METEOROLOGY

Baldwin Hills Project

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by

Harold Raynard, Civil Engineer
County of Los Angeles
Department of County Engineer
Environmental Development Division

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INTRODUCTION

The following section presents a general description of the climate of the Los Angeles vicinity. Data tables for precipitation and air quality were obtained from monitoring stations on-site. Temperature averages, for the lack of any on-site station, were calculated from records for the Los Angeles International Airport, 9.6 kilometers (6 miles) to the south.

CLIMATE

General Description

Southern California lies between 30 and 45 degrees north latitude on the western edge of North America. This position places Southern California under the influence of a large off-shore, semipermanent high pressure cell. During the summer months this large swirling mass of air is responsible for blocking and diverting the majority of storm systems. As winter approaches the cell migrates toward the equator allowing storms from the north and west to enter the Southland. The climate is characterized by long, hot dry summers and cool, moist winters.

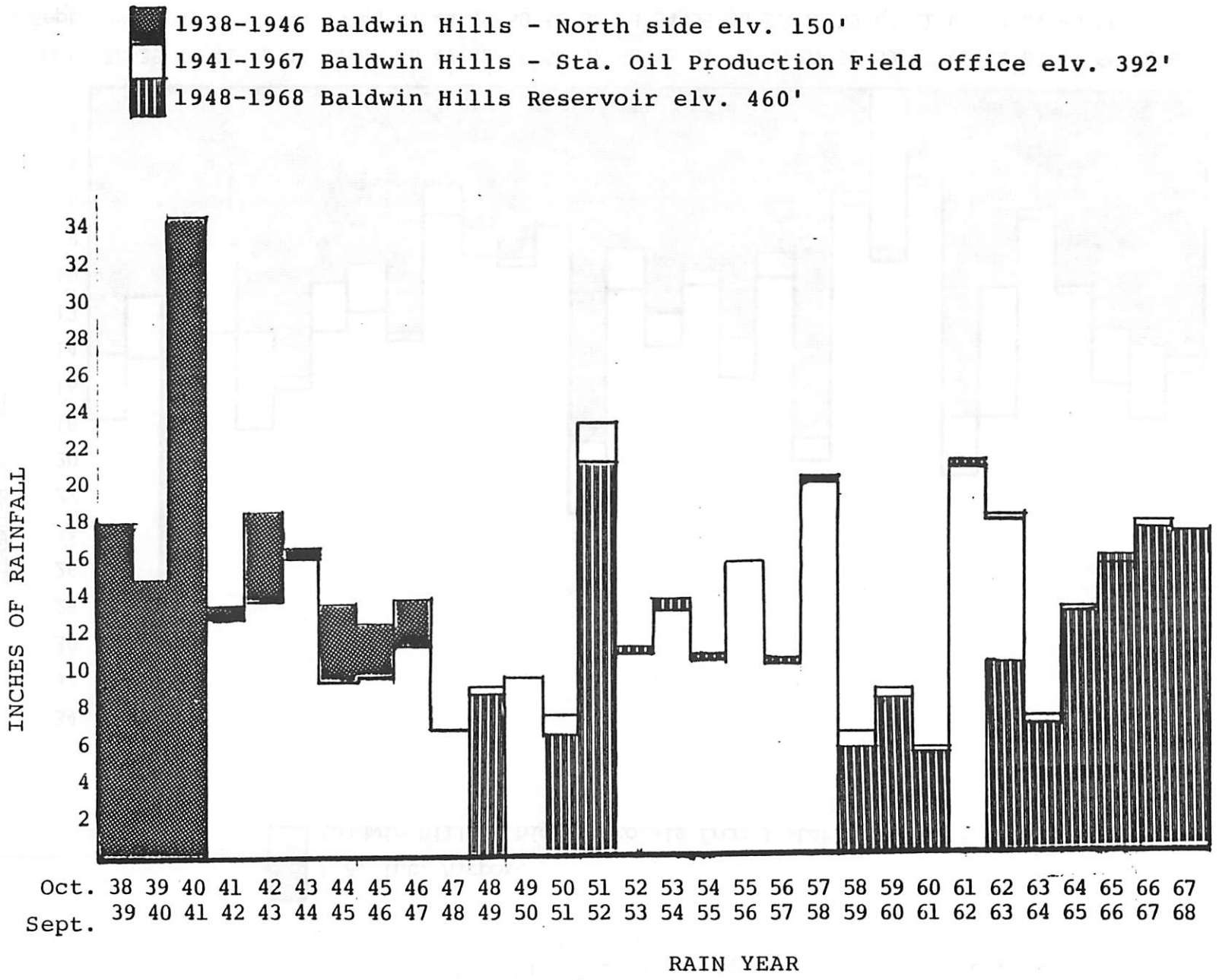
The Baldwin Hills are approximately 6.4 kilometers (4 miles) from the Pacific Ocean and lie within the Maritime Fringe climatic region of Southern California (Russell, 1953). The Maritime Fringe climatic region is characterized by average temperatures rarely falling below 10 or above 21 degrees Celsius (50 and 70 degrees Fahrenheit, respectively) with annual rainfall totals between

