FLOOD INSURANCE STUDY

FEDERAL EMERGENCY MANAGEMENT AGENCY

VOLUME 2 OF 6

LOS ANGELES COUNTY, CALIFORNIA

AND INCORPORATED AREAS*

*See Table 1: Listing of NFIP Jurisdictions for a complete listing of the communities represented in this Flood Insurance Study Report."

FEMA

PRELIMINARY
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Flood Insurance Rate Map (FIRM)

SECTION 5.0 – ENGINEERING METHODS

For the flooding sources in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude that are expected to be equaled or exceeded at least once on the average during any 10-, 25-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for floodplain management and for flood insurance rates. These events, commonly termed the 10-, 25-, 50-, 100-, and 500-year floods, have a 10-, 4-, 2-, 1-, and 0.2% annual chance, respectively, of being equaled or exceeded during any year.

Although the recurrence interval represents the long-term, average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood that equals or exceeds the 100-year flood (1-percent chance of annual exceedance) during the term of a 30-year mortgage is approximately 26 percent (about 3 in 10); for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

The engineering analyses described here incorporate the results of previously issued Letters of Map Change (LOMCs) listed in Table 27, "Incorporated Letters of Map Change", which include Letters of Map Revision (LOMRs). For more information about LOMRs, refer to Section 6.5, "FIRM Revisions."

5.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak elevation-frequency relationships for floods of the selected recurrence intervals for each flooding source studied. Hydrologic analyses are typically performed at the watershed level. Depending on factors such as watershed size and shape, land use and urbanization, and natural or man-made storage, various models or methodologies may be applied. A summary of the hydrologic methods applied to develop the discharges used in the hydraulic analyses for each stream is provided in Table 13. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

A summary of the discharges is provided in Table 10. Frequency Discharge-Drainage Area Curves used to develop the hydrologic models may also be shown in Figure 7 for selected flooding sources. A summary of stillwater elevations developed for non-coastal flooding sources is provided in Table 11. (Coastal stillwater elevations are discussed in Section 5.3 and shown in Table 17.) Stream gage information is provided in Table 12.

Table 10: Summary of Discharges

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Acton Canyon	Acton Canyon Road, Escondido Canyon Road, and Crown Valley Road	20.3	*	*	*	3,421	6,052
Acton Canyon	Intersection of Crown Valley Road and Acton Avenue	20.3	*	*	*	3,421	6,052
Agua Dulce Canyon	Approximately 800 feet upstream of Escondido Canyon Road	14.3	*	*	*	4,401	7,977
Agua Dulce Canyon	Approximately 5,600 feet upstream of Darling Road	10.3	*	*	*	3,509	6,360
Amargosa Creek	East of Antelope Valley Freeway North of Avenue H	206	3,000	*	9,000	13,000	30,000
Amargosa Creek	West of Antelope Valley Freeway North of Avenue H	147	2,000	*	5,600	8,400	18,000
Amargosa Creek	Approximately midway between 20th Street West and 10th Street West	32.7	1,800	*	3,300	5,000	10,100
Amargosa Creek	At 10th Street West	32.0	*	*	*	2,364	*

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Amargosa Creek	At 25th Street West Bridge	30.0	*	*	*	2,341	*
Amargosa Creek	At Elizabeth Lake Ford Crossing	28.6	*	*	*	2,288	*
Amargosa Creek	At Vineyard Ranch	26.5	*	*	*	2,063	*
Amargosa Creek	At Outlet of Ritter Ranch Detention Pond	23.8	*	*	*	1,856	*
Amargosa Creek	At 90th Street	6.9	580	*	2,000	3,100	4,500
Amargosa Creek Tributary	Intersection of Avenue I and Spearman Avenue	7.2	310	*	900	1,220	2,400
Amargosa Creek Tributary	Intersection of Avenue L and 3rd Street East	2.4	150	*	420	560	1,000
Amargosa Creek Tributary	Avenue M and Valleyline Drive	1.8	120	*	340	460	850
Anaverde Creek	West of Sierra Highway at Avenue P-8	19.0	700	*	2,100	3,100	6,600
Anaverde Creek	Antelope Freeway	16.35	*	*	*	3,730	*
Anaverde Creek	East of Antelope Valley Freeway	16.0	700	*	2,100	3,000	6,400
Anaverde Creek	1.85 miles downstream of California Aqueduct	15.66	*	*	*	3,630	*
Anaverde Creek	1.47 miles downstream of California Aqueduct	12.79	*	*	*	3,200	*

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Anaverde Creek	0.75 miles downstream of California Aqueduct	11.79	*	*	*	3,050	*
Anaverde Creek	California Aqueduct	8.25	*	*	*	2,440	*
Anaverde Creek	3,000 feet East of 165th Street East and 4,000 feet South of Pearblossom Highway	7.3	500	*	1,700	2,300	4,700
Anaverde Creek	West of 136th Street East at Avenue W-8	2.4	440	*	1,500	1,900	3,900
Anaverde Creek	165th Street East approximately 4,000 feet South of Pearblossom Highway	1.0	370	*	1,300	1,600	3,100
Anaverde Creek Tributary	Division Street between Avenue P and Avenue P-8	1.4	300	*	1,100	1,600	3,000
Avalon Canyon	At cross section A	3.65	859	*	1,895	2,419	3,785
Avalon Canyon	At cross section G	1.83	440	*	971	1,239	1,938
Ballona Creek Channel	At intersection of Adams Boulevard and Genesee Avenue	16.7	2,100	*	4,700	6,000	9,400
Bel Air Estates	Beverly Glen Boulevard north of Sunset Boulevard	1.18	700	*	1,000	1,200	1,600

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Bel Air Estates	Stone Canyon Road south of Bellagio Road	1.02	630	*	940	1,100	1,400
Bel Air Estates	Stone Canyon Road south of Somma Way	0.66	480	*	710	800	1,100
Big Rock Wash	At mouth, Southwest	23.0	*	*	*	15,000	*
Big Tujunga Canyon	Upstream of Wheatland Avenue	43.25	9,300	*	26,800	38,900	66,000
Big Tujunga Canyon	Approximately 1,200 feet upstream of Foothill Boulevard and Tujuna Valley Street	34.57	8,100	*	24,700	36,500	62,600
Bouquet Canyon Creek	Approximately 4,500 feet upstream of Vasquez Canyon Road	38.6	*	*	*	11,303	23,161
Bouquet Canyon Creek	Approximately 2,600 feet upstream of Bouquet Canyon Road	32.1	*	*	*	11,117	22,707
Brentwood	Northeast of Sunset Boulevard and Barrington Avenue	0.24	230	*	340	390	520
Brentwood	North of San Vicente Boulevard, west of Westgate Avenue	0.21	60	*	140	180	280
Century City	Northwest of Santa Monica Boulevard and Avenue of the Stars	0.49	400	*	590	700	900

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Chatsworth Area	Vicinity of Variel Avenue and Chatsworth Street	13.43	2,100	*	4,700	6,000	9,300
Chatsworth Area	Vicinity of Santa Susanna Pass Road and Santa Susanna Avenue	1.46	450	*	990	1,300	2,000
Chatsworth Area	Vicinity of Chatsworth Street and Corbin Avenue	0.85	220	*	480	610	960
Chatsworth Area	Vicinity of Canoga Avenue and Devonshire Street	0.77	230	*	510	650	1,000
Chatsworth Area	Vicinity of Valley Circle Boulevard and Lassen Street	0.75	220	*	480	600	950
Chatsworth Area	Vicinity of Farrolone Avenue and Lassen Street	0.42	100	*	220	280	440
Chatsworth Area	Vicinity of Topanga Canyon Boulevard and Lassen Street	0.25	50	*	120	150	230
Chatsworth Area	Vicinity of Topanga Canyon Boulevard and Santa Susana Place	0.10	20	*	50	60	100

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Castaic Creek	Approximately 2,100 feet upstream of confluence with Charlie Canyon	16.8	*	*	*	11,805	22,326
Cheseboro Creek	1,100 feet upstream of Driver Avenue	7.6	2,169	*	4,779	6,088	9,551
Cold Creek	Cross Section A	8.1	2,280	*	5,019	6,406	10,023
Cold Creek	Cross Section C	7.8	2,280	*	5,041	6,432	10,066
Cold Creek	Cross Section G	5.7	1,734	*	3,826	4,881	7,640
Compton Creek[1]	Upstream of the confluence of Compton Creek and Los Angeles River, right overbank	*	*	*	*	14,800	*
Dark Canyon	Cross Section A	1.2	753	*	1,600	2,118	3,314
Dowd Canyon	At Calle Corona Extended	3.9	*	*	*	2,982	5,963
Dry Canyon	Approximately 2,000 feet upstream of San Francisquito Road	5.5	*	*	*	5,235	10,470
Dry Canyon	Cross Section C	1.1	527	*	1,104	1,484	2,323
Dry Canyon	Cross Section M	0.8	490	*	1,083	1,382	2,162
Dry Canyon	Cross Section T	0.4	242	*	534	681	1,065

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Elizabeth Canyon	Approximately 2,300 feet downstream of Elizabeth Lake Pine Canyon Road	7.7	*	*	*	3,455	7,176
Escondido Canyon	Cross Section B	3.2	958	*	2,116	2,700	4,226
Escondido Canyon	Cross Section F	1.7	986	*	2,176	2,778	4,346
Garapito Canyon	Cross Section A	2.9	996	*	2,171	2,807	4,392
Garapito Canyon	Cross Section E	2.0	675	*	1,470	1,910	2,974
Gorman Creek	Approximately 250 feet north of Interstate Highway 5 overcrossing Gorman Road	3.8	*	*	*	1,713	3,221
Granada Hills	Superior Street, west of Paso Robles Avenue	0.53	90	*	200	260	400
Granada Hills	Vicinity of Balboa Boulevard and Citronia Street	0.53	90	*	200	260	400
Hacienda Creek	Cross section A	1.46	626	*	1,381	1,762	2,758
Halsey Canyon	Approximately 1,150 feet downstream of Halsey Canyon Road	7.3	*	*	*	5,544	10,163

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Halsey Canyon	Approximately 550 feet downstream of Romero Canyon Road	5.9	*	*	*	4,523	8,292
Hancock Park	Vicinity of Highland Avenue and St. Elmo Drive	20.21	3,600	*	7,700	9,300	13,700
Hancock Park	Vicinity of San Vicente and Pico Boulevards	18.91	3,500	*	7,400	9,000	13,100
Hancock Park	Vicinity of West Boulevard and Dockweiler Street	18.76	3,600	*	7,600	9,300	13,600
Hancock Park	Vicinity of Bronson Avenue and Country Club Drive	18.07	3,700	*	7,900	9,600	14,000
Hancock Park	Sixth Street, vicinity of Alexandria Avenue	8.09	2,100	*	4,600	5,900	9,200
Hancock Park	Chesapeake Avenue, vicinity of Exposition Boulevard	7.97	1,100	*	2,400	3,000	3,700
Hancock Park	Vicinity of Western Avenue and 11th Street	3.48	670	*	1,300	1,600	2,500
Hancock Park	Victoria Avenue, vicinity of Jefferson Boulevard	1.17	320	*	1,100	1,400	2,600
Hancock Park	Arlington Avenue, vicinity of 37th Place	0.73	440	*	990	1,400	2,500

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Hancock Park	Olympic Boulevard at Hudson Avenue	0.56	130	*	290	370	570
Hancock Park	Harcourt Avenue, vicinity of Westhaven Street	0.53	160	*	350	450	700
Hancock Park	Lucerne Boulevard at Francis Avenue	0.26	70	*	160	200	320
Harbor Area	North of Carson Street between Vermont and Berendo Avenues	0.35	74	*	164	209	327
Harbor District	Denker Avenue, vicinity of 204th Street	0.28	60	*	130	170	260
Harbor Lake	Southeast of Vermont Avenue and Pacific Coast Highway	18.97	3,200	*	7,000	8,900	14,000
Haskell Canyon	Approximately 6,400 feet upstream of confluence with Bouquet Canyon Creek	10.4	*	*	*	7,268	14,072
Haskell Canyon	Approximately 1,300 feet downstream of Headworks	6.7	*	*	*	5,363	10,516
Hollywood	Third Street at Kenmore Avenue	3.43	800	*	1,800	2,300	3,500

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Hollywood	South Hollywood Freeway, vicinity of Kenmore Avenue	3.20	830	*	1,800	2,300	3,700
Hollywood	Santa Monica Boulevard, vicinity of Mariposa Avenue	2.79	940	*	2,100	2,700	4,200
Hollywood	Madison Avenue at Monroe Street	0.54	160	*	350	440	690
Hyde Park	South of Southwest Drive, vicinity of Van Ness Avenue	4.15	730	*	1,600	2,100	3,200
Hyde Park	Wilton Place, vicinity of Gage Avenue	3.29	770	*	1,600	1,900	3,000
Hyde Park	Halldale Avenue, vicinity of 65th Street	1.20	300	*	660	850	1,300
Industry Area	Vicinity of Brea Canyon Road and Lycoming Street	3.85	952	*	2,102	2,682	4,197
Iron Canyon	Approximately 2,000 feet upstream of Sand Canyon Road	2.8	*	*	*	2,078	2,833
Kagel Canyon	Approximately 650 feet upstream of Osborne Avenue	2.04	490	*	1,100	1,400	12,200
Kagel Canyon	At Cross Section A	2.04	490	*	1,081	1,380	2,159

