3	2,400	0.55	A	0.66	B	0.66	B	0.50	A
16	Jefferson Blvd	Centinela Ave	McConnell Ave	1,427	1,321	1,734	1,216	Major Hwy Class II	3	2,400	3	2,400	0.59	A	0.55	A	0.72	C	0.51	A
17	Jefferson Blvd	McConnell Ave	Lincoln Blvd	1,276	1,017	1,103	1,220	Major Hwy Class II	3	2,400	3	2,400	0.53	A	0.42	A	0.46	A	0.51	A
18	Lincoln Blvd	Jefferson Blvd	Bluff Trail Dr	2,440	1,860	1,234	1,948	Major Hwy Class I	4	4,000	4	4,000	0.61	B	0.47	A	0.31	A	0.49	A
19	Lincoln Blvd	Bluff Trail Dr	83rd St	2,573	1,791	1,381	1,951	Major Hwy Class I	3	3,000	3	3,000	0.86	D	0.60	A	0.46	A	0.65	B
20	83rd St	Lincoln Blvd	Rayford Dr	445	192	153	251	Collector	1	650	1	650	0.68	B	0.30	A	0.24	A	0.39	A
21	Manchester Ave	Rayford Dr	Delgany Ave	540	340	368	399	Major Hwy Class II	2	1,600	2	1,600	0.34	A	0.21	A	0.23	A	0.25	A
22	Manchester Ave	Delgany Ave	Pershing Dr	300	454	551	332	Major Hwy Class II	2	1,600	2	1,600	0.19	A	0.28	A	0.34	A	0.21	A
23	Vista del Mar	Waterview St	Sandpiper St	1,250	523	390	809	Major Hwy Class II	2	1,600	2	1,600	0.78	C	0.33	A	0.24	A	0.51	A
24	Vista del Mar	Imperial Hwy	Grand Ave	1,708	733	356	800	Major Hwy Class II	2	1,600	2	1,600	1.07	F	0.46	A	0.22	A	0.50	A

Notes:
AM Peak Hour is assumed to be 8:00AM - 9:00AM
PM Peak Hour is assumed to be 4:00PM - 5:00PM

HWY I = Major Highway - Class I
HWY II = Major Highway - Class II
S = Secondary Highway
C = Collector Street
L = Local Street