25 and 50 centimeters (10 an 20 inches). The typical wind pattern is a 11 kilometers (7 mile) per hour breeze from the west or west southwest. This wind off the Pacific Ocean brings marine air into the Los Angeles Basin producing mild year-round temperatures (NOAA, 1976). This region is cloudy or partly cloudy 222 days out of the year including 44 days with heavy fog allowing visibility of 0.4 kilometer (0.25 mile) or less.

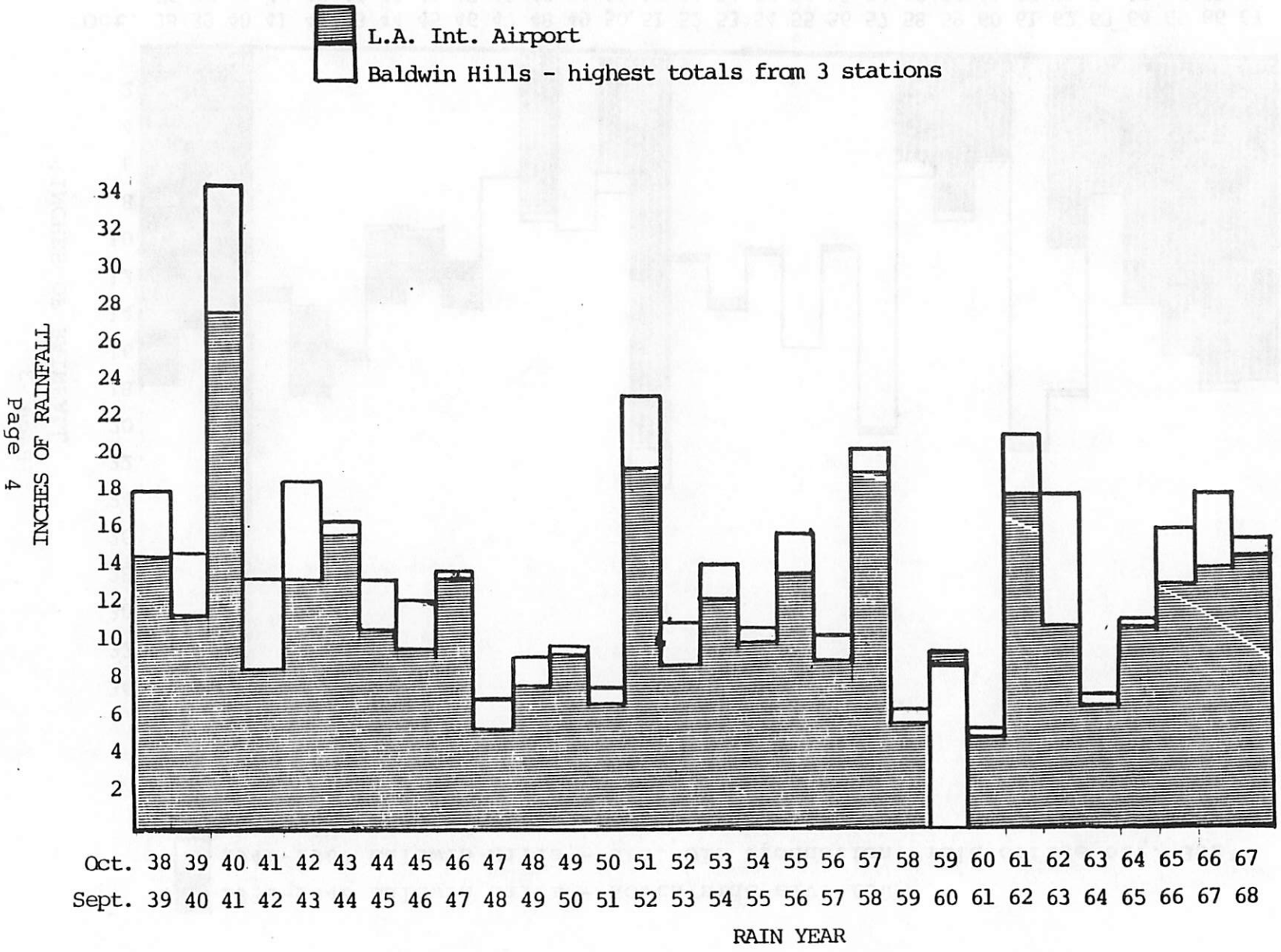
The average temperature for the Baldwin Hills is 17.3 degrees Celsius (62.9 degrees Fahrenheit), with an average maximum of 25 degrees Celsius (76.8 degrees Fahrenheit) in September and an average minimum of 18.5 degrees Celsius (65.1 degrees Fahrenheit) in January. The highest temperature on record for the nearby international airport station occurred in September of 1963, 43.7 degrees Celsius (110 degrees Fahrenheit). The record low of -0.05 degrees Celsius (23 degrees Fahrenheit) occurred in January of 1937.