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
La Mirada Area	Mystic Street, vicinity of Parkinson Avenue	0.31	81	*	179	228	357
La Mirada Creek	Approximately 1,100 feet downstream of La Mirada Boulevard	5.0	610	*	1,350	1,720	2,690
La Mirada Creek	At Ocasco Avenue	4.6	610	*	1,340	1,720	2,670
Ladera Heights Area	Vicinity of La Cienega Boulevard and Slauson Avenue	0.53	138	*	305	389	609
Las Flores Canyon	Cross Section F	4.1	1,758	*	3,882	4,954	7,752
Las Virgenes Creek	Approximately 1,500 feet downstream of the confluence of Stokes Canyon	24.3	9,230	*	13,678	15,521	18,704
Las Virgenes Creek	Approximately 250 feet downstream of the confluence of Stokes Canyon	24.3	9,228	*	13,673	15,515	18,811
Las Virgenes Creek	At confluence of Stokes Canyon	19.7	9,193	*	13,766	15,646	19,340
Las Virgenes Creek	Just downstream of Mulholland Highway	19.1	6,873	*	10,346	11,929	14,853
Las Virgenes Creek	At the confluence of Liberty Canyon	16.6	6,871	*	10,348	11,935	15,210

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Las Virgenes Creek	Approximately 1,500 feet upstream of the confluence of Liberty Canyon	16.5	5,862	*	8,799	10,069	12,755
Las Virgenes Creek	Approximately 4,000 feet upstream of the confluence of Liberty Canyon	16.2	5,783	*	8,676	9,913	12,554
Las Virgenes Creek	Approximately 1,800 feet downstream of Lost Hills Road	15.0	5,414	*	8,112	9,246	11,714
Las Virgenes Creek	Just downstream of Lost Hills Road	15.0	5,420	*	8,133	9,281	11,764
Las Virgenes Creek	Just downstream of Meadow Creek Lane	14.9	5,414	*	8,124	9,269	11,751
Las Virgenes Creek	Approximately 1,600 feet upstream of Meadow Creek Lane	13.3	4,860	*	7,211	8,197	10,356
Las Virgenes Creek	Just downstream of Agoura Road	12.7	4,783	*	7,040	8,005	10,076
Las Virgenes Creek	Just downstream of US Highway 101	10.4	3,830	*	5,644	6,419	8,137
Las Virgenes Creek	Just downstream of Las Virgenes Road	10.2	3,787	*	5,577	6,340	8,044
Liberty Canyon	Cross Section E	1.4	938	*	2,072	2,645	4,140

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lindero Canyon	Cross Section C	6.7	1,725	*	3,809	4,860	7,604
Lindero Canyon	Cross Section E	4.1	1,369	*	3,024	3,858	6,037
Lindero Canyon	Cross Section H	3.8	1,343	*	2,965	3,783	5,920
Lindero Canyon	At Reyes Adobe Road	3.4	1,290	*	2,847	3,632	5,685
Lindero Canyon	Cross Section M	3.4	1,290	*	2,847	3,632	5,685
Lindero Canyon	Cross Section N	3.1	1,258	*	2,776	3,542	5,545
Little Rock Wash	Little Rock Reservoir	48.0	*	*	*	20,000	*
Little Tujunga Canyon	Approximately 1,600 feet upstream of Foothill Boulevard	20.29	2,700	*	6,000	7,700	12,200
Little Tujunga Wash	Approximately 3,000 feet upstream of the City of Los Angeles corporate limits	17.9	2,273	*	5,019	6,405	10,022
Lobo Canyon	Cross Section A	3.8	1,572	*	3,473	4,429	6,932
Lobo Canyon	Cross Section A	2.5	1,625	*	3,588	4,579	7,166
Lockheed Drain Channel	Approximately 100 feet downstream of Burbank Boulevard	3.73	*	*	*	2,910	*
Lockheed Drain Channel	Approximately 300 feet downstream of Victory Place	2.48	*	*	*	2,410	*

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Lockheed Drain Channel	Approximately 100 feet downstream of Naomi Street	1.89	*	*	*	2,026	*
Lockheed Drain Channel	At Ontario Street	1.82	*	*	*	2,054	*
Lockheed Drain Channel	Approximately 150 feet downstream of Hollywood Way	0.90	*	*	*	965	*
Lockheed Drain Channel	Approximately 300 feet upstream of Lima Street	1.44	*	*	*	1,635	*
Lockheed Drain Channel	Approximately 450 feet upstream of Clybourn Avenue	0.42	278	*	*	448	*
Lopez Canyon Channel	Cross Section A	1.8	682	*	1,506	1,922	3,007
Los Angeles River	At Compton Creek	808	92,900	*	133,000	142,000	143,000
Los Angeles River	At Imperial Highway	752	89,400	*	126,000	140,000	156,000
Los Angeles River[1]	Right overbank	*	*	*	*	75,200	*
Los Angeles River[1]	At Fernwood Avenue	*	*	*	*	57,000	*

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Los Angeles River[1]	Right overbank	*	*	*	*	45,400	*
Los Angeles River[1]	Left Overbank	*	*	*	*	31,200	*
Los Angeles River[1]	Left Overbank	*	*	*	*	18,200	*
Los Angeles River[1]	At Wardlow Road	*	*	*	*	14,200	*
Malibu Creek	Cross Section A	109.6	14,183	*	31,648	40,544	63,934
Malibu Creek	Cross Section A	109.2	14,183	*	31,648	40,544	63,934
Medea Creek	Cross Section B	24.6	5,794	*	12,788	16,319	25,537
Medea Creek	Cross Section H	23.0	6,174	*	13,628	17,389	25,537
Medea Creek	Cross Section K	22.2	6,363	*	14,074	17,925	28,049
Medea Creek	Cross Section P	6.3	2,558	*	5,647	7,204	11,272
Malibu Lake	Malibu Lake	64.6	11,859	*	26,556	34,043	53,712
Medea Creek	Downstream of Venture Highway	6.3	2,560	*	2,645	7,200	11,270
Medea Creek	Approximately 950 feet upstream of Canwood Street	*	*	*	*	6,720	*
Medea Creek	Approximately 1,100 feet upstream of Kanan Road	*	*	*	*	5,960	*

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Medea Creek	At Thousand Oaks Boulevard	*	*	*	*	5,964	*
Medea Creek	Approximately 1,700 feet downstream of Laro Drive	4.1	*	*	*	5,320	*
Medea Creek	Approximately 575 feet downstream of Fountainwood Street	3.9	*	*	*	5,240	*
Medea Creek	Just upstream of Fountainwood Street	3.4	*	*	*	4,700	*
Mill Creek	At Cross Section B	14.8	1,174	*	5,019	6,405	10,024
Mint Canyon	1,600 feet downstream of Sierra Highway Crossing	29.3	*	*	*	8,300	14,581
Mint Canyon	3,600 feet downstream of Vasquez Canyon Road	26.8	*	*	*	7,896	14,179
Mint Canyon	Approximately 2,600 feet downstream of Davenport Road	19.9	*	*	*	6,691	12,604
Newhall Creek	Approximately 650 feet downstream of Railroad Canyon	7.3	*	*	*	3,892	6,228
Newhall Creek	Approximately 650 feet upstream Railroad Canyon	6.2	*	*	*	3,390	5,424

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Newhall Creek	Approximately 800 feet upstream of Railroad Canyon	5.2	*	*	*	3,224	4,396
Oak Springs Canyon	Approximately 100 feet upstream of Union Pacific Railroad (former Southern Pacific Railroad)	5.7	*	*	*	2,703	4,054
Oak Canyon Springs	At intersection of Sixth Street and Quincy Avenue	1.0	271	*	598	763	1,194
Old Topanga Canyon	Cross Section E	1.7	567	*	1,253	1,597	2,499
Old Topanga Canyon	Cross Section H	0.8	251	*	554	706	1,104
Overland Flow	Marquardt Avenue, 1,400 feet North of Rosecrans Avenue	2.09	411	*	907	1,158	1,812
Overland Flow	North of Florence Avenue and East of Pioneer Boulevard	1.34	270	*	596	760	1,190
Overland Flow	North of Lakeland Road, 1,000 feet East of Bloomfield Avenue	0.42	68	*	151	192	301
Palo Comando Creek	Cross Section E	4.1	1,159	*	2,562	3,268	5,113

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Palo Comando Creek	At Fairview Place	3.5	1,074	*	2,374	3,028	4,738
Palo Comando Creek	Cross Section J	3.5	1,074	*	2,374	3,028	4,738
Palo Comando Creek	Cross Section K	3.2	1,032	*	2,279	2,908	4,551
Park La Brea	Vicinity of Orange Drive and Pickford Street	24.67	4,400	*	9,500	11,800	17,700
Park La Brea	Venice Boulevard, vicinity of Fairfax Avenue	18.44	3,400	*	7,500	9,500	14,900
Park La Brea	Vicinity of Whitworth Drive and la Cienega Boulevard	17.13	3,400	*	7,600	9,700	15,200
Park La Brea	Fairfax Avenue, vicinity of La Cienega Boulevard	16.67	2,100	*	4,700	6,000	9,600
Park La Brea	Houser Boulevard, vicinity of La Cienega Boulevard	14.76	1,900	*	4,300	5,500	8,800
Park La Brea	Redondo Boulevard, vicinity of Roseland Street	14.53	2,000	*	4,400	5,700	9,100
Park La Brea	Wilshire Boulevard, vicinity of Crescent Heights Avenue	6.62	1,500	*	3,300	4,200	6,600

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Park La Brea	Redondo Boulevard, vicinity of Santa Monica Freeway	1.16	300	*	670	860	1,300
Pine Canyon	Approximately 1,200 feet upstream of Lake Hughes Road	6.4	*	*	*	2,969	6,166
Placerita Creek	Approximately 575 feet downstream of San Fernando Road	9.3	*	*	*	5,321	7,981
Placerita Creek	Approximately 2,900 feet upstream of San Fernando Road	8.6	*	*	*	4,988	7,482
Placerita Creek	Approximately 2,000 feet upstream of Quigley Canyon Road	7.1	*	*	*	4,085	6,313
Placerita Creek	Approximately 850 feet downstream of Antelope Valley Freeway	6.3	*	*	*	3,546	5,673
Plum Canyon	Approximately 2,350 feet upstream of Bouquet Canyon Road	3.4	*	*	*	1,942	3,453
Ponding	At intersection of Mines Avenue and Taylor Avenue	0.5	120	*	250	330	510

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Ponding	At intersection of Fifth Street and Roycroft Avenue	0.86	*	*	*	522	*
Portal Ridge Wash	Intersection of Avenue H and Antelope Valley Freeway	147.0	1,600	*	5,000	7,200	16,000
Porter Ranch	Mayerling Street, northwest of Shoshone Avenue	0.19	40	*	100	120	190
Porter Ranch	Vicinity of Sesnon Boulevard	0.10	30	*	60	70	120
Railroad Canyon	Approximately 350 feet upstream of San Fernando Road	1.2	*	*	*	835	1,253
Ramirez Canyon	Cross Section B	3.3	1,066	*	2,352	3,000	4,696
Ramirez Canyon	Cross Section I	2.8	1,150	*	2,540	3,240	5,070
Rio Hondo	At Stewart and Cray Road	132	35,600	*	41,000	39,300	40,200
Rio Hondo	At Beverly Boulevard	113	33,800	*	37,500	38,000	38,400
Rio Hondo	At outflow from Whittier Narrows Dam	110	33,500	*	36,500	36,500	36,500
Rio Hondo[1]	At Beverly Boulevard, left overbank	*	*	*	*	13,700	*
Rio Hondo[1]	At Stewart and Gray Road	*	*	*	*	2,790	*

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Rio Hondo[1]	Left overbank	*	*	*	*	1,395	*
Rio Hondo[1]	Right overbank	*	*	*	*	1,395	*
Rustic Canyon	Approximately 1,030 feet downstream of Sunset Boulevard	5.67	700	*	1,500	2,000	3,100
San Fernando Pacoima Wash	Approximately 150 feet downstream of Shablow Avenue	31.07	1,900	*	5,600	8,100	12,100
San Francisquito Canyon Creek	At Spunky Road	2.7	*	*	*	2,140	4,281
San Gabriel River	Whittier Narrows Flood Control Basin at Siphon Road	524.0	[2]	*	[2]	90,000	[3]
San Martinez – Chiquito Canyon	Approximately 1,000 feet upstream of Chiquito Canyon Road (Lower Crossing)	4.7	*	*	*	4,659	8,607
San Martinez – Chiquito Canyon	Approximately 400 feet upstream of Chiquito Canyon Road	3.1	*	*	*	3,112	5,705
San Martinez – Chiquito Canyon	Approximately 250 feet downstream of Verdale Street	1.1	*	*	*	1,205	2,208

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Sand Canyon	Approximately 250 feet downstream of confluence with Iron Canyon	10.1	*	*	*	6,372	8,689
Sand Canyon	Approximately 2,900 feet downstream of Placerita Canyon Road	7.3	*	*	*	4,908	6,693
Sand Canyon	Approximately 800 feet upstream of Placerita Canyon Road	6.4	*	*	*	4,371	5,961
Sand Canyon Lateral	At Robinson Ranch Road	0.9	*	*	*	1,480	*
Santa Clara River	Approximately 2,600 feet upstream of Los Angeles Aqueduct	235.4	*	*	*	15,182	26,369
Santa Clara River	At Sand Canyon Road	179.4	*	*	*	13,934	23,467
Santa Clara River	7,600 feet upstream of Oak Springs Canyon	172.7	*	*	*	13,412	22,588
Santa Clara River	Approximately 3,500 feet upstream of Arrastre Canyon Road	67.7	*	*	*	8,408	13,849
Santa Fe Springs Area	Vicinity of Rivera Road and Vicki Drive	0.38	80	*	176	225	352
Santa Maria Canyon	Cross Section C	3.1	1,070	*	2,333	3,016	4,719

