Appendix C

TRAFFIC IMPACT ANALYSIS

TRAFFIC IMPACT ANALYSIS

For

ONE PASEO

Prepared for

THE CITY OF SAN DIEGO

and

KILROY REALTY

FINAL SUBMITTAL: March 23, 2012

TRAFFIC PLANNING & ENGINEERING, MARKETING & PROJECT SUPPORT
CONSULTANTS TO INDUSTRY AND GOVERNMENT
4540 Kearny Villa Road, Suite 106
San Diego, CA 92123-1573
(858) 560-4911

TRANSPORTATION ANALYSIS
TABLE OF CONTENTS

Section **Page**

LIST OF FIGURES

LIST OF FIGURES (continued)

Number **Page**

LIST OF FIGURES (continued)

LIST OF TABLES

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

Number **Page**

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

LIST OF TABLES (Continued)

Number **Page**

APPENDICES
Volume I

A. Series 11 Forecast & Trip Generation Information

B. Additional Project Analysis using 70 trips / ksf vs. a blended rate for the Community Shopping Center

C. Existing Traffic Counts & Ramp Meter Information

D. Existing Synchro Worksheets

E. Existing + Project Synchro Worksheets

F. Cumulative Projects Information

Volume II

G. Near Term Without Project Synchro Worksheets

H. Near Term With Project Phase 1 Synchro Worksheets

I. Near Term With Project Phase 1 & 2 Synchro Worksheets

J. Near Term With Project Build-out Synchro Worksheets

K. Year 2030 Factoring Worksheets

L. Year 2030 Without Project Synchro Worksheets

M. Year 2030 With Project Build-out Synchro Worksheets

Volume III

N. Signal Warrants / Mitigation Cost Estimates / Conceptual Striping Layouts / Internal Street Worksheets / Mitigation Synchro Worksheets / Queuing Analysis Worksheets / Del Mar Heights Widening Memo

O. Construction Traffic Impact Analysis

P. Adaptive Traffic Control

Q. DEIR Project Alternative Analysis

APPENDICES CONT.

1.0 EXECUTIVE SUMMARY

This study was commissioned by Kilroy Realty to determine potential transportation impacts and appropriate mitigation measures for the development of One Paseo. The proposed project is located on the southwest corner of Del Mar Heights Road and El Camino Real. The proposed development includes 245,000 square feet of corporate office; 291,000 square feet of multi-tenant office; a 150 room hotel; 220,000 square feet community shopping center; a 10 screen cinema; and 608 multi-family residential units which would generate 28,365 average daily trips (ADT). A credit for mixed use trip reductions has been used for the One Paseo project which provides a total reduction of 1,404 ADT. After taking credit for the mixed-use reductions, the net new driveway trips for the proposed development is 26,961 ADT with 1,538 trips in the AM peak hour and 2,932 trips in the PM peak hour. Using cumulative trip generation rates, the proposed project would generate 24,285 ADT. After taking credit for the mixed-use reductions (1,404 ADT), the net new cumulative trips for the proposed development is 22,881 ADT with 1,415 trips in the AM peak hour and 2,524 trips in the PM peak hour.

In order to determine a scope of work and study area for the Transportation Impact Study, staff of Urban Systems Associates, Inc. (USAI) completed a preliminary analysis and met with City Transportation staff. Based on the meeting, study area intersections and street segments were identified for the analysis and traffic generation and distribution was determined. The preliminary analysis was based on a Series 11 travel forecast and both machine and manual traffic counts of the existing daily and peak hour traffic flow data for the study intersections and street segments.

This report was prepared pursuant to the City's *Traffic Impact Study Manual* and recent California case law applying the California Environmental Quality Act to traffic studies prepared in connection with environmental impact reports (*See Sunnyvale West Neighborhood Association v. City of Sunnyvale* (2010) 190 Cal.App.4th 1351*; Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal.App.4th 48; and *Pfeiffer v. City of Sunnyvale* (2011) 200 Cal.App.4th 1552.)

The traffic generation of One Paseo was based on the City of San Diego's May 2003 Trip Generation Manual. The project is intended to be built in three phases. Phase 1 is planned to start construction in 2013, Phase 2 in 2014, and Phase 3 in 2015. The project traffic by phase was then added to the Existing, Near Term, and Long Term Cumulative (Year 2030) scenarios, and an impact analysis was completed in which eight scenarios were analyzed: Existing Conditions, Existing Conditions With Project, Near Term Without Project, Near Term With Project Phase 1, Near Term With Project Phase 1 & 2, Near Term With Project Build-out (Phase 1, 2 & 3), Long Term Cumulative (Year 2030) Without Project, and Long Term Cumulative (Year 2030) With Project Build-out. The term "Project Build-out" refers to Phases 1, 2 & 3 of the proposed project. The existing or baseline condition against which project impacts are evaluated comprises conditions that existed on or about the date of publication of the Notice of Preparation ("NOP") of the draft environmental impact report for the project, which is May 25, 2010.

In addition to the existing plus project (phases 1, 2, and 3) scenario, which comprises the project impact analysis, the City requires a "Near Term" analysis that describes the effects of the project on conditions anticipated to exist at the time of certification of the EIR. This Near Term analysis reflects changes anticipated to occur prior to the time of anticipated certification of the EIR. Within that period, which can often span a significant time, other developers could implement previously proposed and/or approved projects, resulting in relatively rapid changes to traffic patterns that existed at the time of circulation of the NOP.

Both the impacts identified in the Near Term analysis and impacts identified in the Existing-Plus-Project analysis are considered direct project impacts by the City.

The "Near Term " condition analyzes traffic from other known development projects in the area added to existing traffic levels. This reflects the best information available for determining what traffic could potentially be added to the roadway network in the area prior to the anticipated date of certification of the EIR. The term Long Term Cumulative (Year 2030) condition analyzes traffic conditions in the year 2030. The analysis year used for long-term cumulative modeling purposes is the Year 2030, and this analysis assumes SR-56 is widened to six lanes with auxiliary lanes as appropriate and assumes the I-5/SR-56 northbound connector is constructed. SANDAG Series 11 Transportation Model was used to determine the distribution of project traffic and future with project traffic volumes.

Study Results:

Based upon this transportation impact analysis, it was determined that development of the proposed project would have the following impacts:

Impacts:

1.0 DIRECT IMPACTS – EXISTING PLUS PROJECT SCENARIO:

These impacts were determined by comparing existing baseline and existing baseline with project traffic added.

Street Segments:

Project Phase 1 – Phase 1 of the project includes the construction of 100,650 square feet of retail; 515,000 square feet of corporate office, and 21,000 square feet of professional office. The proposed project in the Existing With Project (Phase 1) scenario has three (3) significant direct street segment project impacts as shown in **Table 1-1**.

Project Phase 1 & 2 – Phase 2 of the project includes an additional 65,610 square feet of retail along with 194 residential units. The proposed project in the Existing With Project (Phase 1 & 2) scenario has three (3) significant direct street segment project impacts as shown in **Table 1-2**, identical to those associated with project phase 1.

Project Build-out – Project Build-out would include Phase 1, 2 & 3 which would add to Phase 2 the construction of 53,740 square feet of retail, 150 room hotel, 414 residential units, and a 10 screen cinema. The proposed project in the Existing With Project (Build-out) has four (4) significant direct street segment project impacts as shown in **Table 1-3**, including three impacts identified in Project Phase 1 & 2 plus one additional impact.

TABLE 1-1

Existing & Existing With Project Street Segment LOS Summary

(Phase 1)

Road	Segment	Class.	Existing LOS	Existing Volume	Existing V/C	Existing + Project (Phase 1) LOS	Existing + Project (Phase 1) Volume	Existing + Project (Phase 1) V/C	Δ V/C	Is this impact Significant?
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	22,204	0.493	0.020	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	37,273	0.745	0.024	***NO***
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	42,166	0.843	0.042	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	E	55,481	0.925	0.064	***YES***
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	C	42,360	0.706	0.074	***NO***
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	41,371	0.690	0.058	***NO***
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	40,382	0.673	0.041	***NO***
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	35,344	0.589	0.044	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	22,943	0.382	0.021	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	19,961	0.333	0.015	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	15,682	0.261	0.008	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	15,876	1.058	0.020	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,311	0.358	0.010	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	15,729	0.393	0.010	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,010	0.350	0.012	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,518	0.388	0.015	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	16,214	0.324	0.030	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	16,710	0.334	0.026	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	20,254	0.405	0.018	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	28,182	0.626	0.013	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	16,921	0.423	0.025	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	A	14,669	0.367	0.020	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	13,631	0.341	0.012	***NO***
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	B	20,949	0.524	0.010	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,422	0.311	0.005	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,503	0.288	0.007	***NO***
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,159	0.379	0.007	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	10,974	0.366	0.003	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,573	0.726	0.003	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,139	0.676	0.020	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,598	2.460	0.020	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

TABLE 1-2

Existing & Existing With Project Street Segment LOS Summary

(Phase 1 & 2)

Road	Segment	Class.	Existing			Existing + Project (Phase 1 & 2)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	22,917	0.509	0.036	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	38,223	0.764	0.043	***NO***
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	43,831	0.877	0.075	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	E	58,572	0.976	0.116	***YES***
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	C	45,925	0.765	0.134	***NO***
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	45,213	0.754	0.122	***NO***
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	45,213	0.754	0.122	***NO***
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	37,483	0.625	0.080	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	23,974	0.400	0.039	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	20,674	0.345	0.027	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,079	0.268	0.015	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,113	1.074	0.036	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,627	0.366	0.018	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,045	0.401	0.018	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,407	0.360	0.022	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,994	0.400	0.027	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	17,403	0.348	0.053	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	17,741	0.355	0.046	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	20,967	0.419	0.032	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	28,658	0.637	0.024	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	17,713	0.443	0.045	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	15,303	0.383	0.036	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,028	0.351	0.022	***NO***
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,265	0.532	0.018	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,580	0.315	0.009	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,740	0.294	0.013	***NO***
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,396	0.385	0.013	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,053	0.368	0.006	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,731	0.729	0.006	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,376	0.692	0.036	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,756	2.476	0.036	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

TABLE 1-3

Existing & Existing With Project Street Segment LOS Summary

(Build-out)

Road	Segment	Class.	Existing			Existing + Project (Buildout)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	23,740	0.528	0.054	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	39,321	0.786	0.065	***NO***
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	E	45,752	0.915	0.113	***YES***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	F	62,140	1.036	0.175	***YES***
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	D	50,042	0.834	0.202	***NO***
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	48,964	0.816	0.184	***NO***
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	48,964	0.816	0.184	***NO***
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	39,953	0.666	0.121	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	B	25,163	0.419	0.058	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	21,497	0.358	0.040	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,536	0.276	0.022	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,388	1.093	0.054	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,993	0.375	0.027	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,411	0.410	0.027	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,864	0.372	0.034	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	16,543	0.414	0.040	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	B	20,123	0.402	0.108	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	18,930	0.379	0.070	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	21,790	0.436	0.049	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	29,207	0.649	0.036	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	18,628	0.466	0.067	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	16,035	0.401	0.054	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,485	0.362	0.034	***NO***
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,631	0.541	0.027	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,763	0.319	0.013	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	12,015	0.300	0.020	***NO***
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,671	0.392	0.020	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,145	0.371	0.009	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,914	0.732	0.009	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,651	0.710	0.054	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,939	2.494	0.054	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

1.1 DIRECT IMPACTS CONTINUED:

Intersections:

Project Phase 1 – The proposed project in the Existing With Project Phase 1 scenario has no significant direct project intersection impacts as shown in **Table 1-4**.

Project Phase 1 & 2 – The proposed project in the Existing With Project Phase 1 & 2 scenario has one (1) significant direct project intersection impact as shown in **Table 1-5**.

Project Build-out – The proposed project in the Existing With Project Build-out scenario has one (1) significant direct project intersection impact as shown in **Table 1-6**, identical to that associated with Project Phase 1 & 2.

Freeway Main-lanes:

Project Phase 1 – The proposed project in the Existing With Project Phase 1 scenario has no significant direct project freeway main-lane impacts as shown in **Table 1-7**.

Project Phase 1 & 2 – The proposed project in the Existing With Project Phase 1 & 2 scenario has no significant direct project freeway main-lane impacts as shown in **Table 1-8**.

Project Build-out – The proposed project in the Existing With Project Build-out scenario has no significant direct project freeway main-lane impacts as shown in **Table 1-9**.

TABLE 1-4

Existing & Existing With Project Intersection LOS Summary

(Phase 1)

#	Intersection	Existing				Existing + Project (Phase 1)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.2	C	0.5	No	30.9	C	0.9	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	16.8	B	0.2	No	25.0	C	1.2	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	4.5	A	1.2	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.5	C	0.9	No	17.5	B	0.7	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.1	C	0.1	No	15.0	B	1.0	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.3	C	0.6	No	31.6	C	1.9	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.5	A	0.2	No	9.2	A	0.1	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	24.2	C	1.7	No	22.2	C	1.9	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	C	37.5	D	36.2	D	1.1	No	38.0	D	0.5	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	26.6	C	0.5	No	34.2	C	5.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	5.4	A	N/A	No	10.5	B	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	4.0	A	N/A	No	11.3	B	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	30.6	C	3.4	No	30.3	C	3.4	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	24.9	C	2.8	No	24.9	C	0.6	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	24.0	C	1.3	No	16.6	B	1.7	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	21.7	C	1.3	No	19.9	B	0.1	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	9.8	A	0.0	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	15.9	B	8.7	No	22.7	C	10.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.4	C	0.6	No	21.7	C	1.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.5	B	0.3	No	13.8	B	0.8	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	46.7	D	1.4	No	25.3	C	2.1	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.5	C	0.3	No	28.8	C	0.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.6	A	0.3	No	9.3	A	0.3	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.2	B	0.0	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.0	B	0.4	No	27.7	C	0.7	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.3	B	0.1	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	20.9	C	0.0	No	20.1	C	0.4	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.5	C	3.7	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	15.6	B	0.2	No	25.3	C	0.9	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	38.8	D	1.8	No	20.8	C	0.1	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	25.0	C	5.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.0	C	0.1	No	25.0	C	1.8	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.3	B	0.4	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	11.8	B	0.3	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	43.6	E	2.0	No	20.9	C	0.8	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does Not Exist
N/A = Not Applicable

TABLE 1-5

Existing & Existing With Project Intersection LOS Summary

(Phase 1 & 2)

#	Intersection	Existing				Existing + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.4	C	0.7	No	32.6	C	2.6	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	16.8	B	0.2	No	25.8	C	2.0	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	4.6	A	1.3	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.6	C	1.0	No	17.8	B	1.0	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.1	C	0.1	No	15.1	B	1.1	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.5	C	0.8	No	32.3	C	2.6	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.5	A	0.2	No	9.3	A	0.2	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	24.8	C	2.3	No	24.0	C	3.7	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	37.7	D	2.6	No	41.2	D	3.7	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	27.4	C	1.3	No	40.4	D	11.5	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.8	A	N/A	No	14.1	B	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6.0	A	N/A	No	15.8	B	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	32.2	C	5.0	No	37.3	D	10.4	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	25.5	C	3.4	No	28.6	C	4.3	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.1	C	2.4	No	16.2	B	1.3	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.1	C	1.7	No	23.8	C	4.0	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	9.9	A	0.1	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	17.9	B	10.7	No	26.1	C	13.7	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.6	C	0.8	No	22.1	C	1.9	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.6	B	0.4	No	13.7	B	0.7	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	47.7	D	2.4	No	25.7	C	2.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	30.1	C	2.2	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.6	A	0.3	No	9.5	A	0.5	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.3	B	0.1	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.9	C	0.9	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.4	B	0.2	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.0	C	0.1	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.6	C	3.8	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	15.7	B	0.3	No	26.0	C	1.6	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.0	D	2.0	No	21.5	C	0.8	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.8	B	0.2	No	25.6	C	6.1	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.2	C	0.3	No	25.2	C	2.0	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.3	B	0.4	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	11.9	B	0.4	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	44.5	E	2.9	Yes	21.9	C	1.8	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does Not Exist
N/A = Not Applicable

TABLE 1-6

Existing & Existing With Project Intersection LOS Summary

(Build-out)

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.7	C	1.0	No	33.5	C	3.5	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	17.0	B	0.4	No	26.4	C	2.6	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	5.0	A	1.7	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.9	C	1.3	No	18.9	B	2.1	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.4	C	0.4	No	14.4	B	0.4	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.9	C	1.2	No	33.4	C	3.7	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.6	A	0.3	No	9.4	A	0.3	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	25.1	C	2.6	No	25.9	C	5.6	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	40.4	D	5.3	No	51.3	D	13.8	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	29.1	C	3.0	No	47.2	D	18.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.7	A	N/A	No	21.2	C	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	N/A	No	22.0	C	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	33.6	C	6.4	No	45.5	D	18.6	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	26.5	C	4.4	No	36.5	D	12.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.3	C	2.6	No	15.4	B	0.5	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.9	C	2.5	No	27.6	C	7.8	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	10.0	A	0.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	19.1	B	11.9	No	28.7	C	16.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.9	C	1.1	No	22.7	C	2.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.8	B	0.6	No	14.1	B	1.1	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	49.2	D	3.9	No	27.7	C	4.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	31.8	C	3.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.7	A	0.4	No	9.8	A	0.8	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.4	B	0.2	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.6	C	0.6	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.2	B	0.0	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.1	C	0.2	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.9	C	4.1	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	16.1	B	0.7	No	26.5	C	2.1	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.4	D	2.4	No	21.6	C	0.9	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	26.0	C	6.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.3	C	0.4	No	25.5	C	2.3	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.4	B	0.5	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	12.1	B	0.6	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	46.2	E	4.6	Yes	22.9	C	2.8	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay

N/A = Not Applicable
DNE = Does Not Exist

TABLE 1-7

Existing & Existing With Project Freeway Summary

(Phase 1)

Segment	Lanes	Capacity	Dir.	Existing		Existing + Project (Phase 1)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6319	C	0.6339	C	0.0020	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6523	C	0.6543	C	0.0020	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6447	C	0.6472	C	0.0024	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6655	C	0.6680	C	0.0025	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5565	B	0.5606	B	0.0041	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5744	B	0.5787	B	0.0042	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5746	B	0.5766	B	0.0020	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6290	C	0.6312	C	0.0022	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5582	B	0.5597	B	0.0015	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5482	B	0.5497	B	0.0015	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8144	D	0.8164	D	0.0020	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8352	D	0.8372	D	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7641	C	0.7661	C	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.7836	C	0.7857	C	0.0020	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP = # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln
#-M = # of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-AX = # of Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

TABLE 1-8

Existing & Existing With Project Freeway Summary

(Phase 1 & 2)

Segment	Lanes	Capacity	Dir.	Existing		Existing + Project (Phase 1 & 2)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6319	C	0.6355	C	0.0035	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6523	C	0.6560	C	0.0037	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6447	C	0.6491	C	0.0043	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6655	C	0.6700	C	0.0045	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5565	B	0.5639	B	0.0074	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5744	B	0.5820	B	0.0076	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5746	B	0.5781	B	0.0036	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6290	C	0.6329	C	0.0039	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5582	B	0.5610	B	0.0028	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5482	B	0.5509	B	0.0027	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8144	D	0.8180	D	0.0036	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8352	D	0.8388	D	0.0037	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7641	C	0.7677	C	0.0036	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.7836	C	0.7873	C	0.0037	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP = # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln
#-M = # of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-AX = # of Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

TABLE 1-9

Existing & Existing With Project Freeway Summary

(Build-out)

Segment	Lanes	Capacity	Dir.	Existing		Existing + Project (Build-out)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6319	C	0.6373	C	0.0054	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6523	C	0.6579	C	0.0055	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6447	C	0.6513	C	0.0066	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6655	C	0.6723	C	0.0068	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5565	B	0.5677	B	0.0112	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5744	B	0.5860	B	0.0116	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5746	B	0.5800	B	0.0054	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6290	C	0.6349	C	0.0059	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5582	B	0.5624	B	0.0042	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5482	B	0.5523	B	0.0041	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8144	D	0.8198	D	0.0054	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8352	D	0.8407	D	0.0056	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7641	C	0.7696	C	0.0054	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.7836	C	0.7892	C	0.0056	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP = # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln
#-M = # of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-AX = # of Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

1.2 DIRECT IMPACTS CONTINUED:

Freeway Ramp Meters:

Project Phase 1 – The proposed project in the Existing With Project Phase 1 scenario has no significant direct project freeway ramp meter impacts as shown in **Table 1-10**.

Project Phase 1 & 2 – The proposed project in the Existing With Project Phase 1 & 2 scenario has no significant direct project freeway ramp meter impacts as shown in **Table 1-11**.

Project Build-out – The proposed project in the Existing With Project Build-out scenario has no significant direct project freeway ramp meter impacts as shown in **Table 1-12**.

TABLE 1-10

Existing & Existing With Project Ramp Meter Summary

(Phase 1)

Most Restrictive Meter Rate

Location		Existing		Existing + Project (Phase 1)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	6.20	1,102	8.07	1,436	1.88	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**.

TABLE 1-11

Existing & Existing With Project Ramp Meter Summary

(Phase 1 & 2)

Most Restrictive Meter Rate

Location		Existing		Existing + Project (Phase 1 & 2)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	6.20	1,102	10.76	1,914	4.57	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**.

TABLE 1-12

Existing & Existing With Project Ramp Meter Summary

(Build-out)

Most Restrictive Meter Rate

Location		Existing		Existing With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	6.20	1,102	13.53	2,407	7.34	NO
	PM	0.00	0	3.99	711	3.99	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, if change in delay is greater than 2 minutes and delay is greater than 15 minutes
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**.

15 Minute Max. Meter Rate

Location		Existing		Existing With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	0.0	0	22.0	3,509	22.0	NO
	PM	0.0	0	37.3	4,365	37.3	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.0	0	15.0	2,088	15.0	NO
	PM	0.0	0	15.0	1,175	15.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.0	NO
	PM	0.0	0	22.0	4,611	22.0	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.

1.3 DIRECT IMPACTS CONTINUED—NEAR TERM SCENARIO:

These impacts were determined by comparing Near Term and Near Term with project traffic added by phase.

Street Segments:

Project Phase 1 – The proposed project in the Near Term With Project Phase 1 scenario has three (3) significant direct street segment impacts as shown in **Table 1-13**.

Project Phase 1 & 2 – The proposed project in the Near Term With Project Phase 1 & 2 scenario has three (3) significant direct street segment impacts as shown in **Table 1-14**, identical to those associated with Project Phase 1.

Project Build-out – The proposed project in the Near Term With Project Build-out scenario has four (4) significant direct street segment impacts as shown in **Table 1-15**, including three impacts identified in Project Phase 1 & 2 plus one additional impact.

Intersections:

Project Phase 1 – The proposed project in the Near Term With Project Phase 1 scenario has one (1) significant direct intersection impacts as shown in **Table 1-16**.

TABLE 1-13

Near Term With & Without Project Street Segment LOS Summary

(Phase 1)

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	22,843	0.508	0.020	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	38,355	0.767	0.024	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	43,289	0.866	0.042	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	E	58,631	0.977	0.064	***YES***
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	45,098	0.752	0.074	***NO***
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	C	44,109	0.735	0.058	***NO***
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	43,120	0.719	0.041	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	36,324	0.605	0.044	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	23,593	0.393	0.021	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	20,533	0.342	0.015	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,138	0.269	0.008	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,532	1.102	0.020	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	A	14,728	0.368	0.010	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,189	0.405	0.010	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,416	0.360	0.012	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	15,966	0.399	0.015	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	18,497	0.370	0.030	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	17,947	0.359	0.026	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	21,925	0.438	0.018	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	30,724	0.683	0.013	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	17,399	0.435	0.025	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,085	0.377	0.020	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,026	0.351	0.012	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,565	0.539	0.010	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,788	0.320	0.005	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	11,839	0.296	0.007	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,230	0.406	0.007	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	11,925	0.398	0.003	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,166	0.769	0.003	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,434	0.696	0.020	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	26,930	2.693	0.020	***YES***

Legend:

LOS= Level of Service
V/C= Volume to Capacity Ratio
ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT
4-M=4 lane Major
PA = 6 lane Primary Arterial
2-Ca=2 lane collector
6-M = 6 lane Major
2-Cb = 2 lane Collector with no fronting property

TABLE 1-14

Near Term With & Without Project Street Segment LOS Summary

(Phase 1 & 2)

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1 & 2)			ΔV/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	23,557	0.523	0.036	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	39,306	0.786	0.043	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	44,953	0.899	0.075	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	61,721	1.029	0.116	***YES***
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	48,664	0.811	0.134	***NO***
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	C	47,951	0.799	0.122	***NO***
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	47,951	0.799	0.122	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	38,463	0.641	0.080	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	24,623	0.410	0.039	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	21,246	0.354	0.027	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,534	0.276	0.015	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,770	1.118	0.036	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,045	0.376	0.018	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,505	0.413	0.018	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,812	0.370	0.022	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,441	0.411	0.027	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	19,686	0.394	0.053	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	18,977	0.380	0.046	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	22,638	0.453	0.032	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,199	0.693	0.024	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	18,191	0.455	0.045	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,719	0.393	0.036	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,422	0.361	0.022	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,882	0.547	0.018	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,947	0.324	0.009	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,077	0.302	0.013	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,467	0.412	0.013	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	12,004	0.400	0.006	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,324	0.772	0.006	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,672	0.711	0.036	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,088	2.709	0.036	***YES***

Legend:

LOS= Level of Service
V/C= Volume to Capacity Ratio
ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT
4-M=4 lane Major
PA = 6 lane Primary Arterial
2-Ca=2 lane collector
6-M = 6 lane Major
2-Cb = 2 lane Collector with no fronting property

TABLE 1-15

Near Term With & Without Project Street Segment LOS Summary

(Build-out)

Road	Segment	Class.	Near Term			Near Term + Project (Build-out)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	24,013	0.534	0.046	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	D	40,404	0.808	0.065	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	E	46,874	0.937	0.113	***YES***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	65,290	1.088	0.175	***YES***
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	D	52,781	0.880	0.202	***NO***
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	D	51,702	0.862	0.184	***NO***
	First Avenue to El Camino Real	PA	C	40,648	0.677	D	51,702	0.862	0.184	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	41,473	0.691	0.130	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	B	25,813	0.430	0.058	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	22,070	0.368	0.040	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,992	0.283	0.022	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	17,044	1.136	0.054	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,411	0.385	0.027	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,871	0.422	0.027	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	B	15,270	0.382	0.034	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,990	0.425	0.040	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	B	22,406	0.448	0.108	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	B	20,167	0.403	0.070	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	23,461	0.469	0.049	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,748	0.706	0.036	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	19,106	0.478	0.067	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	16,451	0.411	0.054	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,879	0.372	0.034	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	22,248	0.556	0.027	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	13,130	0.328	0.013	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,351	0.309	0.020	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,742	0.419	0.020	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	12,096	0.403	0.009	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,507	0.775	0.009	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,946	0.730	0.054	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,271	2.727	0.054	***YES***

Legend:

LOS= Level of Service
V/C= Volume to Capacity Ratio
ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT
4-M=4 lane Major
PA = 6 lane Primary Arterial
2-Ca=2 lane collector
6-M = 6 lane Major
2-Cb = 2 lane Collector with no fronting property

TABLE 1-16

Near Term With & Without Project Intersection LOS Summary

(Phase 1)

#	Intersection	Near Term				Near Term + Project (Phase 1)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	31.9	C	0.5	N	40.6	D	1.8	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.1	B	0.2	N	27.3	C	2.1	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	14.0	B	21.7	C	1.1	N	14.1	B	0.1	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	21.8	C	1.2	N	15.5	B	0.4	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.2	C	0.9	N	33.5	D	2.1	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.3	A	0.1	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	29.6	C	4.8	N	24.6	C	1.6	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.2	D	9.6	N	43.5	D	5.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	28.9	C	0.4	N	41.3	D	9.2	N
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	5.9	A	0.0	N	10	A	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	4.2	A	0.0	N	10.7	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	32.1	C	2.2	N	37	D	7.5	N
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	25.7	C	2.8	N	23.5	C	2.4	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	24.8	C	1.2	N	16.4	B	4.5	N
16	Del Mar Heights Road / Lansdale Drive	19	B	17.6	B	20.4	C	1.4	N	18.3	B	0.7	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	13.9	B	0.1	N	10.3	B	0.1	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14	B	7.2	N	22.6	A	9.1	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.2	C	0.7	N	27.2	C	5.4	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.7	C	0.0	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	26.1	C	2.0	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	23.3	C	2.2	N	27.7	C	1.5	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.6	A	0.2	N	9.5	A	0.4	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.6	B	0.1	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	23.1	C	0.5	N	32.2	C	0.1	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	13.7	B	0.1	N	20.5	C	0.1	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	25	C	0.4	N	29.7	C	6.5	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	16.4	B	1.6	N	19.6	B	0.4	N
29	El Camino Real / SR-56 EB On Ramp	18	B	32.3	C	18.2	B	0.2	N	34	C	1.7	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.3	D	0.6	N	27.1	C	0.1	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.5	C	0.1	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.7	D	2.6	N	25.9	C	0.3	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.3	B	0.1	N	11.4	B	0.5	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.1	B	0.0	N	11.9	B	0.2	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	50.8	F	2.9	Y	22.6	C	0.9	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist
For Intersection #36, the worst approach delay and level of service was reported.

1.4 DIRECT IMPACTS CONTINUED—NEAR TERM SCENARIO:

Intersections Cont.:

Project Phase 1 & 2 – The proposed project in the Near Term With Project Phase 1 & 2 scenario has three (3) significant direct intersection impacts as shown in **Table 1-17**, including the impact identified in Project Phase 1 plus two additional impacts.

Project Build-out – The proposed project in the Near Term With Project Build-out scenario has four (4) significant direct intersection impacts as shown in **Table 1-18**, including three (3) impacts identified in Project Phase 1 & 2 plus one additional impact.

Freeway Main-lanes:

Project Phase 1 – The proposed project in the Near Term With Project Phase 1 scenario has no significant direct freeway main-lane impacts as shown in **Table 1-19**.

Project Phase 1 & 2 – The proposed project in the Near Term With Project Phase 1 & 2 scenario has no significant direct freeway main-lane impacts as shown in **Table 1-20**.

Project Build-out – The proposed project in the Near Term With Project Build-out has no significant direct freeway main-lane impacts as shown in **Table 1-21**.

TABLE 1-17

Near Term With & Without Project Intersection LOS Summary

(Phase 1 & 2)

#	Intersection	Near Term				Near Term + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.2	C	0.8	N	42.5	D	3.7	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.3	B	0.4	N	26.9	C	1.7	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	14.0	B	21.8	C	1.2	N	14.2	B	0.2	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	16.4	B	1.3	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.5	C	1.2	N	34.3	C	2.9	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	28.7	C	3.9	N	27.8	C	4.8	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.8	D	10.2	N	50.5	D	12.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	31.3	C	2.8	N	56.2	E	24.1	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.5	A	0.0	N	13.5	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6	A	0.0	N	15.6	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	34.5	C	4.6	N	59.1	E	29.6	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	26.4	C	3.5	N	25.6	C	4.5	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.0	C	2.4	N	11.9	B	0.0	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.4	C	1.4	N	18.4	B	0.8	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14.0	B	0.2	N	10.2	B	0.0	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14.3	B	7.5	N	27.5	C	14.0	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.4	C	0.9	N	22.6	C	0.8	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.9	C	0.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	27.4	C	3.3	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	21.6	C	0.5	N	29.0	C	2.8	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.7	A	0.3	N	9.7	A	0.6	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.7	B	0.2	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	22.8	C	0.2	N	32.6	C	0.5	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.6	C	0.2	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.7	C	8.1	N	29.8	C	6.6	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15	B	0.2	N	19.8	B	0.6	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.6	B	0.6	N	35.1	D	2.8	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.6	D	0.9	N	30.6	C	3.6	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.6	C	0.2	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.6	C	0.0	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.3	B	1.4	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.1	B	0.4	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	52.0	F	4.1	Y	23.8	C	2.1	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist
For Intersection #36, the worst approach delay and level of service is reported.

TABLE 1-18

Near Term With & Without Project Intersection LOS Summary

(Build-out)

#	Intersection	Near Term				Near Term + Project (Build-out)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.5	C	1.1	N	45.3	D	6.5	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.4	B	0.5	N	27.6	C	2.4	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	14.0	B	22.4	C	1.8	N	14.2	B	0.2	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	17.9	B	2.8	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	35.1	D	1.8	N	35.9	D	4.5	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	29.9	C	5.1	N	28.5	C	5.5	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.2	D	9.6	N	56.1	E	17.8	Y
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	34.2	C	5.7	N	57	E	24.9	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.5	A	0.0	N	21.4	C	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.9	A	0.0	N	25.3	C	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	37.4	D	7.5	N	62.9	E	33.4	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	27.3	C	4.4	N	28.2	C	7.1	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.3	C	2.7	N	12	B	0.1	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.8	C	1.8	N	19.7	B	2.1	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14	B	0.2	N	10.7	B	0.5	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	15.6	B	8.8	N	30.8	C	17.3	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.7	C	1.2	N	23.2	C	1.4	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.6	C	0.3	N	22.3	C	1.6	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	28.6	C	4.5	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	22.2	C	1.1	N	30.6	C	4.4	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.8	A	0.4	N	10	A	0.9	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.9	C	0.1	N	17.9	B	0.4	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	23	C	0.4	N	33.1	C	1.0	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.8	C	0.4	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.9	C	8.3	N	30.5	C	7.3	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15.1	B	0.3	N	20	B	0.8	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.8	B	0.8	N	35.8	D	3.5	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.8	D	1.1	N	30.8	C	3.8	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.8	C	0.4	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.8	C	0.2	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.4	B	1.5	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.2	B	0.5	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	53.5	F	5.6	Y	25.1	D	3.4	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist
For Intersection #36, the worst approach delay and level of service is reported.

TABLE 1-19

Near Term With & Without Project Freeway Summary

(Phase 1)

Segment	Lanes	Capacity	Dir.	Near Term		Near Term with Project (Phase 1)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6354	C	0.6374	C	0.0020	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6558	C	0.6578	C	0.0020	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6481	C	0.6505	C	0.0024	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6688	C	0.6713	C	0.0025	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5596	B	0.5637	B	0.0041	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5774	B	0.5817	B	0.0042	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5778	B	0.5798	B	0.0020	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6325	C	0.6347	C	0.0022	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5613	B	0.5628	B	0.0015	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5512	B	0.5528	B	0.0015	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8461	D	0.8481	D	0.0020	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8676	D	0.8697	D	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7881	C	0.7901	D	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.8082	D	0.8102	D	0.0020	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

TABLE 1-20

Near Term With & Without Project Freeway Summary

(Phase 1 & 2)

Segment	Lanes	Capacity	Dir.	Near Term		Near Term + Project (Phase 1 & 2)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6354	C	0.6390	C	0.0035	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6558	C	0.6594	C	0.0037	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6481	C	0.6524	C	0.0043	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6688	C	0.6733	C	0.0045	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5596	B	0.5670	B	0.0074	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5774	B	0.5851	B	0.0076	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5778	B	0.5813	B	0.0036	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6325	C	0.6364	C	0.0039	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5613	B	0.5641	B	0.0028	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5512	B	0.5540	B	0.0027	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8461	D	0.8496	D	0.0036	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8676	D	0.8713	D	0.0037	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7881	C	0.7917	D	0.0036	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.8082	D	0.8118	D	0.0037	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

TABLE 1-21

Near Term With & Without Project Freeway Summary

(Build-out)

Segment	Lanes	Capacity	Dir.	Near Term		Near Term + Project (Build-out)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6354	C	0.6408	C	0.0054	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6558	C	0.6613	C	0.0055	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6481	C	0.6546	C	0.0066	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6688	C	0.6756	C	0.0068	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5596	B	0.5708	B	0.0112	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5774	B	0.5890	B	0.0116	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5778	B	0.5832	B	0.0054	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6325	C	0.6384	C	0.0059	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5613	B	0.5655	B	0.0042	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5512	B	0.5554	B	0.0041	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8461	D	0.8507	D	0.0046	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8676	D	0.8723	D	0.0047	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7881	C	0.7927	D	0.0046	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.8082	D	0.8129	D	0.0047	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

Freeway Ramp Meters:

Project Phase 1 – The proposed project in the Near Term With Project Phase 1 scenario has no significant direct freeway ramp meter impacts as shown in **Table 1-22**.

Project Phase 1 & 2 – The proposed project in the Near Term With Project Phase 1 & 2 scenario has no significant direct freeway ramp meter impacts as shown in **Table 1-23**.

Project Build-out – The proposed project in the Near Term With Project Build-out scenario has no significant direct freeway ramp meter impacts as shown in **Table 1-24**.

TABLE 1-22

Near Term With & Without Project Ramp Meter Summary

(Phase 1)

Most Restrictive Meter Rate

Location		Near Term		Near Term + Project (Phase 1)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	11.17	1,987	1.88	NO
	PM	0.00	0	3.42	609	3.42	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	1.26	363	1.26	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

TABLE 1-23

Near Term With & Without Project Ramp Meter Summary

(Phase 1 & 2)

Most Restrictive Meter Rate

Location		Near Term		Near Term + Project (Phase 1 & 2)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	13.86	2,465	4.57	NO
	PM	0.00	0	10.52	1,871	10.52	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	3.14	899	3.14	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

TABLE 1-24

Near Term With & Without Project Ramp Meter Summary

(Build-out)

Most Restrictive Meter Rate

Location		Near Term		Near Term + Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	16.63	2,958	7.34	NO
	PM	0.00	0	15.16	2,697	15.16	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	5.01	1,436	5.01	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

1.5 LONG TERM CUMULATIVE IMPACTS:

These impacts were determined by comparing Long Term Cumulative (Year 2030) and Long Term Cumulative (Year 2030) with project traffic added.

Street Segments:

Project Build-out – The proposed project in the Year 2030 With Project (Build-out) scenario has three (3) significant long term cumulative street segment impacts as shown in **Table 1-25**.

Intersections:

Project Build-out – The proposed project in the Year 2030 With Project (Build-out) scenario has seven (7) significant long term cumulative intersection impacts at 5 intersections as shown in **Table 1-26**.

Freeway Main-lanes:

Project Build-out – The proposed project in the Year 2030 With Project (Build-out) scenario has <u>no</u> significant long term cumulative freeway main-lane impacts as shown in **Table 1-27**.

Freeway Ramp Meters:

Project Build-out – The proposed project in the Year 2030 With Project (Build-out) scenario has three (3) significant long term cumulative freeway ramp meter impacts at 2 freeway ramp meters as shown in **Table 1-28**.

TABLE 1-25

Long Term Cumulative (Year 2030) With & Without Project Street Segment LOS Summary (Build-out)

Road	Segment	Class.	Year 2030			Year 2030 + Project (Buildout)			ΔV/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	D	39,580	0.880	D	41,639	0.930	0.050	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	39,580	0.792	D	42,815	0.856	0.065	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	C	37,820	0.756	D	43,482	0.870	0.113	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,800	0.863	F	62,315	1.039	0.175	***YES***
	High Bluff Drive to Third Avenue	PA	C	42,770	0.713	D	54,902	0.915	0.202	***NO***
	Thirth Avenue to First Avenue	PA	C	42,770	0.713	D	53,824	0.897	0.184	***NO***
	First Avenue to El Camino Real	PA	C	42,770	0.713	D	53,824	0.897	0.184	***NO***
	El Camino Real to Carmel Country Road	PA	C	38,370	0.640	C	46,189	0.770	0.130	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	B	34,400	0.573	C	37,905	0.632	0.058	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	B	34,400	0.573	C	36,826	0.614	0.040	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	B	34,400	0.573	C	35,748	0.596	0.022	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	31,320	2.088	F	32,129	2.142	0.054	***YES***
	San Dieguito Road to Derby Downs Road	4-M	C	29,000	0.725	D	30,078	0.752	0.027	***NO***
	Derby Downs Road to Half Mile Drive	4-M	C	29,000	0.725	D	30,078	0.752	0.027	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	C	29,000	0.725	D	30,348	0.759	0.034	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	C	29,000	0.725	D	30,618	0.765	0.040	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	B	23,000	0.460	C	28,392	0.568	0.108	***NO***
	Townsgate Drive to High Bluff Drive	6-M	B	26,000	0.520	C	29,505	0.590	0.070	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	C	35,620	0.712	C	38,046	0.761	0.049	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	D	36,470	0.810	D	38,088	0.846	0.036	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	C	22,280	0.557	C	24,976	0.624	0.067	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	B	18,800	0.470	B	20,957	0.524	0.054	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,590	0.340	A	14,938	0.373	0.034	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	26,000	0.650	C	27,078	0.677	0.027	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	13,000	0.325	A	13,539	0.338	0.013	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	B	15,000	0.375	B	15,809	0.395	0.020	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	17,000	0.425	B	17,809	0.445	0.020	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	D	20,000	0.667	D	20,270	0.676	0.009	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,020	0.717	C	43,559	0.726	0.009	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	11,700	0.780	D	12,509	0.834	0.054	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	33,100	3.310	F	33,639	3.364	0.054	***YES***

Legend:

LOS= Level of Service
V/C= Volume to Capacity Ratio
ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT
4-M=4 lane Major
PA = 6 lane Primary Arterial
2-Ca=2 lane collector
6-M = 6 lane Major
2-Cb = 2 lane Collector with no fronting property

TABLE 1-26

Long Term Cumulative (Year 2030) With & Without Project Intersection LOS Summary (Build-out)

#	Intersection	Year 2030				Year 2030 + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	22.2	C	19.1	B	23.1	C	0.9	No	20.4	C	1.3	No
2	El Camino Real / San Dieguito Road	24.2	C	47.2	D	26.7	C	2.5	No	52.5	D	5.3	No
3	El Camino Real / Derby Downs Road	4.3	A	5.1	A	4.3	A	0.0	No	5.1	A	0.0	No
4	El Camino Real / Half Mile Drive	22.9	C	14.0	B	24.8	C	1.9	No	14.1	B	0.1	No
5	El Camino Real / Quarter Mile Drive	20.6	C	12.1	B	25.2	C	4.6	No	12.7	B	0.6	No
6	Del Mar Heights Road / Mango Drive	36.8	D	29.3	C	39.6	D	2.8	No	35.7	D	6.4	No
7	Del Mar Heights Road / Portofino Drive	9.8	A	9.6	A	10.1	B	0.3	No	10.1	B	0.5	No
8	Del Mar Heights Road / I-5 SB Ramps	26.1	C	22.4	C	29	C	2.9	No	25.7	C	3.3	No
9	Del Mar Heights Road / I-5 NB Ramps	71.5	E	55.5	E	107.1	F	35.6	Yes	94.0	F	38.5	Yes
10	Del Mar Heights Road / High Bluff Drive	44.0	D	40.1	D	55.3	E	11.3	Yes	80.2	F	40.1	Yes
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.3	A	0.0	No	20.7	C	0.0	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	0.0	No	20.9	C	0.0	No
13	Del Mar Heights Road / El Camino Real	35.0	C	41.5	D	50.8	D	15.8	No	84.1	F	42.6	Yes
14	Del Mar Heights Road / Carmel Country Rd	33.6	C	34.1	C	41.3	D	7.7	No	49.3	D	15.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	29.5	C	11.9	B	33.1	C	3.6	No	14.4	B	2.5	No
16	Del Mar Heights Road / Lansdale Drive	32.7	C	18.7	B	41.1	D	8.4	No	20.9	C	2.2	No
17	Del Mar Heights Road / Carmel Canyon Rd	29.4	C	16.0	B	29.8	C	0.4	No	17.2	B	1.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	6.2	A	14.2	B	17.4	B	11.2	No	33.7	C	19.5	No
19	Carmel Country Road / Townsgate Drive	32.0	C	29.8	C	32.9	C	0.9	No	34.6	C	4.8	No
20	El Camino Real / Townsgate Drive	22.5	C	24.3	C	22.7	C	0.2	No	35.4	D	11.1	No
21	Carmel Country Road / Carmel Creek Rd	41.5	D	19.7	B	45.7	D	4.2	No	21.5	C	1.8	No
22	El Camino Real / High Bluff Drive	22.9	C	33.6	C	24.4	C	1.5	No	40.0	D	6.4	No
23	Carmel View Road / High Bluff Drive	8.9	A	9.8	A	9.3	A	0.4	No	10.9	B	1.1	No
24	Carmel Creek Road / Carmel Grove Rd	15.3	B	11.4	B	15.3	B	0.0	No	17.3	B	5.9	No
25	Carmel Valley Road / I-5 SB Ramps	25.3	C	30.9	C	26.3	C	1.0	No	35.3	D	4.4	No
26	Carmel Valley Road / I-5 NB Ramps	26.8	C	19.6	B	27.3	C	0.5	No	20.0	B	0.4	No
27	El Camino Real / Valley Centre Drive	22.0	C	27.4	C	22.2	C	0.2	No	29.3	C	1.9	No
28	El Camino Real / Carmel Valley Rd	22.0	C	17.6	B	22.2	C	0.2	No	19.2	B	1.6	No
29	El Camino Real / SR-56 EB On Ramp	23.1	C	89.0	F	23.6	C	0.5	No	97.6	F	8.6	Yes
30	Carmel View Road / Valley Centre Drive	7.7	A	6.2	A	7.7	A	0.0	No	6.2	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	47.0	D	42.6	D	54.2	D	7.2	No	53.3	D	10.7	No
32	Carmel Creek Road / SR-56 EB Ramps	15.0	B	22.9	C	15.0	B	0.0	No	23.4	C	0.5	No
33	Carmel Country Road / Carmel Canyon Rd	34.5	C	33.4	C	36.6	D	2.1	No	34.1	C	0.7	No
34	Carmel Country Road / SR-56 WB Ramps	17.1	B	9.9	A	17.1	B	0.0	No	12.7	B	2.8	No
35	Carmel Country Road / SR-56 EB Ramps	20.1	C	18.2	B	22.0	C	1.9	No	18.7	B	0.5	No
36	Carmel Creek Road / Del Mar Trail	43.3	E	20.6	C	48.3	E	5.0	Yes	23.6	C	3.0	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not exist
For Intersection #36, the worst approach delay and level of service is reported.

TABLE 1-27

Long Term Cumulative (Year 2030) With & Without Project Freeway Summary

(Build-out)

Segment	Lanes	Capacity	Dir.	Year 2030		Year 2030 + Project (Buildout)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.7370	C	0.7424	C	0.0054	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.7608	C	0.7663	C	0.0055	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.7771	C	0.7837	C	0.0066	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.8022	D	0.8090	D	0.0068	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.6956	C	0.7068	C	0.0112	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.7180	C	0.7296	C	0.0116	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.8172	D	0.8226	D	0.0054	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.8946	D	0.9005	D	0.0059	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.7548	C	0.7590	C	0.0042	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.7413	C	0.7454	C	0.0041	NO
SR-56									
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	8,850	EB	0.9847	E	0.9881	E	0.0034	NO
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	8,850	WB	1.0098	F	1.0132	F	0.0035	NO
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	8,850	EB	0.9027	D	0.9061	D	0.0034	NO
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	8,850	WB	0.9257	E	0.9292	E	0.0035	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

TABLE 1-28

Long Term Cumulative (Year 2030) With & Without Project Ramp Meter Summary

(Build-out)

Most Restrictive Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	40.27	7,163	47.61	8,468	7.34	YES
	PM	5.22	928	29.84	5,307	24.62	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	0.00	0	1.37	392	1.37	NO
	PM	8.30	2,378	16.04	4,597	7.74	YES
El Camino Real / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	3.93	2,277	4.78	2,770	0.85	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, if change in delay is greater than 2 minutes and delay is greater than 15 minutes
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

15 Minute Max. Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	15.0	3,567	20.5	4,872	5.5	YES
	PM	15.0	2,320	43.3	6,699	28.3	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	15.0	2,291	15.0	2,291	0.0	NO
	PM	15.0	1,740	15.0	1,740	0.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	15.0	3,393	17.8	4,031	2.8	YES
	PM	15.0	3,915	23.6	6,148	8.6	YES
El Camino Real / SR-56 EB on Ramp	AM	15.0	4,060	15.5	4,205	0.5	NO
	PM	15.0	7,415	16.0	7,903	1.0	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	15.0	1,914	16.1	2,059	1.1	NO
	PM	15.0	1,711	19.3	2,204	4.3	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.

1.6 MITIGATION

Table 1-29 shows a summary of the proposed mitigation as the project is phased.

Table 1-30 summarizes the "with mitigation" levels of service which may be expected at intersections mitigated by the One Paseo project. **Appendix N** includes the mitigation Synchro worksheets. **Table 1-31** summarizes the "with mitigation" levels of service which may be expected at street segments mitigated by the One Paseo project.

Table 1-32 shows a summary of the improvements and fair share contributions to the intersections that have significant impacts as a result of the project. The combined fair share contribution for all five intersection improvements is estimated at $2,251,800.

Table 1-33 shows a summary of the improvements and fair share contributions to the street segments and ramp meters that have significant impacts as a result of the project. Per the City's request, the Via de la Valle contribution is based similar to other projects contributing to the widening project. The combined estimated fair share contribution for all six improvements is $3,474,800. The total mitigation cost for street, ramp and intersection impacts is estimated at $5,726,600. **Table 1-34** shows the summary of project features. **Appendix N** includes an assessment of probable costs for each improvement. A conceptual striping layout of Del Mar Heights Road between the I-5 SB ramps and High Bluff Drive is included in **Appendix N**. Also included in **Appendix N** is a conceptual layout of the improvements to El Camino Real at SR-56 eastbound on-ramp.

Figure 1-1 shows the location of proposed mitigation provided by the project.

Figure 1-2 shows the proposed intersection lane configurations with mitigation.

TABLE 1-29

Transportation Mitigation Phasing Plan

#	Location	Responsible Party	Improvement	Impact Fully Mitigated?	When Impact is Signficant ?
Project Phase 1 9,888 ADT with 894 AM (768 in / 126 out) & 1,188 PM (312 in / 876 out) Peak Hour Trips Prior to issuance of first building permit, the following improvements shall be assured to the satisfaction of the City Engineer					
10	Del Mar Heights Rd. / High Bluff Dr.	One Paseo	Widen to provide a dedicated Northbound Right Turn Lane	Yes	Phase 1&2
11	Del Mar Heights Road / Third Avenue	One Paseo	Project Access to be Signalized: Add two left turn lanes and one right turn lane in the NB direction; Widen to add a WB left turn lane and an EB right turn lane.	Yes	Phase 1
12	Del Mar Heights Road / First Avenue	One Paseo	Project Access to be Signalized: Add one left turn lane and one right turn lane in the NB direction; Widen to provide two WB left turn lanes and an EB right turn lane.	Yes	Phase 1
13	Del Mar Heights Rd. / El Camino Real	One Paseo	Widen to provide a 365 foot long dedicated EB right turn lane	Yes	Phase 1 & 2
18	El Camino Real / Del Mar Highlands Town Center	One Paseo	Modify Signalized Intersection and Add EB leg: In the EB direction, provide a dedicated left turn lane and a left/through/right turn lane. In the NB direction, widen for a dual left turn lane; in the SB direction, widen for a right turn lane.	Yes	Phase 1
A	El Camino Real (Via de la Valle to San Dieguito Rd.)	City of San Diego CIP/One Paseo	Widen to a 4 lane major	Partially*	Phase 1
9	Del Mar Heights Rd. / I-5 NB Ramps	One Paseo	Modify I-5 NB On/Off Ramps: Widen Off-Ramp to include dual left and shared through/right and right turn lane at intersection; Extend WB right turn pocket by 845 feet; Reconfigure median on bridge to extend EB dual left turn pocket to 400 feet.	Partially	Project Buildout
BB	I-5 NB Ramp Meter / Del Mar Heights Road	One Paseo	Widen to provide HOV lane to NB on ramp	Yes	Project Buildout
B	Del Mar Heights Rd. (I-5 SB Ramps to I-5 NB Ramps) Bridge	One Paseo	Reconfigure median on bridge to extend EB dual left turn pocket to 400 feet.	Partially	Project Buildout
C	Del Mar Heights Rd. (I-5 NB Ramps to High Bluff Dr.)	One Paseo	Extend WB right turn pocket at I-5 NB ramps by 845 feet.	Partially	Phase 1
D	Via de la Valle (San Andres Dr. to El Camino Real)	One Paseo & Other Projects	Contribute fair share (19.4%) towards the widening to a 4 lane Major.	Partially*	Phase 1
36	Carmel Creek / Del Mar Trail	One Paseo	Signalize Intersection	Yes	Phase 1
Project Phase 2 17,812 ADT with 1,182 AM (910 in / 272 out) & 2,021 PM (747 in / 1,273 out) Peak Hour Trips Prior to issuance of first building permit in Phase 2, the following improvements shall be assured to the satisfaction of the City Engineer					
10	Del Mar Heights Rd. / High Bluff Dr.	One Paseo	Widen Del Mar Heights Road on north side receiving lanes and restripe and modify signal to provide third left turn lane in the NB direction. Modify EB & WB left turn lanes to dual left turn lanes. Widen EB approach by 2 feet on the south side to accommodate dual EB & WB left turn lanes.	Yes	Phase 1&2
Project Buildout 26,961 ADT with 1,538 AM (1,057 in / 481 out) & 2,932 PM (1,231 in / 1,701 out) Peak Hour Trips Prior to issuance of first building permit in Phase 3, the following fair share contributions shall be made to the satisfaction of the City Engineer					
AA	I-5 SB (Loop) Ramp Meter / Del Mar Heights Road	One Paseo & Other Projects	Contribute fair share (34.8%) towards widening to add an HOV lane to the on-ramp.	Partially	Project Buildout
29	El Camino Real / SR-56 EB On Ramp	One Paseo & Other Projects	Contribute fair share (3.5%) of the cost of the following improvement: Widen & Restripe EB approach to provide 1 left, 1 through/left, 1 through, and 2 dedicated right turn lanes	Yes	Project Buildout

Notes:
* Notwithstanding the applicant's fair share financial contribution, the timing of these improvements are uncertain and cannot be assured prior to the issuance of the first project building permit, therefore the impact is considered significant and partially mitigated.
AA & BB = Ramp Meters
All improvements and contributions are to be assured to the satisfaction of the City Engineer.
A,B,C, D = Street Segments
#'s = Intersections

TABLE 1-30

Intersection Levels of Service With & Without Mitigation

Near Term + Project (Phase 1 & 2)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	49.8	D	50.5	D	43.4	D	46.4	D
10	Del Mar Heights Road / High Bluff Drive*	Signalized	31.3	D	56.2	E	20.7	C	27.8	C
11	Del Mar Heights Road / Third Avenue*	Signalized	6.5	A	13.5	B	5.5	A	12.5	B
12	Del Mar Heights Road / First Avenue*	Signalized	6.0	A	15.6	B	5.0	A	10.0	B
13	Del Mar Heights Road / El Camino Real*	Signalized	34.5	C	59.1	E	34.2	C	45.6	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	18.6	B	35.1	D	18.3	B	28.0	C
36	Carmel Creek Road / Del Mar Trail**	Signalized	52.0	F	23.8	C	16.9	B	9.9	A

Near Term + Project (Build-out)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	49.2	D	56.1	E	49.0	D	55.4	E
10	Del Mar Heights Road / High Bluff Drive*	Signalized	34.2	D	57	E	21.6	C	31.7	C
11	Del Mar Heights Road / Third Avenue*	Signalized	8.5	A	21.4	C	6.9	A	14.8	B
12	Del Mar Heights Road / First Avenue*	Signalized	7.9	A	25.3	C	7.0	A	12.7	B
13	Del Mar Heights Road / El Camino Real*	Signalized	37.4	D	62.9	E	34.5	C	49.7	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	18.8	B	35.8	D	18.5	B	28.8	C
36	Carmel Creek Road / Del Mar Trail**	Signalized	53.5	F	25.1	D	16.9	B	9.9	A

Year 2030 + Project (Build-out)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	107.1	F	94.0	F	96.1	F	78.2	E
10	Del Mar Heights Road / High Bluff Drive*	Signalized	55.3	E	80.2	F	32.6	C	43.4	D
11	Del Mar Heights Road / Third Avenue*	Signalized	8.3	A	20.7	C	7.4	A	19.7	B
12	Del Mar Heights Road / First Avenue*	Signalized	7.7	A	20.9	C	8.6	A	17.5	B
13	Del Mar Heights Road / El Camino Real*	Signalized	50.8	D	84.1	F	44.9	D	50.2	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	23.6	C	97.6	F	23.5	C	53.4	D
36	Carmel Creek Road / Del Mar Trail**	Signalized	48.3	E	23.6	C	18.8	B	10.0	A

Notes:

LOS = Level of Service

* = Signals are coordinated.

Orange indicates unacceptable level of service.

**Intersection #36 is two-way stop controlled without mitigation.

TABLE 1-31

Street Segments Levels of Service With Mitigation

Near Term + Project (Phase 1 & 2)

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	I-5 SB Ramps and I-5 NB Ramps	SD	5-PA	50,000	44,953	0.90	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	61,721	1.03	F
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	4-M	40,000	27,088	0.68	C

Near Term + Project (Build-out)

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	I-5 SB Ramps and I-5 NB Ramps	SD	5-PA	50,000	46,874	0.94	E
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	65,290	1.09	F
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	4-M	40,000	27,271	0.68	C

Year 2030 + Project

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	I-5 SB Ramps and I-5 NB Ramps	SD	5-PA	50,000	43,482	0.87	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	62,315	1.04	F
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	4-M	40,000	33,639	0.84	D

Legend:

SD= City of San Diego
Cap.= Capacity
Class.= Classification
LOS= Level of Service
V/C= Volume to Capacity Ratio

5-PA = 5 lane Prime Arterial has LOS E capacity of 50,000 ADT
PA = 6 lane Prime Arterial
4-M =4 lane Major

TABLE 1-32

Summary of Mitigation

(Intersections)

Location	Intersection	Direct or Cumulative Significant Impact?	Mitigation Responsibility	Description	Impact Fully or Partially Mitigated?	Current Estimated Cost of Improvement	Fair Share Percentage	Current Estimated Fair Share Contribution*
# 10	Del Mar Heights Rd. / High Bluff Dr.	Direct & Cumulative	One Paseo to construct	Widen to provide dedicated NB right turn lane at Phase 1 & widen Del Mar Heights Rd. on north side receiving lanes and restripe NB left and rephase signal to provide triple left. Modify EB & WB left turn lanes to dual left turn lanes. Widen EB approach by 2 feet on the south side to occomodate the EB & WB dual lefts.	Fully Mitigated	$532,700	100.0%	$532,700
# 13	Del Mar Heights Rd. / El Camino Real	Direct & Cumulative	One Paseo to construct	Widen to provide dedicated 365 foot long EB right turn lane	Fully Mitigated	$463,400	100.0%	$463,400
# 36	Carmel Creek Rd. / Del Mar Trail	Direct & Cumulative	One Paseo to construct	Signalize	Fully Mitigated	$200,000	100%	$200,000
#9	Del Mar Heights Rd. / I-5 NB Ramps	Direct & Cumulative	One Paseo	Modify I-5 NB On/Off Ramps:Widen & Restripe off-ramp to include dual left, a shared through/right and right turn lanes.Extend WB right turn pocket by 845 feet; Reconfigure median on bridge to extend dual left turn pocket to 400 feet. ☊	Partially Mitigated	$1,045,000	100.0%	$1,045,000
# 29	El Camino Real / SR-56 EB On-Ramp	Cumulative	One Paseo & Other Projects	Widen & Restripe the EB approach to provide 1 left, 1 through/left, I through, and 2 dedicated right turn lanes	Fully Mitigated	$305,100	3.5%	$10,700
						TOTAL ESTIMATED COST		**$2,251,800**

* The actual dollar amount of the fair share contribution will depend on the cost estimate current at the time the payment is made, satisfactory to the City Engineer.

Note: ☊Caltrans has identified improvements for the I-5 / Del Mar Heights Road interchange and SR-56 EB on-ramp at El Camino Real as the result of their continuing efforts to implement the I-5 / SR-56 connectors project as well as the I-5 North Coast Corridor project. See discussion in Section 19.10 in the report.

TABLE 1-33

Summary of Mitigation

(Street Segments & Ramp Meters)

Road	Street Segment	Direct or Cumulative Significant Impact?	Mitigation Responsibility	Description	Impact Mitigated?[2]	Current Estimated Cost of Improvement	Fair Share Percentage	Current Estimated Fair Share Contribution[1]
Del Mar Heights Rd.	I-5 SB Ramps to I-5 NB Ramps (Bridge)	Direct ①	One Paseo to construct	Reconfigure median on bridge to extend EB to NB dual left turn pocket to 400 feet	Partially	Cost is included in Int. # 9	100%	Cost is included in Int. # 9
El Camino Real	Via de la Valle to San Dieguito Road	Direct & Cumulative	City of San Diego CIP (T-12.3)	Widen to 4 lane Major	Partially	$5,800,000	4.9%	$284,000
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	Direct & Cumulative	One Paseo to construct	Widen to lengthen by 845 feet the WB right turn pocket at I-5 NB ramps and modify raised median.	Partially	Cost is included in Int. # 9	100%	Cost is included in Int. # 9
Via de la Valle	San Andres Dr. to El Camino Real	Direct & Cumulative	One Paseo & Other Projects	Widen to 4 lane Major	Partially	$15,800,000	19.4%	$3,069,000*
I-5 Southbound (Loop) Ramp Meter / Del Mar Heights Road		Cumulative	One Paseo & Other Projects	Widen to add an HOV lane to the loop ramp	Partially	$350,000	34.8%	$121,800
I-5 Northbound Ramp Meter / Del Mar Heights Road		Cumulative	One Paseo to construct	Widen to add an HOV lane to the ramp	Yes	Cost is included in Int. # 9	32.6%	Cost is included in Int. # 9
						TOTAL ESTIMATED COST		$3,474,800

* 539 ADT x $5,692.61 per ADT = $3,069,000

[1] The actual dollar amount of the fair share contribution will depend on the cost estimate current at the time the payment is made, satisfactory to the City Engineer.

[2] These impacts are partially mitigated due to a fair share contribution towards the improvement such as El Camino Real and Via de la Valle and/or improvements are consistent with Caltrans I-5 North Coast Corridor project, however, not below a level of significance.

Note: ① Caltrans has identified improvements for the I-5 / Del Mar Heights Road interchange as the result of their continuing efforts to implement the I-5 / SR-56 connectors project as well as the I-5 North Coast Corridor project. See discussion in Section 19.10 in the report.

TABLE 1-34

Summary of Project Features

Location	Intersection	Responsibility	Description
# 11 & 12	Del Mar Heights Road / Third & First Avenue	One Paseo to construct	Signalize Third & First Avenue. Include single left turn lane at Third Ave in the WB direction. Include dual left turn lane at First Ave in WB direction. Include dedicated right turn lanes for both Third and First Ave in the EB direction. Widen Del Mar Heights Road to include curb, gutter & sidewalk
# 18	El Camino Real / Market Street/Del Mar Highlands Town Center	One Paseo to construct	Modify signal to include fourth leg for project access. Widen to provide SB right turn lane. Modify median to provide dual lefts in the NB direction. In the EB direction, provide dedicated left turn lane, and a shared left, through, right turn lane.

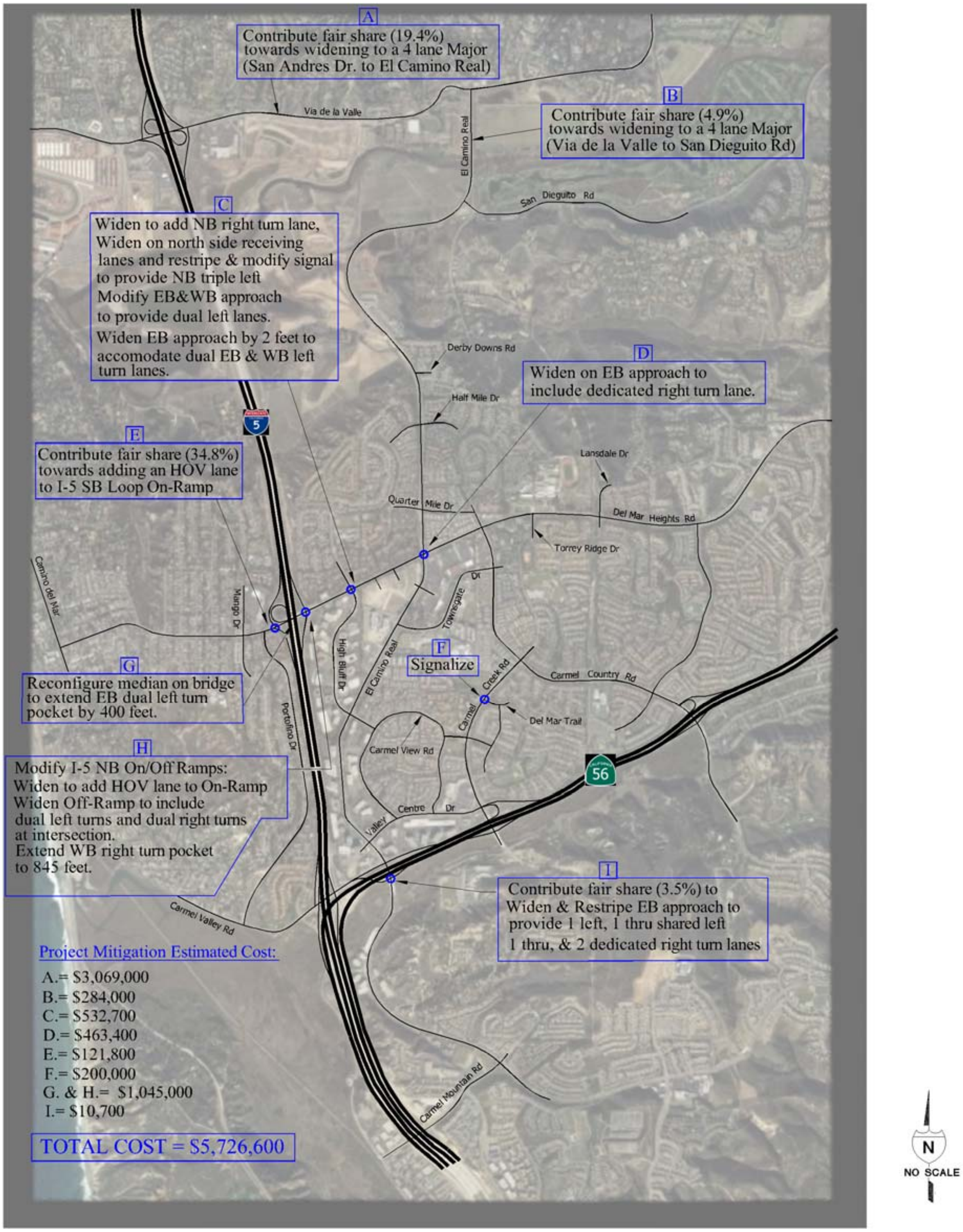


FIGURE 1-1

Proposed Project Mitigation

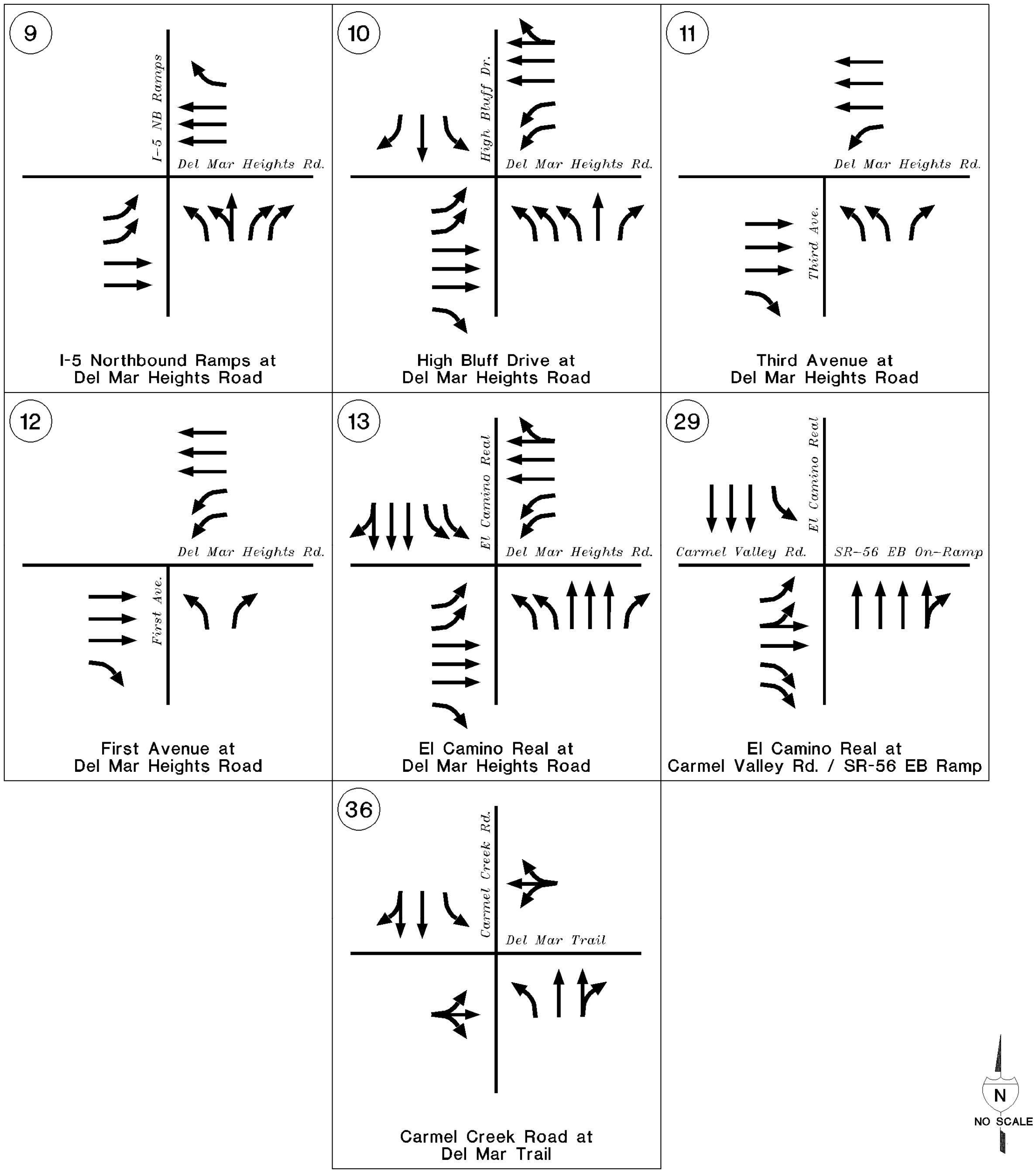


FIGURE 1-2

Proposed Lane Configurations With Mitigation

2.0 INTRODUCTION

Urban Systems Associates, Inc. (USAI) was retained by Kilroy Realty to determine the potential transportation impacts and the appropriate mitigation measures for proposed project development of One Paseo in the Carmel Valley area. The proposed project is located on the southwest corner of Del Mar Heights Road and El Camino Real (See **Figure 2-1**). The One Paseo development includes 245,000 square feet of corporate office; 291,000 square feet of multi-tenant office; a 150 room hotel; 220,000 square feet community shopping center; a 10 screen cinema; and 608 multi-family residential units which would generate 28,365 average daily trips (ADT), see **Table 2-1**. A credit for mixed use trip reductions has been used for the One Paseo project which provides a total reduction of 1,404 ADT. After taking credit for the mixed-use reductions, the net new trips for the proposed development is **26,961** ADT with **1,538** trips in the AM peak hour and **2,932** trips in the PM peak hour. **Figure 2-2** shows the One Paseo site plan.

In order to determine project trip distribution and study area of the project, USAI used a SANDAG Series 11 Transportation Model Run, see **Appendix A**. For study area purposes, USAI used City guidelines which require 50 trips in one direction during a peak hour be used as a threshold for study intersections and street segments. Also, based on the City Guidelines, USAI used 50 peak directional trips as the basis for studying freeway segments and 20 peak trips for studying ramp meters. The study area was agreed upon based on a consultation with City Transportation staff. **Figure 2-3** shows the study area boundary and the intersection key selected for the study. USAI then gathered information and oversaw the machine and manual traffic counts of the existing ADT and peak hour traffic flow data for the study intersections and street segments. **Table 2-2** shows the study area street segments and **Table 2-3** shows the intersections.

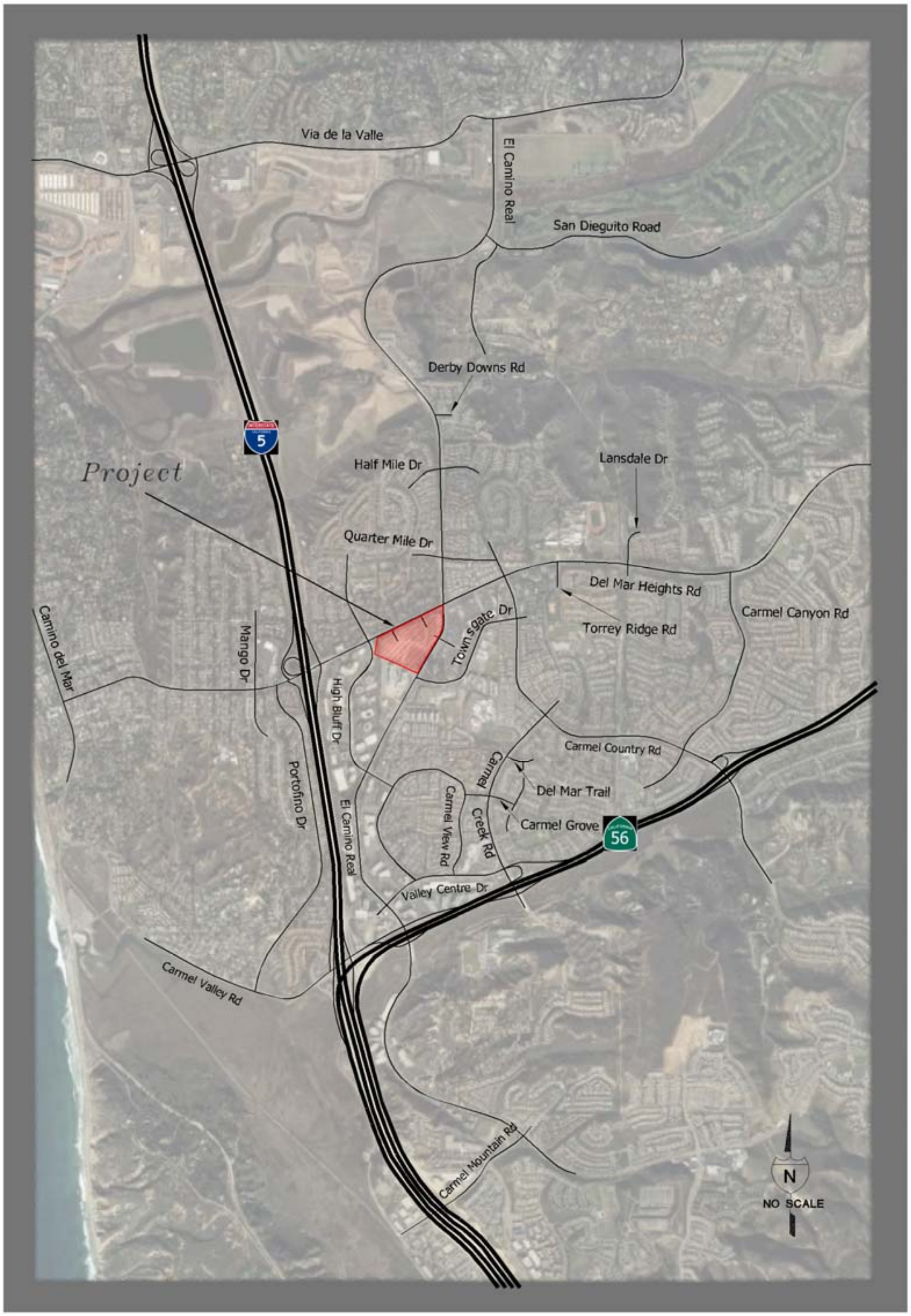


FIGURE 2-1

Project Location Map

FIGURE 2-2

Project Site Plan

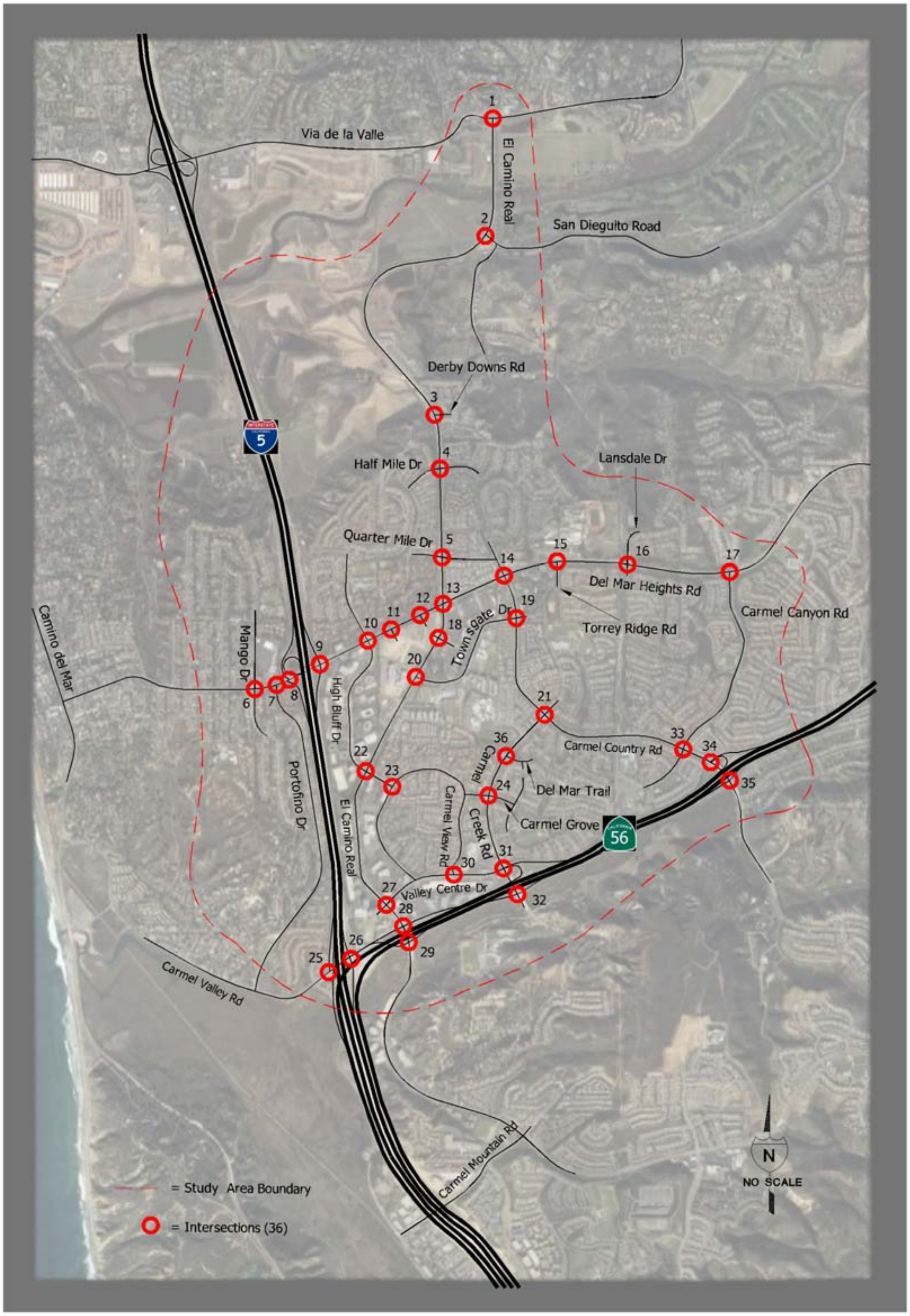


FIGURE 2-3

Study Area Boundary and Intersection Key

TABLE 2-1

Development Summary

ONE PASEO – A Main Street for Carmel Valley DEVELOPMENT SUMMARY							
Phase/Block	**Commercial Retail (Sq. Ft.*)**		**Commercial Office (Sq. Ft.*)**		**Hotel (No. of Rooms)**	**Residential (MF Units)**	**Total***
	Retail	**Cinema ****	**Corporate Office**	**Professional Office*****			
Phase 1							
Block D	61,190	---	270,000	21,000	---	---	352,190
Block E	39,460	---	245,000	---	---	---	284.460
Phase 1 Total	*100,650*	---	*515,000*	*21,000*	---	---	*636,650*
Phase 2							
Block A	65,610	---	---	---	---	194	65,610 + 194 MF units
Phase 2 Total	*65,610*	---	---	---		*194*	*65,610 + 194 MF units*
Phase 3							
Block B	38,940	---	---	---	150	181	38,940 + 150 hotel rooms + 181 MF units
Block C	14,800	---	---	---		233	14,800 + 233 MF units
Block D	---	50,000	---	---	---		50,000
Phase 3 Total	*53,740*	*50,000*	---	---	---	*414*	*103,740 + 418 MF units*
Total*	**220,000**	**50,000**	**515,000**	**21,000**	**150**	**608**	**806,000 Sq. Ft + 150 hotel rooms + 608 MF units**

*Gross Leasable Area (excludes parking structures covered in Gross Floor Area calculations). Density transfers permitted in accordance with procedures described in the Precise Plan.
**Cinema consists of up to 10 screens with a maximum total of 1,200 seats.
***Professional Office (located on Main Street).

TABLE 2-2

Study Area Street Segments

Street Segments	
Road	**Segment**
Del Mar Heights Rd.	Mango Drive to Portofino Drive
	Portofino Drive to I-5 Southbound Ramps
	I-5 Southbound Ramps and I-5 Northbound Ramps
	I-5 Northbound Ramps to High Bluff Drive
	High Bluff Drive to Third Avenue
	Third Avenue to First Avenue
	First Avenue to El Camino Real
	El Camino Real to Carmel Country Road
	Carmel Country Road to Torrey Ridge Road
	Torrey Ridge Road to Lansdale Drive
	Lansdale Drive to Carmel Canyon Road
El Camino Real	Via de la Valle to San Dieguito Road
	San Dieguito Road to Derby Downs Road
	Derby Downs Road to Half Mile Drive
	Half Mile Drive to Quarter Mile Drive
	Quarter Mile Drive to Del Mar Heights Road
	Del Mar Heights Road to Townsgate Drive
	Townsgate Drive to High Bluff Drive
	High Bluff Drive to Valley Centre Drive
	Valley Centre Drive to Carmel Valley Road
Carmel Country Road	Del Mar Heights Road to Townsgate Drive
	Townsgate Drive to Carmel Creek Road
	Carmel Creek Road to Carmel Canyon Road
	Carmel Canyon Road to SR-56 Westbound Ramps
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road
Carmel Creek Road	Carmel Country Road to Carmel Grove Road
	Carmel Grove Road to SR-56 Westbound Ramps
Valley Centre Drive	Carmel View Road to Carmel Creek Road
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real
High Bluff Drive	Del Mar Heights Road to El Camino Real
Via de la Valle	San Andres Drive to El Camino Real (West)

TABLE 2-3

Study Area Intersections

Intersections		
Number	**Intersection**	**Control**
1	El Camino Real / Via de la Valle	Signalized
2	El Camino Real / San Dieguito Road	Signalized
3	El Camino Real / Derby Downs Road	Signalized
4	El Camino Real / Half Mile Drive	Signalized
5	El Camino Real / Quarter Mile Drive	Signalized
6	Del Mar Heights Road / Mango Drive	Signalized
7	Del Mar Heights Road / Portofino Drive	Minor Street
8	Del Mar Heights Road / I-5 SB Ramps	Signalized
9	Del Mar Heights Road / I-5 NB Ramps	Signalized
10	Del Mar Heights Road / High Bluff Drive	Signalized
11	Del Mar Heights Road / Third Avenue	Signalized
12	Del Mar Heights Road / First Avenue	Signalized
13	Del Mar Heights Road / El Camino Real	Signalized
14	Del Mar Heights Road / Carmel Country Rd	Signalized
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized
16	Del Mar Heights Road / Lansdale Drive	Signalized
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized
19	Carmel Country Road / Townsgate Drive	Signalized
20	El Camino Real / Townsgate Drive	Signalized
21	Carmel Country Road / Carmel Creek Rd	Signalized
22	El Camino Real / High Bluff Drive	Signalized
23	Carmel View Road / High Bluff Drive	All-Way Stop
24	Carmel Creek Road / Carmel Grove Rd	Signalized
25	Carmel Valley Road / I-5 SB Ramps	Signalized
26	Carmel Valley Road / I-5 NB Ramps	Signalized
27	El Camino Real / Valley Centre Drive	Signalized
28	El Camino Real / Carmel Valley Rd	Signalized
29	El Camino Real / SR-56 EB On Ramp	Signalized
30	Carmel View Road / Valley Centre Drive	Signalized
31	Carmel Creek Road / SR-56 WB Ramp	Signalized
32	Carmel Creek Road / SR-56 EB Ramps	Signalized
33	Carmel Country Road / Carmel Canyon Rd	Signalized
34	Carmel Country Road / SR-56 WB Ramps	Signalized
35	Carmel Country Road / SR-56 EB Ramps	Signalized
36	Carmel Creek Road / Del Mar Trail	All-Way Stop

In order to summarize project impacts and required mitigation this report is divided into the following text sections:

1.0 Executive Summary

2.0 Introduction

3.0 Proposed Project

4.0 Methodology

5.0 Existing Conditions

6.0 Existing With Project Analysis

7.0 Cumulative Projects

8.0 Near Term Without Project

9.0 Near Term With Project Phase 1

10.0 Near Term With Project Phases 1 & 2

11.0 Near Term With Project Build-out

12.0 Long Term Cumulative (Year 2030) Without Project

13.0 Long Term Cumulative (Year 2030) With Project Build-out

14.0 Access & On-Site Analysis

15.0 Construction Traffic Analysis / Adaptive Traffic Control

16.0 DEIR Alternatives Analysis

17.0 Cinema Phasing Alternatives

<u>3.0</u> PROPOSED PROJECT

The project evaluated in this study proposes a development of 245,000 square feet of corporate office; 291,000 square feet of multi-tenant office; a 150 room hotel; 220,000 square feet community shopping center; a 10 screen cinema with a total maximum of 1,200 seats; and 608 multi-family residential units. The One Paseo project has been divided into phases such as the Project Phase 1, Project Phase 1 & 2, and Project Build-out.

3.1 TRIP GENERATION

A trip generation table for each phase of the project was developed.

Project Phase 1 – Phase 1 of the project would consist of constructing 100,650 square feet of retail, 515,000 square feet of corporate office, and 21,000 square feet of professional office. Construction of Phase 1 is planned to begin in the year 2013. The trip generation table using driveway rates is shown on **Table 3-1**. As shown, the proposed project during this phase would generate 10,262 ADT with 980 trips in the AM peak hour and 1,260 trips in the PM peak hour. After taking a mixed-use reduction of 374 ADT, the net new trips for this phase is 9,888 ADT with 894 trips in the AM peak hour and 1,188 trips in the PM peak hour.

Project Phase 1 & 2 – Phase 2 of the project includes an additional 65,610 square feet of retail along with 194 residential units. Construction of Phase 2 is planned to begin in the year 2014. Please note that completion of Phase 1 is not necessary for construction of Phase 2 to start. The trip generation table using driveway rates is shown on **Table 3-2**. As shown, the proposed project during the combined phase 1 & 2 would generate 18,419 ADT. After taking a mixed-use reduction of 607 ADT, the net new trips for this phase is 17,812 ADT with 1,182 trips in the AM peak hour and 2,021 trips in the PM peak hour.

Due to the unique nature of the project and the phasing of retail-commercial uses throughout the development, Urban Systems Associates, in consultation with City transportation staff, used a blended rate for the retail-commercial portion discussed below. A blended trip generation rate (see footnote on **Table 3-2**) is used for the community shopping center to reflect the variety of commercial-retail uses within the project. The initial 100,650 square feet of retail generates at a trip rate of 40 trips per 1,000 square feet based on the character of freestanding retail shops, see **Appendix A**. A 30,000 square foot supermarket generates 150 trips per 1,000 square feet. The remaining 35,610 square feet of commercial-retail generates 70 trips per 1,000 square feet. Appendix C (Definition of Land Use Categories for Trip Generation Purposes) of the City of San Diego's Trip Generation Manual, May 2003, under Specialty Retail/Strip Commercial, states "In general, as the gross floor area approaches 100,000 square feet, the stores lose their "freestanding" character and become part of a shopping center". For this reason, the remaining 35,610 square feet of commercial-retail generate the community shopping center trip rate of 70 per 1,000 square feet.