The Median annual precipitation is 27.9 centimeters (11 inches), although wide variations occur from year to year and within short distances as a result of the topography (graph III-1). Most of the precipitation falls between November and April. Comparisons of rainfall totals from the airport and the highest of the three stations records in the Baldwin Hills (Climate Record) indicates a 17 percent higher total for the Baldwin Hills (graph III-2). This condition is expected as storms move inland up the coastal plain with a precipitation increase of approximately 2.5 centimeters per kilometer (1 inch per mile) (Bailey, 1966).

GRAPH III - 1 - Comparative Rainfall Totals



GRAPH III - 2 - Comparative Rainfall Totals



Climatic Record

Temperature records for the Baldwin Hills are not available, therefore, the nearby International Airport station was utilized. The Los Angeles International Airport station, elevation 29.5 meters (97 feet), is approximately 9.6 kilometers (6 miles) south of rainfall station 461, elevation 119.8 meters (393 feet), in the Baldwin Hills. Investigations of other areas have produced a constant for increase of temperature with elevation at the rate of -17.7 degrees Celsius/30.5 meters (0.27 degree/100 feet)(Landsberg, 1962). This constant along with allowances for slope and exposure should produce an approximate increase between the Baldwin Hills and the airport of -17 degrees Celsius (1 degree Fahrenheit).

Precipitation data was obtained from the Los Angeles County Flood Control District for the Baldwin Hills at three locations. All three stations are no longer in service (graph III-3).

MICROCLIMATE

The Baldwin Hills are one of several scattered hills and mesas projecting above the Los Angeles coastal plain and are in a proximity of 6.4 kilometers (4 miles) from the Pacific Ocean. The Baldwin Hills contain a variety of slope, exposures and elevations 45.7 meters to 152.4 meters (150' to 500') (map II-1 and II-2). Precipitation should be expected to vary widely within short distances under the above conditions.