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Savage Creek	Intersection of York Avenue and Mar Vista Street	0.9	260	*	570	730	1,150
Sepulveda	Haskell Avenue north of Union Pacific Railroad (former Southern Pacific Railroad)	1.0	230	*	500	640	1,000
Sepulveda	Roscoe Boulevard at Haskell Avenue	0.84	160	*	360	460	720
Shallow Flooding	At intersection of Vincent Street and South Irena Avenue	10	50	*	111	141	221
Shallow Flooding	At Gould Avenue between Ford and Goodman Avenues	0	66	*	146	186	291
Shallow Flooding	At intersection of Vincent Street and South Irena Avenue	N/A	68	149	*	190	298
Shallow Flooding	At intersection of Ripley Avenue and Rindge Lane	N/A	61	135	*	172	270
Sherman Oaks	Magnolia Boulevard at Haskell Avenue	1.23	360	*	800	1,000	1,600
Silver Lake	Myra Avenue, vicinity of Del Mar Avenue	1.80	490	*	1,110	1,400	2,200

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Silver Lake	Silver Lake Boulevard east of Virgil Avenue	1.27	420	*	900	1,100	1,800
Silver Lake	Between Hyperion Avenue and Griffith Park Boulevard, north of Fountain Avenue	0.91	290	*	650	830	1,300
Silver Lake	Griffith park Boulevard at Tracy Street	0.64	220	*	490	620	970
Southfork Santa Clara River	Approximately 500 feet downstream of Wiley Canyon Road	12.9	*	*	*	8,483	13,704
Southfork Santa Clara River	Approximately 600 feet downstream of Golden State Freeway	12.8	*	*	*	8,417	13,596
Southfork Santa Clara River	Surface runoff at intersection of Garfield Avenue and Beverly Boulevard	2.9	820	*	1,810	2,310	3,610
Southfork Santa Clara River	Laurel Canyon Boulevard at Hollywood Boulevard	1.91	600	*	800	1,160	2,100
Southfork Santa Clara River	Approximately 1,800 feet south of the intersection of San Fernando Road and Magic Mountain Parkway	1.9	*	*	*	1,437	2,495

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Southfork Santa Clara River	Happy Lane	1.73	640	*	1,400	1,800	2,800
Southfork Santa Clara River	Vicinity of Rosewood Avenue and Huntley Drive West Los Angeles and Central Districts	1.06	670	*	1,479	1,888	3,329
Stokes Canyon	Cross Section B	2.9	1,089	*	2,403	3,067	4,799
Stokes Canyon	Cross Section B	2.4	934	*	2,062	2,631	4,117
Sylmar	East side of Golden State Freeway south of Sierra Highway	0.22	50	*	120	150	240
Topanga Canyon	Cross Section H	19.6	4,095	*	9,040	11,537	18,054
Topanga Canyon	Cross Section M	15.0	5,404	*	11,930	15,223	23,882
Topanga Canyon	Cross Section Q	14.5	5,208	*	11,499	14,672	22,960
Topanga Canyon	Cross Section T	7.3	2,560	*	5,656	7,215	11,289
Topanga Canyon	Cross Section V	7.0	2,364	*	5,222	6,601	10,422
Topanga Canyon	Cross Section X	5.5	1,862	*	4,113	5,247	8,210
Topanga Canyon	Cross Section AG	0.3	259	*	572	729	1,141
Trancas Creek	Upstream of Pacific Coast Highway (Cross Section A)	8.6	2,499	*	5,518	7,040	11,106
Triunfo Creek	Cross Section B	28.7	4,781	*	11,396	14,898	24,298

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Triunfo Creek	Cross Section E	28.3	4,846	*	11,544	15,090	24,606
Turnbull Canyon	Vicinity of Broadway and Alta Drive	1.0	250	*	540	690	1,080
Turnbull Canyon	Intersection of Painter Avenue and Camilla Street	1.0	250	*	540	690	1,080
Unnamed Canyon (Serra Retreat Area)	Cross Section C	0.4	281	*	619	791	1,237
Unnamed Stream Main Reach	At Pacific Ocean	1.2	353	*	724	917	1,400
Unnamed Stream Main Reach	Downstream of confluence of Tributary 3	1.1	338	*	692	876	1,282
Unnamed Stream Main Reach	Upstream of confluence of Tributary 2	0.65	229	*	462	580	865
Unnamed Stream Main Reach	Upstream of confluence of Tributary 1	0.37	146	*	290	361	523
Unnamed Stream Tributary 1	Downstream of confluence of Tributary 1	0.58	209	*	421	527	787
Unnamed Stream Tributary 1	At confluence with Main Reach	0.21	97	*	191	236	381
Unnamed Stream Tributary 2	At confluence with Main Reach	0.44	164	*	331	413	600

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Unnamed Stream Tributary 2	At Via Zurita	0.38	144	*	290	361	525
Upper Los Angeles River[1]	At Broadway, left overbank	*	*	*	*	100	*
Van Nuys	Victory Boulevard, vicinity of Hayvenhurst Avenue	0.73	90	*	200	250	390
Vasquez Canyon	Approximately 1,373 feet upstream of Vasquez Canyon Road	4.2	*	*	*	2,851	5,009
Violin Canyon	Approximately 2,000 feet downstream of Interstate Highway 5	10.5	*	*	*	9,421	17,818
Weldon Canyon	Approximately 1,570 feet downstream of Sierra Highway and San Fernando Road	1.47	410	*	900	1,150	1,800
West Hollywood	Third Street, vicinity of Fairfax Boulevard	6.13	1,500	*	3,200	4,100	6,800
West Hollywood	Fifth Street, vicinity of Orlando Avenue	5.66	1,600	*	3,600	4,500	7,100
West Hollywood	Third Street, vicinity of La Cienega Boulevard	5.10	1,600	*	3,500	4,500	7,200
West Hollywood	Beverly Boulevard, vicinity of Spaulding Avenue	4.02	730	*	1,600	2,100	2,900

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
West Hollywood	Genesse Avenue north of Hollywood Boulevard	1.00	370	*	820	1,000	1,600
West Hollywood Area	Vicinity of Pan Pacific Auditorium	4.02	730	*	1,600	3,600	4,500
West Hollywood Area	Vicinity of Rosemead Avenue and Huntley Drive	1.06	670	*	1,479	1,888	3,329
West Los Angeles	Between Westwood Boulevard and Overland Avenue, vicinity of Exposition Boulevard	4.00	190	*	1,200	1,500	2,700
West Los Angeles	Manning Avenue, vicinity of Tennessee Avenue	3.40	530	*	1,300	1,700	2,600
West Los Angeles	Balsam Avenue, vicinity of Olympic Boulevard	1.19	290	*	550	660	940
West Los Angeles	Roundtree Road, vicinity of Manning Avenue	0.72	500	*	740	840	1,100
Westchester	Arizona Avenue north of Arizona Circle	1.65	340	*	740	950	1,500
Westchester	Sepulveda Boulevard south of San Diego Freeway	1.39	310	*	690	880	1,400

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Westchester	Approximately 300 feet east of Sepulveda Boulevard and 1,300 feet north of 74th Street	1.39	310	*	690	880	1,400
Westlake	Vicinity of Wilshire Boulevard west of Hoover Street	1.40	360	*	790	1,000	1,600
Whittier Area	Whittier Narrows Flood Control Basin	524	[2]	*	[2]	90,000	[3]
Whittier Area	Vicinity of Turnbull Canyon Road	1.0	246	*	543	692	1,084
Wildwood Canyon	Approximately 600 feet upstream of intersection of Valley Street and Maple Street	0.23	*	*	*	172	279
Winsor Hills Area	Vicinity of La Brea and Slauson Avenues	0.25	67	*	147	188	294
Woodland Hills	Vicinity of Mulholland Drive and Ventura Freeway	2.27	490	*	1,100	1,400	2,200
Woodland Hills	Vicinity of Saltillo Street and Canoga Avenue	0.32	100	*	250	300	500
Zuma Canyon	Cross Section A	8.9	2,024	*	4,469	5,705	8,925
Zuma Canyon	Cross Section B	8.4	2,079	*	4,590	5,858	9,167

Table 10: Summary of Discharges, continued

Flooding Source	Location	Drainage Area (Square Miles)	Peak Discharge (cfs)				
			10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance

*Not calculated for this Flood Risk Project

[1]Breakout discharges

[2]Discharge not determined because 1% Annual Chance Flood is contained within Whittier Narrows Flood Control Basin

[3]Not Required by the Federal Insurance Administration

[4]Pump capacity

Figure 7: Frequency Discharge-Drainage Area Curves

[Not Applicable to this Flood Risk Project]

Table 11: Summary of Non-Coastal Stillwater Elevations

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Los Angeles River	Unknown	7.3	*	7.8	9.9	15.6
Los Cerritos Channel	Unknown	6.9	*	7.5	8.7	12.2
Ponding	600 feet east of Bloomfield Avenue and North of Lakeland Road	139.8	*	142.8	143.8	143.8
Ponding	1,000 feet east of Bloomfield Avenue North of Lakeland Road	116.8	*	148.3	148.8	149.8
Ponding	At Marquart Avenue; 1,400 feet north of Rosecrans Avenue	83.8	*	85.8	86.8	88.8
Savage Creek	Intersection of York Avenue and Mar Vista Street	382.8	*	382.8	382.8	382.8
San Gabriel River	At Whittier Narrows Flood Control Basin	213.8	*	222.8	222.8	231.8
Shallow Flooding	Intersection of Ripley Avenue and Rindge Lane	*	*	62.9	64.9	68.9
Shallow Flooding	At Gould Avenue between Ford and Goodman Avenues	83.4	*	91.4	95.9	105.9

Table 11: Summary of Non-Coastal Stillwater Elevations, continued

Flooding Source	Location	Elevations (feet NAVD88)				
		10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Shallow Flooding	Intersection of Vincent Street and South Irena Avenue	81.9	*	82.9	83.6	84.9
Shallow Flooding	Intersection of Camino Real and South Juanita Avenue	120.5	*	121.9	122.9	124.3
Surface Runoff – Deep Ponding Area	Southwest of the intersection of Carson Street and Madrona Avenue	60.1	*	66.1	68.8	74.8
Surface Runoff – Ponding Area	Intersection of Anza Avenue and Spencer Street	82.6	*	83.4	83.8	84.9
Surface Runoff – Ponding Area	Northeast of Sepulveda Boulevard and Madrone Avenue	77.3	*	78.4	78.8	79.5
Surface Runoff – Ponding Area	Intersection of California Street and Alaska Avenue	78.7	*	80.1	80.8	81.6
Surface Runoff – Ponding Area	Intersection of Mines Avenue and Taylor Avenue	186.7	*	188.8	188.8	188.8
Turnbull Canyon	Intersection of Painter Avenue and Camilla Street	411.8	*	419.8	420.8	421.8

*Not calculated for this Flood Risk Project

Table 12: Stream Gage Information used to Determine Discharges

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
Aliso Creek	F152B-R	LACFCD	At Nordhoff Street	189	*	*
Ballona Creek	F38C-R	LACFCD	Ballona Creek above Sawtelle Boulevard	88.6	02/27/1928	Present
Big Rock Creek	10263500	USGS	Big Rock Creek near Valyermo, CA	23	1923	Present
Big Tujunga Creek	11095500	USGS	Big Tujunga Creek near Sunland, CA	106	11/01/1916	09/30/1977
Burbank Western Flood Control Channel	*	LACFCD	At Tujunga Avenue	401	1950	*
Compton Creek	F37B-R	LACFCD	Compton Creek near Greenleaf Boulevard	22.6	01/22/1928	Present
Coyote Creek	3208	LACFCD	Centralia Street	110	34 years	*
Dominguez Channel	*	*	*	33	*	*
Little Rock Creek	L1-R	LACFCD	Little Rock Reservoir	49.2	10/01/1930	Present
Los Angeles River	F300-R	LACFCD	At Tujunga Avenue	401	05/08/1950	Present
Los Angeles River		LACFCD	Los Angeles River above Arroyo Seco	511	12/05/1929	Present
Los Angeles River Flood Control Channel	*	LACFCD	*	*	*	*
Malibu Creek	F130-R	LACFCD	Malibu Creek below Old Creek	105	01/17/1931	Present

Table 12: Stream Gage Information used to Determine Discharges, continued

Flooding Source	Gage Identifier	Agency that Maintains Gage	Site Name	Drainage Area (Square Miles)	Period of Record	
					From	To
San Gabriel River	F262-R	LACFCD	San Gabriel River above Florence Avenue	215.8	08/06/1969	Present
Sawtelle – Westwood Storm Drain Channel	F301-R	LACFCD	At Culver Boulevard	23	1951	*
Zuma Creek	F53-R	LACFCD	*	*	*	*
Topanga Canyon	F548-R	LACFCD	*	*	*	*

*Data not available

5.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of flooding from the sources studied were carried out to provide estimates of the elevations of floods of the selected recurrence intervals. Base flood elevations on the FIRM represent the elevations shown on the Flood Profiles and in the Floodway Data tables in the FIS Report. Rounded whole-foot elevations may be shown on the FIRM in coastal areas, areas of ponding, and other areas with static base flood elevations. These whole-foot elevations may not exactly reflect the elevations derived from the hydraulic analyses. Flood elevations shown on the FIRM are primarily intended for flood insurance rating purposes. For construction and/or floodplain management purposes, users are cautioned to use the flood elevation data presented in this FIS Report in conjunction with the data shown on the FIRM. The hydraulic analyses for this FIS were based on unobstructed flow. The flood elevations shown on the profiles are thus considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

For streams for which hydraulic analyses were based on cross sections, locations of selected cross sections are shown on the Flood Profiles (Exhibit 1). For stream segments for which a floodway was computed (Section 6.3), selected cross sections are also listed on Table 24, "Floodway Data."