Project Build-out – Project Build-out would include Phase 1 & 2 along with Phase 3 which would consist of constructing 53,740 square feet of retail, 150 room hotel, 414 residential units, and a 10 screen cinema. Construction of Phase 3 is planned to begin in the year 2015. Construction of Phase 3 is not contingent on completion of Phase 1 or 2. The trip generation table using driveway rates is shown on **Table 3-3**. As shown, the proposed project at full build-out would generate 28,365 ADT. After taking a mixed-use reduction of 1,404 ADT, the net new trips for build-out of the project is 26,961 ADT with 1,538 trips in the AM peak hour and 2,932 trips in the PM peak hour. A blended rate was used for project build-out for the reasons mentioned previously.

An additional analysis was completed to evaluate the impacts of the project if a Community Shopping Center trip generation rate of 70 trips per 1,000 square feet (ksf) was used for all project phases versus the blended trip generation rate discussed earlier in this chapter (**Appendix B**). The analysis demonstrated that the blended rate resulted in no change to the impacts and mitigation when compared to the Community Shopping Center rate except at project build-out. At build-out, an additional impact was identified using the Community Shopping Center rate. On Del Mar Heights Road along the project frontage (High Bluff to El Camino Real), a cumulative segment impact was identified. We therefore completed a more detailed corridor analysis along Del Mar Heights Road from the south freeway ramps to El Camino Real and determined the impact would be mitigated by installing a coordinated signal system. This is accomplished through signal timing and signal interconnects. Signal interconnect is a standard city requirement along a traffic corridor such as Del Mar Heights Road and will be implemented with the project. Further improvement in traffic flow can be obtained by using Adaptive Traffic Control equipment. The corridor analysis is discussed in Section 15.0 of this report. **Appendix B** includes the trip generation tables as well as the analysis results of street segments, intersections, ramp meters, and freeway segments in the project study area.

The blended trip generation rate and discount applied to the Project and approved by City of San Diego staff results in a trip generation reduction of approximately 4-6% of Project related trips when compared to the trip generation of the Project if each land use was calculated separately. The 4-6% reduction in project generated traffic volumes generally represents trips that are internally captured, (i.e., trips that originate within the project and have another land use within the project as a destination).

Mixed-use developments like the proposed Project are becoming more common and the traffic engineering industry is becoming more and more involved in researching the travel characteristics of these developments. National, statewide, and local research has recently been conducted and is now ongoing to better understand the characteristics of mixed-use development trip generation. Some of the more well-know research found the following results:

- *In Measuring Trip from Mixed-Use Development: A Six-Region Study*, trip generation surveys showed that Mixed-Use Developments “average internal capture rates vary from a low of 8% for Atlanta to a high of 28% for Houston.”
- In *Analysis of Trip Generation Estimates for Mixed-Use Development*, sample surveys taken at Mixed-Use developments found that “the total site peak period internal capture rates achieved at all three locations had fairly high rates with a minimum of 25% and a maximum of 50%.”

- *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments* states "The other widely used approach is a policy determined flat percentage reduction in external trips. Such percentages are established by local planning, zoning, or transportation engineering officials for use in TIAs [traffic impact analyses] prepared to support applications for zoning, subdivision, site plan approval, or access permits. The percentages are most typically in the range of 10%, but were found to range between less than 5% and as much as 25%."
- *Comparing Methodologies for Estimating Trip Internalization of Mixed-Use Development* tested five different trip generation methodologies by estimating the number of net new trips generated after consideration of the mixed-use nature of two large developments and one mixed-use district. The study found that estimated internal capture reductions when compared to "single use land use" trip generation estimates for the projects averaged 24.4%. When compared to actual traffic counts of vehicles entering/leaving the three sites, the reduced net new projections still overestimated the actual counts by over 16%.

The "state of the practice" is moving toward the use of a blended trip generation rate for mixed use development that takes into account the internalization of trips and the shift of mode from auto to pedestrian and transit within these types of projects. As can be seen above, the actual experience at mixed-use developments shows project trip generation totals that are 15-25% below the estimates produced by the single use, free-standing trip generation rates.

Clearly, a maximum 6% reduction provided by the blended rate and the discount in Project trip generation described in **Table 3-3** represents a conservative assumption in relation to the actual trip generation experience of Mixed-Use developments.

TABLE 3-1

Project Only Trip Generation Table

(Project Phase 1)

Driveway Rates
Proposed Project - Phase 1 (Blocks D & E)

Use	Amount	Trip	ADT	AM Peak Hour					PM Peak Hour				
				%*	#	In : Out	In	Out	%*	#	In : Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) +3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Retail	100,650 SF	40 /KSF	4,026	3%	121	6 : 4	72	48	9%	362	5 : 5	181	181
TOTAL			**10,262**		**980**		**846**	**134**		**1,260**		**324**	**936**

Mixed Use Reductions

Use	Amount	Trip	ADT	AM Peak Hour					PM Peak Hour				
				%*	#	In : Out	In	Out	%*	#	In : Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) +3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Commercial Office Reduction %			3%		5%		5%	5%		4%		4%	4%
Sub-Total Commercial Office Reduction			**187**		**43**		**39**	**4**		**36**		**6**	**30**
Retail	100,650 SF	40 /KSF	4,026	3%	121	6 : 4	72	48	9%	362	5 : 5	181	181
Sub-Total Commercial Retail Reduction			**187**		**43**		**39**	**4**		**36**		**6**	**30**
TOTAL REDUCTION			**374**		**86**		**78**	**8**		**72**		**12**	**60**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

KSF = 1,000 Square Foot

TABLE 3-1

Project Only Trip Generation Table

(Project Phase 1)

NET NEW TRIPS

Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
Proposed Project	10,262	980	846	134	1,260	324	936
Mixed Use Reductions	374	86	78	8	72	12	60
TOTAL	**9,888**	**894**	**768**	**126**	**1,188**	**312**	**876**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

TABLE 3-2

Project Only Trip Generation Table

(Project Phase 1 & 2)

Driveway Rates

Proposed Project (Blocks A, D, & E)

Use	Amount	Trip	ADT	AM Peak Hour					PM Peak Hour				
				%*	#	In : Out	In	Out	%*	#	In : Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) +3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Community Shopping Center	166,260 SF	Blended Rate**	11,019	3%	331	6 : 4	198	132	10%	1,102	5 : 5	551	551
Multi-Family Residential	194 DU	6 /DU	1,164	8%	93	2 : 8	19	74	10%	116	7 : 3	81	35
TOTAL			**18,419**		**1,283**		**991**	**293**		**2,116**		**775**	**1,341**

Mixed Use Reductions

Use	Amount	Trip	ADT	AM Peak Hour					PM Peak Hour				
				%*	#	In : Out	In	Out	%*	#	In : Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) +3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Commercial Office Reduction %			3%		5%		5%	5%		4%		4%	4%
Sub-Total Commercial Office Reduction			**187**		**43**		**39**	**4**		**36**		**6**	**30**
Multi-Family Residential	194 DU	6 /DU	1,164	8%	93	2 : 8	19	74	10%	116	7 : 3	81	35
Residential Reduction %			10%		8%		8%	8%		10%		10%	10%
Sub-Total Residential Reduction			**116**		**7**		**1**	**6**		**12**		**8**	**3**
Community Shopping Center	166,260 SF	Blended Rate**	11,019	3%	331	6 : 4	198	132	10%	1,102	5 : 5	551	551
Commercial Retail Reduction			**303**		**50**		**40**	**10**		**48**		**14**	**34**
Sub-Total Commercial Retail Reduction			10,716		280		158	122		1,054		537	517
TOTAL REDUCTION			**607**		**101**		**80**	**21**		**95**		**28**	**67**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

** = Blended Rate: 100,650 sf @ 40/ksf = 4,026 ADT and 30,000 sf @ 150/ksf = 4,500 ADT, and 35,610 sf @ 70/ksf = 2,493 ADT; total ADT is 11,019.

DU = Dwelling Unit

KSF = 1,000 Square Foot

TABLE 3-2

Project Only Trip Generation Table

(Project Phase 1 & 2)

NET NEW TRIPS

Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
Proposed Project	18,419	1,283	991	293	2,116	775	1,341
Mixed Use Reductions	607	101	80	21	95	28	67
TOTAL	**17,812**	**1,182**	**910**	**272**	**2,021**	**747**	**1,273**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

TABLE 3-3

Project Only Trip Generation Table

(Project Build-out)

Driveway Rates
Proposed Project

Use	Amount	Trip	ADT	AM Peak Hour %*	AM #	AM In : Out	AM In	AM Out	PM Peak Hour %*	PM #	PM In : Out	PM In	PM Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) + 3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Hotel	150 Rms	10 /Rm	1,500	6%	90	6 : 4	54	36	8%	120	6 : 4	72	48
Community Shopping Center	220,000 GLSF	Blended Rate**	14,781	3%	443	6 : 4	266	177	10%	1,478	5 : 5	739	739
Cinema[1]	10 screens	220 /screen	2,200	0%	0	0 : 0	0	0	24	240	41 : 59	98	142
Multi-Family Residential	608 DU	6 /DU	3,648	8%	292	2 : 8	58	233	10%	365	7 : 3	255	109
TOTAL			**28,365**		**1,685**		**1,152**	**533**		**3,100**		**1,308**	**1,793**

Mixed Use Reductions

Use	Amount	Trip	ADT	AM Peak Hour %*	AM #	AM In : Out	AM In	AM Out	PM Peak Hour %*	PM #	PM In : Out	PM In	PM Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) + 3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Commercial Office Reduction %			3%		5%		5%	5%		4%		4%	4%
Sub-Total Commercial Office Reduction			**187**		**43**		**39**	**4**		**36**		**6**	**30**
Hotel	150 Rms	10 /Rm	1,500	6%	90	6 : 4	54	36	8%	120	6 : 4	72	48
Multi-Family Residential	608 DU	6 /DU	3,648	8%	292	2 : 8	58	233	10%	365	7 : 3	255	109
Residential Reduction %			10%		8%		8%	8%		10%		10%	10%
Sub-Total Residential Reduction			**515**		**31**		**9**	**22**		**48**		**33**	**16**
Community Shopping Center	220,000 GLSF	Blended Rate**	14,781	3%	443	6 : 4	266	177	10%	1,478	5 : 5	739	739
Cinema[1]	10 screens	220 /screen	2,200	0%	0	0 : 0	0	0	24	240	41 : 59	98	142
Commercial Retail Reduction			**702**		**74**		**48**	**26**		**84**		**38**	**46**
Sub-Total Commercial Retail Reduction			16,279		370		218	152		1,634		799	835
TOTAL REDUCTION			**1,404**		**147**		**95**	**52**		**169**		**77**	**92**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

** = Blended Rate:100,650sf @ 40/ksf =4,026 ADT & 30,000sf @ 150/ksf =4,500 ADT & 89,350sf @ 70/ksf =6,255 ADT, so the total is 14,781 ADT.

[1] = Cinema trip rate is based on ITE's Trip Generation, 8th edition, Land Use 443. Phasing options for a cinema ranging from 8 to 10 screens is discussed in Section 14.0

DU = Dwelling Unit

KSF = 1,000 Square Foot GLSF = Gross Leasable Square Foot

Rm = Room

Page 2 of 2

TABLE 3-3

Project Only Trip Generation Table

(Project Buildout)

NET NEW TRIPS

Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
Proposed Project	28,365	1,685	1,152	533	3,100	1,308	1,793
Mixed Use Reductions	1,404	147	95	52	169	77	92
TOTAL	**26,961**	**1,538**	**1,057**	**481**	**2,932**	**1,231**	**1,701**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

3.2 PROJECT ONLY TRAFFIC

Figure 3-1 shows the project only trip distribution percentages which were derived from SANDAG's Series 11 Traffic Model at full build-out of the project. The traffic model distributed project traffic 45% west towards the I-5 freeway. 6% of project traffic is distributed on El Camino Real north of Del Mar Heights Rd. Although the project has been analyzed in phases, the external distribution percentages remain the same. For example, the project distribution west of Third Avenue on Del Mar Heights Rd. is 45% for all phases. The project distribution south of Del Mar Highlands Town Center on El Camino Real is 17% for all phases. The distribution percentages change slightly on Del Mar Heights Road between Third Avenue and El Camino Real from phase to phase. A slight change in distribution occurs from phase to phase on El Camino Real between Del Mar Heights Road and Del Mar Highlands Town Center. Chapter 12 of this report shows the various distributions on Del Mar Heights Rd. and El Camino Real between access points based on the project phase.

Project Phase 1 – Figure 3-2 shows the project only average daily traffic volumes for Project Phase 1 which are based on the daily new traffic generation from **Table 3-1** and the distribution of project only traffic from **Figure 3-1**.

Project Phase 1 & 2 – Figure 3-3 shows the project only average daily traffic volumes for Project Phase 1 & 2 which are based on the daily new traffic generation from **Table 3-2** and the distribution of project only traffic from **Figure 3-1**.

FIGURE 3-1

Project Only Distribution Percentages

(Project Build-out)

FIGURE 3-2

Project Only Average Daily Traffic Volumes

(Project Phase 1)

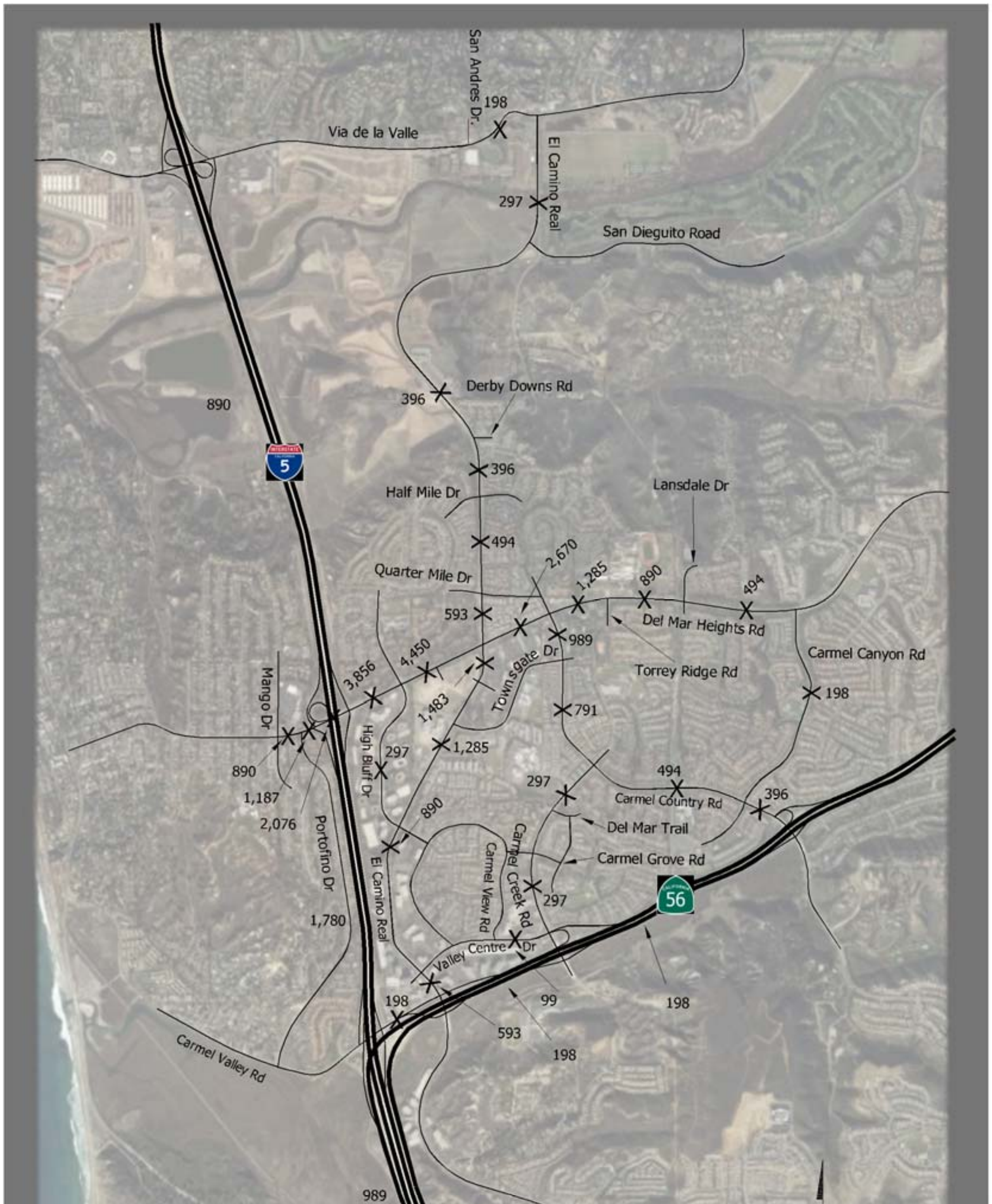
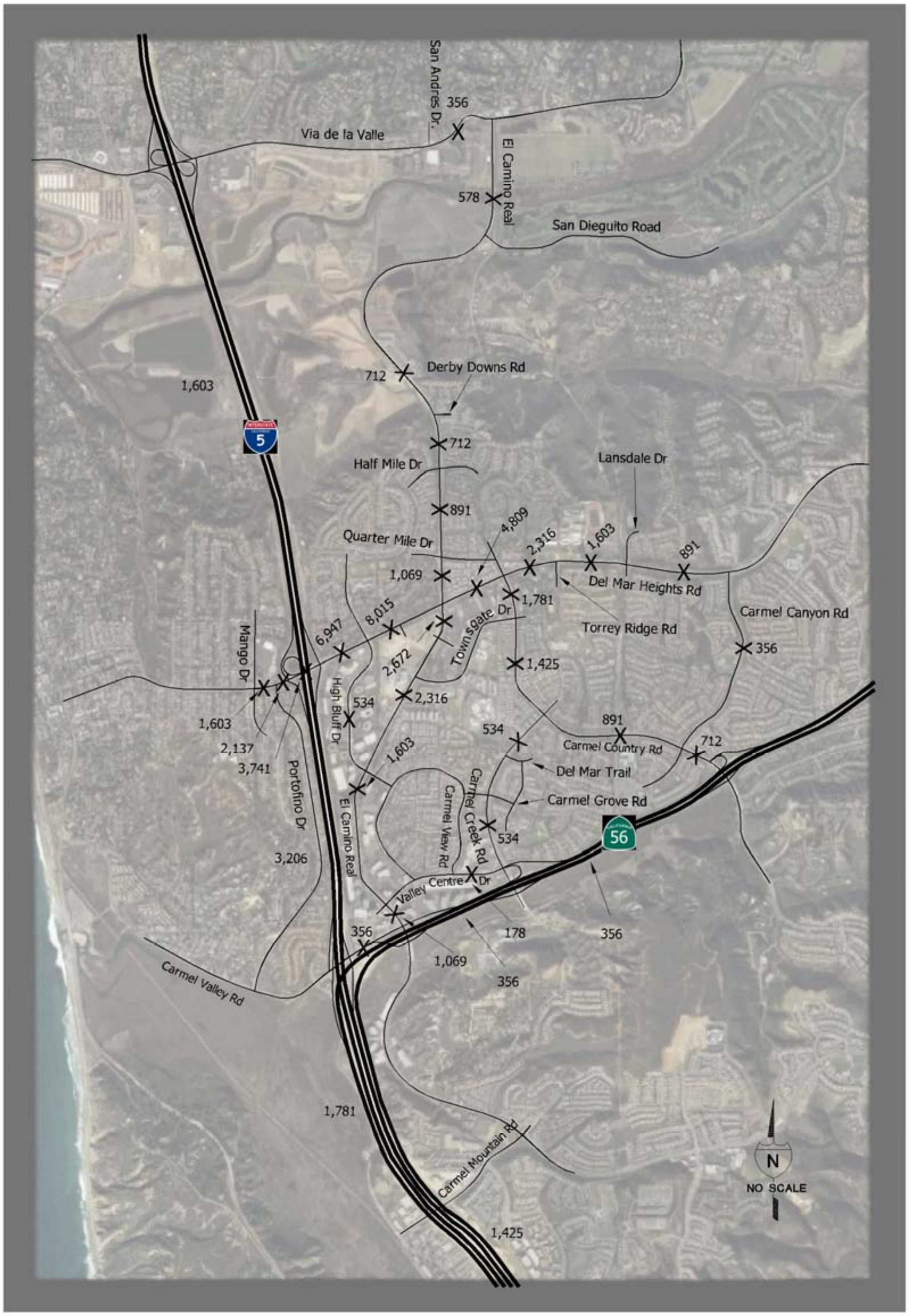


FIGURE 3-3

Project Only Average Daily Traffic Volumes

(Project Phase 1 & 2)



Project Build-out – Figure 3-4 shows the project only average daily traffic volumes for Project Build-out which are based on the daily new traffic generation from **Table 3-3** and the distribution of project only traffic from **Figure 3-1**.

As previously mentioned, project build-out refers to the final phase of the project or phases 1, 2, & 3. Phase 3 is planned to start construction in 2015 even if Phases 1 and 2 are not completely built. Year 2030 relates to SANDAG's Series 11 Regional traffic forecast used in this analysis, not build-out of the project. A full discussion of the regional traffic model can be found in Section 12.0 of this report.

Figure 3-5 shows the AM/PM peak hour project only traffic for Project Phase 1.

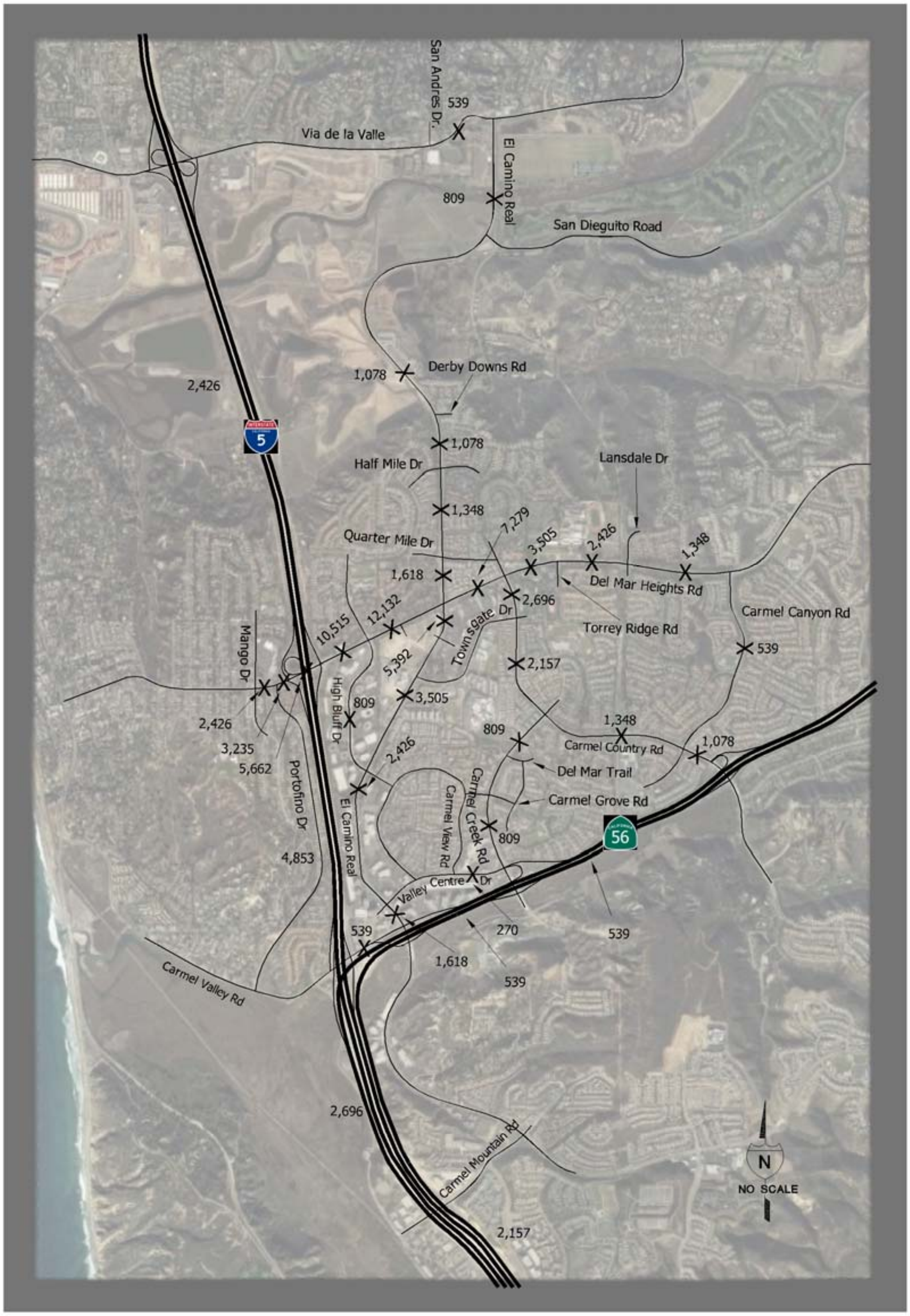
Figure 3-6 shows the AM/PM peak hour project only traffic for Project Phase 1 & 2.

Figure 3-7 shows the AM/PM peak hour project only traffic for Project Build-out.

FIGURE 3-4

Project Only Average Daily Traffic Volumes

(Project Build-out)



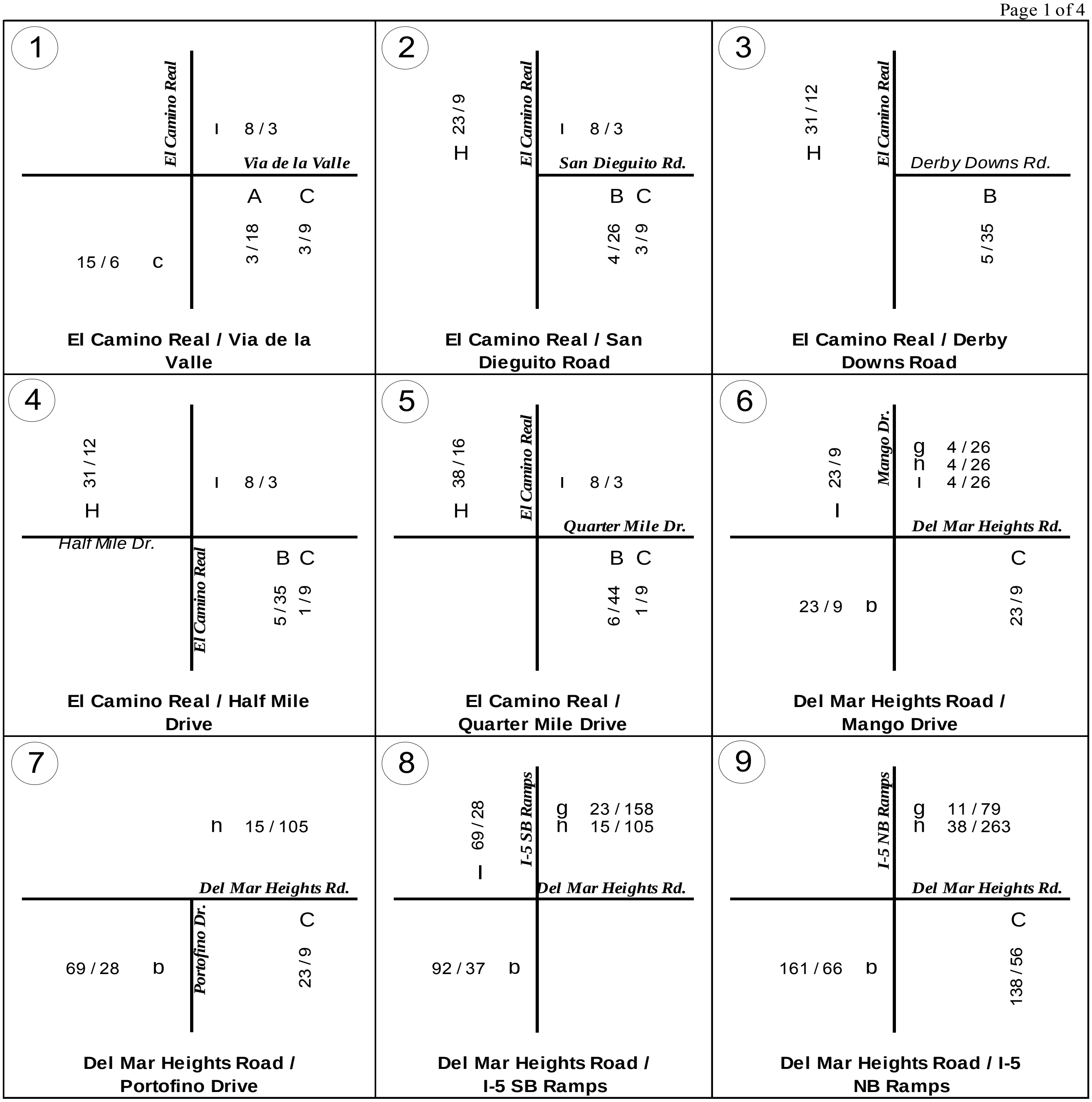


FIGURE 3-5

Project Only AM / PM Peak Hour Traffic

(Project Phase 1)

Page 2 of 4

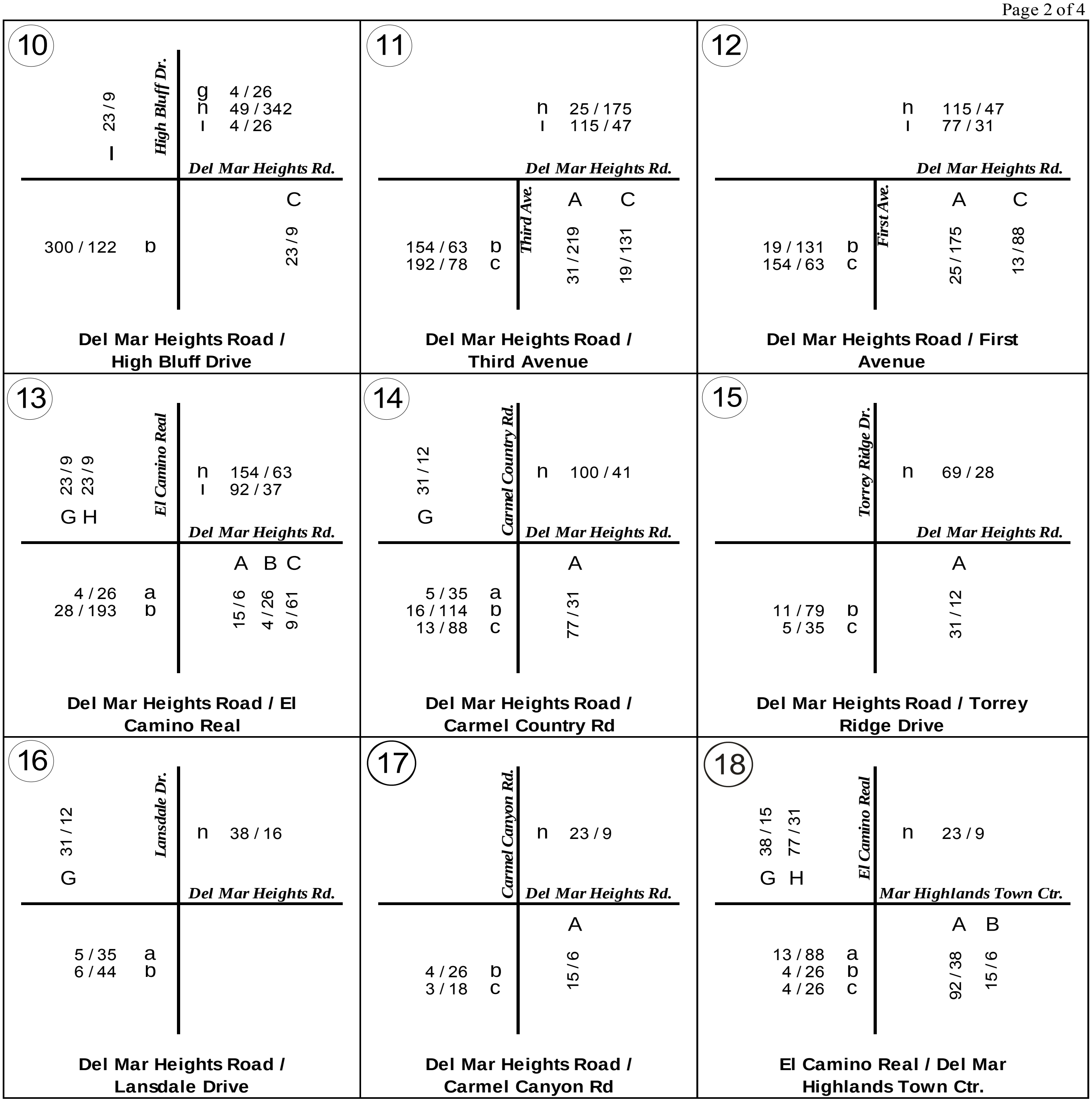


FIGURE 3-5

Project Only AM / PM Peak Hour Traffic
(Project Phase 1)

Page 3 of 4

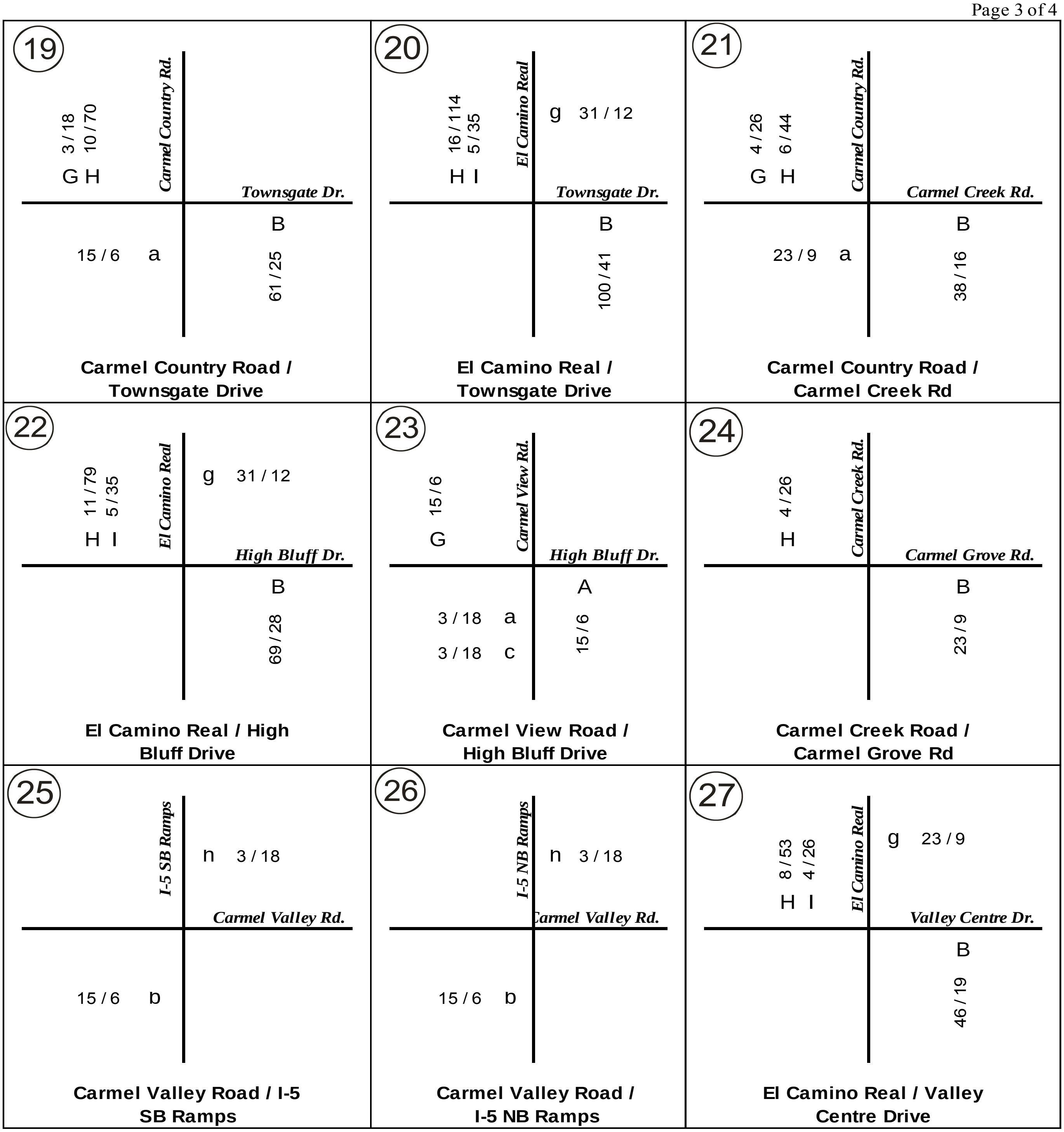


FIGURE 3-5

Project Only AM / PM Peak Hour Traffic
(Project Phase 1)

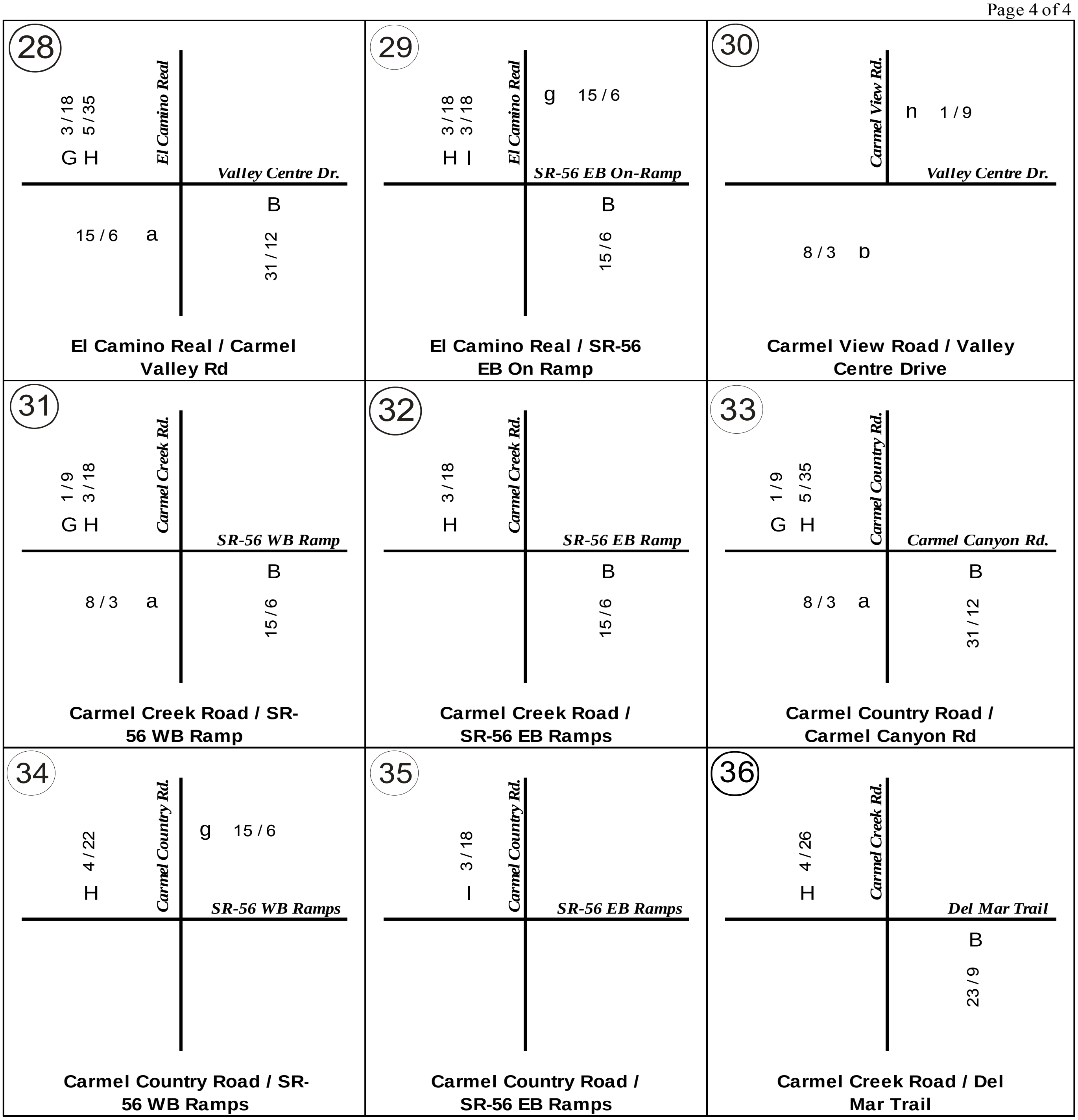


FIGURE 3-5

Project Only AM / PM Peak Hour Traffic

(Project Phase 1)

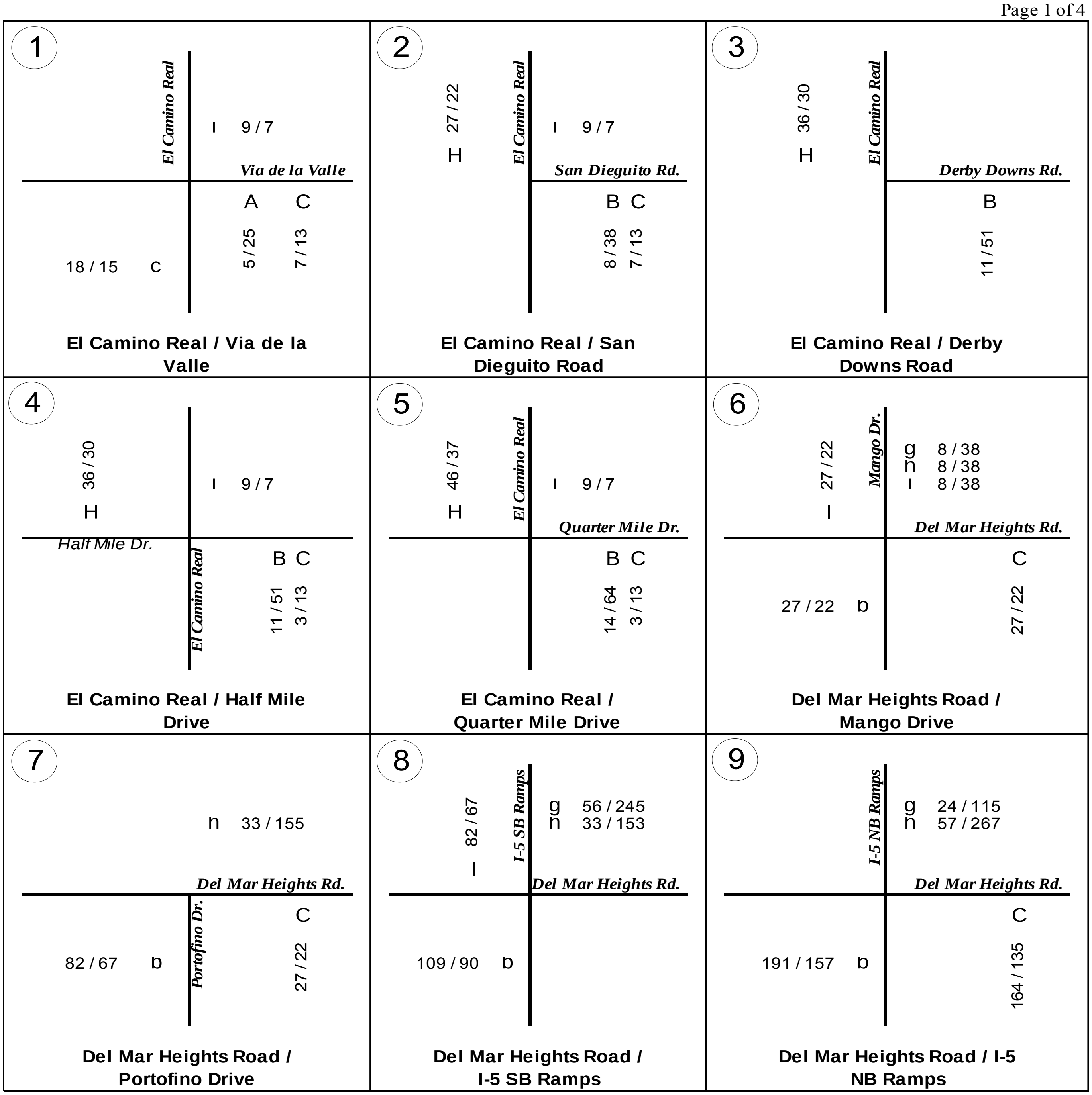


FIGURE 3-6

Project Only AM / PM Peak Hour Traffic

(Project Phase 1 & 2)

Page 2 of 4

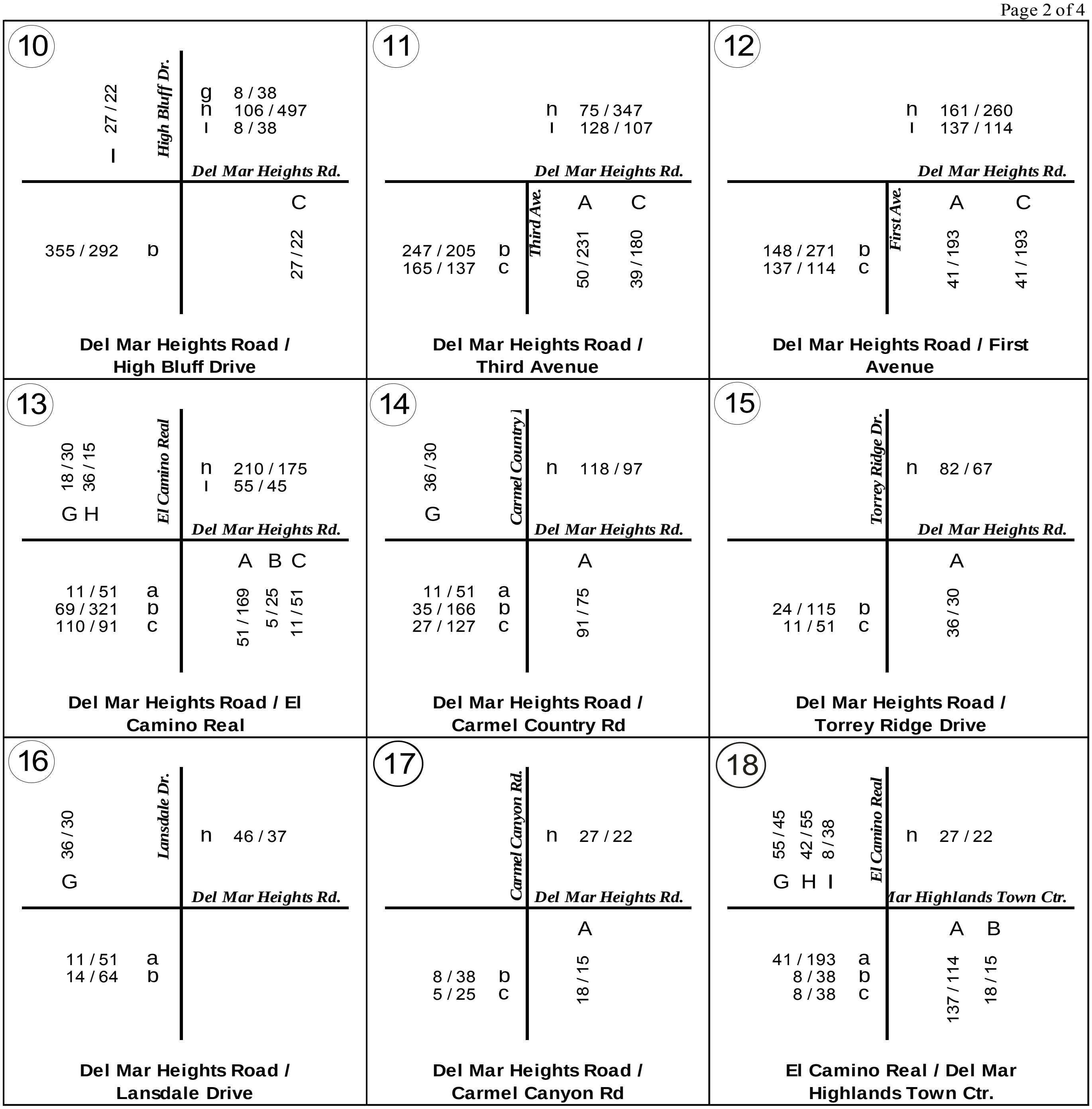


FIGURE 3-6

Project Only AM / PM Peak Hour Traffic
(Project Phase 1 & 2)

Page 3 of 4

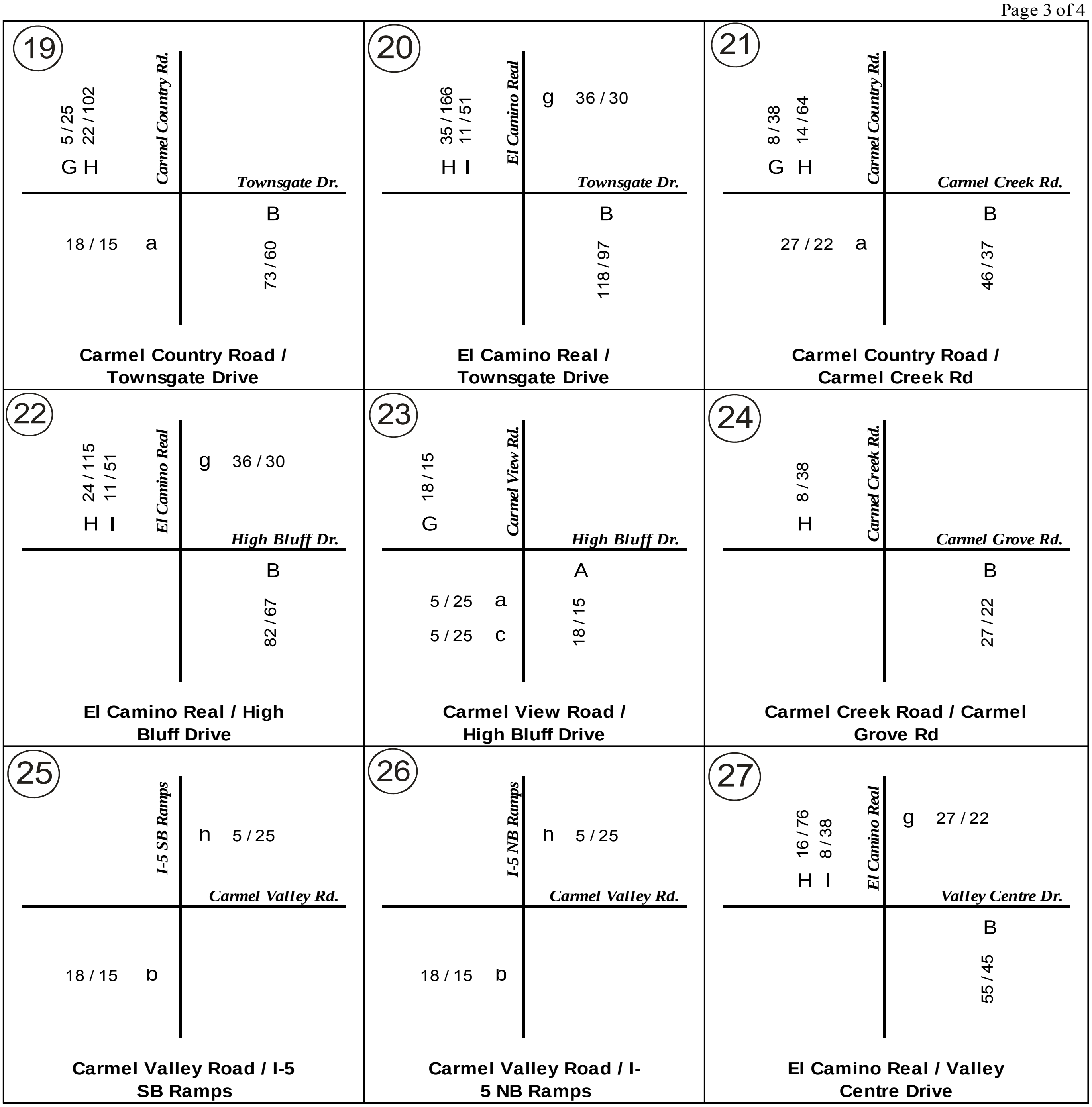


FIGURE 3-6

Project Only AM / PM Peak Hour Traffic (Project Phase 1 & 2)

Page 4 of 4

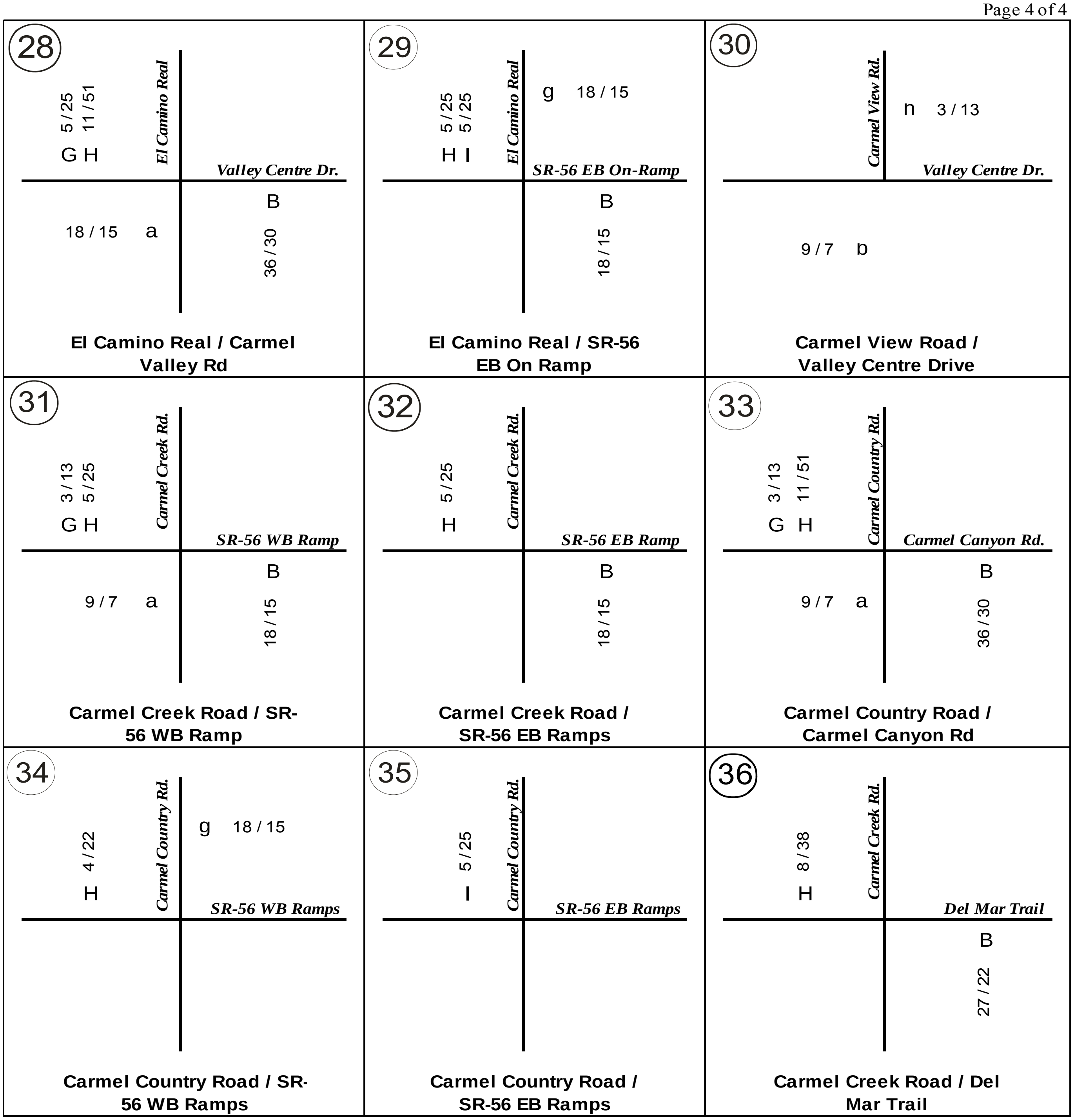


FIGURE 3-6

Project Only AM / PM Peak Hour Traffic

(Project Phase 1 & 2)

Page 1 of 4

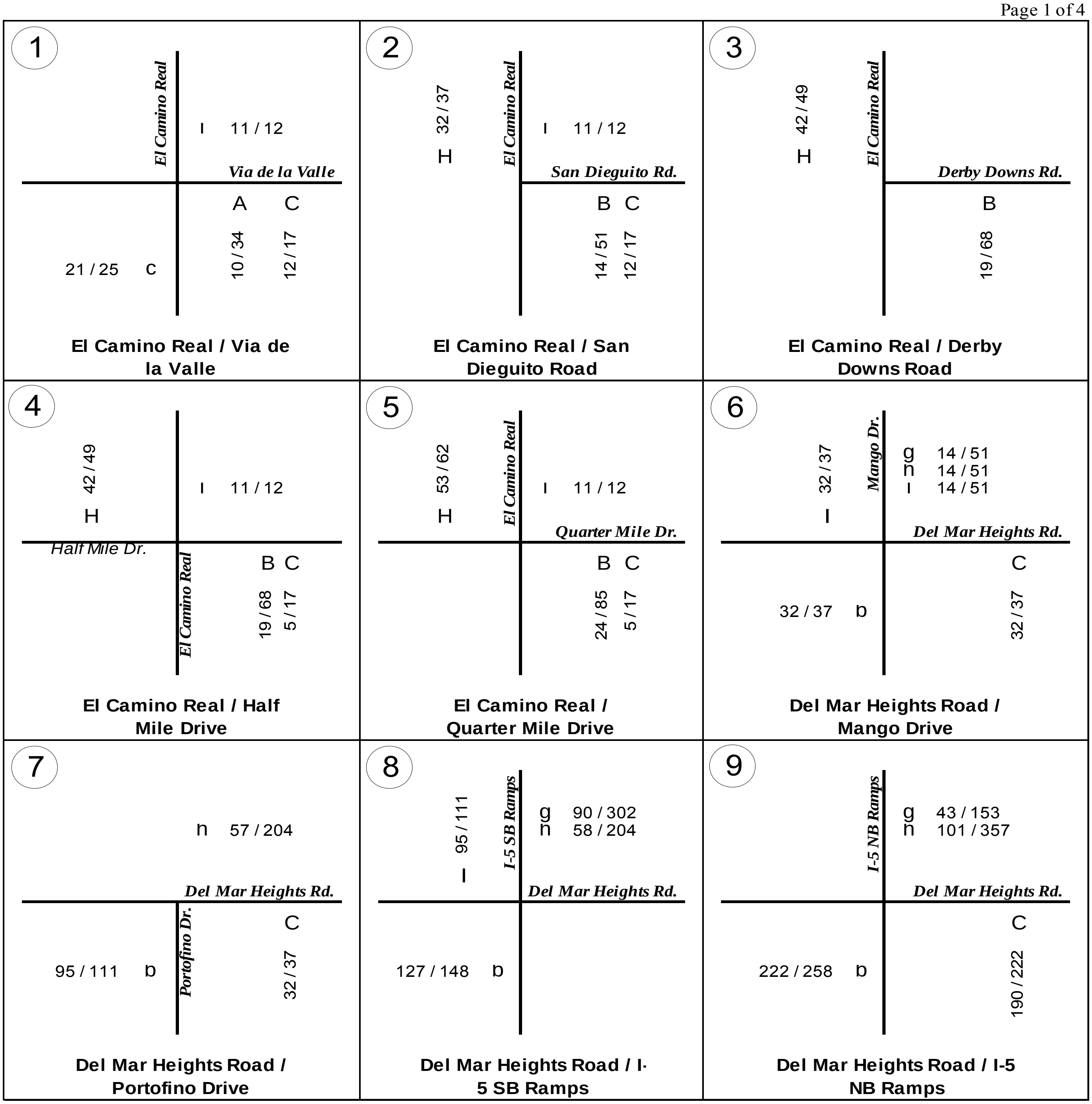


FIGURE 3-7

Project Only AM / PM Peak Hour Traffic (Project Buildout)

Page 2 of 4

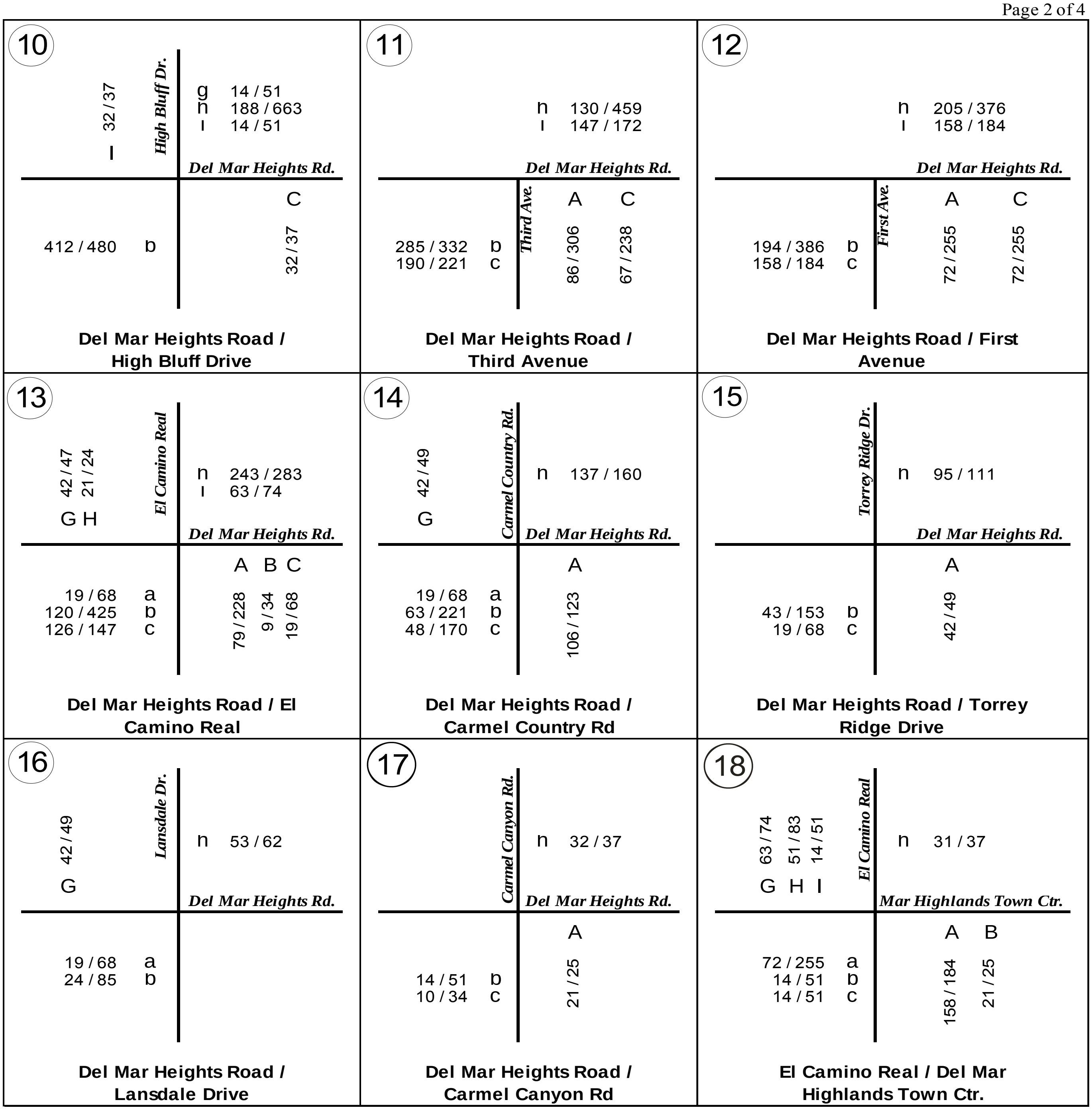


FIGURE 3-7

Project Only AM / PM Peak Hour Traffic (Project Buildout)

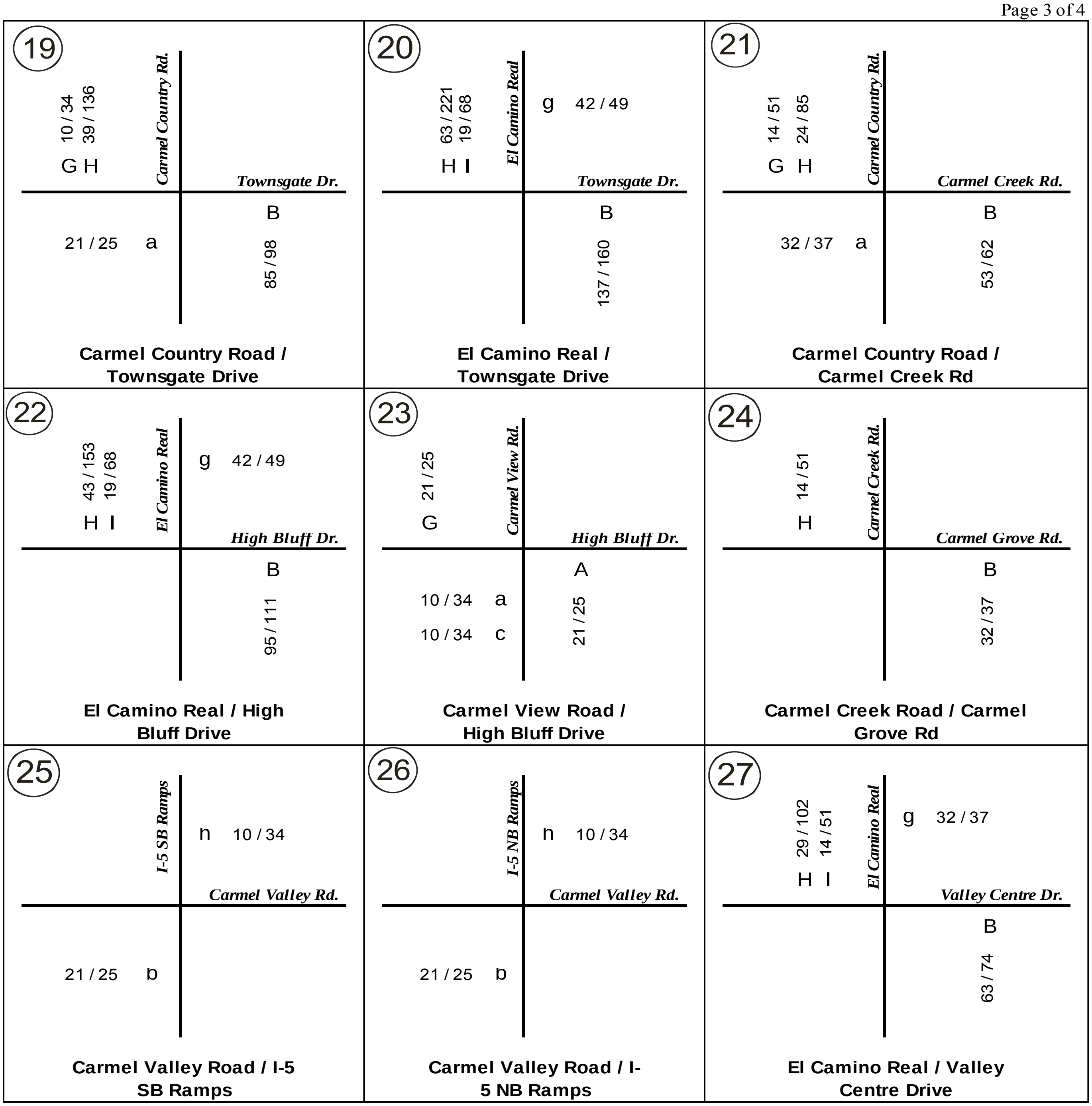


FIGURE 3-7

Project Only AM / PM Peak Hour Traffic (Project Buildout)

Page 4 of 4

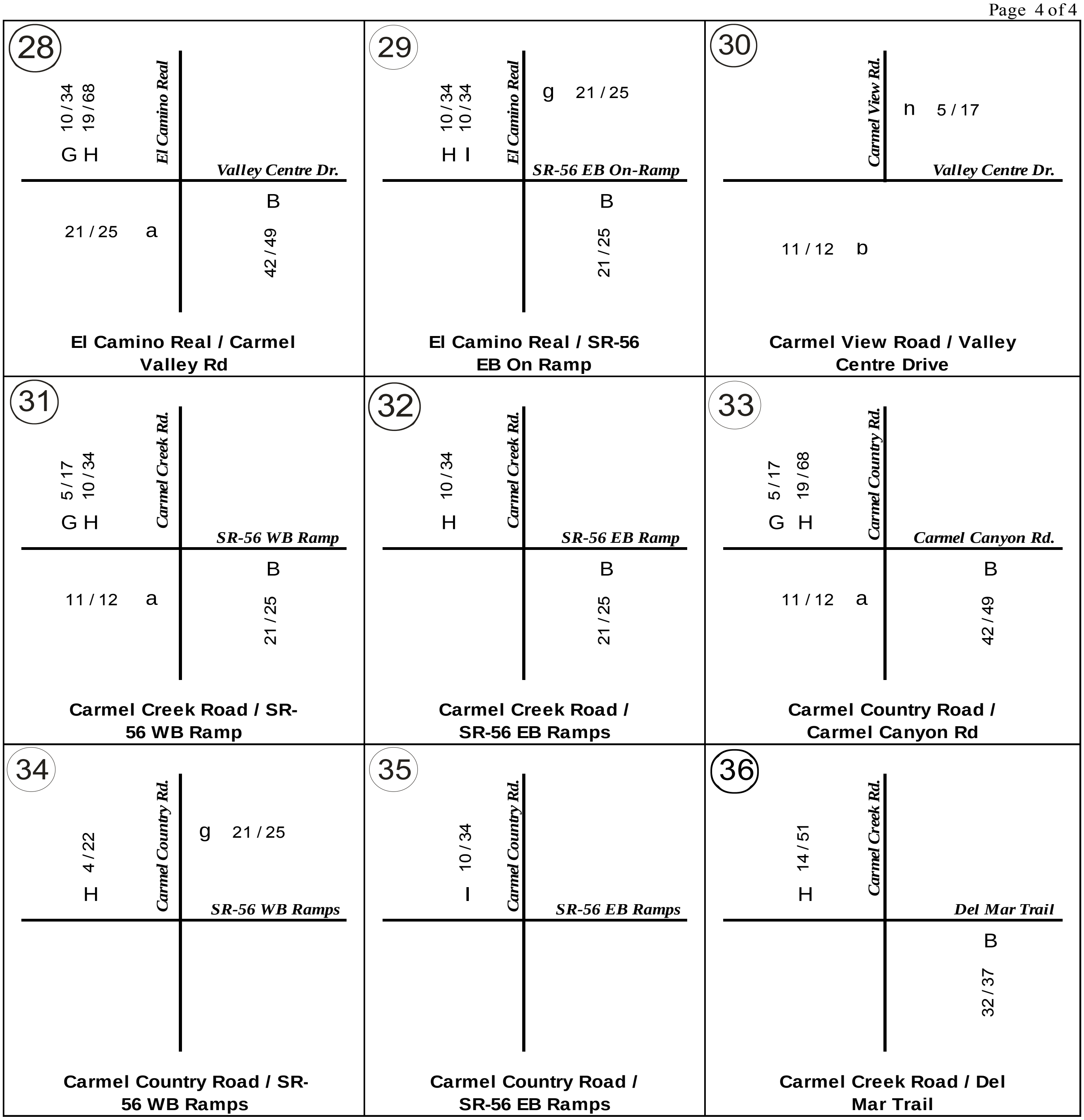


FIGURE 3-7

Project Only AM / PM Peak Hour Traffic (Project Buildout)

4.0 METHODOLOGY

This report was prepared pursuant to the City's *Traffic Impact Study Manual* and recent California case law applying the California Environmental Quality Act to traffic studies prepared in connection with environmental impact reports. *See Sunnyvale West Neighborhood Association v. City of Sunnyvale (2010) 190 Cal.App.4*th *1351; Madera Oversight Coalition, Inc. v. County of Madera* (2011) 199 Cal.App.4th 48; *Pfeiffer v. City of Sunnyvale* (2011) 200 Cal.App.4th 1552.

Each chapter of this report identifies the condition being evaluated and the criteria used. In Chapter 5, the baseline condition is presented. As described in Chapter 5, the baseline condition assumes existing traffic, land uses and roadway conditions. In Chapter 6, project only traffic is added by phase and direct project impacts are determined.

In Chapter 7, other Near Term projects are discussed. Traffic from past, present, and probable future projects likely to generate traffic in the area was included.

Chapters 8 - 11 analyze near-term traffic impacts and mitigation associated with the various phases of the project including project build-out. Summary tables compare the conditions both with and without the project and identify significant intersection, segment, ramp or freeway impacts. Mitigation is also discussed.

As described above in Chapter 1, the environmental baseline for the purposes of the traffic analysis comprises conditions that existed at or around the time of publication of the NOP. Therefore, the existing plus project (build out) traffic scenario discussed in Chapter 6 comprises the project analysis. In addition to the existing plus project scenario, the City requires a Near Term analysis. This Near Term analysis reflects changes in traffic volumes and circulation anticipated to occur prior to the time of anticipated certification of the EIR, and includes previously proposed and/or approved projects, as described in Chapter 7,

Both impacts identified in the Near Term analysis and impacts identified in the Existing-Plus-Project analysis are considered direct project impacts by the City.

For the Long Term Cumulative (Year 2030) conditions, build-out of the project is assumed and SANDAG / CALTRANS Regional Series 11 Travel Forecasts and improvement assumptions are used as the basis for evaluation. These analyses may be found in Chapters 12 and 13. The balance of the report addresses transit, Transportation Demand Management, DEIR Project Alternatives, construction traffic impacts, access, onsite facilities, and special (cinema) phasing options. See Chapters 14 through 18.

Mitigation proposed in this report includes specific improvements installed by the project or a financial contribution towards an improvement installed by others (in the case of some near term and cumulative impacts). If project traffic causes a roadway facility that operates acceptably to operate unacceptably, then the project has a significant impact. Two criteria must be met before project mitigation is proposed. First, the intersection or street segment must have an unacceptable level of service (LOS), i.e. E or F as discussed below. Second, the amount of project traffic must be significant based on the application of criteria also discussed below. For an intersection, if the change in delay is greater than 2 seconds (or 1 second when the level of service is “E” or “F” respectively), the intersection project impacts are considered significant. For a street segment, if the change in volume to capacity ratio (V/C ratio) exceeds 0.02 (or 0.01 when the level of service is “E” or “F” respectively), that street segment is considered significantly impacted. If project traffic causes an intersection, roadway segment, or freeway segment to degrade from LOS "D" to LOS "E" or LOS "F" and exceeds the significance threshold discussed above, the project has a significant impact on the roadway facility. For freeway segments to be considered significant, the segment must operate at an unacceptable level of service and exceed a change in v/c ratio of 0.01 (or 0.005 for LOS "E" and "F", respectively). A ramp meter impact is significant if the change in delay is greater than 2 minutes (or 1 minute for LOS "E" and "F", respectively) using the most restrictive meter rate analysis method.

For this project, new signals are proposed at First Avenue and Third Avenue on Del Mar Heights Road. These signals are proposed to be built in advance of the project to provide safe and efficient construction access. These signals are considered project features and thus not identified as project mitigation.

4.1 CITY OF SAN DIEGO GUIDELINES

The City of San Diego has developed a Traffic Impact Study Manual (7/98). The stated purpose of the Traffic Impact Study Manual is "....to ensure consistency with all applicable City and State regulations." The Traffic Impact Study Manual provides guidance regarding preparation of traffic impact reports in the City of San Diego. The manual includes guidelines for forecasting, trip generation and assignment, and analysis procedures.

The City's Traffic Impact Study Manual establishes criteria which identify the allowable change in delay or volume to capacity ratio (V/C) due to project traffic. The manual also establishes criteria for measuring project impacts at intersections. This method establishes an allowable increase in delay at intersections due to the addition of project trips. The City Traffic Impact Study Manual specifies use of the most current Highway Capacity Manual (HCM) operational method for studying intersections. The most current HCM is HCM 2000. For analyzing intersections, a software package called Highway Capacity Software (HCS) + and Synchro is used. These software packages are a direct and faithful application of the HCM methodology.

4.2 TRIP DISTRIBUTION

The projected trips were distributed based on a SANDAG Series 11 select zone assignment.

4.3 STREET LOS THRESHOLD

When analyzing street segments, the level of service (LOS) must be determined. LOS is a measure used to describe the conditions of traffic flow. LOS is expressed using letter designations from “A” to “F”. LOS “A” represents the best case, and LOS “F” represents the worst case. Generally LOS “A” through “C” represents free flowing traffic conditions with little or no delay. LOS “D” represents limited congestion and some delay, however, the duration of periods of delay is acceptable to most people. LOS “E” and “F” represent significant delays on local streets, which are generally unacceptable for urban design purposes. The LOS descriptions are from Chapter 9 of the Highway Capacity Manual (Transportation Research Board, 2000).

The City of San Diego has developed LOS threshold tables based on the different functional street classifications and their ability to carry traffic. For the City of San Diego, LOS “D” is the acceptable LOS standard for roadways and intersections.

4.4 INTERSECTION LOS PROCEDURES

The City and Regional Congestion Management Program (CMP) guidelines, as adopted by SANDAG, determine the procedures to be used for intersection peak hour analysis. To determine an intersection peak hour LOS, the CMP guidelines require use of the most recent procedure from Chapter 9 of the Highway Capacity Manual (Transportation Research Board, 2000). The procedure in Chapter 9 which is used to analyze signalized intersection is the "operational method." This method determines LOS based on total vehicle delay expressed in seconds. **Table 4-1** shows the LOS based upon the delay. A computer program is used to complete the analysis. As discussed above, the City and CMP guidelines have established LOS "D" or better as the objective for intersections and street segments.

TABLE 4-1

Level of Service Criteria For Signalized Intersections

Level of Service	Control Delay Per Vehicle (sec)
A	#10
B	>10 and #20
C	>20 and #35
D	>35 and #55
E	>55 and #80
F	>80

Source: Table 9-1, Highway Capacity Manual, 2000

Level of Service Criteria For Unsignalized Intersections

Level of Service	Control Delay Per Vehicle (sec)
A	#10
B	>10 and #15
C	>15 and #25
D	>25 and #35
E	>35 and #50
F	>50

Source: Table 10-7, Highway Capacity Manual, 2000

4.5 CMP ENHANCED CEQA REVIEW GUIDELINES

As discussed above, the Congestion Management Program regional guidelines were developed by SANDAG to provide a set of procedures for completing enhanced CEQA review for certain projects. The guidelines, prepared by the San Diego Association of Governments (SANDAG), stipulate that any development project generating 2,400 or more average daily trips, or 200 or more peak hour trips, must be evaluated in accordance with the requirements of the Regional CMP. The CMP analysis must include the traffic level of service (LOS) impacts on affected freeways and Regionally Significant Arterial (RSA) systems, which includes all designated CMP roadways. In order to conform to the region's CMP, local jurisdictions must adopt and implement a land use analysis program to assess impacts of land use decisions on the regional transportation system.

A review of the trip generation from **Table 3-3** compared to the CMP requirements is summarized below:

	One Paseo	CMP Requirements
ADT	**26,961**	> 2,400
Peak Hour	**1,701 (PM)**	> 200

As shown, the proposed project is above the threshold for ADT's, and it is also above the threshold for peak hour trips, therefore, a CMP analysis level of analysis is required.

City of San Diego Guidelines are consistent with the methodologies contained in the Congestion Management Program. Further, City of San Diego significance determination Guidelines are also more restrictive than those contained in the Congestion Management Program. Therefore, CMP requirements are met on this analysis.

4.6 CALTRANS FREEWAY SEGMENT LOS PROCEDURES

To determine the LOS of main lane freeway segments, Caltrans Guide for the Preparation of Traffic Impacts Studies, December 2002, specifies the use of the Highway Capacity Manual operational analysis. This method determines levels of service based on the volume to capacity (V/C) ratio. The resulting V/C is then compared to accepted ranges of V/C values corresponding to the various levels of service for each of the facility classifications. The corresponding level of service represents an approximation of existing or anticipated future freeway operating conditions in the peak direction of travel during the peak hour. Traffic count data, peak hour factors, and truck factors are provided on the Department of Transportation website in the Business section under Traffic Counts.

4.7 SIGNIFICANCE THRESHOLDS

As discussed above, two criteria must be met before project traffic mitigation is required. First, an unacceptable LOS (i.e. E or F) must occur or degrade from D to E, and second, significance thresholds for only project traffic must be exceeded. The City has significance thresholds which are summarized in **Table 4-2**. These thresholds are used in this analysis along with levels of service to determine if project mitigation is required. **Table 4-3** shows the roadway classifications for the City of San Diego.

TABLE 4-2

Significance Thresholds

Level of Service with Project *	Allowable Change Due To Project Impact **					
	Freeways		Roadway Segments		Intersections	Ramp Metering
	V/C	*Speed (mph)*	*V/C*	*Speed (mph)*	*Delay (sec.)*	*Delay (min.)*
E (or ramp meter delays above 15 min.)	0.010	1.0	0.02	1.0	2.0	2.0
F (or ramp meter delays above 15 min.)	0.005	0.5	0.01	0.5	1.0	1.0

Note 1: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 minutes.
Note 2: The allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 minute.

* All LOS measurements are based upon Highway Capacity Manual procedures for peak-hour conditions. However, V/C ratios for roadway segments are estimated on an ADT/24-hour traffic volume basis (using Table 2 of the City's Traffic Impact Study Manual. The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped locations). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

** If a proposed project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. The project applicant shall then identify feasible improvements (within the Traffic Impact Study) that will restore/and maintain the traffic facility at an acceptable LOS. If the LOS with the proposed project becomes unacceptable (see above * note), or if the project adds a significant amount of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project applicant shall be responsible for mitigating the project's direct significant and/or cumulatively considerable traffic impacts.

KEY:
Delay = Average control delay per vehicle measured in seconds for intersections, or minutes for ramp meters
LOS = Level of Service
Speed = Speed measured in miles per hour
V/C = Volume to Capacity ratio

TABLE 4-3

Roadway Classifications

STREET CLASSIFICATION	LANES	LEVEL OF SERVICE A	B	C	D	E
Freeway	8 lanes	60,000	84,000	120,000	140,000	150,000
Freeway	6 lanes	45,000	63,000	90,000	110,000	120,000
Freeway	4 lanes	30,000	42,000	60,000	70,000	80,000
Expressway	6 lanes	30,000	42,000	60,000	70,000	80,000
Primary Arterial	6 lanes	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 lanes	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 lanes	15,000	21,000	30,000	35,000	40,000
Collector	4 lanes	10,000	14,000	20,000	25,000	30,000
Collector (no center lane) continuous left-turn lane)	4 lanes 2 lanes	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 lanes	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 lanes	2,500	3,500	5,000	6,500	8,000
Collector (multifamily)	2 lanes	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 lanes	—	—	2,200	—	—

LEGEND:

XXX/XXX = Curb to curb width (feet)/right-of-way width (feet): based on the City of San Diego Street Design. Manual

XX/XXX= Approximate recommended ADT based on the City of San Diego Street Design Manual.

NOTES:

1. The volumes and the average daily level of service listed above are only intended as a general planning guideline.
2. Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

5.0 EXISTING CONDITIONS

For the purposes of this study, the existing environment as of the date of the environmental impact report notice of preparation dated May 25, 2010 constitutes the baseline physical conditions against which the project impacts are determined. This study also includes analysis of the potential Near Term and Horizon Year impacts of the project.

5.1 EXISTING ROADWAY FACILITIES

Del Mar Heights Road – Del Mar Heights Road has a functional classification of a five lane major between Mango Drive and Portofino Drive since there are driveways on this segment. From Portofino Drive to the I-5 northbound ramps, Del Mar Heights Road has a functional classification of a five lane primary arterial with a level of service "E" capacity of 50,000 ADT. On Del Mar Heights Road from the I-5 northbound ramps to High Bluff Drive, the roadway has a functional classification of a six lane major since there are median breaks and driveways. From High Bluff Drive to Carmel Canyon Road, Del Mar Heights Road is functionally and ultimately classified as a six lane prime arterial per the North City Future Urbanizing Area plan. On-street parking is not allowed along both sides of the roadway. The roadway width is 102 feet and the posted speed limit is 40 mph. Class II bike lanes are included on both sides of the roadway.

El Camino Real – El Camino Real has a functional classification of a two lane collector from Via de la Valle to San Dieguito Road and is primarily a north-south roadway serving a residential community. From San Dieguito Road to Del Mar Heights Road, El Camino Real is ultimately classified as a four lane major per the North City Future Urbanizing Area plan. This segment from San Dieguito Road to Del Mar

Heights Road contains a raised median with median breaks at signalized intersections and Class II bike lanes are provided in each direction. From Del Mar Heights Road to Valley Centre Drive, El Camino Real is functionally classified as a six lane major with a LOS "E" capacity of 50,000 ADT. On El Camino Real from Valley Centre Drive to Carmel Valley Road, the segment is functionally classified as a five lane major with a LOS "E" capacity of 45,000 ADT. On-street parking is not allowed along both sides of the roadway. The roadway width varies from 40 feet to 102 feet based on the roadway classification. The posted speed limit is 50 mph. Class II bike lanes are provided on the roadway except from Via de la Valle to San Dieguito Road.

Carmel Country Road – Carmel Country Road is functionally classified as a four lane major that is primarily a north-south roadway in the Carmel Valley Community Planning area. On-street parking is not allowed along both sides of the roadway. The posted speed limit is 40 mph. Class II bike lanes are provided on the roadway.

Carmel Canyon Road – Carmel Canyon Road is functionally classified as a four lane major between Del Mar Heights Road and Carmel Country Road in the Carmel Valley Community Planning area. On-street parking is not allowed along both sides of the roadway. The posted speed limit is 30 mph. Class II bike lanes are provided on the roadway.

Carmel Creek Road – Carmel Creek Road is functionally classified as a four lane major between Carmel Country Road and SR-56 Westbound ramps in the Carmel Valley Community Planning area. On-street parking is not allowed along both sides of the roadway. The roadway width is 78 feet and the posted speed limit is 30 mph. Class II bike lanes are provided on the roadway.

Valley Centre Drive – Valley Centre Drive is functionally classified as a four lane collector between Carmel View Road and Carmel Creek Road in the Carmel Valley Community Planning area. On-street parking is not allowed along both sides of the roadway. The roadway width is 73 feet and the posted speed limit is 30 mph. Class II bike lanes are provided on the roadway.

Carmel Valley Road – Carmel Valley Road is functionally classified as a six lane primary arterial between the I-5 Northbound ramps and El Camino Real in the Carmel Valley Community Planning area. On-street parking is not allowed along both sides of the roadway. The roadway width is 102 feet with no bike lanes on either side of the roadway.

High Bluff Drive – High Bluff Drive is constructed as a three lane collector on the northern portion between Del Mar Heights Road and El Camino Real. On the southern portion of High Bluff Drive, the roadway is constructed as a four lane collector. A conservative level of service "E" capacity of 15,000 average daily trips was used in the street segment analysis. On-street parking is not allowed along both sides of the roadway. The posted speed limit is 30 mph and Class II bike lanes are provided on the roadway.

Via de la Valle – Via de la Valle has a functional classification as a two lane collector between San Andres Drive and El Camino Real and an ultimate classification as a four lane major per the North City Future Urbanizing Area plan. On-street parking is not allowed along both sides of the roadway. The roadway width is 40 feet. Class II bike lanes are provided on the roadway.

Interstate 5 (I-5) – Interstate 5 is an 8-lane Interstate Freeway north-south facility providing auxiliary lanes and high-occupancy (HOV) lane in both directions. It has a posted speed limit of 65 miles per hour and provides direct access to Encinitas, Carlsbad, Oceanside, and San Diego. Interstate 5 also provides access to Orange and Los Angeles Counties to the north. Access to the project is provided via the Del Mar Heights Road interchange.

State Route 56 (SR-56) – SR-56 is a 4-lane east-west facility providing auxiliary lanes in both directions. It has a posted speed limit of 65 miles per hour and connects Interstate 5 on the west to Interstate 15 to the east. Access to the project is provided via the El Camino Real and Carmel Country interchanges.

5.2 EXISTING TRAFFIC VOLUMES

Figure 5-1 shows the existing average weekday 24-hour traffic volumes for street segments in the project study area. Existing functional street segment classifications were used for purposes of this analysis. Traffic counts summarized on this figure were compiled by True Count mid-week (Tuesday though Thursday), April 29th – May 14th of 2009. The count data on Via de la Valle from San Andres Drive to El Camino Real (West) was provided by the Flower Hill Promenade Redevelopment traffic study dated March 3, 2009 and this count was obtained Tuesday through Thursday April 24-26, 2007, see **Appendix C**.