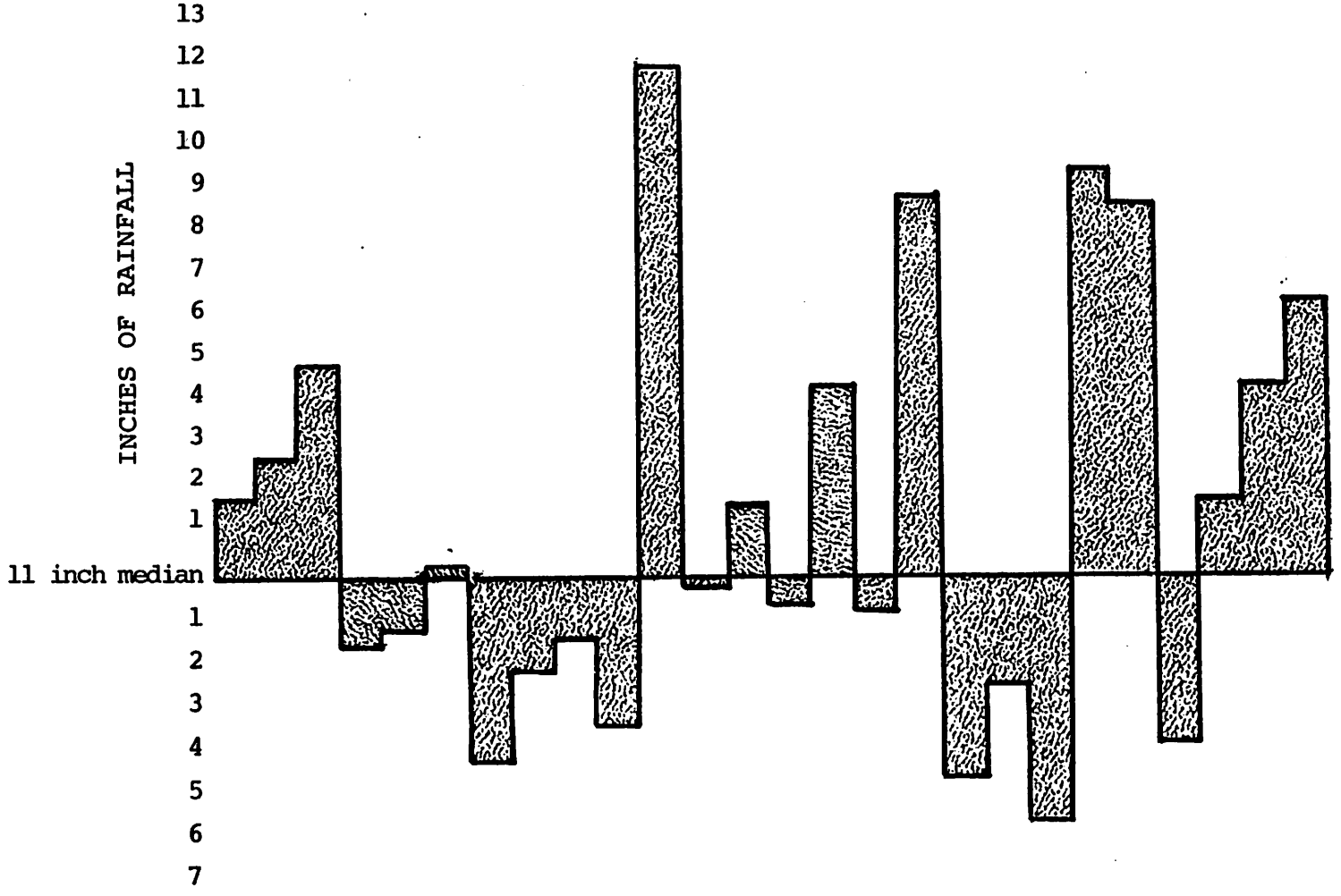
AIR QUALITY

Due to the proximity of the project to the ocean, air quality over

GRAPH III - 3 - Rainfall Departures from the Median

Station 461 Baldwin Hills - Standard Oil Production Field Office

1941 to 1967



the Baldwin Hills is frequently superior to the more inland areas. Alternating land/sea breezes serve to flush out local sources of pollution. However, inverse conditions during the spring and summer help effect a rise in local pollutant levels. In general, sea breezes mitigate the local pollutants in the area, transporting them inland and down the coast.

The area has been classified as a source zone due to pollutants being directly emitted into the air from sources in the immediate vicinity. It is not a reception zone due to predominant winds coming off the ocean.

Based on South Coast Air Quality Management District statistics for 1981 in the Northwest Coastal Zone (West Los Angeles), 10 days exceeded the State Standard of 10 ppm for carbon monoxide; 8 days exceeded the State Standard of 0.25 ppm for nitrogen dioxide; 182 days exceeded the Federal Standard of 0.24 ppm (table III-1 and map III-1).

These figures become more meaningful when compared to the central zone (Downtown Los Angeles). The number of days State standards were exceeded in the Los Angeles area are followed by the Northwest Coast Zone in brackets. The figures for the Central area are: 8 days (10) exceeded the carbon monoxide level; 17 days (8) exceed ed the nitrogen dioxide level and 126 days (182) exceeded the hydrocarbons level.