A summary of the methods used in hydraulic analyses performed for this project is provided in Table 13. Roughness coefficients are provided in Table 14. Roughness coefficients are values representing the frictional resistance water experiences when passing overland or through a channel. They are used in the calculations to determine water surface elevations. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation.

Table 13: Summary of Hydrologic and Hydraulic Analyses

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Acton Canyon and Zone A Tributaries	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AO	
Agua Amarge Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	*	A	
Agua Dulce Canyon Creek and Tributaries	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AO	
Aliso Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Aliso Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	AE	
Amargosa Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A, AH, AO	Analysis was based on discharge-frequency curves developed by the USACE from the Little Rock Creek and Big Rock Creek frequency curves.
Amargosa Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	AE	Analysis was based on discharge-frequency curves developed by the USACE from the Little Rock Creek and Big Rock Creek frequency curves.
Amargosa Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A, AO	Analysis was based on discharge-frequency curves developed by the USACE from the Little Rock Creek and Big Rock Creek frequency curves.
Amargosa Creek	Approximately 3 miles upstream of Avenue M	Approximately 1.1 miles upstream of Vinery Road	Log-Pearson Type III	HEC-2	1979	AE	Analysis was based on discharge-frequency curves developed by the USACE from the Little Rock Creek and Big Rock Creek frequency curves.

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Amargosa Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A	Analysis was based on discharge-frequency curves developed by the USACE from the Little Rock Creek and Big Rock Creek frequency curves.
Amargosa Creek Tributary	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A	
Anaverde Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1985	AO	
Anaverde Creek	Approximately 195 feet downstream of State Highway 14	Approximately 138 feet upstream of California Aqueduct	Log-Pearson Type III	HEC-2	1985	AE w/ Floodway	
Anaverde Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1985	A	
Arrastre Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Arroyo San Miguel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1978	A	
Arroyo Sequit	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Avalon Canyon	Confluence with Pacific Ocean	Approximately 0.6 miles upstream of Tremont Street	Regional Runoff Frequency Equations	HEC-2	1977	AE	
Back Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
Ballona Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1978	A, AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Bar Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	*	A, AO	
Bee Canyon (North)	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Bee Canyon (Mid)	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Bee Canyon (South)	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Big Rock Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A	The analysis was based on the stream gage located at the mouth of Big Rock Creek.
Big Rock Creek South Fork	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Big Rock Wash	At Avenue L	Approximately 5,955 feet upstream of Avenue of East	Log-Pearson Type III	HEC-2	1985	AE	
Big Rock Wash	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Big Tujunga Wash	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A, AO	No profiles are shown because of the unpredictability of the location of the stream across the width of the alluvial fan. The potential limits of flooding were delineated by determining the boundaries of the alluvial fans. The depths were assigned using mean depth at critical slope through irregular cross sections.

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Boulder Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Bouquet Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Bouquet Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Broad Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Browns Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Bull Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Canada De Los Alamos	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Castaic Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Castaic Lagoon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Castaic Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Channel No. 2	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
Channel No. 3	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
Charlie Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Chatsworth Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Cherry Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Cheseboro Creek	Approximately 40 feet downstream of Driver Avenue	Approximately 400 feet upstream of confluence with Palo Comando Creek	Regional Runoff Frequency Equations	HEC-2	*	AE	
Cold Creek	Approximately 200 feet above confluence with Malibu Creek	Approximately 0.5 miles upstream of Cline Road	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Cold Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Colorado Lagoon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Compton Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1991	A	Hydrologic data used in the study were obtained from the “Los Angeles county Drainage Area-Draft Feasibility Report” (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).
Consolidated Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Coyote Canyon Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1984	A	
Dark Canyon	Confluence with Cold Creek	Approximately 70 feet upstream of Wild Rose Drive	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Dark Canyon West Branch	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Dewitt Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Dominguez Channel	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1978	A	Dominguez Channel was analyzed through a comparison with Compton Creek, a gaged stream in an adjacent watershed with similar hydrologic and hydraulic characteristics. Hydrologic data used in the study were obtained from the “Los Angeles county Drainage Area-Draft Feasibility Report” (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).
Dorr Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Dowd Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AO	
Dry Canyon	Approximately 2,360 feet upstream of the confluence with Cold Creek	Approximately 2.7 miles upstream of confluence with Cold Creek	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Dry Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	AO	
Dry Canyon Flood Control Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
East Basin	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
East Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Echo Park Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Elizabeth Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Elizabeth Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Elizabeth Lake Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Eller Slough	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Elsmere Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Encino Creek Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Entrance Channel (Marina Del Ray)	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Escondido Canyon	At Pacific Coast Highway	Approximately 2,050 feet upstream of Pacific Coast Highway	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Escondido Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Escondido Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Escondido Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AO	
Fish Harbor	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Flow Along Empire Avenue	Approximately 140 feet downstream of Hollywood Way	Approximately 2,090 feet upstream of Hollywood Way	Regional Runoff Frequency Equations	HEC-2	*	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Flowline No. 1	At Florence Avenue	Approximately 340 feet upstream of Telegraph Road	Regional Runoff Frequency Equations	HEC-2	1978	AE	
Franklin Canyon Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Freeman Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Garapito Creek	Approximately 3,100 feet upstream of confluence with Topanga Canyon	Approximately 1.3 miles upstream of confluence with Topanga Canyon	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Gorman Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Gorman Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AH, AO	
Graham Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Grandview Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Hacienda Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Harbor Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Haskell Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	AO	
Haskell Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Hasley Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AO	
Haynes Canyon Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Holcomb Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Hollywood Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Hughes Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Iron Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Jesus Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Kagel Canyon	Northwest edge of Osbourne Street	Approximately 505 feet upstream of Blue Sage Drive	Log-Pearson Type III	HEC-2	1979	AE w/ Floodway	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Kentucky Springs Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
La Mirada Creek	Approximately 770 feet upstream of Roma Drive	At Stamy Road (Extended)	Regional Runoff Frequency Equations	HEC-2	1979	AE	Regional runoff frequency equations developed by the study contractor were used to calculate flow rates based on runoff frequency. These regional runoff frequency equations were developed through the multiple-linear regression analyses of the peak flow data of 48 stream gaging stations with Los Angeles County.
Lake Lindero	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Lake Palmdale	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Lake Street Overflow	Convergence with Burbank Western Flood Control Channel	Approximately 310 feet upstream of Chestnut Street	Regional Runoff Frequency Equations	HEC-2	*	AE	
Las Flores Canyon	At Pacific Coast Highway	Approximately 830 feet upstream of Las Flores Canyon Road	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Las Flores Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Las Virgenes Creek	Approximately 440 feet upstream of confluence with Malibu Creek	Approximately 2,030 feet upstream of Highway 101	HEC-HMS version 3.5	HEC-RAS 4.1	2010	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Leaming Canyon Creek	Nor Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Lemontaine Creek	Nor Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Liberty Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Limekiln Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Lindero Canyon Above Confluence with Medea Creek	Confluence with Medea Creek	Approximately 2,540 feet upstream of confluence with Medea Creek	Regional Runoff Frequency Equations	HEC-2	*	AE	
Lindero Canyon Above Lake Lindero	Upstream edge of spillway into Lake Lindero	Approximately 1,250 feet upstream of Reyes Adobe Road	Regional Runoff Frequency Equations	HEC-2	*	AE	
Little Rock Creek	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A	The analysis was based on the stream gage located at Little Rock Reservoir.
Little Rock Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Little Rock Wash	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1985	A	
Little Rock Wash Profile A	At Avenue L	City of Palmdale	Log-Pearson Type III	HEC-2	1985	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Little Rock Wash Profile A	City of Palmdale corporate limits	Approximately 1,000 feet upstream of Avenue U	Log-Pearson Type III	HEC-2	1985	AE	
Little Rock Wash Profile B	Convergence with Little Rock Wash Profile A	Divergence with Little Rock Wash Profile A	Log-Pearson Type III	HEC-2	1985	AE	
Little Rock Wash Profile C	At Avenue T/ Convergence with Little Rock Wash Profile A	Divergence with Little Rock Wash Profile A	Log-Pearson Type III	HEC-2	1985	AE	
Little Tujunga Wash	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A, AO	No profiles are shown because of the unpredictability of the location of the stream across the width of the alluvial fan. The potential limits of flooding were delineated by determining the boundaries of the alluvial fans. The depths were assigned using mean depth at critical slope through irregular cross sections.
Lobo Canyon	Approximately 1,300 feet downstream of Lobo Canyon Road	Approximately 1.3 miles upstream of Lobo Canyon Road	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Lockheed Drain Channel	Confluence with Burbank Western Flood Control Channel	Approximately 1.1 miles upstream of Access Road	Regional Runoff Frequency Equations	HEC-2	1978	AE	
Lopez Canyon Channel	Approximately 50 feet upstream of Lopez Canyon Channel debris basin	Approximately 2,295 feet upstream of Lopez Canyon Channel debris basin	Regional Runoff Frequency Equations	HEC-2	1979	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Lopez Canyon Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Los Angeles County Flood Control Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Los Angeles County Flood Control Channel to Aliso Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Los Angeles County Storm Drain	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Los Angeles County Storm Drain (2)	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	A	Hydrologic data used in the study were obtained from the “Los Angeles county Drainage Area-Draft Feasibility Report” (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).
Los Angeles Harbor	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Los Angeles Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Los Angeles River	Not Provided	Not Provided	HEC-1 and HEC-5 (USACE 1990; USACE 1982)	HEC-2	1991	A, AE	Hydrologic data used in the study were obtained from the “Los Angeles County Drainage Area-Draft Feasibility Report” (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Los Angeles River Flood Control Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1978	A	The gage records were considered inaccurate for frequency analysis purposes because of the residential development that has occurred in the watershed over the past 20 years. Therefore, Regional Runoff Frequency Equations developed by the Los Angeles County Flood Control District were used to calculate flow rates based on runoff frequency.
Los Cerritos Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	A	
Lyon Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Main Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Malaga Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	*	A	
Malibu Creek	Approximately 1,530 feet upstream of Pacific Coast Highway	Approximately 1,120 feet upstream of Mariposa De Oror	Log-Pearson Type III	HEC-2	1979	AE	
Malibu Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Malibu Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Maple Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Marina Del Ray	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Marine Stadium	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
May Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Medea Creek	At Mulholland Highway	Approximately 1,015 feet upstream of Cornell Road	Regional Runoff Frequency Equations	HEC-2	*	AE	
Medea Creek (Above Ventura Freeway)	At Ventura Freeway	Approximately 100 feet upstream of County Line Road	Regional Runoff Frequency Equations	HEC-2	*	AE	
Middle Harbor	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
Mill Creek	Approximately 70 feet upstream of Angeles Forest Highway	Approximately 1 mile upstream of Angeles Forest Highway	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Milton B. Arthur Lakes	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	A	
Mint Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	2015	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Mint Canyon Creek Overflow	Not Provided	Not Provided	*	*	*	A	LOMR 11-09-1367P
Mint Canyon Spring	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Montebello Municipal Golf Course Pond	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	A	
Morris Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Muscal Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Myrick Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Newhall Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A, AE	
Newhall Creek Left Overbank 2	Approximately 1,050 feet upstream of the Placerita Creek confluence	Downstream side of Southern Pacific Railroad	*	*	*	A	LOMR 13-09-2046P
North Overflow (A)	Approximately 500 feet upstream of confluence with Lockheed Drain Channel	Confluence of North Overflow (B)	Regional Runoff Frequency Equations	HEC-2	1978	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
North Overflow B	Approximately 100 feet upstream of confluence with North Overflow (A)	North Buena Vista Street (Divergence from Lockheed Drain Channel)	Regional Runoff Frequency Equations	HEC-2	1978	AE	
Oak Springs Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A, AO	
Oakgrove Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Old Topanga Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Old Topanga Canyon	8,000 feet above mouth	Approximately 285 feet upstream of Valley Drive	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Old Topanga Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Oro Fino Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Oso Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Overflow Area of Lockheed Drain Channel	At Vanowen Street	At Southern Pacific Railroad	Regional Runoff Frequency Equations	HEC-2	1978	AE	
Overflow Area of Lockheed Storm Drain	At Vanowen Street	At Southern Pacific Railroad	Regional Runoff Frequency Equations	HEC-2	1978	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Pacific Terrace Harbor	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
Pacoima Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Pacoima Wash	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A, AO	No profiles are shown because of the unpredictability of the location of the stream across the width of the alluvial fan. The potential limits of flooding were delineated by determining the boundaries of the alluvial fans. The depths were assigned using mean depth at critical slope through irregular cross sections.
Pallett Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Palo Comando Creek	Confluence with Cheseboro Creek	County limits	Regional Runoff Frequency Equations	HEC-2	*	AE	
Pico Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Pine Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Piru Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Placerita Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Plum Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Portal Ridge Wash	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	AH	Analysis was based on discharge-frequency curves developed by the USACE from the Little Rock Creek and Big Rock Creek frequency curves.
Puzzle Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Pyramid Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Quail Lake	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Quartz Hill Basin Wash	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Quartz Hill Basin Wash Tributary	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Quartz Hill Wash	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Quigley Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Railroad Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Railroad Canyon Left Overbank	Confluence with Newhall Creek	Approximately 1,200 feet upstream of San Fernando Road	*	*	*	AE	LOMR 12-09-2819P
Ramirez Canyon	Approximately 1,415 feet downstream of Pacific Coast Highway	Approximately 1.1 miles upstream of Pacific Coast Highway	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Rice Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Rio Hondo Channel	Not Provided	Not Provided	HEC-1 and HEC-5 (USACE 1990; USACE 1982)	HEC-2	1991	A	Hydrologic data used in the study were obtained from the “Los Angeles county Drainage Area-Draft Feasibility Report” (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).
Rivo Alto Canal	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
Roberts Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	*	A	
Rock Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Romero Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Rustic Canyon	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Rustic Canyon	Approximately 4,165 feet upstream of Latimer Road	Approximately 1,985 feet upstream of West Sunset Boulevard	Log-Pearson Type III	HEC-2	1979	AE w/ Floodway	
Salt Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
San Dimas Wash	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	*	A	
San Francisquito Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
San Gabriel Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1978	AE	
San Gabriel River	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1978	AE	Analysis is based on the Los Angeles County Flood Control District Stream Gage No. F262E-R. Hydrologic data used in the study were obtained from the “Los Angeles county Drainage Area-Draft Feasibility Report” (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).
San Gabriel River	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1978	A	Hydrologic data used in the study were obtained from the “Los Angeles county Drainage Area-Draft Feasibility Report” (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).
San Martinez Chiquito Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
San Martinez Grande Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
San Pedro Bay	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1991	AE	
Sand Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Sand Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Sand Canyon Creek	Approximately 440 feet downstream of Robinson Ranch Road	Approximately 1,360 feet upstream of Robinson Ranch Road	Regional Runoff Frequency Equations	HEC-2	1984	AE	
Santa Clara River	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	AE	
Santa Clara River	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Santa Clara River Overflow	Not Provided	Not Provided	*	*	*	*	
Santa Maria Canyon	Confluence with Topanga Canyon	Approximately 450 feet upstream of Topanga Canyon Boulevard	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Santa Maria Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Santa Susana Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Santa Susana Pass Wash	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AE	
Santa Ynez Canyon Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Savage Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1978	AE	
Sawtelle-Westwood Channel	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1978	AE	The flow rates were modified due to cultural changes in the watershed (i.e., agricultural to urbanized).
Sierra Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Silver Lake Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Sloan Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Soledad Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
South Fork Santa Clara River	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
South Fork Santa Clara River Tributary	Not Provided	Not Provided	*	*	*	*	
South Portal Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Spade Spring Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Stokes Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Stokes Canyon	At Mulholland Highway	Approximately 0.8 miles upstream of Mulholland Highway	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Stone Canyon Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Stone Canyon Road Tributary	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Sullivan Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Sunshine Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Tapia Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Texas Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Tonner Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Topanga Canyon	Approximately 300 feet above mouth at Pacific Ocean	Approximately 430 feet upstream of Brookside Drive	Log-Pearson Type III	HEC-2	1979	AE	
Topanga Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Topanga Canyon	Not Provided	Not Provided	Log-Pearson Type III	HEC-2	1979	AE	
Towsley Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Trancas Creek	Approximately 500 feet above mouth	Approximately 1,620 feet above mouth	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Triunfo Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Triunfo Creek	Approximately 3,640 feet downstream of Lindero Canyon Road	Approximately 680 feet upstream of Lindero Canyon Road	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Turnbull Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1978	AE, AO	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Unnamed Canyon (Serra Retreat Area)	Approximately 270 feet upstream of Unnamed Road	Approximately 2,100 feet upstream of Unnamed Road	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Unnamed Stream Main Reach	Approximately 340 feet upstream of Pacific Ocean	Approximately 230 feet upstream of Via Coronel	Regional Regression Equations	HEC-2	2012	AE w/ Floodway	Peak discharges were computed using regional regression equations from the United States Geological Survey (USGS) contained in the report titled "The National Summary of U.S. Geological Survey Regression Equation for Estimating Magnitude and Frequency of Floods for Ungaged Sites dated 1993 (Water Resources Investigations Report 94-4002)."
Unnamed Stream Tributary 1	Confluence with Unnamed Stream Main Reach	Approximately 140 feet upstream of Via Landeta	Regional Regression Equations	HEC-2	2012	AE w/ Floodway	Peak discharges were computed using regional regression equations from the United States Geological Survey (USGS) contained in the report titled "The National Summary of U.S. Geological Survey Regression Equation for Estimating Magnitude and Frequency of Floods for Ungaged Sites dated 1993 (Water Resources Investigations Report 94-4002)."
Unnamed Stream Tributary 2	Confluence with Unnamed Stream Main Reach	Approximately 180 feet upstream of Via Zurita	Regional Regression Equations	HEC-2	2012	AE w/ Floodway	Peak discharges were computed using regional regression equations from the United States Geological Survey (USGS) contained in the report titled "The National Summary of U.S. Geological Survey Regression Equation for Estimating Magnitude and Frequency of Floods for Ungaged Sites dated 1993 (Water Resources Investigations Report 94-4002)."
Upper Franklin Canyon Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Upper Los Angeles River Left Overbank	At East Cezar Chavez Avenue	Approximately 1.6 miles upstream of East Cezar Chavez Avenue	HEC-1 and HEC-5 (USACE 1990; USACE 1982)	HEC-2	1991	AE	Hydrologic data used in the study were obtained from the "Los Angeles County Drainage Area-Draft Feasibility Report" (LACADA); Appendix A-Hydrology, updated February 1990 (LACAD 1990).
Upper Stone Canyon Reservoir	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Vasquez Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A, AO	
Villa Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Vine Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	*	A	
Violin Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Wayside Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Weldon Canyon	Approximately 100 feet upstream of Golden State Freeway Bridge	Approximately 1,500 feet upstream of Golden State Freeway Bridge	Log-Pearson Type III	HEC-2	1979	AE w/ Floodway	
West Basin	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
West Channel	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Whitney Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1984	A	
Wilbur Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Wilbur Wash	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Wilbur Wash East	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Wiley Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Willow Springs Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Wilson Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Woodley Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	AE	
Young Canyon Creek	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