Appendix C includes the existing count data for street segments and intersections.

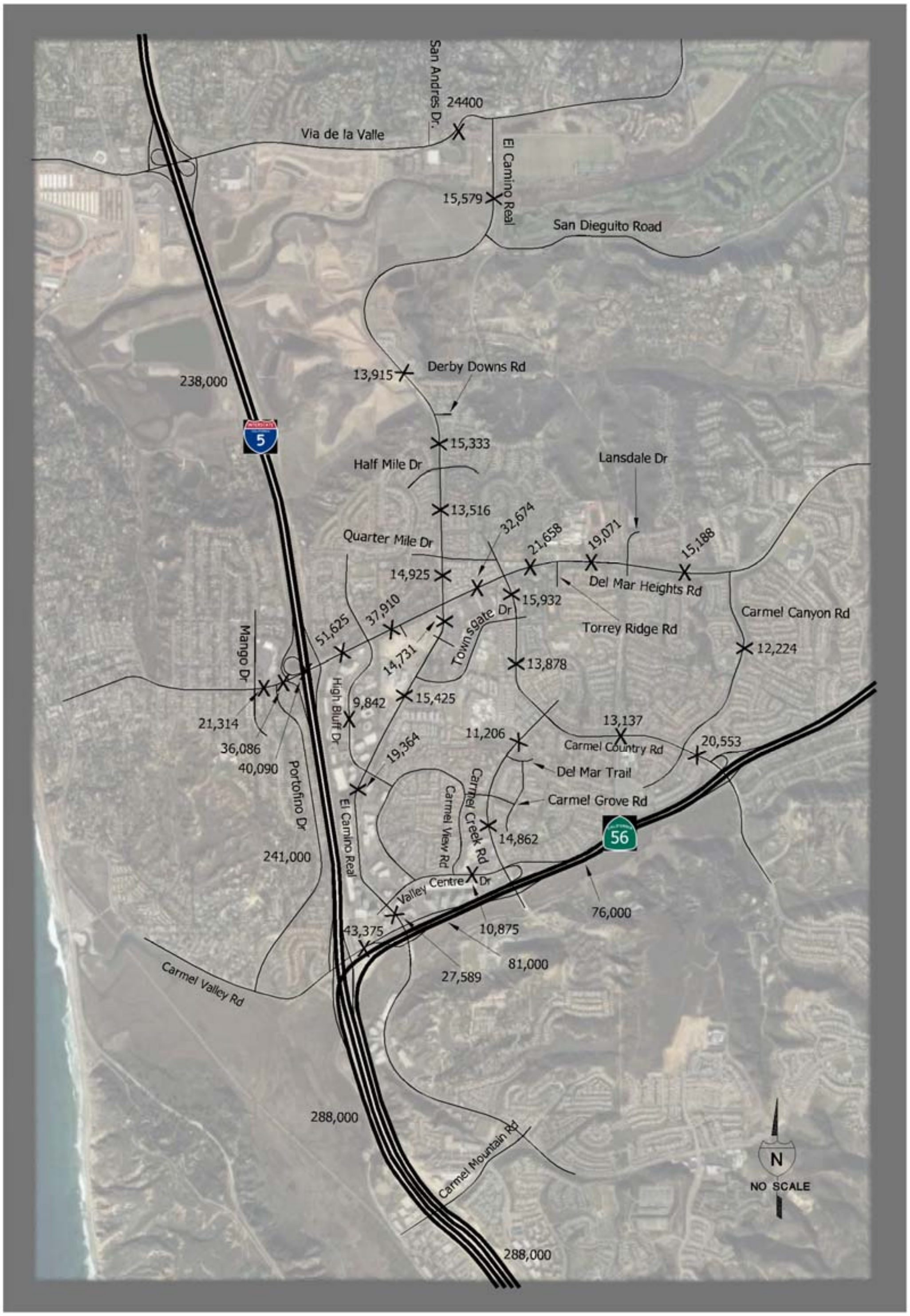


FIGURE 5-1

Existing Average Daily Traffic

5.3 STREET SEGMENT ANALYSIS

As shown on **Table 5-1**, all street segments are projected to operate at acceptable levels of service with the exception of the following street segments:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F
Via de la Valle	San Andres Dr. to El Camino Real	F

5.4 EXISTING INTERSECTIONS

Figure 5-2 shows the existing lane configurations in the study area. The proposed lane configurations at the intersection of Via de la Valle and El Camino Real is assumed and analyzed in the Year 2030 scenarios. At intersections 11, 12, and 18, the red arrows indicate the proposed lane configuration when the project access is constructed.

5.5 EXISTING INTERSECTION PEAK HOUR VOLUMES AND LOS

Figure 5-3 shows the existing AM and PM peak hour intersection traffic data which was collected at the intersections. As required by the City of San Diego, the analysis of peak hour intersection performance was based on the 2000 Highway Capacity Manual (HCM) using operational analysis procedures. A computer program, Synchro, was used to complete the analysis. Manual counts were conducted in May of 2009.

As shown on **Table 5-2**, all intersections currently operate at a level of service "D" or better during the AM and PM peak hour periods except for Carmel Creek Road at Del Mar Trail. Synchro worksheets for existing conditions may be found in **Appendix D**.

TABLE 5-1

Existing Street Segment Levels of Service

Road	Segment	Jurisd.	Functional Class.	Capacity at LOS E	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	21,314	0.47	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	36,086	0.72	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	40,090	0.80	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	51,625	0.86	D
	High Bluff Drive to Third Avenue	SD	PA	60,000	37,910	0.63	C
	Thirth Avenue to First Avenue	SD	PA	60,000	37,910	0.63	C
	First Avenue to El Camino Real	SD	PA	60,000	37,910	0.63	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	32,674	0.54	B
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	21,658	0.36	A
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	19,071	0.32	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	15,188	0.25	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	15,579	1.04	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	13,915	0.35	A
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	15,333	0.38	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	13,516	0.34	A
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	14,925	0.37	A
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	14,731	0.29	A
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	15,425	0.31	A
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	19,364	0.39	A
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	27,589	0.61	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	15,932	0.40	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	13,878	0.35	A
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	13,137	0.33	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	20,553	0.51	B
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	12,224	0.31	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	11,206	0.28	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	14,862	0.37	A
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	10,875	0.36	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	43,375	0.72	C
High Bluff Drive*	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	9,842	0.66	C
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	24,400	2.44	F

Legend:

SD= City of San Diego
Cap.= Capacity
Class.= Classification
LOS= Level of Service
V/C= Volume to Capacity Ratio

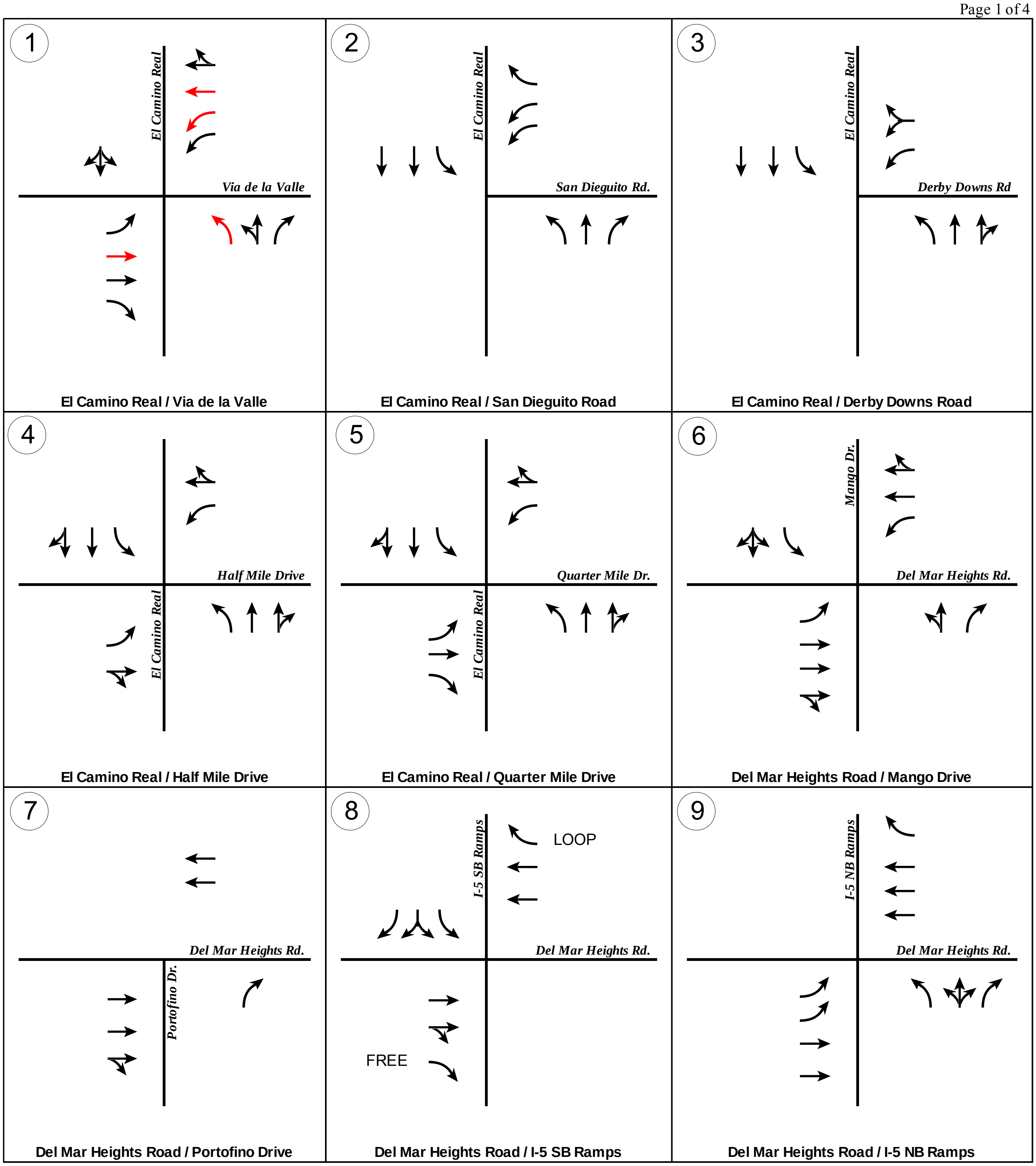
PA = 6 lane Primary Arterial
6-M = 6 lane Major
4-M=4 lane Major
2-Ca=2 lane collector
2-Cb = 2 lane Collector with no fronting property
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

* High Bluff Drive is three lanes on the northern portion and four lanes on the southern portion and has a raised . median. However, a conservative capacity of 15,000 ADT was applied.

Notes:

Counts Conducted May 2009, Via de la Valle count data was obtained in April 2007, see Appendix C.

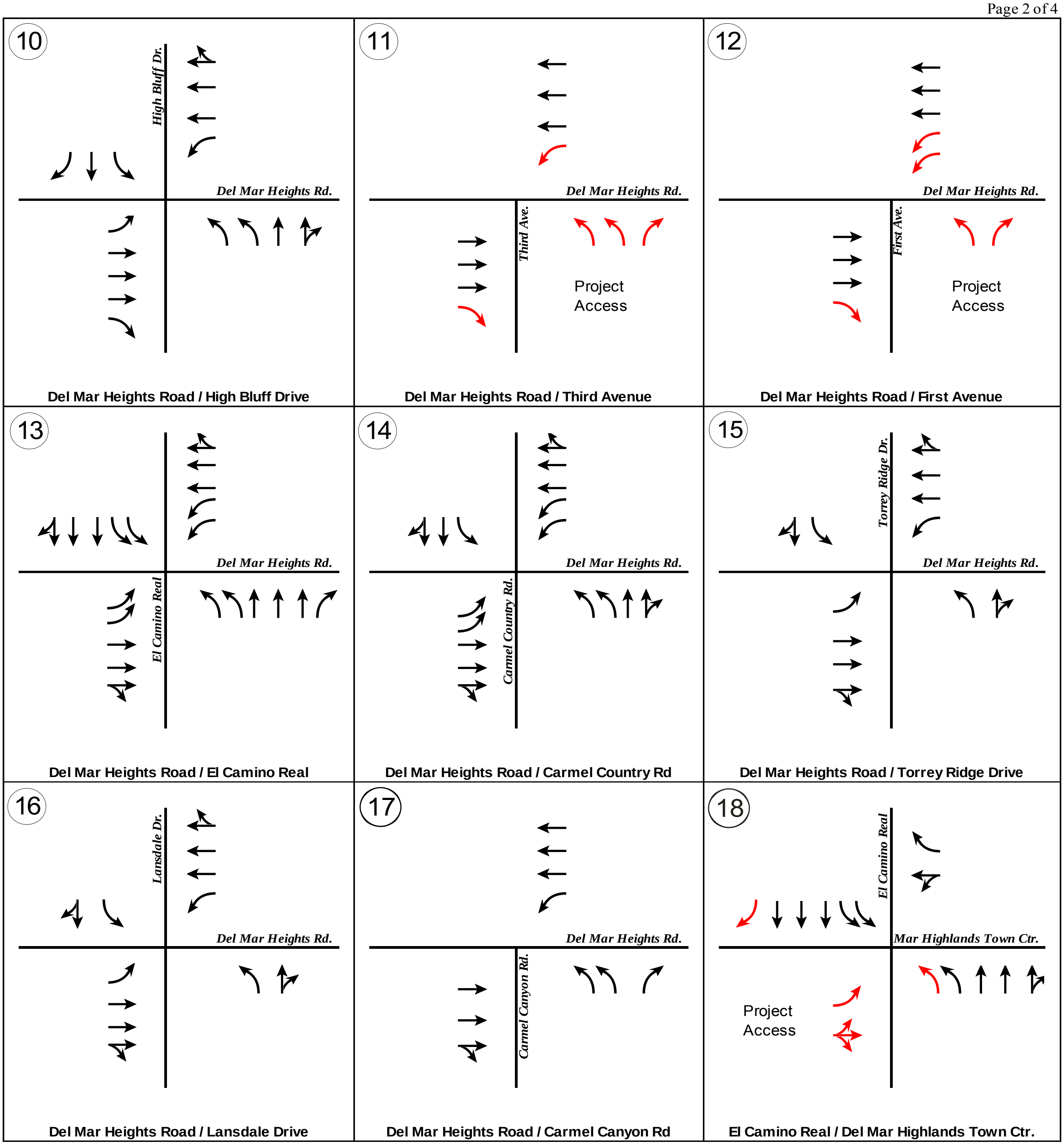
Page 1 of 4



***The red arrows in Intersection #1 are planned lane configurations in the Year 2030 scenarios. See discussion in Section 5.4 of the report.**

FIGURE 5-2

Existing Lane Configurations



***The red arrows indicate planned lane configurations when project access is constructed.**

FIGURE 5-2

Existing Lane Configurations

Page 3 of 4

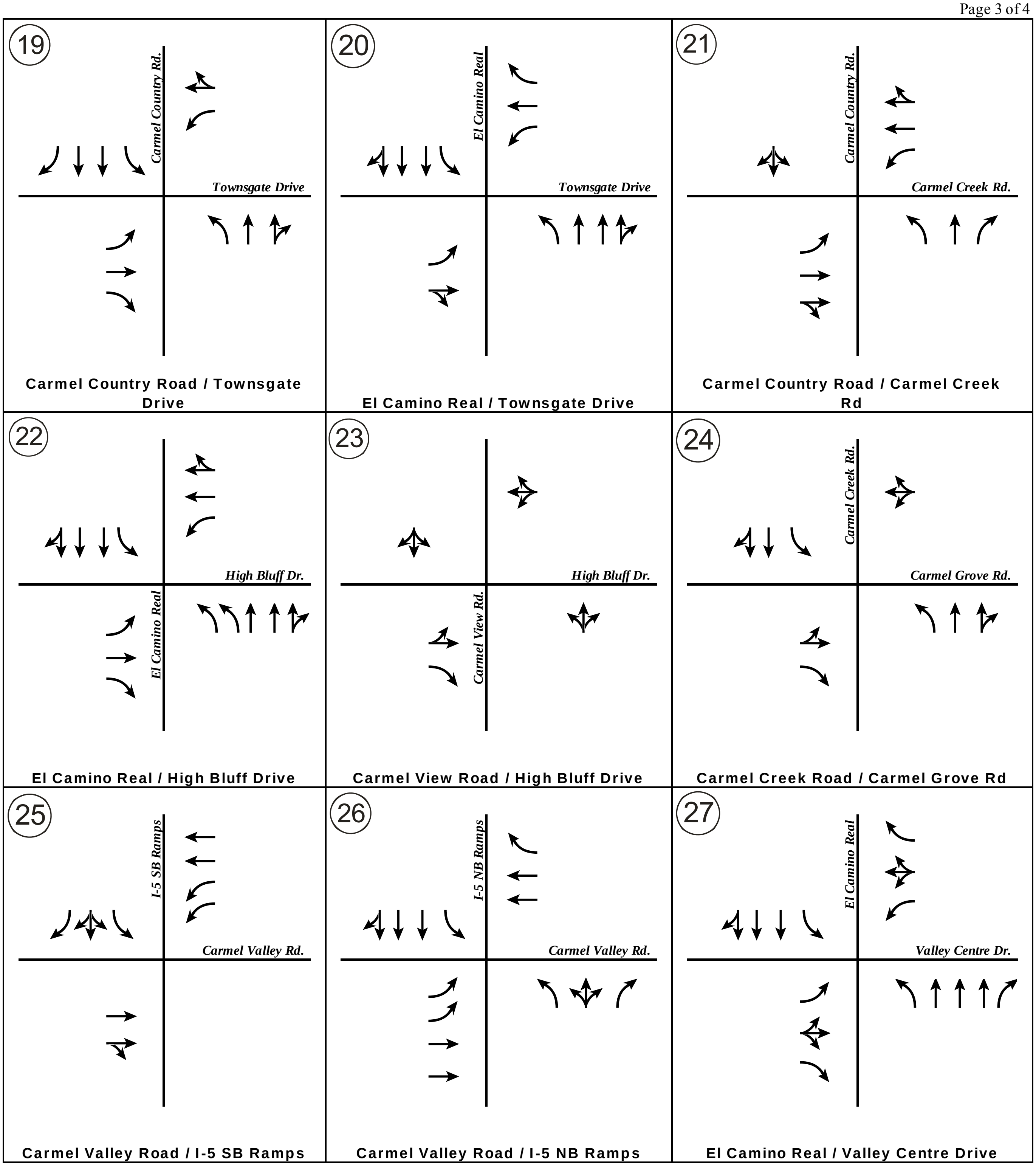


FIGURE 5-2

Existing Lane Configurations

Page 4 of 4

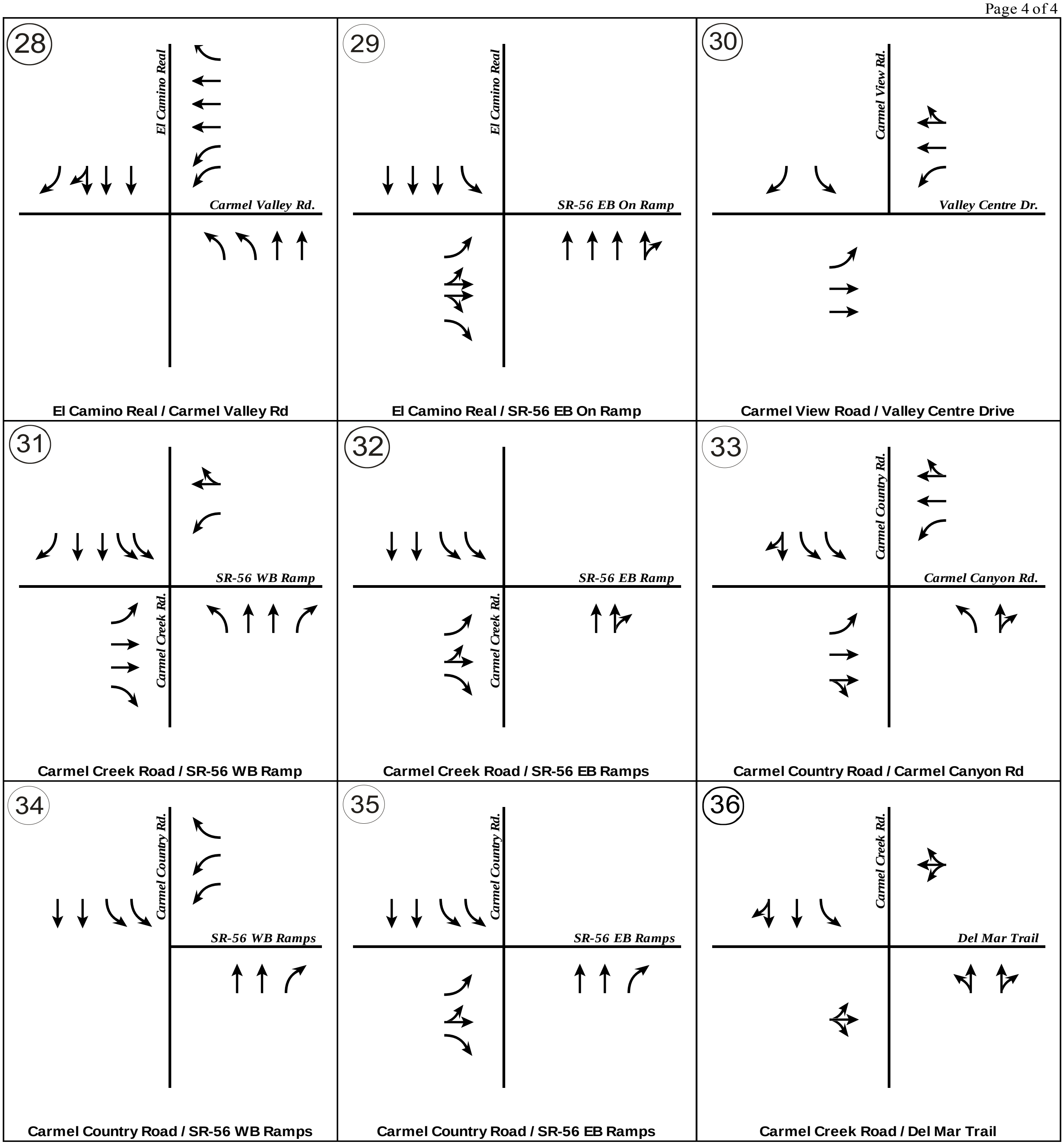


FIGURE 5-2

Existing Lane Configurations

Page 1 of 4

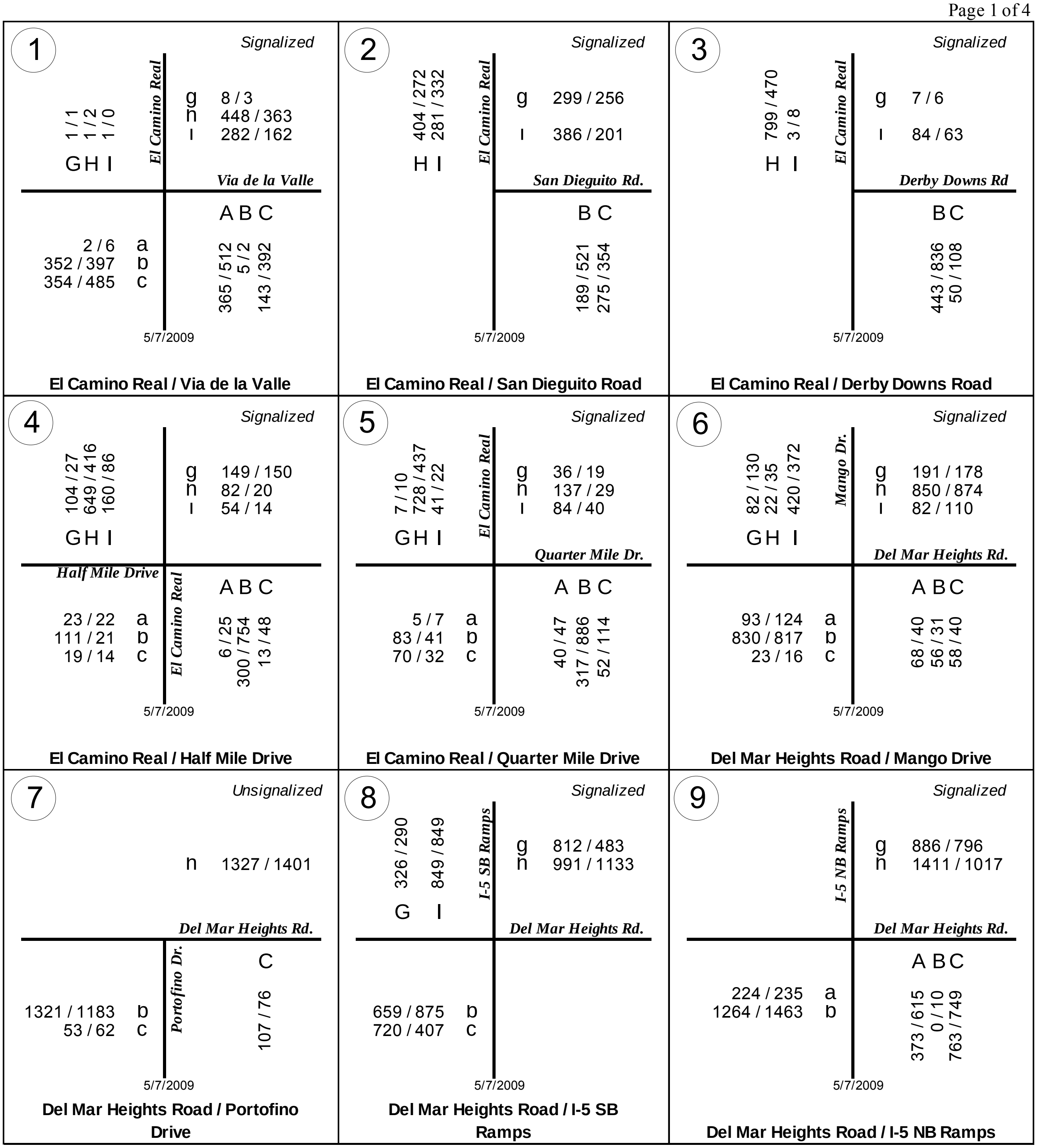


FIGURE 5-3

Existing AM / PM Peak Hour Traffic

Page 2 of 4

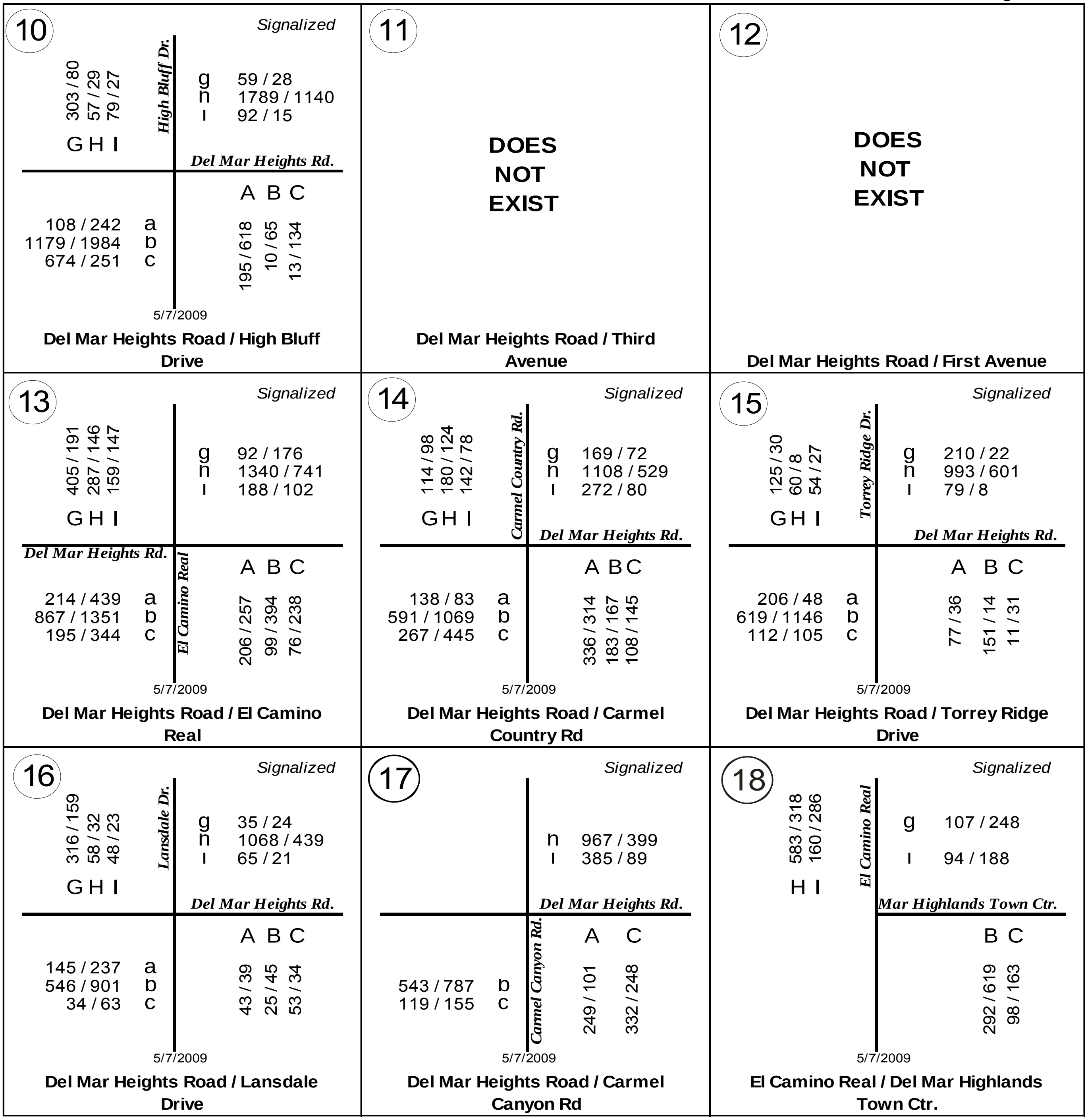


FIGURE 5-3

Existing AM / PM Peak Hour Traffic

Page 3 of 4

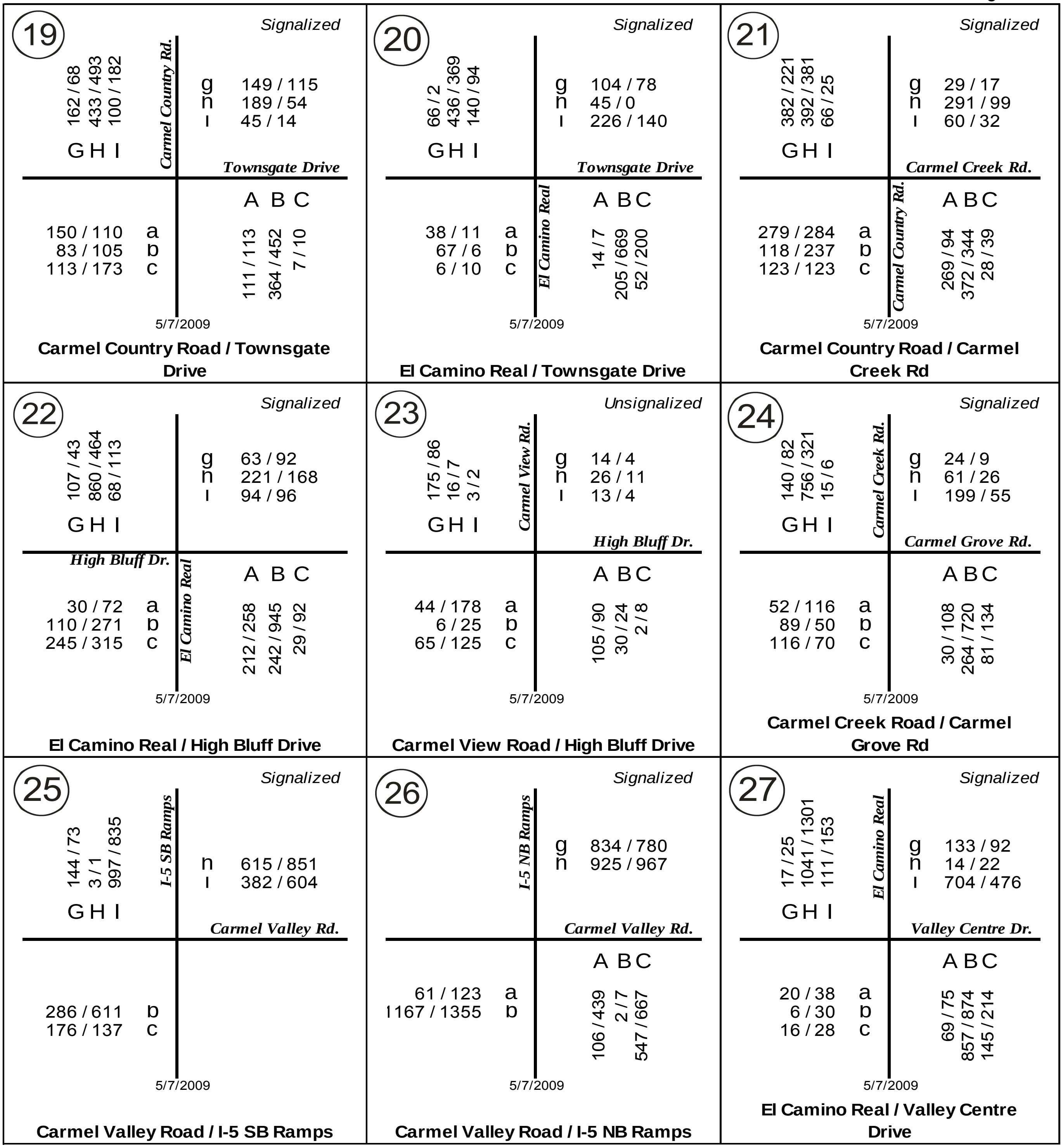


FIGURE 5-3

Existing AM / PM Peak Hour Traffic

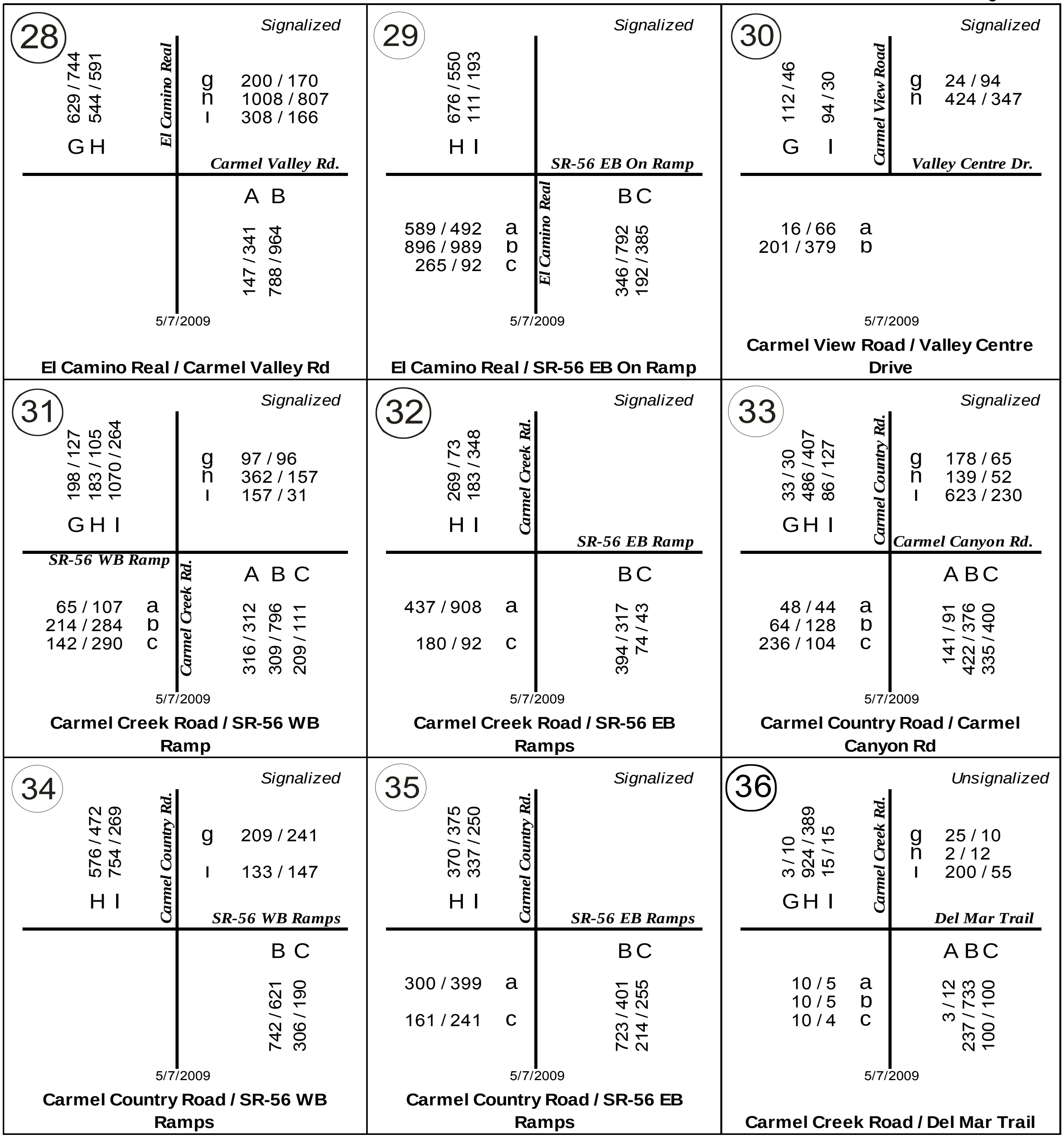


FIGURE 5-3

Existing AM / PM Peak Hour Traffic

TABLE 5-2

Existing Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	27.7	C	30.0	C
2	El Camino Real / San Dieguito Road	Signalized	16.6	B	23.8	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	3.3	A
4	El Camino Real / Half Mile Drive	Signalized	19.6	B	16.8	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.0	B	14.0	B
6	Del Mar Heights Road / Mango Drive	Signalized	31.7	C	29.7	C
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.3	A	9.1	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	22.5	C	20.3	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	35.1	D	37.5	D
10	Del Mar Heights Road / High Bluff Drive	Signalized	26.1	C	28.9	C
11	Del Mar Heights Road / Third Avenue	Signalized	DNE	DNE	DNE	DNE
12	Del Mar Heights Road / First Avenue	Signalized	DNE	DNE	DNE	DNE
13	Del Mar Heights Road / El Camino Real	Signalized	27.2	C	26.9	C
14	Del Mar Heights Road / Carmel Country Rd	Signalized	22.1	C	24.3	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	22.7	C	14.9	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	20.4	C	19.8	B
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	13.4	B	9.8	A
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	7.2	A	12.4	B
19	Carmel Country Road / Townsgate Drive	Signalized	25.8	C	20.2	C
20	El Camino Real / Townsgate Drive	Signalized	18.2	B	13.0	B
21	Carmel Country Road / Carmel Creek Rd	Signalized	45.3	D	23.2	C
22	El Camino Real / High Bluff Drive	Signalized	25.2	C	27.9	C
23	Carmel View Road / High Bluff Drive	All-Way Stop	8.3	A	9.0	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	26.8	C	17.2	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	19.6	B	27.0	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	12.6	B	18.2	B
27	El Camino Real / Valley Centre Drive	Signalized	20.9	C	19.7	B
28	El Camino Real / Carmel Valley Rd	Signalized	14.0	B	16.8	B
29	El Camino Real / SR-56 EB On Ramp	Signalized	15.4	B	24.4	C
30	Carmel View Road / Valley Centre Drive	Signalized	6.7	A	7.8	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	37.0	D	20.7	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	11.6	B	19.5	B
33	Carmel Country Road / Carmel Canyon Rd	Signalized	31.9	C	23.2	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	15.7	B	10.9	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	13.4	B	11.5	B
36	Carmel Creek Road / Del Mar Trail	All-Way Stop	41.6	E	20.1	C

Notes:

DNE = Does not exist

LOS = Level of Service

Orange indicates unacceptable level of service.

5.6 FREEWAY SEGMENTS

Table 5-3 shows the resulting levels of service for the I-5 and SR-56 freeway segments analyzed. As shown in **Table 5-3**, all freeway segments operate at acceptable levels of service. The freeway segments analyzed in this report do not assume any future improvements such as the I-5 North Coast Corridor project in any of the scenarios evaluated.

5.7 RAMP METERS

Table 5-4 shows the resulting delays and queues for the I-5 / Del Mar Heights Rd northbound and southbound ramps. Also shown in **Table 5-4** is the observed meter rate in the field. As shown, the delays for both the northbound and southbound ramps are minimal.

Appendix C includes the field notes to determine the meter rates used in the analysis along with meter rate provided by Caltrans.

TABLE 5-3

Existing Freeway Segment Levels of Service

Segment	Lanes	Dir.	Cap.	ADT*	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	222,000	0.068	0.53	0.98	8,089	0.632	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	222,000	0.067	0.55	0.98	8,350	0.652	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	238,000	0.068	0.53	0.98	8,672	0.645	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	238,000	0.067	0.55	0.98	8,951	0.666	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	241,000	0.068	0.53	0.98	8,781	0.556	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	241,000	0.067	0.55	0.98	9,064	0.574	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	288,000	0.079	0.57	0.98	13,118	0.575	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	288,000	0.080	0.55	0.98	12,883	0.629	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	288,000	0.079	0.57	0.98	13,118	0.558	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	288,000	0.080	0.55	0.98	12,883	0.548	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	81,000	0.093	0.69	0.98	5,294	0.814	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	81,000	0.094	0.70	0.98	5,429	0.835	D
Carmel Creek Rd. / Carmel Country	2-GP + 1-AX	EB	6,500	76,000	0.093	0.69	0.98	4,967	0.764	C
Carmel Creek Rd. / Carmel Country	2-GP + 1-AX	WB	6,500	76,000	0.094	0.70	0.98	5,093	0.784	C

Legend:
*Caltrans 2008 Count Data
Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 vphpl taken from Caltrans Guide, December 2002)
HOV= High Occupancy Vehicle lane with LOS"E" capacity of 1,600 vphpl

Notes:
Capacity for LOS "E" freeway mainline is 2,350 vphpl and for auxiliary lane is 1800 vphpl.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxiliary Lane with LOS "E" capacity of 1,800 vphpl
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 5-4

Existing Ramp Meter Analysis

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	406	368	38	6.20	1,102
	PM	242	368	0	0	0
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	360	499	0	0	0
	PM	204	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	516	593	0	0	0

NOTE:
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

Observed Meter Delay & Queue

Location		Ramp Meter Lanes	Observed Delay (Min)	Observed Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	2 - SOV	1.0	261
	PM		1.0	145
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	1-SOV + 1-HOV	2.0	319
	PM		1.0	58
Del Mar Heights Rd. / I-5 NB on Ramp	AM	2 - SOV	Not Turned On	
	PM		1.5	203

NOTE:
Meter Rate = Observed in the field, see **Appendix C**
SOV = Single Occupancy Vehicle Lane
HOV = High Occupancy Vehicle Lane

6.0 EXISTING WITH PROJECT ANALYSIS

The purpose of this chapter is to evaluate the impacts of the Existing + Project analysis in Phase 1, Phase 1&2, and Project Build-out. This analysis evaluates the project's "impacts" in the existing with project conditions with all three phases of the project. In this chapter of the report, the following 3 scenarios were evaluated: Existing + Project (Phase 1), Existing + Project (Phase 1 & 2), and Existing + Project (Build-out). As previously mentioned, the existing baseline condition is defined as the EIR notice of preparation dated May 25, 2010. Project Phase 1 is planning to start construction in 2013. Phase 2 is planning to start in 2014, and phase 3 or build-out is planning to start in 2015. Please note that phases 2 and 3 may begin construction whether or not the previous phase is completed. This chapter does not analyze the cumulative effects of the project, which are addressed later.

6.1 EXISTING + PROJECT (PHASE 1)

This section discusses the results when adding project only traffic in Phase 1 to the existing traffic.

6.2.1 Street Segments

Street segments levels of service with project traffic were determined by combining the existing daily volumes with the project only daily volumes. **Table 6-1** shows street segment levels of service with the addition of the One Paseo project traffic in Phase 1. As shown in the table, three segments are shown to operate at unacceptable levels of service.

6.2.2 Intersections

Project traffic in Phase 1 for the AM and PM peaks was added to existing traffic to identify project impacts at study intersections. **Table 6-2** shows intersection levels of service with the addition of the One Paseo project traffic in Phase 1.

TABLE 6-1

Existing + Project (Phase 1) Street Segment Levels of Service

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	22,204	0.49	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	37,273	0.75	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	42,166	0.84	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	55,481	0.92	E
	High Bluff Drive to Third Avenue	SD	PA	60,000	42,360	0.71	C
	Third Avenue to First Avenue	SD	PA	60,000	41,371	0.69	C
	First Avenue to El Camino Real	SD	PA	60,000	40,382	0.67	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	35,344	0.59	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	22,943	0.38	A
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	19,961	0.33	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	15,682	0.26	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	15,876	1.06	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	14,311	0.36	A
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	15,729	0.39	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	14,010	0.35	A
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	15,518	0.39	B
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	16,214	0.32	A
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	16,710	0.33	A
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	20,254	0.41	B
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	28,182	0.63	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	16,921	0.42	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	14,669	0.37	A
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	13,631	0.34	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	20,949	0.52	B
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	12,422	0.31	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	11,503	0.29	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	15,159	0.38	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	10,974	0.37	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	43,573	0.73	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	10,139	0.68	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	24,598	2.46	F

Legend:

PA = 6 lane Prime Arterial
SD= City of San Diego — 6-M = 6 lane Major
Cap.= Capacity — 4-M=4 lane Major
Class.= Classification — 2-Ca=2 lane collector
LOS= Level of Service — 2-Cb=2 lane collector with no fronting property
V/C= Volume to Capacity Ratio
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Prime Arterial with LOS E capacity of 50,000 ADT

TABLE 6-2

Existing + Project (Phase 1) Intersections Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	28.2	C	30.9	C
2	El Camino Real / San Dieguito Road	Signalized	16.8	B	25	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	4.5	A
4	El Camino Real / Half Mile Drive	Signalized	20.5	C	17.5	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.1	C	15	B
6	Del Mar Heights Road / Mango Drive	Signalized	32.3	C	31.6	C
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.5	A	9.2	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	24.2	C	22.2	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	36.2	D	38	D
10	Del Mar Heights Road / High Bluff Drive	Signalized	26.6	C	34.2	C
11	Del Mar Heights Road / Third Avenue	Signalized	5.4	A	10.5	B
12	Del Mar Heights Road / First Avenue	Signalized	4	A	11.3	B
13	Del Mar Heights Road / El Camino Real	Signalized	30.6	C	30.3	C
14	Del Mar Heights Road / Carmel Country Rd	Signalized	24.9	C	24.9	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	24	C	16.6	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	21.7	C	19.9	B
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	13.6	B	9.8	A
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	15.9	B	22.7	C
19	Carmel Country Road / Townsgate Drive	Signalized	26.4	C	21.7	C
20	El Camino Real / Townsgate Drive	Signalized	18.5	B	13.8	B
21	Carmel Country Road / Carmel Creek Rd	Signalized	46.7	D	25.3	C
22	El Camino Real / High Bluff Drive	Signalized	25.5	C	28.8	C
23	Carmel View Road / High Bluff Drive	All Way Stop	8.6	A	9.3	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	26.8	C	17.2	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	20	B	27.7	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	12.6	B	18.3	B
27	El Camino Real / Valley Centre Drive	Signalized	20.9	C	20.1	C
28	El Camino Real / Carmel Valley Rd	Signalized	14.9	B	20.5	C
29	El Camino Real / SR-56 EB On Ramp	Signalized	15.6	B	25.3	C
30	Carmel View Road / Valley Centre Drive	Signalized	6.7	A	7.8	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	38.8	D	20.8	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	11.7	B	25	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	32	C	25	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	15.8	B	11.3	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	13.4	B	11.8	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	43.6	E	20.9	C

Notes:

LOS = Level of Service

As shown in the table, only Carmel Creek Road at Del Mar Trail is projected to operate at unacceptable level of service.

Appendix E includes the Synchro worksheets & AM/PM peak hour volumes for the Existing with Project (Phase 1) scenario.

6.2.3 Freeway Segments

Project traffic in Phase 1 on freeway segments of I-5 and SR-56 was added to existing traffic. **Table 6-3** shows the resulting levels of service with the project for the freeway segments analyzed. As shown in the table, all freeway segments operate at acceptable levels of service.

6.2.4 Ramp Meters

Ramp meters were analyzed at the I-5 / Del Mar Heights Road interchange. **Table 6-4** shows the ramp meter comparison with the project.

TABLE 6-3

Existing + Project (Phase 1) Freeway Segment Levels of Service

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	222,692	0.068	0.53	0.98	8,114	0.634	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	222,692	0.067	0.55	0.98	8,376	0.654	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	238,890	0.068	0.53	0.98	8,704	0.647	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	238,890	0.067	0.55	0.98	8,985	0.668	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	242,780	0.068	0.53	0.98	8,846	0.561	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	242,780	0.067	0.55	0.98	9,131	0.579	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	288,989	0.079	0.57	0.98	13,163	0.577	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	288,989	0.080	0.55	0.98	12,927	0.631	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	288,791	0.079	0.57	0.98	13,154	0.560	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	288,791	0.080	0.55	0.98	12,918	0.550	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	81,198	0.093	0.69	0.98	5,307	0.816	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	81,198	0.094	0.70	0.98	5,442	0.837	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	EB	6,500	76,198	0.093	0.69	0.98	4,980	0.766	C
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	WB	6,500	76,198	0.094	0.70	0.98	5,107	0.786	C

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

Note:

Capacity for LOS "E" roadway is 2,350 veh/hr/ln.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 6-4

Existing + Project (Phase 1) Ramp Meter Analysis

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	418	368	49.5	8.07	1,436
	PM	321	368	0	0	0
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	360	499	0	0	0
	PM	204	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	555	593	0	0	0

NOTE:
Meter rate is based on the most restrictive meter rate provided by Caltrans
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

6.3 EXISTING + PROJECT (PHASE 1 & 2)

This section discusses the results when adding project only traffic in Phase 1 & 2 to the existing traffic. Phase 2 is planning to start construction in 2014 whether or not phase 1 is completed.

6.3.1 Street Segments

Street segment levels of service with project traffic were determined by combining the existing daily volumes with the project only daily volumes in phase 1 & 2. **Table 6-5** shows street segment levels of service with the addition of the One Paseo project traffic in Phase 1 & 2. As shown in the table, three segments are projected to operate at unacceptable levels of service.

6.3.2 Intersections

Project traffic in Phase 1 & 2 for the AM and PM peaks was added to existing traffic at study intersections. **Table 6-6** shows intersection AM & PM levels of service with the addition of the One Paseo project traffic in Phase 1 & 2. As shown in the table, there is only one (1) operating at an unacceptable level of service at Carmel Creek Road / Del Mar Trail.

Appendix E includes the Synchro worksheets & AM/PM peak hour volumes for the Existing with Project (Phase 1 & 2) condition.

TABLE 6-5

Existing + Project (Phase 1 & 2) Street Segment Levels of Service

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	22,917	0.51	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	38,223	0.76	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	43,831	0.88	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	58,572	0.98	E
	High Bluff Drive to Third Avenue	SD	PA	60,000	45,925	0.77	C
	Third Avenue to First Avenue	SD	PA	60,000	45,213	0.75	C
	First Avenue to El Camino Real	SD	PA	60,000	45,213	0.75	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	37,483	0.62	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	23,974	0.40	A
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	20,674	0.34	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	16,079	0.27	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	16,113	1.07	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	14,627	0.37	A
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	16,045	0.40	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	14,407	0.36	A
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	15,994	0.40	B
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	17,403	0.35	A
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	17,741	0.35	A
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	20,967	0.42	B
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	28,658	0.64	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	17,713	0.44	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	15,303	0.38	B
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	14,028	0.35	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	21,265	0.53	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	12,580	0.31	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	11,740	0.29	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	15,396	0.38	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	11,053	0.37	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	43,731	0.73	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	10,376	0.69	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	24,756	2.48	F

Legend:

PA = 6 lane Prime Arterial
SD= City of San Diego
6-M = 6 lane Major
Cap.= Capacity
4-M=4 lane Major
Class.= Classification
2-Ca=2 lane collector
LOS= Level of Service
2-Cb=2 lane collector with no fronting property
V/C= Volume to Capacity Ratio
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Prime Arterial with LOS E capacity of 50,000 ADT

TABLE 6-6

Existing + Project (Phase 1 & 2) Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	28.4	C	32.6	C
2	El Camino Real / San Dieguito Road	Signalized	16.8	B	25.8	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	4.6	A
4	El Camino Real / Half Mile Drive	Signalized	20.6	C	17.8	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.1	C	15.1	B
6	Del Mar Heights Road / Mango Drive	Signalized	32.5	C	32.3	C
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.5	A	9.3	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	24.8	C	24	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	37.7	D	41.2	D
10	Del Mar Heights Road / High Bluff Drive	Signalized	27.4	C	40.4	D
11	Del Mar Heights Road / Third Avenue	Signalized	6.8	A	14.1	B
12	Del Mar Heights Road / First Avenue	Signalized	6	A	15.8	B
13	Del Mar Heights Road / El Camino Real	Signalized	32.2	C	37.3	D
14	Del Mar Heights Road / Carmel Country Rd	Signalized	25.5	C	28.6	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	25.1	C	16.2	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	22.1	C	23.8	C
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	13.6	B	9.9	A
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	17.9	B	26.1	C
19	Carmel Country Road / Townsgate Drive	Signalized	26.6	C	22.1	C
20	El Camino Real / Townsgate Drive	Signalized	18.6	B	13.7	B
21	Carmel Country Road / Carmel Creek Rd	Signalized	47.7	D	25.7	C
22	El Camino Real / High Bluff Drive	Signalized	25.8	C	30.1	C
23	Carmel View Road / High Bluff Drive	All Way Stop	8.6	A	9.5	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	26.8	C	17.3	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	20.1	C	27.9	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	12.6	B	18.4	B
27	El Camino Real / Valley Centre Drive	Signalized	21	C	20.2	C
28	El Camino Real / Carmel Valley Rd	Signalized	14.9	B	20.6	C
29	El Camino Real / SR-56 EB On Ramp	Signalized	15.7	B	26	C
30	Carmel View Road / Valley Centre Drive	Signalized	6.7	A	7.8	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	39	D	21.5	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	11.8	B	25.6	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	32.2	C	25.2	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	15.8	B	11.3	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	13.4	B	11.9	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	44.5	E	21.9	C

Notes:
LOS = Level of Service

6.3.3 Freeway Segments

Project traffic in Phase 1 & 2 on freeway segments of I-5 and SR-56 was added to existing traffic. **Table 6-7** shows the resulting levels of service with the project in Phase 1 & 2 for the freeway segments analyzed. As shown in the table, all freeway segments operate at acceptable levels of service.

6.3.4 Ramp Meters

Ramp meters were analyzed at the I-5 / Del Mar Heights Road interchange. **Table 6-8** shows the ramp meter analysis with the project for Phase 1 & 2.

TABLE 6-7

Existing + Project (Phase 1 & 2) Freeway Segment Levels of Service

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	223,247	0.068	0.53	0.98	8,134	0.635	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	223,247	0.067	0.55	0.98	8,396	0.656	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	239,603	0.068	0.53	0.98	8,730	0.649	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	239,603	0.067	0.55	0.98	9,012	0.670	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	244,206	0.068	0.53	0.98	8,898	0.564	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	244,206	0.067	0.55	0.98	9,185	0.582	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	289,781	0.079	0.57	0.98	13,199	0.578	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	289,781	0.080	0.55	0.98	12,962	0.633	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	289,425	0.079	0.57	0.98	13,183	0.561	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	289,425	0.080	0.55	0.98	12,946	0.551	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	81,356	0.093	0.69	0.98	5,317	0.818	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	81,356	0.094	0.70	0.98	5,452	0.839	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	EB	6,500	76,356	0.093	0.69	0.98	4,990	0.768	C
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	WB	6,500	76,356	0.094	0.70	0.98	5,117	0.787	C

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

Note:

Capacity for LOS "E" roadway is 2,350 veh/hr/ln.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 6-8

Existing + Project (Phase 1 & 2) Ramp Meter Analysis

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	434	368	66	10.76	1,914
	PM	364	368	0	0.00	0
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	360	499	0	0	0
	PM	204	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	573	593	0	0	0

NOTE:
Meter rate is based on the most restrictive meter rate provided by Caltrans
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

6.4 EXISTING + PROJECT (BUILD-OUT)

This section discusses the results when adding the build-out of project traffic to existing traffic. The final phase (phase 3) of the project is planned to begin in 2015. Construction of phases 1 and 2 may still be in progress when phase 3 begins.

6.4.1 Street Segments

Street segments levels of service with project traffic were determined by combining the existing daily volumes with the project daily volumes. **Table 6-9** shows street segment levels of service with the addition of the One Paseo project traffic at build-out. As shown in the table, four segments are projected to operate at unacceptable levels of service.

6.4.2 Intersections

Project traffic at Build-out for the AM and PM peaks was added to existing traffic at study intersections. **Table 6-10** shows intersection levels of service with the addition of the One Paseo project traffic at project Build-out. As shown in the table, only one intersection operates at an unacceptable level of service at Carmel Creek Road / Del Mar Trail.

Appendix E includes Synchro worksheets & AM/PM peak hour volumes for the Existing with Project (Build-out) scenario.

TABLE 6-9

Existing + Project (Build-out) Street Segment Levels of Service

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	23,740	0.53	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	39,321	0.79	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	45,752	0.92	E
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	62,140	1.04	F
	High Bluff Drive to Third Avenue	SD	PA	60,000	50,042	0.83	D
	Third Avenue to First Avenue	SD	PA	60,000	48,964	0.82	C
	First Avenue to El Camino Real	SD	PA	60,000	48,964	0.82	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	39,953	0.67	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	25,163	0.42	B
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	21,497	0.36	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	16,536	0.28	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	16,388	1.09	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	14,993	0.37	A
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	16,411	0.41	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	14,864	0.37	A
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	16,543	0.41	B
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	20,123	0.40	B
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	18,930	0.38	A
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	21,790	0.44	B
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	29,207	0.65	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	18,628	0.47	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	16,035	0.40	B
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	14,485	0.36	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	21,631	0.54	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	12,763	0.32	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	12,015	0.30	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	15,671	0.39	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	11,145	0.37	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	43,914	0.73	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	10,651	0.71	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	24,939	2.49	F

Legend:

PA = 6 lane Prime Arterial
SD= City of San Diego — 6-M = 6 lane Major
Cap.= Capacity — 4-M=4 lane Major
Class.= Classification — 2-Ca=2 lane collector
LOS= Level of Service — 2-Cb=2 lane collector with no fronting property
V/C= Volume to Capacity Ratio

TABLE 6-10

Existing + Project (Build-out) Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	28.7	C	33.5	C
2	El Camino Real / San Dieguito Road	Signalized	17	B	26.4	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	5	A
4	El Camino Real / Half Mile Drive	Signalized	20.9	C	18.9	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.4	C	14.4	B
6	Del Mar Heights Road / Mango Drive	Signalized	32.9	C	33.4	C
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.6	A	9.4	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	25.1	C	25.9	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	40.4	D	51.3	D
10	Del Mar Heights Road / High Bluff Drive	Signalized	29.1	C	47.2	D
11	Del Mar Heights Road / Third Avenue	Signalized	8.7	A	21.2	C
12	Del Mar Heights Road / First Avenue	Signalized	7.7	A	22	C
13	Del Mar Heights Road / El Camino Real	Signalized	33.6	C	45.5	D
14	Del Mar Heights Road / Carmel Country Rd	Signalized	26.5	C	36.5	D
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	25.3	C	15.4	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	22.9	C	27.6	C
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	13.6	B	10	A
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	19.1	B	28.7	C
19	Carmel Country Road / Townsgate Drive	Signalized	26.9	C	22.7	C
20	El Camino Real / Townsgate Drive	Signalized	18.8	B	14.1	B
21	Carmel Country Road / Carmel Creek Rd	Signalized	49.2	D	27.7	C
22	El Camino Real / High Bluff Drive	Signalized	25.8	C	31.8	C
23	Carmel View Road / High Bluff Drive	All Way Stop	8.7	A	9.8	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	26.8	C	17.4	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	20.1	C	27.6	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	12.6	B	18.2	B
27	El Camino Real / Valley Centre Drive	Signalized	21.1	C	20.2	C
28	El Camino Real / Carmel Valley Rd	Signalized	14.9	B	20.9	C
29	El Camino Real / SR-56 EB On Ramp	Signalized	16.1	B	26.5	C
30	Carmel View Road / Valley Centre Drive	Signalized	6.7	A	7.8	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	39.4	D	21.6	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	11.7	B	26	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	32.3	C	25.5	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	15.8	B	11.4	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	13.4	B	12.1	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	46.2	E	22.9	C

Notes:
LOS = Level of Service

6.4.3 Freeway Segments

Project traffic at Build-out on freeway segments of I-5 and SR-56 was added to existing traffic. **Table 6-11** shows the resulting levels of service with the project for the freeway segments analyzed. As shown in the table, there are no freeway segments operating at unacceptable levels of service.

6.4.4 Ramp Meters

Ramp meters were analyzed at the I-5 / Del Mar Heights Road interchange. **Table 6-12** shows the ramp meter analysis with the project for Build-out.

TABLE 6-11

Existing + Project (Build-out) Freeway Segment Levels of Service

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	223,887	0.068	0.53	0.98	8,158	0.637	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	223,887	0.067	0.55	0.98	8,421	0.658	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	240,426	0.068	0.53	0.98	8,760	0.651	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	240,426	0.067	0.55	0.98	9,043	0.672	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	245,853	0.068	0.53	0.98	8,958	0.568	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	245,853	0.067	0.55	0.98	9,247	0.586	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	290,696	0.079	0.57	0.98	13,241	0.580	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	290,696	0.080	0.55	0.98	13,003	0.635	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	290,157	0.079	0.57	0.98	13,216	0.562	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	290,157	0.080	0.55	0.98	12,979	0.552	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	81,539	0.093	0.69	0.98	5,329	0.820	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	81,539	0.094	0.70	0.98	5,465	0.841	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	EB	6,500	76,539	0.093	0.69	0.98	5,002	0.770	C
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	WB	6,500	76,539	0.094	0.70	0.98	5,130	0.789	C

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

Note:

Capacity for LOS "E" roadway is 2,350 veh/hr/ln.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 6-12

Existing + Project (Build-out) Ramp Meter Analysis

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	451	368	83.0	13.53	2,407
	PM	393	368	24.5	3.99	711
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	360	499	0	0	0
	PM	204	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	592	593	0	0.00	0

NOTE:
Meter rate is based on the most restrictive meter rate provided by Caltrans
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

7.0 CUMULATIVE PROJECTS

Ten (10) other (i.e. cumulative) projects were found to add traffic within the project study area. Trip distribution, trip generation, and trip assignment data for these cumulative projects can be found in **Appendix F.** Volumes from the ten cumulative projects were extracted from other traffic studies, and added to existing traffic volumes to get Near Term volumes. These cumulative projects could potentially be implemented prior to certification of the EIR for the project, but were not built at the time of issuance of the NOP or collection of traffic counts for this analysis. **Figure 7-1** shows the cumulative projects average daily traffic volumes. **Figure 7-2** shows the cumulative projects AM/PM peak hour traffic volumes. The ten projects used to develop Near Term and cumulative volumes are listed below:

Flower Hill Promenade Redevelopment – The project is located on the north side of Via de la Valle between Interstate 5 and San Andres Drive. The expansion includes 28,930 square feet of office, 8,750 square feet of a community shopping center, 35,000 square feet of market, and 2,300 square feet of storage. The existing 600 seat cinema is to be demolished. After taking credit for existing uses to be demolished, the project will generate 5,463 average daily trips with 316 trips in the AM peak hour, and 595 trips in the PM peak hour. This project has been approved and is under construction.

The Heights at Del Mar – The project is located on the west side of El Camino Real between Townsgate Drive and Elijah Court. The project includes 66,108 square feet of commercial office in Building 1 and 80,513 square feet of commercial office in Building 3. The proposed project will generate 2,668 average daily trips with 347 trips in the AM peak hour, and 374 trips in the PM peak hour. This project is pending but on-hold at the time of issuance of the NOP.

FIGURE 7-1

Cumulative Projects Average Daily Traffic Volumes

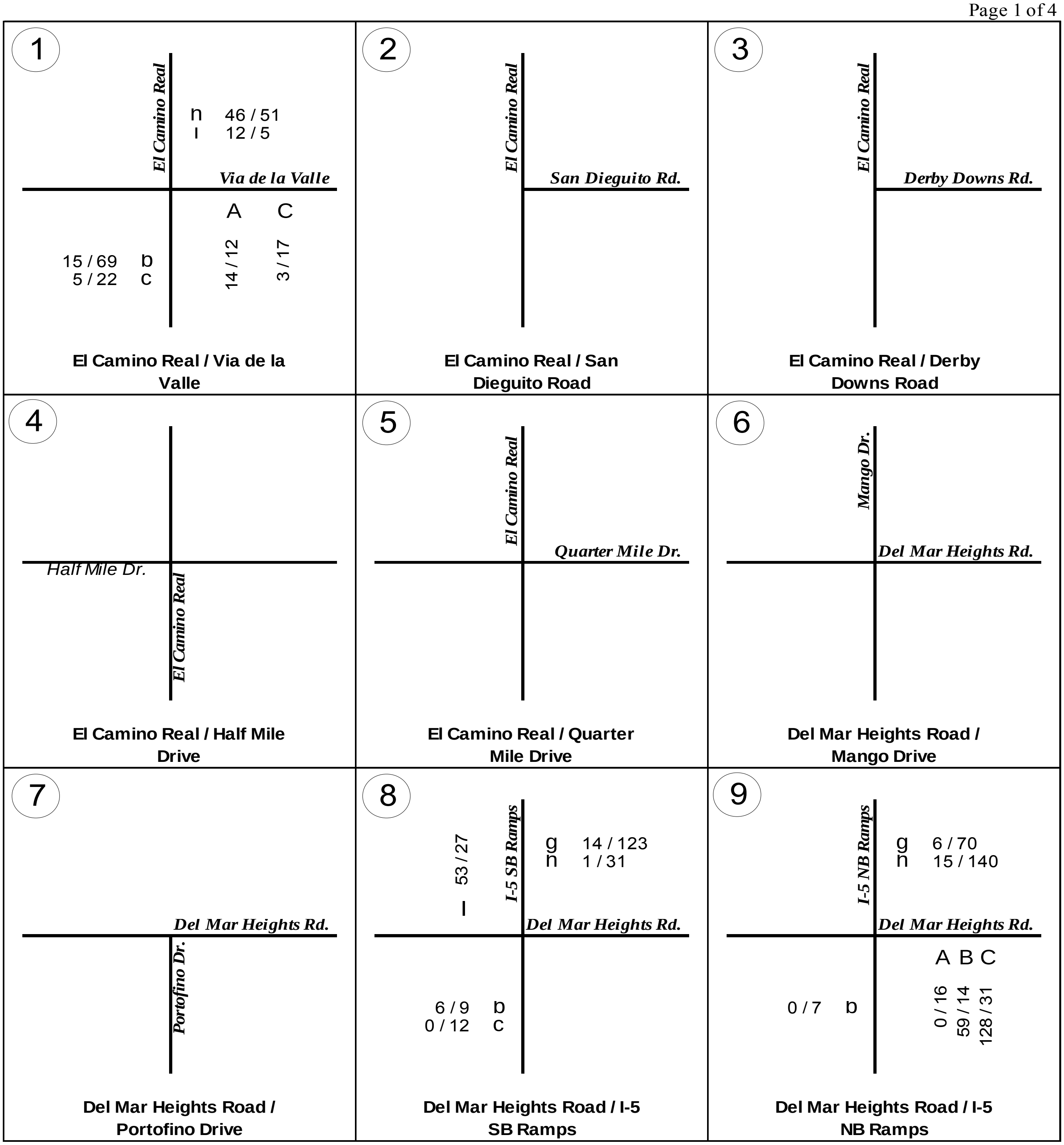


FIGURE 7-2

Cumulative Projects AM/PM Peak Hour Traffic Volumes

Page 2 of 4

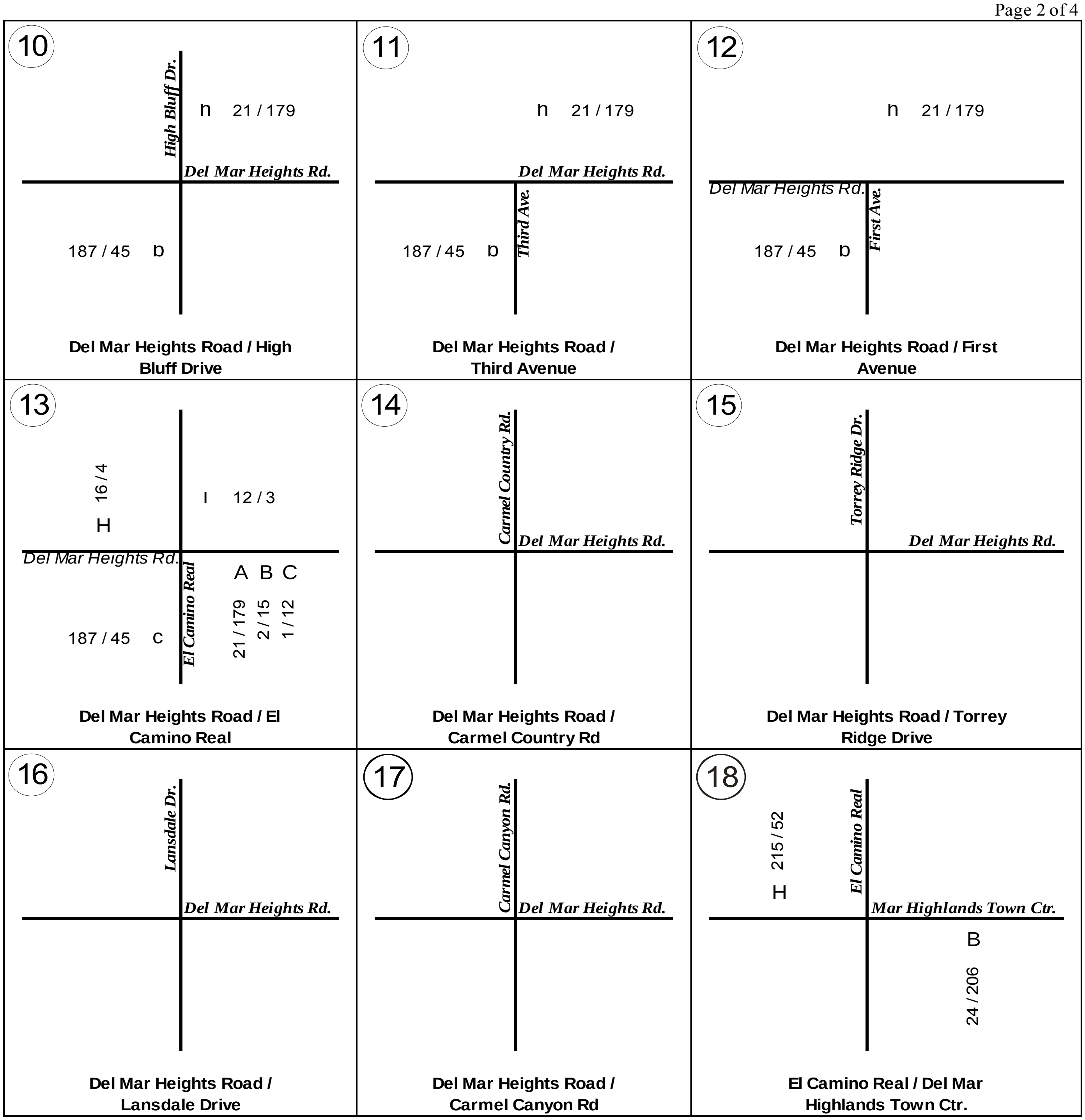


FIGURE 7-2

Cumulative Projects AM/PM Peak Hour Traffic Volumes

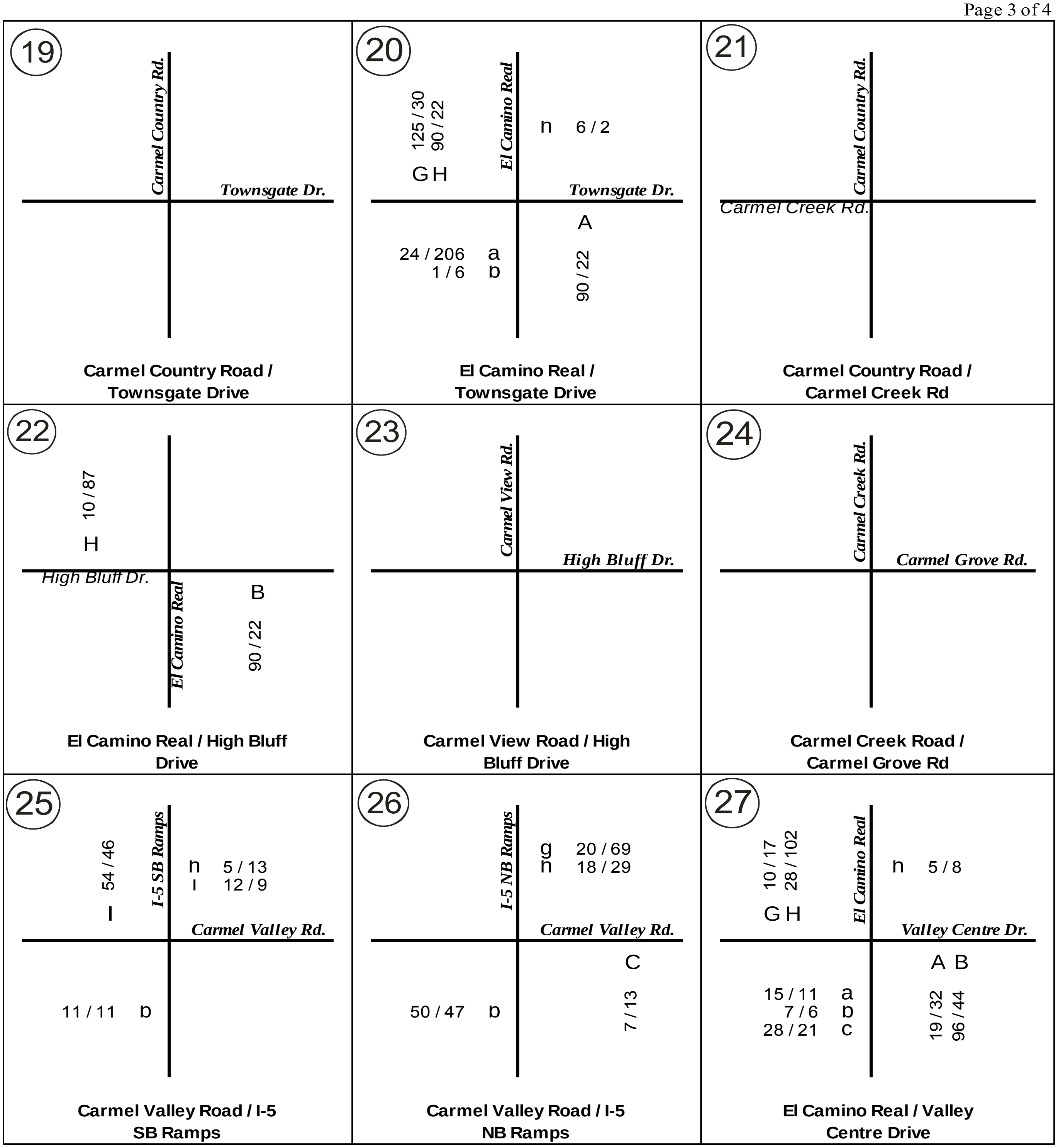


FIGURE 7-2

Cumulative Projects AM/PM Peak Hour Traffic Volumes

Page 4 of 4

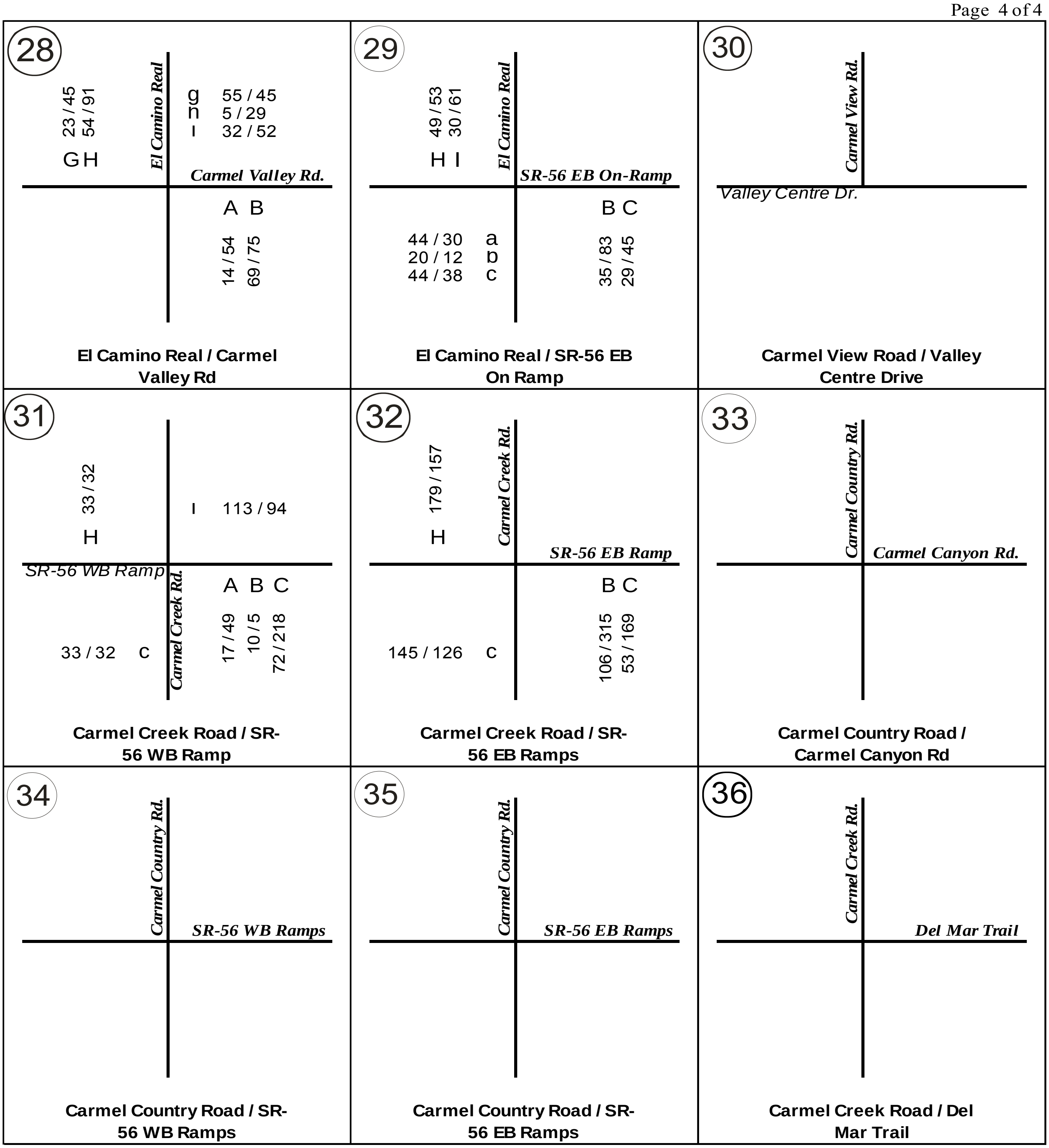


FIGURE 7-2

Cumulative Projects AM/PM Peak Hour Traffic Volumes

Carmel Valley Residence Inn – The project is located on the southwest corner of El Camino Real and Valley Center Drive. The proposed project consisting of 117 room motel will generate 1,054 average daily trips with 84 trips in the AM peak hour, and 95 trips in the PM peak hour. This project has been approved.

Torrey Reserve & Torrey Reserve Phase IV – The Torrey Reserve portion of the project will be located along the east side of El Camino Real north of Arroyo Sorrento Road. Torrey Reserve Phase IV portion of the project will be located along the west side of El Camino Real north of the existing Torrey Reserve signalized driveway. The proposed project is a multi-use development consisting of commercial office, retail, restaurant and bank. Torrey Reserve and Torrey Reserve Phase IV portions of the proposed project will include 38,400 and 40,000 square feet of new buildings, respectively. The proposed project will generate 3,546 average daily trips with 234 trips in the AM peak hour, and 368 trips in the PM peak hour. This project has been approved.

Gables Residential – The project is located on the east side of Carmel Creek Road south of SR-56. The project is to construct 92 multi-family dwelling units. The proposed project will generate 552 average daily trips with 44 trips in the AM peak hour, and 55 trips in the PM peak hour. This project has been approved.

Seabreeze Carmel View – The project is located on the southwest corner of Shaw Ridge Road and Carmel Creek Road. The proposed project includes 125,000 square feet of medical office which will generate 6,250 average daily trips with 375 trips in the AM peak hour, and 625 trips in the PM peak hour. This project has been approved.

Pepper Tree Point – The project is located on Carmel Creek Road south of Shaw Ridge Road. The proposed project is to construct 150 multi-family dwelling units which will generate 900 average daily trips with 72 trips in the AM peak hour, and 81 trips in the PM peak hour. This project has been approved.

22nd District Agricultural Association 2008 Master Plan (Del Mar Fairgrounds / Racetrack) – The project is located on the southwest corner of Via de la Valle and Jimmy Durante Blvd. just west of Interstate 5. The 2008 Master Plan consisted of constructing a new flat floor exhibit building (26,200 sf.); a Conference Hotel (330 rooms); a Health Club/Sports Training Facility (60,000 sf.); and an east parking lot improvement. In the “off season”, the proposed master plan would generate 6,960 average daily trips. The “off season” scenario was used as a near term project in this report for analysis purposes. This project was approved (but the hotel has been removed from the plan).

Rancho Del Mar – The proposed project is located on the south end of Via de la Valle and El Camino Real (east). Rancho Del Mar is planning to construct a senior housing development consisting of 225 dwelling units which would generate 900 average daily trips. This project is pending approval.

Sharif: De La Valle - This project is located on the north side of Via de la Valle just east of San Andres Drive. The proposed project consists of 22 townhomes which would generate 220 average daily trips. This project is pending approval.

8.0 NEAR TERM SCENARIO WITHOUT PROJECT

In order to determine Near Term traffic conditions, USAI followed the methodology outlined in the City of San Diego Traffic Impact Study Manual. An examination of the immediate area surrounding One Paseo yielded ten (10) projects that were approved, pending approval, or planned in the area and could potentially be implemented in the near term, or prior to certification of the EIR. Each of these was evaluated as shown in the previous section of this report. Traffic from these projects was added to the existing traffic to reflect a "Near Term" scenario. A three (3%) percent total increase has been added to the existing traffic volumes to account for potential unforeseen increases in traffic in the study area. The three percent increase is in addition to the ten cumulative projects. This scenario represents near-term traffic conditions prior to the addition of One Paseo project traffic.

8.1.1 STREET SEGMENTS

Figure 8-1 shows average daily traffic volumes from the "cumulative projects" added to existing average daily traffic volumes.

Table 8-1 shows street segment levels of service and significant impact measure without project traffic. The following street segment is projected to operate at an unacceptable level of service in the Near Term condition without the project and without mitigation:

Road	Segment	LOS
Via de la Valle	San Andres Dr. to El Camino Real	F
El Camino Real	Via de la Valle to San Deiguito Rd.	F
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F

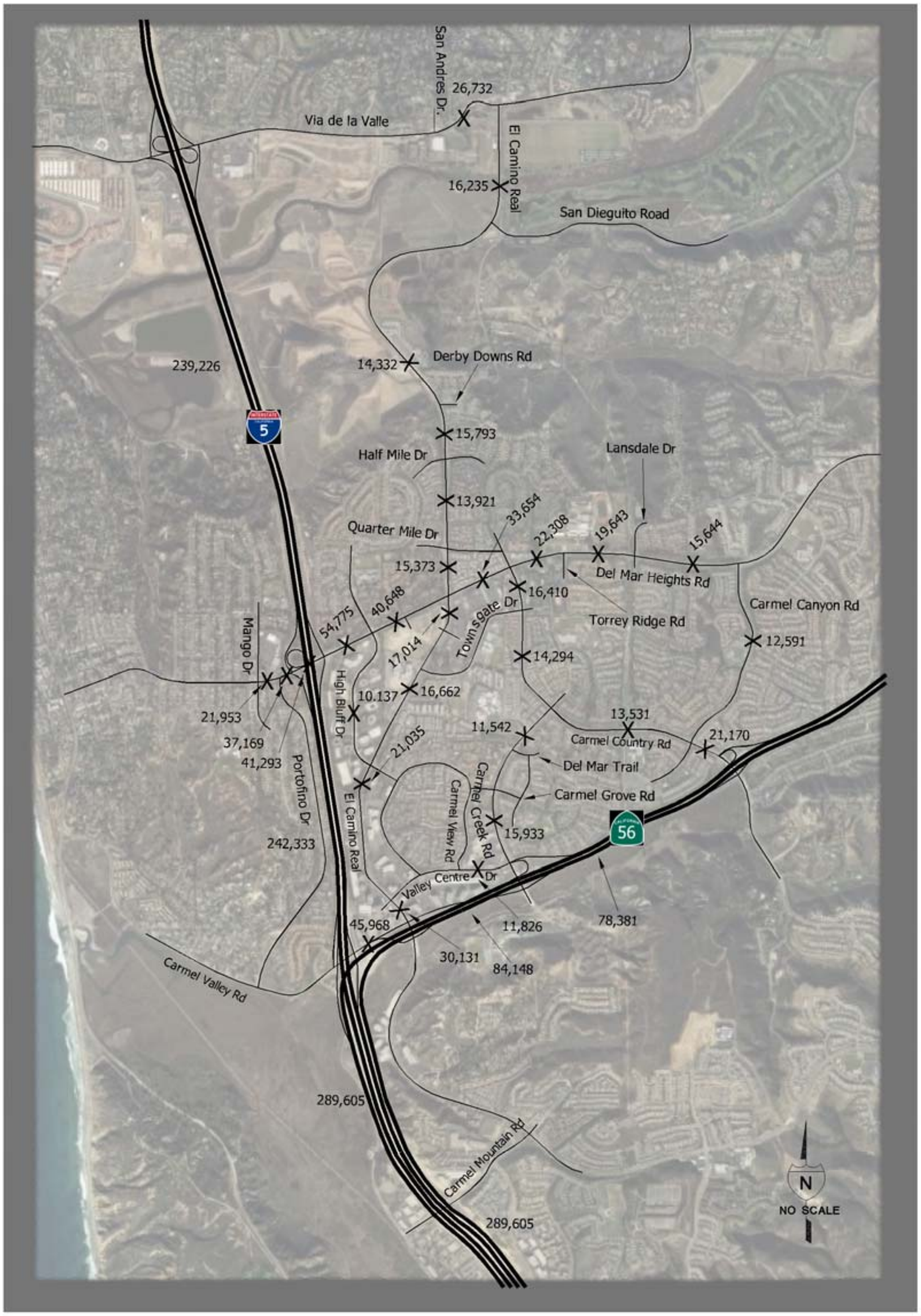


FIGURE 8-1

Near Term Without Project Average Daily Traffic

TABLE 8-1

Near Term Without Project Street Segment Levels of Service

Road	Segment	Jurisd.	Functional Class.	Capacity at LOS E	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	21,953	0.49	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	37,169	0.74	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	41,213	0.82	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	54,775	0.91	D
	High Bluff Drive to Third Avenue	SD	PA	60,000	40,648	0.68	C
	Thirth Avenue to First Avenue	SD	PA	60,000	40,648	0.68	C
	First Avenue to El Camino Real	SD	PA	60,000	40,648	0.68	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	33,654	0.56	B
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	22,308	0.37	A
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	19,643	0.33	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	15,644	0.26	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	16,235	1.08	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	14,332	0.36	A
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	15,793	0.39	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	13,921	0.35	A
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	15,373	0.38	B
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	17,014	0.34	A
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	16,662	0.33	A
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	21,035	0.42	B
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	30,131	0.67	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	16,410	0.41	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	14,294	0.36	A
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	13,531	0.34	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	21,170	0.53	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	12,591	0.31	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	11,542	0.29	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	15,933	0.40	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	11,826	0.39	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	45,968	0.77	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	10,137	0.68	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	26,732	2.67	F

Legend:

PA = 6 lane Primary Arterial
SD= City of San Diego — 6-M = 6 lane Major
Cap.= Capacity — 4-M=4 lane Major
Class.= Classification — 2-Ca=2 lane collector
LOS= Level of Service — 2-Cb = 2 lane Collector with no fronting property
V/C= Volume to Capacity Ratio
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

8.1.1 INTERSECTIONS

Figure 8-2 shows the peak hour traffic volumes from the "cumulative projects" when added to existing peak hour volumes at the study area intersections. **Table 8-2** shows the resulting AM and PM peak hour levels of service. As shown in **Table 8-2**, all intersections are projected to operate at acceptable levels of service in the AM and PM peak hour except for Carmel Creek Road at Del Mar Trail which operates at LOS "E" in the AM peak hour and Carmel Country and Carmel Creek operating at LOS E in the AM.