AIR QUALITY DATA
1981
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

TABLE III - 1

Source/ Receptor Area No.	Location	Carbon Monoxide			Ozone			Nitrogen Dioxide		Hydrocarbons	
		Max. Conc. in PPM 1-Hour	No. Days Std. Exceeded[a]		Max. Conc. in PPM 1-Hour	No. Days Standard Exceeded		Max. Conc. in PPM 1-Hour	No. Days Std. Exceeded	Max. Conc. in PPM 1-Hour	No. Days Standard Exceeded
			Federal >9 PPM 8-Hours	State ≥10 PPM 12-Hours		Federal >.12 PPM 1-Hour	State ≥.10 PPM 1-Hour		State ≥.25 PPM 1-Hour		Federal .24 PPM (6-9 a.m.)[b]
1	Los Angeles	18	16	8	.32	74	120	.45	17	13.5	126
2	W. Los Angeles	19	22	10	.23	40	83	.40	8	13.6	182
3	Lennox	27	51	30	.19	4	22	.42	12	13.4	262
4	Long Beach	13	3	0	.23	13	30	.37	13	15.2	212
5	Whittier	17	8	4	.27	56	90	.38	11	NM	NM
6	Reseda	27	27	19	.25	96	155	.24	0	14.9	279
7	Burbank	25	45	27	.27	91	134	.37	9	NM	NM
8	Pasadena	19	14	2	.33	116	157	.40	3	9.6	276
9	Azusa	11	1	0	.35	137	175	.28	3	12.2	25
10	Pomona	12	2	0	.33	97	137	.31	5	NM	NM
11	Pico Rivera	15	5	2	.35	94	139	.36	8	NM	NM
12	Lynwood	31	52	29	.21	15	41	.32	5	19.0	331
13	Newhall	NM	NM	NM	.29	123	154	NM	NM	NM	NM
14	Lancaster	9	0	0	.21	82	133	.22	0	7.1	94
16	La Habra	22	8	2	.27	60	92	.36	8	12.7	NA
16	Santa Ana Canyon	NM	NM	NM	.23[c]	23	38	NM	NM	NM	NM
17	Anaheim	19	14	3	.26	32	65	.30	4	NM	NM
17	Los Alamitos	NM	NM	NM	.18	13	37	NM	NM	NM	NM
18	Costa Mesa	15	5	1	.20	6	28	.29	2	NM	NM
19	El Toro	9[d]	0	0	.33	18	49	NM	NM	NM	NM
22	Norco-Corona	NM	NM	NM	.37	101	167	NM	NM	NM	NM
23	Riverside	10	0	0	.30	127	188	.32	1	14.5	NA
24	Perris	NM	NM	NM	.24	118	174	NM	NM	NM	NM
29	Banning	NM	NM	NM	.23	50	99	NM	NM	NM	NM
30	Palm Springs	6	0	0	.19	57	124	.09	0	9.1	NA
30	Indio	NM	NM	NM	.18	30	82	NM	NM	NM	NM
34	Fontana	15	0	0	.35	147	180	.19	0	NM	NM
34	San Bernardino[e]	10	0	0	.36	134	164	.20	0	8.0	NA
35	Redlands	6	0	0	.24	116	162	NM	NM	NM	NM
35	Yucaipa	NM	NM	NM	.27[c]	59	76	NM	NM	NM	NM
37	Lake Gregory	NM	NM	NM	.35	131	161	NM	NM	NM	NM

PPM - Parts by volume per million parts of air.
ug/m^3 - Micrograms per cubic meter of air.
NM - Pollutant not monitored.
ND - No data available.
NA - Not applicable (total hydrocarbons monitored only).
a) The Federal (1-hour > 35 ppm) and State (1-hour ≥ 40 ppm) standards were not exceeded.
b) Reactive hydrocarbons (total hydrocarbons minus methane).
c) Based on six-months data (Jan. - June).
d) Eight-months data (May - Dec.).
e) Ozone, nitrogen dioxide and Hydrocarbon data as monitored at S. B. Heliport site. Carbon monoxide and nitrogen dioxide as available from S. B. Hall of Records and Heliport sites.