Table 13: Summary of Hydrologic and Hydraulic Analyses, continued

Flooding Source	Study Limits Downstream Limit	Study Limits Upstream Limit	Hydrologic Model or Method Used	Hydraulic Model or Method Used	Date Analyses Completed	Flood Zone on FIRM	Special Considerations
Zuma Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	
Zuma Canyon	At Pacific Coast Highway	Approximately 1,140 feet upstream of Bensall Road	Log-Pearson Type III	HEC-2	1979	AE	
Zuma Canyon	Not Provided	Not Provided	Regional Runoff Frequency Equations	HEC-2	1979	A	

*Data not available

Table 14: Roughness Coefficients

Flooding Source	Channel “n”	Overbank “n”
Acton Canyon	0.030-0.039	0.032-0.075
Agua Dulce Canyon	0.042-0.045	0.045-0.100
Amargosa Creek	0.040	0.040
Anaverde Creek	0.040	0.040
Avalon Canyon	0.030-0.050	0.030-0.050
Big Rock Wash	0.050	0.050
Bouquet Canyon Creek	0.020-0.048	0.045-0.080
Cheseboro Creek	0.030	0.050
Cold Creek	0.030	0.050
Dark Canyon	0.030	0.050
Dry Canyon	0.030	0.050-0.060
Escondido Canyon	0.039	0.040-0.100
Flow Along Empire Avenue	0.014-0.050	0.014-0.050
Flowline No. 1	0.030	0.030
Garapito Creek	0.030	0.050
Hacienda Creek	0.030	0.060
Haskell Canyon	0.020-0.042	0.031-0.050
Iron Canyon	0.040	0.050-0.130
Kagel Canyon	0.035-0.065	0.035-0.065
La Mirada Creek	0.025-0.030	0.025-0.030
Lake Street Overflow	0.014-0.050	0.014-0.050
Las Flores Canyon	0.030	0.050
Las Virgenes Creek	0.012-0.040	0.050-0.130
Liberty Canyon	0.030	0.050
Lindero Canyon Above Confluence with Medea Creek	0.030	0.050
Lindero Canyon Above Lake Lindero	0.030	0.050
Little Rock Wash Profile A	0.030	0.050
Little Rock Wash Profile B	0.030	0.050
Little Rock Wash Profile C	0.030	0.050
Lobo Canyon	0.030	0.050
Lockheed Drain Channel	0.014-0.050	0.014-0.050

Table 14: Roughness Coefficients, continued

Flooding Source	Channel "n"	Overbank "n"
Lopez Canyon Channel	0.030	0.060
Malibu Creek	0.030	0.050
Medea Creek	0.030	0.050
Medea Creek (above Ventura Freeway)	0.030	0.050
Mill Creek	0.030	0.060
Mint Canyon Creek	0.015-0.050	0.050-0.130
Mint Canyon Creek Overflow	0.015-0.100	0.080-0.100
Newhall Creek	0.015-0.052	0.045-0.100
Newhall Creek Left Overbank 2	0.032-0.040	0.100-0.120
North Overflow	0.014-0.050	0.014-0.050
Old Topanga Canyon	0.030	0.050
Overflow Area of Lockheed Drain Channel	0.030-0.040	0.030-0.040
Overflow Area of Lockheed Storm Drain	0.014-0.050	0.014-0.050
Palo Comando Creek	0.030	0.050
Railroad Canyon	0.035-0.045	0.100
Railroad Canyon Left Overbank	0.028-0.032	0.100
Ramirez Canyon	0.030	0.050
Rustic Canyon	0.035-0.065	0.030-0.065
San Francisquito Canyon Creek	0.038	0.042
Sand Canyon	0.020-0.130	0.050-0.130
Santa Clara River	0.032-0.040	0.010-0.100
Santa Clara River Overflow	0.032	0.036
Santa Maria Canyon	0.030	0.050
South Fork Santa Clara River	0.020-0.050	0.05-0.100
South Fork Santa Clara River Tributary	0.020-0.050	0.05-0.100
Spade Spring Canyon Creek	0.070	0.075
Stokes Canyon	0.030	0.050
Topanga Canyon	0.030	0.050
Trancas Creek	0.030	0.050

Table 14: Roughness Coefficients, continued

Flooding Source	Channel "n"	Overbank "n"
Triunfo Creek	0.030	0.050
Unnamed Canyon (Serra Retreat Area)	0.030	0.050
Unnamed Stream Main Reach	0.015-0.040	0.015-0.120
Unnamed Stream Tributary 1	0.015-0.045	0.015-0.110
Unnamed Stream Tributary 2	0.015-0.045	0.015-0.110
Upper Los Angeles River Left Overbank	0.050-0.150	0.050-0.150
Weldon Canyon	0.035-0.065	0.035-0.065
Zuma Canyon	0.030	0.050

5.3 Coastal Analyses

For the areas of Los Angeles County that are impacted by coastal flooding processes, coastal flood hazard analyses were performed to provide estimates of coastal BFEs. Coastal BFEs reflect the increase in water levels during the 1% annual chance flood event due to high tides, storm surge, and wave effects.

The following subsections provide summaries of how each coastal process was considered for this FIS Report. Greater detail (including assumptions, analysis, and results) is available in the archived project documentation. Table 15 summarizes the methods and/or models used for the coastal analyses. Refer to Section 2.5.1 for descriptions of the terms used in this section.

Table 15: Summary of Coastal Analyses

Flooding Source	Study Limits From	Study Limits To	Hazard Evaluated	Model or Method Used	Date Analysis was Completed
Pacific Ocean	Entire coastline of Los Angeles County	Entire coastline of Los Angeles County	Wave Setup and Runup	FEMA Pacific Guidelines 2005, Stockdon/ DIM, TAW	04/01/2015
Pacific Ocean	Entire coastline of Los Angeles County	Entire coastline of Los Angeles County	SWEL[1]	Tide Frequency Analysis	04/01/2015
Pacific Ocean	Entire coastline of Los Angeles County	Entire coastline of Los Angeles County	Dune Erosion	FEMA Pacific Guidelines 2005, MK&A, Kriebel and Dean	04/01/2015

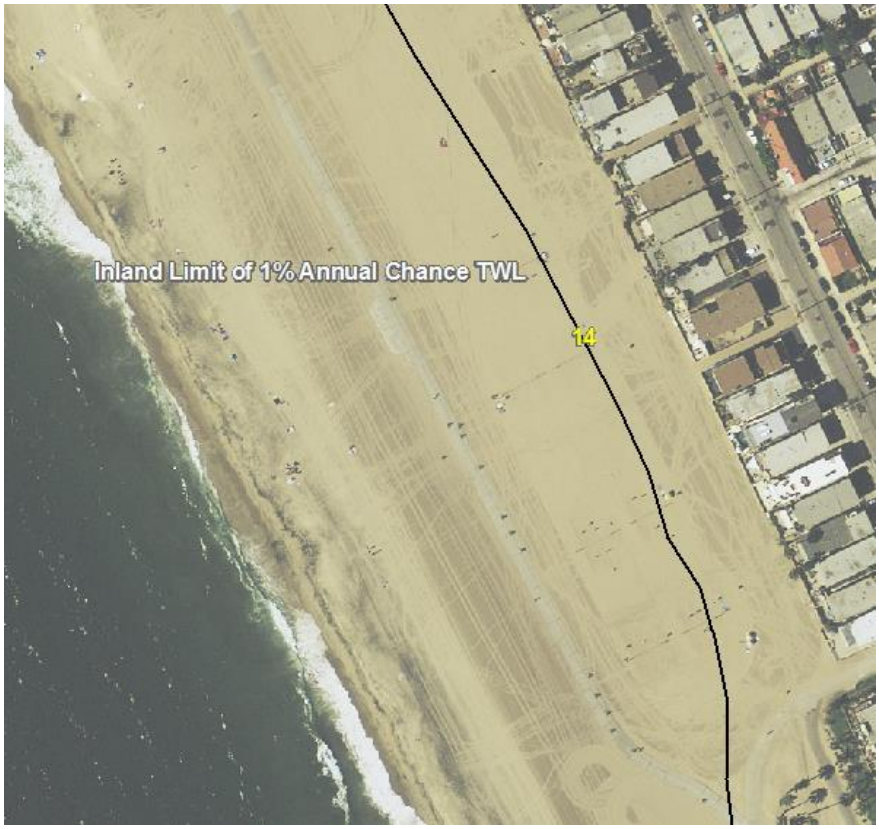
Table 15: Summary of Coastal Analyses, continued

Flooding Source	Study Limits From	Study Limits To	Hazard Evaluated	Model or Method Used	Date Analysis was Completed
Pacific Ocean	Entire coastline of Los Angeles County	Entire coastline of Los Angeles County	Wave Overtopping	FEMA Pacific Guidelines 2005, Cox-Machemehl	04/01/2015
Pacific Ocean	Entire coastline of Los Angeles County	Entire coastline of Los Angeles County	Harbor Analysis	FEMA Pacific Guidelines 2005, Penney and Price, Wiegel	04/01/2015

5.3.1 Total Stillwater Elevations

Total stillwater elevations were not analyzed in Los Angeles County and are not typically analyzed along the Pacific coast. In Los Angeles County, coastal BFE were ultimately determined from TWL. The TWL for the 1% annual chance event were determined for areas subject to coastal flooding. The models and methods that were used to determine storm surge and wave setup are listed in Table 15. The TWL that was calculated for each transect during the coastal analyses is shown in Table 17, "Coastal Transect Parameters." Figure 8 shows the TWL for the 1% annual chance event that was determined for this coastal analysis.