Appendix G includes the Near Term without Project Synchro worksheets.

8.1.2 FREEWAY SEGMENTS

Table 8-3 shows the resulting levels of service for the I-5 and SR-56 freeway segments analyzed. As shown in **Table 8-3**, all freeway segments are projected to operate at acceptable levels of service.

8.1.3 RAMP METERS

Table 8-4 shows the resulting delays and queues for the I-5 / Del Mar Heights Rd northbound and southbound ramps.

Page 1 of 4

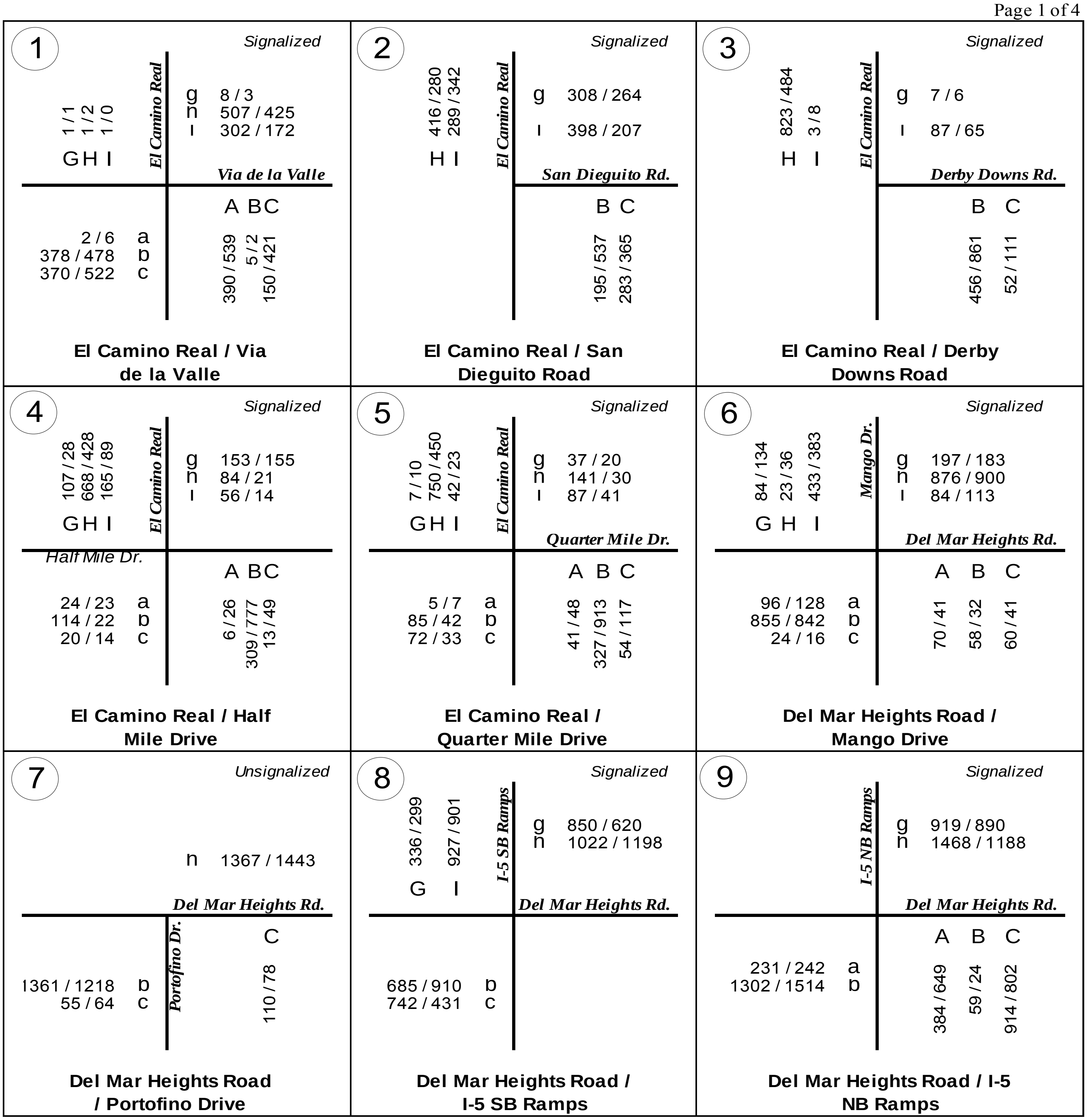


FIGURE 8-2

Near Term Without Project AM/PM Peak Hour Traffic Volumes

Page 2 of 4

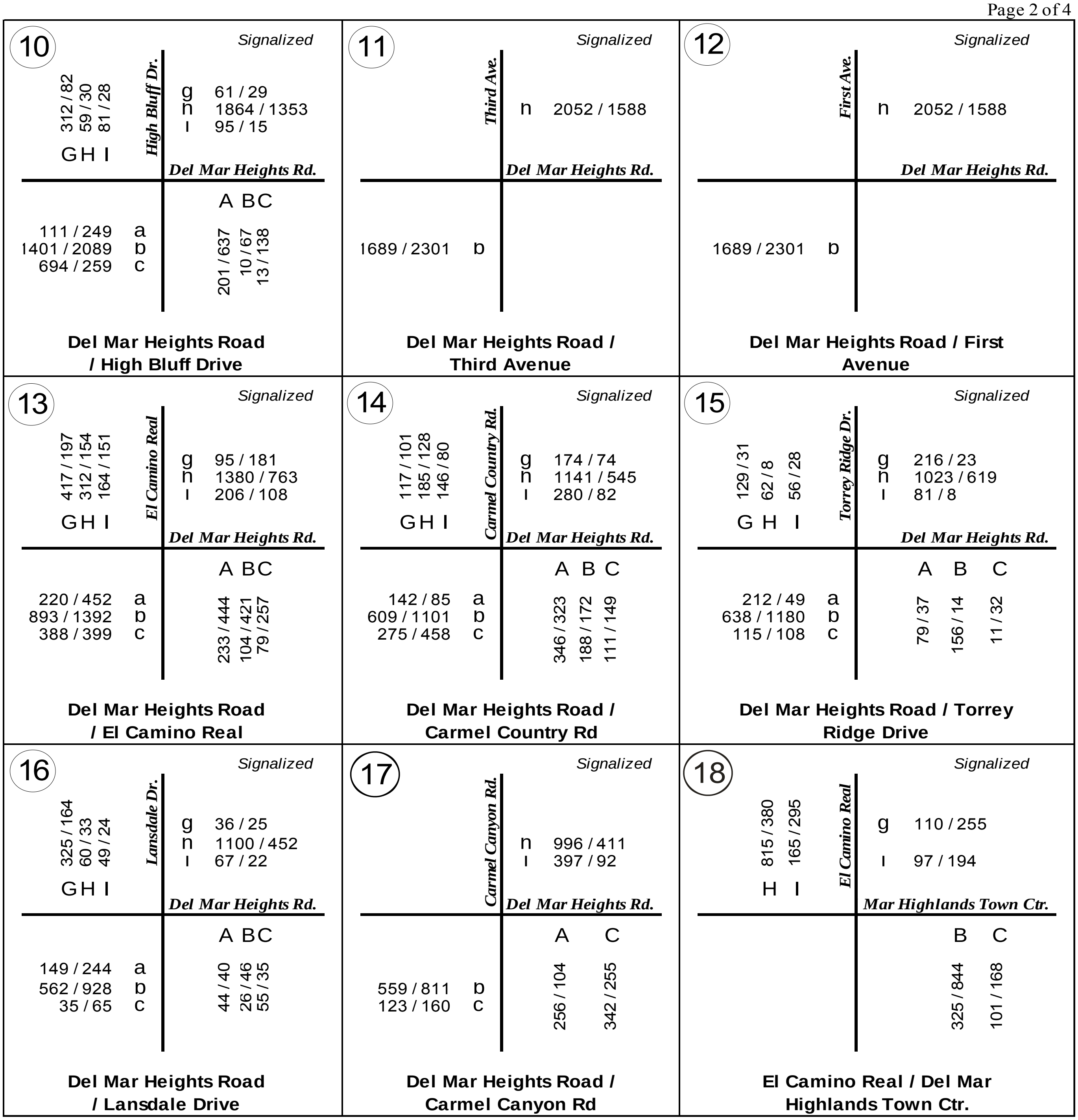


FIGURE 8-2

Near Term Without Project AM/PM Peak Hour Traffic Volumes

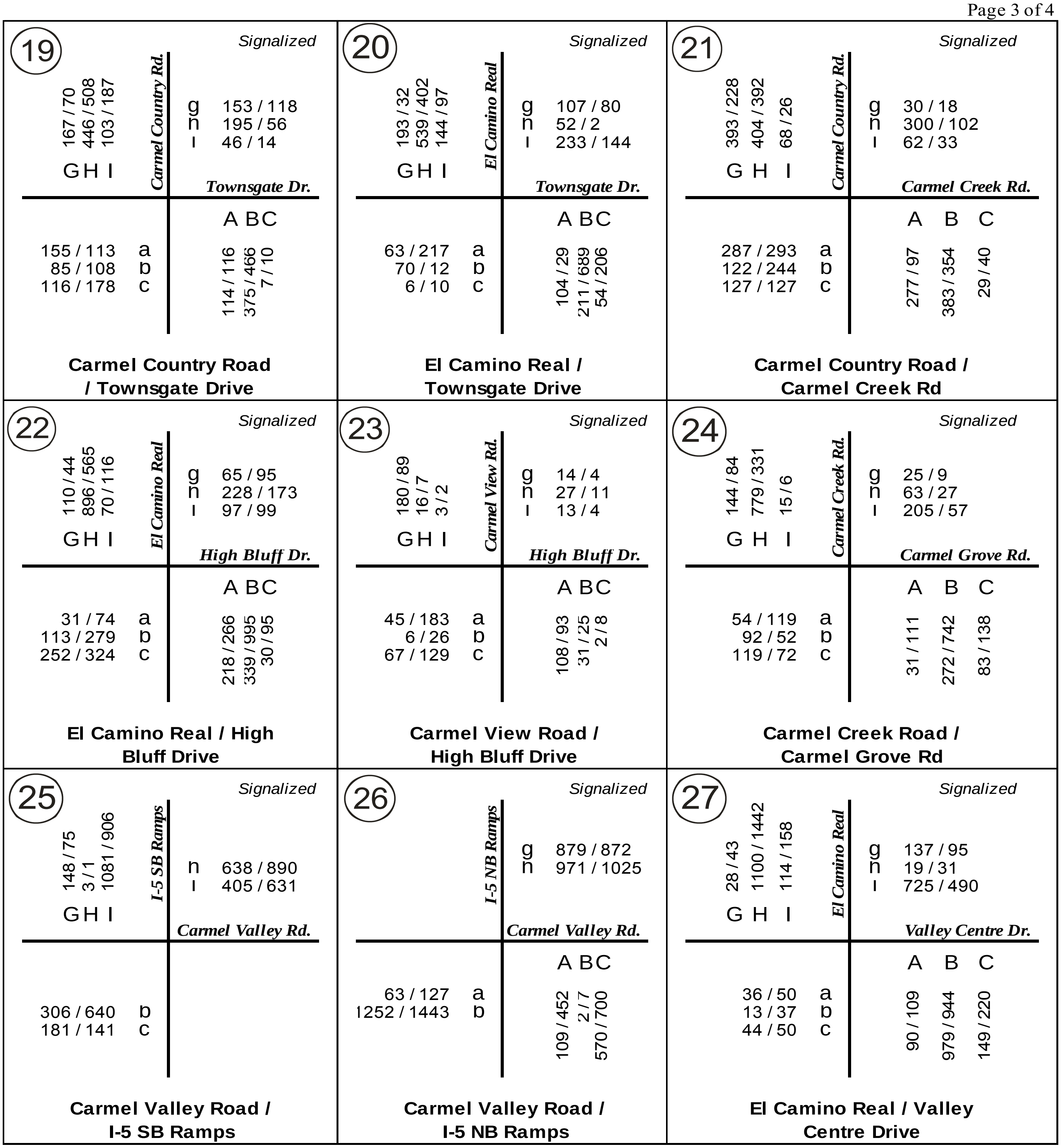


FIGURE 8-2

Near Term Without Project AM/PM Peak Hour Traffic Volumes

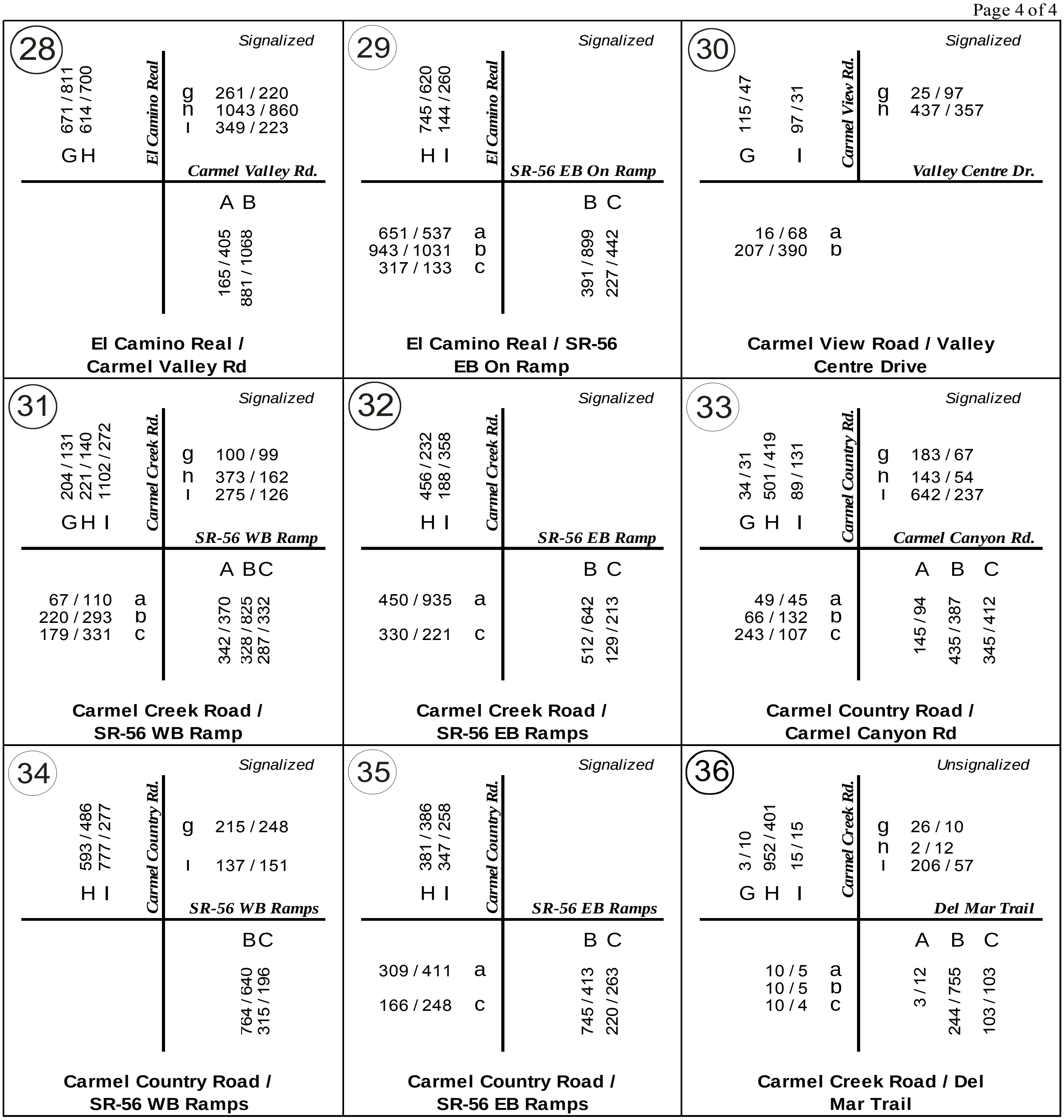


FIGURE 8-2

Near Term Without Project AM/PM Peak Hour Traffic Volumes

TABLE 8-2

Near Term Without Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	31.4	C	38.8	D
2	El Camino Real / San Dieguito Road	Signalized	16.9	B	25.2	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	4.5	A
4	El Camino Real / Half Mile Drive	Signalized	20.6	B	14	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.6	C	15.1	B
6	Del Mar Heights Road / Mango Drive	Signalized	33.3	C	31.4	C
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.4	A	9.2	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	24.8	C	23	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	39.6	D	38.3	D
10	Del Mar Heights Road / High Bluff Drive	Signalized	28.5	C	32.1	C
11	Del Mar Heights Road / Third Avenue	Signalized	DNE	DNE	DNE	DNE
12	Del Mar Heights Road / First Avenue	Signalized	DNE	DNE	DNE	DNE
13	Del Mar Heights Road / El Camino Real	Signalized	29.9	C	29.5	C
14	Del Mar Heights Road / Carmel Country Rd	Signalized	22.9	C	21.1	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	23.6	C	11.9	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	19	B	17.6	B
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	13.8	B	10.2	B
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	6.8	A	13.5	B
19	Carmel Country Road / Townsgate Drive	Signalized	26.5	C	21.8	C
20	El Camino Real / Townsgate Drive	Signalized	21.3	C	20.7	C
21	Carmel Country Road / Carmel Creek Rd	Signalized	58.6	E	24.1	C
22	El Camino Real / High Bluff Drive	Signalized	21.1	C	26.2	C
23	Carmel View Road / High Bluff Drive	All Way Stop	8.4	A	9.1	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	27.8	C	17.5	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	22.6	C	32.1	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	13.6	B	20.4	C
27	El Camino Real / Valley Centre Drive	Signalized	24.6	C	23.2	C
28	El Camino Real / Carmel Valley Rd	Signalized	14.8	B	19.2	B
29	El Camino Real / SR-56 EB On Ramp	Signalized	18	B	32.3	C
30	Carmel View Road / Valley Centre Drive	Signalized	7.4	A	8.3	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	45.7	D	27	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	12.5	B	27.4	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	33.1	C	25.6	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	16.2	B	10.9	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	14.1	B	11.7	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	47.9	E	21.7	C

Notes:

DNE = Does not exist

Orange indicates unacceptable level of service.

Intersection #36 reports the worst approach delay and level of service

TABLE 8-3

Near Term Without Project Freeway Segment Levels of Service

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	223,226	0.068	0.53	0.98	8,134	0.635	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	223,179	0.067	0.55	0.98	8,394	0.656	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	239,226	0.068	0.53	0.98	8,716	0.648	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	239,179	0.067	0.55	0.98	8,996	0.669	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	242,333	0.068	0.53	0.98	8,830	0.560	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	242,275	0.067	0.55	0.98	9,112	0.577	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	289,605	0.079	0.57	0.98	13,191	0.578	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	289,605	0.080	0.55	0.98	12,954	0.633	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	289,605	0.079	0.57	0.98	13,191	0.561	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	289,605	0.080	0.55	0.98	12,954	0.551	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	84,148	0.093	0.69	0.98	5,499	0.846	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	84,148	0.094	0.70	0.98	5,640	0.868	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	EB	6,500	78,381	0.093	0.69	0.98	5,123	0.788	C
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	WB	6,500	78,381	0.094	0.70	0.98	5,253	0.808	D

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 vphpl taken from Caltrans Guide, December 2002)
HOV= High Occupancy Vehicle lane with LOS"E" capacity of 1,600 vphpl

Note:

Capacity for LOS "E" roadway is 2,350 vphpl.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxiliary Lane with LOS "E" capacity of 1,800 vphpl
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 8-4

Near Term Without Project Ramp Meter Analysis

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	425	368	57	9.29	1,653
	PM	310	368	0	0	0
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	371	499	0	0	0
	PM	216	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	566	593	0	0	0

NOTE:
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

9.0 NEAR TERM WITH PROJECT PHASE 1

This section of the report evaluates the Near Term with Project Phase 1 traffic conditions by adding the "cumulative projects" plus the One Paseo project traffic in Phase 1 to existing volumes and evaluating project traffic impacts. This scenario differs from the existing with project analysis insofar as it takes into account traffic anticipated from other approved or anticipated projects not yet completed or constructed, but which could potentially be implemented between the time of circulation of the NOP for the project and the anticipated date of certification of the EIR.

9.1 STREET SEGMENTS

Figure 9-1 shows average daily traffic volumes with project (Phase 1) traffic added to Near Term traffic volumes.

Table 9-1 shows street segment levels of service with the One Paseo project traffic added to Near Term conditions. The following street segments are projected to operate at an unacceptable level of service:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
Via de la Valle	San Andres Dr. to El Camino Real	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F

FIGURE 9-1

Near Term With Project Average Daily Traffic (Phase 1)

TABLE 9-1

Near Term With Project Street Segment Levels of Service

(Phase 1)

Road	Segment	Jurisd.	Functional Class.	Capacity at LOS E	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	22,843	0.51	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	38,355	0.77	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	43,289	0.87	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	58,631	0.98	E
	High Bluff Drive to Third Avenue	SD	PA	60,000	45,098	0.75	C
	Thirth Avenue to First Avenue	SD	PA	60,000	44,109	0.74	C
	First Avenue to El Camino Real	SD	PA	60,000	43,120	0.72	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	36,324	0.61	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	23,593	0.39	A
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	20,533	0.34	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	16,138	0.27	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	16,532	1.10	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	14,728	0.37	A
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	16,189	0.40	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	14,416	0.36	A
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	15,966	0.40	B
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	18,497	0.37	A
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	17,947	0.36	A
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	21,925	0.44	B
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	30,724	0.68	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	17,399	0.43	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	15,085	0.38	B
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	14,026	0.35	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	21,565	0.54	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	12,788	0.32	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	11,839	0.30	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	16,230	0.41	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	11,925	0.40	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	46,166	0.77	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	10,434	0.70	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	26,930	2.69	F

Legend:

PA = 6 lane Primary Arterial
SD= City of San Diego
6-M = 6 lane Major
Cap.= Capacity
4-M=4 lane Major
Class.= Classification
2-Ca=2 lane collector
LOS= Level of Service
2-Cb = 2 lane Collector with no fronting property
V/C= Volume to Capacity Ratio
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

9.2 INTERSECTIONS

Figure 9-2 Near Term conditions plus the One Paseo (Phase 1) combined traffic volumes during AM/PM peak hours at study area intersections.

Table 9-2 includes study area intersection levels of service with the One Paseo project traffic added. As shown, all intersections are projected to operate at acceptable levels of service except for Carmel Creek Road at Del Mar Trail which operates at LOS "E" in the AM peak hour and Carmel Country Road at Carmel Creek Road which operates at LOS "E" in the AM peak hour.

Appendix H includes the Near Term with Project (Phase 1) Synchro worksheets.

9.3 FREEWAY SEGMENTS

Table 9-3 shows the resulting levels of service for the I-5 and SR-56 freeway segments analyzed. As shown in **Table 9-3**, all freeway segments are projected to operate at acceptable levels of service.

9.4 RAMP METERS

Table 9-4 shows the resulting delays and queues for the I-5 / Del Mar Heights Rd northbound and southbound ramps.

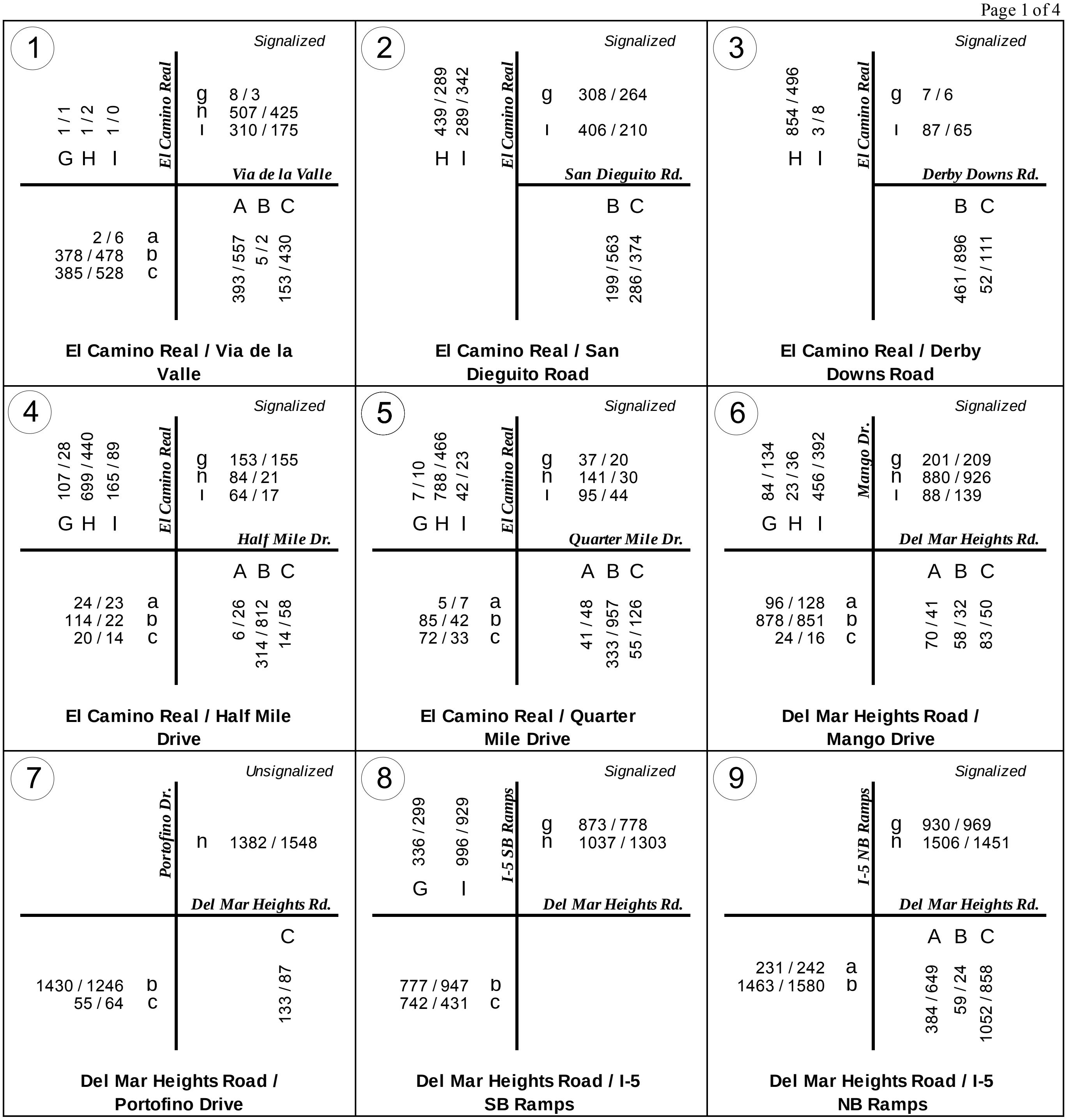


FIGURE 9-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1)

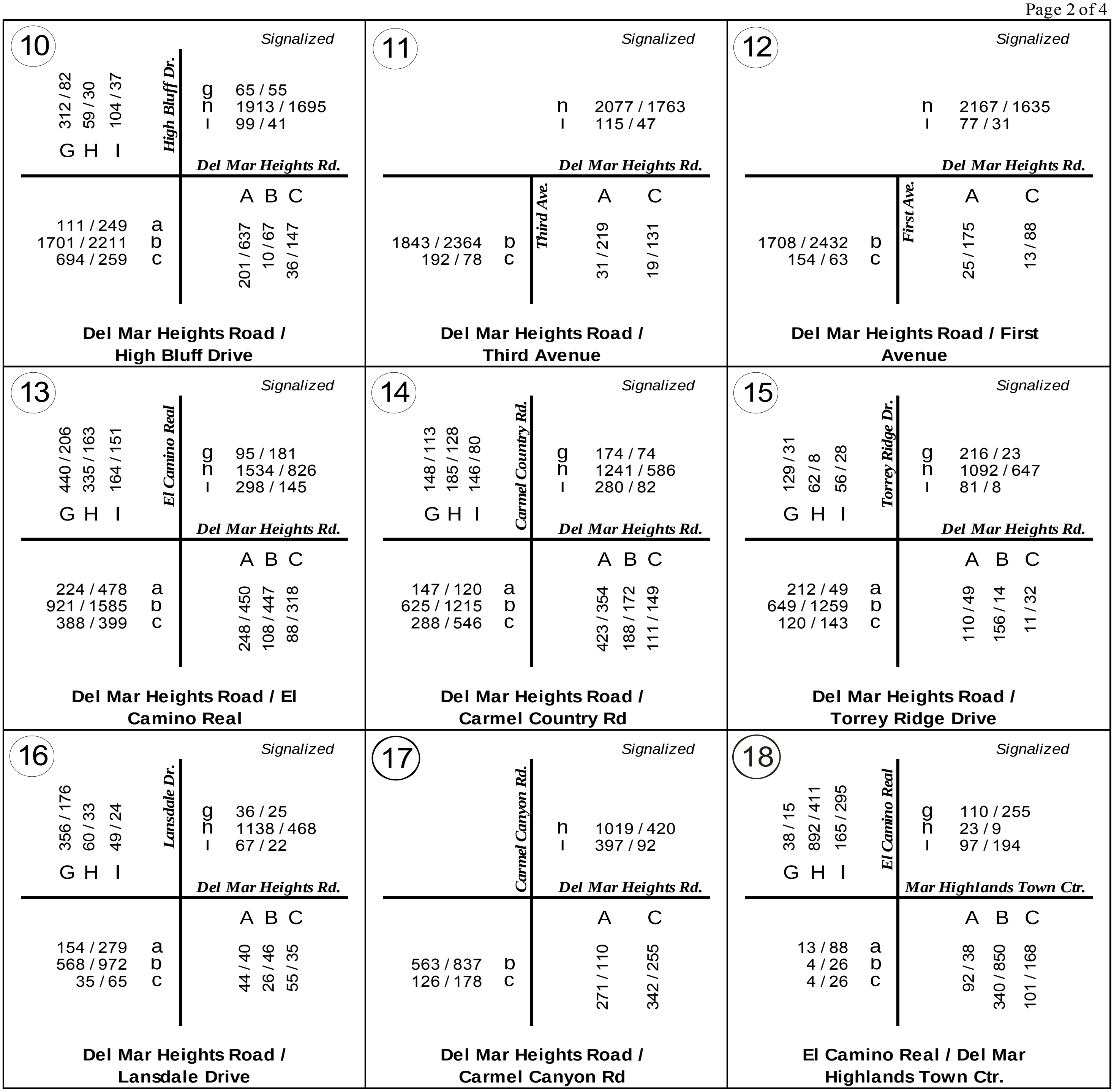


FIGURE 9-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1)

Page 3 of 4

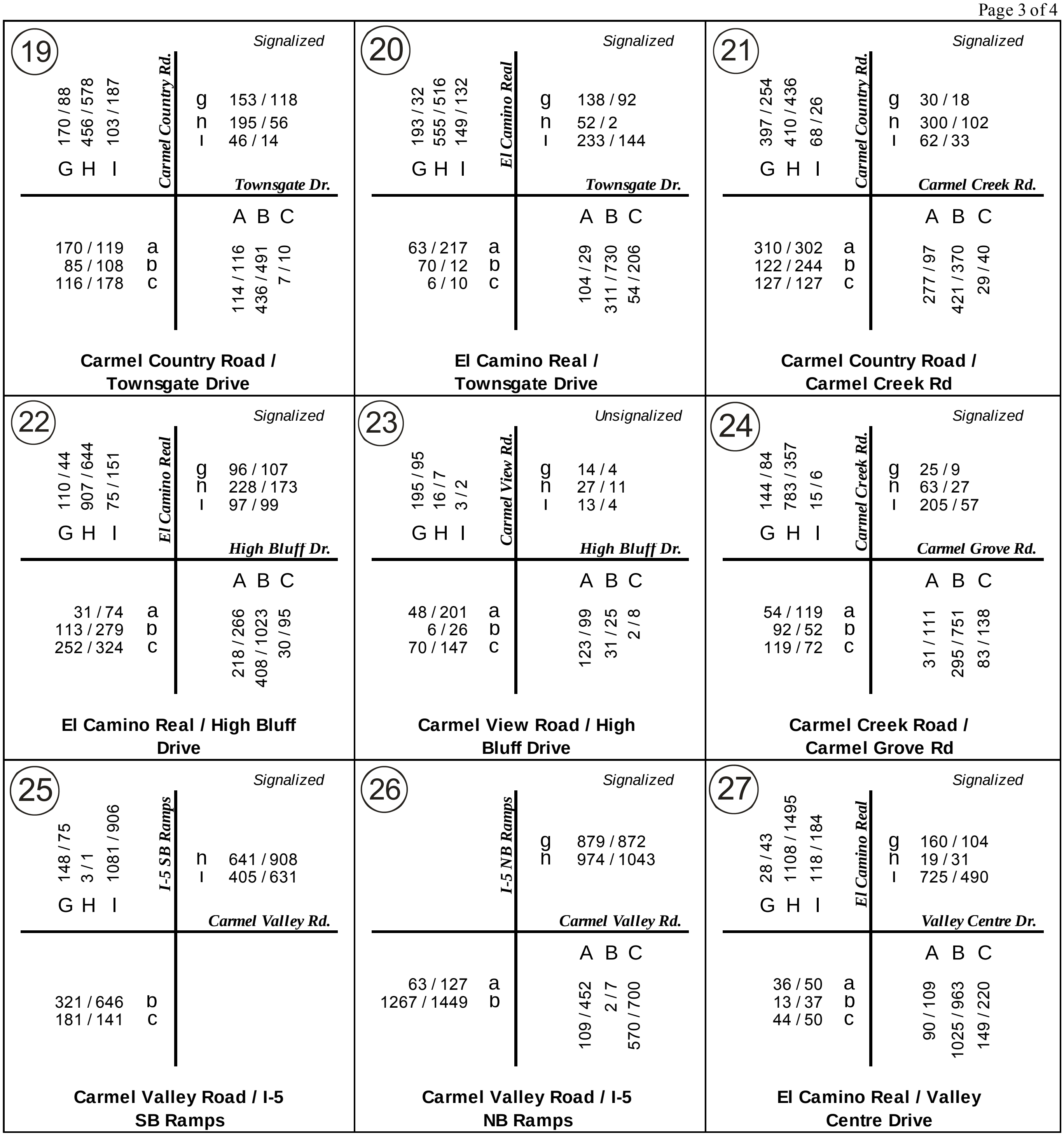


FIGURE 9-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1)

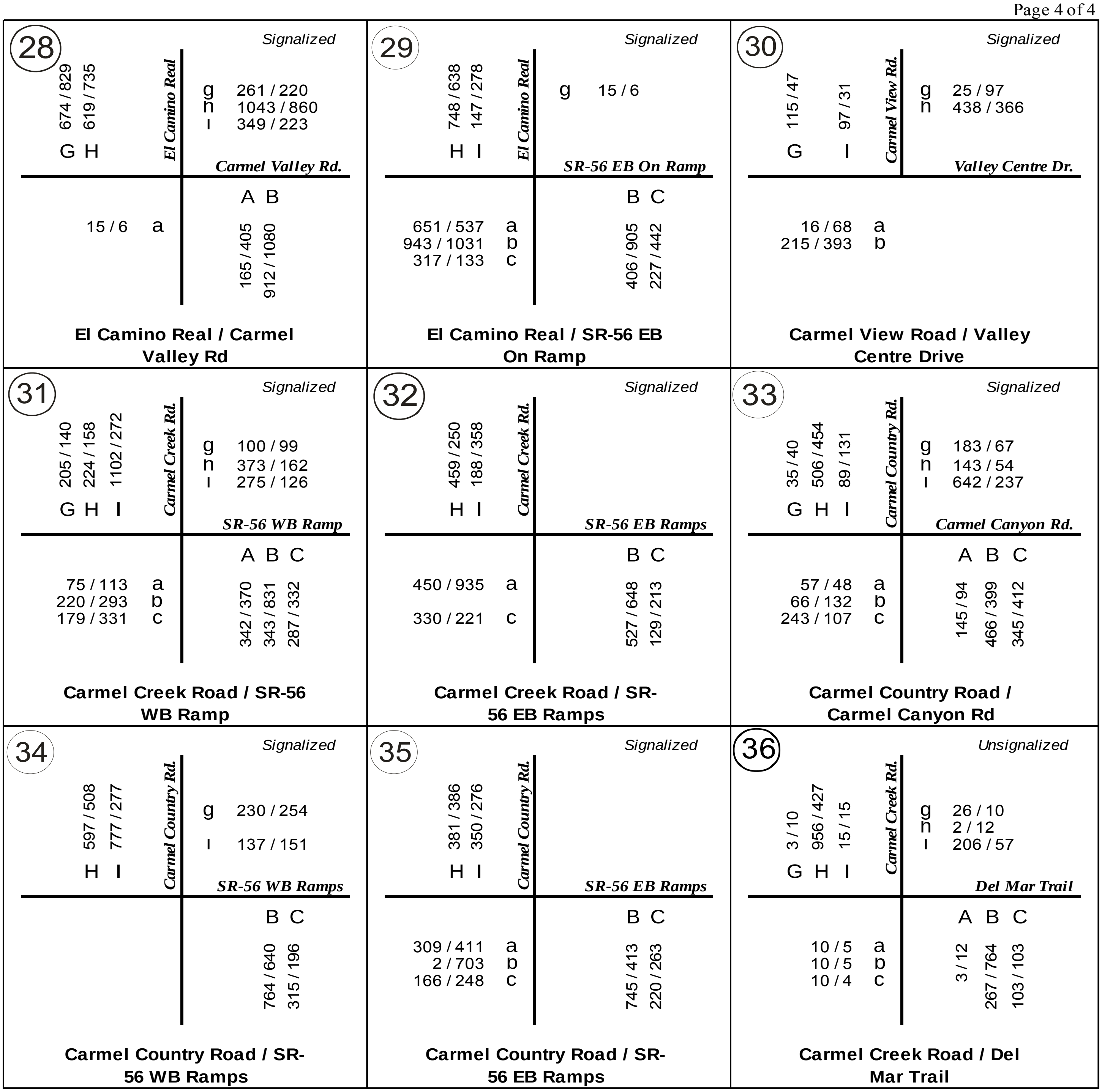


FIGURE 9-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1)

TABLE 9-2

Near Term With Project Intersection Levels Of Service (Phase 1)

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	31.9	C	40.6	D
2	El Camino Real / San Dieguito Road	Signalized	17.1	B	27.3	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	5	A
4	El Camino Real / Half Mile Drive	Signalized	21.7	C	18.7	B
5	El Camino Real / Quarter Mile Drive	Signalized	21.8	C	15.5	B
6	Del Mar Heights Road / Mango Drive	Signalized	34.2	C	33.5	D
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.6	A	9.3	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	29.6	C	24.6	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	49.2	D	43.5	D
10	Del Mar Heights Road / High Bluff Drive	Signalized	28.9	C	41.3	D
11	Del Mar Heights Road / Third Avenue	Signalized	5.9	A	10	A
12	Del Mar Heights Road / First Avenue	Signalized	4.2	A	10.7	B
13	Del Mar Heights Road / El Camino Real	Signalized	32.1	C	37	D
14	Del Mar Heights Road / Carmel Country Rd	Signalized	25.7	C	23.5	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	24.8	C	16.4	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	20.4	C	18.3	B
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	13.9	B	10.3	B
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	14	B	22.6	A
19	Carmel Country Road / Townsgate Drive	Signalized	27.2	C	27.2	C
20	Carmel Country Road / Townsgate Drive	Signalized	21.3	C	20.7	C
21	Carmel Country Road / Carmel Creek Rd	Signalized	60.4	E	26.1	C
22	El Camino Real / High Bluff Drive	Signalized	23.3	C	27.7	C
23	Carmel View Road / High Bluff Drive	All Way Stop	8.6	A	9.5	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	27.8	C	17.6	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	23.1	C	32.2	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	13.7	B	20.5	C
27	El Camino Real / Valley Centre Drive	Signalized	25	C	29.7	C
28	El Camino Real / Carmel Valley Rd	Signalized	16.4	B	19.6	B
29	El Camino Real / SR-56 EB On Ramp	Signalized	18.2	B	34	C
30	Carmel View Road / Valley Centre Drive	Signalized	7.4	A	8.3	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	46.3	D	27.1	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	12.6	B	27.5	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	35.7	D	25.9	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	16.3	B	11.4	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	14.1	B	11.9	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	50.8	F	22.6	C

Notes:

LOS = Level of Service

Orange indicates unacceptable level of service.

Intersection #36 reports the worst approach delay and level of service.

TABLE 9-3

Near Term With Project Freeway Segment Levels Of Service

(Phase 1)

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	223,918	0.068	0.53	0.98	8,159	0.637	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	223,871	0.067	0.55	0.98	8,420	0.658	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	240,116	0.068	0.53	0.98	8,749	0.650	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	240,069	0.067	0.55	0.98	9,029	0.671	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	244,113	0.068	0.53	0.98	8,895	0.564	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	244,055	0.067	0.55	0.98	9,179	0.582	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	290,594	0.079	0.57	0.98	13,236	0.580	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	290,594	0.080	0.55	0.98	12,999	0.635	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	290,396	0.079	0.57	0.98	13,227	0.563	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	290,396	0.080	0.55	0.98	12,990	0.553	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	84,346	0.093	0.69	0.98	5,512	0.848	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	84,346	0.094	0.70	0.98	5,653	0.870	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	EB	6,500	78,579	0.093	0.69	0.98	5,135	0.790	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	WB	6,500	78,579	0.094	0.70	0.98	5,266	0.810	D

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 vphpl taken from Caltrans Guide, December 2002)
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 vphpl

Note:

Capacity for LOS "E" roadway is 2,350 vphpl.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxiliary Lane with LOS "E" capacity of 1,800 vphpl
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 9-4

Near Term With Project Ramp Meter Analysis
(Phase 1)

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	437	368	68.5	11.17	1,987
	PM	389	368	21	3.42	609
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	371	499	0	0	0
	PM	216	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	606	593	12.5	1	363

NOTE:
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

10.0 NEAR TERM WITH PROJECT PHASE 1 & 2

This section of the report evaluates the Near Term with Project Phase 1 & 2 traffic conditions by adding the "cumulative projects" plus the One Paseo project traffic in Phase 1 & 2 to existing volumes and evaluating project traffic impacts. This scenario differs from Existing with Project (Phase 1&2) analysis insofar as it takes into account traffic anticipated from other approved or anticipated projects not yet completed or constructed, but which could potentially be implemented between the time of circulation of the NOP for the project and the anticipated date of certification of the EIR.

10.1 STREET SEGMENTS

Figure 10-1 shows average daily traffic volumes with project (Phase 1 & 2) traffic added to the Near Term traffic volumes.

Table 10-1 shows street segment levels of service with the Near Term plus One Paseo project traffic. The following street segments are projected to operate at an unacceptable level of service:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
Via de la Valle	San Andres Dr. to El Camino Real	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F

El Camino Real between Via de la Valle and San Dieguito Road is a City CIP (City Improvement Project) and is not fully funded to be constructed as a four lane major.

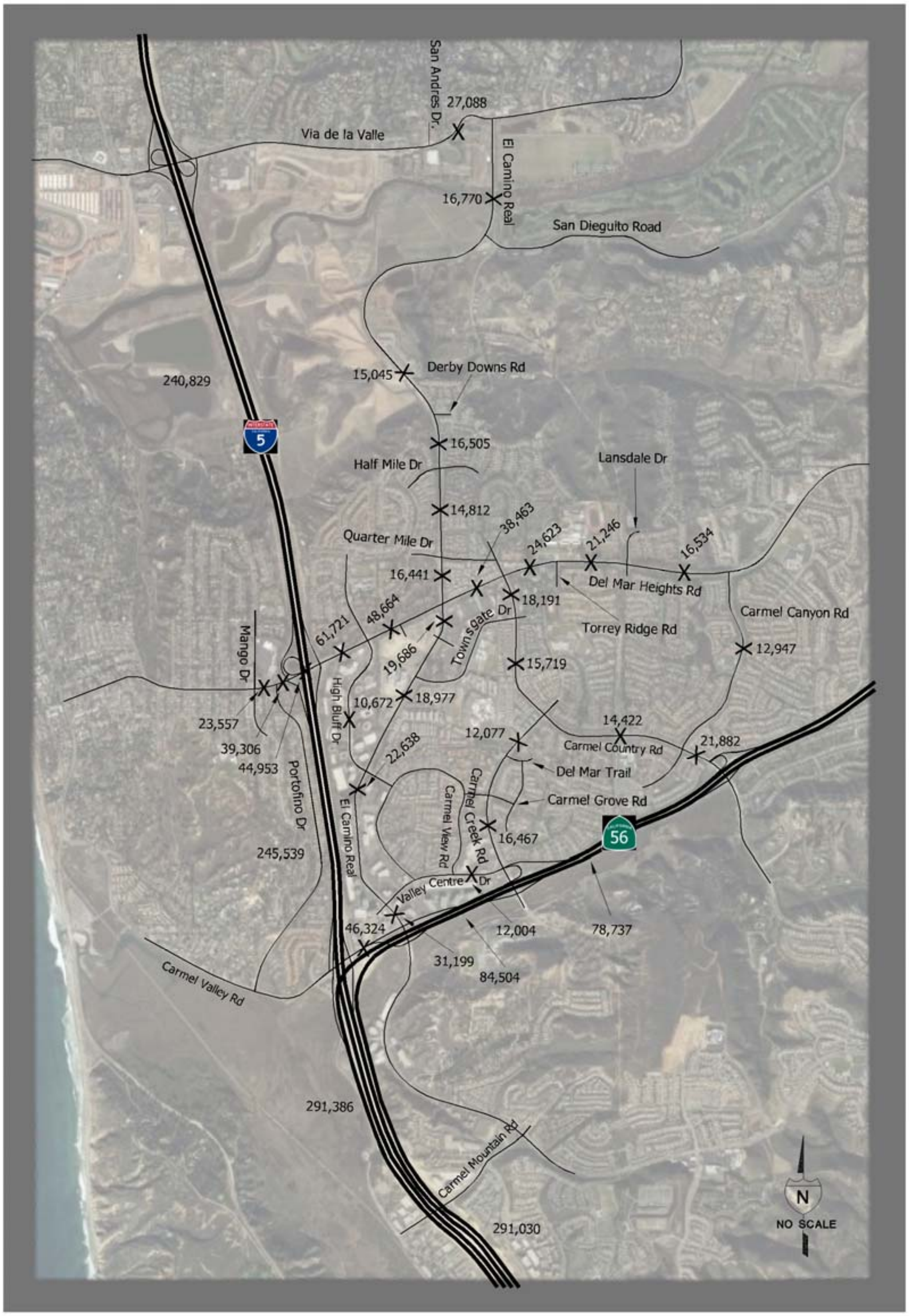


FIGURE 10-1

Near Term With Project Average Daily Traffic

(Phase 1 & 2)

TABLE 10-1

Near Term With Project Street Segment Levels of Service

(Phase 1 & 2)

Road	Segment	Jurisd.	Functional Class.	Capacity at LOS E	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	23,557	0.52	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	39,306	0.79	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	44,953	0.90	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	61,721	1.03	F
	High Bluff Drive to Third Avenue	SD	PA	60,000	48,664	0.81	C
	Thirth Avenue to First Avenue	SD	PA	60,000	47,951	0.80	C
	First Avenue to El Camino Real	SD	PA	60,000	47,951	0.80	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	38,463	0.64	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	24,623	0.41	A
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	21,246	0.35	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	16,534	0.28	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	16,770	1.12	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	15,045	0.38	B
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	16,505	0.41	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	14,812	0.37	A
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	16,441	0.41	B
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	19,686	0.39	A
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	18,977	0.38	A
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	22,638	0.45	B
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	31,199	0.69	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	18,191	0.45	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	15,719	0.39	B
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	14,422	0.36	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	21,882	0.55	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	12,947	0.32	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	12,077	0.30	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	16,467	0.41	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	12,004	0.40	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	46,324	0.77	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	10,672	0.71	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	27,088	2.71	F

Legend:

PA = 6 lane Primary Arterial
SD= City of San Diego
6-M = 6 lane Major
Cap.= Capacity
4-M=4 lane Major
Class.= Classification
2-Ca=2 lane collector
LOS= Level of Service
2-Cb = 2 lane Collector with no fronting property
V/C= Volume to Capacity Ratio
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

10.2 INTERSECTIONS

Figure 10-2 shows Near Term conditions plus the One Paseo project (Phase 1 & 2) combined traffic volumes during AM/PM peak hours at study area intersections.

Table 10-2 includes study area intersection levels of service with the One Paseo project traffic added to Near Term conditions. As shown, all intersections are projected to operate at acceptable levels of service except for four intersections.

Appendix I includes the Near Term with Project (Phase 1 & 2) Synchro worksheets.

10.3 FREEWAY SEGMENTS

Table 10-3 shows the resulting levels of service for the I-5 and SR-56 freeway segments analyzed. As shown in **Table 10-3**, all freeway segments are projected to operate at acceptable levels of service.

10.4 RAMP METERS

Table 10-4 shows the resulting delays and queues for the I-5 / Del Mar Heights Rd northbound and southbound ramps.

Page 1 of 4

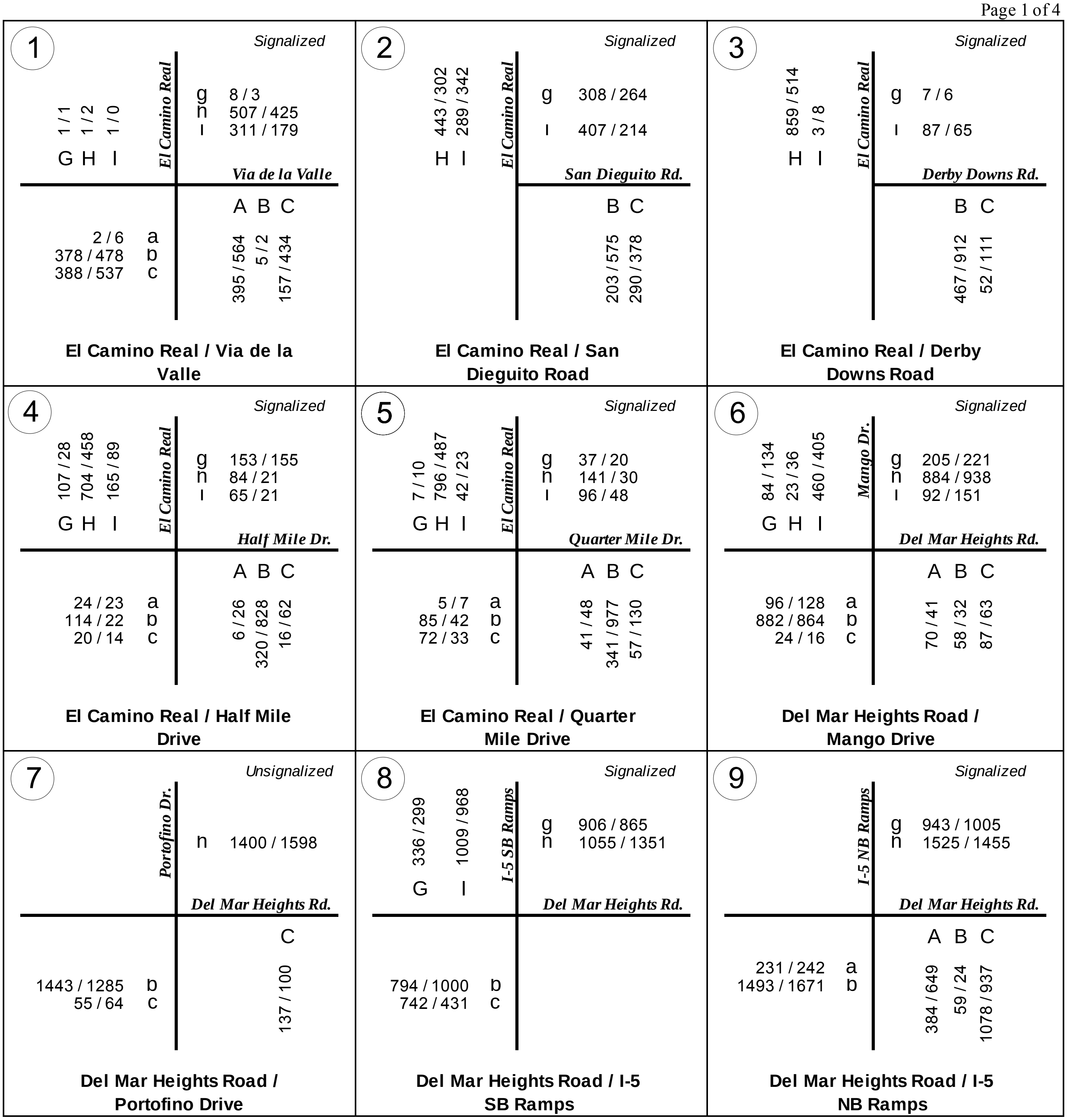


FIGURE 10-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1 & 2)

Page 2 of 4

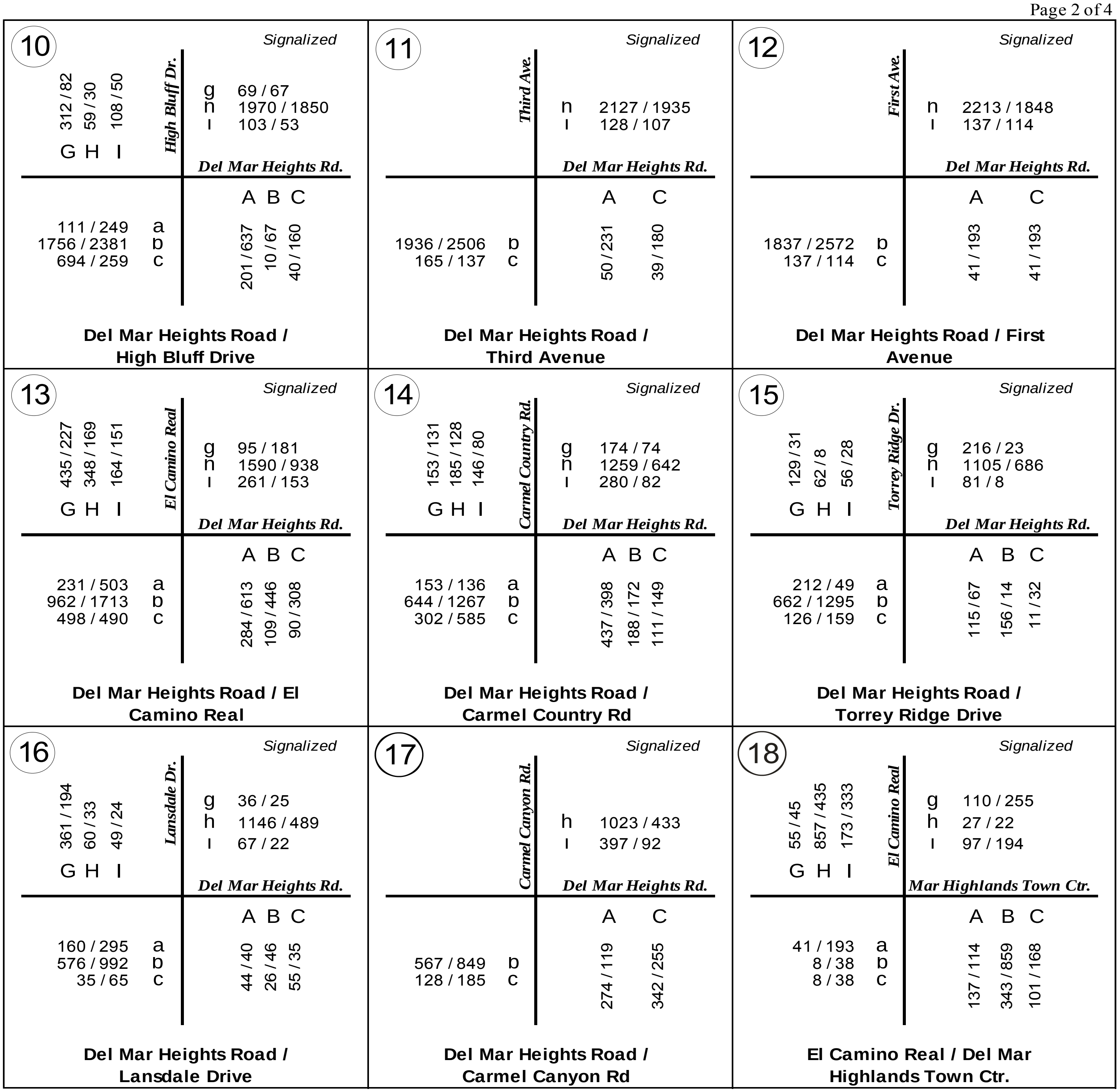


FIGURE 10-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1 & 2)

Page 3 of 4

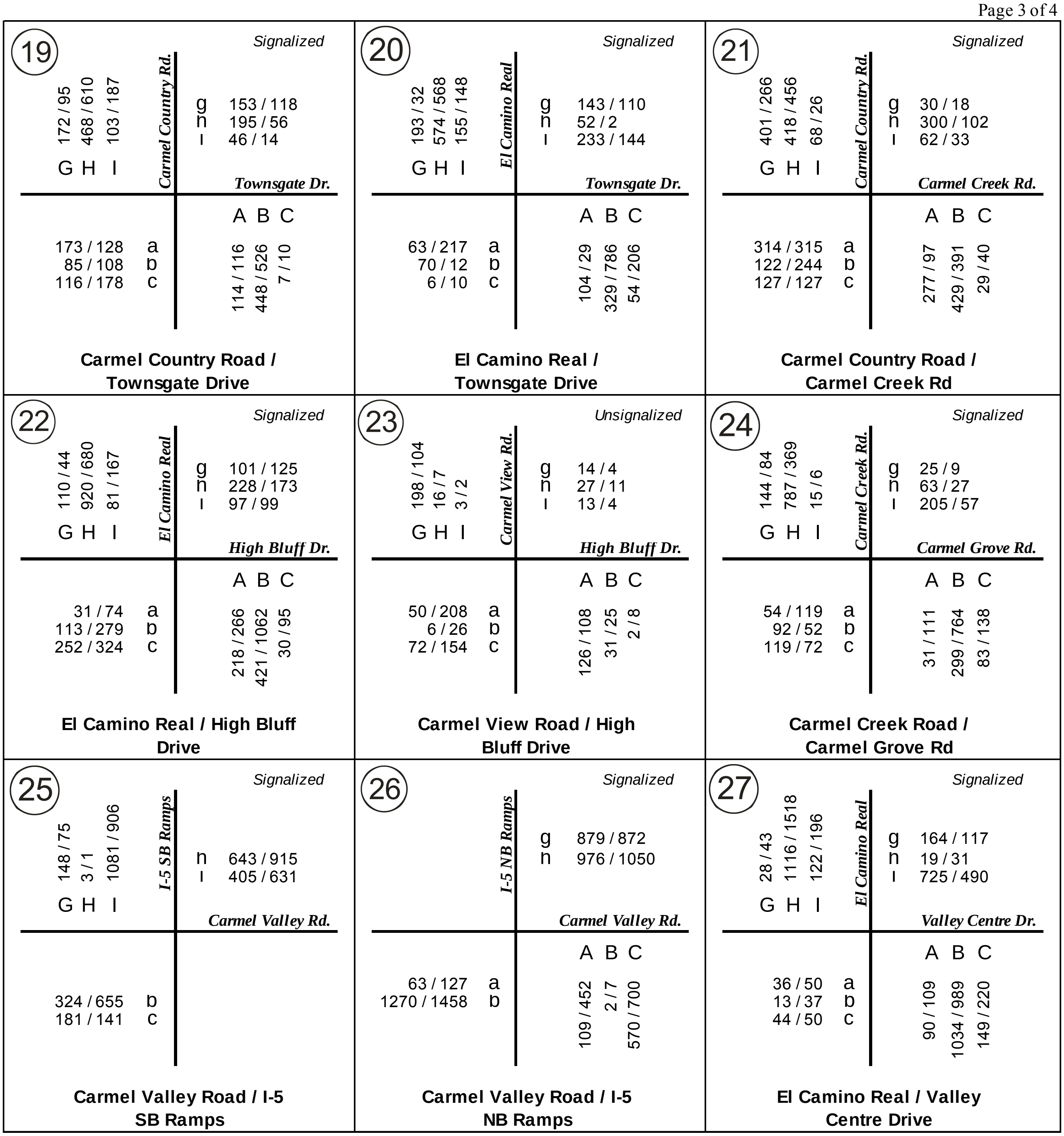


FIGURE 10-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1 & 2)

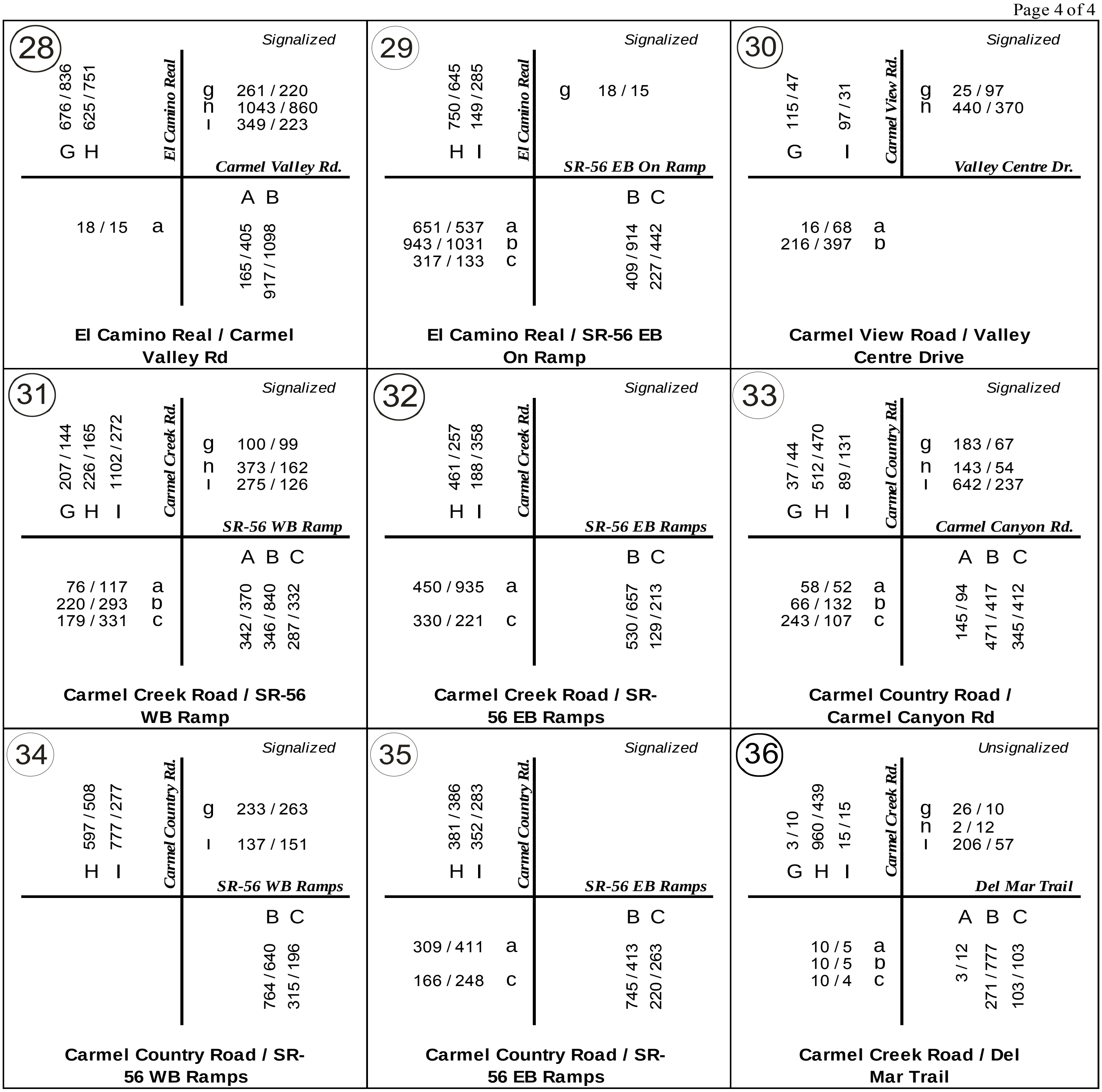


FIGURE 10-2

Near Term With Project AM/PM Peak Hour Traffic

(Phase 1 & 2)

TABLE 10-2

Near Term With Project Intersection Levels Of Service (Phase 1 & 2)

Number	Intersection	Control	AM Peak Hour Delay	AM Peak Hour LOS	PM Peak Hour Delay	PM Peak Hour LOS
1	El Camino Real / Via de la Valle	Signalized	32.2	C	42.5	D
2	El Camino Real / San Dieguito Road	Signalized	17.3	B	26.9	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	5	A
4	El Camino Real / Half Mile Drive	Signalized	21.8	C	14.2	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.6	C	16.4	B
6	Del Mar Heights Road / Mango Drive	Signalized	34.5	C	34.3	C
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.6	A	9.4	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	28.7	C	27.8	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	49.8	D	50.5	D
10	Del Mar Heights Road / High Bluff Drive	Signalized	31.3	C	56.2	E
11	Del Mar Heights Road / Third Avenue	Signalized	6.5	A	13.5	B
12	Del Mar Heights Road / First Avenue	Signalized	6	A	15.6	B
13	Del Mar Heights Road / El Camino Real	Signalized	34.5	C	59.1	E
14	Del Mar Heights Road / Carmel Country Rd	Signalized	26.4	C	25.6	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	26	C	11.9	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	20.4	C	18.4	B
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	14	B	10.2	B
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	14.3	B	27.5	C
19	Carmel Country Road / Townsgate Drive	Signalized	27.4	C	22.6	C
20	Carmel Country Road / Townsgate Drive	Signalized	21.3	C	20.9	C
21	Carmel Country Road / Carmel Creek Rd	Signalized	60.4	E	27.4	C
22	El Camino Real / High Bluff Drive	Signalized	21.6	C	29	C
23	Carmel View Road / High Bluff Drive	All Way Stop	8.7	A	9.7	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	27.8	C	17.7	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	22.8	C	32.6	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	14.1	B	20.6	C
27	El Camino Real / Valley Centre Drive	Signalized	32.7	C	29.8	C
28	El Camino Real / Carmel Valley Rd	Signalized	15	B	19.8	B
29	El Camino Real / SR-56 EB On Ramp	Signalized	18.6	B	35.1	D
30	Carmel View Road / Valley Centre Drive	Signalized	7.4	A	8.3	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	46.6	D	30.6	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	12.6	B	27.6	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	35.9	D	25.6	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	16.2	B	12.3	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	14.3	B	12.1	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	52.0	F	23.8	C

Notes:

LOS = Level of Service

Orange indicates unacceptable level of service.

Intersection #36 reports the worst approach delay and level of service

TABLE 10-3

Near Term With Project Freeway Segment Levels Of Service

(Phase 1 & 2)

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	224,473	0.068	0.53	0.98	8,179	0.639	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	224,426	0.067	0.55	0.98	8,441	0.659	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	240,829	0.068	0.53	0.98	8,775	0.652	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	240,782	0.067	0.55	0.98	9,056	0.673	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	245,539	0.068	0.53	0.98	8,947	0.567	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	245,481	0.067	0.55	0.98	9,233	0.585	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	291,386	0.079	0.57	0.98	13,272	0.581	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	291,386	0.080	0.55	0.98	13,034	0.636	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	291,030	0.079	0.57	0.98	13,256	0.564	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	291,030	0.080	0.55	0.98	13,018	0.554	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	84,504	0.093	0.69	0.98	5,523	0.850	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	84,504	0.094	0.70	0.98	5,663	0.871	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	EB	6,500	78,737	0.093	0.69	0.98	5,146	0.792	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	WB	6,500	78,737	0.094	0.70	0.98	5,277	0.812	D

Legend:
*Caltrans 2008 Count Data
Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 vphpl taken from Caltrans Guide, December 2002)
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 vphpl

Note:

Capacity for LOS "E" roadway is 2,350 vphpl.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxiliary Lane with LOS "E" capacity of 1,800 vphpl
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 10-4

Near Term With Project Ramp Meter Analysis
(Phase 1 & 2)

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	453	368	85.0	13.86	2,465
	PM	433	368	64.5	10.52	1,871
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	371	499	0	0	0
	PM	216	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	624	593	31	3.14	899

<u>NOTE:</u>
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

11.0 NEAR TERM CONDITIONS PLUS PROJECT BUILDOUT

This section of the report evaluates the Near Term with Project Build-out traffic conditions by adding certain "cumulative projects" plus the One Paseo project traffic at Build-out to existing volumes and evaluating project traffic impacts. This scenario differs from Existing with Project (Build-out) analysis insofar as it takes into account traffic anticipated from other approved or anticipated projects that could potentially be completed or constructed between the time of circulation of the NOP and the anticipated date of certification of the EIR.

11.1 STREET SEGMENTS

Figure 11-1 shows average daily traffic volumes with project (Build-out) traffic added to Near Term traffic volumes.

Table 11-1 shows street segment levels of service with the One Paseo project traffic added to Near Term conditions. The following street segments are projected to operate at an unacceptable level of service:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to I-5 SB Ramps	E
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
Via de la Valle	San Andres Dr. to El Camino Real	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F

El Camino Real between Via de la Valle and San Dieguito Road is a City CIP (City Improvement Project) and is not fully funded to be constructed as a four lane major. If the widening is implemented before project traffic is added, then there is no significant impact.

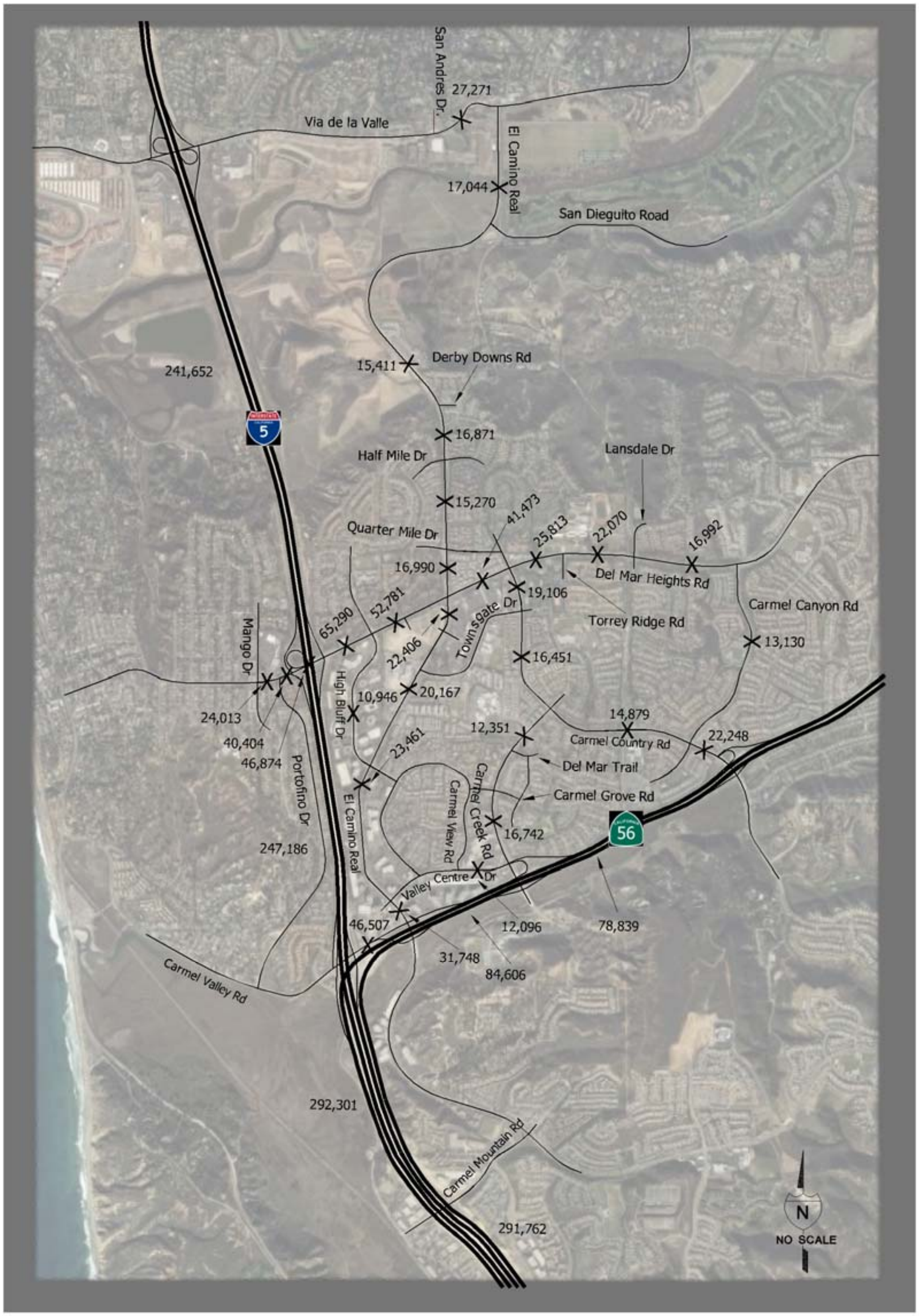


FIGURE 11-1

Near Term With Project Average Daily Traffic

(Build-out)

TABLE 11-1

Near Term With Project Street Segment Levels of Service

(Build-out)

Road	Segment	Jurisd.	Functional Class.	Capacity at LOS E	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	24,013	0.53	B
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	40,404	0.81	D
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	46,874	0.94	E
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	65,290	1.09	F
	High Bluff Drive to Third Avenue	SD	PA	60,000	52,781	0.88	D
	Thirth Avenue to First Avenue	SD	PA	60,000	51,702	0.86	D
	First Avenue to El Camino Real	SD	PA	60,000	51,702	0.86	D
	El Camino Real to Carmel Country Road	SD	PA	60,000	41,473	0.69	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	25,813	0.43	B
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	22,070	0.37	A
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	16,992	0.28	A
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	17,044	1.14	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	15,411	0.39	B
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	16,871	0.42	B
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	15,270	0.38	B
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	16,990	0.42	B
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	22,406	0.45	B
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	20,167	0.40	B
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	23,461	0.47	B
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	31,748	0.71	C
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	19,106	0.48	B
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	16,451	0.41	B
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	14,879	0.37	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	22,248	0.56	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	13,130	0.33	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	12,351	0.31	A
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	16,742	0.42	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	12,096	0.40	B
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	46,507	0.78	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	10,946	0.73	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	27,271	2.73	F

Legend:

PA = 6 lane Primary Arterial

SD= City of San Diego — 6-M = 6 lane Major

Cap.= Capacity — 4-M=4 lane Major

Class.= Classification — 2-Ca=2 lane collector

LOS= Level of Service — 2-Cb = 2 lane Collector with no fronting property

V/C= Volume to Capacity Ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

11.2 INTERSECTIONS

Figure 11-2 shows Near Term conditions plus the One Paseo project (Build-out) combined traffic volumes during AM/PM peak hours at study area intersections.

Table 11-2 includes study area intersection levels of service with the One Paseo project traffic added to Near Term conditions. As shown, all intersections are projected to operate at acceptable levels of service except for five intersections.

Appendix J includes the Near Term with Project (Build-out) Synchro worksheets.

11.3 FREEWAY SEGMENTS

Table 11-3 shows the resulting levels of service for the I-5 and SR-56 freeway segments analyzed. As shown in **Table 11-3**, all freeway segments are projected to operate at acceptable levels of service.

11.4 RAMP METERS

Table 11-4 shows the resulting delays and queues for the I-5 / Del Mar Heights Rd northbound and southbound ramps.

Page 1 of 4

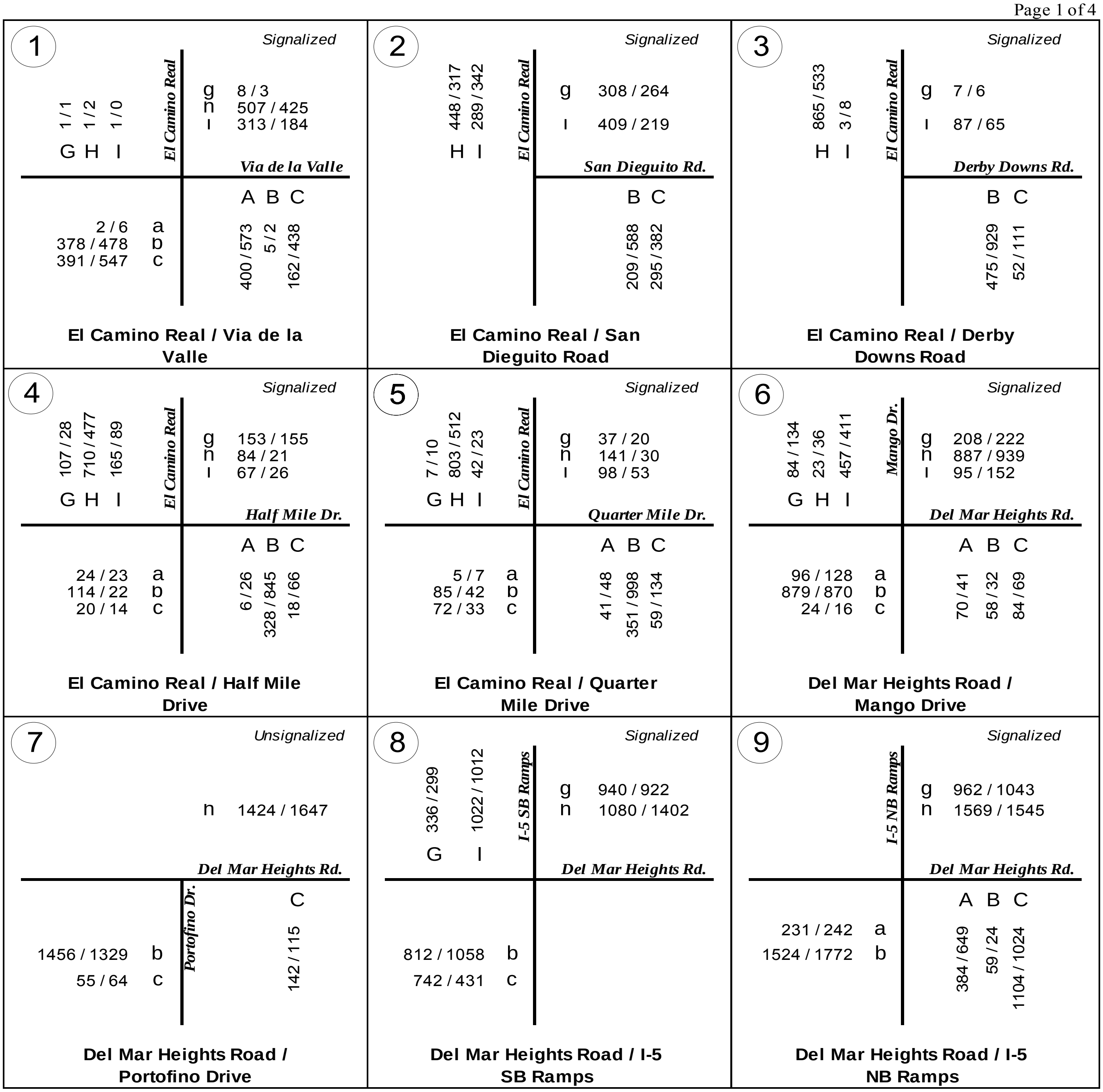


FIGURE 11-2

Near Term With Project AM/PM Peak Hour Traffic

(Build-out)

Page 2 of 4

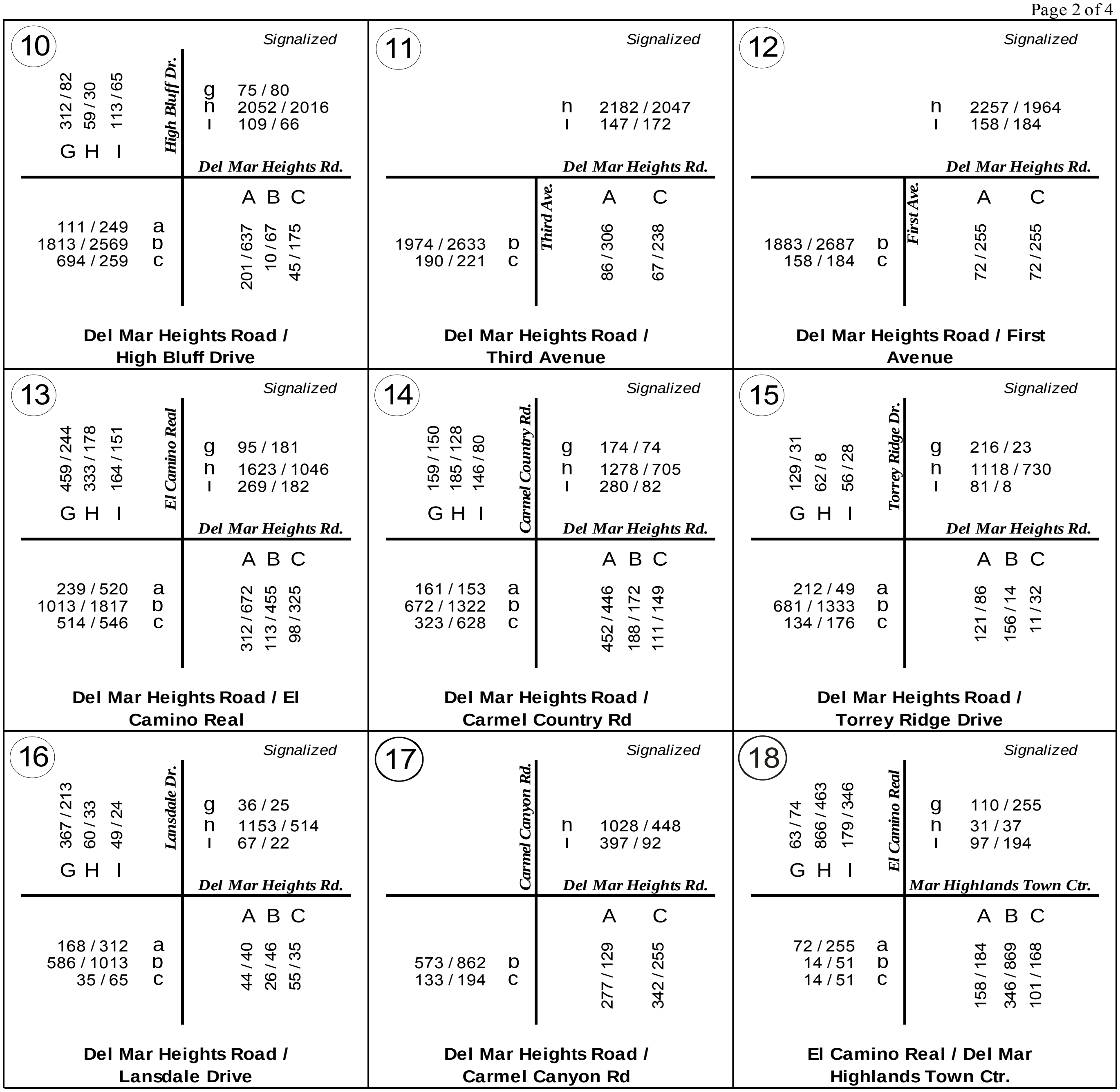


FIGURE 11-2

Near Term With Project AM/PM Peak Hour Traffic

(Build-out)

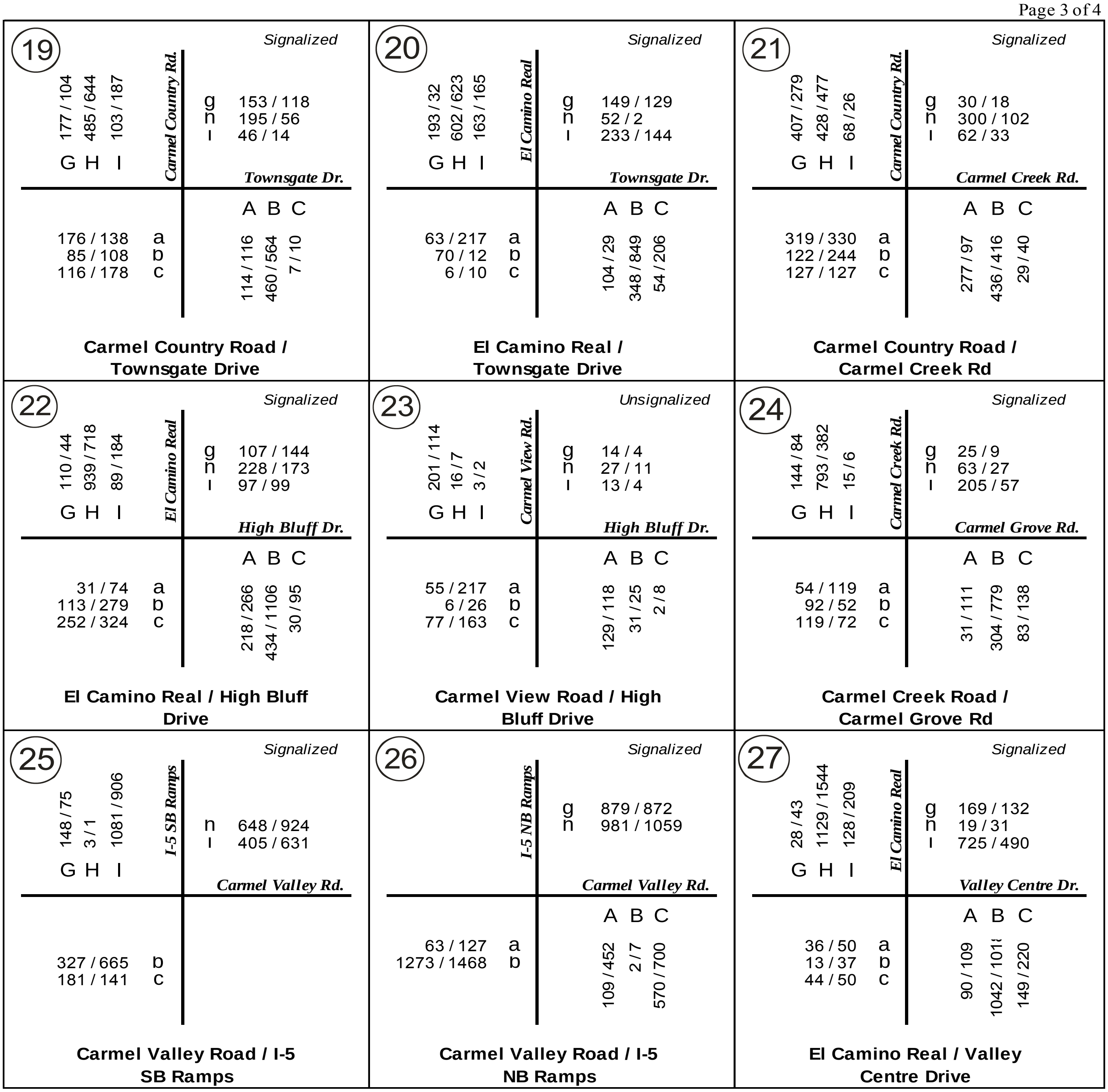


FIGURE 11-2

Near Term With Project AM/PM Peak Hour Traffic

(Build-out)

Page 4 of 4

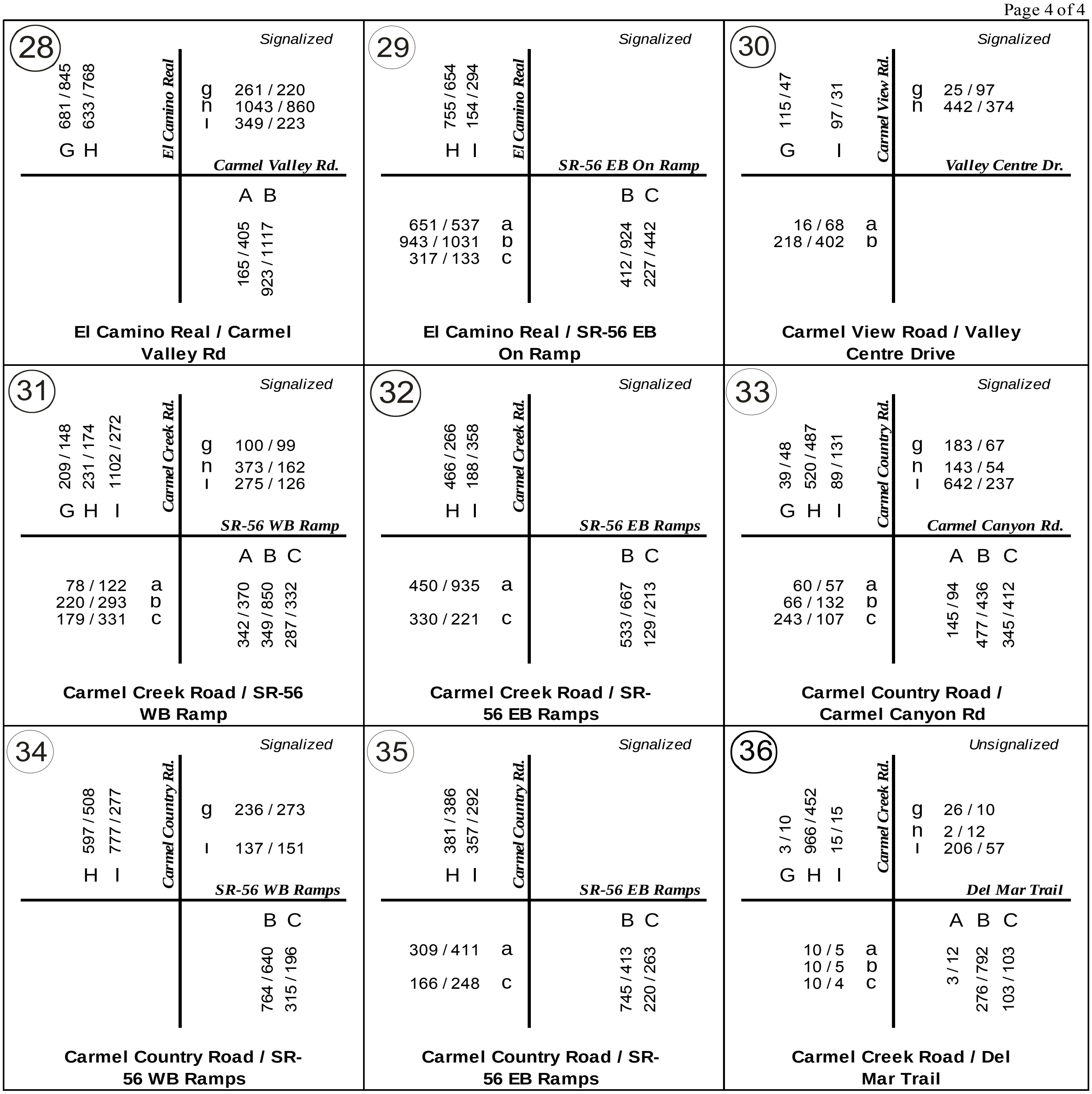


FIGURE 11-2

Near Term With Project AM/PM Peak Hour Traffic

(Build-out)

TABLE 11-2

Near Term With Project Intersection Levels Of Service (Build-out)

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	32.5	C	45.3	D
2	El Camino Real / San Dieguito Road	Signalized	17.4	B	27.6	C
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	5	A
4	El Camino Real / Half Mile Drive	Signalized	22.4	C	14.2	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.6	C	17.9	B
6	Del Mar Heights Road / Mango Drive	Signalized	35.1	D	35.9	D
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.6	A	9.4	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	29.9	C	28.5	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	49.2	D	56.1	E
10	Del Mar Heights Road / High Bluff Drive	Signalized	34.2	C	57	E
11	Del Mar Heights Road / Third Avenue	Signalized	8.5	A	21.4	C
12	Del Mar Heights Road / First Avenue	Signalized	7.9	A	25.3	C
13	Del Mar Heights Road / El Camino Real	Signalized	37.4	D	62.9	E
14	Del Mar Heights Road / Carmel Country Rd	Signalized	27.3	C	28.2	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	26.3	C	12	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	20.8	C	19.7	B
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	14	B	10.7	B
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	15.6	B	30.8	C
19	Carmel Country Road / Townsgate Drive	Signalized	27.7	C	23.2	C
20	Carmel Country Road / Townsgate Drive	Signalized	21.6	C	22.3	C
21	Carmel Country Road / Carmel Creek Rd	Signalized	60.4	E	28.6	C
22	El Camino Real / High Bluff Drive	Signalized	22.2	C	30.6	C
23	Carmel View Road / High Bluff Drive	All-Way Stop	8.8	A	10	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	27.9	C	17.9	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	23	C	33.1	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	14.1	B	20.8	C
27	El Camino Real / Valley Centre Drive	Signalized	32.9	C	30.5	C
28	El Camino Real / Carmel Valley Rd	Signalized	15.1	B	20	B
29	El Camino Real / SR-56 EB On Ramp	Signalized	18.8	B	35.8	D
30	Carmel View Road / Valley Centre Drive	Signalized	7.4	A	8.3	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	46.8	D	30.8	C
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	12.6	B	27.8	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	35.9	D	25.8	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	16.2	B	12.4	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	14.3	B	12.2	B
36	Carmel Creek Road / Del Mar Trail	All-Way Stop	53.5	F	25.1	D

Notes:

Orange indicates unacceptable level of service.