TABLE D
FUTURE NO BUILD ROADWAY SEGMENT PEAK HOUR VOLUMES AND LEVELS OF SERVICE

				FUTURE NO BUILD (2012) PEAK HOUR TRAFFIC VOLUMES				FUTURE (2012) ROADWAY CAPACITY					FUTURE NO BUILD (2012) ROADWAY PEAK HOUR LEVEL OF SERVICE							
													NB/EB				SB/WB			
				NB/EB		SB/WB			NB/EB		SB/WB		AM		PM		AM		PM	
Segment #	Location	From	To	AM	PM	AM	PM	Roadway Classification	No. of Lanes	Capacity	No. of Lanes	Capacity	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS
1	Olympic Blvd	Centinela Ave	Bundy Dr	1,319	1,780	1,616	1,417	Major Hwy Class II	3	2,400	3	2,400	0.55	A	0.74	C	0.67	B	0.59	A
2	Bundy Dr	Olympic Blvd	Pico Blvd	1,810	1,572	1,194	1,493	Secondary	2	1,500	2	1,500	1.21	F	1.05	F	0.80	C	1.00	E
3	Bundy Dr	Pico Blvd	Ocean Park Blvd	1,593	1,309	1,129	1,746	Major Hwy Class II	2	1,600	2	1,600	1.00	E	0.82	D	0.71	C	1.09	F
4	Ocean Park Blvd	Bundy Dr	Armacost Ave	735	878	659	550	Major Hwy Class II	2	1,600	2	1,600	0.46	A	0.55	A	0.41	A	0.34	A
5	Armacost Ave	Ocean Park Blvd	National Blvd	151	35	45	84	Local	1	600	1	600	0.25	A	0.06	A	0.08	A	0.14	A
6	National Blvd	Armacost Ave	Inglewood Blvd	872	656	557	632	Secondary	2	1,500	2	1,500	0.58	A	0.44	A	0.37	A	0.42	A
7	Inglewood Blvd	National Blvd	Rose Ave	98	297	620	191	Collector	1	650	1	650	0.15	A	0.46	A	0.95	E	0.29	A
8	Inglewood Blvd	Rose Ave	Palms Blvd	480	141	87	303	Collector	1	650	1	650	0.74	C	0.22	A	0.13	A	0.47	A
9	Inglewood Blvd	Palms Blvd	Venice Blvd	561	242	193	308	Collector	1	650	1	650	0.86	D	0.37	A	0.30	A	0.47	A
10	Inglewood Blvd	Venice Blvd	Washington Pl	699	375	323	541	Secondary	1	750	1	750	0.93	E	0.50	A	0.43	A	0.72	C
11	Inglewood Blvd	Washington Pl	Washington Blvd	590	422	449	599	Collector	1	650	1	650	0.91	E	0.65	B	0.69	B	0.92	E
12	Inglewood Blvd	Washington Blvd	Culver Blvd	1,141	736	674	1,033	Secondary	2	1,500	2	1,500	0.76	C	0.49	A	0.45	A	0.69	B
13	Inglewood Blvd	Culver Blvd	Culver Dr	971	573	484	742	Secondary	2	1,500	2	1,500	0.65	B	0.38	A	0.32	A	0.49	A
14	Inglewood Blvd	Culver Dr	Jefferson Blvd	979	585	506	616	Secondary	2	1,500	2	1,500	0.65	B	0.39	A	0.34	A	0.41	A
15	Jefferson Blvd	Inglewood Blvd	Centinela Ave	1,945	2,451	2,201	2,050	Major Hwy Class II	3	2,400	3	2,400	0.81	D	1.02	F	0.92	E	0.85	D
16	Jefferson Blvd	Centinela Ave	McConnell Ave	2,527	2,857	2,355	2,058	Major Hwy Class II	3	2,400	3	2,400	1.05	F	1.19	F	0.98	E	0.86	D
17	Jefferson Blvd	McConnell Ave	Lincoln Blvd	2,371	2,544	1,705	2,062	Major Hwy Class II	3	2,400	3	2,400	0.99	E	1.06	F	0.71	C	0.86	D
18	Lincoln Blvd	Jefferson Blvd	Bluff Trail Dr	2,599	2,037	1,356	2,127	Major Hwy Class I	4	4,000	4	4,000	0.65	B	0.51	A	0.34	A	0.53	A
19	Lincoln Blvd	Bluff Trail Dr	83rd St	2,661	1,871	1,433	2,035	Major Hwy Class I	3	3,000	3	3,000	0.89	D	0.62	B	0.48	A	0.68	B
20	83rd St	Lincoln Blvd	Rayford Dr	458	198	158	259	Collector	1	650	1	650	0.71	C	0.30	A	0.24	A	0.40	A
21	Manchester Ave	Rayford Dr	Delgany Ave	560	366	383	427	Major Hwy Class II	2	1,600	2	1,600	0.35	A	0.23	A	0.24	A	0.27	A
22	Manchester Ave	Delgany Ave	Pershing Dr	313	484	572	358	Major Hwy Class II	2	1,600	2	1,600	0.20	A	0.30	A	0.36	A	0.22	A
23	Vista del Mar	Waterview St	Sandpiper St	1,288	539	402	833	Major Hwy Class II	2	1,600	2	1,600	0.80	D	0.34	A	0.25	A	0.52	A
24	Vista del Mar	Imperial Hwy	Grand Ave	1,759	755	367	824	Major Hwy Class II	2	1,600	2	1,600	1.10	F	0.47	A	0.23	A	0.52	A