South Coast
AIR QUALITY MANAGEMENT DISTRICT
9150 E. FLAIR DRIVE, EL MONTE, CALIFORNIA 91731

Source/ Receptor Area No.	Location	Sulfur Dioxide			Particulates (Hi-Vol)				Lead (Hi-Vol)			Sulfate (Hi-Vol)		Visibility[h]	
		Max. Conc. in PPM 1-Hour	No. Days Standard Exceeded[f]		Total Samples Collected	Max. Conc. ug/m^3	No. Samples Exceeded Standard		Max. Conc. ug/m^3	No. Occasions Exceeded Standard		Max. Conc. ug/m^3	No. Samples Exc. Stand.		
			Federal >.14 PPM 24-Hours	State 1-Hour & 24-Hours[g]			Federal >260 ug/m^3 24-Hours	State ≥100 ug/m^3 24-Hours		Federal 1.5 ug/m^3 Qrtly. Avg.	State 1.5 ug/m^3 Mo. Avg.		State ≥25 ug/m^3 24-Hours	Location	No. Days State Standard Exceeded
1	Los Angeles	.05	0	0	55	219	0	36	2.50	0	3	23.7	0	L. A.	ND
2	W. Los Angeles	.04	0	0	52	158	0	10	2.29	0	1	25.3	1	Bur. AP	226
3	Lennox	.07	0	0	58	316	1	25	4.11	1	3	26.2	1	LAX AP	223
4	Long Beach	.14	0	0	86	292	2	22	3.47	0	0	32.7	1	LB AP	245
5	Whittier	.09	0	0	NM	NM	NM	NM	NM	NM	NM	NM	NM	Fox AFB	ND
6	Reseda	.03	0	0	61	161	0	18	2.57	0	1	24.1	0		
7	Burbank	.04	0	0	NM	NM	NM	NM	NM	NM	NM	NM	NM		
8	Pasadena	.04	0	0	55	250	0	28	2.03	0	0	27.8	1		
9	Azusa	.04	0	0	59	316	1	42	1.84	0	0	23.0	0		
10	Pomona	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		
11	Pico Rivera	.05	0	0	58	269	2	46	2.61	0	2	27.1	1		
12	Lynwood	.09	0	0	59	376	1	40	2.81	0	3	24.0	0		
13	Newhall	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		
14	Lancaster	NM	NM	NM	56	132	0	9	0.85	0	0	12.1	0		
16	La Habra	.04	0	0	60	342	3	37	2.18	0	0	25.6	1	El Toro MCAS	349
16	Santa Ana Canyon	.03[c]	0	0	28[c]	253	0	8	1.09	0	0	21.2	0		
17	Anaheim	.04	0	0	59	362	1	26	1.95	0	0	24.7	0		
17	Los Alamitos	.06	0	0	58	602	2	32	2.18	0	0	26.0	1		
18	Costa Mesa	.08	0	0	NM	NM	NM	NM	NM	NM	NM	NM	NM		
19	El Toro	NM	NM	NM	57	234	0	24	0.90	0	0	20.0	0		
22	Norco-Corona	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	March AFB	200
23	Riverside	.02	0	0	58	341	8	49	1.23	0	0	30.4	1		
24	Perris	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		
29	Banning	NM	NM	NM	59	271	1	24	0.57	0	0	19.6	0		
30	Palm Springs	.01	0	0	59	250	0	23	0.45	0	0	12.8	0		
30	Indio	NM	NM	NM	56	228	0	20	0.52	0	0	13.5	0		
34	Fontana	.11	0	0	56	372	2	39	1.08	0	0	42.4	4	Ont. AP	258
34	San Bernardino[e]	.02	0	0	57	450	3	41	1.44	0	0	38.8	1	Nor. AFB	232
35	Redlands	NM	NM	NM	55	380	3	30	1.01	0	0	31.0	1		
35	Yucaipa	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM		
37	Lake Gregory	NM	NM	NM	59	173	0	6	0.52	0	0	14.2	0		

f) The Federal (3-hours >.50 ppm) and State (1-hour ≥.50 ppm) standards were not exceeded.
g) Twenty-four hours ≥.05 ppm with 1-hour ozone ≥.10 ppm, or with 24-hours TSP ≥100 ug/m^3.
h) Visibility should be 10 miles or greater on days when relative humidity is less than 70%.