LOS = Level of Service

TABLE 11-3

Near Term With Project Freeway Segment Levels Of Service (Build-out)

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	225,113	0.068	0.53	0.98	8,202	0.641	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	225,066	0.067	0.55	0.98	8,465	0.661	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	241,652	0.068	0.53	0.98	8,805	0.655	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	241,605	0.067	0.55	0.98	9,087	0.676	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	247,186	0.068	0.53	0.98	9,007	0.571	B
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	247,128	0.067	0.55	0.98	9,295	0.589	B
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	292,301	0.079	0.57	0.98	13,314	0.583	B
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	292,301	0.080	0.55	0.98	13,075	0.638	C
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	291,762	0.079	0.57	0.98	13,289	0.565	B
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	291,762	0.080	0.55	0.98	13,051	0.555	B
SR-56										
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	EB	6,500	84,606	0.093	0.69	0.98	5,529	0.851	D
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	WB	6,500	84,606	0.094	0.70	0.98	5,670	0.872	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	EB	6,500	78,839	0.093	0.69	0.98	5,152	0.793	D
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	WB	6,500	78,839	0.094	0.70	0.98	5,284	0.813	D

Legend:
*Caltrans 2008 Count Data
Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 vphpl taken from Caltrans Guide, December 2002)
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 vphpl

Note:

Capacity for LOS "E" roadway is 2,350 vphpl.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxiliary Lane with LOS "E" capacity of 1,800 vphpl
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 11-4

Near Term With Project Ramp Meter Analysis (Build-out)

Most Restrictive Meter Rate

Location		Demand (Veh/Hr)	Meter Rate (Veh/Hr)	Excess Demand (Veh/Hr)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	470	368	102.0	16.63	2,958
	PM	461	368	93	15.16	2,697
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	371	499	0	0	0
	PM	216	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	N/A	Meter is not turned on			
	PM	643	593	49.5	5.01	1,436

NOTE:
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

12.0 LONG TERM CUMULATIVE (YEAR 2030) WITHOUT PROJECT

This section of the report evaluates the Long Term Cumulative (Year 2030) without project condition. This scenario represents the Long Term Cumulative traffic conditions absent the addition of One Paseo project traffic. The SANDAG Year 2030 Series 11 regional traffic forecast model is based on planning efforts involving all jurisdictions within the County of San Diego. SANDAG, as the regional planning agency collects data from these plans and collates this data within a traffic model. SANDAG also prepared the regional transportation plan (RTP) utilized by the traffic model as a basis for estimating future traffic. The One Paseo project was incorporated in this traffic model in zones 4606 and 4607. To maintain consistency with other traffic studies in the same community, the City requested we use Year 2030 I-5 / SR-56 Northbound (NB) Connector study traffic volumes based on the regional Series 10 traffic model. In the analysis, the I-5/SR-56 connector is assumed to be constructed and SR-56 is assumed to be constructed to six lanes with auxiliary lanes as appropriate. For study intersections and street segments not provided in the I-5 / SR-56 NB Connector study, the Series 11 traffic model was used as a basis for estimating future traffic. The future traffic volumes are more conservative assuming the One Paseo project traffic was NOT included in the I-5 / SR-56 NB Connector study. I-5 / SR-56 NB Connector study and the I-5 North Coast Corridor project are included in the Series 11 traffic model. To calculate Year 2030 conditions with the project, the One Paseo project was added to Year 2030 conditions without the project.

12.1 STREET SEGMENTS

Street segment volumes for Year 2030 conditions without the project are shown in **Figure 12-1**. The street segment levels of service for Year 2030 conditions without the project are shown in **Table 12-1**.

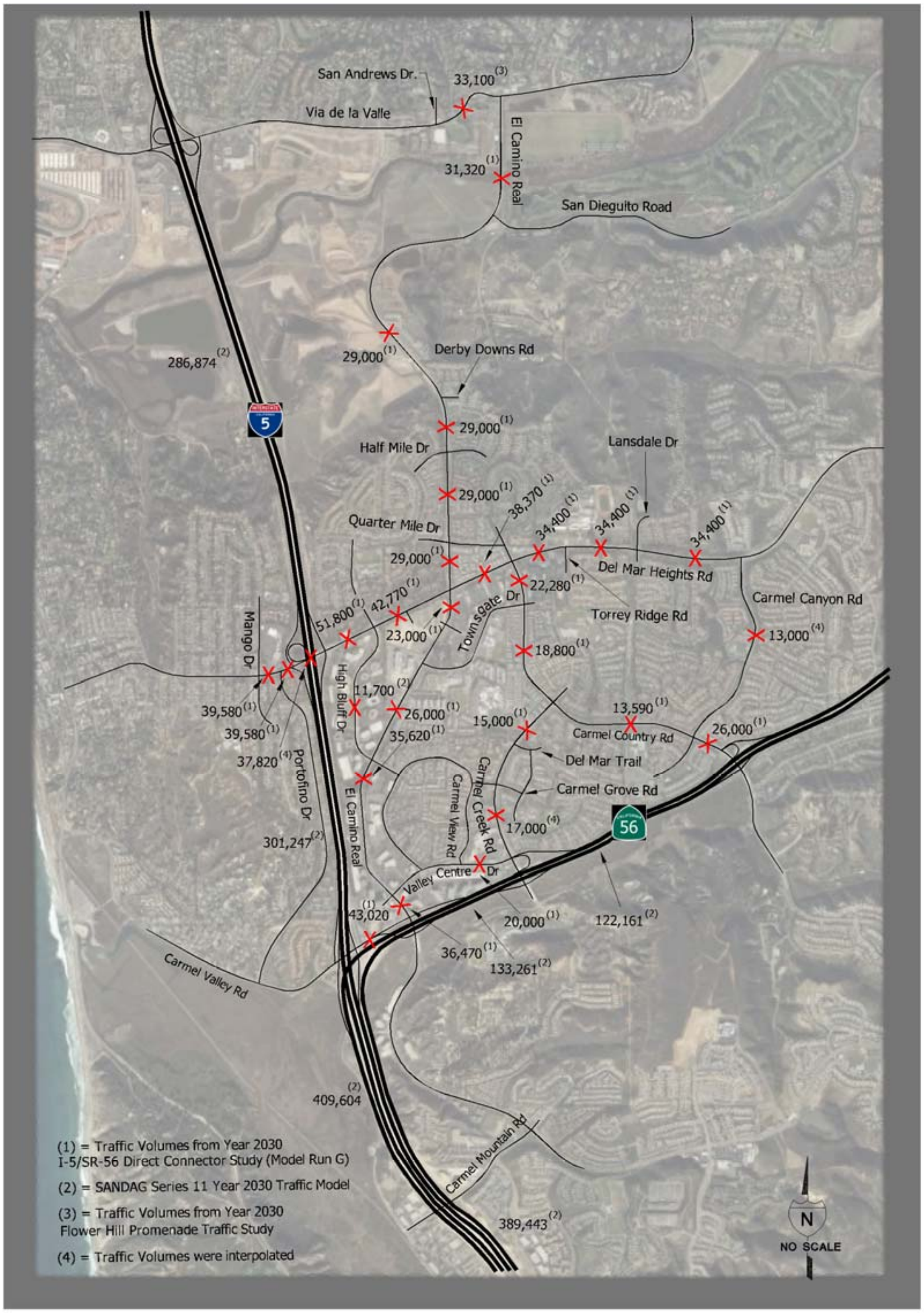


FIGURE 12-1

Year 2030 Without Project Average Daily Traffic Volumes

TABLE 12-1

Year 2030 Without Project Street Segment Levels of Service

Road	Segment	Jurisd.	Functional Class.	Capacity at LOS E	Volume	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	39,580	0.88	D
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	39,580	0.79	C
	I-5 Southbound Ramps and I-5 Northbound Ramps	SD	5-PA	50,000	37,820	0.76	C
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	51,800	0.86	D
	High Bluff Drive to Third Avenue	SD	PA	60,000	42,770	0.71	C
	Thirth Avenue to First Avenue	SD	PA	60,000	42,770	0.71	C
	First Avenue to El Camino Real	SD	PA	60,000	42,770	0.71	C
	El Camino Real to Carmel Country Road	SD	PA	60,000	38,370	0.64	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	34,400	0.57	B
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	34,400	0.57	B
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	34,400	0.57	B
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	31,320	2.09	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	29,000	0.73	C
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	29,000	0.73	C
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	29,000	0.73	C
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	29,000	0.73	C
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	23,000	0.46	B
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	26,000	0.52	B
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	35,620	0.71	C
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	36,470	0.81	D
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	22,280	0.56	C
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	18,800	0.47	B
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	13,590	0.34	A
	Carmel Canyon Road to SR-56 Westbound Ramps	SD	4-M	40,000	26,000	0.65	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	SD	4-M	40,000	13,000	0.33	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	15,000	0.38	B
	Carmel Grove Road to SR-56 Westbound Ramps	SD	4-M	40,000	17,000	0.43	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	20,000	0.67	D
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	43,020	0.72	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	11,700	0.78	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	33,100	3.31	F

Legend:

PA = 6 lane Primary Arterial
SD= City of San Diego — 6-M = 6 lane Major
Cap.= Capacity — 4-M=4 lane Major
Class.= Classification — 2-Ca=2 lane collector
LOS= Level of Service — 2-Cb = 2 lane Collector with no fronting property
V/C= Volume to Capacity Ratio
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

The following street segment is projected to operate at an unacceptable level of service:

Road	**Segment**	**LOS**
Via de la Valle	San Andres Rd. to El Camino Real	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F

12.2 INTERSECTIONS

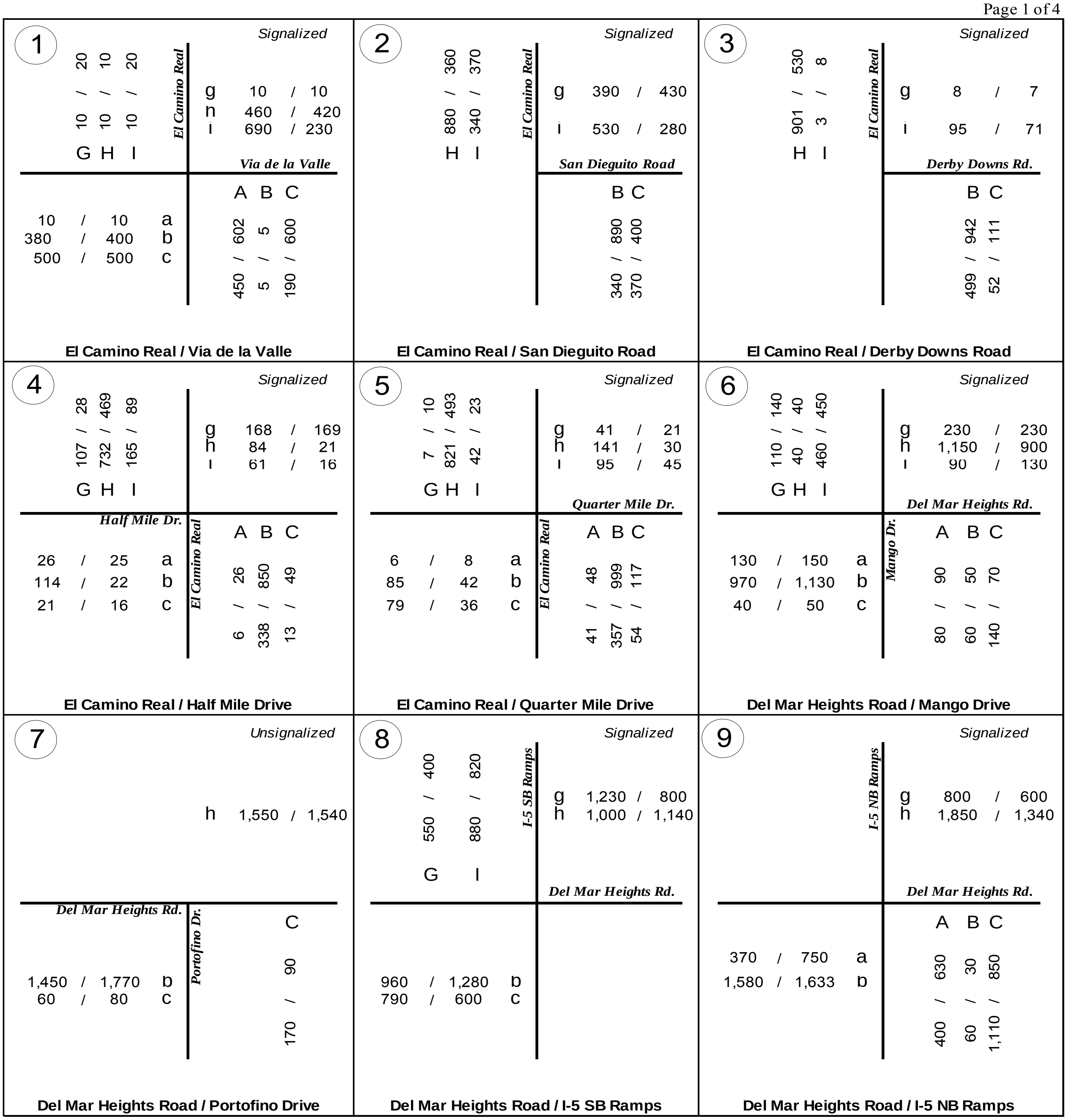
AM/PM peak hour turn volumes were established by using a factoring method based on Near Term with Project volumes and Year 2030 with Project volumes. Not all study intersections AM/PM peak hour turn volumes used the factoring method to develop Year 2030 with project volumes. Some of the AM/PM peak hour turn volumes were provided by the I-5 / SR-56 NB Connector study intersections. Project only peak hour volumes were added to the Year 2030 without project volumes to reflect Year 2030 with project peak hour volumes. The Year 2030 factoring worksheets for all study intersections can be found in **Appendix K**.

Existing lane configurations, as shown in **Figure 5-2**, were also used in long term cumulative scenarios. The intersection of Via de la Valle at El Camino Real is analyzed in the future (Year 2030) condition with the improved lane configuration shown in **Figure 5-2**. **Figure 12-2** shows the expected Year 2030 Without Project peak hour volumes at the intersections analyzed.

Table 12-2 shows the peak hour intersection levels of service. There are three intersections that are projected to operate at unacceptable levels of service, i.e. LOS “E” or “F”.

The Synchro worksheets for the Year 2030 without Project condition may be found in **Appendix L**.

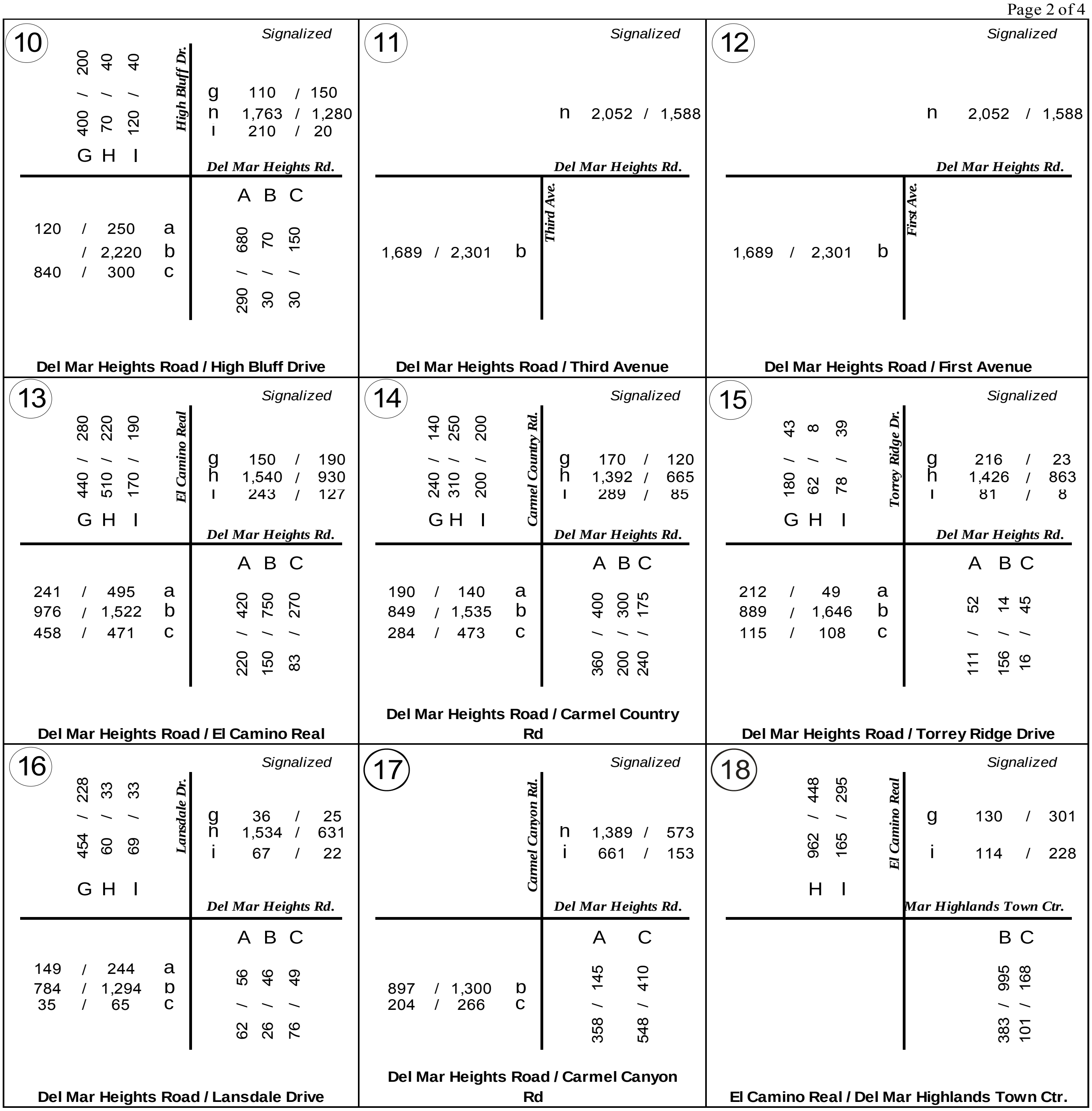
Page 1 of 4



Ints #1,2, & 6-9 show peak hour volumes from the Year 2030 I-5/SR-56 Direct Connector (Model Run G) Traffic Volumes, see Appendix E.

FIGURE 12-2

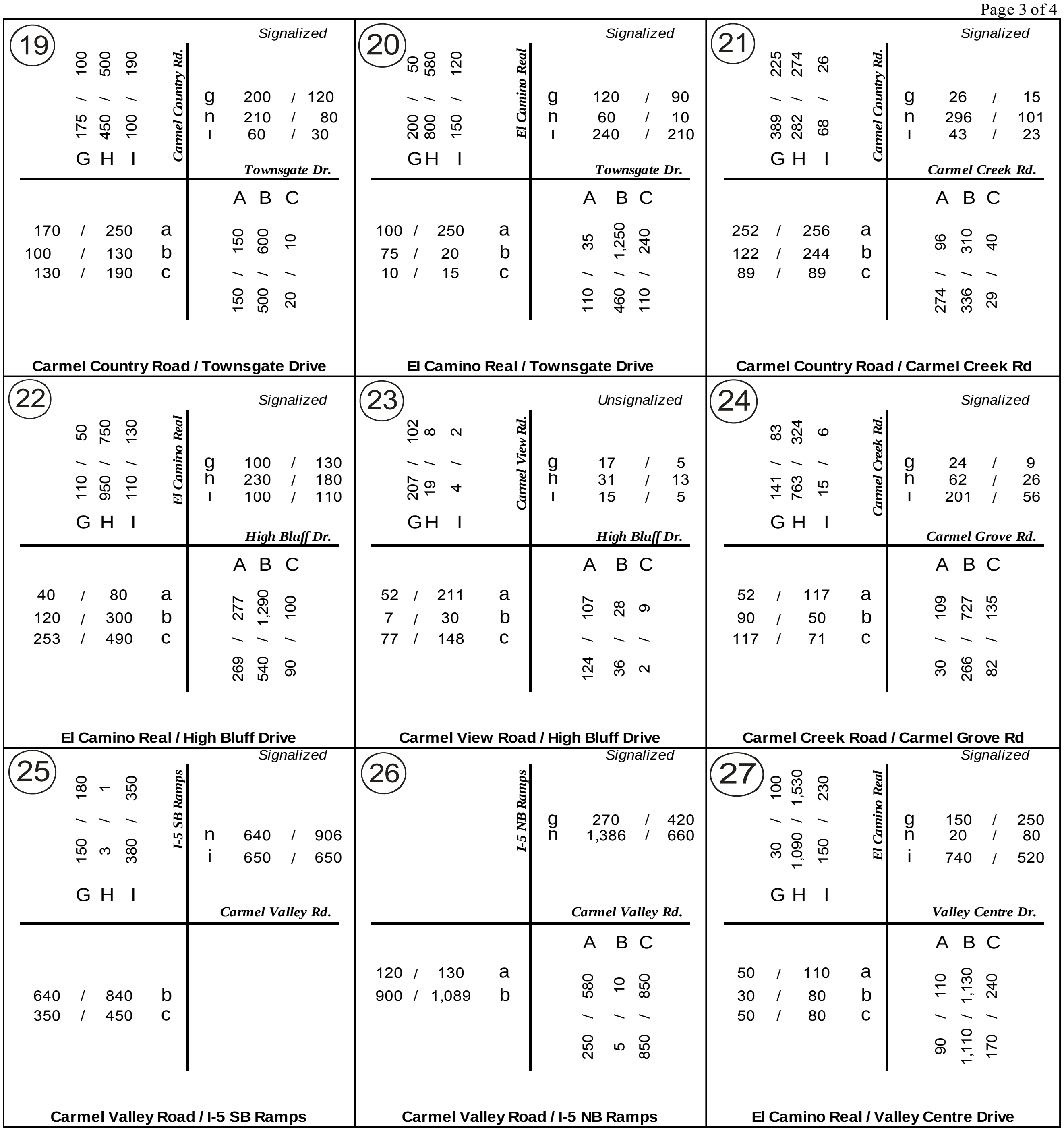
Year 2030 Without Project AM / PM Peak Hour Traffic Volumes



Ints #10,13,&14 show peak hour volumes from the Year 2030 I-5/SR-56 Direct Connector (Model Run G) Traffic Volumes, see Appendix E.

FIGURE 12-2

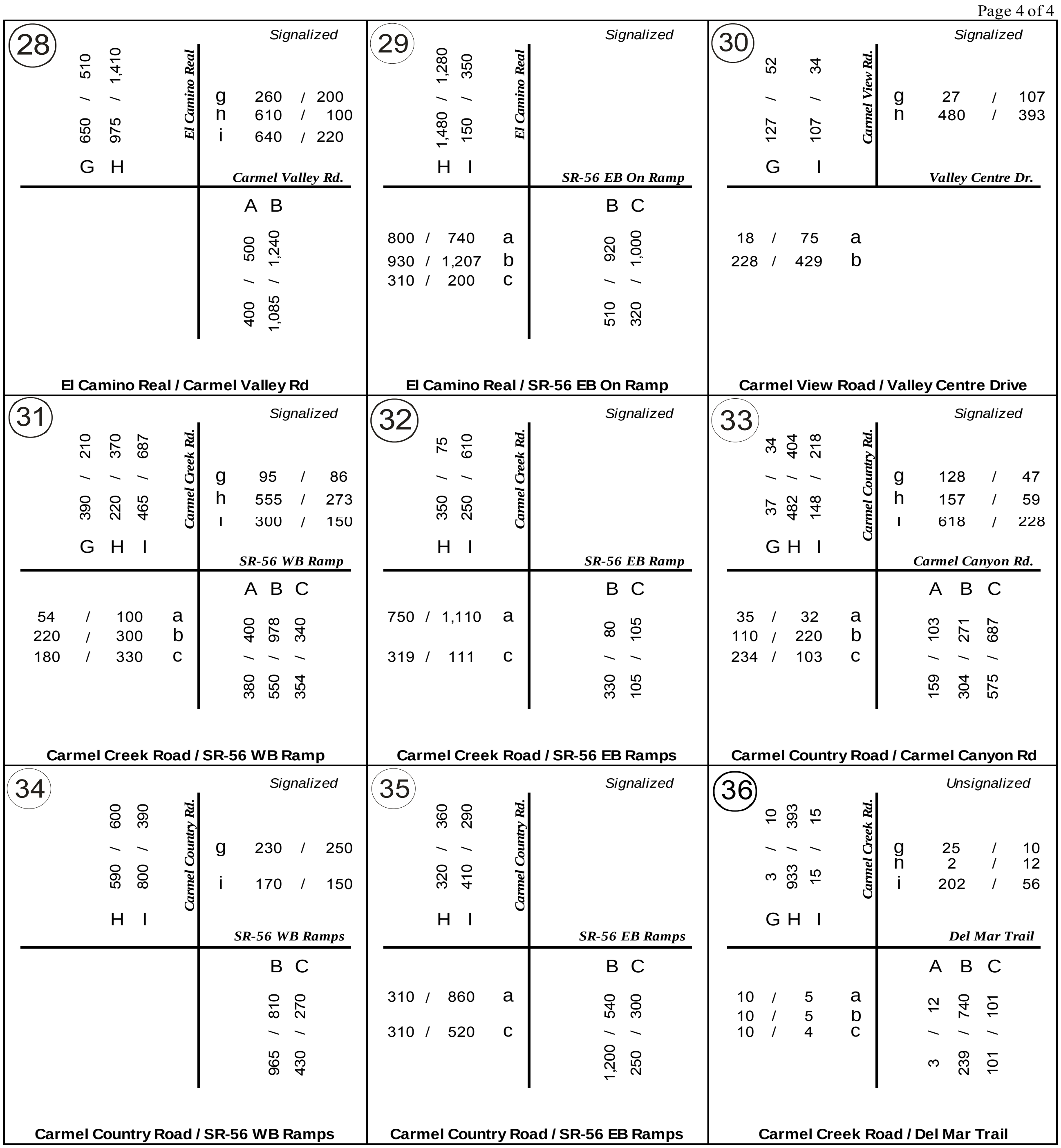
Year 2030 Without Project AM / PM Peak Hour Traffic Volumes



Ints #19,20,22,25-27 show peak hour volumes from the Year 2030 I-5/SR-56 Direct Connector (Model Run G) Traffic Volumes, see Appendix E.

FIGURE 12-2

Year 2030 Without Project AM / PM Peak Hour Traffic Volumes



Ints #28,29,31,32,34,35 show peak hour volumes from the Year 2030 I-5/SR-56 Direct Connector (Model Run G) Traffic Volumes, see Appendix E.

FIGURE 12-2

Year 2030 Without Project AM / PM Peak Hour Traffic Volumes

TABLE 12-2

Year 2030 Without Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	22.2	C	19.1	B
2	El Camino Real / San Dieguito Road	Signalized	24.2	C	47.2	D
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	5.1	A
4	El Camino Real / Half Mile Drive	Signalized	22.9	C	14.0	B
5	El Camino Real / Quarter Mile Drive	Signalized	20.6	C	12.1	B
6	Del Mar Heights Road / Mango Drive	Signalized	36.8	D	29.3	C
7	Del Mar Heights Road / Portofino Drive	Minor Street	9.8	A	9.6	A
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	26.1	C	22.4	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	71.5	E	55.5	E
10	Del Mar Heights Road / High Bluff Drive	Signalized	44.0	D	40.1	D
11	Del Mar Heights Road / Third Avenue	Signalized	DNE	DNE	DNE	DNE
12	Del Mar Heights Road / First Avenue	Signalized	DNE	DNE	DNE	DNE
13	Del Mar Heights Road / El Camino Real	Signalized	35.0	C	41.5	D
14	Del Mar Heights Road / Carmel Country Rd	Signalized	33.6	C	34.1	C
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	29.5	C	11.9	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	32.7	C	18.7	B
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	29.4	C	16	B
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	6.2	A	14.2	B
19	Carmel Country Road / Townsgate Drive	Signalized	32.0	C	29.8	C
20	Carmel Country Road / Townsgate Drive	Signalized	22.5	C	24.3	C
21	Carmel Country Road / Carmel Creek Rd	Signalized	41.5	D	19.7	B
22	El Camino Real / High Bluff Drive	Signalized	22.9	C	33.6	C
23	Carmel View Road / High Bluff Drive	All Way Stop	8.9	A	9.8	A
24	Carmel Creek Road / Carmel Grove Rd	Signalized	15.3	B	11.4	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	25.3	C	30.9	C
26	Carmel Valley Road / I-5 NB Ramps	Signalized	26.8	C	19.6	B
27	El Camino Real / Valley Centre Drive	Signalized	22.0	C	27.4	C
28	El Camino Real / Carmel Valley Rd	Signalized	22.0	C	17.6	B
29	El Camino Real / SR-56 EB On Ramp	Signalized	23.1	C	89.0	F
30	Carmel View Road / Valley Centre Drive	Signalized	7.7	A	6.2	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	47.0	D	42.6	D
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	15.0	B	22.9	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	34.5	C	33.4	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	17.1	B	9.9	A
35	Carmel Country Road / SR-56 EB Ramps	Signalized	20.1	C	18.2	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	43.3	E	20.6	C

Notes:

DNE = Does Not Exist

Orange indicates unacceptable level of service.

Intersection #36 reports the worst approach delay and level of service

12.3 FREEWAY SEGMENTS

Table 12-3 shows the resulting levels of service for the I-5 and SR-56 freeway segments analyzed. As shown in **Table 12-3**, all freeway segments on I-5 are projected to operate at acceptable levels of service. The freeway segments on SR-56 are projected to operate at unacceptable levels of service, i.e. LOS “F”.

12.4 RAMP METERS

Table 12-4 shows the resulting delays and queues for the I-5 / Del Mar Heights Rd northbound and southbound ramps. The 15 minute maximum meter rate is also included in the Year 2030 without project analysis based on the delay of Del Mar Heights Rd. / I-5 SB on ramp (Westbound) is over 15 minutes. Ramp meters at SR-56 EB on ramps at El Camino Real and Carmel Country Road have been analyzed in this scenario based on ramp meters planned to be built in the future as part of the I-5 / SR-56 Connectors.

The ramp meter analysis shows long delays and queues, however, the Congestion Management Plan by SANDAG provides comments on the accuracy of the ramp meter analysis. The following comments states:

“Experience shows that the theoretical queue length derived by this analysis often does not materialize. Motorists, after a brief time of adjustment, seek alternative travel paths or alternate times of arrival at the meter. The effect is to approximately minimize total trip time by seeking out the best combinations of route and departure time at the beginning of the trip. This causes at least two important changes in the pattern or arriving traffic at ramp meters. First, the peak period is spread out, with some traffic arriving earlier and some traffic arriving later than predicted. Second, a significant proportion of the predicted arriving traffic will use another ramp, use another freeway, or stay on surface streets.”

TABLE 12-3

Year 2030 Without Project Freeway Segment Levels of Service

Segment	Lanes	Dir.	Cap.	ADT	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	258,913	0.068	0.53	0.98	9,434	0.737	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	258,913	0.067	0.55	0.98	9,738	0.761	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	286,874	0.068	0.53	0.98	10,453	0.777	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	286,874	0.067	0.55	0.98	10,789	0.802	D
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	301,247	0.068	0.53	0.98	10,976	0.696	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	301,247	0.067	0.55	0.98	11,330	0.718	C
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	409,604	0.079	0.57	0.98	18,657	0.817	D
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	409,604	0.080	0.55	0.98	18,322	0.895	D
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	389,443	0.079	0.57	0.98	17,738	0.755	C
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	389,443	0.080	0.55	0.98	17,420	0.741	C
SR-56										
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	EB	8,850	133,342	0.093	0.69	0.98	8,714	0.985	E
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	WB	8,850	133,342	0.094	0.70	0.98	8,937	1.010	F
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	EB	8,850	122,242	0.093	0.69	0.98	7,989	0.903	D
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	WB	8,850	122,242	0.094	0.70	0.98	8,193	0.926	E

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1680 vphpl taken from Caltrans Guide, December 2002)
HOV= High Occupancy Vehicle lane with LOS"E" capacity of 1,600 vphpl

Note:

Capacity for LOS "E" roadway is 2,350 vphpl.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxiliary Lane with LOS "E" capacity of 1,800 vphpl
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 12-4

Year 2030 Without Project Ramp Meter Analysis

Most Restrictive Meter Rate

Location		Ramp Meter Lanes	Demand (Veh/Hr/Ln)	Meter Rate (Veh/Hr/Ln)	Excess Demand (Veh/Hr/Ln)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound) (Loop)	AM	2 SOV	615	368	247	40.27	7,163
	PM		400	368	32	5.22	928
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	1 SOV + 1 HOV	395	499	0	0	0
	PM		300	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	2 SOV	585	593	0	0.00	0
	PM		675	593	82	8.30	2,378
El Camino Real / SR-56 EB on Ramp	AM	2 SOV	700	1200	0	0.00	0
	PM		1279	1200	78.5	3.93	2,277
Carmel Country Rd. / SR-56 EB on Ramp	AM	2 SOV	660	900	0.00	0.00	0
	PM		590	900	0	0	0

NOTE:
The ramp meter rates at the EB on-ramps at El Camino Real & Carmel Country are based on SR-56 widened to 3 lanes in each direction per the Regional Transportation Plan which would allow more capacity on the freeway.
(Veh/Hr/Ln) = Vehicles per Hour per Lane
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle
SOV = Single Occupancy Vehicle
HOV = High Occupancy Vehicle

15 Minute Max. Meter Rate

Location		Ramp Meter Lanes	Demand (Veh/Hr/Ln)	Meter Rate (Veh/Hr/Ln)	Excess Demand (Veh/Hr/Ln)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound) (Loop)	AM	2 SOV	615	492	123	15.0	3,567
	PM		400	320	80	15.0	2,320
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	1 SOV + 1 HOV	395	316	79	15.0	2,291
	PM		300	240	60	15.0	1,740
Del Mar Heights Rd. / I-5 NB on Ramp	AM	2 SOV	585	468	117	15.0	3,393
	PM		675	540	135	15.0	3,915
El Camino Real / SR-56 EB on Ramp	AM	2 SOV	700	560	140	15.0	4,060
	PM		1279	1023	256	15.0	7,415
Carmel Country Rd. / SR-56 EB on Ramp	AM	2 SOV	330	264	66	15.0	1,914
	PM		295	236	59	15.0	1,711

NOTE:
Meter Rate = Demand / 1.25
Excess Demand = Demand - Meter Rate
Queue = Excess Demand * 29 feet/vehicle

13.0 LONG TERM CUMULATIVE (YEAR 2030) WITH PROJECT (BUILD-OUT)

Year 2030 with project volumes were derived by adding project (Build-out) traffic to Year 2030 without project traffic taken from either the I-5 / SR-56 NB Connector traffic study or the travel forecast model. This scenario represents the long term cumulative traffic conditions including One Paseo project traffic.

.

13.1 STREET SEGMENTS

Figure 13-1 shows the Year 2030 With Project street segment traffic volumes.

An analysis was completed for street segments in the Year 2030 With Project condition. As shown on **Table 13-1**, the following street segments are projected to operate at an unacceptable level of service:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
Via de la Valle	San Andres Dr. to El Camino Real	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F

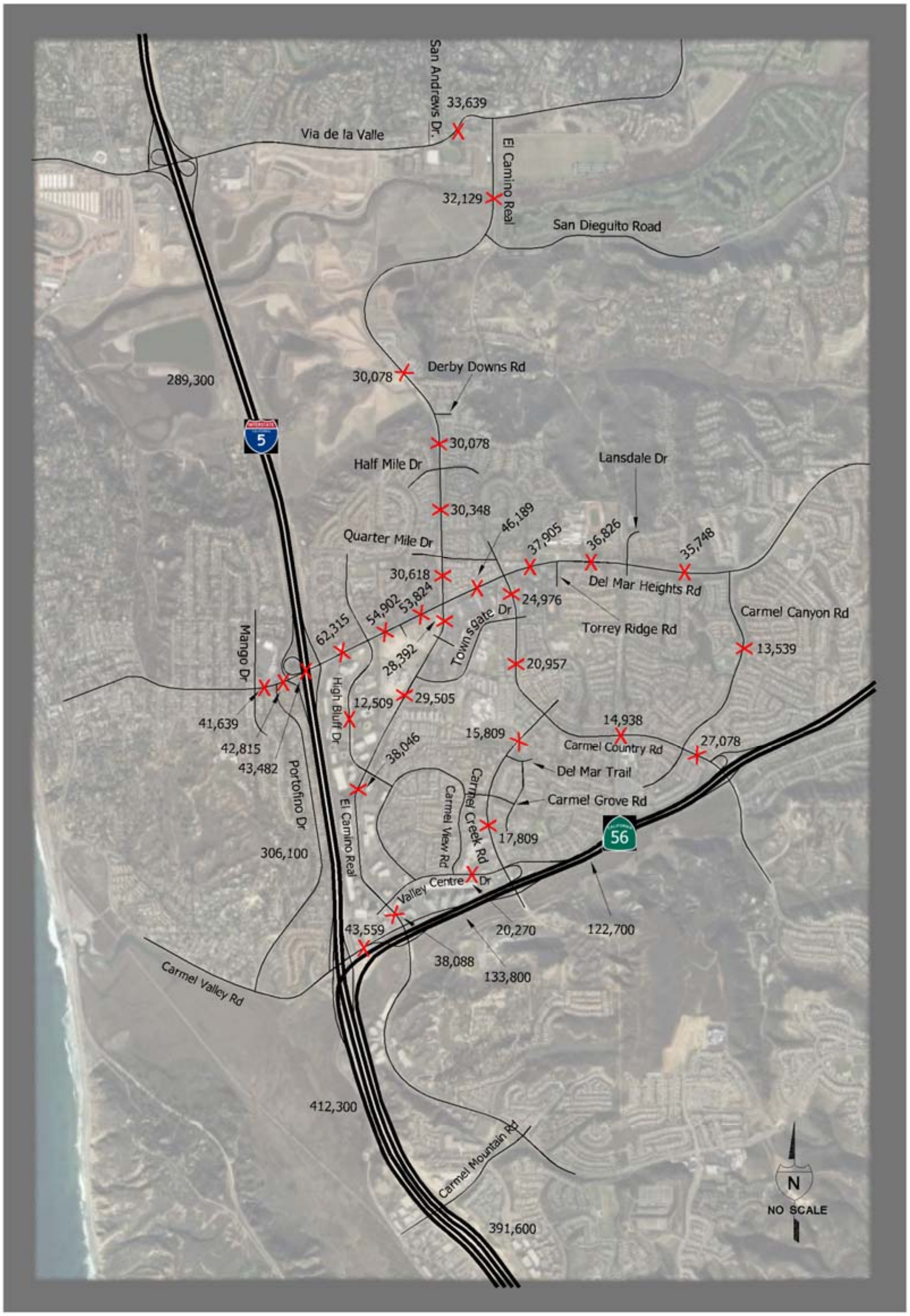


FIGURE 13-1

Year 2030 With Project (Build-out) Average Daily Traffic Volumes

TABLE 13-1

Year 2030 With Project (Build-out) Street Segment Levels of Service

Road	Segment	Jurisd.	Class.	Functional Class.	Capacity at LOS E	V/C	LOS
Del Mar Heights Rd.	Mango Drive to Portofino Drive	SD	5-M	45,000	41,639*	0.93	D
	Portofino Drive to I-5 Southbound Ramps	SD	5-PA	50,000	42,815	0.86	D
	I-5 SB Ramps and I-5 NB Ramps	SD	5-PA	50,000	43,482	0.87	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	62,315	1.04	F
	High Bluff Drive to Third Avenue	SD	PA	60,000	54,902	0.92	D
	Thirth Avenue to First Avenue	SD	PA	60,000	53,824	0.90	D
	First Avenue to El Camino Real	SD	PA	60,000	53,824	0.90	D
	El Camino Real to Carmel Country Road	SD	PA	60,000	46,189	0.77	C
	Carmel Country Road to Torrey Ridge Road	SD	PA	60,000	37,905	0.63	C
	Torrey Ridge Road to Lansdale Drive	SD	PA	60,000	36,826	0.61	C
	Lansdale Drive to Carmel Canyon Road	SD	PA	60,000	35,748	0.60	C
El Camino Real	Via de la Valle to San Dieguito Road	SD	2-Ca	15,000	32,129	2.14	F
	San Dieguito Road to Derby Downs Road	SD	4-M	40,000	30,078	0.75	D
	Derby Downs Road to Half Mile Drive	SD	4-M	40,000	30,078	0.75	D
	Half Mile Drive to Quarter Mile Drive	SD	4-M	40,000	30,348	0.76	D
	Quarter Mile Drive to Del Mar Heights Road	SD	4-M	40,000	30,618	0.77	D
	Del Mar Heights Road to Townsgate Drive	SD	6-M	50,000	28,392	0.57	C
	Townsgate Drive to High Bluff Drive	SD	6-M	50,000	29,505	0.59	C
	High Bluff Drive to Valley Centre Drive	SD	6-M	50,000	38,046	0.76	C
	Valley Centre Drive to Carmel Valley Road	SD	5-M	45,000	38,088	0.85	D
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	SD	4-M	40,000	24,976	0.62	C
	Townsgate Drive to Carmel Creek Road	SD	4-M	40,000	20,957	0.52	B
	Carmel Creek Road to Carmel Canyon Road	SD	4-M	40,000	14,938	0.37	A
	Carmel Canyon Road to SR-56 WB Ramps	SD	4-M	40,000	27,078	0.68	C
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	SD	4-M	40,000	13,539	0.34	A
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	SD	4-M	40,000	15,809	0.40	B
	Carmel Grove Road to SR-56 WB Ramps	SD	4-M	40,000	17,809	0.45	B
Valley Centre Drive	Carmel View Road to Carmel Creek Road	SD	4-C	30,000	20,270	0.68	D
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	SD	PA	60,000	43,559	0.73	C
High Bluff Drive	Del Mar Heights Road to El Camino Real	SD	2-Ca	15,000	12,509	0.83	D
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	2-Cb	10,000	33,639	3.36	F

Legend:

PA = 6 lane Primary Arterial
SD= City of San Diego — 6-M = 6 lane Major
Cap.= Capacity — 4-M=4 lane Major
Class.= Classification — 2-Ca=2 lane collector
LOS= Level of Service — 2-Cb = 2 lane Collector with no fronting property
V/C= Volume to Capacity Ratio — * Cumulative Rates used for this segment
5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

13.2 INTERSECTIONS

Figure 13-2 shows the expected peak hour volumes at Year 2030 With Project (Build-out) for the intersections analyzed. **Table 13-2** shows the AM and PM peak hour levels of service for the Year 2030 with Project (Build-out) condition.

The following intersections are projected to operate at unacceptable levels of service, i.e. E or F:

Del Mar Heights Rd. / I-5 NB Ramps
Del Mar Heights Rd. / High Bluff Dr.
Del Mar Heights Rd. / El Camino Real
El Camino Real / SR-56 EB On-Ramp
Carmel Creek Road / Del Mar Trail

Appendix M includes the Synchro worksheets for Year 2030 with Project condition.

13.3 FREEWAY SEGMENTS

Table 13-3 shows the resulting levels of service for the I-5 and SR-56 freeway segments analyzed. As shown in **Table 13-3**, all freeway segments on I-5 are projected to operate at acceptable levels of service. The freeway segments on SR-56 are projected to operate at unacceptable levels of service, i.e. LOS “F_0”.

13.4 RAMP METERS

Table 13-4 shows the resulting delays and queues for the I-5 / Del Mar Heights Rd northbound and southbound ramps. The 15 minute maximum meter rate is also included in the Year 2030 without project analysis based on the delay of Del Mar Heights Rd. / I-5 SB on ramp (Westbound) is over 15 minutes. Ramp meters at SR-56 EB on ramps at El Camino Real and Carmel Country Road have been analyzed in this scenario based on ramp meters planned to be built in the future as part of the I-5 / SR-56 Connectors.

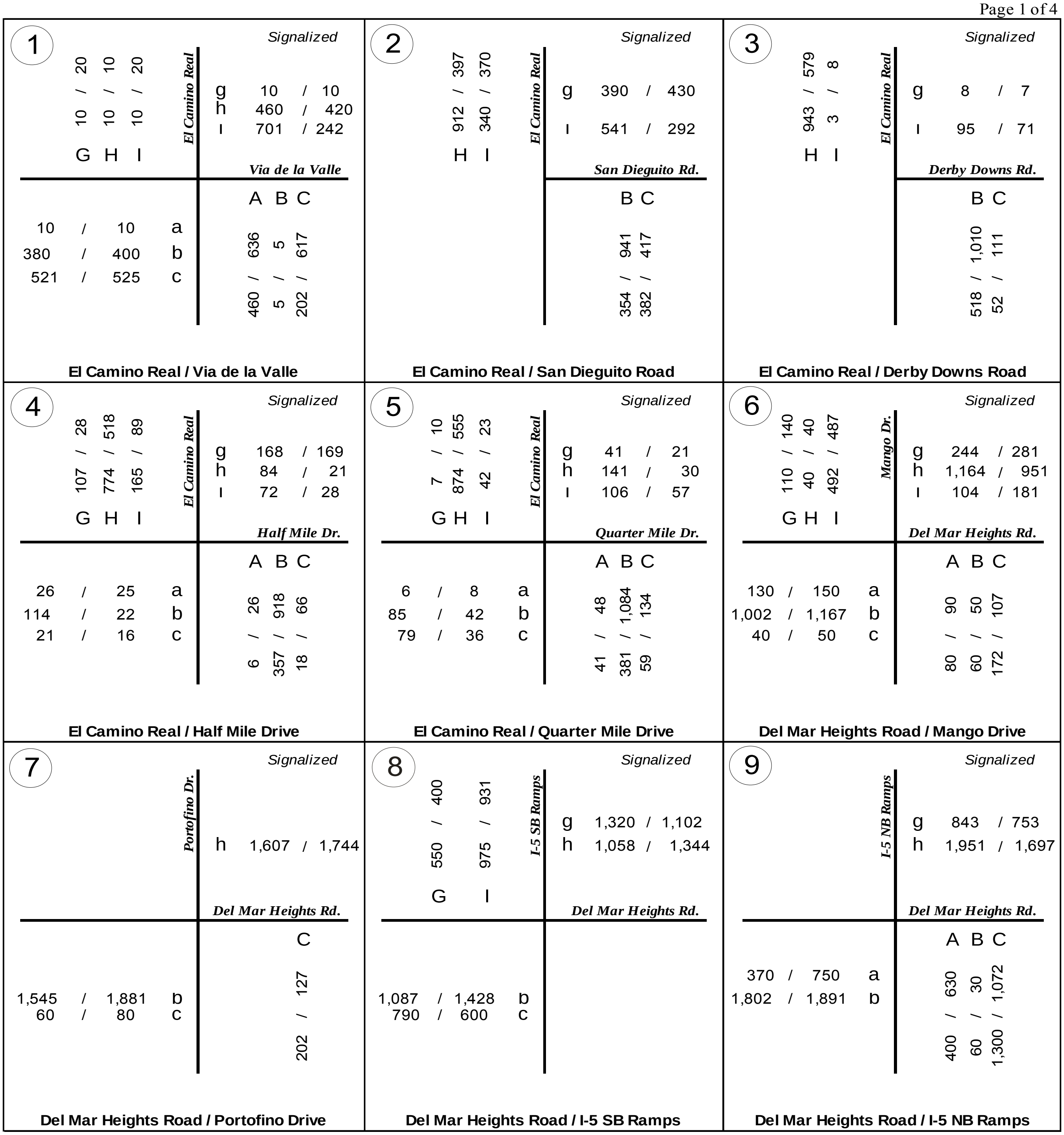


FIGURE 13-2

Year 2030 With Project (Build-out) AM/PM Peak Hour Traffic Volumes

Page 2 of 4

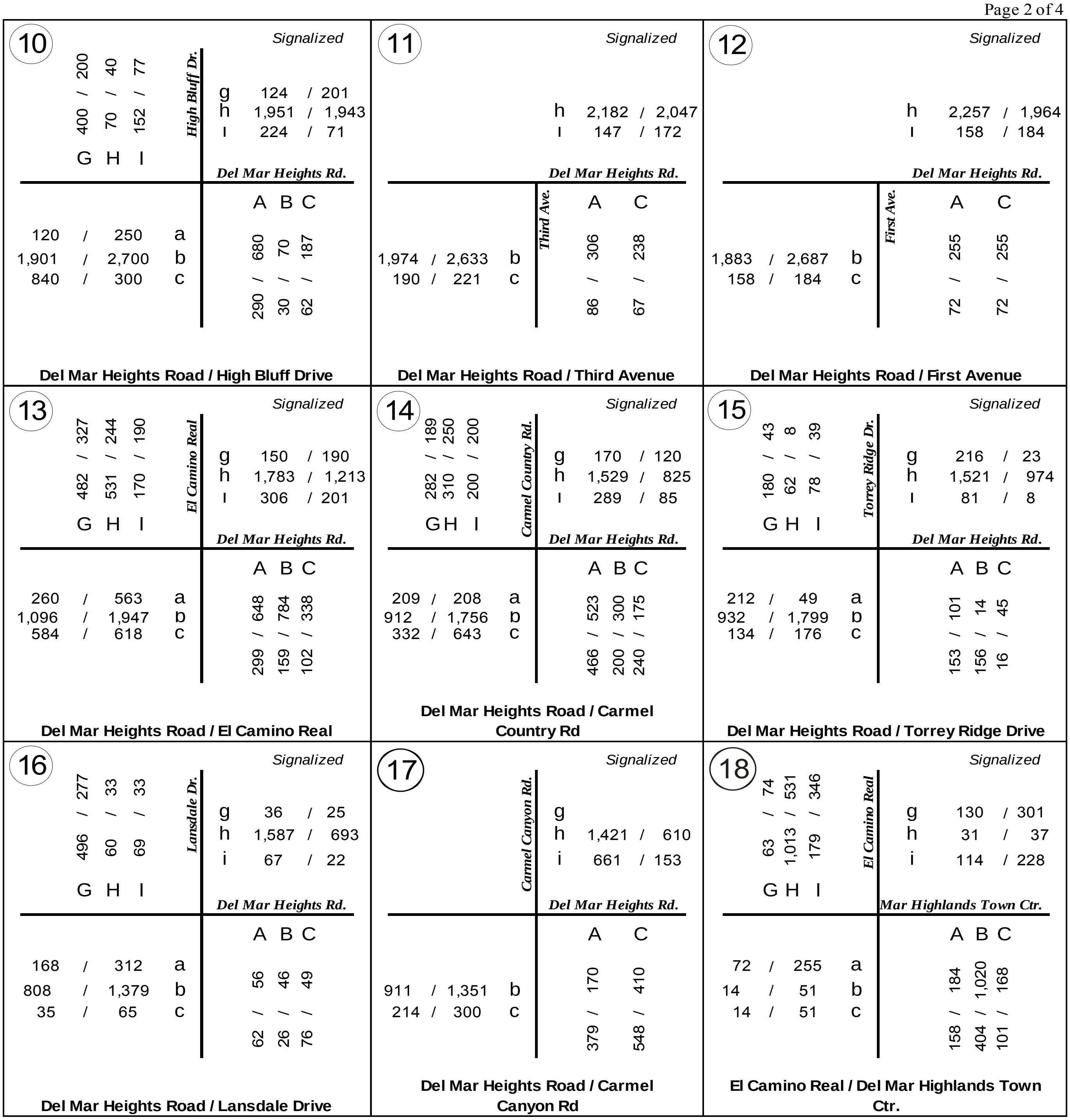


FIGURE 13-2

Year 2030 With Project (Build-out) AM/PM Peak Hour Traffic Volumes

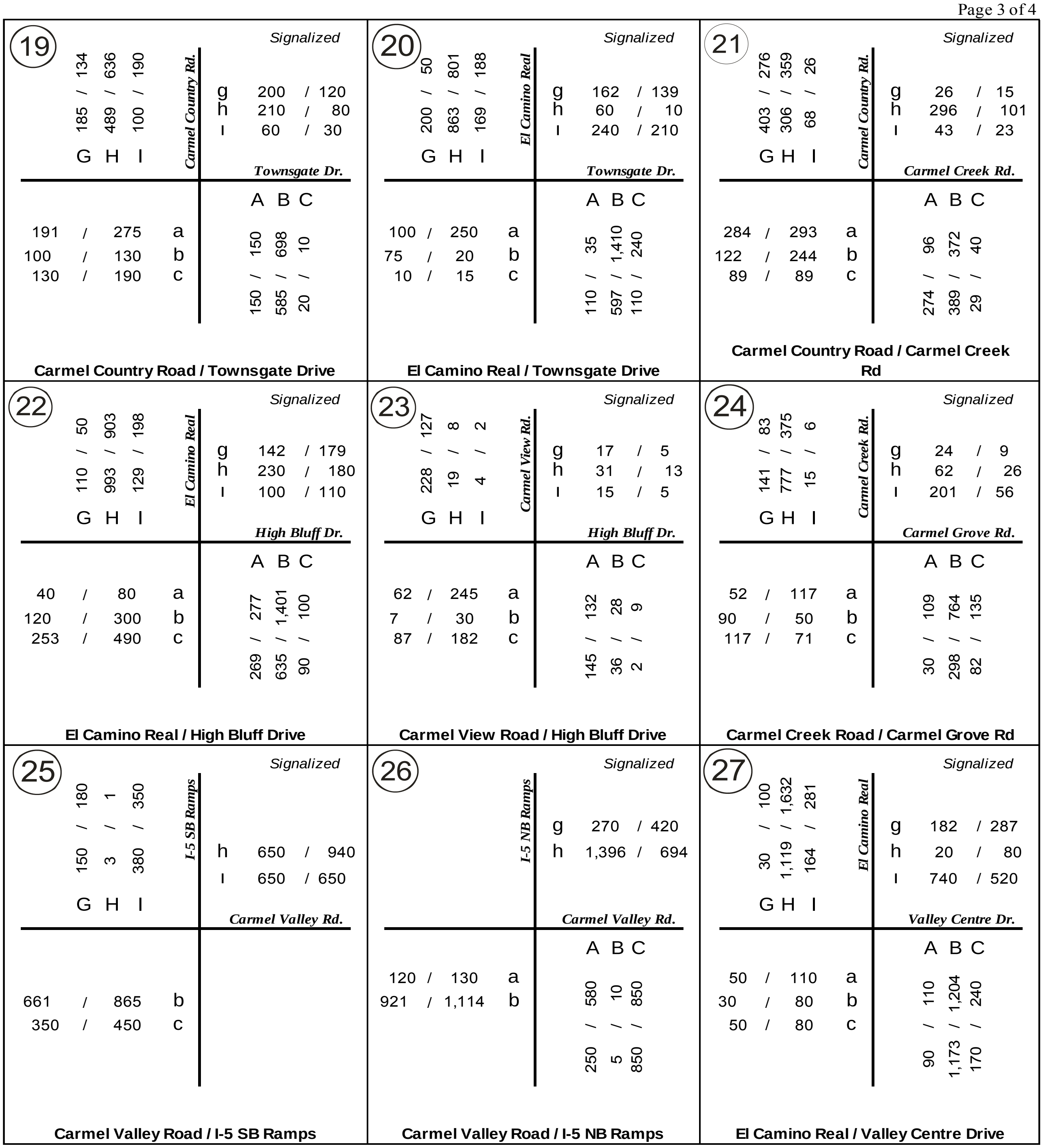


FIGURE 13-2

Year 2030 With Project (Build-out) AM/PM Peak Hour Traffic Volumes

Page 4 of 4

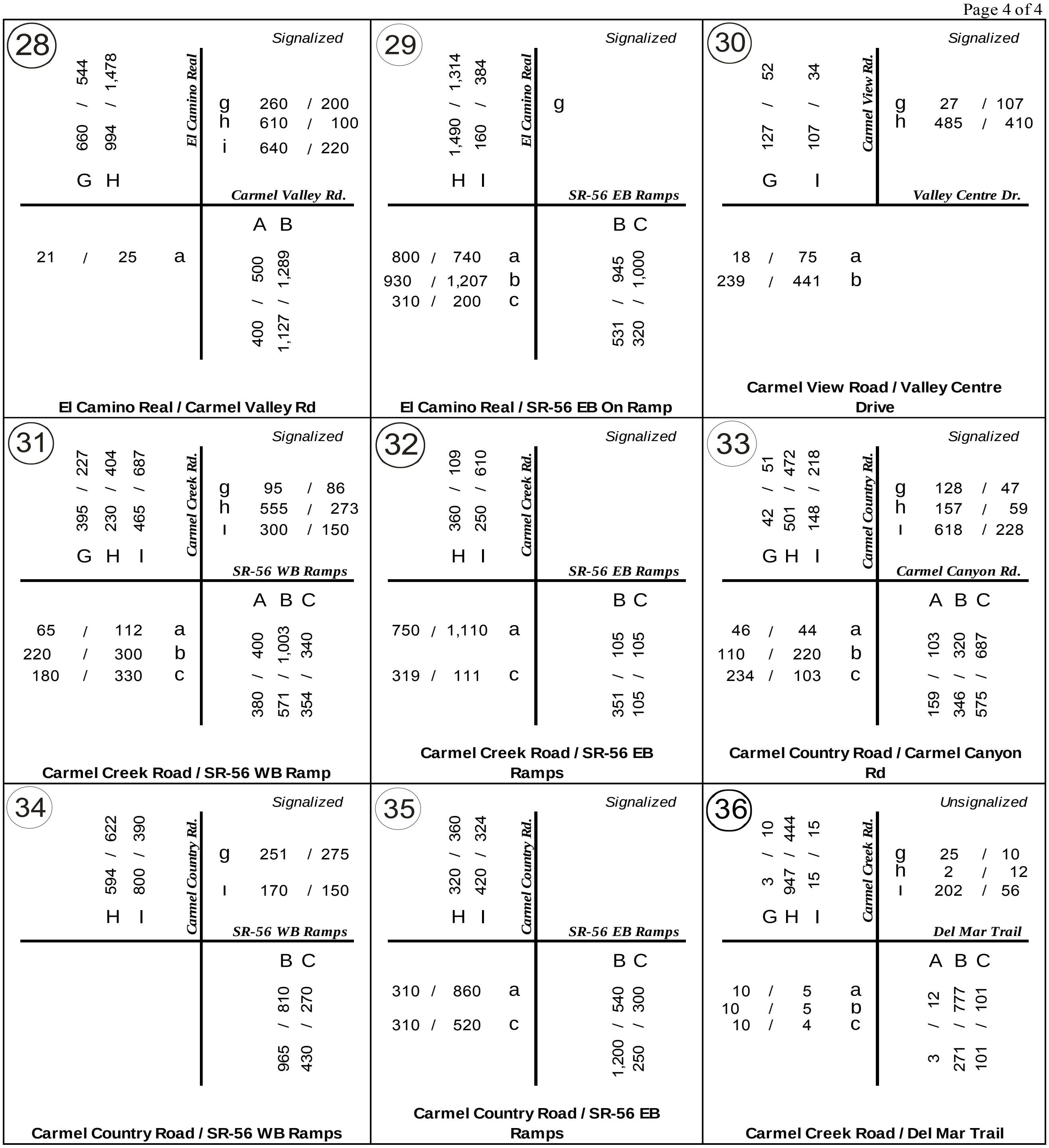


FIGURE 13-2

Year 2030 With Project (Build-out) AM/PM Peak Hour Traffic Volumes

TABLE 13-2

Year 2030 With Project (Build-out) Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	El Camino Real / Via de la Valle	Signalized	23.1	C	20.4	C
2	El Camino Real / San Dieguito Road	Signalized	26.7	C	52.5	D
3	El Camino Real / Derby Downs Road	Signalized	4.3	A	5.1	A
4	El Camino Real / Half Mile Drive	Signalized	24.8	C	14.1	B
5	El Camino Real / Quarter Mile Drive	Signalized	25.2	C	12.7	B
6	Del Mar Heights Road / Mango Drive	Signalized	39.6	D	35.7	D
7	Del Mar Heights Road / Portofino Drive	Minor Street	10.1	B	10.1	B
8	Del Mar Heights Road / I-5 SB Ramps	Signalized	29	C	25.7	C
9	Del Mar Heights Road / I-5 NB Ramps	Signalized	107.1	F	94	F
10	Del Mar Heights Road / High Bluff Drive	Signalized	55.3	E	80.2	F
11	Del Mar Heights Road / Third Avenue	Signalized	8.3	A	20.7	C
12	Del Mar Heights Road / First Avenue	Signalized	7.7	A	20.9	C
13	Del Mar Heights Road / El Camino Real	Signalized	50.8	D	84.1	F
14	Del Mar Heights Road / Carmel Country Rd	Signalized	41.3	D	49.3	D
15	Del Mar Heights Road / Torrey Ridge Drive	Signalized	33.1	C	14.4	B
16	Del Mar Heights Road / Lansdale Drive	Signalized	41.1	D	20.9	C
17	Del Mar Heights Road / Carmel Canyon Rd	Signalized	29.8	C	17.2	B
18	El Camino Real / Del Mar Highlands Town Ctr.	Signalized	17.4	B	33.7	C
19	Carmel Country Road / Townsgate Drive	Signalized	32.9	C	34.6	C
20	Carmel Country Road / Townsgate Drive	Signalized	22.7	C	35.4	D
21	Carmel Country Road / Carmel Creek Rd	Signalized	45.7	D	21.5	C
22	El Camino Real / High Bluff Drive	Signalized	24.4	C	40	D
23	Carmel View Road / High Bluff Drive	All Way Stop	9.3	A	10.9	B
24	Carmel Creek Road / Carmel Grove Rd	Signalized	15.3	B	17.3	B
25	Carmel Valley Road / I-5 SB Ramps	Signalized	26.3	C	35.3	D
26	Carmel Valley Road / I-5 NB Ramps	Signalized	27.3	C	20.0	B
27	El Camino Real / Valley Centre Drive	Signalized	22.2	C	29.3	C
28	El Camino Real / Carmel Valley Rd	Signalized	22.2	C	19.2	B
29	El Camino Real / SR-56 EB On Ramp	Signalized	23.6	C	97.6	F
30	Carmel View Road / Valley Centre Drive	Signalized	7.7	A	6.2	A
31	Carmel Creek Road / SR-56 WB Ramp	Signalized	54.2	D	53.3	D
32	Carmel Creek Road / SR-56 EB Ramps	Signalized	15.0	B	23.4	C
33	Carmel Country Road / Carmel Canyon Rd	Signalized	36.6	D	34.1	C
34	Carmel Country Road / SR-56 WB Ramps	Signalized	17.1	B	12.7	B
35	Carmel Country Road / SR-56 EB Ramps	Signalized	22.0	C	18.7	B
36	Carmel Creek Road / Del Mar Trail	All Way Stop	48.3	E	23.6	C

Notes:

LOS = Level of Service

Orange indicates unacceptable levels of service

Intersection #36 reports the worst approach delay and level of service

TABLE 13-3

Year 2030 With Project (Build-out) Freeway Levels of Service

Segment	Lanes	Dir.	Cap.	ADT*	Peak Hour %	Dir. Split	Truck Factor	PHV	V/C	LOS
I-5										
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	NB	12,800	260,800	0.068	0.53	0.98	9,503	0.742	C
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	SB	12,800	260,800	0.067	0.55	0.98	9,809	0.766	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	NB	13,450	289,300	0.068	0.53	0.98	10,541	0.784	C
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	SB	13,450	289,300	0.067	0.55	0.98	10,881	0.809	D
Del Mar Heights Rd./ SR-56	6-GP+1-M	NB	15,780	306,100	0.068	0.53	0.98	11,153	0.707	C
Del Mar Heights Rd./ SR-56	6-GP+1-M	SB	15,780	306,100	0.067	0.55	0.98	11,513	0.730	C
SR-56/ Carmel Mountain Road	9-GP+1-M	NB	22,830	412,300	0.079	0.57	0.98	18,779	0.823	D
SR-56/ Carmel Mountain Road	8-GP+1-M	SB	20,480	412,300	0.080	0.55	0.98	18,443	0.901	D
Carmel Mountain Road/ I-805 Merge	10	NB	23,500	391,600	0.079	0.57	0.98	17,837	0.759	C
Carmel Mountain Road/ I-805 Merge	10	SB	23,500	391,600	0.080	0.55	0.98	17,517	0.745	C
SR-56										
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	EB	8,850	133,800	0.093	0.69	0.98	8,744	0.988	E
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	WB	8,850	133,800	0.094	0.70	0.98	8,967	1.013	F
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	EB	8,850	122,700	0.093	0.69	0.98	8,019	0.906	D
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	WB	8,850	122,700	0.094	0.70	0.98	8,223	0.929	E

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 vphpl taken from Caltrans Guide, December 2002)
HOV= High Occupancy Vehicle lane with LOS"E" capacity of 1,600 vphpl
* Based on SANDAG Series 11 Year 2030 Travel Forecast & SR-56 segments used cumulative rates.

Note:

Capacity for LOS "E" roadway is 2,350 vphpl.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002
AX = Auxiliary Lane with LOS "E" capacity of 1,800 vphpl
Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes

TABLE 13-4

Year 2030 With Project (Build-out) Ramp Meter Analysis

Most Restrictive Meter Rate

Location		Ramp Meter Lanes	Demand (Veh/Hr/Ln)	Meter Rate (Veh/Hr/Ln)	Excess Demand (Veh/Hr/Ln)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	2 SOV	660	368	292	47.61	8,468
	PM		551	368	183	29.84	5,307
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	1 SOV + 1 HOV	395	499	0	0	0
	PM		300	499	0	0	0
Del Mar Heights Rd. / I-5 NB on Ramp	AM	2 SOV	607	593	14	1.37	392
	PM		752	593	159	16.04	4,597
El Camino Real / SR-56 EB on Ramp	AM	2 SOV	705	1200	0	0.00	0
	PM		1296	1200	96	4.78	2,770
Carmel Country Rd. / SR-56 EB on Ramp	AM	2 SOV	670	900	0	0.00	0
	PM		624	900	0	0.00	0

NOTE:
The ramp meter rates at the EB on-ramps at El Camino Real & Carmel Country are based on SR-56 widened to 3 lanes in each direction per the Regional Transportation Plan which would allow more capacity on the freeway.
(Veh/Hr/Ln) = Vehicles per Hour per Lane
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle
SOV = Single Occupancy Vehicle
HOV = High Occupancy Vehicle

15 Minute Max. Meter Rate

Location		Ramp Meter Lanes	Demand (Veh/Hr/Ln)	Meter Rate (Veh/Hr/Ln)	Excess Demand (Veh/Hr/Ln)	Delay (Min)	Queue (Feet)
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound)	AM	2 SOV	660	492	168	20.5	4,872
	PM		551	320	231	43.3	6,699
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	1 SOV + 1 HOV	395	316	79	15.0	2,291
	PM		300	240	60	15.0	1,740
Del Mar Heights Rd. / I-5 NB on Ramp	AM	2 SOV	607	468	139	17.8	4,031
	PM		752	540	212	23.6	6,148
El Camino Real / SR-56 EB on Ramp	AM	2 SOV	705	560	145	15.5	4,205
	PM		1296	1023	273	16.0	7,903
Carmel Country Rd. / SR-56 EB on Ramp	AM	2 SOV	335	264	71	16.1	2,059
	PM		312	236	76	19.3	2,204

NOTE:
Meter Rate = Demand / 1.25
Excess Demand = Demand - Meter Rate
Queue = Excess Demand * 29 feet/vehicle

14.0 ACCESS ANALYSIS AND / ON-SITE ANALYSIS

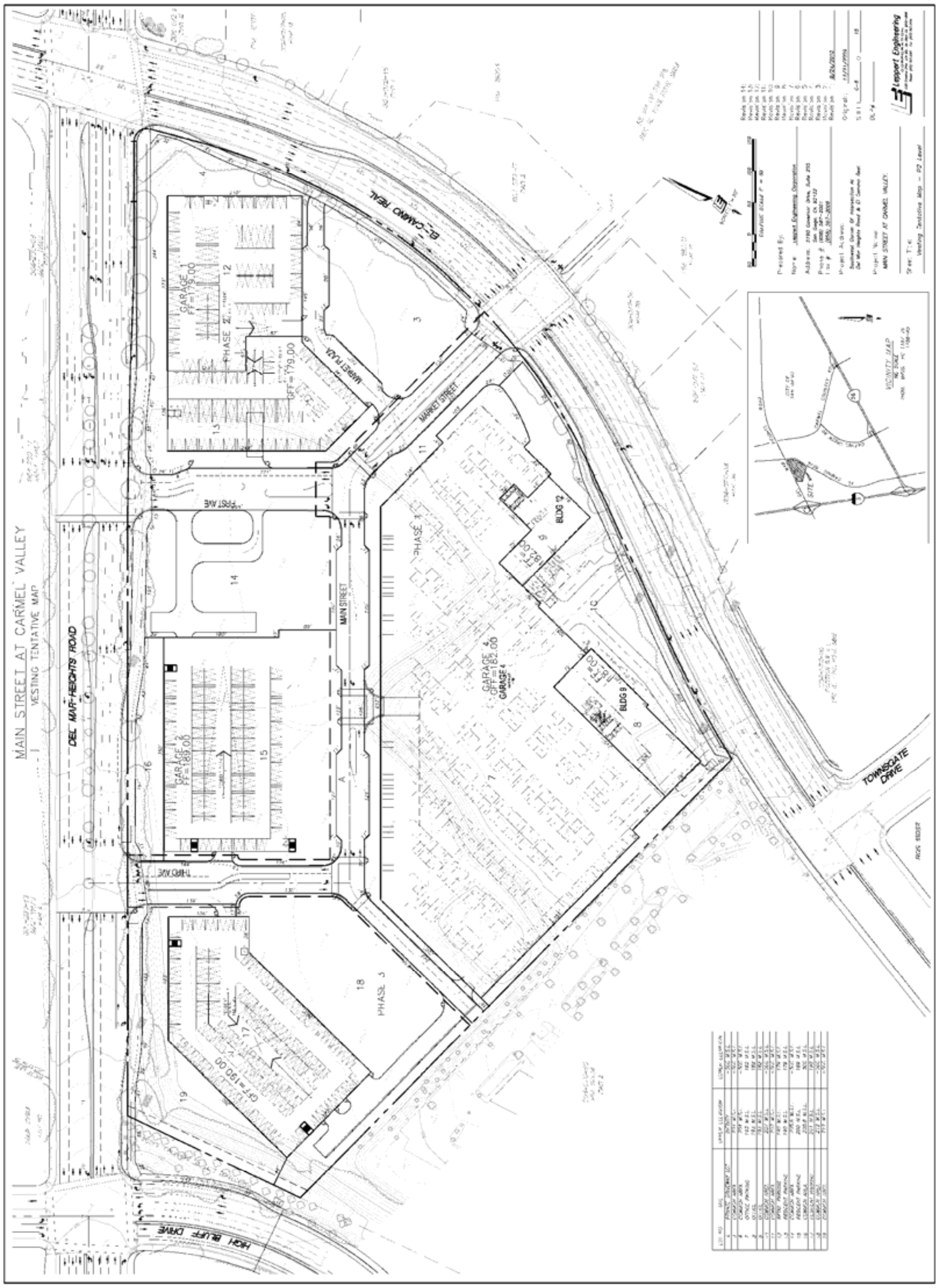
This section of the report will analyze the driveway, signal warrants, and pedestrian access to the project. The One Paseo project has access via Del Mar Heights Rd. and El Camino Real. A conceptual striping layout of the main access points on Del Mar Heights Rd. and El Camino Real is shown on **Figure 14-1**.

As shown on **Figure 14-1**, First Avenue and Third Avenue at Del Mar Heights Rd. intersections are proposed to be signalized. The intersection of El Camino Real and Del Mar Highlands Town Center is currently a T intersection and signalized. The construction of Market Street during Phase 1 will add the fourth leg to the signalized intersection. **Figure 14-1** shows the project site is proposing three signalized intersections. On El Camino Real, there are three access points that are right in / out only.

The access analysis has been divided into phases such as Project Phase 1, Project Phase 1 & 2, and Project Buildout. For each phase, the project distribution on-site, project only ADT, and peak hour traffic on Main Street is provided. In addition, the three on-site stop controlled intersections are analyzed and included in this section of the report. The worksheets for the internal streets and intersections can be found in **Appendix N**.

FIGURE 14-1

Conceptual Striping Layout



Project Phase 1:

For Project Phase 1, Blocks D & E are proposed to be completely built and First Avenue is assumed to be constructed. A peak hour signal warrant was evaluated for the Del Mar Heights Rd. / First Avenue access in the Near Term with Project (Project Phase 1) condition. Based on the evaluation, a signal is warranted at the First Avenue project access and is provided in **Appendix N**.

Lane configurations for the three stop controlled intersections on Main Street are illustrated on **Figure 14-2** which is adequate for build-out of the project.

Figure **14-3** shows the distribution percentages for Project Phase 1. The average daily traffic for each street on-site is shown on **Figure 14-4**. As shown in **Figure 14-4**, First Avenue has sufficient capacity for Project Phase 1 and future project traffic on-site.

FIGURE 14-2

Proposed Lane Configurations – Main Street

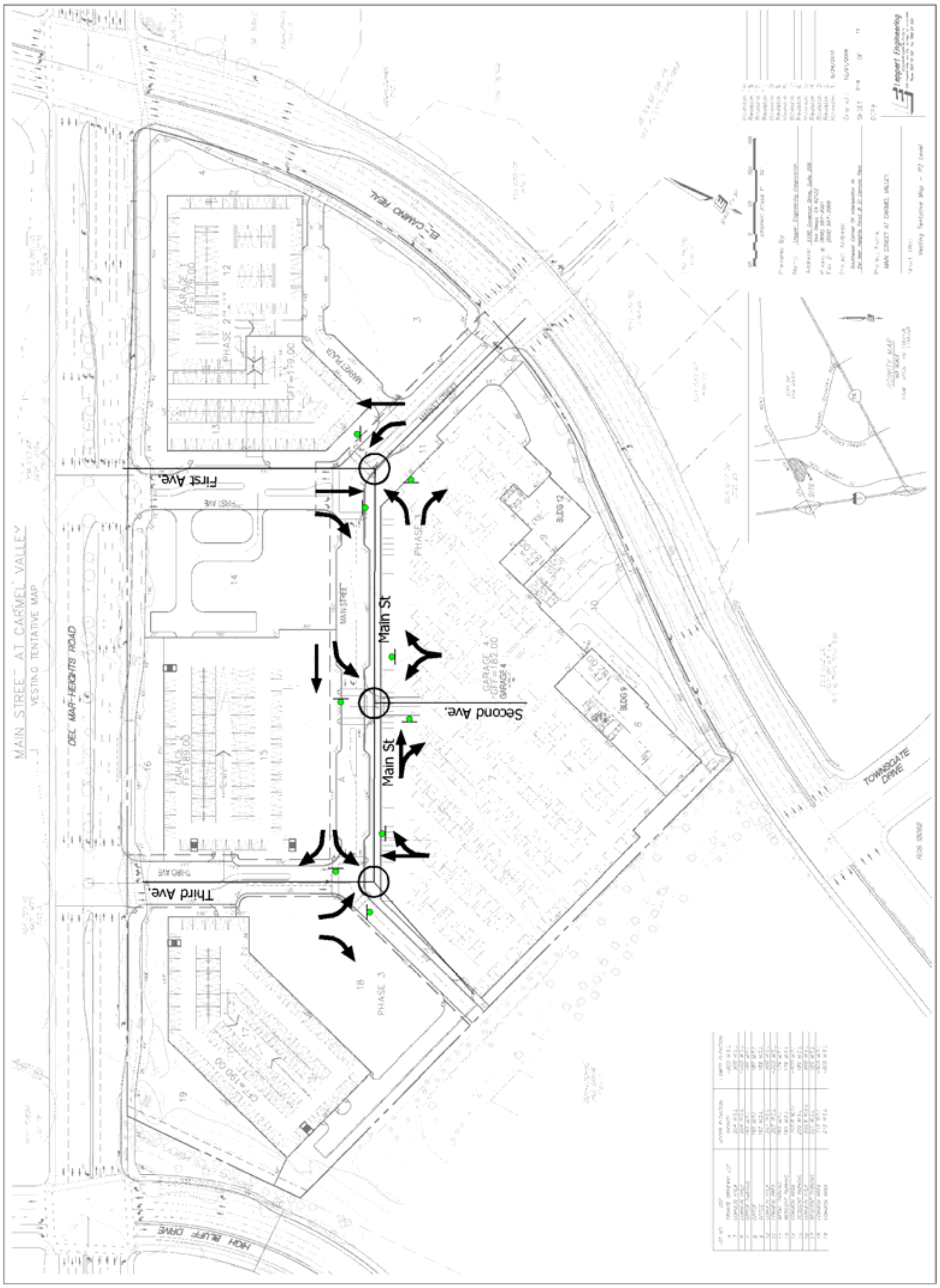


FIGURE 14-3

Distribution Percentages – Project Phase 1

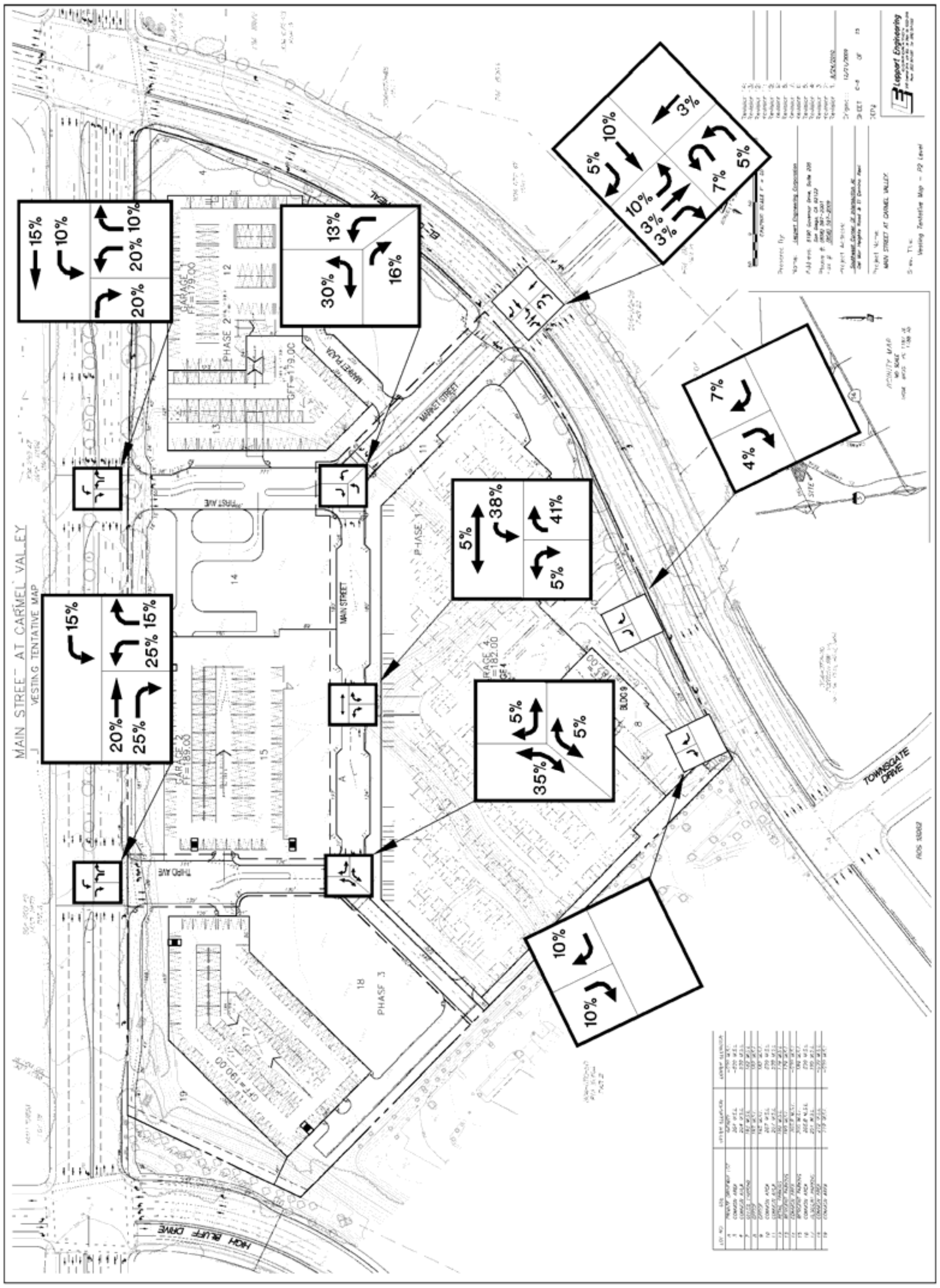
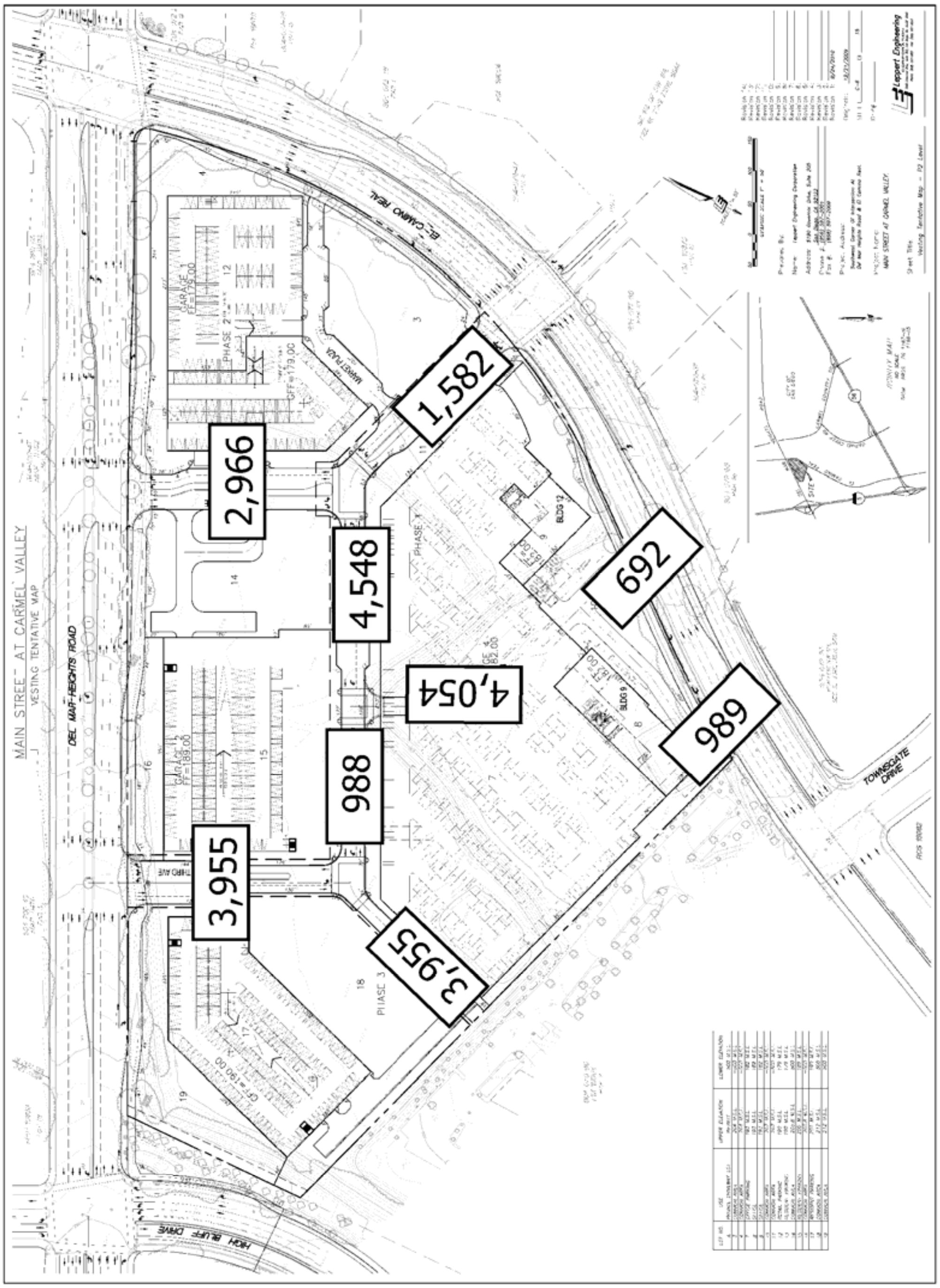


FIGURE 14-4

Average Daily Traffic – Project Phase 1



As shown on **Figure 14-4**, First Avenue is projected to have 2,966 ADT on a private driveway that has two lanes exiting onto Del Mar Heights Road and two lanes entering the project with a proposed 10 foot median. Third Avenue is projected to have 3,955 ADt in Phase 1 and provides access to parking structures in Blocks B & C. In Phase 1 of the project, 1,582 ADT is projected on Market Street with two lanes exiting and two lanes entering the project. Second Avenue provides access to the parking structure in Blocks D & E and is projected to have 4,054 ADT on the two lane private driveway. Main Street as a 2 lane private driveway with a two way left turn lane projected to have 4,548 ADT between First and Second Avenue in Phase 1. The AM/PM peak hour traffic volumes along with the lane configurations for intersections on Main Street are illustrated on **Figure 14-5**. As shown, all three stop controlled intersections are projected to operate at acceptable levels of service.