Figure 8: 1% Annual Chance Total Water Levels for Coastal Areas (feet NAVD88)



Astronomical Tide

Water level data were obtained from the NOAA National Ocean Service (NOS) tide gage network, which includes multiple gages along the California coast. The observed tide records were assumed to include all components of the SWL, including astronomical tides and storm surge.

Storm Surge Statistics

Storm surge magnitudes were obtained from the NOAA NOS historical observed tide gage records. Although the observed tide records along the coast are mostly complete, there are some spatial and temporal gaps. Temporal gaps in the records were filled using an approach that applied the statistical relationships of observed non-tidal residuals between adjacent tide gages to estimate the non-tidal residual components at stations with missing data. Using these statistical correlations and an understanding of the spatial variability of regional storms, the gaps in the tide station records were empirically reconstructed to provide a continuous hourly time series of stillwater levels for the 1960-2009 hindcast period at each tide gage in the open Pacific coast study area. SWL time series were subsequently evaluated for observed sea level trends and adjusted to the current national Datum Epoch of 1983-2001.

Once the hourly SWL hindcast was reconstructed at each tide gage, the reconstructed time series were applied along spatially homogeneous reaches of the coastline. For some open Pacific coastal reaches, it was determined that the nearest long-term tide station did not adequately represent the local tidal characteristics due to smaller-scale effects in the region. For these reaches, the predicted tides from short-term subordinate stations were combined with the reconstructed non-tidal residual time series from the long-term stations to produce a representative SWL hindcast.

Table 16 provides the gage name, managing agency, gage type, gage identifier, start date, end date, and statistical methodology applied to each gage used to determine the 1% annual chance SWEL.

Table 16: Tide Gage Analysis Specifics

Gage Name	Managing Agency of Tide Gage Record	Gage Type	Start Date	End Date	Statistical Methodology
Los Angeles (9410660)	NOAA	Tide	1923	2009	GEV
Santa Monica (9410840)	NOAA	Tide	1973	2009	GEV

5.3.2 Waves

The SWL were combined with calculated wave setup and runup heights to determine TWL at each analysis transect. The initial modeling of the offshore and nearshore wave climates within the study area was a critical component to the analysis. To provide adequate wave input data for the 1-D transect-based TWL analyses, Oceanweather Inc. developed a continuous 50-year

hourly deepwater wave hindcast for the period of January 1, 1960 to December 31, 2009 along the California coastline (OWI, 2009). The wave modeling consisted of three nested model grids of sequentially higher resolution to resolve the wave conditions at varying spatial scales. These included the basin (global), regional (Northeast Pacific Ocean), and coastal (California) grids.

The deep-water wave characteristics were subsequently transformed to nearshore wave characteristics at the edge of the surf zone in approximately 49 feet water depth. The nearshore wave transformation modeling was conducted by the Scripps Institute of Oceanography (SIO) Coastal Data iNformation Program (CDIP) research group in collaboration with BakerAECOM using the SIO SHELF model (SIO, 2014). In select localized areas of complex shoreline geometry, wave data were also provided at 16 and 33 feet water depth. The output nearshore wave characteristics from this wave transformation model provided the input conditions for the 1-D transect-based wave setup and runup calculations.

5.3.3 Coastal Erosion

A single storm episode can cause extensive erosion in coastal areas. Storm-induced dune erosion was evaluated to determine the modification to existing coastal dune topography that is expected with the 1% annual chance flood events. Dune erosion was analyzed using the methods listed in Table 15.

5.3.4 Wave Hazard Analyses

This section is not applicable to this Flood Risk Project.

Table 17: Coastal Transect Parameters

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	1	320653.1357	3768287.9841	16.5	17.2	17.7	18.2	19.3
Pacific Ocean	2	321969.8308	3768276.4153	11.1	11.7	12.2	12.8	14.2
Pacific Ocean	3	322326.4471	3768238.1425	18.2	19.2	20.0	20.8	22.7
Pacific Ocean	4	323809.146	3767756.7132	11.8	12.6	13.4	14.2	16.6
Pacific Ocean	5	324255.2984	3767695.5632	13.7	14.3	14.8	15.3	16.3
Pacific Ocean	6	325745.9962	3767426.5036	11.6	12.4	13.0	13.7	15.7
Pacific Ocean	7	326542.1422	3767336.505	18.1	19.1	19.7	20.4	22.0

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	8	326960.5919	3767259.1744	15.7	16.4	16.9	17.4	18.6
Pacific Ocean	9	327578.8924	3767091.1492	17.6	18.4	19.0	19.6	20.9
Pacific Ocean	10	328450.7567	3766953.4398	11.4	12.2	12.9	13.6	15.7
Pacific Ocean	11	329193.3529	3766766.4068	16.9	18.5	19.8	21.2	24.9
Pacific Ocean	12	329961.1946	3766265.6737	14.5	15.0	15.4	15.8	16.7
Pacific Ocean	13	331064.9102	3765287.3225	18.2	18.9	19.3	19.8	20.7
Pacific Ocean	14	331606.4682	3764734.6384	17.4	18.3	19.0	19.7	21.4
Pacific Ocean	15	331911.3155	3764404.0478	19.1	20.1	20.9	21.7	23.7

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	16	332583.9556	3763663.7135	14.2	15.3	16.3	17.4	20.4
Pacific Ocean	17	333190.6127	3763642.6014	14.4	15.2	15.9	16.6	18.5
Pacific Ocean	18	334022.3593	3763631.5861	12.0	12.7	13.3	14.0	15.8
Pacific Ocean	19	335090.1622	3764751.1847	12.5	13.0	13.3	13.6	14.4
Pacific Ocean	20	335551.1775	3765190.9341	17.1	17.7	18.1	18.5	19.3
Pacific Ocean	21	335782.59	3765349.0677	10.9	11.3	11.7	12.0	13.0
Pacific Ocean	22	336806.6982	3765724.6758	11.2	11.6	11.8	12.0	12.5
Pacific Ocean	23	337098.9493	3765786.1015	19.2	20.6	21.7	22.9	25.6

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	24	337680.5678	3765915.3151	17.0	17.8	18.5	19.1	20.7
Pacific Ocean	25	338478.5568	3766240.8588	16.6	17.9	19.0	20.2	23.2
Pacific Ocean	26	338700.2203	3766375.7149	11.4	11.9	12.2	12.6	13.5
Pacific Ocean	27	339835.3143	3766633.2752	17.3	18.3	19.2	20.2	22.7
Pacific Ocean	28	340802.9659	3766556.7801	25.1	27.2	28.9	30.6	34.7
Pacific Ocean	29	341850.0845	3766361.4861	15.0	15.5	15.9	16.2	16.8
Pacific Ocean	30	342961.9212	3766220.5129	16.1	16.5	16.8	17.0	17.5
Pacific Ocean	31	343854.6675	3766306.0718	17.5	18.0	18.4	18.7	19.3

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	32	344847.1918	3766268.5749	17.6	18.1	18.5	18.8	19.3
Pacific Ocean	33	345803.4617	3766928.7825	11.7	12.1	12.5	12.8	13.6
Pacific Ocean	34	346352.8511	3767121.9044	15.9	16.3	16.5	16.7	17.1
Pacific Ocean	35	347512.9476	3766998.7388	16.4	17.0	17.4	17.7	18.5
Pacific Ocean	36	348065.5797	3766995.8764	16.8	17.8	18.5	19.2	20.9
Pacific Ocean	37	348247.783	3767003.667	16.6	17.2	17.6	17.9	18.7
Pacific Ocean	38	349001.6219	3766925.2441	16.3	17.6	18.7	19.9	23.0
Pacific Ocean	39	349426.6024	3766964.4954	11.4	11.9	12.2	12.6	13.4

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	40	350193.8296	3766994.663	14.2	16.4	18.6	21.4	31.0
Pacific Ocean	41	351994.5837	3766978.0753	20.6	22.4	23.7	25.2	28.8
Pacific Ocean	42	352413.6663	3767001.3553	18.1	19.4	20.4	21.5	24.2
Pacific Ocean	43	352925.7953	3766995.918	18.9	21.0	22.5	24.2	28.2
Pacific Ocean	44	354426.0884	3766974.6102	11.5	11.9	12.2	12.5	13.1
Pacific Ocean	45	354677.2706	3767029.5611	17.4	18.6	19.5	20.4	22.5
Pacific Ocean	46	355131.7004	3767138.4302	12.1	14.1	16.4	19.6	32.7
Pacific Ocean	47	356026.0023	3766916.77	15.2	15.7	16.1	16.5	17.4

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	48	356348.793	3766835.6505	18.9	20.7	22.0	23.3	26.2
Pacific Ocean	49	357264.0348	3766881.0862	15.9	16.5	17.0	17.4	18.4
Pacific Ocean	50	357846.3516	3766710.7684	15.6	16.2	16.6	17.1	18.0
Pacific Ocean	51	358655.5798	3766452.0954	15.1	15.7	16.2	16.6	17.6
Pacific Ocean	52	359157.5578	3765855.2185	13.6	14.1	14.6	15.0	16.1
Pacific Ocean	53	360251.3251	3764758.5672	15.3	16.0	16.5	17.0	18.1
Pacific Ocean	54	360693.277	3764191.3915	18.2	19.1	19.8	20.6	22.4
Pacific Ocean	55	361327.014	3763330.3876	13.7	14.4	14.9	15.4	16.7

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	56	361615.7578	3763030.5278	13.7	14.4	14.9	15.4	16.6
Pacific Ocean	57	362552.743	3761712.7912	15.2	16.0	16.7	17.3	19.1
Pacific Ocean	58	363307.1206	3760546.5996	13.7	14.5	15.0	15.7	17.3
Pacific Ocean	59	363839.5062	3759818.687	13.2	13.7	14.1	14.6	15.6
Pacific Ocean	60	364331.9588	3759300.5518	17.5	18.2	18.7	19.2	20.1
Pacific Ocean	61	364773.4088	3758101.1857	15.1	15.7	16.0	16.4	17.0
Pacific Ocean	62	365095.8898	3757669.9149	12.9	13.4	13.9	14.3	15.4
Pacific Ocean	63	365799.4692	3756422.9669	19.8	20.9	21.8	22.7	24.8

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	64	366520.826	3754764.2415	18.3	19.4	20.2	21.1	23.3
Pacific Ocean	65	366908.0716	3753875.1579	13.1	13.6	13.9	14.3	15.1
Pacific Ocean	66	367291.398	3753061.786	20.0	21.1	22.0	22.9	25.1
Pacific Ocean	67	367594.9571	3752345.7636	16.6	17.6	18.3	19.1	21.0
Pacific Ocean	68	367676.71	3752149.6748	14.7	15.3	15.8	16.2	17.3
Pacific Ocean	69	367779.0022	3751892.9293	14.6	15.2	15.6	16.0	16.9
Pacific Ocean	70	367989.0033	3751439.317	15.5	16.2	16.7	17.2	18.3
Pacific Ocean	71	368433.4019	3750380.6531	15.4	16.1	16.6	17.0	18.1

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	72	368645.6318	3749934.7334	16.9	17.6	18.1	18.7	19.8
Pacific Ocean	73	368856.3497	3749546.2682	18.0	18.9	19.5	20.1	21.4
Pacific Ocean	74	369261.4317	3748704.2873	16.0	16.9	17.6	18.3	20.1
Pacific Ocean	75	369495.8646	3747942.623	16.5	17.6	18.5	19.5	22.3
Pacific Ocean	76	369572.8345	3747675.2423	15.4	16.4	17.1	18.0	20.3
Pacific Ocean	77	369729.9533	3747192.7507	16.1	17.0	17.6	18.3	20.0
Pacific Ocean	78	370111.2844	3746405.2469	15.1	15.8	16.4	17.0	18.4
Pacific Ocean	79	370109.8452	3746382.3876	19.6	21.1	22.2	23.4	26.4