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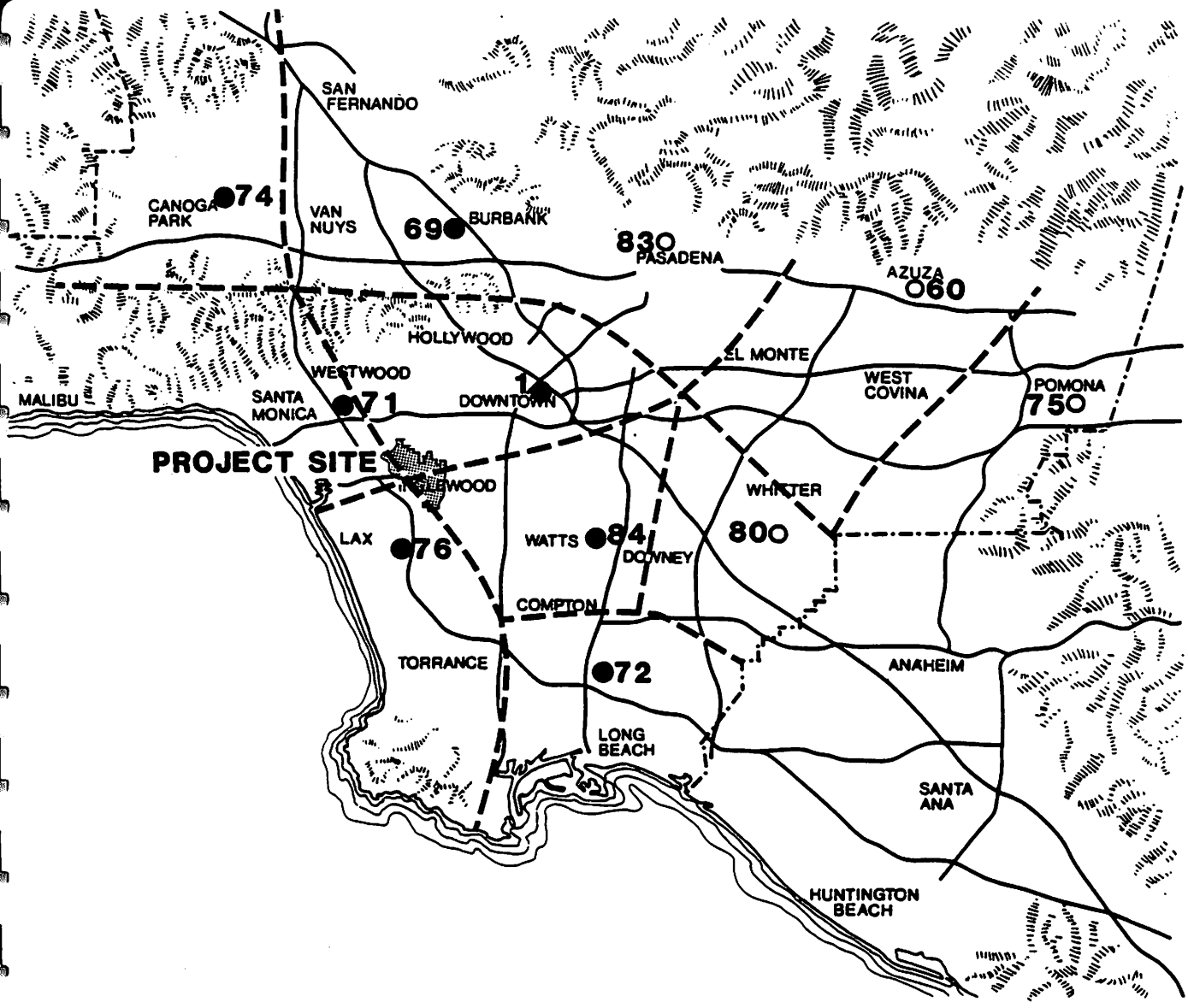

AIR MONITORING STATIONS

1	Central
69	East San Fernando Valley
71	Northwest Coastal
72	South Coastal
74	West San Fernando Valley
76	Southwest Coastal
84	South Central

● LOS ANGELES CITY
○ NOT IN CITY
—— MAJOR FREEWAY
·—· AIR MONITORING BOUNDARY

NORTH

0 1 2 3 4 5 6 miles

AIR MONITORING NETWORK

BALDWIN HILLS PROJECT

MAP III-1

RECOMMENDATIONS

The complex nature of the Baldwin Hills warrants further climatological investigation before revegetation plans become finalized. Microclimate data should be obtained on a variety of slopes and exposures and compared with the nearest standard climatological station. This could be accomplished by selecting 24 days, 6 in each season under a variety of weather conditions. This information would be most helpful in selecting the proper plant cover and could avoid possible loss of species with narrow tolerances.

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