Project Phase 1 & 2:

For Project Phase 1 & 2, Blocks B, D, & E are proposed to be completely built. The total ADT for this phase is 17,812. The project distribution percentages during this phase are the same as build-out of the project which is explained in the next section.

Project Build-out:

For Project Build-out, Blocks A through E are proposed to be built. The project distribution percentages for full build-out of the project are shown on **Figure 14-6**. The average daily traffic for each driveway on-site is shown on **Figure 14-7**. The roadway classifications in previous phases are sufficient for build-out of the project. **Figure 14-8** shows the AM/PM peak hour traffic volumes along with the lane configurations proposed for the intersections on Main Street. As shown, all three stop controlled intersections on Main Street are projected to operate at acceptable levels of service.

FIGURE 14-5

AM/PM Peak Hour Traffic – Project Phase 1

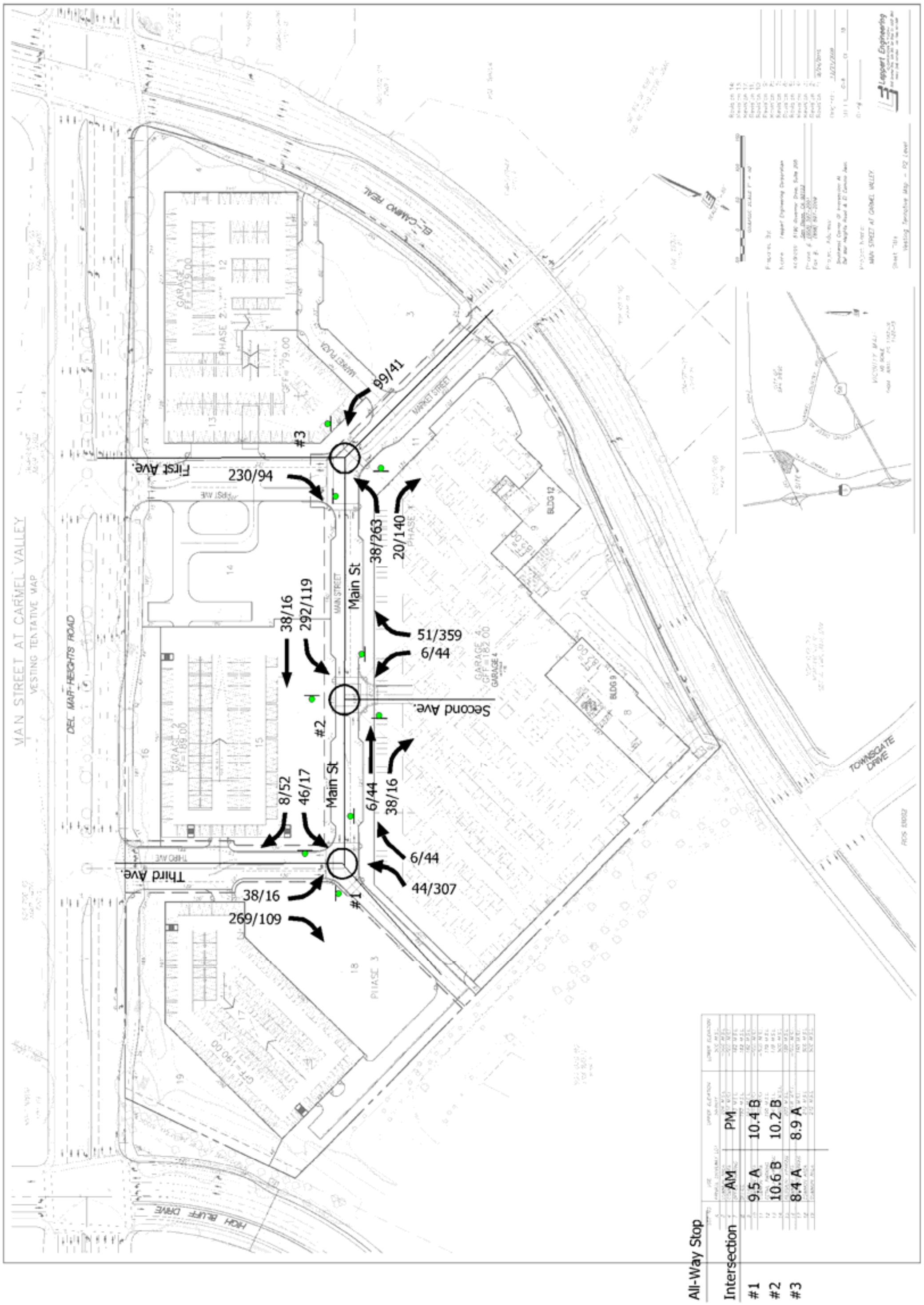


FIGURE 14-6

Distribution Percentages – Project Build-out

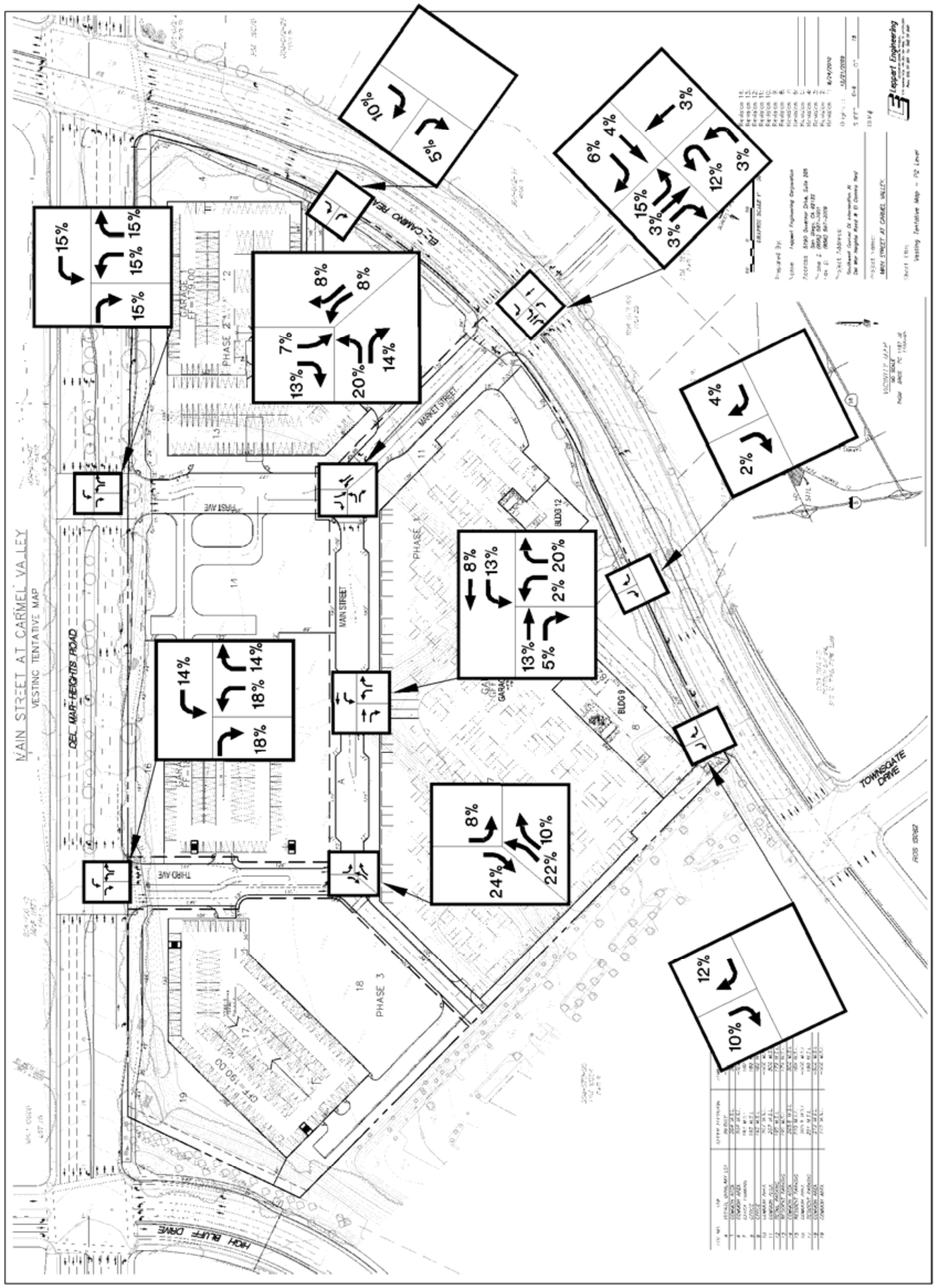


FIGURE 14-7

Average Daily Traffic – Project Build-out

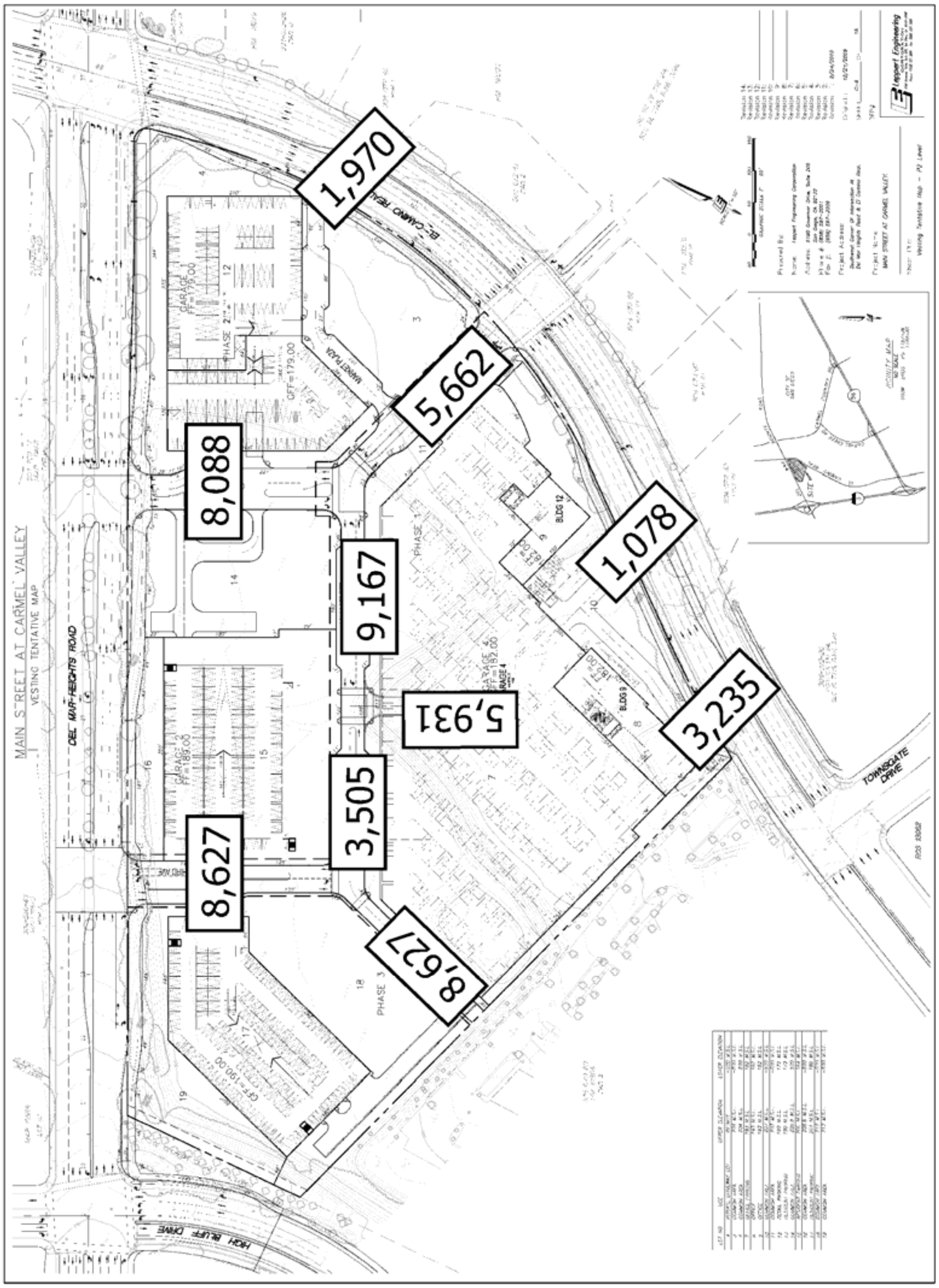
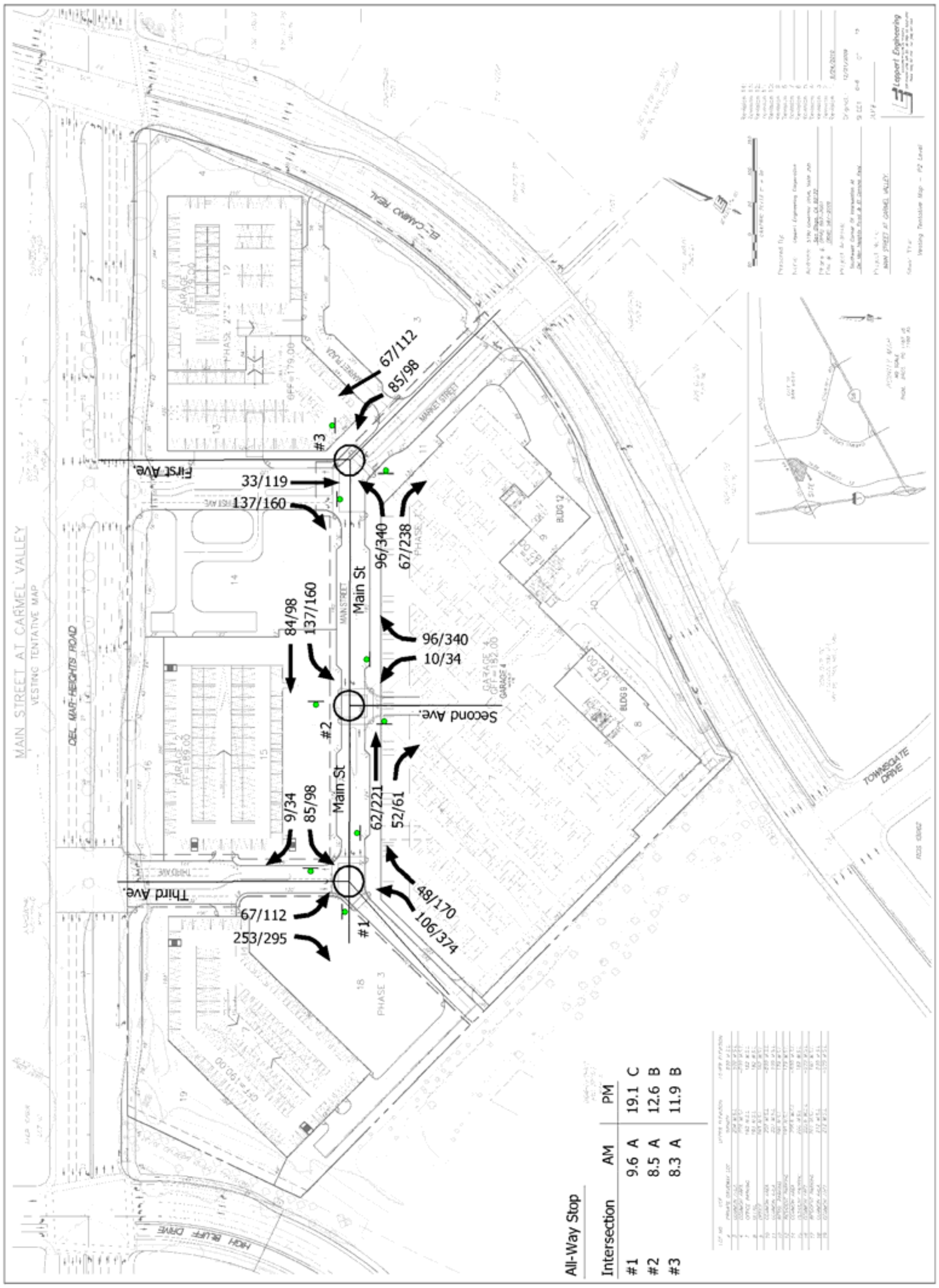


FIGURE 14-8

AM/PM Peak Hour Traffic – Project Build-out



14.2 DEL MAR HEIGHTS ROAD QUEUING ANALYSIS

The purpose of the queuing analysis is to show the validity of a coordinated signal system on Del Mar Heights Road from the I-5 ramps to El Camino Real. The queuing analysis includes both the AM and PM peak hours in the Year 2030 with Project scenario. Five intersections were evaluated along Del Mar Heights Road as a coordinated system. **Table 14-1** and **Table 14-2** shows the five intersections along Del Mar Heights Road in the AM and PM peak hour, respectively. The tables also show the 95th percentile queue and storage capacity for each turn movement in the eastbound and westbound direction along Del Mar Heights Road. The storage capacities assume project mitigation such as widening or lengthening of turn pockets at intersections.

The first intersection evaluated is Del Mar Heights Road at the I-5 northbound ramps which have adequate storage capacity in the westbound direction. In the eastbound direction, the through movement is highlighted to show the queue exceeds the storage capacity. Adaptive Traffic Control equipment can be utilized to minimize stops and optimize traffic flow through the Del Mar Heights Road corridor.

The second intersection evaluated is Del Mar Heights Road at High Bluff Drive. As shown on **Tables 14-1 & 2**, the storage capacity is sufficient for the queues in the eastbound and westbound direction. Dual left turns are proposed in the eastbound and westbound direction as shown in **Figure 14-9**. The eastbound approach is proposed to be widened by 2 feet on the south side of Del Mar Heights Road to accommodate the eastbound and westbound dual left turn lanes.

TABLE 14-1

Del Mar Heights Road Queuing / Capacity Table – AM Peak Hour

ONE PASEO

Del Mar Heights Road Queuing Analysis Worksheet - Coordinated AM Peak Hour

INTERSECTION	Eastbound						Westbound					
	Left		Through		Right		Left		Through		Right	
	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)
Del Mar Heights Rd. / I-5 NB Ramps	285	400	975	584	N/A	N/A	N/A	N/A	762	1,026	480	850
Del Mar Heights Rd. / High Bluff Dr.	41	200	402	1,026	148	250	149	175	547	555	N/A	N/A
Del Mar Heights Rd. / Third Ave.	N/A	N/A	74	555	0	186*	196	250*	161	473	N/A	N/A
Del Mar Heights Rd. / First Ave.	N/A	N/A	95	473	12	200*	107	420*	226	549	N/A	N/A
Del Mar Heights Rd. / El Camino Real	216	773**	264	549	261	365**	188	275	618	574	N/A	N/A

Notes:
N/A = Not Applicable
* Proposed improvements along project frontage when project access is constructed.
** A conceptual striping layout is shown in Figure 14-10.

TABLE 14-2

Del Mar Heights Road Queuing / Capacity Table – PM Peak Hour

ONE PASEO												
Del Mar Heights Road Queuing Analysis Worksheet - Coordinated PM Peak Hour												
INTERSECTION	Eastbound						Westbound					
	Left		Through		Right		Left		Through		Right	
	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)	95th % Queue Per Lane (ft)	Storage Length Per Lane (ft)
Del Mar Heights Rd. / I-5 NB Ramps	372	400	955	584	N/A	N/A	N/A	N/A	624	1,026	476	850
Del Mar Heights Rd. / High Bluff Dr.	104	200	820	1,026	11	250	51	175	442	555	N/A	N/A
Del Mar Heights Rd. / Third Ave.	N/A	N/A	439	555	58	186*	243	250*	150	473	N/A	N/A
Del Mar Heights Rd. / First Ave.	N/A	N/A	211	473	14	200*	85	420*	235	549	N/A	N/A
Del Mar Heights Rd. / El Camino Real	332	773**	513	549	222	365**	173	275	497	574	N/A	N/A

Notes:
N/A = Not Applicable
* Proposed improvements along project frontage when project access is constructed.
** A conceptual striping layout is shown in Figure 14-10.

(See Next Page)

FIGURE 14-9

Conceptual Layout of Del Mar Heights Road at I-5 NB Ramps and High Bluff Drive

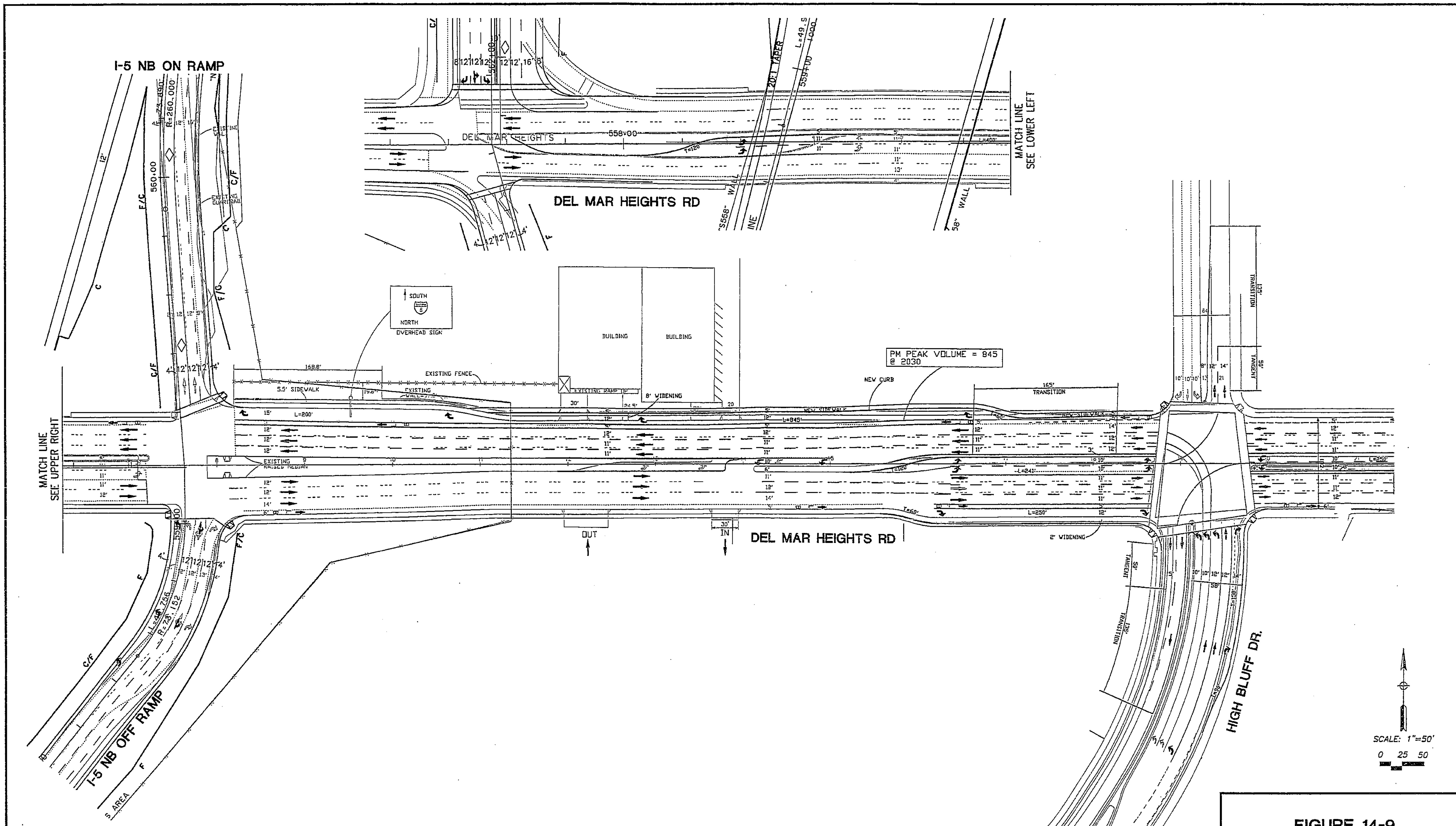


FIGURE 14-9

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET OF . SHEETS

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	USAI			

URBAN SYSTEMS ASSOCIATES, INC.
4540 KEARNY VILLA ROAD, SUITE 106
SAN DIEGO, CA 92123, (619) 560-4911
©

CONCEPTUAL LAYOUT
FOR DISCUSSION PURPOSES ONLY
NOT BASED ON A SURVEY

NOTE: PRELIMINARY OPINION OF COST BASED ON CONCEPTUAL PLANS WHICH ARE SUBJECT TO SIGNIFICANT CHANGE BASED ON AGENCY REVIEW AND APPROVAL.

FILE NAME: 2407-PD-01_F 03-20-12 MV

The intersections of Third and First Avenue at Del Mar Heights Road are signalized access points to the proposed One Paseo project, see **Figure 14-10**. In the eastbound direction on Del Mar Heights Road, the right turn pockets at Third and First Avenue are proposed to be 186 feet and 200 feet, respectively. In the westbound direction, the left turn pocket at Third Avenue is proposed to be 250 feet. The westbound to southbound dual left turn pocket at First Avenue provides a storage capacity of 420 feet. As shown in **Tables 14-1 & 2**, the eastbound and westbound movements on Del Mar Heights Road at Third and First Avenue have adequate storage for queue lengths project in the Year 2030 with Project.

At Del Mar Heights Road and El Camino Real, both the eastbound and westbound approaches have adequate storage capacity except for the westbound through movement in the AM peak hour. Further improvement in traffic flow can be obtained by using Adaptive Traffic Control equipment. In **Figure 14-10**, the conceptual layout shows the outside left turn lane lengthened to 546 feet. The fourth through lane closest to the median would provide additional storage if needed. The inside left turn lane remains the same length (227 feet) as exists today. To accommodate an eastbound to southbound right turn lane at El Camino Real, widening to the south is required and proposed in Phase 1 of the project. The proposed length of the right turn pocket is 365 feet which provides adequate storage for the queue projected in the Year 2030 with Project.

Queuing worksheets for each intersection evaluated in this section and the conceptual striping layouts of Del Mar Heights Road is included in **Appendix N**.

(See Next Page)

FIGURE 14-10

Conceptual Layout of Del Mar Heights Road at Third Ave. / First Ave. / El Camino Real

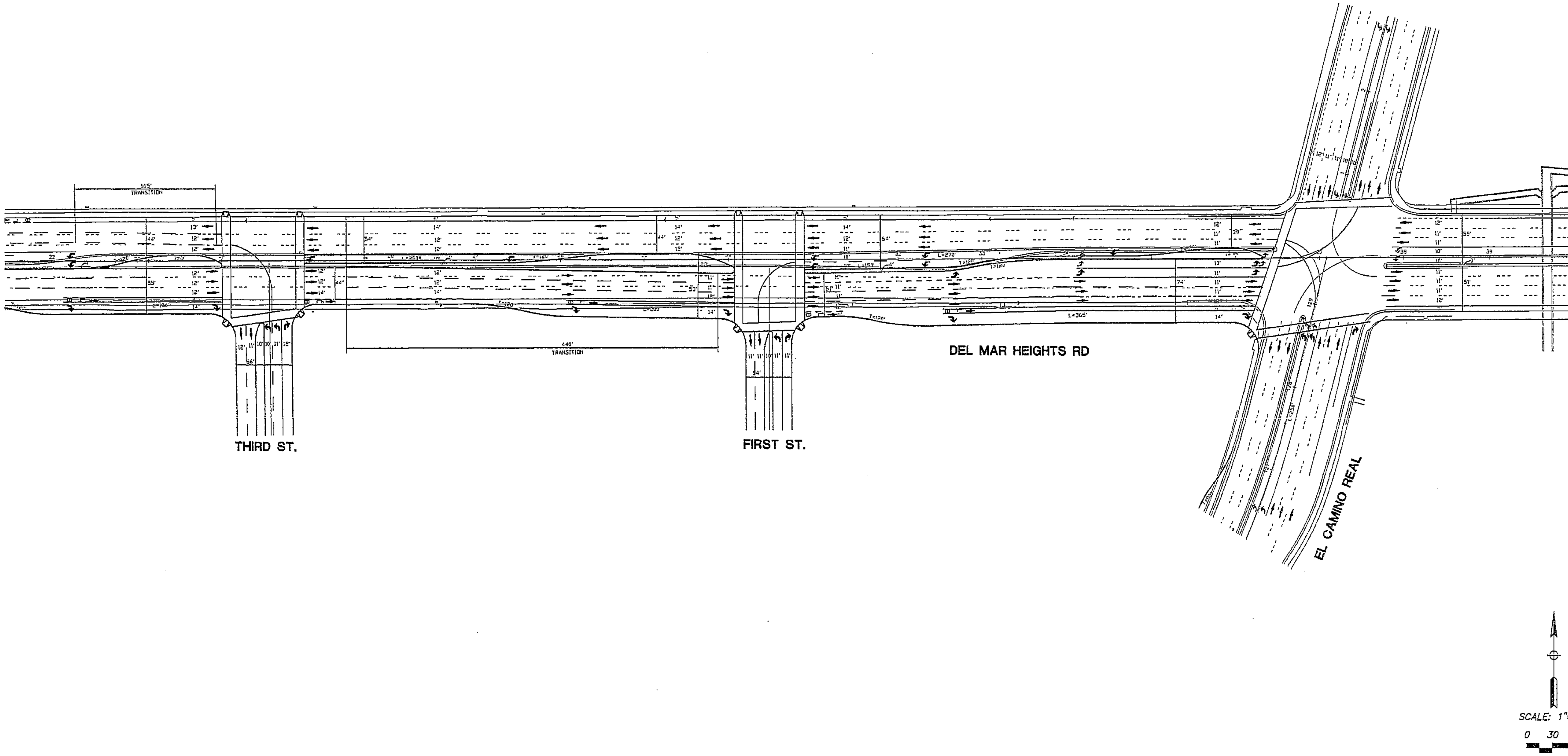


FIGURE 14-10

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET OF SHEETS

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	USAI			

URBAN SYSTEMS ASSOCIATES, INC.
4540 KEARNY VILLA ROAD, SUITE 106
SAN DIEGO, CA 92123, (619) 560-4911
©

CONCEPTUAL LAYOUT
FOR DISCUSSION PURPOSES ONLY
NOT BASED ON A SURVEY

NOTE: PRELIMINARY OPINION OF COST BASED ON CONCEPTUAL PLANS WHICH ARE SUBJECT TO SIGNIFICANT CHANGE BASED ON AGENCY REVIEW AND APPROVAL.

FILE NAME: 2407-PD-02_D 12-12-11 MV

17.0 CINEMA PHASING ALTERNATIVES

The purpose of this section is to evaluate potential significant impacts as a result of the cinema having no more than 1,200 seats in no more than 10 screens moving from Phase 3 to Phase 1 or Phase 2. The proposed project as shown in the development summary, **Table 2-1**, shows the cinema currently in Phase 3. This section will be divided into two parts. First, the cinema will be evaluated in Phase 1, then in Phase 2 to determine any new significant project impacts.

Cinema in Phase 1:

The cinema in Phase 1 of the project generates 12,088 ADT with 894 trips in the AM peak hour and 1,428 trips in the PM peak hour as compared to Phase 1 without the cinema which would generate 9,888 ADT. **Table 17-1** shows the trip generation table including the cinema in Phase 1. The 10 screen cinema (1,200 seats) alone adds 2,200 ADT with 0 trips in the AM peak hour and 240 trips in the PM peak hour using ITE trip generation rates.

Street segments were evaluated in the Near Term with and without project (Phase 1) scenario to determine any change in significant impacts from the proposed project as a result of the cinema in Phase 1. As shown in **Table 17-2**, no new significant project segment impacts occur as a result of the cinema in Phase 1. The significant street segment impacts on Del Mar Heights Road, El Camino Real and Via de la Valle shown on **Table 9-1** are the same significant impacts without the cinema in Phase 1. So therefore, there is no change in mitigation for street segments if the cinema moved to Phase 1.

<u>15.0</u> CONSTRUCTION TRAFFIC ANALYSIS / ADAPTIVE TRAFFIC CONTROL

CONSTRUCTION TRAFFIC IMPACTS

A full analysis of construction traffic impacts was also completed. See **<u>Appendix O</u>**. In **<u>Appendix O</u>**, it is recommended that a signalized construction access be built in advance of project construction. This approach assures that traffic impacts are minimized and preserves safety for both construction related and community related traffic.

Three construction phases and two combinations of phases were evaluated. All assumptions for the analysis are summarized in **<u>Appendix O</u>** and the analysis results are also summarized. In summary, the only construction traffic significant impact is a segment impact on Del Mar Heights Road between the I-5 NB ramps and High Bluff Drive. This significant impact on Del Mar Heights Road occurs under the analyzed construction (Phase 1-3) scenario. For a more complete and full discussion of these temporary impacts, please refer to the Draft Environmental Impact Analysis (DEIR).

For further discussion of upfront community benefits proposed by this project, please see the following discussion of Adaptive Traffic Central Systems (ATCS).

ADAPTIVE TRAFFIC CONTROL SYSTEMS (ATCS)

This traffic study confirms that existing traffic conditions, without any new project traffic on the street system, are nearing unacceptable levels. More specifically, Del Mar Heights Road today is nearing capacity between the I-5 interchange ramps and High Bluff Drive. The Del Mar Heights Road corridor between El Camino Real and I-5 is one of the busiest corridors in San Diego.

The project applicant, Kilroy Realty Corporation, upon learning of the existing condition, asked Urban Systems Assoc. Inc. to identify ways to improve not only the existing without project traffic condition but to enhance it in the future after the project is developed. By developing the project, some existing trips which now leave the community to satisfy their need for goods and services may remain local. The project itself will be able to meet some of those needs. Also, the project is proposing significant street improvements, and in particular improvements to the existing I-5 Del Mar Heights Road interchange. These improvements, with the approval of Caltrans, will be implemented during the earliest phases of the proposed project which provides both a community benefit and project benefit.

The implementation of an Adaptive Traffic Control System (ATCS) along the Del Mar Heights Road corridor at eight intersections from Mango Drive (West of I-5) to Signature point / Pacific Highlands Center Access (East of El Camino Real) is anticipated to immediately improve existing traffic flow. Kilroy proposes installation of the system at the time site construction begins prior to any project traffic.

Adaptive traffic control is an intelligent traffic control system which coordinates traffic signals. The system increases speeds, reduces stops, improves safety, reduces energy consumption and improves air quality. Recent studies show that for nearby Adaptive Systems in San Marcos and Temecula, delay is reduced as much as 46%, stops are reduced as much as 39%, travel time is improved by almost 14% and fuel consumption is reduced by up to 18%.

For a more complete discussion of the technology, experience and before / after study results in San Marcos, Temecula, and other areas, please refer to **Appendix P**. Although before and after studies for the Del Mar Heights Road corridor are yet to be completed, based on studies and experience throughout the United States, Urban Systems Assoc. Inc. anticipates a 10 to 15% improvement in traffic flow when Adaptive Traffic Control Systems are implemented.

16.0 DEIR PROJECT ALTERNATIVES ANALYSIS

Five Draft Environmental Impact Report (DEIR) project alternatives were evaluated for this study. The five alternatives are fully described and discussed in the DEIR and the traffic analysis which was completed for the alternatives may be found in **Appendix Q** of this traffic report.

The five alternatives studied for traffic impacts were:

1. No Project / No Development (0 ADT).
2. No Project / Develop Under Existing Plans (6,497 ADT).
3. Commercial Only (22,843 ADT).
4. Medical Office / Senior Housing (23,650 ADT).
5. No Retail (10,480 ADT).

For each alternative that generates traffic, an Existing + Project, Near Term + Project, and Long Term Cumulative (Year 2030) + Project analysis was completed. The analysis included intersections, segments, freeway and ramp. For details, impacts and mitigation please see **Appendix Q** and the DEIR.

TABLE 17-1

Trip Generation Table

Cinema in Phase 1

Proposed Project - Phase 1 (Blocks D & E)

				AM Peak Hour					PM Peak Hour				
Use	**Amount**	**Trip**	**ADT**	**% ***	**#**	**In : Out**	**In**	**Out**	**% ***	**#**	**In : Out**	**In**	**Out**
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) + 3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Retail	100,650 SF	40 /KSF	4,026	3%	121	6 : 4	72	48	9%	362	5 : 5	181	181
Cinema**	10 screens	220 /screen	2,200	0%	0	0 : 0	0	0	24	240	41 : 59	98	142
TOTAL			**12,462**		**980**		**846**	**134**		**1,500**		**422**	**1,078**

Mixed Use Reductions

				AM Peak Hour					PM Peak Hour				
Use	**Amount**	**Trip**	**ADT**	**% ***	**#**	**In : Out**	**In**	**Out**	**% ***	**#**	**In : Out**	**In**	**Out**
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) + 3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Commercial Office Reduction %			3%		5%		5%	5%		4%		4%	4%
Sub-Total Commercial Office Reduction			**187**		**43**		**39**	**4**		**36**		**6**	**30**
Retail	100,650 SF	40 /KSF	4,026	3%	121	6 : 4	72	48	9%	362	5 : 5	181	181
Cinema**	10 screens	220 /screen	2,200	0%	0	0 : 0	0	0	24	240	41 : 59	98	142
Sub-Total Commercial Retail Reduction			**187**		**43**		**39**	**4**		**36**		**6**	**30**
TOTAL REDUCTION			**374**		**86**		**78**	**8**		**72**		**12**	**60**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

**= Cinema is assumed to have no more than 1,200 seats in 10 screens. Using City of San Diego Trip Generation rate of 1.8 trips per seat, then 1,200 seats would generate 2,160 ADT with 6 AM peak hour trips and 173 PM peak hour trips. The results of the analysis in this phase would not change based on using the City's rate. ITE rates were used for the Cinema, refer to ITE Trip Generation, 8th Edition, Land Use #443.

KSF = 1,000 Square Foot

TABLE 17-1

Trip Generation Table

Cinema in Phase 1

NET NEW TRIPS

Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
Proposed Project	12,462	980	846	134	1,500	422	1,078
Mixed Use Reductions	374	86	78	8	72	12	60
TOTAL	**12,088**	**894**	**768**	**126**	**1,428**	**410**	**1,018**

TABLE 17-2

Near Term With & Without Project (Phase 1) Street Segment Summary

Cinema in Phase 1

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	23,041	0.512	0.024	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	38,619	0.772	0.029	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,293	0.826	D	43,831	0.877	0.051	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	E	59,489	0.991	0.079	***YES***
	High Bluff Drive to El Camino Real	PA	C	40,648	0.677	C	46,088	0.768	0.091	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	36,918	0.615	0.054	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	23,879	0.398	0.026	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	20,731	0.346	0.018	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,248	0.271	0.010	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,598	1.107	0.024	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	A	14,816	0.370	0.012	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,277	0.407	0.012	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,526	0.363	0.015	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,098	0.402	0.018	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	18,827	0.377	0.036	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	18,233	0.365	0.031	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	22,123	0.442	0.022	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	30,856	0.686	0.016	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	17,619	0.440	0.030	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,261	0.382	0.024	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,136	0.353	0.015	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,653	0.541	0.012	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,832	0.321	0.006	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	11,905	0.298	0.009	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,296	0.407	0.009	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	11,947	0.398	0.004	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,210	0.770	0.004	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,500	0.700	0.024	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	26,974	2.697	0.024	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

Intersections were evaluated in the Near Term with and without project (Phase 1) scenario to determine any change in significant impacts from the proposed project as a result of the cinema in Phase 1 rather than Phase 3. As shown in **Table 17-3**, there is one (1) new significant impact at the intersection of Del Mar Heights Road and High Bluff Drive. This intersection impact is a result of the cinema in Phase 1, compare **Table 17-3** with **Table 1-16**. Since the intersection of Del Mar Heights Road at High Bluff Drive is significantly impacted, mitigation is required. The proposed mitigation for this intersection is a widening of Del Mar Heights Road receiving lanes and a restriping of the northbound lanes to a provide a third left and a signal modification. This mitigation would move to Phase 1 rather than Phase 2 as shown in **Table 1-29,** and fully mitigate the impact.

Ramp meters were evaluated in the Near Term with and without project (Phase 1) scenario to determine any change in significant impacts from the proposed project as a result of the cinema in Phase 1 rather than Phase 3. As shown in **Table 17-4**, there are no new significant ramp meter impacts as a result of the cinema in Phase 1. Freeways in Phase 1 are assumed to have no significant impacts as a result of the cinema in Phase 1 since Phase 2 with the cinema shows no significant impacts discussed in the next section and all freeway segments operate at acceptable levels of service.

<u>Cinema in Phase 2:</u>

The cinema in Phase 2 of the project generates 20,012 ADT with 1,182 trips in the AM peak hour and 2,261 trips in the PM peak hour. **Table 17-5** shows the trip generation table including the cinema in Phase 2. The 10 screen (1,200 seats) cinema alone adds 2,200 ADT with 0 trips in the AM peak hour and 240 trips in the PM peak hour.

TABLE 17-3

Near Term With & Without Project (Phase 1) Intersection Summary

Cinema in Phase 1

#	Intersection	Near Term				Near Term + Project (Phase 1)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	43.6	D	31.9	C	0.5	N	44.9	D	1.3	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.1	B	0.2	N	27.5	C	2.3	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	18.0	B	21.7	C	1.1	N	18.8	B	0.8	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	21.8	C	1.2	N	15.6	B	0.5	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.5	C	1.2	N	33.7	C	2.3	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.3	A	0.1	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	29.6	C	4.8	N	25.1	C	2.1	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	50.5	D	10.9	N	45.6	D	7.3	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	28.9	C	0.4	N	56.8	E	24.7	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	5.9	A	0.0	N	11.5	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	4.2	A	0.0	N	11.9	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	32.1	C	2.2	N	39.8	D	10.3	N
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	25.7	C	2.8	N	24.3	C	3.2	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	24.8	C	1.2	N	18.1	B	6.2	N
16	Del Mar Heights Road / Lansdale Drive	19	B	17.6	B	20.4	C	1.4	N	18.3	B	0.7	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	13.9	B	0.1	N	10.3	B	0.1	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14	B	7.2	N	23	C	9.5	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.2	C	0.7	N	27.2	C	5.4	N
20	El Camino Real / Townsgate Drive	20.8	C	20.7	C	20.8	C	0.0	N	20.9	C	0.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	26.4	C	2.3	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	23.3	C	2.2	N	27.9	C	1.7	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.6	A	0.2	N	9.5	A	0.4	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.6	B	0.1	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	23.1	C	0.5	N	32.3	C	0.2	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	13.7	B	0.1	N	20.5	C	0.1	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	25	C	0.4	N	30.1	C	6.9	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	16.4	B	1.6	N	19.6	B	0.4	N
29	El Camino Real / SR-56 EB On Ramp	18	B	32.3	C	18.2	B	0.2	N	34.3	C	2.0	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.3	D	0.6	N	27.1	C	0.1	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.5	C	0.1	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.7	D	2.6	N	26	C	0.4	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.3	B	0.1	N	11.6	B	0.7	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.1	B	0.0	N	12	B	0.3	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	50.8	F	2.9	Y	22.9	C	1.2	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist
For Intersection #36, the worst approach delay and level of service was reported.

TABLE 17-4

Near Term With & Without Project (Phase 1) Ramp Meter Summary

Cinema in Phase 1

Most Restrictive Meter Rate

Cinema in Phase 1 - Alternative

Location		Near Term Delay (Min)	Near Term Queue (Ft)	Near Term + Project (Phase 1) Delay (Min)	Near Term + Project (Phase 1) Queue (Ft)	∇	S
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	11.17	1,987	1.88	NO
	PM	0.00	0	5.46	972	5.46	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	1.92	551	1.92	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, if change in delay is greater than 2 minutes and delay is greater than 15 minutes

TABLE 17-5

Trip Generation Table

Cinema in Phase 2

Cinema Alternative in Phase 2
Proposed Project (Blocks A, D, & E)

Use	Amount	Trip	ADT	AM Peak Hour					PM Peak Hour				
				% *	#	In : Out	In	Out	% *	#	In : Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) + 3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Community Shopping Center	166,260 SF	Blended Rate**	11,019	3%	331	6 : 4	198	132	10%	1,102	5 : 5	551	551
Multi-Family Residential	194 DU	6 /DU	1,164	8%	93	2 : 8	19	74	10%	116	7 : 3	81	35
Cinema[1]	10 screens	220 /screen	2,200	0%	0	0 : 0	0	0	24	240	41 : 59	98	142
TOTAL			**20,619**		**1,283**		**991**	**293**		**2,356**		**873**	**1,483**

Mixed Use Reductions

Use	Amount	Trip	ADT	AM Peak Hour					PM Peak Hour				
				% *	#	In : Out	In	Out	% *	#	In : Out	In	Out
Corporate Office	245,000 SF	10 /KSF	2,450	15%	368	9 : 1	331	37	15%	368	1 : 9	37	331
Multi-Tenant Office	291,000 SF	Ln(T) = 0.756 Ln(x) + 3.95	3,786	13%	492	9 : 1	443	49	14%	530	2 : 8	106	424
Commercial Office Reduction %			3%		5%		5%	5%		4%		4%	4%
Sub-Total Commercial Office Reduction			**187**		**43**		**39**	**4**		**36**		**6**	**30**
Multi-Family Residential	194 DU	6 /DU	1,164	8%	93	2 : 8	19	74	10%	116	7 : 3	81	35
Residential Reduction %			10%		8%		8%	8%		10%		10%	10%
Sub-Total Residential Reduction			**116**		**7**		**1**	**6**		**12**		**8**	**3**
Community Shopping Center	166,260 SF	Blended Rate**	11,019	3%	331	6 : 4	198	132	10%	1,102	5 : 5	551	551
Cinema[1]	10 screens	220 /screen	2,200	0%	0	0 : 0	0	0	24	240	41 : 59	98	142
Commercial Retail Reduction			**303**		**50**		**40**	**10**		**48**		**14**	**34**
Sub-Total Commercial Retail Reduction			12,916		280		158	122		1,294		635	659
TOTAL REDUCTION			**607**		**101**		**80**	**21**		**95**		**28**	**67**

Notes:

* = Source: City of San Diego Trip Generation Manual, May 2003

** = Blended Rate: 100,650 sf @ 40/ksf = 4,026 ADT and 30,000 sf @ 150/ksf = 4,500 ADT, and 35,610 sf @ 70/ksf = 2,493 ADT; total ADT is 11,019.

[1] = Cinema is assumed to have no more than 1,200 seats in 10 screens. Using City of San Diego Trip Generation rate of 1.8 trips per seat, then 1,200 seats would generate 2,160 ADT with 6 AM peak hour trips and 173 PM peak hour trips. The results of the analysis in this phase would not change based on using the City's rate. ITE Rates were used for the Cinema, refer to the ITE Trip Generation, 8th Edition, Land Use #443.

DU = Dwelling Unit

KSF = 1,000 Square Foot

TABLE 17-5

Trip Generation Table

Cinema in Phase 2

NET NEW TRIPS

Condition	ADT	AM Peak Hour			PM Peak Hour		
		#	In	Out	#	In	Out
Proposed Project	20,619	1,283	991	293	2,356	873	1,483
Mixed Use Reductions	607	101	80	21	95	28	67
TOTAL	**20,012**	**1,182**	**910**	**272**	**2,261**	**845**	**1,415**

Cinema in Phase 2 cont.

Street segments were evaluated in the Near Term with and without project (Phase 2) scenario to determine any change in significant impacts from the proposed project as a result of the cinema in Phase 2. As shown in **Table 17-6**, no new significant project segment impacts occur as a result of the cinema in Phase 2, compare with **Table 1-14**. So therefore, there is no change in mitigation for street segments if the cinema moved to Phase 2.

Intersections were evaluated in the Near Term with and without project (Phase 2) scenario to determine any change in significant impacts from the proposed project as a result of the cinema in Phase 2 rather than Phase 3. As shown in **Table 17-7**, there are no new significant impacts at any of the intersections as a result of the cinema in Phase 2, compared with **Table 1-17**. So therefore, there is no change in mitigation for intersections if the cinema moved to Phase 2.

Ramp meters were evaluated in the Near Term with and without project (Phase 2) scenario to determine any change in significant impacts from the proposed project as a result of the cinema in Phase 2, compare with **Table 1-23**. As shown in **Table 17-8**, there are no new significant impacts to ramp meters.

Freeway segments were evaluated in the Near Term with and without project (Phase 1 & 2) scenario to determine any change in significant impacts from the proposed project as a result of the cinema in Phase 2, compare with **Table 1-20**. As shown in **Table 17-9**, there are no new significant impacts to freeway segments.

TABLE 17-6

Near Term With & Without Project (Phase 1 & 2) Street Segment Summary

Cinema in Phase 2

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1 & 2)			ΔV/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume*	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	23,489	0.522	0.034	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	39,216	0.784	0.041	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,293	0.826	D	44,876	0.898	0.072	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	61,429	1.024	0.111	***YES***
	High Bluff Drive to El Camino Real	PA	C	40,648	0.677	C	49,654	0.828	0.150	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	38,261	0.638	0.077	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	24,526	0.409	0.037	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	21,179	0.353	0.026	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,497	0.275	0.014	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	B	16,235	0.406	F	16,747	1.116	0.711	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,015	0.375	0.017	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,475	0.412	0.017	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,775	0.369	0.021	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,396	0.410	0.026	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	B	20,016	0.400	0.060	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	19,263	0.385	0.052	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	22,570	0.451	0.031	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,154	0.692	0.023	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	18,116	0.453	0.043	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,659	0.391	0.034	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,384	0.360	0.021	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,852	0.546	0.017	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,932	0.323	0.009	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,054	0.301	0.013	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,445	0.411	0.013	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	11,997	0.400	0.006	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,309	0.772	0.006	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,649	0.710	0.034	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,073	2.707	0.034	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

* Cumulative rate used on segments not fronting the project.

TABLE 17-7

Near Term With & Without Project (Phase 1 & 2) Intersection Summary

Cinema in Phase 2

#	Intersection	Near Term				Near Term + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	43.6	D	32.2	C	0.8	N	47.3	D	3.7	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.3	B	0.4	N	27.1	C	1.9	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	18.0	B	21.8	C	1.2	N	18.4	B	0.4	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	16.4	B	1.3	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.9	C	1.6	N	34.4	C	3.0	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	28.7	C	3.9	N	28.5	C	5.5	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.8	D	10.2	N	51	D	12.7	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	31.3	C	2.8	N	61.3	E	29.2	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.5	A	0.0	N	14.8	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6	A	0.0	N	15.8	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	34.5	C	4.6	N	64	E	34.5	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	26.4	C	3.5	N	26.2	C	5.1	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.0	C	2.4	N	11.9	B	0.0	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.4	C	1.4	N	18.6	B	1.0	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14.0	B	0.2	N	10.2	B	0.0	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14.3	B	7.5	N	28.4	C	14.9	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.4	C	0.9	N	22.7	C	0.9	N
20	El Camino Real / Townsgate Drive	20.8	C	20.7	C	20.9	C	0.1	N	21.9	C	1.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	27.7	C	3.6	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	21.6	C	0.5	N	29.2	C	3.0	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.7	A	0.3	N	9.8	A	0.7	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.9	B	0.4	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	22.8	C	0.2	N	32.7	C	0.6	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.7	C	0.3	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.7	C	8.1	N	30	C	6.8	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15	B	0.2	N	19.9	B	0.7	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.6	B	0.6	N	35.2	D	2.9	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.6	D	0.9	N	30.6	C	3.6	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.6	C	0.2	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.6	C	0.0	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.3	B	1.4	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.1	B	0.4	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	52.0	F	4.1	Y	23.9	C	2.2	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist
For Intersection #36, the worst approach delay and level of service is reported.

TABLE 19-6

Existing & Existing With Project Intersection LOS Summary

(Build-out)

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.7	C	1.0	No	33.5	C	3.5	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	17.0	B	0.4	No	26.4	C	2.6	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	5.0	A	1.7	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.9	C	1.3	No	18.9	B	2.1	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.4	C	0.4	No	14.4	B	0.4	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.9	C	1.2	No	33.4	C	3.7	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.6	A	0.3	No	9.4	A	0.3	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	25.1	C	2.6	No	25.9	C	5.6	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	40.4	D	5.3	No	51.3	D	13.8	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	29.1	C	3.0	No	47.2	D	18.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.7	A	N/A	No	21.2	C	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	N/A	No	22.0	C	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	33.6	C	6.4	No	45.5	D	18.6	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	26.5	C	4.4	No	36.5	D	12.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.3	C	2.6	No	15.4	B	0.5	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.9	C	2.5	No	27.6	C	7.8	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	10.0	A	0.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	19.1	B	11.9	No	28.7	C	16.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.9	C	1.1	No	22.7	C	2.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.8	B	0.6	No	14.1	B	1.1	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	49.2	D	3.9	No	27.7	C	4.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	31.8	C	3.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.7	A	0.4	No	9.8	A	0.8	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.4	B	0.2	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.6	C	0.6	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.2	B	0.0	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.1	C	0.2	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.9	C	4.1	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	16.1	B	0.7	No	26.5	C	2.1	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.4	D	2.4	No	21.6	C	0.9	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	26.0	C	6.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.3	C	0.4	No	25.5	C	2.3	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.4	B	0.5	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	12.1	B	0.6	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	46.2	E	4.6	Yes	22.9	C	2.8	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay

N/A = Not Applicable
DNE = Does Not Exist

TABLE 17-8

Near Term With & Without Project (Phase 1 & 2) Ramp Meter Summary

Cinema in Phase 2

Most Restrictive Meter Rate

Cinema in Phase 2 - Alternative

Location		Near Term		Near Term + Project (Phase 1 & 2)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	13.86	2,465	4.57	NO
	PM	0.00	0	11.33	2,016	11.33	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	3.69	1,059	3.69	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, if change in delay is greater than 2 minutes and delay is greater than 15 minutes

TABLE 17-9

Near Term With & Without Project (Phase 1 & 2) Freeway Summary

Cinema in Phase 2

Segment	Dir.	Near Term		Near Term + Project (Phase 1 & 2)		Δ	Sig.?
		V/C	LOS	V/C	LOS		
I-5							
Lomas Santa Fe Drive/Via De La Valle	NB	0.6354	C	0.6394	C	0.0040	NO
Lomas Santa Fe Drive/Via De La Valle	SB	0.6558	C	0.6599	C	0.0041	NO
Via De La Valle/Del Mar Heights Rd.	NB	0.6481	C	0.6529	C	0.0049	NO
Via De La Valle/Del Mar Heights Rd.	SB	0.6688	C	0.6739	C	0.0050	NO
Del Mar Heights Rd./ SR-56	NB	0.5596	B	0.5679	B	0.0083	NO
Del Mar Heights Rd./ SR-56	SB	0.5774	B	0.5860	B	0.0086	NO
SR-56/ Carmel Mountain Road	NB	0.5778	B	0.5818	B	0.0040	NO
SR-56/ Carmel Mountain Road	SB	0.6325	C	0.6369	C	0.0044	NO
Carmel Mountain Road/ I-805 Merge	NB	0.5613	B	0.5644	B	0.0031	NO
Carmel Mountain Road/ I-805 Merge	SB	0.5512	B	0.5543	B	0.0030	NO
SR-56							
El Camino Real / Carmel Creek Rd.	EB	0.7801	C	0.7838	C	0.0037	NO
El Camino Real / Carmel Creek Rd.	WB	0.7999	D	0.8037	D	0.0038	NO
Carmel Creek Rd. / Carmel Country Rd.	EB	0.7266	C	0.7303	C	0.0037	NO
Carmel Creek Rd. / Carmel Country Rd.	WB	0.7451	C	0.7489	C	0.0038	NO

Legend:

Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?

18.0 TRANSPORTATION DEMAND MANAGEMENT / TRANSIT

Transportation Demand Management, called "TDM" for short, is a strategy designed to reduce traffic impacts by reducing traffic during the AM and PM peak hours of the day. Since most commuting and congestion occur during peak hours, TDM seeks to shift commuters to transportation modes other than cars as well as eliminate peak hour trips by encouraging commuting in non-peak periods, or eliminating the need to travel by providing commercial support uses on-site.

Figure 18-1 shows the proposed bicycle and pedestrian routes through the project.

The One Paseo project is proposing to incorporate a Rideshare Program to encourage alternative transportation programs and/or use of public transit available in the area. **Figure 18-2** shows the future transportation locations for One Paseo. As shown on **Figure 18-2**, a bike station will be provided to visitors and residents of the project to encourage bicycling.

A future transit stop is located on **Figure 18-2** to identify a possible transit stop on El Camino Real. The Carmel Valley Community Plan references a future transportation terminal at or adjacent to the Town Center on the southeast corner of Del Mar Heights Road and El Camino Real. **Figure 18-3** is a figure from the Carmel Valley Community Plan showing possible transit routes on Del Mar Heights Road and El Camino Real.

The One Paseo project also incorporates two shuttle stops on-site to connect the project with activity centers in the surrounding area as shown on **Figure 18-2**.

Other TDM measures which One Paseo proposes to incorporate include the following:

- A TDM association / coordinator for the tenants of One Paseo.
- Priority parking spaces for carpoolers.
- Informational newsletters to residents and tenants discussing Ride Link and other tools for carpooling, bicycling, and alternative modes of transportation.

18.1 TRANSIT

Currently, there are no local or rapid bus routes along the corridors of El Camino Real or Del Mar Heights Road. However, in the 2050 Regional Transportation Plan approved by SANDAG, a Rapid Bus Service (Route 473) is part of the Capital Improvements of the Revenue Constrained Plan. The proposed Rapid Bus Route 473 would travel from Oceanside to UTC via the Highway 101 Coastal Communities such as Carmel Valley. Bus Route 473 would travel along both El Camino Real and Del Mar Heights Road.

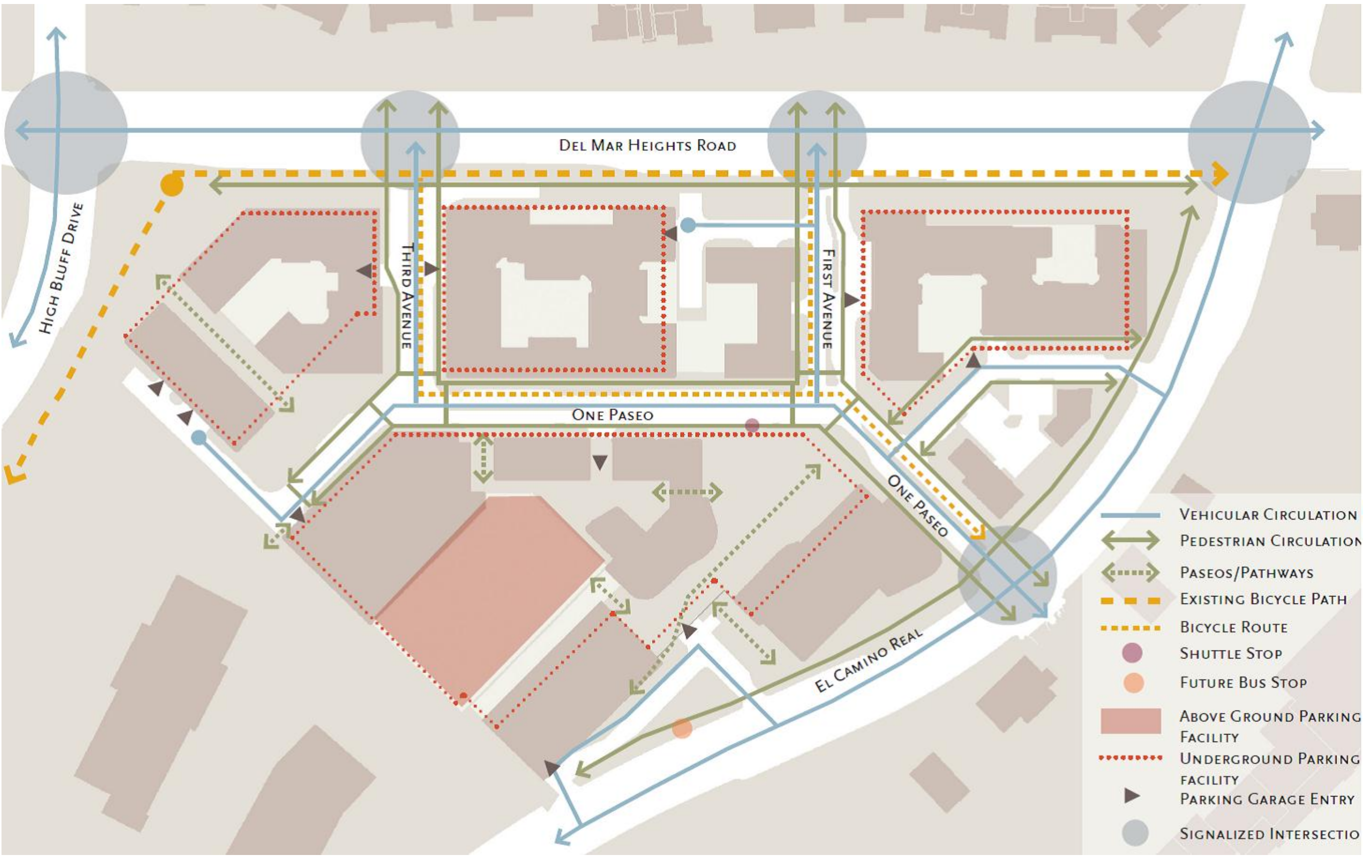


FIGURE 18-1

Bicycle & Pedestrian Circulation Plan

One Paseo – A Main Street for Carmel Valley

Future Transportation Locations

FIGURE 18-2

Future Transportation Locations

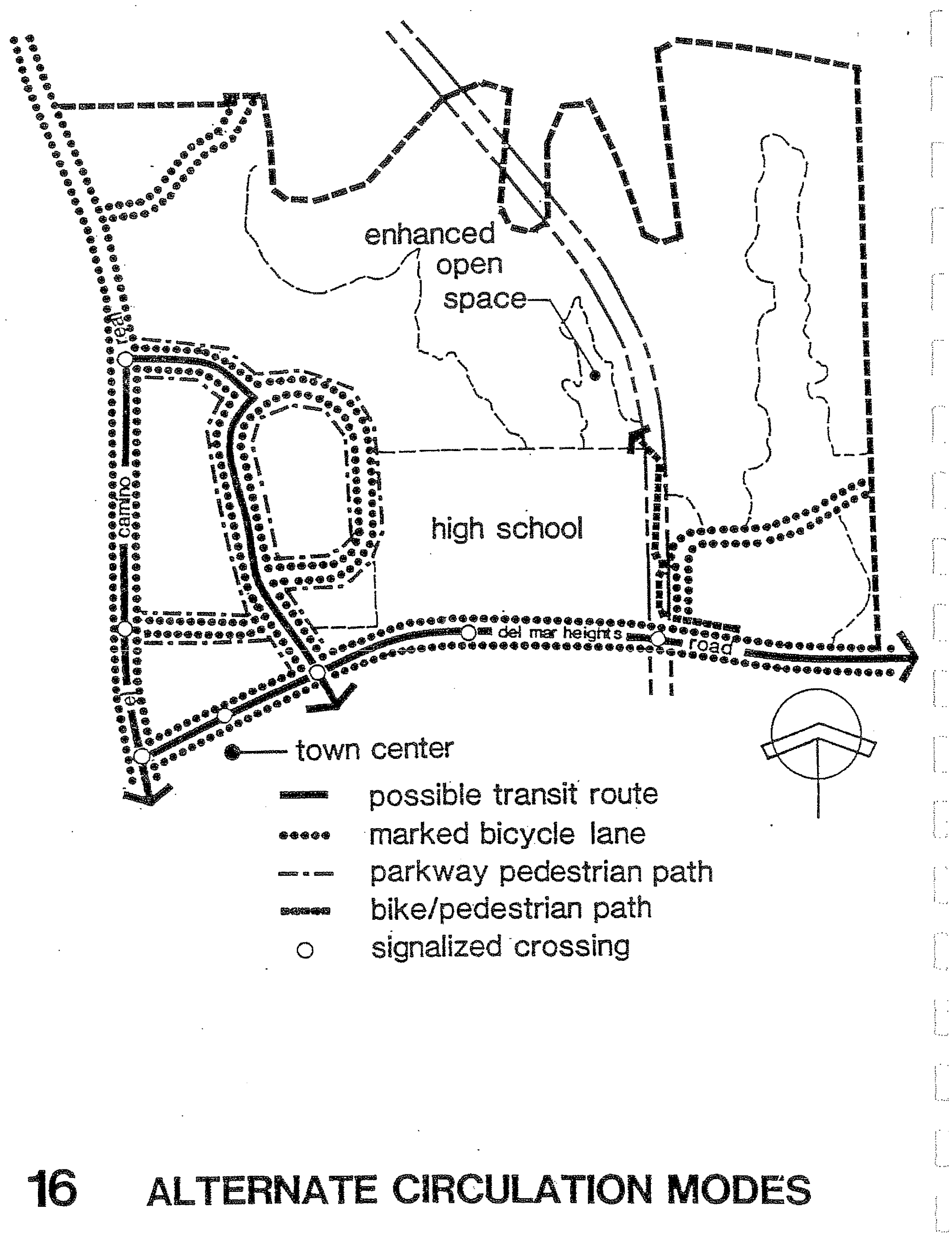


FIGURE 18-3

CARMEL VALLEY COMMUNITY PLAN ALTERNATIVE CIRCULATION MODES

19.0 CONCLUSIONS AND RECOMMENDATIONS

19.1 PROJECT TRIP GENERATION

The One Paseo at full project build-out is expected to generate a maximum of 26,961 average daily vehicle trips with 1,538 AM peak hour trips and 2,932 PM peak hour trips.

19.2 EXISTING CONDITIONS

Street Segments:

All street segments operate at an acceptable level of service in the Existing condition except for the following locations:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F
Via de la Valle	San Andres Dr. to El Camino Real (West)	F

Intersections:

All intersections operate at level of service "D" or better in the Existing condition except for Carmel Creek Road at Del Mar Trail and Carmel Country Road at Carmel Creek Road.

Freeway Segments:

The freeway segments analyzed on Interstate 5 and State Route 56 operate at acceptable levels of service.

Ramp Meter Analysis:

The only ramp showing a delay based on Caltrans most restrictive meter rate is Del Mar Heights Rd. / I-5 SB on ramp (Westbound Loop).

19.3 EXISTING WITH PROJECT

When project traffic in each phase is added to existing traffic, the following direct impacts occur.

DIRECT IMPACTS:

Street Segments:

In Phase 1, Phases 1&2, and Build-out, the project is projected to have three (3) significant direct street segment impacts in each phase. See **Table 19-1**, **Table 19-2**, and **Table 19-3**, respectively.

Intersections:

The analysis shows no significant direct intersection impacts in Phase 1, see **Table 19-4**. However, in Phases 1&2 and Build-out, there is one significant direct intersection impact at Carmel Creek Road at Del Mar Trail. See **Table 19-5** and **Table 19-6**, respectively.

Freeway Main-lanes:

There are no significant direct freeway main-lane impacts in Phase 1, Phases 1&2, and Build-out. See **Table 19-7**, **Table 16-8**, and **Table 19-9**, respectively.

Freeway Ramp Meters:

In Phase 1, Phases 1&2, and Build-out, the analysis shows no significant direct freeway ramp meter impacts. See **Table 19-10**, **Table 19-11**, and **Table 19-12**, respectively.

Mitigation is discussed in Section 19.9.

TABLE 19-1

Existing & Existing With Project Street Segment LOS Summary

(Phase 1)

Road	Segment	Class.	Existing			Existing + Project (Phase 1)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	22,204	0.493	0.020	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	37,273	0.745	0.024	***NO***
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	42,166	0.843	0.042	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	E	55,481	0.925	0.064	***YES***
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	C	42,360	0.706	0.074	***NO***
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	41,371	0.690	0.058	***NO***
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	40,382	0.673	0.041	***NO***
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	35,344	0.589	0.044	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	22,943	0.382	0.021	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	19,961	0.333	0.015	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	15,682	0.261	0.008	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	15,876	1.058	0.020	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,311	0.358	0.010	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	15,729	0.393	0.010	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,010	0.350	0.012	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,518	0.388	0.015	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	16,214	0.324	0.030	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	16,710	0.334	0.026	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	20,254	0.405	0.018	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	28,182	0.626	0.013	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	16,921	0.423	0.025	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	A	14,669	0.367	0.020	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	13,631	0.341	0.012	***NO***
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	B	20,949	0.524	0.010	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,422	0.311	0.005	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,503	0.288	0.007	***NO***
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,159	0.379	0.007	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	10,974	0.366	0.003	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,573	0.726	0.003	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,139	0.676	0.020	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,598	2.460	0.020	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

TABLE 19-2

Existing & Existing With Project Street Segment LOS Summary

(Phase 1 & 2)

Road	Segment	Class.	Existing			Existing + Project (Phase 1 & 2)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	22,917	0.509	0.036	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	38,223	0.764	0.043	***NO***
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	D	43,831	0.877	0.075	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	E	58,572	0.976	0.116	***YES***
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	C	45,925	0.765	0.134	***NO***
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	45,213	0.754	0.122	***NO***
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	45,213	0.754	0.122	***NO***
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	37,483	0.625	0.080	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	A	23,974	0.400	0.039	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	20,674	0.345	0.027	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,079	0.268	0.015	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,113	1.074	0.036	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,627	0.366	0.018	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,045	0.401	0.018	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,407	0.360	0.022	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	15,994	0.400	0.027	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	A	17,403	0.348	0.053	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	17,741	0.355	0.046	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	20,967	0.419	0.032	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	28,658	0.637	0.024	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	17,713	0.443	0.045	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	15,303	0.383	0.036	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,028	0.351	0.022	***NO***
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,265	0.532	0.018	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,580	0.315	0.009	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	11,740	0.294	0.013	***NO***
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,396	0.385	0.013	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,053	0.368	0.006	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,731	0.729	0.006	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,376	0.692	0.036	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,756	2.476	0.036	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

TABLE 19-3

Existing & Existing With Project Street Segment LOS Summary

(Build-out)

Road	Segment	Class.	Existing			Existing + Project (Buildout)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,314	0.474	B	23,740	0.528	0.054	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	36,086	0.722	C	39,321	0.786	0.065	***NO***
	I-5 Southbound Ramps and I-5 Northbound Ramps	5-PA	D	40,090	0.802	E	45,752	0.915	0.113	***YES***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,625	0.860	F	62,140	1.036	0.175	***YES***
	High Bluff Drive to Third Avenue	PA	C	37,910	0.632	D	50,042	0.834	0.202	***NO***
	Third Avenue to First Avenue	PA	C	37,910	0.632	C	48,964	0.816	0.184	***NO***
	First Avenue to El Camino Real	PA	C	37,910	0.632	C	48,964	0.816	0.184	***NO***
	El Camino Real to Carmel Country Road	PA	B	32,674	0.545	C	39,953	0.666	0.121	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	21,658	0.361	B	25,163	0.419	0.058	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,071	0.318	A	21,497	0.358	0.040	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,188	0.253	A	16,536	0.276	0.022	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	15,579	1.039	F	16,388	1.093	0.054	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	13,915	0.348	A	14,993	0.375	0.027	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,333	0.383	B	16,411	0.410	0.027	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,516	0.338	A	14,864	0.372	0.034	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	A	14,925	0.373	B	16,543	0.414	0.040	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	14,731	0.295	B	20,123	0.402	0.108	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	15,425	0.309	A	18,930	0.379	0.070	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	A	19,364	0.387	B	21,790	0.436	0.049	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	27,589	0.613	C	29,207	0.649	0.036	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	15,932	0.398	B	18,628	0.466	0.067	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	13,878	0.347	B	16,035	0.401	0.054	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,137	0.328	A	14,485	0.362	0.034	***NO***
	Carmel Canyon Road to SR-56 Westbound Ramps	4-M	B	20,553	0.514	C	21,631	0.541	0.027	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Road	4-M	A	12,224	0.306	A	12,763	0.319	0.013	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,206	0.280	A	12,015	0.300	0.020	***NO***
	Carmel Grove Road to SR-56 Westbound Ramps	4-M	A	14,862	0.372	B	15,671	0.392	0.020	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	10,875	0.363	B	11,145	0.371	0.009	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,375	0.723	C	43,914	0.732	0.009	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	C	9,842	0.656	D	10,651	0.710	0.054	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	24,400	2.440	F	24,939	2.494	0.054	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

TABLE 19-4

Existing & Existing With Project Intersection LOS Summary

(Phase 1)

#	Intersection	Existing				Existing + Project (Phase 1)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.2	C	0.5	No	30.9	C	0.9	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	16.8	B	0.2	No	25.0	C	1.2	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	4.5	A	1.2	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.5	C	0.9	No	17.5	B	0.7	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.1	C	0.1	No	15.0	B	1.0	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.3	C	0.6	No	31.6	C	1.9	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.5	A	0.2	No	9.2	A	0.1	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	24.2	C	1.7	No	22.2	C	1.9	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	C	37.5	D	36.2	D	1.1	No	38.0	D	0.5	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	26.6	C	0.5	No	34.2	C	5.3	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	5.4	A	N/A	No	10.5	B	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	4.0	A	N/A	No	11.3	B	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	30.6	C	3.4	No	30.3	C	3.4	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	24.9	C	2.8	No	24.9	C	0.6	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	24.0	C	1.3	No	16.6	B	1.7	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	21.7	C	1.3	No	19.9	B	0.1	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	9.8	A	0.0	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	15.9	B	8.7	No	22.7	C	10.3	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.4	C	0.6	No	21.7	C	1.5	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.5	B	0.3	No	13.8	B	0.8	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	46.7	D	1.4	No	25.3	C	2.1	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.5	C	0.3	No	28.8	C	0.9	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.6	A	0.3	No	9.3	A	0.3	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.2	B	0.0	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.0	B	0.4	No	27.7	C	0.7	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.3	B	0.1	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	20.9	C	0.0	No	20.1	C	0.4	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.5	C	3.7	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	15.6	B	0.2	No	25.3	C	0.9	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	38.8	D	1.8	No	20.8	C	0.1	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.7	B	0.1	No	25.0	C	5.5	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.0	C	0.1	No	25.0	C	1.8	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.3	B	0.4	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	11.8	B	0.3	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	43.6	E	2.0	No	20.9	C	0.8	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay

DNE = Does Not Exist
N/A = Not Applicable

TABLE 19-5

Existing & Existing With Project Intersection LOS Summary

(Phase 1 & 2)

#	Intersection	Existing				Existing + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	27.7	C	30.0	C	28.4	C	0.7	No	32.6	C	2.6	No
2	El Camino Real / San Dieguito Road	16.6	B	23.8	C	16.8	B	0.2	No	25.8	C	2.0	No
3	El Camino Real / Derby Downs Road	4.3	A	3.3	A	4.3	A	0.0	No	4.6	A	1.3	No
4	El Camino Real / Half Mile Drive	19.6	B	16.8	B	20.6	C	1.0	No	17.8	B	1.0	No
5	El Camino Real / Quarter Mile Drive	20.0	B	14.0	B	20.1	C	0.1	No	15.1	B	1.1	No
6	Del Mar Heights Road / Mango Drive	31.7	C	29.7	C	32.5	C	0.8	No	32.3	C	2.6	No
7	Del Mar Heights Road / Portofino Drive	9.3	A	9.1	A	9.5	A	0.2	No	9.3	A	0.2	No
8	Del Mar Heights Road / I-5 SB Ramps	22.5	C	20.3	C	24.8	C	2.3	No	24.0	C	3.7	No
9	Del Mar Heights Road / I-5 NB Ramps	35.1	D	37.5	D	37.7	D	2.6	No	41.2	D	3.7	No
10	Del Mar Heights Road / High Bluff Drive	26.1	C	28.9	C	27.4	C	1.3	No	40.4	D	11.5	No
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.8	A	N/A	No	14.1	B	N/A	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6.0	A	N/A	No	15.8	B	N/A	No
13	Del Mar Heights Road / El Camino Real	27.2	C	26.9	C	32.2	C	5.0	No	37.3	D	10.4	No
14	Del Mar Heights Road / Carmel Country Rd	22.1	C	24.3	C	25.5	C	3.4	No	28.6	C	4.3	No
15	Del Mar Heights Road / Torrey Ridge Drive	22.7	C	14.9	B	25.1	C	2.4	No	16.2	B	1.3	No
16	Del Mar Heights Road / Lansdale Drive	20.4	C	19.8	B	22.1	C	1.7	No	23.8	C	4.0	No
17	Del Mar Heights Road / Carmel Canyon Rd	13.4	B	9.8	A	13.6	B	0.2	No	9.9	A	0.1	No
18	El Camino Real / Del Mar Highlands Town Ctr.	7.2	A	12.4	B	17.9	B	10.7	No	26.1	C	13.7	No
19	Carmel Country Road / Townsgate Drive	25.8	C	20.2	C	26.6	C	0.8	No	22.1	C	1.9	No
20	El Camino Real / Townsgate Drive	18.2	B	13.0	B	18.6	B	0.4	No	13.7	B	0.7	No
21	Carmel Country Road / Carmel Creek Rd	45.3	D	23.2	C	47.7	D	2.4	No	25.7	C	2.5	No
22	El Camino Real / High Bluff Drive	25.2	C	27.9	C	25.8	C	0.6	No	30.1	C	2.2	No
23	Carmel View Road / High Bluff Drive	8.3	A	9.0	A	8.6	A	0.3	No	9.5	A	0.5	No
24	Carmel Creek Road / Carmel Grove Rd	26.8	C	17.2	B	26.8	C	0.0	No	17.3	B	0.1	No
25	Carmel Valley Road / I-5 SB Ramps	19.6	B	27.0	C	20.1	C	0.5	No	27.9	C	0.9	No
26	Carmel Valley Road / I-5 NB Ramps	12.6	B	18.2	B	12.6	B	0.0	No	18.4	B	0.2	No
27	El Camino Real / Valley Centre Drive	20.9	C	19.7	B	21.0	C	0.1	No	20.2	C	0.5	No
28	El Camino Real / Carmel Valley Rd	14.0	B	16.8	B	14.9	B	0.9	No	20.6	C	3.8	No
29	El Camino Real / SR-56 EB On Ramp	15.4	B	24.4	C	15.7	B	0.3	No	26.0	C	1.6	No
30	Carmel View Road / Valley Centre Drive	6.7	A	7.8	A	6.7	A	0.0	No	7.8	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	37.0	D	20.7	C	39.0	D	2.0	No	21.5	C	0.8	No
32	Carmel Creek Road / SR-56 EB Ramps	11.6	B	19.5	B	11.8	B	0.2	No	25.6	C	6.1	No
33	Carmel Country Road / Carmel Canyon Rd	31.9	C	23.2	C	32.2	C	0.3	No	25.2	C	2.0	No
34	Carmel Country Road / SR-56 WB Ramps	15.7	B	10.9	B	15.8	B	0.1	No	11.3	B	0.4	No
35	Carmel Country Road / SR-56 EB Ramps	13.4	B	11.5	B	13.4	B	0.0	No	11.9	B	0.4	No
36	Carmel Creek Road / Del Mar Trail	41.6	E	20.1	C	44.5	E	2.9	Yes	21.9	C	1.8	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay

DNE = Does Not Exist
N/A = Not Applicable

TABLE 19-7

Existing & Existing With Project Freeway Summary

(Phase 1)

Segment	Lanes	Capacity	Dir.	Existing		Existing + Project (Phase 1)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6319	C	0.6339	C	0.0020	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6523	C	0.6543	C	0.0020	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6447	C	0.6472	C	0.0024	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6655	C	0.6680	C	0.0025	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5565	B	0.5606	B	0.0041	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5744	B	0.5787	B	0.0042	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5746	B	0.5766	B	0.0020	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6290	C	0.6312	C	0.0022	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5582	B	0.5597	B	0.0015	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5482	B	0.5497	B	0.0015	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8144	D	0.8164	D	0.0020	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8352	D	0.8372	D	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7641	C	0.7661	C	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.7836	C	0.7857	C	0.0020	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP = # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln
#-M = # of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-AX = # of Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

TABLE 19-8

Existing & Existing With Project Freeway Summary

(Phase 1 & 2)

Segment	Lanes	Capacity	Dir.	Existing		Existing + Project (Phase 1 & 2)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6319	C	0.6355	C	0.0035	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6523	C	0.6560	C	0.0037	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6447	C	0.6491	C	0.0043	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6655	C	0.6700	C	0.0045	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5565	B	0.5639	B	0.0074	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5744	B	0.5820	B	0.0076	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5746	B	0.5781	B	0.0036	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6290	C	0.6329	C	0.0039	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5582	B	0.5610	B	0.0028	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5482	B	0.5509	B	0.0027	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8144	D	0.8180	D	0.0036	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8352	D	0.8388	D	0.0037	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7641	C	0.7677	C	0.0036	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.7836	C	0.7873	C	0.0037	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP = # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln
#-M = # of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-AX = # of Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

TABLE 19-9

Existing & Existing With Project Freeway Summary

(Build-out)

Segment	Lanes	Capacity	Dir.	Existing		Existing + Project (Build-out)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6319	C	0.6373	C	0.0054	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6523	C	0.6579	C	0.0055	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6447	C	0.6513	C	0.0066	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6655	C	0.6723	C	0.0068	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5565	B	0.5677	B	0.0112	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5744	B	0.5860	B	0.0116	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5746	B	0.5800	B	0.0054	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6290	C	0.6349	C	0.0059	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5582	B	0.5624	B	0.0042	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5482	B	0.5523	B	0.0041	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8144	D	0.8198	D	0.0054	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8352	D	0.8407	D	0.0056	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7641	C	0.7696	C	0.0054	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.7836	C	0.7892	C	0.0056	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP = # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln
#-M = # of Managed Lanes (Capacity for LOS "C" assumed at 1680 veh/hr/ln taken from Caltrans Guide, December 2002)
#-AX = # of Auxilary lane with LOS E capacity of 1,800 veh/hr/ln
#-HOV = # of High Occupancy Vehicle lane with LOS E capacity of 1,600 veh/hr/ln

TABLE 19-10

Existing & Existing With Project Ramp Meter Summary

(Phase 1)

Most Restrictive Meter Rate

Location		**Existing**		**Existing + Project (Phase 1)**		**∇**	**S**
		Delay (Min)	**Queue (Ft)**	**Delay (Min)**	**Queue (Ft)**		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	6.20	1,102	8.07	1,436	1.88	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**.

TABLE 19-11

Existing & Existing With Project Ramp Meter Summary

(Phase 1 & 2)

Most Restrictive Meter Rate

Location		Existing		Existing + Project (Phase 1 & 2)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	6.20	1,102	10.76	1,914	4.57	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**.

TABLE 19-12

Existing & Existing With Project Ramp Meter Summary

(Build-out)

Most Restrictive Meter Rate

Location		Existing		Existing With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	6.20	1,102	13.53	2,407	7.34	NO
	PM	0.00	0	3.99	711	3.99	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, if change in delay is greater than 2 minutes and delay is greater than 15 minutes
Meter rate is based on the most restrictive meter rate provided by Caltrans, see **Appendix C**.

15 Minute Max. Meter Rate

Location		Existing		Existing With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	0.0	0	22.0	3,509	22.0	NO
	PM	0.0	0	37.3	4,365	37.3	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.0	0	15.0	2,088	15.0	NO
	PM	0.0	0	15.0	1,175	15.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.0	NO
	PM	0.0	0	22.0	4,611	22.0	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.

19.4 NEAR TERM WITHOUT PROJECT

Street Segments:

All street segments are anticipated to operate at an acceptable level of service in the Near Term With-out Project scenario except the following segments:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F
Via de la Valle	San Andres Dr. to El Camino Real (West)	F

Intersections:

All intersections are projected to operate at an acceptable level of service in this condition without the project and without any mitigation assumed except for Carmel Creek Road at Del Mar Trail.

Freeway Segments:

The freeway segments analyzed on Interstate 5 and State Route 56 are projected to operate at acceptable levels of service.

Ramp Meter Analysis:

The only ramp showing a delay based on Caltrans most restrictive meter rate is Del Mar Heights Rd. / I-5 SB on ramp (Westbound Loop) in the AM peak hour.

19.5 NEAR TERM WITH PROJECT PHASE 1

When the existing plus the "cumulative" projects plus the proposed project (Project Phase 1) is added, the following results occur.

Street Segments:

All street segments are projected to operate at acceptable levels of service in the Near Term With Project (Project Phase 1) condition except the following segments:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F
Via de la Valle	San Andres Dr. to El Camino Real (West)	F

Intersections:

All intersections are projected to operate at LOS "D" or better in this condition with the project in Project Phase 1 and without any mitigation assumed except for Carmel Creek Road at Del Mar Trail.

Freeway Segments:

The freeway segments analyzed on Interstate 5 and State Route 56 are projected to operate at acceptable levels of service.

Ramp Meter Analysis:

The ramps showing a delay based on Caltrans most restrictive meter rate is Del Mar Heights Rd. / I-5 SB on ramp (Westbound Loop) and the I-5 NB on ramp at Del Mar Heights Road.

19.6 NEAR TERM WITH PROJECT (Project Phase 1 & 2)

When the existing plus the "cumulative" projects plus the proposed project (Project Phase 1 & 2) is added, the following results occur.

Street Segments:

All street segments are projected to operate at acceptable levels of service in the Near Term With Project (Project Phase 1 & 2) condition except the following segments:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F
Via de la Valle	San Andres Dr. to El Camino Real (West)	F

Intersections:

All intersections are projected to operate at LOS "D" or better in this condition with the project in Project Phase 1 & 2 and without any mitigation assumed except for the following three intersections:

Del Mar Heights Rd. / High Bluff Drive	LOS "E" in the PM Peak
Del Mar Heights Rd. / El Camino Real	LOS "E" in the PM Peak
Carmel Creek Rd. / Del Mar Trail	LOS "F" in the AM Peak

Freeway Segments:

The freeway segments analyzed on Interstate 5 and State Route 56 are projected to operate at level of service D or better.

Ramp Meter Analysis:

Two ramps are showing a delay based on Caltrans most restrictive meter rate are Del Mar Heights Rd. / I-5 SB on ramp (Westbound Loop) and Del Mar Heights Rd. / I-5 NB on-ramp.

19.7 NEAR TERM WITH PROJECT (BUILD-OUT)

When the existing plus the "cumulative" projects plus the proposed project (Build-out) is added, the following results occur.