Notes:
AM Peak Hour is assumed to be 8:00AM - 9:00AM
PM Peak Hour is assumed to be 4:00PM - 5:00PM

HWY I = Major Highway - Class I
HWY II = Major Highway - Class II
S = Secondary Highway
C = Collector Street
L = Local Street

TABLE E
FUTURE WITH PROJECT ROADWAY SEGMENT PEAK HOUR VOLUMES AND LEVELS OF SERVICE

				FUTURE WITH PROJECT (2012) PEAK HOUR TRAFFIC VOLUMES				FUTURE (2012) ROADWAY CAPACITY					FUTURE WITH PROJECT (2012) ROADWAY PEAK HOUR LEVEL OF SERVICE								CHANGE IN V/C				ADVERSE IMPACT?			
													NB/EB				SB/WB											
				NB/EB		SB/WB			NB/EB		SB/WB		AM		PM		AM		PM		NB/EB		SB/WB		NB/EB		SB/WB	
Segment #	Location	From	To	AM	PM	AM	PM	Roadway Classification	No. of Lanes	Capacity	No. of Lanes	Capacity	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	AM	PM	AM	PM	AM	PM	AM	PM
1	Olympic Blvd	Centinela Ave	Bundy Dr	1,319	1,780	1,616	1,417	Major Hwy Class II	2	1,600	2	1,600	0.82	D	1.11	F	1.01	F	0.89	D	0.27	0.37	0.34	0.30	YES	YES	YES	YES
2	Bundy Dr	Olympic Blvd	Pico Blvd	1,810	1,572	1,194	1,493	Secondary	1	750	1	750	2.41	F	2.10	F	1.59	F	1.99	F	1.21	1.05	0.80	1.00	YES	YES	YES	YES
3	Bundy Dr	Pico Blvd	Ocean Park Blvd	1,593	1,309	1,129	1,746	Major Hwy Class II	1	800	1	800	1.99	F	1.64	F	1.41	F	2.18	F	1.00	0.82	0.71	1.09	YES	YES	YES	YES
4	Ocean Park Blvd	Bundy Dr	Armacost Ave	735	878	659	550	Major Hwy Class II	1	800	1	800	0.92	E	1.10	F	0.82	D	0.69	B	0.46	0.55	0.41	0.34	YES	YES	YES	NO
5	Armacost Ave	Ocean Park Blvd	National Blvd	151	35	45	84	Local	0.5	300	0.5	300	0.50	A	0.12	A	0.15	A	0.28	A	0.25	0.06	0.08	0.14	NO	NO	NO	NO
6	National Blvd	Armacost Ave	Inglewood Blvd	872	656	557	632	Secondary	1	750	1	750	1.16	F	0.87	D	0.74	C	0.84	D	0.58	0.44	0.37	0.42	YES	YES	YES	YES
7	Inglewood Blvd	National Blvd	Rose Ave	98	297	620	191	Collector	0.5	325	0.5	325	0.30	A	0.91	E	1.91	F	0.59	A	0.15	0.46	0.95	0.29	NO	YES	YES	NO
8	Inglewood Blvd	Rose Ave	Palms Blvd	480	141	87	303	Collector	0.5	325	0.5	325	1.48	F	0.43	A	0.27	A	0.93	E	0.74	0.22	0.13	0.47	YES	NO	NO	YES
9	Inglewood Blvd	Palms Blvd	Venice Blvd	561	242	193	308	Collector	0.5	325	0.5	325	1.73	F	0.74	C	0.59	A	0.95	E	0.86	0.37	0.30	0.47	YES	YES	NO	YES
10	Inglewood Blvd	Venice Blvd	Washington Pl	699	375	323	541	Secondary	0.5	375	0.5	375	1.86	F	1.00	E	0.86	D	1.44	F	0.93	0.50	0.43	0.72	YES	YES	YES	YES