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	80[1]	370210.0458	3745669.9463	*	*	*	20.7	22.8
Pacific Ocean	81[1]	370967.8569	3745239.3381	7.6	8.0	8.3	8.7	9.9
Pacific Ocean	82	371060.1431	3745172.9306	11.3	11.8	12.2	12.7	13.7
Pacific Ocean	83	371150.0617	3744919.5309	11.7	12.2	12.6	13.0	13.9
Pacific Ocean	84	371045.0391	3744462.6429	10.6	11.0	11.3	11.7	12.5
Pacific Ocean	85	370751.4248	3743718.6068	12.0	12.6	13.1	13.6	15.0
Pacific Ocean	86	370656.163	3743020.4678	14.3	15.4	16.4	17.5	20.6
Pacific Ocean	87	370358.0954	3742272.851	16.6	17.8	18.8	19.9	23.0

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	88	370175.146	3741885.6494	11.6	12.2	12.8	13.4	15.1
Pacific Ocean	89	369731.8934	3741347.9053	12.9	13.6	14.3	15.1	17.3
Pacific Ocean	90	369027.4036	3740314.5299	12.8	14.5	16.1	18.1	24.8
Pacific Ocean	91	367791.279	3739176.7024	13.3	14.4	15.2	16.2	19.1
Pacific Ocean	92	368330.6732	3736194.8737	14.7	17.0	19.2	22.0	31.7
Pacific Ocean	93	369657.8942	3733933.3681	14.6	16.4	18.1	20.2	26.4
Pacific Ocean	94	371380.6031	3733810.6651	14.5	15.5	16.4	17.3	19.6
Pacific Ocean	95	372042.8234	3733865.093	15.3	16.4	17.4	18.4	21.2

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	96	372860.2551	3733517.2855	13.7	14.8	15.7	16.6	19.2
Pacific Ocean	97	373429.9425	3733362.1196	12.6	14.0	15.5	17.4	24.2
Pacific Ocean	98	373601.8044	3733250.4537	19.2	20.5	21.4	22.4	24.8
Pacific Ocean	99	374032.5323	3732892.6628	15.1	16.0	16.6	17.2	18.8
Pacific Ocean	100	375791.6481	3731885.8916	12.4	13.5	14.5	15.6	19.0
Pacific Ocean	101	377117.0643	3731173.0772	11.6	12.3	12.9	13.6	15.5
Pacific Ocean	102	377296.6972	3731094.4032	17.4	18.9	20.1	21.6	25.7
Pacific Ocean	103	378379.2504	3730586.5428	13.1	13.9	14.5	15.2	17.0

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	104	379433.3757	3730189.635	17.0	18.3	19.4	20.5	23.4
Pacific Ocean	105	380556.7606	3729731.017	11.2	11.8	12.2	12.7	13.9
Pacific Ocean	106	381195.594	3729838.4281	12.5	13.4	14.1	14.8	16.9
Pacific Ocean	107	381308.5839	3729851.9043	15.7	16.8	17.7	18.6	21.1
Pacific Ocean	108[1]	383092.4717	3730199.805	*	*	*	11.6	12.8
Pacific Ocean	109[1]	382653.5716	3732101.8157	*	*	*	10.9	12.0
Pacific Ocean	110[1]	384342.2859	3730688.9011	22.3	23.0	23.4	23.7	24.2
Pacific Ocean	111[1]	387198.5041	3731761.1628	7.8	8.2	8.6	9.0	10.2

Table 17: Coastal Transect Parameters, continued

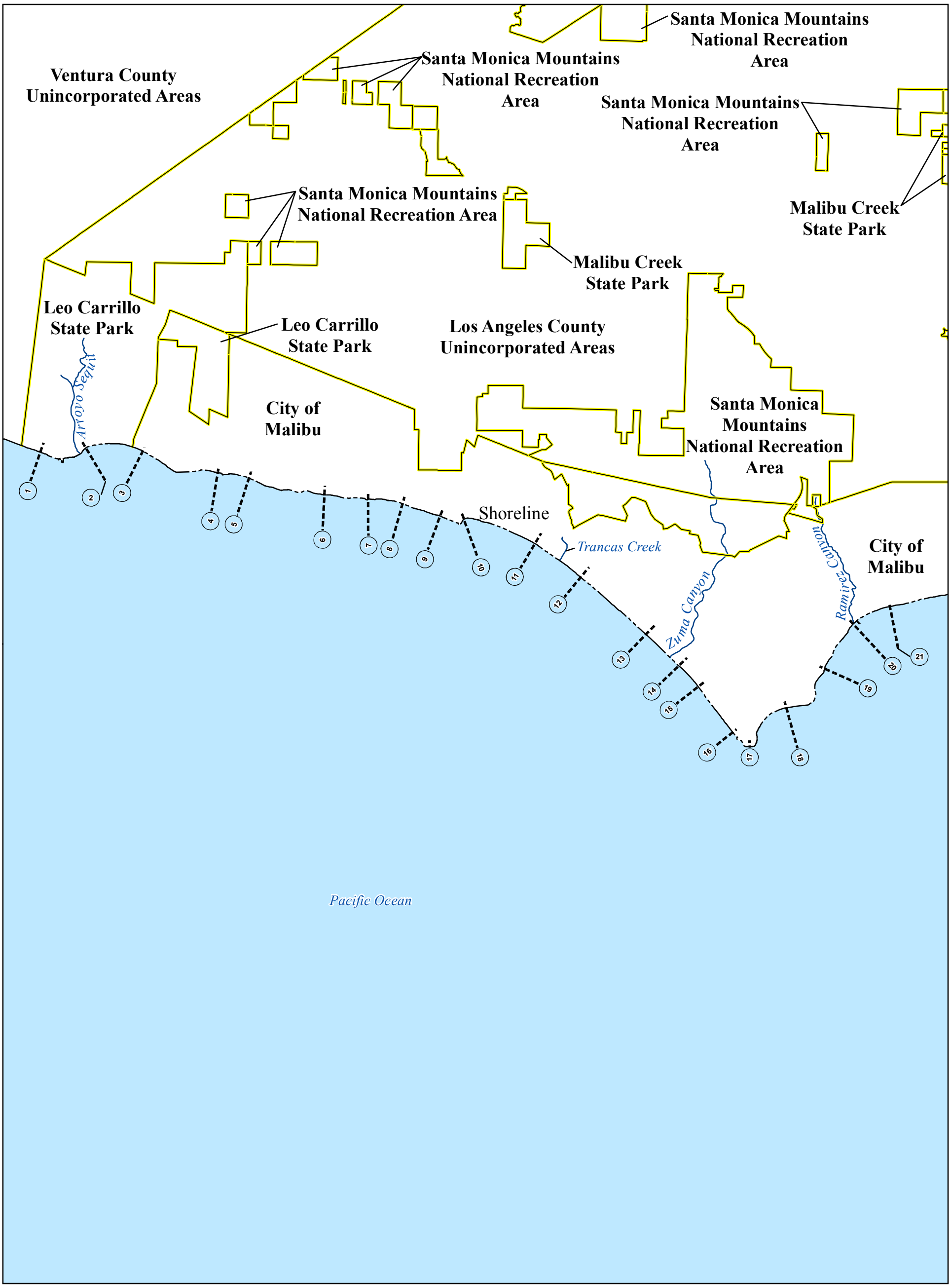
Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	112	391129.6483	3735969.6138	7.6	7.7	7.9	8.0	8.2
Pacific Ocean	113	392127.012	3736578.5783	7.8	8.0	8.2	8.4	8.8
Pacific Ocean	114	392883.5209	3735663.3487	7.7	7.9	8.0	8.1	8.3
Pacific Ocean	115	393487.2321	3735281.146	7.9	8.1	8.2	8.3	8.5
Pacific Ocean	116	393568.7913	3735209.4322	8.2	8.3	8.4	8.4	8.6
Pacific Ocean	117	393893.6889	3735044.4579	8.2	8.4	8.5	8.7	9.0
Pacific Ocean	118	394558.1625	3734657.9184	8.7	8.8	8.9	8.9	9.0
Pacific Ocean	119	395064.8013	3734318.501	7.3	7.4	7.5	7.5	7.7

Table 17: Coastal Transect Parameters, continued

Flood Source	Coastal Transect	X, Y Coordinates (Meters, NAD83 UTM Zone 11N)		Total Water Level (feet NAVD88)				
		X	Y	10% Annual Chance	4% Annual Chance	2% Annual Chance	1% Annual Chance	0.2% Annual Chance
Pacific Ocean	120	395907.5247	3734834.595	8.6	8.8	8.9	9.0	9.3
Pacific Ocean	121	395665.3019	3733932.7491	10.9	11.2	11.4	11.5	11.8

*Not calculated for this Flood Risk Project
[1]Wave analysis transects within sheltered harbor areas

Figure 9: Transect Location Map



1 inch = 5,417 feet 1:65,000

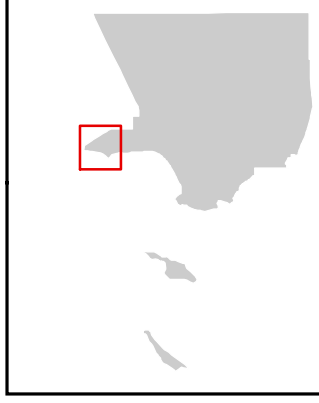
N

0 1,550 3,100 6,200 9,300 12,400 Feet

Map Projection:

Universal Transeverse Mercator Zone 11 North;
North American Datum 1983

COUNTY LOCATOR



NATIONAL FLOOD INSURANCE PROGRAM

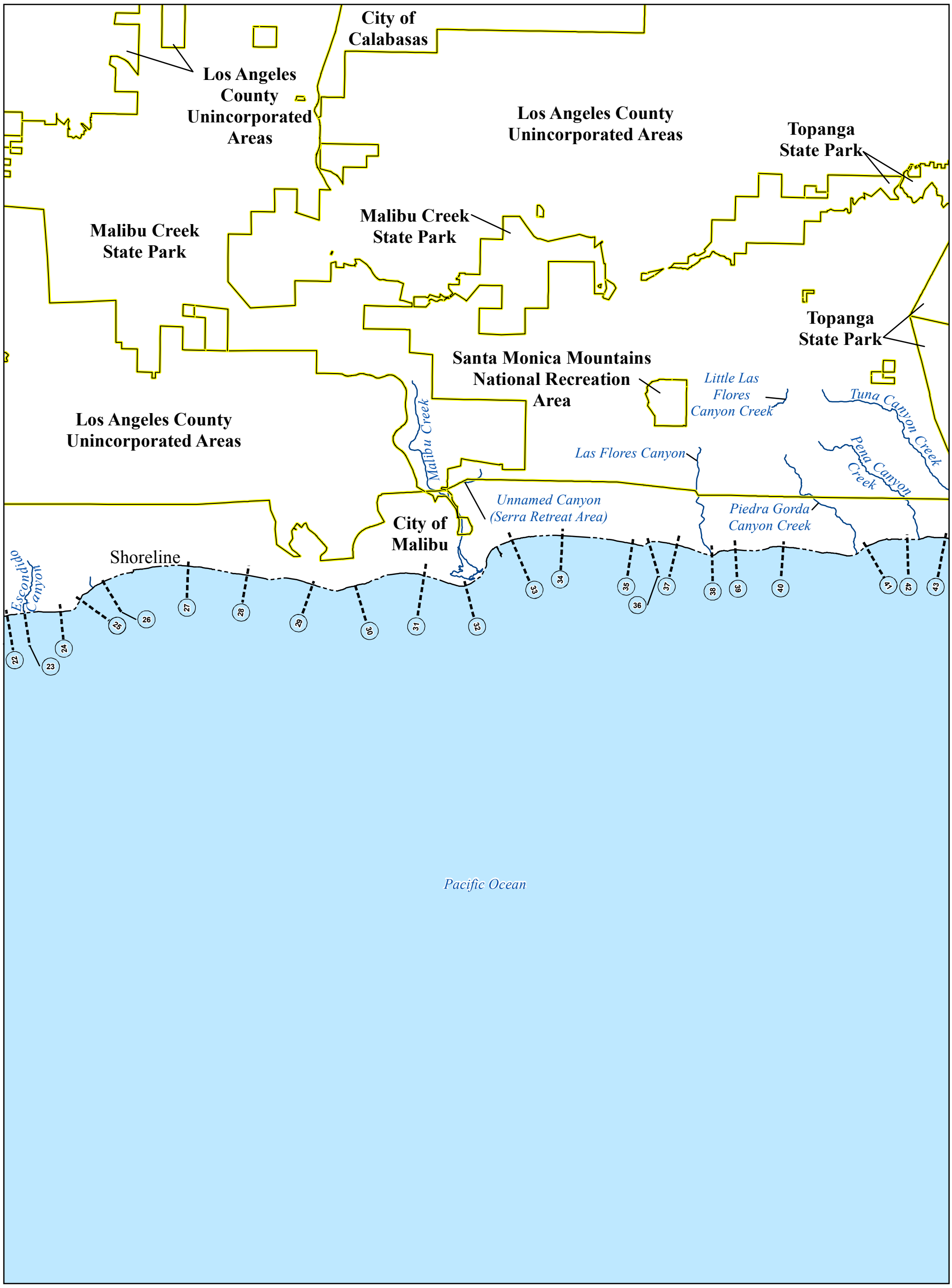
Transect Location Map 1

PANELS WITH TRANSECTS

1487G, 1491G, 1492G, 1511G, 1513G, 1514G, 1518G, 1519G

FEMA

Figure 9: Transect Location Map, continued



1 inch = 5,417 feet 1:65,000

N

0 1,550 3,100 6,200 9,300 12,400 Feet

Map Projection:

Universal Transeverse Mercator Zone 11 North;
North American Datum 1983

COUNTY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

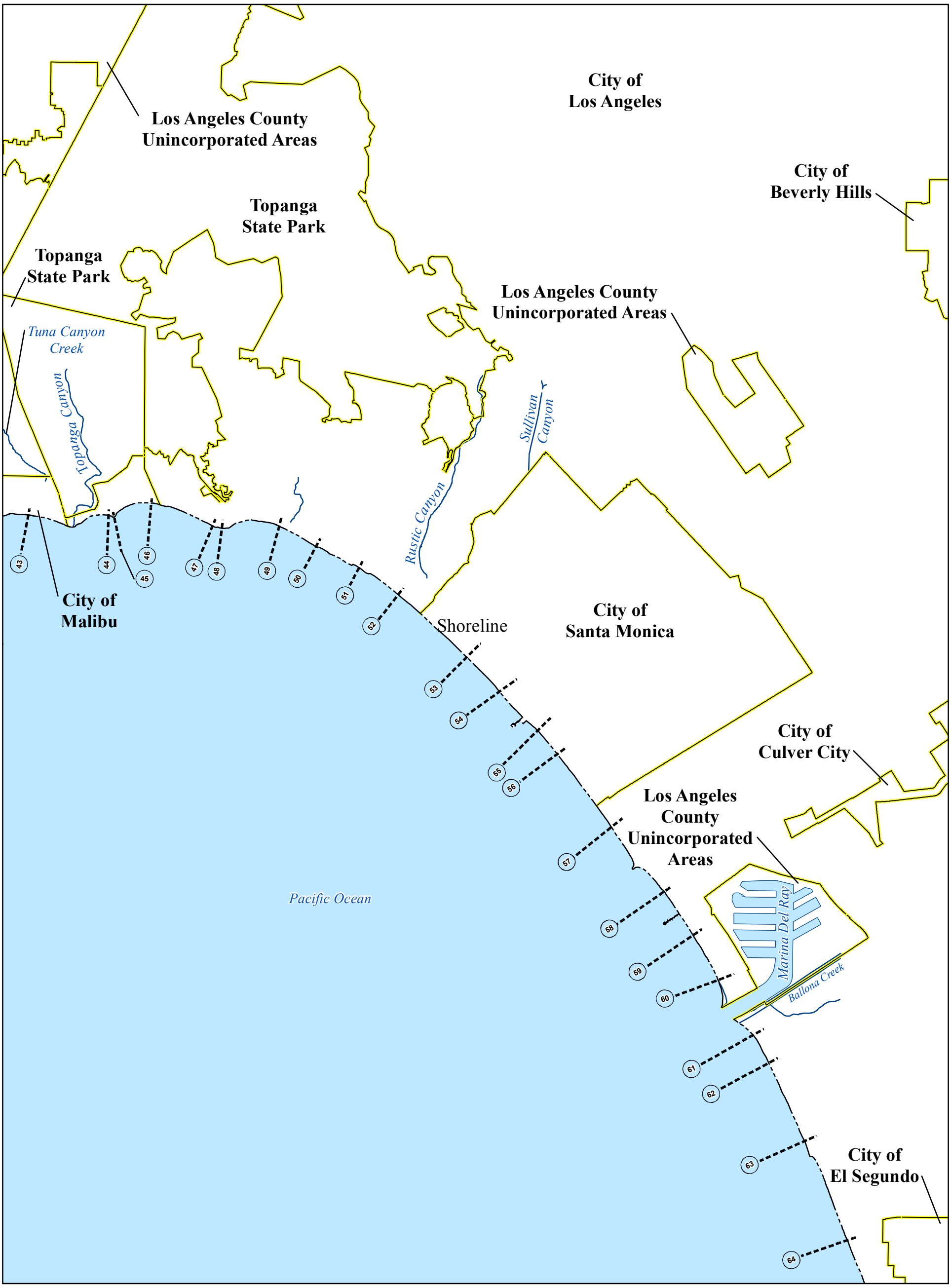
Transect Location Map 2

PANELS WITH TRANSECTS

1519G, 1536G, 1537G, 1538G, 1539G, 1541G, 1542G, 1543G, 1561G, 1562G

FEMA

Figure 9: Transect Location Map, continued



1 inch = 5,417 feet 1:65,000

Feet
0 1,550 3,100 6,200 9,300 12,400

Map Projection:
Universal Transeverse Mercator Zone 11 North;
North American Datum 1983

COUNTY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

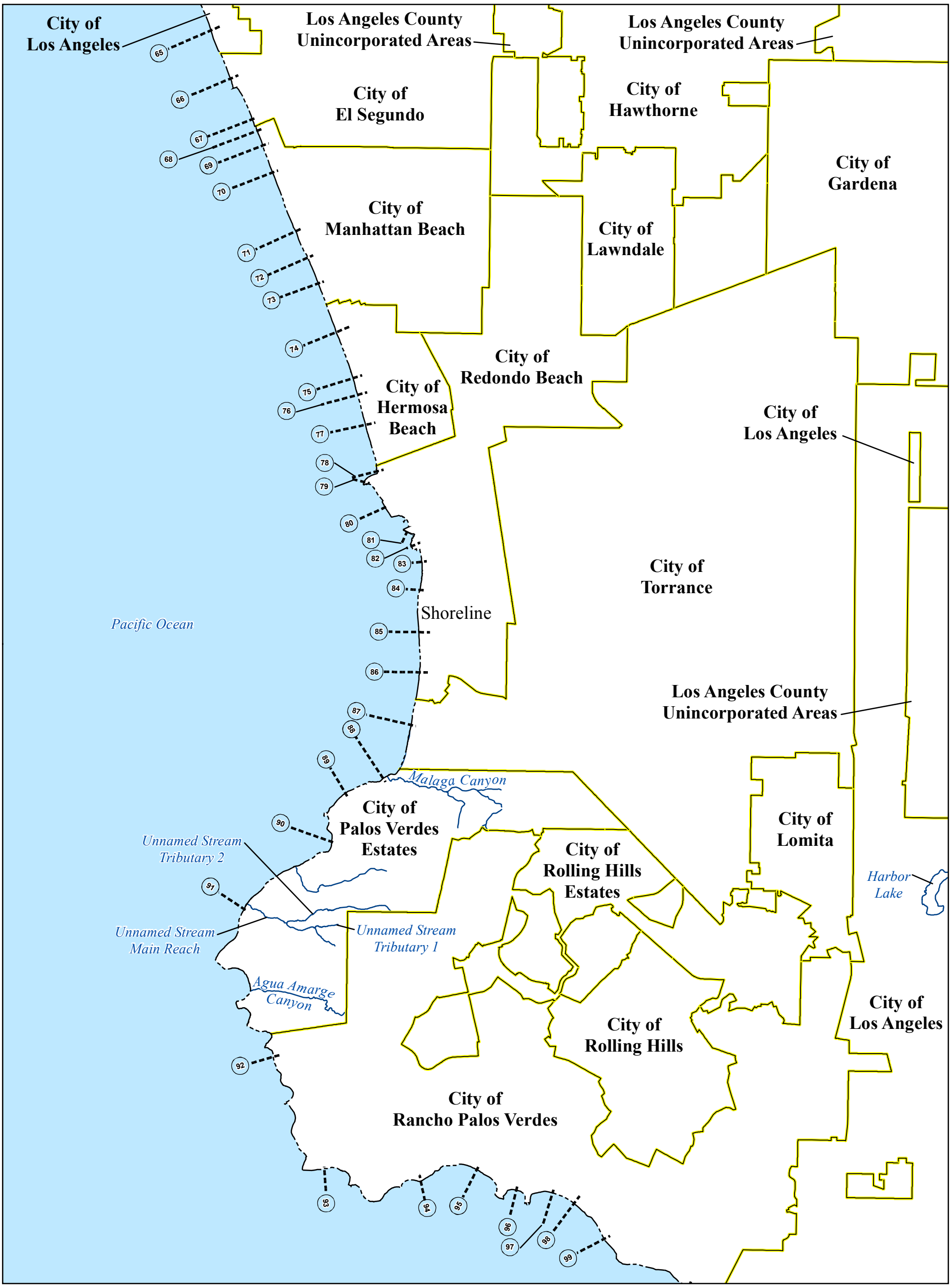
Transect Location Map 3

PANELS WITH TRANSECTS

1562G, 1566G, 1567G, 1569G, 1588G, 1751G, 1752G, 1754G, 1762G, 1766G

FEMA

Figure 9: Transect Location Map, continued



1 inch = 5,417 feet 1:65,000

Feet
0 1,550 3,100 6,200 9,300 12,400

Map Projection:
Universal Transeverse Mercator Zone 11 North;
North American Datum 1983

COUNTY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

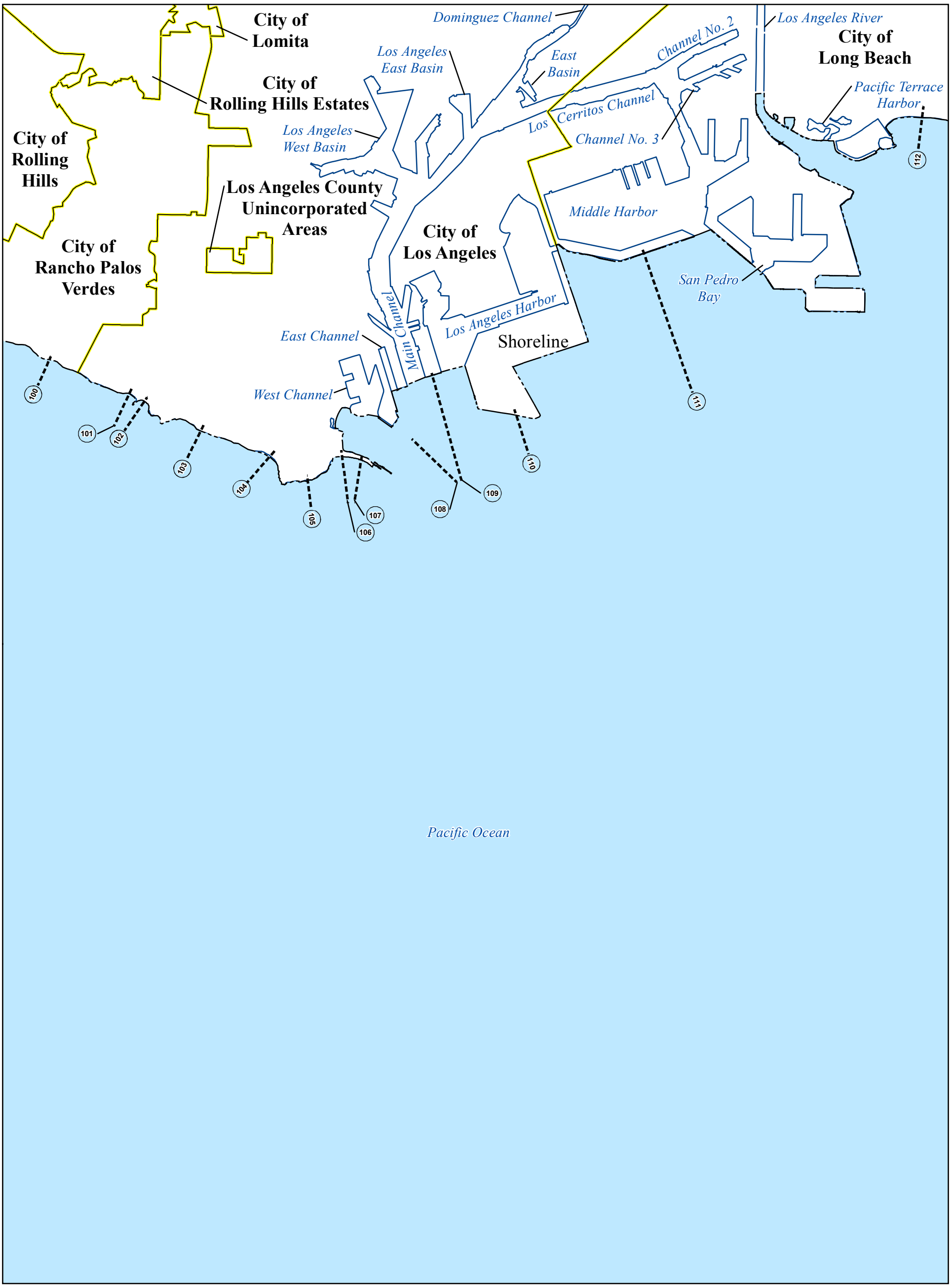
Transect Location Map 4

PANELS WITH TRANSECTS

1762G, 1766G, 1768G, 1906G, 1907G, 1909G, 1916H, 1917H, 1918H, 2006G, 2007G, 2026G

FEMA

Figure 9: Transect Location Map, continued



1 inch = 5,417 feet 1:65,000

N

0 1,550 3,100 6,200 9,300 12,400 Feet

Map Projection:

Universal Transeverse Mercator Zone 11 North;
North American Datum 1983

COUNTY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

Transect Location Map 5

PANELS WITH TRANSECTS

1968G, 2027G, 2029G, 2032G, 2033G, 2034G, 2051G, 2052G, 2053G

FEMA

Figure 9: Transect Location Map, continued

1 inch = 5,417 feet 1:65,000

N

0 1,550 3,100 6,200 9,300 12,400 Feet

Map Projection:

Universal Transeverse Mercator Zone 11 North;
North American Datum 1983

COUNTY LOCATOR

NATIONAL FLOOD INSURANCE PROGRAM

Transect Location Map 6

PANELS WITH TRANSECTS

1968G, 1969G, 2057G, 2076G

FEMA