Street Segments:

All street segments are projected to operate at acceptable levels of service in the Near Term With Project (Build-out) condition except the following segments:

Road	Segment	LOS
Del Mar Heights Rd.	I-5 SB Ramps to I-5 NB Ramps	E
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	F
El Camino Real	Via de la Valle to San Dieguito Rd.	F
Via de la Valle	San Andres Dr. to El Camino Real (West)	F

Intersections:

All intersections are projected to operate at LOS "D" or better in this condition with the project in Project Build-out and without any mitigation assumed except for the following three intersections:

Del Mar Heights Rd. / I-5 NB Ramps	LOS "E" in the PM Peak
Del Mar Heights Rd. / High Bluff Drive	LOS "E" in the PM Peak
Del Mar Heights Rd. / El Camino Real	LOS "E" in the PM Peak
Carmel Creek Rd. / Del Mar Trail	LOS "F" in the AM Peak

Freeway Segments:

The freeway segments analyzed on Interstate 5 and State Route 56 are projected to operate at level of service D or better.

Ramp Meter Analysis:

Three ramps are showing a delay based on Caltrans most restrictive meter rate are Del Mar Heights Rd. / I-5 SB on ramp (Westbound Loop) and Del Mar Heights Rd. / I-5 NB on-ramp.

19.7 DIRECT IMPACTS cont.:

STREET SEGMENTS:

Project Phase 1:

Table 19-13 shows the summary of the direct impacts for Project Phase 1 on street segments within the study area. As shown in the table, significant impacts which occur and require mitigation are identified at three (3) locations shown highlighted in yellow. Mitigation for these impacts is discussed in Section 19.9.

Project Phase 1 & 2:

Table 19-14 shows the summary of the direct impacts for Project Phase 1 & 2 on street segments within the study area. As shown in the table, significant impacts which occur and require mitigation are identified at three (3) locations shown highlighted in yellow, identical to those associated with Project Phase 1. Mitigation for these impacts is discussed in Section 19.9.

Project Build-out:

Table 19-15 shows the summary of the direct impacts for Project Build-out on street segments within the study area. As shown in the table, significant impacts which occur and require mitigation are identified at four (4) locations shown highlighted in yellow, including three impacts identified in Project Phase 1 & 2 plus one additional impact. Mitigation for these impacts is discussed in Section 19.9.

INTERSECTIONS:

Project Phase 1:

Table 19-16 shows the summary of the Near Term impacts with and without the proposed project (Project Phase 1) for intersections within the study area. As shown in the table, there is one (1) significant direct project impact at the intersection of Carmel Creek Road at Del Mar Trail, so therefore, mitigation is required. The intersection is currently four-way stop controlled. In the Existing condition, peak hour warrants for a signal are met for this intersection and provided in **Appendix N**.

Project Phase 1 & 2:

Table 19-17 shows the summary of the Near Term impacts with and without the proposed project (Project Phase 1 & 2) for intersections within the study area. As shown in the table, there are three (3) significant direct project impacts, so therefore, mitigation is required, including the impact identified in Phase 1 plus 2 additional impacts. Mitigation for these impacts is discussed in Section 19.9.

Project Build-out:

Table 19-18 shows the summary of the Near Term impacts with and without the proposed project (Project Build-out) for intersections within the study area. As shown in the table, there are four (4) significant direct project impacts, so therefore, mitigation is required, including 3 impacts shows in Phase 1&2, plus one additional impact. Mitigation for these impacts is discussed in Section 19.9.

TABLE 19-13

Near Term With and Without Project Street Segment LOS Summary

(Phase 1)

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	22,843	0.508	0.020	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	38,355	0.767	0.024	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	43,289	0.866	0.042	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	E	58,631	0.977	0.064	***YES***
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	45,098	0.752	0.074	***NO***
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	C	44,109	0.735	0.058	***NO***
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	43,120	0.719	0.041	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	36,324	0.605	0.044	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	23,593	0.393	0.021	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	20,533	0.342	0.015	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,138	0.269	0.008	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,532	1.102	0.020	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	A	14,728	0.368	0.010	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,189	0.405	0.010	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,416	0.360	0.012	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	15,966	0.399	0.015	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	18,497	0.370	0.030	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	17,947	0.359	0.026	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	21,925	0.438	0.018	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	30,724	0.683	0.013	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	17,399	0.435	0.025	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,085	0.377	0.020	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,026	0.351	0.012	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,565	0.539	0.010	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,788	0.320	0.005	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	11,839	0.296	0.007	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,230	0.406	0.007	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	11,925	0.398	0.003	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,166	0.769	0.003	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,434	0.696	0.020	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	26,930	2.693	0.020	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

PA = 6 lane Primary Arterial

2-Ca=2 lane collector

6-M = 6 lane Major

2-Cb = 2 lane Collector with no fronting property

TABLE 19-14

Near Term With and Without Project Street Segment Significance

(Project Phase 1 & 2)

Road	Segment	Class.	Near Term			Near Term + Project (Phase 1 & 2)			ΔV/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	23,557	0.523	0.036	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	C	39,306	0.786	0.043	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	D	44,953	0.899	0.075	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	61,721	1.029	0.116	***YES***
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	C	48,664	0.811	0.134	***NO***
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	C	47,951	0.799	0.122	***NO***
	First Avenue to El Camino Real	PA	C	40,648	0.677	C	47,951	0.799	0.122	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	38,463	0.641	0.080	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	A	24,623	0.410	0.039	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	21,246	0.354	0.027	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,534	0.276	0.015	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	16,770	1.118	0.036	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,045	0.376	0.018	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,505	0.413	0.018	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	A	14,812	0.370	0.022	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,441	0.411	0.027	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	A	19,686	0.394	0.053	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	A	18,977	0.380	0.046	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	22,638	0.453	0.032	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,199	0.693	0.024	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	18,191	0.455	0.045	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	15,719	0.393	0.036	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,422	0.361	0.022	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	21,882	0.547	0.018	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	12,947	0.324	0.009	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,077	0.302	0.013	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,467	0.412	0.013	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	12,004	0.400	0.006	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,324	0.772	0.006	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,672	0.711	0.036	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,088	2.709	0.036	***YES***

Legend:

LOS= Level of Service
V/C= Volume to Capacity Ratio
ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT
4-M=4 lane Major
PA = 6 lane Primary Arterial
2-Ca=2 lane collector
6-M = 6 lane Major
2-Cb = 2 lane Collector with no fronting property

TABLE 19-15

Near Term With and Without Project Street Segment Significance

(Build-out)

Road	Segment	Class.	Near Term			Near Term + Project (Build-out)			Δ V/C	Is this impact Significant?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	B	21,953	0.488	B	24,013	0.534	0.046	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	37,169	0.743	D	40,404	0.808	0.065	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	D	41,213	0.824	E	46,874	0.937	0.113	***YES***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	54,775	0.913	F	65,290	1.088	0.175	***YES***
	High Bluff Drive to Third Avenue	PA	C	40,648	0.677	D	52,781	0.880	0.202	***NO***
	Thirth Avenue to First Avenue	PA	C	40,648	0.677	D	51,702	0.862	0.184	***NO***
	First Avenue to El Camino Real	PA	C	40,648	0.677	D	51,702	0.862	0.184	***NO***
	El Camino Real to Carmel Country Road	PA	B	33,654	0.561	C	41,473	0.691	0.130	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	A	22,308	0.372	B	25,813	0.430	0.058	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	A	19,643	0.327	A	22,070	0.368	0.040	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	A	15,644	0.261	A	16,992	0.283	0.022	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	16,235	1.082	F	17,044	1.136	0.054	***YES***
	San Dieguito Road to Derby Downs Road	4-M	A	14,332	0.358	B	15,411	0.385	0.027	***NO***
	Derby Downs Road to Half Mile Drive	4-M	B	15,793	0.395	B	16,871	0.422	0.027	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	A	13,921	0.348	B	15,270	0.382	0.034	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	B	15,373	0.384	B	16,990	0.425	0.040	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	A	17,014	0.340	B	22,406	0.448	0.108	***NO***
	Townsgate Drive to High Bluff Drive	6-M	A	16,662	0.333	B	20,167	0.403	0.070	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	B	21,035	0.421	B	23,461	0.469	0.049	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	C	30,131	0.670	C	31,748	0.706	0.036	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	B	16,410	0.410	B	19,106	0.478	0.067	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	A	14,294	0.357	B	16,451	0.411	0.054	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,531	0.338	A	14,879	0.372	0.034	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	21,170	0.529	C	22,248	0.556	0.027	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	12,591	0.315	A	13,130	0.328	0.013	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	A	11,542	0.289	A	12,351	0.309	0.020	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	15,933	0.398	B	16,742	0.419	0.020	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	B	11,826	0.394	B	12,096	0.403	0.009	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	45,968	0.766	C	46,507	0.775	0.009	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	10,137	0.676	D	10,946	0.730	0.054	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	26,732	2.673	F	27,271	2.727	0.054	***YES***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT

5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT

4-M=4 lane Major

PA = 6 lane Primary Arterial

2-Ca=2 lane collector

6-M = 6 lane Major

2-Cb = 2 lane Collector with no fronting property

TABLE 19-16

Near Term With and Without Project Intersection LOS Summary

(Phase 1)

#	Intersection	Near Term				Near Term + Project (Phase 1)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	31.9	C	0.5	N	40.6	D	1.8	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.1	B	0.2	N	27.3	C	2.1	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	14.0	B	21.7	C	1.1	N	14.1	B	0.1	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	21.8	C	1.2	N	15.5	B	0.4	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.2	C	0.9	N	33.5	D	2.1	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.3	A	0.1	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	29.6	C	4.8	N	24.6	C	1.6	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.2	D	9.6	N	43.5	D	5.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	28.9	C	0.4	N	41.3	D	9.2	N
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	5.9	A	0.0	N	10	A	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	4.2	A	0.0	N	10.7	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	32.1	C	2.2	N	37	D	7.5	N
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	25.7	C	2.8	N	23.5	C	2.4	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	24.8	C	1.2	N	16.4	B	4.5	N
16	Del Mar Heights Road / Lansdale Drive	19	B	17.6	B	20.4	C	1.4	N	18.3	B	0.7	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	13.9	B	0.1	N	10.3	B	0.1	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14	B	7.2	N	22.6	A	9.1	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.2	C	0.7	N	27.2	C	5.4	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.7	C	0.0	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	26.1	C	2.0	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	23.3	C	2.2	N	27.7	C	1.5	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.6	A	0.2	N	9.5	A	0.4	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.6	B	0.1	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	23.1	C	0.5	N	32.2	C	0.1	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	13.7	B	0.1	N	20.5	C	0.1	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	25	C	0.4	N	29.7	C	6.5	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	16.4	B	1.6	N	19.6	B	0.4	N
29	El Camino Real / SR-56 EB On Ramp	18	B	32.3	C	18.2	B	0.2	N	34	C	1.7	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.3	D	0.6	N	27.1	C	0.1	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.5	C	0.1	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.7	D	2.6	N	25.9	C	0.3	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.3	B	0.1	N	11.4	B	0.5	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.1	B	0.0	N	11.9	B	0.2	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	50.8	F	2.9	Y	22.6	C	0.9	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist
For Intersection #36, the worst approach delay and level of service was reported.

TABLE 19-17

Near Term With and Without Project Intersection LOS Summary

(Phase 1 & 2)

#	Intersection	Near Term				Near Term + Project (Phase 1 & 2)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.2	C	0.8	N	42.5	D	3.7	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.3	B	0.4	N	26.9	C	1.7	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5.0	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	14.0	B	21.8	C	1.2	N	14.2	B	0.2	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	16.4	B	1.3	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	34.5	C	1.2	N	34.3	C	2.9	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	28.7	C	3.9	N	27.8	C	4.8	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.8	D	10.2	N	50.5	D	12.2	N
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	31.3	C	2.8	N	56.2	E	24.1	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	6.5	A	0.0	N	13.5	B	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	6	A	0.0	N	15.6	B	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	34.5	C	4.6	N	59.1	E	29.6	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	26.4	C	3.5	N	25.6	C	4.5	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.0	C	2.4	N	11.9	B	0.0	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.4	C	1.4	N	18.4	B	0.8	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14.0	B	0.2	N	10.2	B	0.0	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	14.3	B	7.5	N	27.5	C	14.0	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.4	C	0.9	N	22.6	C	0.8	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.3	C	0.0	N	20.9	C	0.2	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	27.4	C	3.3	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	21.6	C	0.5	N	29.0	C	2.8	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.7	A	0.3	N	9.7	A	0.6	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.8	C	0.0	N	17.7	B	0.2	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	22.8	C	0.2	N	32.6	C	0.5	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.6	C	0.2	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.7	C	8.1	N	29.8	C	6.6	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15	B	0.2	N	19.8	B	0.6	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.6	B	0.6	N	35.1	D	2.8	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.6	D	0.9	N	30.6	C	3.6	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.6	C	0.2	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.6	C	0.0	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.3	B	1.4	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.1	B	0.4	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	52.0	F	4.1	Y	23.8	C	2.1	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist
For Intersection #36, the worst approach delay and level of service is reported.

TABLE 19-18

Near Term With and Without Project Intersection LOS Summary

(Build-out)

#	Intersection	Near Term				Near Term + Project (Build-out)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	31.4	C	38.8	D	32.5	C	1.1	N	45.3	D	6.5	N
2	El Camino Real / San Dieguito Road	16.9	B	25.2	C	17.4	B	0.5	N	27.6	C	2.4	N
3	El Camino Real / Derby Downs Road	4.3	A	4.5	A	4.3	A	0.0	N	5	A	0.5	N
4	El Camino Real / Half Mile Drive	20.6	B	14.0	B	22.4	C	1.8	N	14.2	B	0.2	N
5	El Camino Real / Quarter Mile Drive	20.6	C	15.1	B	20.6	C	0.0	N	17.9	B	2.8	N
6	Del Mar Heights Road / Mango Drive	33.3	C	31.4	C	35.1	D	1.8	N	35.9	D	4.5	N
7	Del Mar Heights Road / Portofino Drive	9.4	A	9.2	A	9.6	A	0.2	N	9.4	A	0.2	N
8	Del Mar Heights Road / I-5 SB Ramps	24.8	C	23	C	29.9	C	5.1	N	28.5	C	5.5	N
9	Del Mar Heights Road / I-5 NB Ramps	39.6	D	38.3	D	49.2	D	9.6	N	56.1	E	17.8	Y
10	Del Mar Heights Road / High Bluff Drive	28.5	C	32.1	C	34.2	C	5.7	N	57	E	24.9	Y
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.5	A	0.0	N	21.4	C	0.0	N
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.9	A	0.0	N	25.3	C	0.0	N
13	Del Mar Heights Road / El Camino Real	29.9	C	29.5	C	37.4	D	7.5	N	62.9	E	33.4	Y
14	Del Mar Heights Road / Carmel Country Rd	22.9	C	21.1	C	27.3	C	4.4	N	28.2	C	7.1	N
15	Del Mar Heights Road / Torrey Ridge Drive	23.6	C	11.9	B	26.3	C	2.7	N	12	B	0.1	N
16	Del Mar Heights Road / Lansdale Drive	19.0	B	17.6	B	20.8	C	1.8	N	19.7	B	2.1	N
17	Del Mar Heights Road / Carmel Canyon Rd	13.8	B	10.2	B	14	B	0.2	N	10.7	B	0.5	N
18	El Camino Real / Del Mar Highlands Town Ctr.	6.8	A	13.5	B	15.6	B	8.8	N	30.8	C	17.3	N
19	Carmel Country Road / Townsgate Drive	26.5	C	21.8	C	27.7	C	1.2	N	23.2	C	1.4	N
20	El Camino Real / Townsgate Drive	21.3	C	20.7	C	21.6	C	0.3	N	22.3	C	1.6	N
21	Carmel Country Road / Carmel Creek Rd	58.6	E	24.1	C	60.4	E	1.8	N	28.6	C	4.5	N
22	El Camino Real / High Bluff Drive	21.1	C	26.2	C	22.2	C	1.1	N	30.6	C	4.4	N
23	Carmel View Road / High Bluff Drive	8.4	A	9.1	A	8.8	A	0.4	N	10	A	0.9	N
24	Carmel Creek Road / Carmel Grove Rd	27.8	C	17.5	B	27.9	C	0.1	N	17.9	B	0.4	N
25	Carmel Valley Road / I-5 SB Ramps	22.6	C	32.1	C	23	C	0.4	N	33.1	C	1.0	N
26	Carmel Valley Road / I-5 NB Ramps	13.6	B	20.4	C	14.1	B	0.5	N	20.8	C	0.4	N
27	El Camino Real / Valley Centre Drive	24.6	C	23.2	C	32.9	C	8.3	N	30.5	C	7.3	N
28	El Camino Real / Carmel Valley Rd	14.8	B	19.2	B	15.1	B	0.3	N	20	B	0.8	N
29	El Camino Real / SR-56 EB On Ramp	18.0	B	32.3	C	18.8	B	0.8	N	35.8	D	3.5	N
30	Carmel View Road / Valley Centre Drive	7.4	A	8.3	A	7.4	A	0.0	N	8.3	A	0.0	N
31	Carmel Creek Road / SR-56 WB Ramp	45.7	D	27	C	46.8	D	1.1	N	30.8	C	3.8	N
32	Carmel Creek Road / SR-56 EB Ramps	12.5	B	27.4	C	12.6	B	0.1	N	27.8	C	0.4	N
33	Carmel Country Road / Carmel Canyon Rd	33.1	C	25.6	C	35.9	D	2.8	N	25.8	C	0.2	N
34	Carmel Country Road / SR-56 WB Ramps	16.2	B	10.9	B	16.2	B	0.0	N	12.4	B	1.5	N
35	Carmel Country Road / SR-56 EB Ramps	14.1	B	11.7	B	14.3	B	0.2	N	12.2	B	0.5	N
36	Carmel Creek Road / Del Mar Trail	47.9	E	21.7	C	53.5	F	5.6	Y	25.1	D	3.4	N

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not Exist

DIRECT IMPACTS cont.:

FREEWAY SEGMENTS:

There are <u>no</u> freeway main-lane significant direct project impacts for Phase 1 as shown in **Table 19-19**. Phases 1&2 show <u>no</u> freeway main-lane significant direct project impacts, see **Table 19-20**. Project Build-out shows <u>no</u> freeway main-lane significant direct project impacts, see **Table 19-21**.

RAMP METERS:

Project Phase 1 – The proposed project during this phase has <u>no</u> significant direct ramp meter impacts as shown in **Table 19-22**.

Project Phase 1 & 2 – The proposed project during this phase has <u>no</u> significant direct ramp meter impacts as shown in **Table 19-23**.

Project Build-out – The proposed project during this final phase has <u>no</u> significant direct ramp meter impacts as shown in **Table 19-24**.

TABLE 19-19

Near Term With & Without Project Freeway Summary

(Phase 1)

Segment	Lanes	Capacity	Dir.	Near Term		Near Term with Project (Phase 1)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6354	C	0.6374	C	0.0020	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6558	C	0.6578	C	0.0020	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6481	C	0.6505	C	0.0024	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6688	C	0.6713	C	0.0025	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5596	B	0.5637	B	0.0041	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5774	B	0.5817	B	0.0042	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5778	B	0.5798	B	0.0020	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6325	C	0.6347	C	0.0022	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5613	B	0.5628	B	0.0015	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5512	B	0.5528	B	0.0015	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8461	D	0.8481	D	0.0020	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8676	D	0.8697	D	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7881	C	0.7901	D	0.0020	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.8082	D	0.8102	D	0.0020	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

TABLE 19-20

Near Term With & Without Project Freeway Summary

(Phase 1 & 2)

Segment	Lanes	Capacity	Dir.	Near Term		Near Term + Project (Phase 1 & 2)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6354	C	0.6390	C	0.0035	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6558	C	0.6594	C	0.0037	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6481	C	0.6524	C	0.0043	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6688	C	0.6733	C	0.0045	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5596	B	0.5670	B	0.0074	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5774	B	0.5851	B	0.0076	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5778	B	0.5813	B	0.0036	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6325	C	0.6364	C	0.0039	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5613	B	0.5641	B	0.0028	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5512	B	0.5540	B	0.0027	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8461	D	0.8496	D	0.0036	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8676	D	0.8713	D	0.0037	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7881	C	0.7917	D	0.0036	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.8082	D	0.8118	D	0.0037	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

TABLE 19-21

Near Term With & Without Project Freeway Summary

(Build-out)

Segment	Lanes	Capacity	Dir.	Near Term		Near Term + Project (Build-out)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.6354	C	0.6408	C	0.0054	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.6558	C	0.6613	C	0.0055	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.6481	C	0.6546	C	0.0066	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.6688	C	0.6756	C	0.0068	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.5596	B	0.5708	B	0.0112	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.5774	B	0.5890	B	0.0116	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.5778	B	0.5832	B	0.0054	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.6325	C	0.6384	C	0.0059	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.5613	B	0.5655	B	0.0042	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.5512	B	0.5554	B	0.0041	NO
SR-56									
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	EB	0.8461	D	0.8507	D	0.0046	NO
El Camino Real / Carmel Creek Rd.	2-GP + 1-AX	6,500	WB	0.8676	D	0.8723	D	0.0047	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	EB	0.7881	C	0.7927	D	0.0046	NO
Carmel Creek Rd. / Carmel Country Rd.	2-GP + 1-AX	6,500	WB	0.8082	D	0.8129	D	0.0047	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

TABLE 19-22

Near Term With & Without Project Ramp Meter Summary

(Phase 1)

Most Restrictive Meter Rate

Location		Near Term		Near Term + Project (Phase 1)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	11.17	1,987	1.88	NO
	PM	0.00	0	3.42	609	3.42	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	1.26	363	1.26	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

TABLE 19-23

Near Term With & Without Project Ramp Meter Summary

(Phase 1 & 2)

Most Restrictive Meter Rate

Location		Near Term		Near Term + Project (Phase 1 & 2)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	13.86	2,465	4.57	NO
	PM	0.00	0	10.52	1,871	10.52	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	3.14	899	3.14	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

TABLE 19-24

Near Term With & Without Project Ramp Meter Summary

(Build-out)

Most Restrictive Meter Rate

Location		Near Term		Near Term + Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	9.29	1,653	16.63	2,958	7.34	NO
	PM	0.00	0	15.16	2,697	15.16	NO
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	Meter is not turned on				0.00	NO
	PM	0.00	0	5.01	1,436	5.01	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

19.8 LONG TERM CUMULATIVE (YEAR 2030) WITH & WITHOUT PROJECT

LONG TERM CUMULATIVE IMPACTS:

STREET SEGMENTS:

Street segments operating at an unacceptable level of service in these conditions were discussed in Section 12.0 & 13.0. The street segment Long Term Cumulative (Year 2030) significant impacts are shown on **Table 19-25**. These tables summarize impacts shown in yellow which are expected to occur on street segments in the Year 2030 conditions. As shown in **Table 19-25**, there are three (3) Long Term Cumulative significant street segment impacts.

Proposed mitigation for these street segment impacts is discussed in Section 19.9.

INTERSECTIONS:

Intersections operating at an unacceptable level of service in these conditions were discussed in Section 12.0 & 13.0. The Long Term Cumulative significant intersection impacts are shown in **Table 19-26**. As shown, there are seven (7) Long Term Cumulative significant intersection impacts at five intersections. These intersection impacts are considered Long Term Cumulative impacts and only require a fair-share contribution. Proposed mitigation for these intersection impacts is discussed in Section 19.9.

TABLE 19-25

Year 2030 With & Without Project Street Segment LOS Summary

(Build-out)

Road	Segment	Class.	Year 2030			Year 2030 + Project (Buildout)			Δ V/C	Is this impact Significant ?
			LOS	Volume	V/C	LOS	Volume	V/C		
Del Mar Heights Rd.	Mango Drive to Portofino Drive	5-M	D	39,580	0.880	D	41,639	0.930	0.050	***NO***
	Portofino Drive to I-5 Southbound Ramps	5-PA	C	39,580	0.792	D	42,815	0.856	0.065	***NO***
	I-5 SB Ramps and I-5 NB Ramps	5-PA	C	37,820	0.756	D	43,482	0.870	0.113	***NO***
	I-5 Northbound Ramps to High Bluff Drive	PA	D	51,800	0.863	F	62,315	1.039	0.175	***YES***
	High Bluff Drive to Third Avenue	PA	C	42,770	0.713	D	54,902	0.915	0.202	***NO***
	Thirth Avenue to First Avenue	PA	C	42,770	0.713	D	53,824	0.897	0.184	***NO***
	First Avenue to El Camino Real	PA	C	42,770	0.713	D	53,824	0.897	0.184	***NO***
	El Camino Real to Carmel Country Road	PA	C	38,370	0.640	C	46,189	0.770	0.130	***NO***
	Carmel Country Road to Torrey Ridge Road	PA	B	34,400	0.573	C	37,905	0.632	0.058	***NO***
	Torrey Ridge Road to Lansdale Drive	PA	B	34,400	0.573	C	36,826	0.614	0.040	***NO***
	Lansdale Drive to Carmel Canyon Road	PA	B	34,400	0.573	C	35,748	0.596	0.022	***NO***
El Camino Real	Via de la Valle to San Dieguito Road	2-Ca	F	31,320	2.088	F	32,129	2.142	0.054	***YES***
	San Dieguito Road to Derby Downs Road	4-M	C	29,000	0.725	D	30,078	0.752	0.027	***NO***
	Derby Downs Road to Half Mile Drive	4-M	C	29,000	0.725	D	30,078	0.752	0.027	***NO***
	Half Mile Drive to Quarter Mile Drive	4-M	C	29,000	0.725	D	30,348	0.759	0.034	***NO***
	Quarter Mile Drive to Del Mar Heights Road	4-M	C	29,000	0.725	D	30,618	0.765	0.040	***NO***
	Del Mar Heights Road to Townsgate Drive	6-M	B	23,000	0.460	C	28,392	0.568	0.108	***NO***
	Townsgate Drive to High Bluff Drive	6-M	B	26,000	0.520	C	29,505	0.590	0.070	***NO***
	High Bluff Drive to Valley Centre Drive	6-M	C	35,620	0.712	C	38,046	0.761	0.049	***NO***
	Valley Centre Drive to Carmel Valley Road	5-M	D	36,470	0.810	D	38,088	0.846	0.036	***NO***
Carmel Country Road	Del Mar Heights Road to Townsgate Drive	4-M	C	22,280	0.557	C	24,976	0.624	0.067	***NO***
	Townsgate Drive to Carmel Creek Road	4-M	B	18,800	0.470	B	20,957	0.524	0.054	***NO***
	Carmel Creek Road to Carmel Canyon Road	4-M	A	13,590	0.340	A	14,938	0.373	0.034	***NO***
	Carmel Canyon Road to SR-56 WB Ramps	4-M	C	26,000	0.650	C	27,078	0.677	0.027	***NO***
Carmel Canyon Road	Del Mar Heights Road to Carmel Country Rd.	4-M	A	13,000	0.325	A	13,539	0.338	0.013	***NO***
Carmel Creek Road	Carmel Country Road to Carmel Grove Road	4-M	B	15,000	0.375	B	15,809	0.395	0.020	***NO***
	Carmel Grove Road to SR-56 WB Ramps	4-M	B	17,000	0.425	B	17,809	0.445	0.020	***NO***
Valley Centre Drive	Carmel View Road to Carmel Creek Road	4-C	D	20,000	0.667	D	20,270	0.676	0.009	***NO***
Carmel Valley Road	I-5 Northbound Ramps to El Camino Real	PA	C	43,020	0.717	C	43,559	0.726	0.009	***NO***
High Bluff Drive	Del Mar Heights Road to El Camino Real	2-Ca	D	11,700	0.780	D	12,509	0.834	0.054	***NO***
Via de la Valle	San Andres Drive to El Camino Real (West)	2-Cb	F	33,100	3.310	F	33,639	3.364	0.054	***YES***

Legend:

LOS= Level of Service
V/C= Volume to Capacity Ratio
ΔV/C= Change in V/C ratio

5-M = 5 lane Major with LOS E capacity of 45,000 ADT
5-PA = 5 lane Primary Arterial with LOS E capacity of 50,000 ADT
4-M=4 lane Major
PA = 6 lane Primary Arterial
2-Ca=2 lane collector
6-M = 6 lane Major
2-Cb = 2 lane Collector with no fronting property

TABLE 19-26

Year 2030 With & Without Project Intersection Summary

(Build-out)

#	Intersection	Year 2030				Year 2030 + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	El Camino Real / Via de la Valle	22.2	C	19.1	B	23.1	C	0.9	No	20.4	C	1.3	No
2	El Camino Real / San Dieguito Road	24.2	C	47.2	D	26.7	C	2.5	No	52.5	D	5.3	No
3	El Camino Real / Derby Downs Road	4.3	A	5.1	A	4.3	A	0.0	No	5.1	A	0.0	No
4	El Camino Real / Half Mile Drive	22.9	C	14.0	B	24.8	C	1.9	No	14.1	B	0.1	No
5	El Camino Real / Quarter Mile Drive	20.6	C	12.1	B	25.2	C	4.6	No	12.7	B	0.6	No
6	Del Mar Heights Road / Mango Drive	36.8	D	29.3	C	39.6	D	2.8	No	35.7	D	6.4	No
7	Del Mar Heights Road / Portofino Drive	9.8	A	9.6	A	10.1	B	0.3	No	10.1	B	0.5	No
8	Del Mar Heights Road / I-5 SB Ramps	26.1	C	22.4	C	29	C	2.9	No	25.7	C	3.3	No
9	Del Mar Heights Road / I-5 NB Ramps	71.5	E	55.5	E	107.1	F	35.6	Yes	94.0	F	38.5	Yes
10	Del Mar Heights Road / High Bluff Drive	44.0	D	40.1	D	55.3	E	11.3	Yes	80.2	F	40.1	Yes
11	Del Mar Heights Road / Third Avenue	DNE	DNE	DNE	DNE	8.3	A	0.0	No	20.7	C	0.0	No
12	Del Mar Heights Road / First Avenue	DNE	DNE	DNE	DNE	7.7	A	0.0	No	20.9	C	0.0	No
13	Del Mar Heights Road / El Camino Real	35.0	C	41.5	D	50.8	D	15.8	No	84.1	F	42.6	Yes
14	Del Mar Heights Road / Carmel Country Rd	33.6	C	34.1	C	41.3	D	7.7	No	49.3	D	15.2	No
15	Del Mar Heights Road / Torrey Ridge Drive	29.5	C	11.9	B	33.1	C	3.6	No	14.4	B	2.5	No
16	Del Mar Heights Road / Lansdale Drive	32.7	C	18.7	B	41.1	D	8.4	No	20.9	C	2.2	No
17	Del Mar Heights Road / Carmel Canyon Rd	29.4	C	16.0	B	29.8	C	0.4	No	17.2	B	1.2	No
18	El Camino Real / Del Mar Highlands Town Ctr.	6.2	A	14.2	B	17.4	B	11.2	No	33.7	C	19.5	No
19	Carmel Country Road / Townsgate Drive	32.0	C	29.8	C	32.9	C	0.9	No	34.6	C	4.8	No
20	El Camino Real / Townsgate Drive	22.5	C	24.3	C	22.7	C	0.2	No	35.4	D	11.1	No
21	Carmel Country Road / Carmel Creek Rd	41.5	D	19.7	B	45.7	D	4.2	No	21.5	C	1.8	No
22	El Camino Real / High Bluff Drive	22.9	C	33.6	C	24.4	C	1.5	No	40.0	D	6.4	No
23	Carmel View Road / High Bluff Drive	8.9	A	9.8	A	9.3	A	0.4	No	10.9	B	1.1	No
24	Carmel Creek Road / Carmel Grove Rd	15.3	B	11.4	B	15.3	B	0.0	No	17.3	B	5.9	No
25	Carmel Valley Road / I-5 SB Ramps	25.3	C	30.9	C	26.3	C	1.0	No	35.3	D	4.4	No
26	Carmel Valley Road / I-5 NB Ramps	26.8	C	19.6	B	27.3	C	0.5	No	20.0	B	0.4	No
27	El Camino Real / Valley Centre Drive	22.0	C	27.4	C	22.2	C	0.2	No	29.3	C	1.9	No
28	El Camino Real / Carmel Valley Rd	22.0	C	17.6	B	22.2	C	0.2	No	19.2	B	1.6	No
29	El Camino Real / SR-56 EB On Ramp	23.1	C	89.0	F	23.6	C	0.5	No	97.6	F	8.6	Yes
30	Carmel View Road / Valley Centre Drive	7.7	A	6.2	A	7.7	A	0.0	No	6.2	A	0.0	No
31	Carmel Creek Road / SR-56 WB Ramp	47.0	D	42.6	D	54.2	D	7.2	No	53.3	D	10.7	No
32	Carmel Creek Road / SR-56 EB Ramps	15.0	B	22.9	C	15.0	B	0.0	No	23.4	C	0.5	No
33	Carmel Country Road / Carmel Canyon Rd	34.5	C	33.4	C	36.6	D	2.1	No	34.1	C	0.7	No
34	Carmel Country Road / SR-56 WB Ramps	17.1	B	9.9	A	17.1	B	0.0	No	12.7	B	2.8	No
35	Carmel Country Road / SR-56 EB Ramps	20.1	C	18.2	B	22.0	C	1.9	No	18.7	B	0.5	No
36	Carmel Creek Road / Del Mar Trail	43.3	E	20.6	C	48.3	E	5.0	Yes	23.6	C	3.0	No

Notes:
LOS = Level of Service
Δ = Change
S = Significant
D= Delay
DNE = Does not exist
For Intersection #36, the worst approach delay and level of service is reported.

LONG TERM CUMULATIVE IMPACTS CONTINUED:

FREEWAY SEGMENTS:

Freeway segments operating at an unacceptable level of service in Year 2030 with and without the project were discussed in Section 12.0 & 13.0. As shown in **Table 19-27**, there are NO freeway segment cumulative significant impacts, therefore, no mitigation is required.

RAMP METERS:

The ramp meter analysis for the I-5 / Del Mar Heights Rd. northbound and southbound ramps and SR-56 EB on ramps at El Camino Real and Carmel Country Road in Year 2030 with and without the project is discussed in Section 12.0 & 13.0. As shown in **Table 19-28**, there are three (3) cumulative significant impacts at two ramps. If the change in delay exceeds two minutes and the freeway level of service is "F", then the ramp is considered significant and mitigation is required. Proposed mitigation for these ramp meter impacts is discussed in Section 19.9.

TABLE 19-27

Year 2030 With & Without Project Freeway Summary

(Build-out)

Segment	Lanes	Capacity	Dir.	Year 2030		Year 2030 + Project (Buildout)		Δ	Sig.?
				V/C	LOS	V/C	LOS		
I-5									
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	NB	0.7370	C	0.7424	C	0.0054	NO
Lomas Santa Fe Drive/Via De La Valle	4-GP+1-AX+1-HOV	12,800	SB	0.7608	C	0.7663	C	0.0055	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	NB	0.7771	C	0.7837	C	0.0066	NO
Via De La Valle/Del Mar Heights Rd.	5-GP+1-M	13,450	SB	0.8022	D	0.8090	D	0.0068	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	NB	0.6956	C	0.7068	C	0.0112	NO
Del Mar Heights Rd./ SR-56	6-GP+1-M	15,780	SB	0.7180	C	0.7296	C	0.0116	NO
SR-56/ Carmel Mountain Road	9-GP+1-M	22,830	NB	0.8172	D	0.8226	D	0.0054	NO
SR-56/ Carmel Mountain Road	8-GP+1-M	20,480	SB	0.8946	D	0.9005	D	0.0059	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	NB	0.7548	C	0.7590	C	0.0042	NO
Carmel Mountain Road/ I-805 Merge	10	23,500	SB	0.7413	C	0.7454	C	0.0041	NO
SR-56									
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	8,850	EB	0.9847	E	0.9881	E	0.0034	NO
El Camino Real / Carmel Creek Rd.	3-GP + 1-AX	8,850	WB	1.0098	F	1.0132	F	0.0035	NO
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	8,850	EB	0.9027	D	0.9061	D	0.0034	NO
Carmel Creek Rd. / Carmel Country Rd.	3-GP + 1-AX	8,850	WB	0.9257	E	0.9292	E	0.0035	NO

Legend:
Dir.= Direction
V/C= Volume to Capacity Ratio
LOS= Level of Service
Sig.?= Is this significant?
#-GP= # of General Purpose Lanes with LOS E capacity of 2,350 veh/hr/ln.
#-M=# of Managed Lanes (Capacity for LOS "C" assumed at 1,680 veh/hr/ln taken from Caltrans Guide, December 2002)
AX = Auxiliary Lane with LOS "E" capacity of 1,800 veh/hr/ln.
HOV = High Occupancy Vehicle lane with LOS"E" capacity of 1,600 veh/hr/ln.

TABLE 19-28

Year 2030 With & Without Project Ramp Meter Summary

(Build-out)

Most Restrictive Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	40.27	7,163	47.61	8,468	7.34	YES
	PM	5.22	928	29.84	5,307	24.62	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	0.00	0	1.37	392	1.37	NO
	PM	8.30	2,378	16.04	4,597	7.74	YES
El Camino Real / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	3.93	2,277	4.78	2,770	0.85	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	0.00	0	0.00	0	0.00	NO
	PM	0.00	0	0.00	0	0.00	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, if change in delay is greater than 2 minutes and delay is greater than 15 minutes
Meter rates are based on the most restrictive meter rate provided by Caltrans, see **Appendix C**

15 Minute Max. Meter Rate

Location		Year 2030		Year 2030 With Project (Buildout)		∇	S
		Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)		
Del Mar Heights Rd. / I-5 SB on Ramp (Westbound Loop)	AM	15.0	3,567	20.5	4,872	5.5	YES
	PM	15.0	2,320	43.3	6,699	28.3	YES
Del Mar Heights Rd. / I-5 SB on Ramp (Eastbound)	AM	15.0	2,291	15.0	2,291	0.0	NO
	PM	15.0	1,740	15.0	1,740	0.0	NO
Del Mar Heights Rd. / I-5 NB on Ramp	AM	15.0	3,393	17.8	4,031	2.8	YES
	PM	15.0	3,915	23.6	6,148	8.6	YES
El Camino Real / SR-56 EB on Ramp	AM	15.0	4,060	15.5	4,205	0.5	NO
	PM	15.0	7,415	16.0	7,903	1.0	NO
Carmel Country Rd. / SR-56 EB on Ramp	AM	15.0	1,914	16.1	2,059	1.1	NO
	PM	15.0	1,711	19.3	2,204	4.3	NO

Notes:
Δ = Change in Delay (minutes)
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS E is 2 min.
S = Significant, the allowable increase in delay at a ramp meter with more than 15 minutes delay and freeway LOS F is 1 min.

19.9 MITIGATION

Table 19-29 shows a summary of the proposed mitigation as the project is phased.

Table 19-30 summarizes the "with mitigation" levels of service which may be expected at intersections mitigated by the One Paseo project. **Table 19-31** summarizes the "with mitigation" levels of service which may be expected at street segments mitigated by the One Paseo project.

Table 19-32 shows a summary of the improvements and fair share contributions to the intersections that have significant impacts as a result of the project. The combined fair share contribution for all five intersection improvements is estimated at $2,251,800.

Table 19-33 shows a summary of the improvements and fair share contributions to the street segments that have significant impacts as a result of the project. Per the City's request, the Via de la Valle contribution is based similar to other projects in the area contributing to the widening project. The combined estimated fair share contribution for all six improvements is estimated at $3,474,800. So the total mitigation cost for street, ramp and intersection impacts is estimated at $5,726,600. **Table 19-34** shows the summary of project features. Appendix **N** includes the opinions of probable costs for each improvement. A conceptual striping layout of Del Mar Heights Road between the I-5 SB ramps and High Bluff Drive is included in **Appendix N**. Also included in **Appendix N** is a conceptual layout of the improvements to El Camino Real at SR-56 eastbound on-ramp. The widening of Del Mar Heights Road was evaluated to determine if widening is feasible, see **Appendix N** for details.

TABLE 19-29

Transportation Mitigation Phasing Plan

#	Location	Responsible Party	Improvement	Impact Fully Mitigated?	When Impact is Signficant ?
Project Phase 1 9,888 ADT with 894 AM (768 in / 126 out) & 1,188 PM (312 in / 876 out) Peak Hour Trips Prior to issuance of first building permit, the following improvements shall be assured to the satisfaction of the City Engineer					
10	Del Mar Heights Rd. / High Bluff Dr.	One Paseo	Widen to provide a dedicated Northbound Right Turn Lane	Yes	Phase 1&2
11	Del Mar Heights Road / Third Avenue	One Paseo	Project Access to be Signalized: Add two left turn lanes and one right turn lane in the NB direction; Widen to add a WB left turn lane and an EB right turn lane.	Yes	Phase 1
12	Del Mar Heights Road / First Avenue	One Paseo	Project Access to be Signalized: Add one left turn lane and one right turn lane in the NB direction; Widen to provide two WB left turn lanes and an EB right turn lane.	Yes	Phase 1
13	Del Mar Heights Rd. / El Camino Real	One Paseo	Widen to provide a 365 foot long dedicated EB right turn lane	Yes	Phase 1 & 2
18	El Camino Real / Del Mar Highlands Town Center	One Paseo	Modify Signalized Intersection and Add EB leg: In the EB direction, provide a dedicated left turn lane and a left/through/right turn lane. In the NB direction, widen for a dual left turn lane; in the SB direction, widen for a right turn lane.	Yes	Phase 1
A	El Camino Real (Via de la Valle to San Dieguito Rd.)	City of San Diego CIP/One Paseo	Widen to a 4 lane major	Partially*	Phase 1
9	Del Mar Heights Rd. / I-5 NB Ramps	One Paseo	Modify I-5 NB On/Off Ramps: Widen Off-Ramp to include dual left and shared through/right and right turn lane at intersection; Extend WB right turn pocket by 845 feet; Reconfigure median on bridge to extend EB dual left turn pocket to 400 feet.	Partially	Project Buildout
BB	I-5 NB Ramp Meter / Del Mar Heights Road	One Paseo	Widen to provide HOV lane to NB on ramp	Yes	Project Buildout
B	Del Mar Heights Rd. (I-5 SB Ramps to I-5 NB Ramps) Bridge	One Paseo	Reconfigure median on bridge to extend EB dual left turn pocket to 400 feet.	Partially	Project Buildout
C	Del Mar Heights Rd. (I-5 NB Ramps to High Bluff Dr.)	One Paseo	Extend WB right turn pocket at I-5 NB ramps by 845 feet.	Partially	Phase 1
D	Via de la Valle (San Andres Dr. to El Camino Real)	One Paseo & Other Projects	Contribute fair share (19.4%) towards the widening to a 4 lane Major.	Partially*	Phase 1
36	Carmel Creek / Del Mar Trail	One Paseo	Signalize Intersection	Yes	Phase 1
Project Phase 2 17,812 ADT with 1,182 AM (910 in / 272 out) & 2,021 PM (747 in / 1,273 out) Peak Hour Trips Prior to issuance of first building permit in Phase 2, the following improvements shall be assured to the satisfaction of the City Engineer					
10	Del Mar Heights Rd. / High Bluff Dr.	One Paseo	Widen Del Mar Heights Road on north side receiving lanes and restripe and modify signal to provide third left turn lane in the NB direction. Modify EB & WB left turn lanes to dual left turn lanes. Widen EB approach by 2 feet on the south side to accommodate dual EB & WB left turn lanes.	Yes	Phase 1&2
Project Buildout 26,961 ADT with 1,538 AM (1,057 in / 481 out) & 2,932 PM (1,231 in / 1,701 out) Peak Hour Trips Prior to issuance of first building permit in Phase 3, the following fair share contributions shall be made to the satisfaction of the City Engineer					
AA	I-5 SB (Loop) Ramp Meter / Del Mar Heights Road	One Paseo & Other Projects	Contribute fair share (34.8%) towards widening to add an HOV lane to the on-ramp.	Partially	Project Buildout
29	El Camino Real / SR-56 EB On Ramp	One Paseo & Other Projects	Contribute fair share (3.5%) of the cost of the following improvement: Widen & Restripe EB approach to provide 1 left, 1 through/left, 1 through, and 2 dedicated right turn lanes	Yes	Project Buildout

Notes:
* Notwithstanding the applicant's fair share financial contribution, the timing of these improvements are uncertain and cannot be assured prior to the issuance of the first project building permit, therefore the impact is considered significant and partially mitigated.
AA & BB = Ramp Meters
All improvements and contributions are to be assured to the satisfaction of the City Engineer.
A,B,C, D = Street Segments
#'s = Intersections

TABLE 19-30

Intersection Levels of Service With & Without Mitigation

Near Term + Project (Phase 1 & 2)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	49.8	D	50.5	D	43.4	D	46.4	D
10	Del Mar Heights Road / High Bluff Drive*	Signalized	31.3	D	56.2	E	20.7	C	27.8	C
11	Del Mar Heights Road / Third Avenue*	Signalized	6.5	A	13.5	B	5.5	A	12.5	B
12	Del Mar Heights Road / First Avenue*	Signalized	6.0	A	15.6	B	5.0	A	10.0	B
13	Del Mar Heights Road / El Camino Real*	Signalized	34.5	C	59.1	E	34.2	C	45.6	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	18.6	B	35.1	D	18.3	B	28.0	C
36	Carmel Creek Road / Del Mar Trail**	Signalized	52.0	F	23.8	C	16.9	B	9.9	A

Near Term + Project (Build-out)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	49.2	D	56.1	E	49.0	D	55.4	E
10	Del Mar Heights Road / High Bluff Drive*	Signalized	34.2	D	57	E	21.6	C	31.7	C
11	Del Mar Heights Road / Third Avenue*	Signalized	8.5	A	21.4	C	6.9	A	14.8	B
12	Del Mar Heights Road / First Avenue*	Signalized	7.9	A	25.3	C	7.0	A	12.7	B
13	Del Mar Heights Road / El Camino Real*	Signalized	37.4	D	62.9	E	34.5	C	49.7	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	18.8	B	35.8	D	18.5	B	28.8	C
36	Carmel Creek Road / Del Mar Trail**	Signalized	53.5	F	25.1	D	16.9	B	9.9	A

Year 2030 + Project (Build-out)

Number	Intersection	Control	Without Mitigation				With Mitigation			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
9	Del Mar Heights Road / I-5 NB Ramps*	Signalized	107.1	F	94.0	F	96.1	F	78.2	E
10	Del Mar Heights Road / High Bluff Drive*	Signalized	55.3	E	80.2	F	32.6	C	43.4	D
11	Del Mar Heights Road / Third Avenue*	Signalized	8.3	A	20.7	C	7.4	A	19.7	B
12	Del Mar Heights Road / First Avenue*	Signalized	7.7	A	20.9	C	8.6	A	17.5	B
13	Del Mar Heights Road / El Camino Real*	Signalized	50.8	D	84.1	F	44.9	D	50.2	D
29	El Camino Real / SR-56 EB On-Ramp	Signalized	23.6	C	97.6	F	23.5	C	53.4	D
36	Carmel Creek Road / Del Mar Trail**	Signalized	48.3	E	23.6	C	18.8	B	10.0	A

Notes:

LOS = Level of Service

* = Signals are coordinated.

Orange indicates unacceptable level of service.

**Intersection #36 is two-way stop controlled without mitigation.

TABLE 19-31

Street Segments Levels of Service With Mitigation

Near Term + Project (Phase 1 & 2)

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	I-5 SB Ramps and I-5 NB Ramps	SD	5-PA	50,000	44,953	0.90	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	61,721	1.03	F
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	4-M	40,000	27,088	0.68	C

Near Term + Project (Build-out)

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	I-5 SB Ramps and I-5 NB Ramps	SD	5-PA	50,000	46,874	0.94	E
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	65,290	1.09	F
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	4-M	40,000	27,271	0.68	C

Year 2030 + Project

Road	Segment	Jurisd.	Class.	Cap.	Volume	V/C	LOS
Del Mar Heights Rd.	I-5 SB Ramps and I-5 NB Ramps	SD	5-PA	50,000	43,482	0.87	D
	I-5 Northbound Ramps to High Bluff Drive	SD	PA	60,000	62,315	1.04	F
Via de la Valle	San Andres Drive to El Camino Real (West)	SD	4-M	40,000	33,639	0.84	D

Legend:

SD= City of San Diego
Cap.= Capacity
Class.= Classification
LOS= Level of Service
V/C= Volume to Capacity Ratio

5-PA = 5 lane Prime Arterial has LOS E capacity of 50,000 ADT
PA = 6 lane Prime Arterial
4-M =4 lane Major

TABLE 19-32

Summary of Mitigation

(Intersections)

Location	Intersection	Direct or Cumulative Significant Impact?	Mitigation Responsibility	Description	Impact Fully or Partially Mitigated?	Current Estimated Cost of Improvement	Fair Share Percentage	Current Estimated Fair Share Contribution*
# 10	Del Mar Heights Rd. / High Bluff Dr.	Direct & Cumulative	One Paseo to construct	Widen to provide dedicated NB right turn lane at Phase 1 & widen Del Mar Heights Rd. on north side receiving lanes and restripe NB left and rephase signal to provide triple left. Modify EB & WB left turn lanes to dual left turn lanes. Widen EB approach by 2 feet on the south side to occomodate the EB & WB dual lefts.	Fully Mitigated	$532,700	100.0%	$532,700
# 13	Del Mar Heights Rd. / El Camino Real	Direct & Cumulative	One Paseo to construct	Widen to provide dedicated 365 foot long EB right turn lane	Fully Mitigated	$463,400	100.0%	$463,400
# 36	Carmel Creek Rd. / Del Mar Trail	Direct & Cumulative	One Paseo to construct	Signalize	Fully Mitigated	$200,000	100%	$200,000
#9	Del Mar Heights Rd. / I-5 NB Ramps	Direct & Cumulative	One Paseo	Modify I-5 NB On/Off Ramps:Widen & Restripe off-ramp to include dual left, a shared through/right and right turn lanes.Extend WB right turn pocket by 845 feet; Reconfigure median on bridge to extend dual left turn pocket to 400 feet. ☊	Partially Mitigated	$1,045,000	100.0%	$1,045,000
# 29	El Camino Real / SR-56 EB On-Ramp	Cumulative	One Paseo & Other Projects	Widen & Restripe the EB approach to provide 1 left, 1 through/left, I through, and 2 dedicated right turn lanes	Fully Mitigated	$305,100	3.5%	$10,700
						TOTAL ESTIMATED COST		**$2,251,800**

* The actual dollar amount of the fair share contribution will depend on the cost estimate current at the time the payment is made, satisfactory to the City Engineer.

Note: ☊Caltrans has identified improvements for the I-5 / Del Mar Heights Road interchange and SR-56 EB on-ramp at El Camino Real as the result of their continuing efforts to implement the I-5 / SR-56 connectors project as well as the I-5 North Coast Corridor project. See discussion in Section 19.10 in the report.

TABLE 19-33

Summary of Mitigation

(Street Segments & Ramp Meters)

Road	Street Segment	Direct or Cumulative Significant Impact?	Mitigation Responsibility	Description	Impact Mitigated?[2]	Current Estimated Cost of Improvement	Fair Share Percentage	Current Estimated Fair Share Contribution[1]
Del Mar Heights Rd.	I-5 SB Ramps to I-5 NB Ramps (Bridge)	Direct ①	One Paseo to construct	Reconfigure median on bridge to extend EB to NB dual left turn pocket to 400 feet	Partially	Cost is included in Int. # 9	100%	Cost is included in Int. # 9
El Camino Real	Via de la Valle to San Dieguito Road	Direct & Cumulative	City of San Diego CIP (T-12.3)	Widen to 4 lane Major	Partially	$5,800,000	4.9%	$284,000
Del Mar Heights Rd.	I-5 NB Ramps to High Bluff Dr.	Direct & Cumulative	One Paseo to construct	Widen to lengthen by 845 feet the WB right turn pocket at I-5 NB ramps and modify raised median.	Partially	Cost is included in Int. # 9	100%	Cost is included in Int. # 9
Via de la Valle	San Andres Dr. to El Camino Real	Direct & Cumulative	One Paseo & Other Projects	Widen to 4 lane Major	Partially	$15,800,000	19.4%	$3,069,000*
I-5 Southbound (Loop) Ramp Meter / Del Mar Heights Road		Cumulative	One Paseo & Other Projects	Widen to add an HOV lane to the loop ramp	Partially	$350,000	34.8%	$121,800
I-5 Northbound Ramp Meter / Del Mar Heights Road		Cumulative	One Paseo to construct	Widen to add an HOV lane to the ramp	Yes	Cost is included in Int. # 9	32.6%	Cost is included in Int. # 9
						TOTAL ESTIMATED COST		$3,474,800

* 539 ADT x $5,692.61 per ADT = $3,069,000

[1] The actual dollar amount of the fair share contribution will depend on the cost estimate current at the time the payment is made, satisfactory to the City Engineer.

[2] These impacts are partially mitigated due to a fair share contribution towards the improvement such as El Camino Real and Via de la Valle and/or improvements are consistent with Caltrans I-5 North Coast Corridor project, however, not below a level of significance.

Note: ① Caltrans has identified improvements for the I-5 / Del Mar Heights Road interchange as the result of their continuing efforts to implement the I-5 / SR-56 connectors project as well as the I-5 North Coast Corridor project. See discussion in Section 19.10 in the report.

TABLE 19-34

Summary of Project Features

Location	Intersection	Responsibility	Description
# 11 & 12	Del Mar Heights Road / Third & First Avenue	One Paseo to construct	Signalize Third & First Avenue. Include single left turn lane at Third Ave in the WB direction. Include dual left turn lane at First Ave in WB direction. Include dedicated right turn lanes for both Third and First Ave in the EB direction. Widen Del Mar Heights Road to include curb, gutter & sidewalk
# 18	El Camino Real / Market Street/Del Mar Highlands Town Center	One Paseo to construct	Modify signal to include fourth leg for project access. Widen to provide SB right turn lane. Modify median to provide dual lefts in the NB direction. In the EB direction, provide dedicated left turn lane, and a shared left, through, right turn lane.

19.10 CALTRANS MITIGATION

Extensive efforts by the project applicant to coordinate with Caltrans were initiated early in the process of preparing this traffic study. The following discussion is based on those coordination efforts. The northbound off-ramp, northbound on-ramp, and southbound loop on-ramp improvements at Del Mar Heights Road and I-5 were actually overlaid on the Caltrans interchange improvements to be sure improvements were consistent with Caltrans proposed improvements. These exhibits were then provided to Caltrans I-5 North Coast Corridor engineers and reviewed for consistency. Caltrans engineers determined that the applicants proposed interchange ramp improvements were in fact consistent with Caltrans Corridor improvements. The following discussion and concepts for ramp improvements were based on these coordination efforts with Caltrans engineers.

As discussed in this report, the project has impacts that require mitigation at the I-5 Del Mar Heights Road interchange, within the jurisdiction of Caltrans. **Figure 19-1** shows one concept for interchange improvements. This figure is from the CALTRANS FTP site for the I-5 North Coast Corridor Study and represents the most impactive alternative being considered by Caltrans, i.e. the 10 + 4 with buffer alternative.

As shown in the exhibit, there are six (6) northbound through lanes, five (5) southbound through lanes and four (4) median HOV lanes. The widening and main lane improvements are accomplished by building retaining walls under each end of the existing Del Mar Heights Road bridge, but the existing bridge itself is retained.

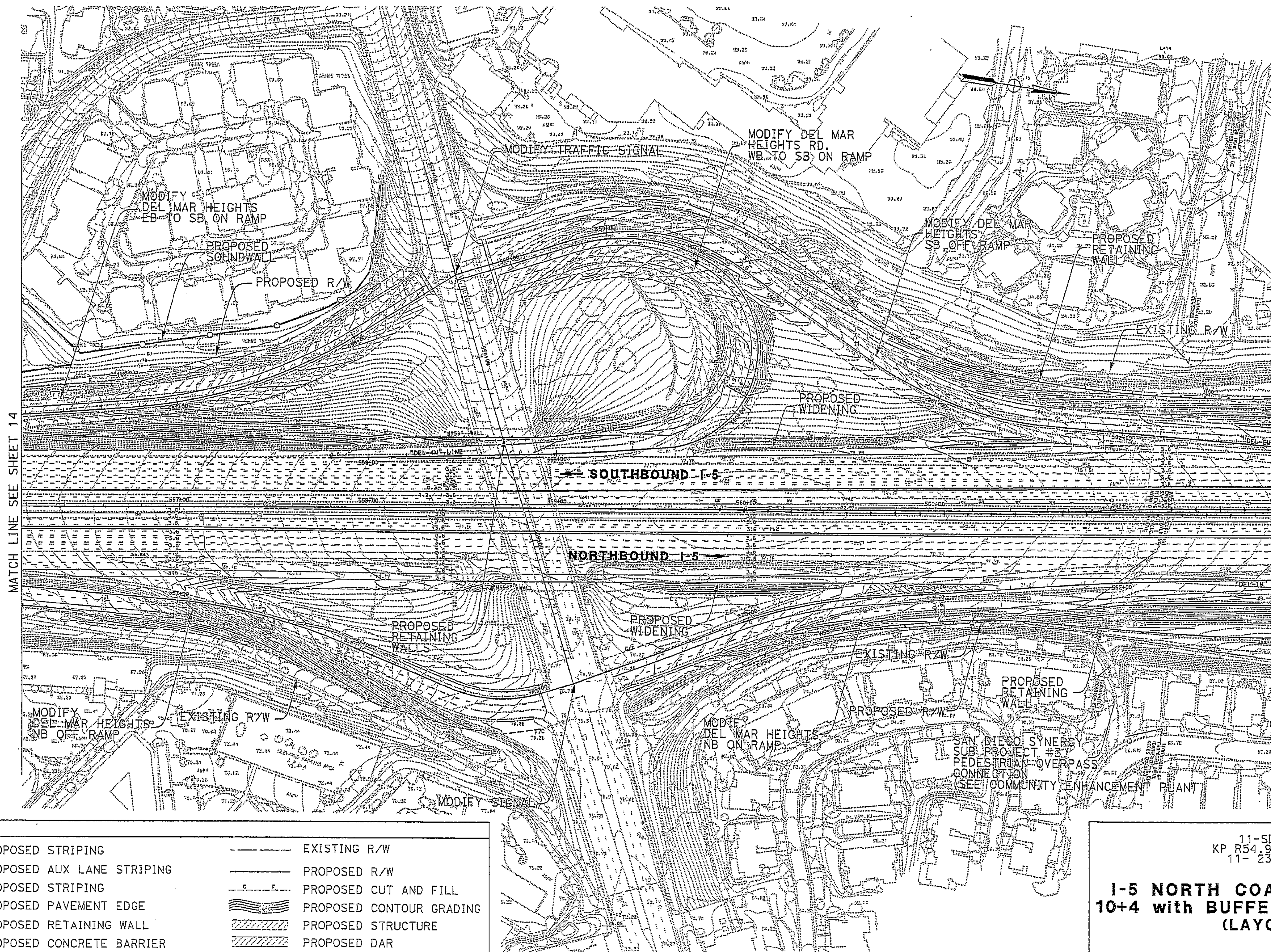
The proposed I-5 corridor improvements have not yet been approved. There is an extensive environmental review process and public information process underway. **Appendix R** summarizes the current status of review and anticipated schedule for Caltrans environmental review. **Table 19-35** summarizes this information. As shown in **Table 19-35**, the Caltrans EIR has been finalized from Manchester North to SR-78 but for the section of I-5 which includes the Del Mar Heights Road interchange, the main lane EIR is not planned to be complete until after July of 2012. Consequently, until an improvement option is selected or approved by Caltrans, a final recommendation for mitigation cannot be determined.

Figure 19-1 also shows northbound off ramp, northbound on ramp, and southbound loop on ramp improvements to add HOV or additional lanes. No improvements however are shown on Del Mar Heights Road itself. This is because Del Mar Heights Road is a City street, not within the jurisdiction of Caltrans.

FIGURE 19-1

Caltrans I-5 North Coast Corridor 10+4 with Buffer Alternative (Layout)

(See Next Page)



LEGEND

PROPOSED STRIPING	EXISTING R/W
PROPOSED AUX LANE STRIPING	PROPOSED R/W
PROPOSED STRIPING	PROPOSED CUT AND FILL
PROPOSED PAVEMENT EDGE	PROPOSED CONTOUR GRADING
PROPOSED RETAINING WALL	PROPOSED STRUCTURE
PROPOSED CONCRETE BARRIER	PROPOSED DAR
PROPOSED RETAINING WALL/BARRIER	PROPOSED DETENTION BASIN
PROPOSED SOUNDWALL	PROPOSED BIOSWALE
PROPOSED SYNERGY SUBPROJECT	REMOVE/REPLACE GUARDRAIL

11-SD-5
KP R54.9/R87.9
11- 235800

I-5 NORTH COAST CORRIDOR
10+4 with BUFFER ALTERNATIVE
(LAYOUT)

EXHIBIT A1

SCALE 1:2000

SHEET 15 OF 68

TABLE 19-35

North Coast Corridor Schedule

Project	Overall Schedule	DEIR/FEIR Schedule
I-5 North Coast/ Two HOV lanes (Manchester to SR-78)	Feb. 2010 to April 2019	DONE
Lomas Interchange / Two HOV lanes (Sorrento Valley Blvd. to N/O Lomas Santa Fe)	Jan. 2001 to Nov. 2016	Jan. 2001 to 2006 (Final EIR - July 2006)
I-5 North Coast/ Four main lanes (La Jolla Village Dr. to Vandergrift Blvd.)	May 2004 to Jan. 2013	Sept. 2005 to April 2010 (Final - July 2012)

Figure 19-2 A and B shows a conceptual striping layout for the northbound off ramp, northbound on ramp improvements with the additional HOV lane, plus improvements on Del Mar Heights Road.

In addition to the northbound off/on ramps, the eastbound left turn lanes are proposed to be extended on the Del Mar Heights Road bridge. The westbound right turn lane extension is intended to provide sufficient storage so that eastbound left turning vehicles onto the northbound I-5 on ramp do not extend beyond the turn lane thus blocking one of the two through lanes on Del Mar Heights Road. On Del Mar Heights Road between I-5 NB ramps and High Bluff Drive, the eastbound left/u-turn lane has been removed and reconstruction of the median is proposed to accommodate the extended WB right turn lane, see **Figure 19-2 A**.

Other suggested improvements shown on **Figure 19-2 A** include a longer west to northbound I-5 on right turn lane. Again, the purpose of the extension is to provide turn lane storage sufficient for future traffic growth to minimize or avoid blockage of through lanes on Del Mar Heights Road. Another design concept feature shown on this figure is eastbound to northbound dual left turn lanes from Del Mar Heights Road to High Bluff Drive. This feature improves overall traffic flow along Del Mar Heights Road but is not related to the interchange improvements.

Figure 19-2 C shows proposed westbound to southbound loop on ramp improvements. The addition of a HOV lane and elimination of the westbound free right turn lane along with realignment of the southbound on ramp are also proposed to improve interchange operation.

The traffic analysis bases the improvements identified and discussed in this section on a comparison of three different studies of future traffic conditions in the I-5 Del Mar Heights Road interchange area. **Appendix S** contains these comparisons which are based upon:

FIGURE 19-2 A

(See Next Page)

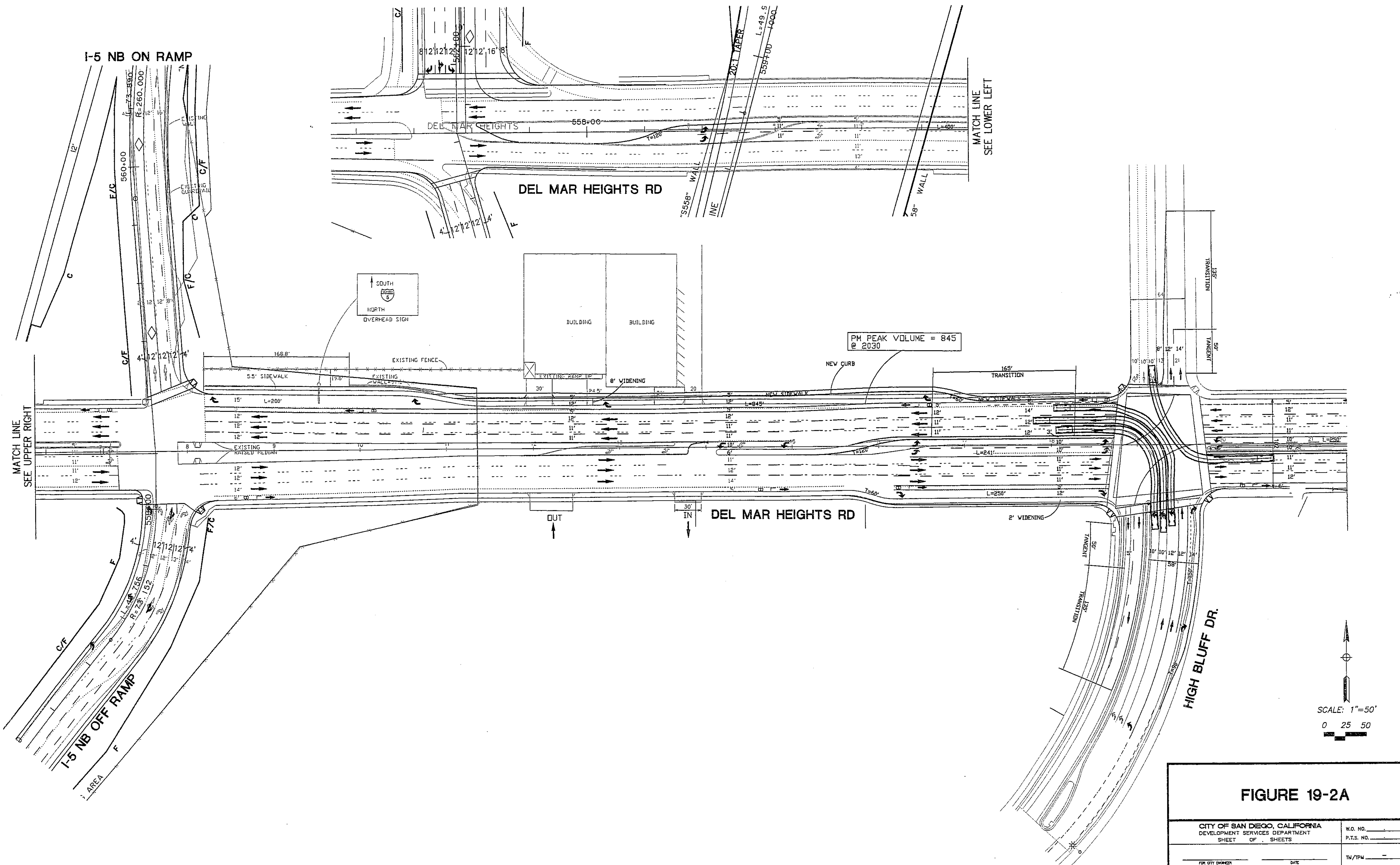


FIGURE 19-2A

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET OF SHEETS

W.O. NO.
P.T.S. NO.
TM/TPM

FOR CITY ENGINEER DATE

DESCRIPTION	BY	APPROVED	DATE	FILMED
ORIGINAL	USAI			

PID
EOT
NAD 83 COORDINATES
LAMBERT COORDINATES

CONTRACTOR DATE STARTED
INSPECTOR DATE COMPLETED

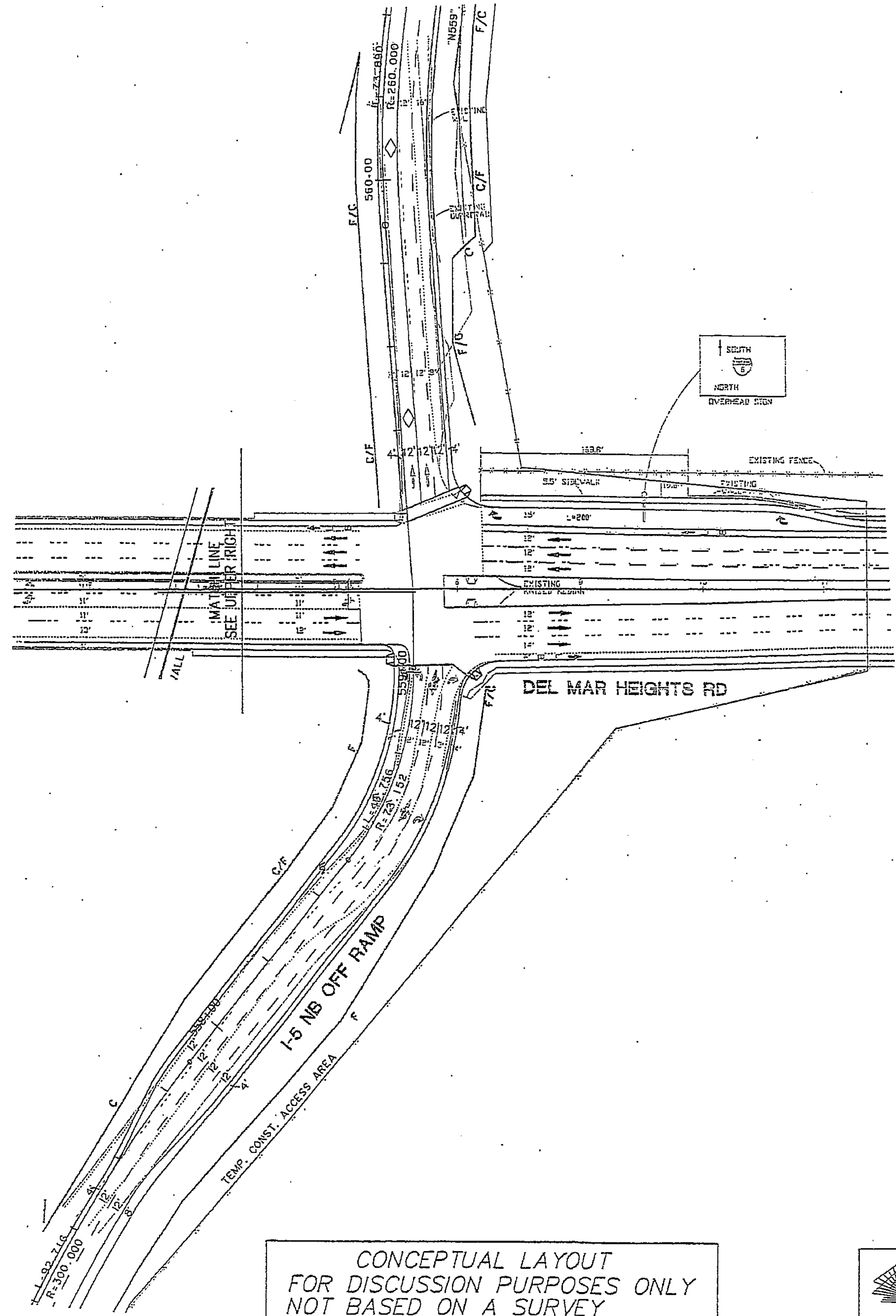
URBAN SYSTEMS ASSOCIATES, INC.
4540 KEARNY VILLA ROAD, SUITE 106
SAN DIEGO, CA 92123, (619) 560-4911
©

CONCEPTUAL LAYOUT
FOR DISCUSSION PURPOSES ONLY
NOT BASED ON A SURVEY

NOTE: PRELIMINARY OPINION OF COST BASED ON CONCEPTUAL PLANS WHICH ARE SUBJECT TO SIGNIFICANT CHANGE BASED ON AGENCY REVIEW AND APPROVAL.

FIGURE 19-2 B

(See Next Page)



NOTE: PRELIMINARY OPINION OF COST BASED ON CONCEPTUAL PLANS WHICH ARE SUBJECT TO SIGNIFICANT CHANGE BASED ON AGENCY REVIEW AND APPROVAL.

CONCEPTUAL LAYOUT
FOR DISCUSSION PURPOSES ONLY
NOT BASED ON A SURVEY

URBAN SYSTEMS ASSOCIATES, INC.
4540 KEARNY VILLA ROAD, SUITE 106
SAN DIEGO, CA 92123, (619) 560-4911

FIGURE 19-2B

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET OF SHEETS

USAI

FILE NAME: 2407-PD-04_D 12-12-11 MV

FIGURE 19-2 C

(See Next Page)

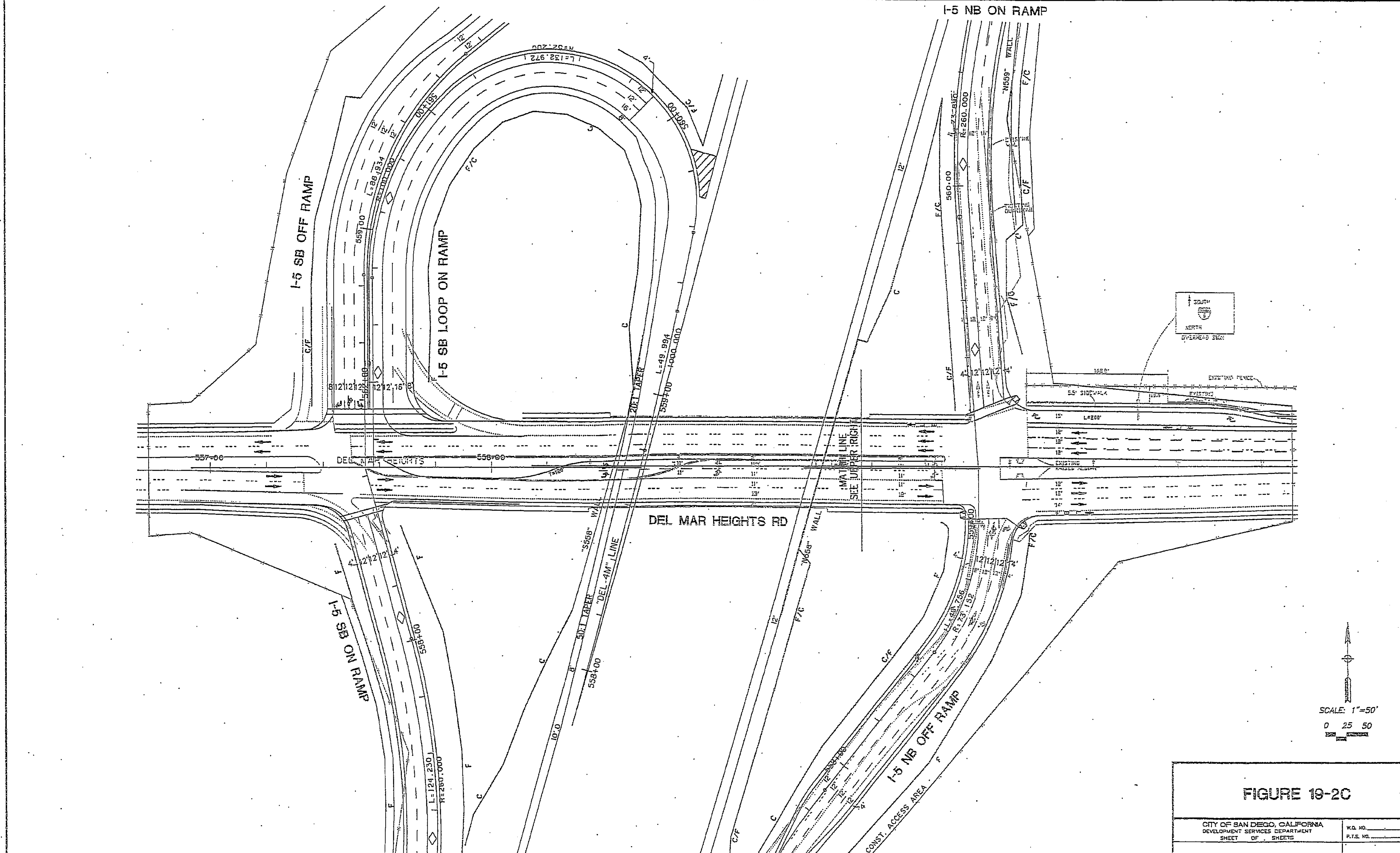


FIGURE 19-2C

CITY OF SAN DIEGO, CALIFORNIA
DEVELOPMENT SERVICES DEPARTMENT
SHEET OF SHEETS

URBAN SYSTEMS ASSOCIATES, INC.
4540 KEARNY VILLA ROAD, SUITE 106
SAN DIEGO, CA 92123, (619) 560-4911

USAI

CONCEPTUAL LAYOUT
FOR DISCUSSION PURPOSES ONLY
NOT BASED ON A SURVEY

NOTE: PRELIMINARY OPINION OF COST BASED ON CONCEPTUAL PLANS WHICH ARE SUBJECT TO SIGNIFICANT CHANGE BASED ON AGENCY REVIEW AND APPROVAL.

FILE NAME: 2407-PD-05_D 12-12-11 MV

A. The I-5 North Coast Corridor Study – The Wilson Co.

B. The I-5/SR-56 Northbound Connector Study – LLG

C. One Paseo (this project) Traffic Study – Urban Systems

As shown by the comparisons in this appendix, the Year 2030 future traffic volumes from all three studies are consistent.

In addition to the I-5 North Coast Corridor Study there is an I-5 / SR-56 connectors study also underway by Caltrans. Caltrans is presently studying 5 alternatives as summarized in **Table 19-36**. These alternatives are shown in **Figures 19-3 A, B, C and D**.

As discussed on **Table 19-36** and as illustrated on **Figures 19-3 A, B, C and D**, some of the connector study alternatives impact the I-5 Del Mar Heights Road bridge by either replacing or widening the bridge. If any of the replacement or bridge widening alternatives are selected in the future, then the ramp improvements illustrated in **Figures 19-2 A, B and C** may be rendered infeasible.

Because both the I-5 North Coast Corridor study and I-5/SR-56 Connector study propose widening by Caltrans, as of the time of preparation of this analysis, the future configuration of the I-5 Del Mar Heights Road interchange is uncertain. The applicant has met with Caltrans staff on numerous occasions to seek agreement on mitigation of the projects' impacts to Caltrans facilities in a manner consistent with the various Caltrans' improvements proposals detailed above. The following section discusses mitigation of the project's cumulative impacts through fair share contributions by the developer and/or physical improvements to the interchange.

TABLE 19-36

I-5 / SR-56 Connectors Alternatives

Project Description

1. No Build Alternative

The no build option contains no new construction and/or measures to mitigate changes in traffic conditions.

2. Auxiliary Lane Alternative (only local and freeway improvements, no connectors)

Includes widening of the city street and the freeway. This alternative would not construct either the Westbound to Northbound or the Southbound to Eastbound Connector. West of I-5, new retaining walls would be constructed on the existing slopes, but impacts would be east of the existing sound walls.

3. Direct Connector Alternative(includes the two missing connectors)

This alternative would require the realignment of Portofino Circle. To the North of Portofino Circle, new retaining walls are anticipated in the area of the existing sound walls. This alternative would require easements and would have right of way impacts, **but would not require acquisition of residence**

4. Hybrid Connector Alternative (one connector only)

Construct the Westbound to Northbound connector and the Auxiliary Lane Alternative components in the south to east direction. Please note: while studies are required for both Westbound/Northbound and Southbound/Eastbound connectors, if the cost and impacts of one significantly outweighs its benefits, that factor can cause only one to be constructed.

5. Modified Hybrid Connector Alternative

The Hybrid with Flyover Alternative is a variation of the Hybrid Alternative. This alternative includes a proposed flyover structure that would connect eastbound Carmel Valley Road to the eastbound SR-56 fast lane, in addition to the westbound SR-56 to northbound I-5 connector featured in the Direct Connector Alternative. The Hybrid with Flyover Alternative would require use of non-standard lane and shoulder widths along Carmel Valley Road and would require tunneling behind the Carmel Valley Road undercrossing abutments to provide pedestrian/bicycle access. The Hybrid with Flyover Alternative would provide operational improvements in the westbound and northbound directions and would provide slight operational improvements over the Hybrid Alternative in the southbound and eastbound directions.

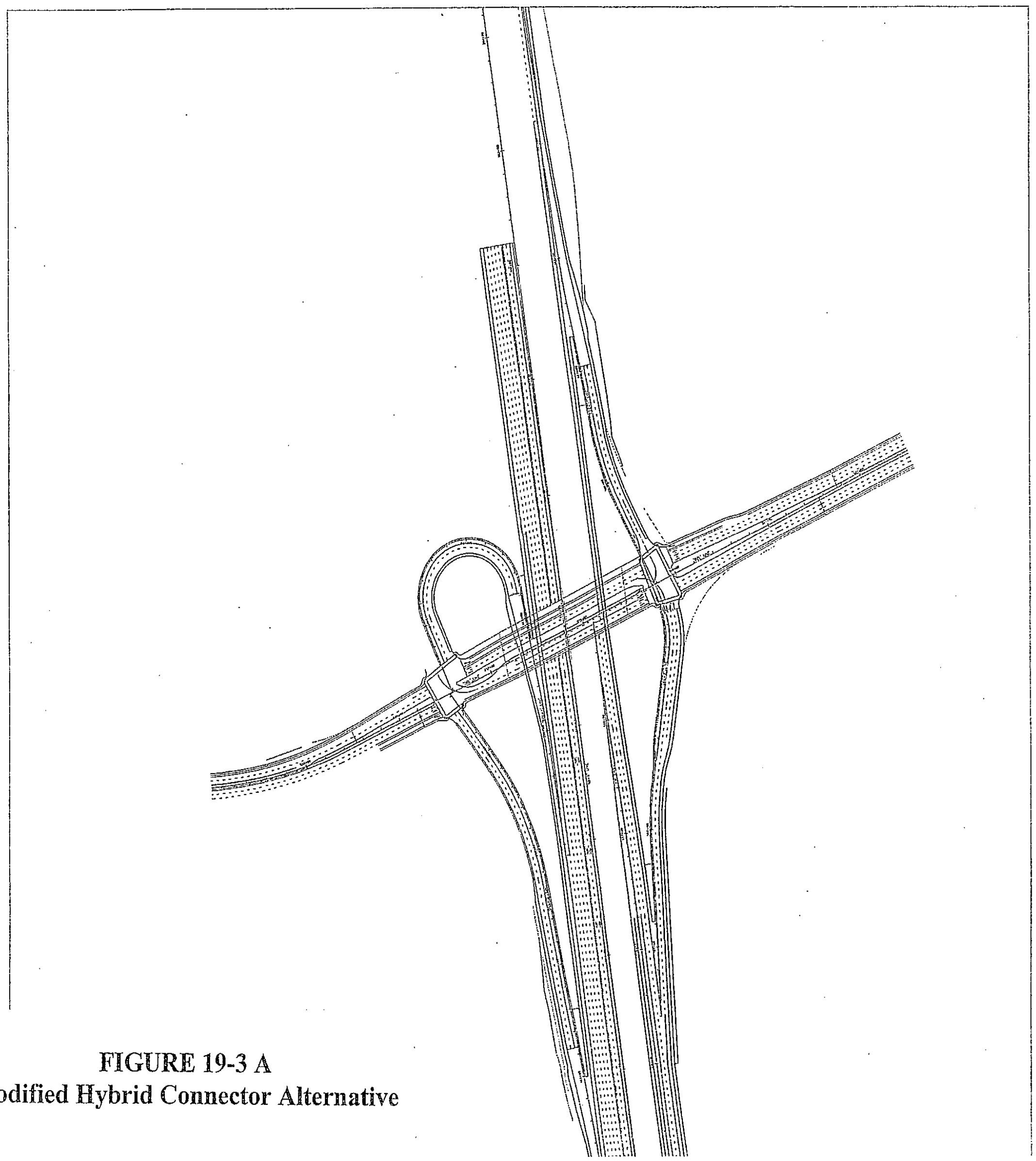


FIGURE 19-3 A
Modified Hybrid Connector Alternative

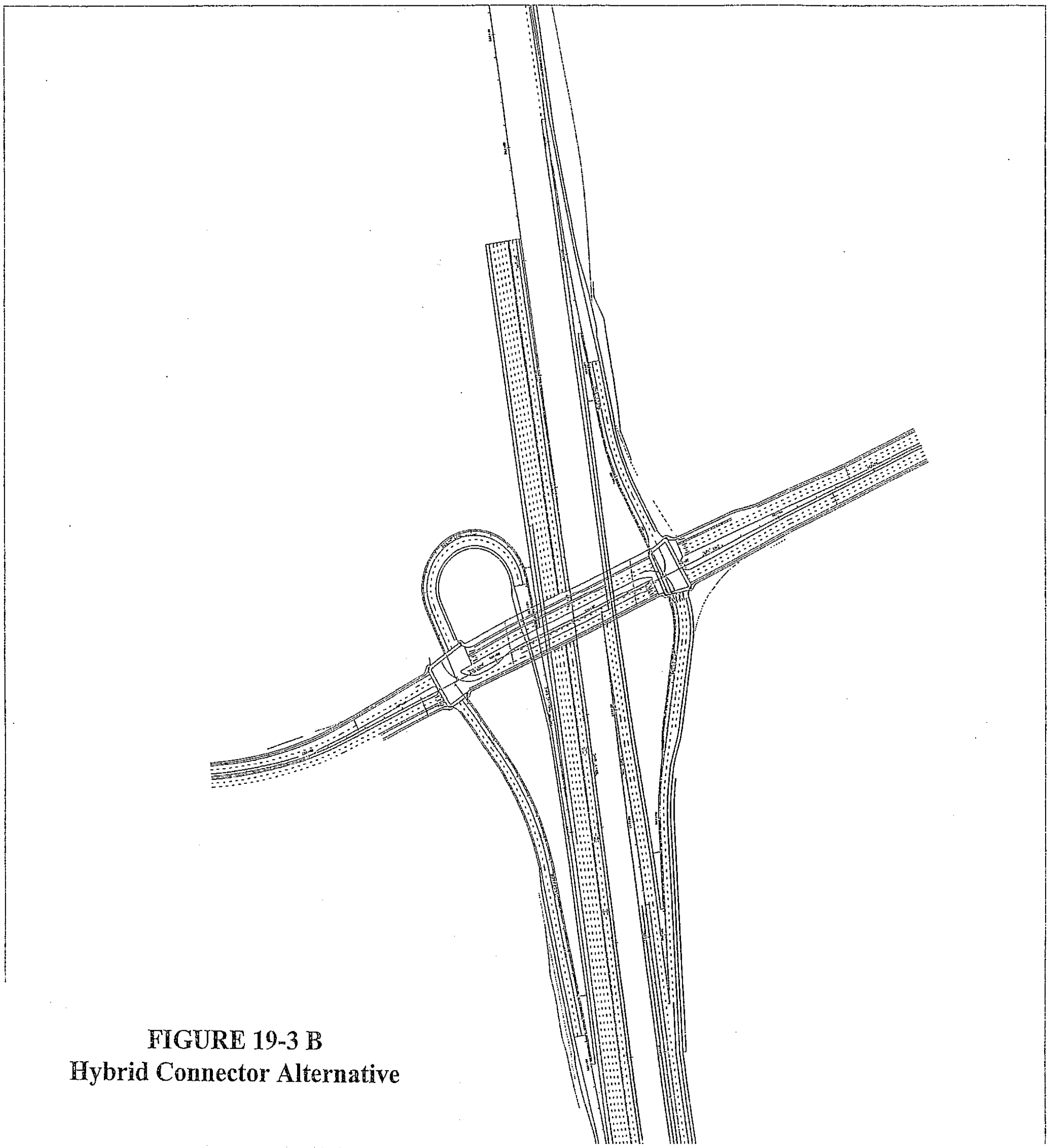


FIGURE 19-3 B
Hybrid Connector Alternative

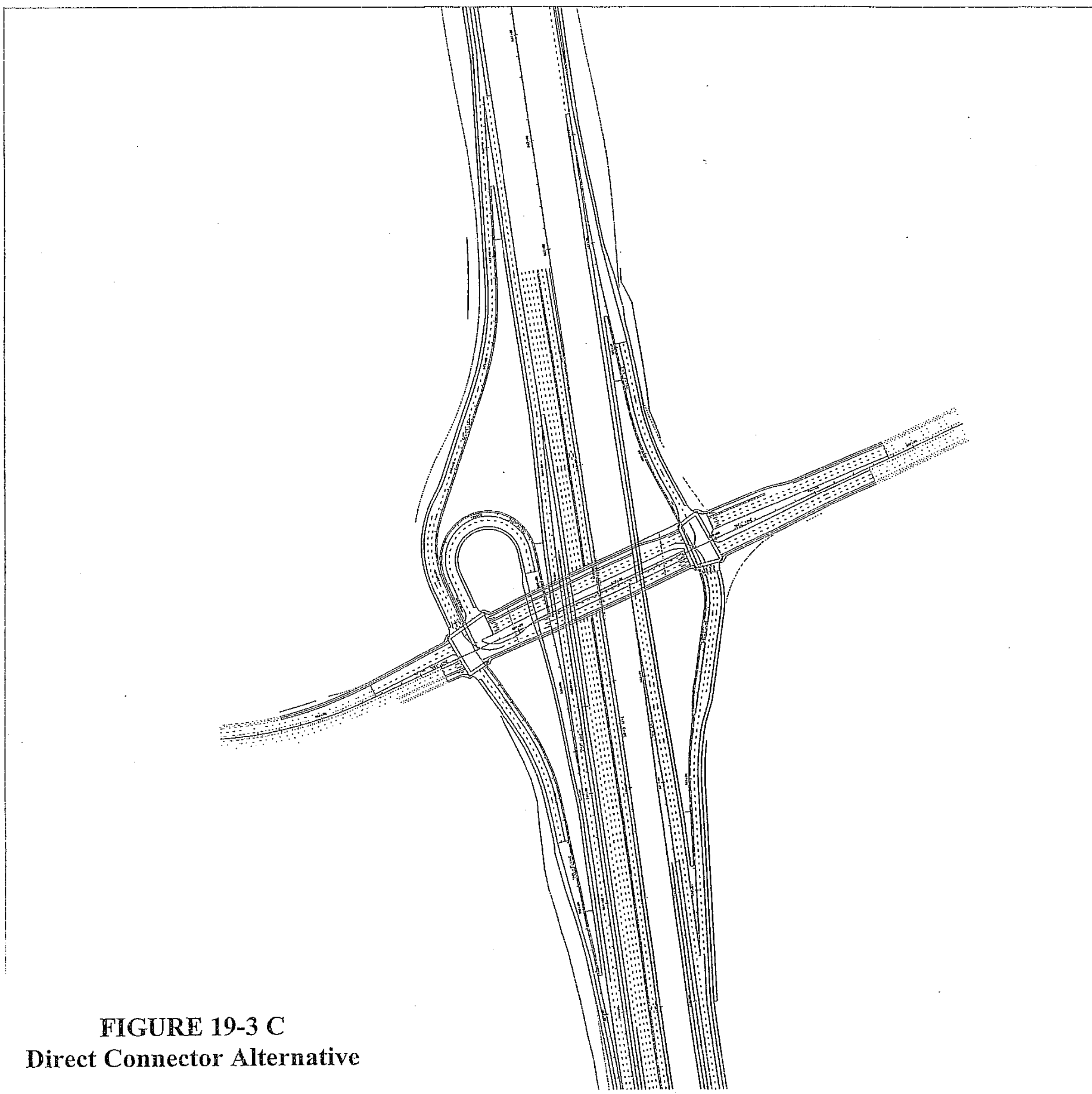


FIGURE 19-3 C
Direct Connector Alternative

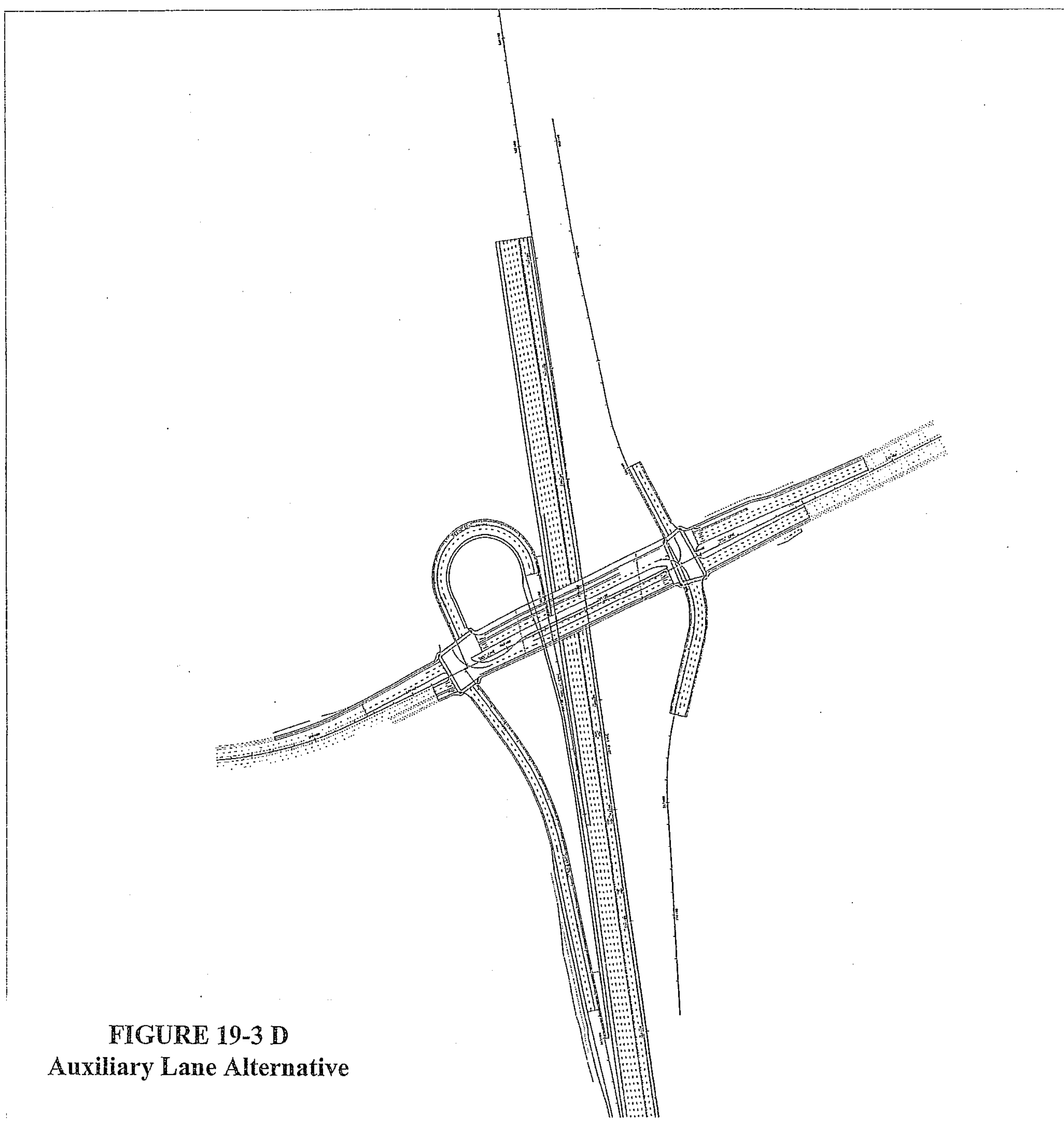


FIGURE 19-3 D
Auxiliary Lane Alternative

19.10.1 FAIR SHARE CONTRIBUTIONS / IMPLEMENTATION

Appendix T contains worksheets which determine the fair share percentage that would normally be required by a project to contribute towards a cumulative impact at a freeway interchange. For mitigation, the project proposes the following:

1. I-5 Southbound loop ramp fair share contribution, Cost $350,000; 34.8%; Contribution: $121,800.
2. Northbound off ramp, Northbound on ramp, median and High Bluff intersection improvements $1,000,000.
3. SR-56 Eastbound On-Ramp at El Camino Real fair share contribution, Cost: $305,100; 3.5%; Contribution: $10,700.