11	Inglewood Blvd	Washington Pl	Washington Blvd	590	422	449	599	Collector	0.5	325	0.5	325	1.82	F	1.30	F	1.38	F	1.84	F	0.91	0.65	0.69	0.92	YES	YES	YES	YES
12	Inglewood Blvd	Washington Blvd	Culver Blvd	1,141	736	674	1,033	Secondary	1	750	1	750	1.52	F	0.98	E	0.90	D	1.38	F	0.76	0.49	0.45	0.69	YES	YES	YES	YES
13	Inglewood Blvd	Culver Blvd	Culver Dr	971	573	484	742	Secondary	1	750	1	750	1.30	F	0.76	C	0.65	B	0.99	E	0.65	0.38	0.32	0.49	YES	YES	NO	YES
14	Inglewood Blvd	Culver Dr	Jefferson Blvd	979	585	506	616	Secondary	1	750	1	750	1.30	F	0.78	C	0.67	B	0.82	D	0.65	0.39	0.34	0.41	YES	YES	NO	YES
15	Jefferson Blvd	Inglewood Blvd	Centinela Ave	1,945	2,451	2,201	2,050	Major Hwy Class II	2	1,600	2	1,600	1.22	F	1.53	F	1.38	F	1.28	F	0.41	0.51	0.46	0.43	YES	YES	YES	YES
16	Jefferson Blvd	Centinela Ave	McConnell Ave	2,527	2,857	2,355	2,058	Major Hwy Class II	2	1,600	2	1,600	1.58	F	1.79	F	1.47	F	1.29	F	0.53	0.60	0.49	0.43	YES	YES	YES	YES
17	Jefferson Blvd	McConnell Ave	Lincoln Blvd	2,371	2,544	1,705	2,062	Major Hwy Class II	2	1,600	2	1,600	1.48	F	1.59	F	1.07	F	1.29	F	0.49	0.53	0.36	0.43	YES	YES	YES	YES
18	Lincoln Blvd	Jefferson Blvd	Bluff Trail Dr	2,599	2,037	1,356	2,127	Major Hwy Class I	3	3,000	3	3,000	0.87	D	0.68	B	0.45	A	0.71	C	0.22	0.17	0.11	0.18	YES	NO	NO	YES
19	Lincoln Blvd	Bluff Trail Dr	83rd St	2,661	1,871	1,433	2,035	Major Hwy Class I	2	2,000	2	2,000	1.33	F	0.94	E	0.72	C	1.02	F	0.44	0.31	0.24	0.34	YES	YES	YES	YES
20	83rd St	Lincoln Blvd	Rayford Dr	458	198	158	259	Collector	0.5	325	0.5	325	1.41	F	0.61	B	0.48	A	0.80	C	0.71	0.30	0.24	0.40	YES	NO	NO	YES
21	Manchester Ave	Rayford Dr	Delgany Ave	560	366	383	427	Major Hwy Class II	1	800	1	800	0.70	C	0.46	A	0.48	A	0.53	A	0.35	0.23	0.24	0.27	NO	NO	NO	NO
22	Manchester Ave	Delgany Ave	Pershing Dr	313	484	572	358	Major Hwy Class II	1	800	1	800	0.39	A	0.60	B	0.71	C	0.45	A	0.20	0.30	0.36	0.22	NO	NO	YES	NO
23	Vista del Mar	Waterview St	Sandpiper St	1,288	539	402	833	Major Hwy Class II	1	800	1	800	1.61	F	0.67	B	0.50	A	1.04	F	0.80	0.34	0.25	0.52	YES	NO	NO	YES
24	Vista del Mar	Imperial Hwy	Grand Ave	1,759	755	367	824	Major Hwy Class II	1	800	1	800	2.20	F	0.94	E	0.46	A	1.03	F	1.10	0.47	0.23	0.52	YES	YES	NO	YES

Notes:
AM Peak Hour is assumed to be 8:00AM - 9:00AM
PM Peak Hour is assumed to be 4:00PM - 5:00PM