It is proposed that a Traffic Mitigation Agreement between Caltrans and Kilroy Realty, see **Appendix U**, serve as the basis for either construction of the improvements or contribution towards the improvements as determined by CALTRANS. More specifically, it is proposed that the Del Mar Heights Road median and right turn lane improvements be constructed by the applicant under the CALTRANS permit process and that a financial contribution be made towards the remaining improvements.

19.10.2 EAST TO NORTHBOUND LOOP ON RAMP CONCEPT

Another strategy for improving the I-5 Del Mar Heights Road interchange and mitigating the project's cumulative impacts was identified. **Figure 19-4** illustrates the concept. By providing an east to north bound loop on ramp the northbound ramp signalized intersection operation can be significantly improved. The improvement results from the removal of east to northbound on left turns which with the loop would have a free movement. Because of the main lane widening, which has or might occur as the result of the I-5 North Coast Corridor study, and because of the uncertainty of retaining the existing bridge as the result of the I-5 / SR-56 connector studies now underway, the loop on ramp is considered infeasible. As illustrated on **Figure 19-4**, the loop radius does not meet Caltrans standards, and is significantly smaller than the existing west to southbound loop. Caltrans and FHWA are unlikely to approve such a design.

19.10.3 DEL MAR HEIGHTS ROAD / HIGH BLUFF DRIVE TRIPLE LEFT – RECEIVING LANES

Figure 19-5 shows the intersection of Del Mar Heights Road at High Bluff Drive with the proposed northbound triple left configuration. As illustrated, the two inside receiving lanes are 12 feet wide and the outside left turn lane is 14 feet wide with a 5 foot bike lane. The proposed widening is all within the existing right of way on Del Mar Heights Road.

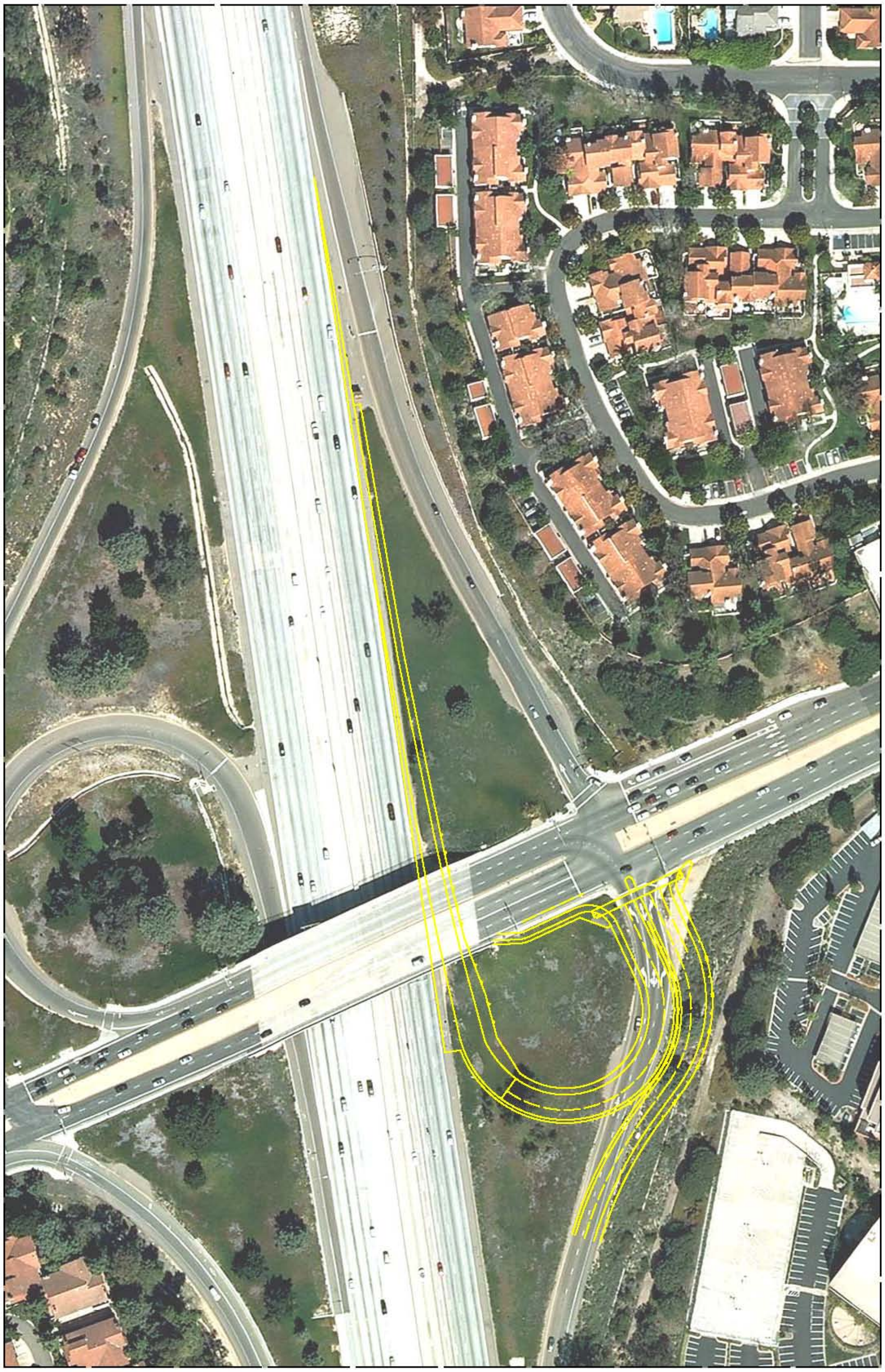


FIGURE 19-4

Eastbound to Northbound Loop On Ramp Concept

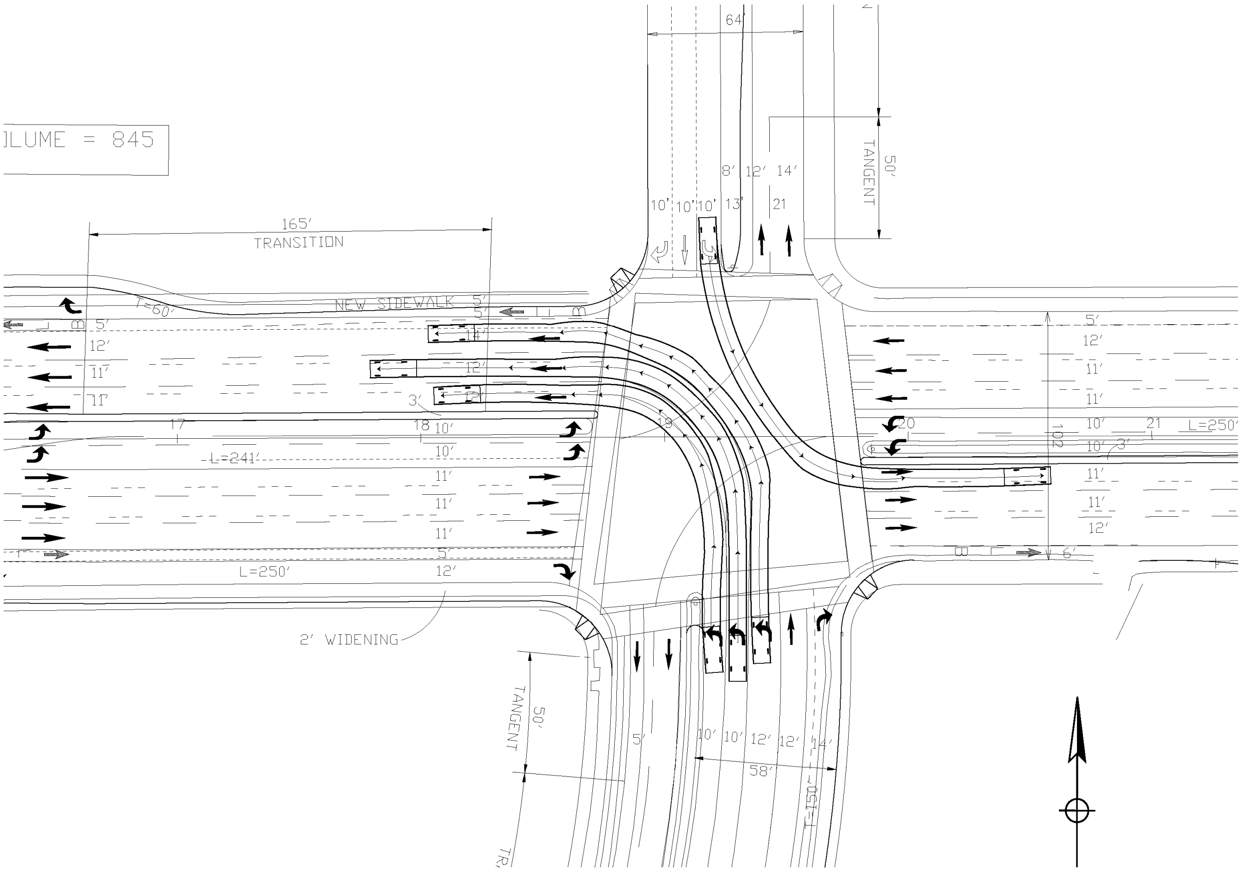


FIGURE 19-5

Del Mar Heights Road / High Bluff Drive Triple Left Conceptual Layout

20.0 REFERENCES

San Diego Region Traffic Engineer's Council (SANTEC) and Institute of Transportation Engineers (ITE), California Border Section, Guidelines for Congestion Management Program (CMP) Traffic Impact Report, 2008 San Diego, CA

City of San Diego, Development Services Department, Traffic Impact Study Manual July 1998, San Diego, CA

City of San Diego, Development Services Department, San Diego Municipal Code, Land Development Code, Trip Generation Manual, May 2003, San Diego, CA

City of San Diego, Development Services Department, California Environmental Quality Act, Significant Determination Thresholds, January 2011, San Diego, CA

San Diego Association of Governments, 2006 Congestion Management Program Update, Appendix D, July 2006, San Diego, CA

21.0 URBAN SYSTEMS ASSOCIATES, INC. PREPARERS

Principal Engineer

Andrew P. Schlaefli; M.S. Civil Engineering, B.S. Civil Engineering
Registered Civil Engineer, Licensed Traffic Engineer

Senior Project Manager

Justin P. Schlaefli; M.S. Civil Engineering, B.S. Civil Engineering
Registered Civil Engineer, Licensed Traffic Engineer

Project Manager

Jacob D. Swim; B.S. Civil Engineering

Senior Technical Support, Graphics and Illustrations

Jacob D. Swim

Word Processing, Report Production and Compilation

Lisa Diaz

This report is site and time specific and is intended for a one-time use for this intended project under the conditions described as "Proposed Project". Any changes or delay in implementation may require re-analysis and re-consideration by the public agency granting approvals. California land development planning involves subjective political considerations as well as frequently re-interpreted principals of law as well as changes in regulations, policies, guidelines and procedures. Urban Systems and their professionals make no warrant, either express or implied, regarding our findings, recommendations, or professional advice as to the ability to successfully accomplish this land development project.

Traffic is a consequence of human behavior and as such is predictable only in a gross cumulative methodology of user opportunities, using accepted standards and following patterns of past behavior and physical constraints attempting to project into a future window of circumstances. Any counts or existing conditions cited are only as reliable as to the time and conditions under which they were recorded. As such the preparer of this analysis is unable to warrant, either express or implied, that any forecasts are statements of actual true conditions which will in fact exist at any future date.

Services performed by Urban Systems professionals resulting in this document are of a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation expressed or implied and no warranty or guarantee is included or intended in this report, document opinion or otherwise.

Any changes by others to this analysis or re-use of document at a later point in time or other location, without the express consent and concurrence of Urban Systems releases and relieves Urban Systems of any liability, responsibility or duty for subsequent questions, claims, or damages.

Appendix D

SHARED PARKING ANALYSIS

Walker Parking Consultants
606 S. Olive Street, Suite 1100
Los Angeles, CA 90014

Voice: 213.488.4911
Fax: 213.488.4983
www.walkerparking.com

December 16, 2011

Renee Mezo
City of San Diego Development Services
1222 First Avenue, MS 501
San Diego, CA 92101 - 4155

Re: One Paseo – San Diego, California
Shared Parking Analysis - Final
Walker Project No. 37-8142.00

Dear Ms. Mezo:

Walker Parking Consultants ("Walker") is pleased to submit a Shared Parking Analysis for One Paseo ("Project") in the Carmel Valley Community Planning Area of the City of San Diego. This report reflects clarifications and changes made to our prior report in response to City staff comments provided on July 22, 2011. Per City staff's request in that latest set of comments, the report has been reorganized to provide a more linear approach in communicating the process of conducting a shared parking analysis. The report begins with the project background and explanation for the findings, which are followed by highlights of the report on page 5. The goal of the format below is to lead staff through the study approach in a more intuitive manner. Overall, the report is organized as follows:

I. Project Understanding and Purpose of Analysis
II. Report Highlights
III. Urban Land Institute (ULI) Shared Parking Analysis
IV. Evaluation of City of San Diego Parking Regulations
V. Conclusions and Recommendations

Various items are also included within the Attachments after the body of the report including several pages from *Shared Parking, 2nd Edition, 2005,* the landmark study and model on which much of the data in this report is based. The inclusion of these pages was requested by staff.

I. PROJECT UNDERSTANDING AND PURPOSE OF ANALYSIS

Kilroy Realty ("Applicant") is proposing to develop the One Paseo mixed-use plan which will ultimately contain approximately 806,000 square feet ("SF") of office, retail, specialty grocery, restaurant and cinema ("commercial uses") as well as a 608 residential units and a 150- room hotel. The mix of land uses planned for the site lends itself to the use of shared parking. As an example of shared parking, the peak times in activity for businesses such as an office and a cinema are essentially the opposite of one another as is their demand for parking.

For mixed-use development, not sharing parking and building separate parking facilities for each use is simply a waste of space and resources that could be used to enhance the project and add amenities. It means that unused parking, which serves no purpose, will be built. Large areas of empty parking spaces also tend to create "dead" zones that sap energy from a destination as well as security issues resulting from a lack of constant use by the public. Resources that are allocated to unnecessary parking facilities could be re-allocated to project amenities with implementation of a shared parking approach. "Rightsizing" the parking supply is important, not only in terms of building enough parking but also not building too much as well.

Both the City and Applicant wish to determine the appropriate number of parking spaces that should be built for the completed Project site and at the end of its first phase of development. The objective is to properly serve future residents, tenants and customers but not overbuild parking spaces that will realistically sit empty for months at a time. In order to do so, a Shared Parking Model has been prepared which projects parking demand based on a number of factors (proposed program data, site conditions, market demand, current information from the Urban Land Institute, and focused parking studies of specific land uses). A number of firms in the parking industry including Walker conducted research and gathered data develop the Shared Parking Model as part of the Urban Land Institute's most recent research on parking demand. The effort was coordinated by the Urban Land Institute and published in *Shared Parking, 2nd Edition, 2005*.

Within this report, a second, adjusted ULI model was created based on one significant change requested by the Applicant to make the analysis more conservative: (the office parking employee demand ratio was increased beyond the ULI, 2nd Edition standard to 3.2 spaces per 1,000 sf to satisfy the Applicant's desired goal of providing 3.2 spaces per 1,000 SF GLA for marketing and leasing purposes. In addition, in both the ULI model and the adjusted model an additional conservative adjustment was to dedicate or reserve residents' parking rather than share it with other uses, although doing so is permitted within the ULI Model and City of San Diego's Land Development Code (LDC).

Finally, within this report the number of spaces for the Project to comply with the shared parking section of the City's Land Development Code (LDC), Section 142.0545 has been calculated.

PROJECT LOCATION AND DESCRIPTION

One Paseo will be constructed southwest of the corner of the intersection of Del Mar Heights Rd and El Camino Real in the Carmel Valley area of San Diego, CA (indicated in Figure 1). Walker has performed a Shared Parking Analysis for the proposed development in order to accurately assess the future parking demand for the site, which incorporates retail, residential, office and hotel uses. The development summary provided in Figure 2 includes multi-phased development of the planned parking supply, which totals 4,089 spaces for the built out campus and 2,230 spaces for Phase I of the development.

Figure 1: Proposed One Paseo Location

Source: Google Earth Professional, 2011.

Figure 2: Proposed One Paseo Site Plan and Development Summary

	Commercial Retail (Sq. Ft.*)		Commercial Office (Sq. Ft.*)		Hotel (No. of Rooms)	Residential (MF Units)	Total*
Phase/Block	Retail	Cinema **	Corporate Office	Professional Office***			
Phase 1							
Block D	61,190	–	270,000	21,000	–	–	352,190
Block E	39,460	–	245,000	–	–	–	284,460
Phase 1 Total	*100,650*	–	*515,000*	*21,000*	–	–	*636,650*
Phase 2							
Block A	65,610	–	–	–	–	194	65,610 +194 MF units
Phase 2 Total	*65,610*	–	–	–	–	*194*	*65,610 +194 MF units*
Phase 3							
Block B	38,940	–	–	–	150	181	38,940 +150 hotel rooms +181 MF units
Block C	14,800	–	–	–	–	233	14,800 + 233 MF units
Block D	–	50,000	–	–	–	–	50,000
Phase 3 Total	*53,740*	*50,000*	–	–	–	*414*	*103,740 +418 MF units*
Total*	**220,000**	**50,000**	**515,000**	**21,000**	**150**	**608**	**806,000 +150 hotel rooms +608 MF units**

*Gross Leasable Area (excludes parking structures covered in Gross Floor Area calculations). Density transfers permitted in accordance with procedures described in the Precise Plan.

**Cinema consists of up to 1,200 seats.

***Professional Office (located on Main Street).

Source: Kilroy Realty, 2011.

II. HIGHLIGHTS OF THE SHARED PARKING REPORT

The highlights of this analysis are presented in Table H1, which shows the peak demand for parking spaces using each of the three scenarios that were studied. The peak demand occurs on a weekday afternoon in December. Table H2 summarizes the peak demand on weekends, which is significantly lower than the weekday peak. Our key findings include the following:

- The peak parking demand projection for One Paseo is 3,882 spaces which would occur on a weekday in December and, given the planned supply of 4,089 spaces, results in a surplus at peak of 207 parking spaces within the parking system.[1] Looked at another way, it is our opinion that the Applicant is overbuilding parking spaces for One Paseo by more than 5%; the projection of the number of spaces needed already includes considerations of the need for a cushion to allow drivers to find available spaces and cars to properly circulate. This additional 5% is superfluous, based on the Urban Land Institute's Shared Parking Model.
- Parking demand in the evenings and on weekends will be dramatically lower than that projected for the middle of the business day, with a projected peak of 2,671 spaces. The result is a parking space surplus during periods of peak weekend parking demand that is more than 1,000 spaces for both Phase I of the Project and Build-out of the entire site.
- The weekday peak demand for the entire Project will likely occur infrequently, during one month of the year, and for approximately one hour during the day. The peak demand for the next busiest month is projected to be 3,752 spaces, 130 spaces lower than the December peak and occurring in June.
- Upon lease-up of the Phase I component of the site, a peak parking demand of 2,063 spaces is projected on a weekday in December during the 2:00 p.m hour. A weekend peak parking demand is projected for Phase I of 645 spaces. The number of spaces that will be provided in Phase I is 2,230, which results in more than 1,500 available spaces on weekends.
- The need for 4,027 spaces is projected if the Applicant wishes to meet a goal of 3.2 parking spaces per 1,000 SF GLA of office use, which the Applicant is considering for leasing and marketing purposes. It also assumes no shared parking for residential spaces. We note that this number is distinct from and above the actual parking demand number that is projected using the ULI Shared Parking Model.
- Using the City of San Diego's Shared Parking Code regulations would result in the need for 4,511 spaces for weekdays. It should be noted that, given the code's reliance on decades-old data and an incomplete methodology, Walker does not recommend that this number of spaces be constructed. After a careful review, Walker attributes the code regulations being higher than the ULI projections to several factors including some higher base ratios than those used in the ULI Model as well as the lack of a seasonal adjustment

[1] The total parking supply of 4,089 spaces does not include an additional 90 surface spaces which the Applicant has shown will be available.

within the City's calculations, which can play an important role in shared parking demand calculations. As a result, the peak demand for each land use for each month become stacked upon one another rather than sharing parking in a complementary manner. A comparison of the factors used in the City's code (LDC) and the ULI Shared Parking Model are shown in Attachment B to the report.

Table H1: Summary of Peak Parking Demand and Requirements for All Scenarios – Weekday

Number of Parking Spaces per:	Phase I				Full Site		
	Demand	Planned Supply	Difference[2]		Demand	Planned Supply	Difference[2]
Walker/ULI Shared Parking Model	2,063	2,230	167		3,882	4,089	207
Shared Parking Model with Leasing Goals for Office Ratio (3.2/Ksf GLA)	2,214	2,230	16		4,027	4,089	62
City of San Diego Shared Parking Requirement[1]	2,410	2,230	(180)		4,511	4,089	(422)

1 Per Article 2, Section142.0545 of the City of San Diego Land Development Code.
2 The standard industry terminology for the difference between demand and supply is "adequacy," characterized as either a parking "surplus" or "deficit." However, we do not use this terminology in this case as two of these scenarios are comparisons only and do not reflect actual parking demand projections.
Source: Walker Parking Consultants, 2011.

As noted above, the overall peaks in expected parking demand are driven by the high demand for office (employee) parking. This results in a significant parking surplus on weekends. We show the peak demand numbers for weekends in Table H2.

Table H2: Summary of Peak Parking Demand and Requirements for All Scenarios – Weekend

Number of Parking Spaces per:	Phase I				Full Site		
	Demand	Planned Supply	Difference[2]		Demand	Planned Supply	Difference[2]
Walker/ULI Shared Parking Model	645	2,230	1,585		2,671	4,089	1,418
Shared Parking Model with Leasing Goals for Office Ratio (3.2/Ksf GLA)	658	2,230	1,572		2,671	4,089	1,418
City of San Diego Shared Parking Requirement[1 & 2]	856	2,230	1,374		3,052	4,089	1,037

1 Per Article 2, Section142.0545 of the City of San Diego Land Development Code.
2 The standard industry terminology for the difference between demand and supply is "adequacy," characterized as either a parking "surplus" or "deficit." However, we do not use this terminology in this case as two of these scenarios are comparisons only and do not reflect actual parking demand projections.
Source: Walker Parking Consultants, 2011.

Each of the projections assumes shared parking among the different land uses on the site, as well as a shared pool of office parking. The implementation of a parking management plan is recommended in order to efficiently distribute parking demand throughout the site, as is described later in this letter report.

For the purpose of meeting parking demand during the peak periods of the year without oversupplying parking spaces, it is recommended that the Applicant build to the projections of the ULI Model. Walker recognizes that the models for both marketing and leasing purposes as well as the City's shared parking requirement project a need for a higher number of spaces than the ULI Model projects for parking demand. However, based on ULI and Walker research, and the resulting model, One Paseo will not experience a need for more than the 3,882 spaces for other than highly unusual and unforeseen occasions.[2] In addition, with regard to the parking demand projections contained within this document, the following should be noted:

- The assumptions used in our model are conservative. Very little patronage of the businesses on site by the office employees and residents is assumed when in fact such patronage is likely to occur and result in fewer customers of these businesses requiring parking spaces. For example, during the peak hour it is projected that there will be more than 1,500 employee vehicles on the site, yet it is assumed that during the peak demand for parking, only five percent of these employees on site (19 of 376 drivers) will be customers at the site's retail locations. Similar "non-captive" ratios are used in the model.
- Virtually no commuting to the site other than by single occupancy vehicle was assumed.
- Spikes in the demand for retail parking, such as "Black Friday" or the days before Christmas are likely to occur when office parking demand is low and parking spaces typically used by office employees will be available to accommodate the parking demand generated by retail/food uses.
- If implemented, the parking management policies and technology that we recommend for such a large parking supply will likely reduce the number of spaces needed as such measures lead parkers more quickly to available spaces and therefore tend to result in a need for fewer spaces.
- Although it is a shared parking system, parking supply within the site is well distributed relative to where the demand for parking on the site will be generated. During the overall peak for the site (midday on a weekday), roughly 90% of the parking demand for each block can be accommodated within the block itself. When the demand for parking on Blocks A – C increase in the evenings and on weekends, more than 80% of the parking demand generated on these blocks can be accommodated within the individual blocks. Because the employee component of parking demand for retail or restaurant space typically represents roughly 20% of that demand, parking can be managed such that the employees will park in designated areas on the adjacent blocks.

[2] This is one reason that an effective supply factor is built in to the recommended number of spaces (as is described in the section entitled "Shared Parking at One Paseo – Assumptions." The effective supply factor, a cushion of additional spaces, is provided in part to accommodate unexpected increases in parking demand although under these conditions the parking system may not operate at a level of service comparable to a busy or peak period. Per parking industry standards, a parking system is never "sized" for unusual or unforeseen events as the result would be parking spaces that remain vacant for all but a few hours each year.

III. URBAN LAND INSTITUTE SHARED PARKING ANALYSIS

The principles supporting this analysis stem from the concept of shared parking, an accepted practice widely used in mixed use developments and commercial districts. The Urban Land Institute first published *Shared Parking* in 1983, upon which the LDC Shared Parking is based. This publication explains the concept of shared parking and describes the use of a model to forecast peak parking conditions for mixed-use developments, and/or urban settings. Walker contributed to that original publication along with a number of firms, organizations and individuals in the parking field. Walker then led the team that researched and wrote *Shared Parking, 2nd Edition*, published in 2005. As previously noted, the City's Land Development Code section on shared parking is based on an incomplete version of the model that is nearly three decades old.

ULI SHARED PARKING METHODOLOGY

Shared parking is the use of a parking area to serve two or more individual land uses without conflict or encroachment. The ability to share parking spaces is the result of two conditions:

1. Variations in the accumulation of vehicles by hour, by day, or by season at the individual land uses, and
2. Relationships among the land uses that result in visiting multiple land uses on the same auto trip.

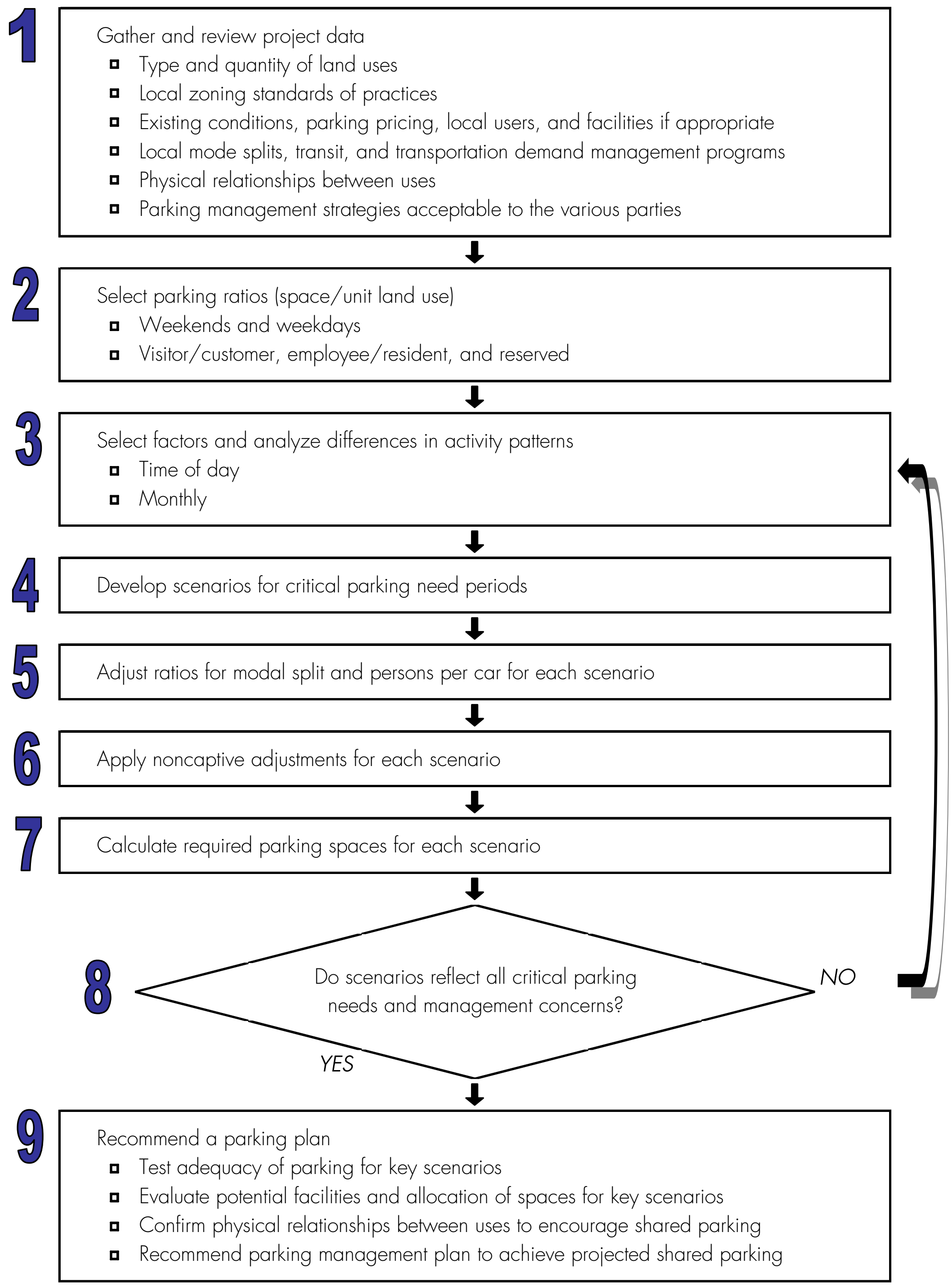
<u>The key goal of a shared parking analysis is to find the balance between providing adequate parking to support a development from a commercial and operational standpoint while minimizing the negative aspects of excessive land area or resources devoted to parking</u>. In general, a shared parking analysis considers the types, quantities and user groups of land uses for a development, as well as site- and market-specific characteristics. The ultimate goal of a shared parking analysis is to find the peak period, or design day condition; according to ULI's *Shared Parking, 2nd Edition*, <u>"A design day or design hour is one that recurs frequently enough to justify providing spaces for that level of parking activity."</u>

Allowing multiple land uses and entities to share parking spaces has allowed for and led to the creation of many popular developments and districts, resulting in the combination of office, residential, retail, and entertainment districts that rely heavily on shared parking practices in order to be compact, walkable and viable projects. In the same way, mixed-use projects have also benefited from the shared parking principle, which offers multiple benefits to a community, not the least of which is a lesser environmental impact from the reduction in required parking needed to serve commercial developments as well as the ability to create a more desirable mix of uses at one location.

Attachment A includes 13 case studies of shared parking in similarly sized mixed-use projects and the results of a study that validated the success of shared parking policies.

The flow chart below describes in general the logical progression of a shared parking analysis with adjustments made depending on the specific circumstances of the mix of land uses and location under study.

Figure 3: Shared Parking Methodology



Source: Adapted from *Shared Parking 2nd Edition*, 2005.

BASE PARKING RATIOS

To begin a shared parking analysis, the type and quantity of land uses are analyzed. Each land use has a specific metric considered by the parking industry to be a reliable meter of parking demand for that use. For office buildings that metric is square footage (GFA), for hotels that metric is the number of rooms, etc. The parking demand is divided by the quantity for each metric to generate a parking ratio for each land use based on that metric (i.e. for Office the ratio is presented as “spaces per thousand square feet of gross floor area”; for Hotel the ratio is presented as “spaces per room”).

This ratio, called the base parking ratio, is the result of industry research of stand-alone “cornfield[3]” sites or on empirical data when available for an existing site. When multiplied by the given quantity for a land use in a proposed development, the base parking ratio is considered to produce the peak parking that land use would require. *Shared Parking, 2nd Edition, 2005* uses the 85th percentile of peak-hour observations for recommended parking ratios, unless otherwise noted (See tables in Attachment D: Select Pages from Shared Parking, 2nd Edition).

For a mixed-use site this calculation (Quantity X Base Parking Ratio) provides the maximum amount of parking needed for the site without consideration to the dynamics of the site and market, and interplay between activity levels for each land use. These adjustments are found in the subsequent steps of a shared parking analysis.

DRIVE RATIO (MODE SPLIT)

The drive ratio represents a reduction in anticipated spaces needed to account for employees and visitors arriving to the site by means other than a single-occupant vehicle (SOV). These other means include mass transit, carpooling/vanpooling, drop offs, bicycling, or walking from locations outside of the development site, etc. A large site, even without transit access will typically experience some reduction in the SOV ratio due to carpooling, drop offs or other ways people find to commute. Walker utilizes market and site specific data sources to generate assumptions for a drive ratio reduction. Market data is generally available from the US Census; Walker obtained a database of various census tracks which provides means of transportation to work data by location of workplace. This data may be used to support reductions in employee parking. Ultimately no reductions in the drive ratio were identified for the site and no adjustments to the Model were made in this category.

In the event that a reduction is limited *Shared Parking, 2nd Edition, 2005* suggests conservatively assuming a 100% drive-alone mode split because to some degree the base parking ratios already account for a small amount of ridesharing, drop-offs, and walking.

NON-CAPTIVE ADJUSTMENT

The non-captive ratio is the second factor modified when tailoring a shared parking model. “Captive market” is borrowed from market researchers to describe people who are already

---

[3] A “cornfield” development is defined as a site that cannot be easily reached through transit and does not have neighboring land uses where demand from one use would overflow to the adjacent site.

present at certain times of the day. In a shared parking analysis, the term "captive market" reflects the adjustment of parking needs and vehicular trip generation rates due to interaction among land-uses internal to the site. Traditionally, a non-captive adjustment is used to fine-tune the parking requirements for restaurants and retail patronized by employees of adjacent office buildings, or by other persons, generally long-term parkers, already counted as being parked for the day (including residents and their guests).

Generally, non-captive parking considerations for any mixed-use development take into account that some visitors to a specific land use may already be parked or have arrived at the site to visit multiple land uses on the site, such as when an office worker visits a restaurant within the same development. A shared parking analysis assumes some percentage of patrons at one business (restaurant) may be employees of another business (office) located in the same development. This is referred to as the "effects of a captive market," as some of the restaurant's patrons are already parking at the site to work; therefore, they contribute only once to the number of peak hour spaces utilizing the development's parking supply. In other words, with shared parking, the parking demand ratio for individual land uses can be corrected downward in proportion to the captive market support of the neighboring land uses (See discussion in Attachment D: Select Pages from Shared Parking, 2nd Edition).

PRESENCE FACTORS

Presence is the last factor applied to user group parking demand in a shared parking model; it is expressed as a percentage of potential demand modified for time of day and time of year. Considering that parking demand for each land use peaks at different times, generally, shared parking results in fewer parking spaces being recommended than would be the case were the land uses considered separately.

Time of Day Adjustment

The parking demand for any given land use varies throughout the day. Restaurants, for example, typically show peaks around the lunch hour and a larger peak during the evening. The ULI/Walker Shared Parking Model accounts for this variation in demand through adjustment of presence factors in the overall parking demand. These hourly adjustments are based on hourly parking accumulation data with the same source as the base parking ratios. A peak hour parking demand is observed, and a ratio results, but hourly counts were also performed which are presented as a percentage of that peak period and show how the land use generates parking throughout the day.

The model evaluates parking demand for each land use from 6:00 a.m. to 12:00 midnight on weekdays and weekends for every month of the year. An additional analysis of the last week of December is included and considered as the "thirteenth month." Special analysis is required during this unique period due to different parking demand patterns typical of the first three weeks of December (See tables in Attachment D: Select Pages from Shared Parking, 2nd Edition).

Time of Year Adjustment

Seasonality usually has varied effects on the parking generation at mixed-use sites because land uses and quantity mixes vary from one development to the next. Both restaurant and retail parking demand exhibit strong seasonal peaks, so many mixed-use developments with a strong retail component peak based on the combination of these two uses. Unless there is specific market data to support changes, the default planning ratios supplied in the ULI/Walker Shared Parking Model are typically used. An example of time of year adjustments includes the increased business of health clubs in January or greater movie attendance in the “thirteenth month,” in the last week of December.(See tables in Attachment D: Select Pages from Shared Parking, 2nd Edition).

ULI SHARED PARKING ANALYSIS – ONE PASEO

Within this section of the report Walker will apply the methodology outlined above to project the peak parking demand for the proposed One Paseo mixed-use development. The parking demand projections are based on ratios, factors and adjustments found in the ULI shared parking model, developed in conjunction with Walker, which were then adjusted to take into account site-specific conditions.

BASE PARKING RATIOS

Base parking ratios are used to determine the parking requirements for a development site as if each component were a free-standing entity. Table 1: Base Parking Demand Ratios for All Phases shows the base parking demand ratios used for this shared parking analysis.

Table 1: Base Parking Demand Ratios for All Phases

	Weekday		Weekend			
Land Use	Visitor	Employee & Resident	Visitor	Employee & Resident	Unit	Source
Retail	2.90	0.70	3.20	0.80	/ksf GLA	1
Food	14.25	2.55	15.00	2.60	/ksf GLA	2
Cinema	0.19	0.01	0.26	0.01	/seat	2,3
Hotel-Business	1.00	0.25	0.90	0.18	/room	2,4
Residential	0.22	1.84	0.22	1.84	/unit	2,3
Office 500k+ sq ft	0.20	2.60	0.02	0.26	/ksf GFA	2
Specialty Grocery	3.50	0.60	3.70	0.50	/ksf GLA	3

Source References:
1. Parking Requirements for Shopping Centers, Second Edition. Washington DC: ULI-The Urban Land Institute, 1999.
2. Parking Generation, Third Edition. Washington DC: Institute of Transportation Engineers, 2004.
3. Internal research and data collection by Walker Parking Consultants and ULI shared parking team members.
4. Gerald Salzman, "Hotel Parking: How Much Is Enough?" Urban Land, January 1988.

The source of the base parking ratios for most land uses come directly from the *Shared Parking, 2nd Edition* publication. The sources for those ratios not specifically identified in the publication are described below.

Food

As noted, the "Food" uses are a blend of two types of restaurants; some of the restaurant space is intended as sit-down and, likely, destination restaurant, while the remainder will include quick serve and family restaurants and be more focused on serving those already visiting the center. For most blocks we assume that food uses will represent 25% of the entire commercial space. Of that 25% of commercial space 60% is assumed to be sit-down restaurant space while the remaining 40% is assumed to be quick-serve or family restaurant space.

Resident

For the purpose of maximizing parking efficiency, Walker generally recommends that the residential parking supply be shared to the extent possible per the code. The Applicant is considering reserving parking spaces for the residents of the Project Parking spaces serving the residents' guests will be shared with the general pool of parking. The parking demand ratios for residents provided by the Applicant based on their research result in a slightly higher parking supply for residents than the LDC requirements.

Table 2 below demonstrates the number of residential spaces that will be supplied and are equivalent to the projected demand for spaces. We also show the ULI model's typical recommended number of residential spaces for this type of project. The slight difference in the ULI- recommended demand versus what is being provided in Block A is likely due to the large number of studio units in this block.

Table 2: Reserved Residential Parking

		Residential Spaces to be Provided (Unshared)		LDC Requirement		
Block	Units	Spaces	Ratio	Spaces	Ratio	Difference
A	194	280	1.5	329	1.70	-49
B	181	362	2.0	339	1.87	23
C	233	466	2.0	422	1.81	44
Total	608	1,108	1.8	1,090	1.79	18

Source: Kilroy Realty, Walker Parking Consultants, 2011.

Specialty Grocery

Walker performed studies at various grocery stores between 2003 and 2007 which included 14 specialty grocers, such as Whole Foods, Inc and 22 standard grocers. The same methodology as ITE and ULI were utilized to develop a base ratio (provided in Table 3), hourly accumulation adjustments (provided in the appendices), and seasonal adjustments (provided in the appendices).

Walker found that specialty groceries like Whole Foods tend to invite smaller purchases and shorter lengths of stay. Ratios actually vary slightly from location to location. but stores within walking distance of employment and residential centers, similar in some respects to the One Paseo development, have substantially lower parking demand due to some "walk up" patrons they receive. The stores Walker surveyed tended to be busiest in the evenings on weekdays and mid-day on Saturdays. The busiest times of the year were right around the start of summer (Memorial Day weekend) and New Year's weekend. It should be noted that these locations all offered some form of specialty wine/beer sales, which were thought to substantially drive presence factors.

Table 3: Grocery Base Ratios

	Weekday		Weekend			Total		
Land Use	Visitor	Employee	Visitor	Employee	Unit	Weekday	Weekend	*Source*
Specialty Grocery	3.00	0.50	3.25	0.50	/ksf GLA	3.50	3.75	*1*
Standard Grocery	3.20	0.80	3.70	0.80	/ksf GLA	4.00	4.50	*2*

Sources
1. Compiled froim field observations at Whole Foods (8 locations in MA & RI), Trader Joes (4 locations in MA), and Wild Oats (2 locations in MA).
Field counts taken during the course of Wednesday and Saturday in May & June 2003, May & June 2004, May - August 2005 and May - July 2006.
2. Compiled froim field observations at Shaws (10 locations in MA), Stop & Shop (8 locations in MA), and Market Basket (4 locations in MA).
Field counts taken during the course of Friday and Saturday in November 2003, November 2004, November 2005 and November 2006.

Source: Walker Parking Consultants, 2007.

Access to the store will generally be most convenient for people already on the site. As a result a significant amount of activity for the specialty grocer will likely come from the on-site office space during weekday daytimes (especially lunch) and from the on-site residential units in the evenings and weekends;

ADJUSTMENTS FOR SITE SPECIFIC CHARACTERISTICS

The shared parking model utilizes base demand ratios that are largely consistent with the Urban Land Institute provided ratios; it should be noted that the ULI Model and *Shared Parking* publication call for adjustments to the model by the user to take into account site specific conditions where necessary. The ratios can be adjusted by three factors to take into account the specific characteristics of the project under study. These factors are driving ratios, non-captive ratios, and presence factors. Each is discussed in the following paragraphs.

Drive Ratio (Mode Split)

The drive ratio represents a reduction in anticipated spaces to account for carpooling, mass transit use, drop offs, walking from locations outside of the development site, etc. The planned site for One Paseo is outside the San Diego Transit Overlay Zones, and a review of available transit shows no particular concentration of transit service in the area, so no changes are made to the drive ratios.

A review of the mode share data for people working in the census tracts in and around Carmel Valley area suggested a single occupancy vehicle share among commuters of 92%. However, for the purposes of the model as noted previously a 100% drive-alone mode split is conservatively assumed, and therefore there is no reduction for mode split.

Non-captive Ratio

The methodology section previously discussed captive factors. Because the model projects the demand for parking that is generated, the inverse of a captive factor or non-captive ratio is used.

This adjustment accounts for the percentage of parkers who are not already counted as being parked. Typically, a primary land use (retail, office or hotel) comprises the longest parking durations of the vehicles that park at a given development. Because captive market effects typically reduce the parking needs, the factor employed to adjust the parking ratio is actually the percentage of customers who are not considered captive, or the non-captive ratio. By example, if 10% of the patrons of a food court are expected to be employees or customers of other land-uses, the non-captive ratio is 90%.

Based on Shared Parking research and observations, on-site employees will frequent the restaurants due to relative proximity and concomitant convenience. This statistic is incorporated into the ULI Shared Parking Model. Specifically, it is assumed that approximately 50% of the patronage to the quick service restaurants will be from patrons of other areas within the development, or employees of retail and office space patronizing these restaurants.[4]

One Paseo has significant office and residential components. Assuming more than 1,700 people working and living on the site during peak parking conditions[5] compared with the overall parking demand and patronage of businesses, we have conservatively assumed in this analysis that approximately 5% of the patronage of the cinema, retail and non-fast food restaurant uses will be accounted for by other employees and residents of other on-site land. The captive adjustments were based on the methodology outlined and recommended in *Shared Parking* (both 1st and 2nd editions) for evaluating the relative demand generation of land uses on the site that generate captive markets and those that benefit from captive markets. With thousands of cars generated by residences, offices and hotels, captive adjustments of 5% of retail and restaurant demand is extremely conservative based on the large number of people who will work and live on the site; at least 10% to 15% may be justified. Table 4 details the weekday and weekend non-captive factors used in the parking demand analysis of all building phases.

---

[4] Based on the research and observations of the project team, ULI's *Shared Parking* uses 50% as the default non-captive ratio for fast food uses in mixed-use centers regardless of the size of the mixed-use center. Experience and common sense would suggest an even lower non-captive ratio for larger centers due a larger number of people working, living and visiting, who would only access these restaurants on foot.

[5] We believe this to be a reasonable assumption based on the following considerations. If we assume that A) the 536,000 sf of office space contains 1,500 employees (2.8/ksf), B) the 165,000 sf of commercial space contains 0.7 employees per ksf, and C) in the 608 residential units 0.25 residents per unit (on a weekday) will be home, we can assume a total of 1,765 people who live or work on the site during the peak hour. This figure does not include restaurant employees, which would increase the total number.

Table 4: Non-captive Ratios (All Phases)

	Weekday		Weekend	
Land Use	Daytime	Evening	Daytime	Evening
Retail	95%	0%	0%	0%
Employee	0%	0%	0%	0%
Food[1]	71%	80%	74%	80%
Employee	100%	100%	100%	100%
Cinema	95%	95%	95%	95%
Employee	100%	100%	100%	100%
Hotel-Business	100%	100%	100%	100%
Employee	66%	66%	77%	77%
Residential	100%	100%	100%	100%
Office > 500k sq ft	100%	100%	100%	100%
Employee	100%	100%	100%	100%
Specialty Grocery	90%	90%	90%	90%
Employee	100%	100%	100%	100%

[1] The food land use represents different restaurants ranging from establishments with little non-captive demand to quick service establishments with primarily captive demand. The percentage non-captive for food represents the blended of the two.

Source: Walker Parking Consultants, 2011.

Very little patronage of the businesses on site by the office employees and residents is assumed when in fact such patronage is likely to occur and result in fewer customers of these businesses requiring parking spaces. For example, the ULI Model projects that during the peak hour there will be more than 1,700 employee vehicles on the site, yet we assume that during the peak demand for parking, only five percent of these employees on site (19 of 376 drivers) will be customers at the site's retail locations. Similar "non-captive" ratios are used in the model (See discussion in Attachment D: Select Pages from Shared Parking, 2nd Edition).

Presence Factors

No adjustment was made to the time of day and year presence factors as supplied in the ULI Model. Some land uses, different from those found in a typical shopping center are expected as tenants at One Paseo.

Little published data exist describing parking demand at specialty grocers, such as those that specialize in organic foods such as Whole Foods. As mentioned previously, shopper behavior at these stores tends to be different from a typical grocery store in a variety of ways including smaller overall purchases and the tendency to buy pre-prepared foods. Such variations can and do impact parking demand as a result of shorter stays per visitor (and therefore potentially differences in parking demand). For such use, Walker has collected proprietary information from which we derive presence factors. The hourly presence factors and seasonal adjustments for specialty grocers are presented in the appendices.

Effective Supply

It is an accepted principle in the parking industry that a parking facility or system cannot operate efficiently when it is filled to capacity. Some empty spaces should be available at all times to provide for more efficient circulation, and to ensure that motorists do not spend excessive time looking for the one or two remaining spaces in a large facility or area. This need to search for the last remaining spaces results in frustration, a perception of an inhospitable area, people being late to appointments or deciding not to visit or return to the area.

It is also recognized that if a parking system is planned to meet demand exactly, there will inevitably be parking shortages due to mis-parked vehicles, repairs or other obstructions, and minor construction. Therefore, in evaluating the ability of a parking supply to meet demand, and in planning the size of future parking facilities, we use the “effective” supply rather than the full supply.

The effective supply is the supply that is realistically usable by patrons or employees, usually five to ten percent smaller than the actual “full” supply depending on the space type and whom those spaces are designed to serve. Employees, for example, know the facilities well and tend to park in more or less the same place each day. They also stay for long periods, and thus do not generate as much in-and-out traffic; they therefore spend less time searching for spaces. Visitors generally are unfamiliar with the parking system and generate higher turnover. Consequently, this group often needs a greater circulation cushion. Size of the supply is also a consideration when setting the correct effective supply ratio. For example, if within a supply of 10 spaces one vehicle is mis-parked and takes two spaces, the supply is reduced by 10%; whereas, if within a supply of 100 spaces it would take 10 mis-parked cars to influence the supply the same way. A parking supply needs a smaller percentage cushion as it increases in size.

The ULI/Walker Shared Parking Model projections are for the number of spaces that are necessary to accommodate demand; the effective supply cushion is built in (See discussion in Attachment D: Select Pages from Shared Parking, 2nd Edition). The effective supply cushion varies by land use and user group.

ULI MODEL PARKING DEMAND PROJECTIONS

Utilizing the program data and pairing base parking ratios, the peak demand for One Paseo is calculated assuming that each land use is separate and in a somewhat remote location. Next the peak demand projection is adjusted using non-captive demand and presence factors which include seasonality and time of day. Again, for One Paseo adjustment for mode split is conservatively not assumed. These data are entered into the shared parking model to project weekday and weekend peak parking demand. Peak demand for build-out and Phase I were both projected.

Site Build-out Projected Parking Demand – Weekday Peak

At build-out, the ULI Model projects a peak parking demand of 3,882 spaces on a weekday in December around 2:00 p.m. Peak demand for the next busiest month, as shown in Table 6, is roughly 135 spaces less than the December peak. The largest single source of parking demand is the office employees and visitors, who generate a demand for 1,560, spaces during the period of peak demand. We calculate this demand using the model's projected ratio of 2.8 spaces per 1,000 SF GFA.[6] The reserved residential spaces represent 1,116, spaces of the total peak demand.[7] The retail, food uses and specialty grocery represent a total demand of 1,070 spaces. We break out the demand calculation in detail in the following table.

Table 5: Projected Peak Parking Demand for Build-out – Weekday (Campus Peak Period)

	Quantity	Weekday Base Rate[A]	Units	Stand Alone Use	Month Adj December	Pk Hr Adj 2:00 PM	Non Captive Daytime	Drive Ratio Daytime	Demand December 2:00 PM
Retail	135,000	2.90	/ksf GLA	392	100%	100%	95%	100%	372
Employee		0.70		95	100%	100%	100%	100%	95
Food Uses - Total	55,000	14.25	/ksf GLA	784	Blended Rate				399
Employee		2.56	/ksf GLA	141	Blended Rate				130
Specialty Grocery[B]	30,000	3.5	/ksf GLA	105	95%	63%	90%	100%	57
Employee		0.6	0	18	100%	95%	100%	100%	17
Cinema	1,200	0.19	/seat	228	23%	55%	95%	100%	27
Employee		0.01		12	50%	60%	100%	100%	4
Hotel-Business	150	1.00	/room	150	67%	60%	100%	66%	40
Employee	150	0.25	/room	38	100%	100%	100%	100%	38
Office >500,000 sq ft	557,440	0.20	/ksf GFA	111	100%	100%	100%	100%	111
Employee		2.60		1,449	100%	100%	100%	100%	1,449
Total Residential - Guests	608	0.22	/unit	-	100%	20%	100%	100%	27
Total Residents	608	1.84	/unit	-	100%	100%	100%	100%	1,116
Total Parking Spaces									3,882

[A] Shared Parking, Urban Land Institute, Second Edition, 2005, with the exception of Specialty Grocery Base Ratio, the derivation of which was discussed earlier in the report. In response to City staff inquiries we note that the 2.90 retail base ratio for customers represent default ratios in the ULI Model.

[B] Monthly and hourly adjustments are contained in the Model for all but Specialty Grocery, the adjustments for which were developed as described earlier in the report.

Source: Walker Parking Consultants, 2011.

Because the planned supply for the site at build out is 4,089 spaces, Walker's peak parking demand projection represents a surplus of 207 spaces.

With regard to parking demand patterns and peak demand, it is worth noting how often the peak demand for parking is projected to occur. As the peak demand will occur infrequently, it should be noted that this surplus will be higher for more than 90% of days throughout the year. The peak hour demand of 3,882 spaces is projected to occur on a December weekday at 2:00 PM, the peak observed for that month and the year. An examination of the peak demand for each of the

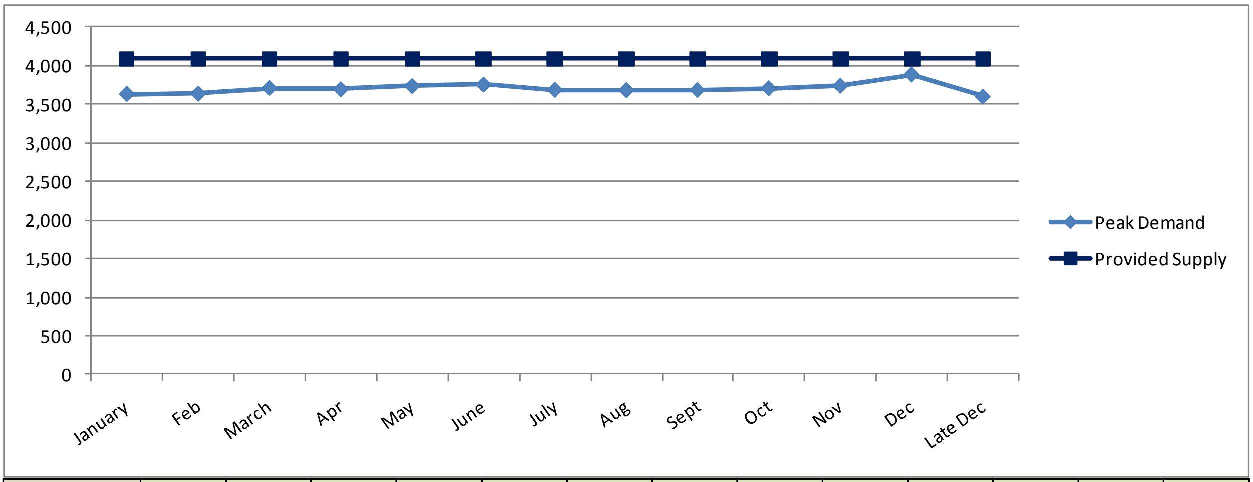
[6] This ratio is based on ULI/Walker research that has determined that large blocks of office space use parking significantly more efficiently than smaller ones, resulting in lower base ratios. Further, higher end office of the type envisioned for the One Paseo Campus also tends to generate a lower demand for parking than other types of office space, a fact that we did not quantify in our model but would tend to result in lower parking demand for office employees at the site.

[7] This does not include the residential guest spaces which we have recommended be included with the shared pool of spaces used by visitors and employees. Because the peak demand for residential guests occurs on nights and weekends, there is little impact on the peak for the overall system.

other 12 months of the year[8] shows that the projected peak for those months does not exceed 3,752 spaces (in June).

As noted in the discussion of effective supply, the demand projection is for the number of spaces needed on the site and includes a small cushion to allow for drivers to find spaces with relative ease and thus facilitate circulation within the system. Parking guidance system technology (PGS) and other parking management measures that assist patrons in finding spaces would facilitate this process further.

Table 6: Projected Peak Demand by Month for Build-out – Weekday



Month	January	Feb	March	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Late Dec
Peak Demand	3,631	3,635	3,707	3,692	3,733	3,752	3,685	3,682	3,682	3,706	3,736	**3,882**	3,598
Provided Supply	4,089	4,089	4,089	4,089	4,089	4,089	4,089	4,089	4,089	4,089	4,089	4,089	4,089

Source: The Urban Land Institute's *Shared Parking Model*, *Second Edition* and Walker Parking Consultants, 2011.

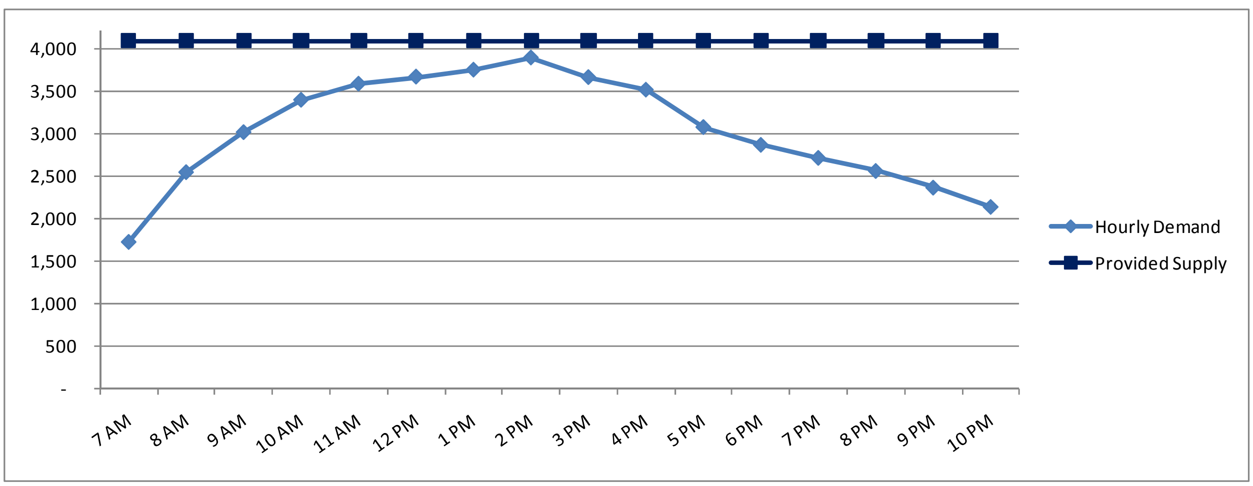
[8] The latter part of December constitutes a "thirteenth" month for Shared Parking, as parking behavior at this time reflects substantially different parking patterns for retail, cinema and office uses than during the earlier part of the month.

Table 7: Projected Accumulation on Peak Day by Hour for Build-out – Weekday

Land Use	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM
Retail	33	94	183	286	369	430	467	467
Food	38	81	117	246	406	588	588	529
Cineplex Weekdays	0	0	0	0	0	13	26	31
Hotel	71	87	81	78	78	74	74	78
Office	436	1109	1444	1560	1499	1321	1354	1560
Grocery	6	28	42	75	81	90	88	74
Residential	1116	1116	1116	1116	1116	1116	1116	1116
Residential - Guests	27	27	27	27	27	27	27	27
Total	**1,727**	**2,542**	**3,010**	**3,388**	**3,576**	**3,659**	**3,740**	**3,882**
Land Use	**3 PM**	**4 PM**	**5 PM**	**6 PM**	**7 PM**	**8 PM**	**9 PM**	**10 PM**
Retail	467	449	407	404	384	341	267	156
Food	353	391	543	685	726	669	631	588
Cineplex Weekdays	32	32	36	36	46	56	56	46
Hotel	78	77	73	65	58	61	64	71
Office	1499	1321	736	368	147	102	43	14
Grocery	81	93	104	108	99	78	51	12
Residential	1116	1116	1116	1116	1116	1116	1116	1116
Residential - Guests	27	27	54	79	133	133	133	133
Total	**3,653**	**3,506**	**3,069**	**2,861**	**2,709**	**2,556**	**2,361**	**2,136**

Source: The Urban Land Institute's *Shared Parking Model*, *Second Edition* and Walker Parking Consultants, 2011.

Figure 4: Projected Accumulation on Peak Day by Hour for Build-out – Weekday



Source: The Urban Land Institute's *Shared Parking Model*, *Second Edition* and Walker Parking Consultants, 2011.

Site Build-out Projected Parking Demand – Weekend Peak

With the demand for office parking drastically reduced on the weekends, even with an increase in parking demand for uses such as cinema and retail, we project a peak demand for parking at the proposed project site of 2,671 spaces. This is nearly 1,200 spaces less than the weekday peak. The parking demand by use during the weekend peak is shown in Table 8.

Table 8: Projected Peak Parking Demand for Build Out – Weekend

	Quantity	Wknd Base Rate	Units	Unadj Demand	Month Adj December	Pk Hr Adj 7:00 PM	Non Captive Evening	Drive Ratio Evening	Demand December 7:00 PM
Retail[A]	135,000	3.20	/ksf GLA	432	100%	75%	100%	100%	324
Employee		0.80		108	100%	80%	100%	100%	86
Food Uses - Total	55,000	15.00	/ksf GLA	825	Blended Rate				585
Employee		2.60	/ksf GLA	143	Blended Rate				139
Specialty Grocery	30,000	3.50	/ksf GLA	111	95%	44%	90%	100%	42
Employee		0.60	0	15	100%	65%	100%	100%	10
Cinema	1,200	0.19	/seat	312	67%	80%	95%	100%	159
Employee		0.01		12	80%	100%	100%	100%	10
Hotel-Business	150	1.00	/room	135	67%	75%	100%	77%	52
Employee	150	0.25	/room	27	100%	55%	100%	100%	15
Office >500,000 sq ft	557,440	0.20	/ksf GFA	11	100%	0%	100%	100%	-
Employee		2.60		145	100%	0%	100%	100%	-
Total Residential - Guests[B]	608	0.22	/unit	-	100%	100%	100%	100%	133
Total Residents[B]		1.84		-	100%	100%	100%	100%	1,116
Total Parking Spaces									2,671

[A] Shared Parking, Urban Land Institute, Second Edition, 2005. In response to City staff inquiries we note that retail base ratios (and adjustments) represent default ratios in the ULI Model.

[B] Residential base rates are blended residential parking demand projections for the units on Blocks A - C combined.

Source: The Urban Land Institute's *Shared Parking Model*, *Second Edition* and Walker Parking Consultants, 2011.

Phase I Projected Parking Demand

Upon lease-up of just the Phase I component of the site, the ULI model projects a peak parking demand of 2,063 spaces on a weekday in December during the 2:00 p.m hour, the same hour as the peak for the overall site. A detailed breakdown is provided in the following table. The largest parking generating land use, the office employees and visitors, will result in a demand for1,560, spaces. On the weekend, with the office space generating little demand for parking, the peak demand for Phase I represents just a fraction of the weekday demand and total planned supply, 645 spaces. The ULI Model projections demonstrate that both the weekday and weekend parking demand would be less than the planned supply of parking for Phase I, which is 2,230 spaces.

Table 9: Projected Peak Parking Demand for Phase I – Weekday

	Quantity	Weekday Base Rate[A]	Units	Unadj Demand	Month Adj December	Pk Hr Adj 2:00 PM	Non Captive Daytime	Drive Ratio Daytime	Demand December 2:00 PM
Retail	75,488	2.90	/ksf GLA	219	100%	100%	95%	100%	208
Employee		0.70		53	100%	100%	100%	100%	53
Fine/Casual Dining	15,100	15.25	/ksf GLA	230	100%	65%	95%	100%	142
Employee		2.75		42	100%	90%	100%	100%	38
Fast Food	10,100	12.75	/ksf GLA	129	100%	90%	35%	100%	40
Employee		2.25		23	100%	95%	100%	100%	22
Food Uses - Total	25,162	14.23	/ksf GLA	358	Blended Rate				182
Employee		2.58	/ksf GLA	65	Blended Rate				60
Office >500,000 sq ft	557,440	0.20	/ksf GFA	111	100%	100%	100%	100%	111
Employee		2.60		1,449	100%	100%	100%	100%	1,449
Subtotal Customer/Guest Spaces				689					501
Subtotal Employee Spaces *				1,567					1,562
Total Parking Spaces									2,063

[A] *Shared Parking*, Urban Land Institute, Second Edition, 2005. Differences in the mix of Food Uses between Phase 1 and build out result in a slightly different base ratio.

Source: The Urban Land Institute's *Shared Parking Model*, *Second Edition* and Walker Parking Consultants, 2011.

SHARED PARKING ANALYSIS – ADDITIONAL SCENARIO

The Applicant has expressed interest in offering its office tenants 3.2 parking spaces per 1,000 SF GLA for marketing and leasing purposes. The base parking ratio for 500,000 or more square feet of office space within the *ULI/Walker Shared Parking Model* is 2.8 spaces per 1,000 SF GFA, a number that has been determined based on extensive research and empirical data. Although Walker has recommended that the 2.8-space base ratio will be sufficient to accommodate the parking needs of its office employees and visitors, the Applicant requested that Walker examine the ability to accommodate parking demand based on the 3.2 spaces/Ksf GLA ratio.

The difference in metric (GFA versus GLA) and increased ratio suggest that an additional 145 parking spaces during the weekday peak be provided.[9] As the 3.2-space ratio would only be needed during the day on weekdays, the demand for parking in the evening and on weekends remains unaffected by this change in provided parking.[10] At the same time evenings and weekends are precisely when a large surplus of parking spaces is available.

[9] The ULI/Walker Shared Parking Model projects office parking demand based on office gfa while the parking requirements for leasing are based on gla. The actual difference between the ULI/Walker model using a 2.8 spaces per office gfa and 3.2 spaces per office gla is therefore 150± spaces.

[10] We note that even when office parking is used or required on the weekends, demand is a fraction of weekday use. The City's LDC Saturday requirement for office space is 0.5 spaces per ksf. The ULI Model shows peak office weekday demand at 2.8 per ksf.

The planned supply of parking is sufficient to accommodate this higher parking ratio for office leasing purposes. The table below shows a continued parking surplus, albeit reduced, from the demand projections produced by the ULI/Walker shared parking model.

Table 10: Effects of Increased Office Parking Ratio

	Phase I				Full Site		
Number of Parking Spaces per:	Demand	Planned Supply	Difference[3]		Demand	Planned Supply	Difference[3]
Shared Parking Model with Leasing Goals for Office Ratio (3.2/Ksf GLA)	2,214	2,230	16		4,027	4,089	62

Source: The Urban Land Institute's *Shared Parking Model*, *Second Edition* and Walker Parking Consultants, 2011.

IV. CITY OF SAN DIEGO PARKING REGULATIONS

The parking regulations for the City of San Diego are found within the Land Development Code Chapter 14, Article 2, Division 5. This section contains specifications related to minimum and maximum parking supply requirements, ability to share parking between different uses, and an allocation of special parking spaces (ADA, Carpool, Motorcycle, and Bicycle). In the following section of the report Walker presents how these regulations are calculated given the program data for One Paseo.

The methodology and tables contained in Section 142.0545 of the LDC are based on ratios and "variations in the number of parking spaces needed (parking demand) over the course of the day for the proposed uses." In fact, the base ratios and time of day (presence) factors are based on the ULI publication Shared Parking, 1st Edition, 1983. While the much of the methodology is the same, Shared 1st Edition is today regarded in the fields of planning and parking as incomplete and out of date. ULI, Walker and firms throughout the parking industry continually update the base ratios and presence factors to incorporate the latest research and access to a greater number of data points.

This growing and improved information has at times resulted in changes to base ratios and time of day factors since the 1983 edition. The foreword from Shared Parking, 2nd Edition, 2005 has been included in Attachment D which specifically summarizes the necessity for the update. The use of more updated ULI information to a great extent accounts for the differences between the LDC and this study's calculation of projected parking space demand. It should be noted that the 2005 edition is a project collaboration between ULI and the International Council of Shopping Centers (ICSC) which helped create and endorses the findings of the latest edition.

KEY DIFFERENCES BETWEEN LDC SHARED PARKING AND ULI SHARED PARKING MODEL

The shared parking section of the LDC is based on the original ULI *Shared Parking 1st Edition,* published in 1983. However differences exist between the LDC's shared parking requirements and a shared parking analysis performed using ULI's *Shared Parking, 2nd Edition, 2005*. These differences result in the variation in parking demand projections recommended in this report from those calculated using the LDC methodology and factors.

A 1995 report by the Institute of Transportation Engineers ("ITE") Technical Council Committee, *Shared Parking Planning Guidelines,* concluded that the *ULI Shared Parking* methodology from the first edition in 1983 was the best approach, but the default values and recommendations needed to be updated. This was the goal of the 2nd Edition; the update was led by Walker Parking Consultants staff. *Shared Parking, 2nd Edition, 2005* is the most up-to-date and accurate source for land-use based parking demand ratios and the most accurate and complete method of determining parking demand generated under shared-use conditions. Part of this completeness depends on the nuances incorporated into the ULI modeling process, which are not included in the Shared Parking Section of the LDC. These nuances are crucial for parking projection accuracy. They include the following factors, which are demonstrated in greater detail in the tables contained in Attachment C:

- Adjustments for "non-captive" ratios within mixed-use developments: The model takes into account the fact that some customers in a mixed-use development are employees in that development (such as office workers or store clerks) who are already parked and therefore do not need parking, an important component in shared parking principles. The size of the non-captive ratio is related to the number of employees on the site and how they would interact with other land uses in the development; therefore these ratios cannot be included automatically and must be determined on a project-by-project basis. The LDC shared parking requirements do not account for non-captive ratios.
- Monthly factors: Peak parking demand may vary considerably over the course of the year for many land uses. Office workers are more likely to be on vacation during some days in December or during the summer, movie theatres tend to be busier during these months, and health clubs experience peak demand in January. The LDC does not account for monthly adjustments that should be made to accurately project parking demand.
- Sliding scales: Extensive observations and research by the *ULI Shared Parking Model* team found that parking demand per square foot of office space varies considerably depending on the amount of office space that exists. This results in large offices generating more than 15% less demand for parking per square foot than small offices. The LDC shared parking requirements do not account for this sliding scale, which is important when projecting parking demand for office space (especially large office space). Walker studies have shown a number of large office complexes in Southern California that are hundreds of parking spaces "overparked," some which actively seek to lease the available space to other uses.

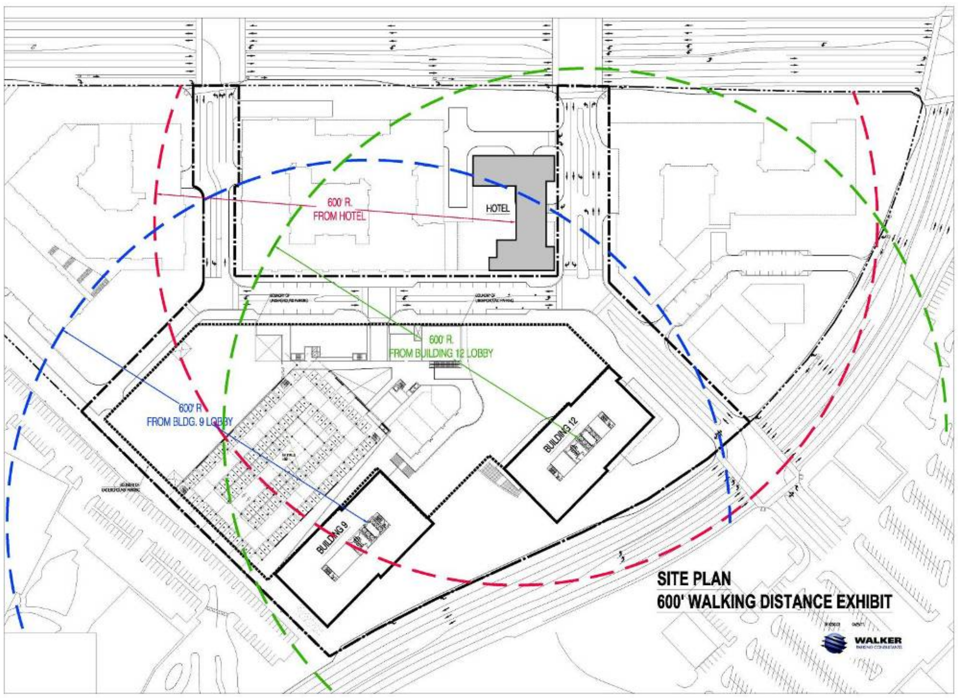
As noted above, the base parking ratios in *Shared Parking, 2nd Edition* (model and publication) have been researched to an unprecedented degree. While not all of the LDC's shared parking base ratios are higher than those in *Shared Parking, 2nd Edition*, a significant number of the ratios are higher, which is enough to result in City requirements for parking that significantly exceed actual demand. Our findings with regard to Shared Parking are based on the ULI research and methodology, and explained in greater detail throughout this report.

MAXIMUM WALKING DISTANCE

The City of San Diego's Land Development Code (LDC) Section 142.0545 allows for shared parking between at least two land uses provided that the parking to be shared is available within 600 feet of the land that is to use the supply of parking.

In response to City staff's specific inquiry regarding the location of the parking supply in relation to the uses within each block, we confirm that this requirement (as with all other relevant requirements in this section) will be met. The figure below contains a site plan which demonstrates that the parking supply that is to be shared among the various blocks is within 600 feet of parking demand generators. The figure illustrates compliance of the full build-out condition; Phase 1 and Phase 2 would therefore necessarily meet this spatial requirement as the area between blocks that share parking supply is even smaller in those phases. We note that most of the sharing of parking between uses for this project actually occurs on a smaller scale, within rather than between blocks, making for walking distances for parking users that would be significantly less than 600 feet.

Figure 5: 600-FT Walking Distance Requirement



Source: Walker Parking Consultants, 2011.

LDC SHARED PARKING RATIOS

The LDC primarily presents shared parking ratios in Table 142-05H and refers to Section 142.0525 for Multiple Dwelling Unit Residential Uses (including both resident and resident guest parking)

RESIDENTIAL PARKING REQUIREMENTS

In section 142.0525 the LDC allows for guest spaces as well as up to 25% of residential spaces to be shared (except at least 1 space shall be assigned to each dwelling unit for the resident). The modeling of the LDC requirement reflects that the residential spaces will be reserved and that guest spaces will be shared. Per the LDC the amount of guest spaces, or common area parking, cannot be reduced to below 15% for a residential development of the proposed size.Parking requirements within the LDC for residential land uses are based on the bedroom count for each dwelling unit, therefore the Applicant provided the following unit breakdown.

Table 11: LDC Residential Parking Requirements

Location	Units	Type of Unit	LDC Resident Ratio	LDC Resident Req't	Effective Ratio	Common Area Parking Req't[1]
Block A	124	1 BDRM	1.5 /BDRM	186		
	58	2 BDRM	2.0 /BDRM	116		
	12	3 BDRM	2.25 /BDRM	27		
	194			329	1.70 /DU	49 -
Block B	65	1 BDRM	1.5 /BDRM	98		
	80	2 BDRM	2.0 /BDRM	160		
	36	3 BDRM	2.25 /BDRM	81		
	181			339	1.87 /DU	51 -
Block C	94	1 BDRM	1.5 /BDRM	141		
	127	2 BDRM	2.0 /BDRM	254		
	12	3 BDRM	2.25 /BDRM	27		
	233			422	1.81 /DU	63 -
One Paseo	283	1 BDRM	1.5 /BDRM	425		
	265	2 BDRM	2.0 /BDRM	530		
	60	3 BDRM	2.25 /BDRM	135		
	608			1,090	1.79 /DU	164 -

[1] LDC 142.0525(c) The number of common area parking spaces that may be required is 20% of the total off-street parking spaces required. This requirement may, however, be increased or decreased base on consideration by the decision maker. For larger developments, generally in excess of 200 dwelling units, the number of common area parking may be decreased to no less than 15% of the total off-street parking spaces required. Walker assumes that, with more than 600 units, the number will be 15%.

Source: Walker Parking Consultants, 2011.

LDC PARKING REGULATIONS FOR NON- RESIDENTIAL USES

In addition to base ratios and time of day factors differing slightly from the updated publication, the LDC Shared Parking Model lacks seasonal, non-captive and drive share adjustments. Because seasonal adjustments are not included in the code, parking ratios that reflect the high demand for cinema and retail uses, which spike in late December, overlay the office demand that occurs during other times of year (Peaking in October). Although the peak periods for these land uses would likely not occur at the same time, their overlap in the LDC model accentuates the peak period that the LDC model projects. Attachment B of this report contains a table which compares the factors used in the City of San Diego's LDC and the ULI/Walker Model.

LDC Shared Parking Requirement – Full Build-out

Based on the City's shared parking formula, at build-out a total of 4,511 spaces would be necessary (see Table 12 below).

Table 12: LDC Shared Parking Requirement for Build-out – Weekday

	Quantity	Code Reqt Per LDC	Units	Unadj Demand	Pk Hr Adj 12:00 PM	Demand 12:00 PM
Retail	165,000	5.00	/ksf GFA	825	100%	825
Food	55,000	15.00	/ksf GFA	825	100%	825
Cinema - 10 screens[A]	1,200	0.30	/seat	364	30%	109
Hotel-Business	150	1.00	/room	150	70%	105
Office[B]	557,400	3.30	/ksf GFA	1,840	90%	1,656
Residential Block A (reserved)	194	1.28	/ksf GFA	247	100%	247
Residential Block B (reserved)	181	1.40	/ksf GFA	254	100%	254
Residential Block C (reserved)	233	1.36	/ksf GFA	316	100%	316
Guest Block A	194	0.26	/unit	49	40%	20
Residential Block A		0.43		82	40%	33
Guest Block B	181	0.28	/unit	51	40%	20
Residential Block B		0.47		85	40%	34
Guest Block C	233	0.27	/unit	63	40%	25
Residential Block C		0.45		105	40%	42
Subtotal Residential[C]	608	2.06	/unit	1,253		174
Total Parking Spaces						4,511

[A]Based on 10 screens, 1,200 seats are assumed.

[B]Square footage is GFA. GLA is 536,000 SF.

[C] Assumes a total unit mix of 283 1-bdrm, 265 2-bdrm, and 60 3-bdrm units. Residential code reqt reflects blended code reqt.

Source: Walker Parking Consultants, LDC, 2011.

Table 13 shows the hourly accumulation totals by land use based on LDC hourly adjustments for weekdays.

Table 13: LDC Shared Parking Hourly Accumulations for Build-out – Weekday

Use	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM
Retail	0	83	248	413	578	660	825	784	701	660
Food	124	454	660	537	207	537	825	660	454	289
Cineplex Weekdays	0	0	0	0	18	18	109	255	255	255
Hotel	150	143	128	128	120	113	105	105	105	90
Office	92	276	1012	1656	1840	1840	1656	1564	1656	1656
Residential	980	947	915	900	882	882	882	874	882	890
Residential - Guests	272	218	163	136	109	109	109	96	109	122
Total	**1,618**	**2,121**	**3,126**	**3,770**	**3,754**	**4,159**	**4,511**	**4,338**	**4,162**	**3,962**

Use	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM
Retail	619	660	660	619	495	371	248	124	0
Food	248	372	537	454	454	372	289	124	42
Cineplex Weekdays	255	255	291	364	364	364	364	291	255
Hotel	98	90	98	113	128	135	135	150	150
Office	1564	1012	460	276	92	92	92	0	0
Residential	890	900	923	931	939	956	964	972	980
Residential - Guests	122	136	178	191	204	232	245	258	272
Total	**3,796**	**3,425**	**3,147**	**2,948**	**2,676**	**2,522**	**2,337**	**1,919**	**1,699**

Source: Walker Parking Consultants, LDC, 2011.

The LDC provides separate shared parking regulations for both weekdays and weekend days. For reference, the weekend parking requirement is shown in Table 14. Since office space is a significant component of the land use mix proposed for One Paseo, higher requirements result for weekdays than weekends.

Table 14: LDC Shared Parking Regulation for Build-out – Weekend

	Quantity	Code Reqt Per LDC	Units	Unadj Demand	Pk Hr Adj 1:00 PM	Demand 1:00 PM
Retail	165,000	5.00	/ksf GFA	825	100%	825
Food	55,000	15.00	/ksf GLA	825	100%	537
Cinema - 10 screens[A]	1,200	0.30	/seat	396	70%	277
Hotel-Business	150	1.00	/room	150	50%	75
Office[B]	557,400	0.50	/ksf GFA	279	85%	237
Residential Block A (reserved)	194	1.28	/unit	247	100%	247
Residential Block B (reserved)	181	1.40	/unit	254	100%	254
Residential Block C (reserved)	233	1.36	/unit	316	100%	316
Guest Block A	194	0.26	/unit	49	65%	32
Residential Block A	194	0.43		82	65%	54
Guest Block B	181	0.28	/unit	51	65%	33
Residential Block B	181	0.47		85	65%	55
Guest Block C	233	0.27	/unit	63	65%	41
Residential Block C	233	0.45		105	65%	69
Subtotal Residential[C]	608	2.18	/unit	387		387
Total Parking Spaces						3,052

[A]Based on 10 screens, 1,200 seats are assumed.

[B]Square footage is GFA. GLA is 536,000 SF.

[C] Assumes a total unit mix of 283 1-bdrm, 265 2-bdrm, and 60 3-bdrm units. Residential code reqt reflects blended code reqt. Peak hr adjst is for residents only.

Source: Walker Parking Consultants, LDC, 2011.

LDC Shared Parking Requirement – Phase I

Using the LDC shared parking section the shared parking regulation for the Project's Phase I is 2,410 spaces for weekdays. The summary of the results in Table 15 shows the breakdown of the requirement for spaces for each land use. The LDC shared parking requirement for Phase I on weekends of 864 spaces is shown in Table 16.

Table 15: LDC Shared Parking Requirement for Phase I – Weekday

	Quantity	Weekday Base Rate	Units	Unadj Demand	Per SDMC no Month Adj [redacted]	Pk Hr Adj 12:00 PM	Non Captive Daytime	Drive Ratio Daytime	Demand January 12:00 PM
Retail	75,488	5.00	/ksf GLA	377	100%	100%	100%	100%	377
Food	25,163	15.00	/ksf GLA	377	100%	100%	100%	100%	377
Office[1]	557,648	3.30	/ksf GFA	1,840	100%	90%	100%	100%	1,656
Total Parking Spaces									2,410

Source: Walker Parking Consultants, LDC, 2011.

Table 16: LDC Shared Parking Requirement for Phase I – Weekend

	Quantity	Wkday Base Rate	Units	Unadj Demand	Per SDMC no Month Adj [redacted]	Pk Hr Adj 1:00 PM	Non Captive Daytime	Drive Ratio Daytime	Demand December 1:00 PM
Retail	75,488	5.00	/ksf GLA	377	100%	95%	100%	100%	358
Food	25,163	15.00	/ksf GLA	377	100%	100%	100%	100%	377
Office[1]	557,648	3.30	/ksf GFA	279	100%	80%	100%	100%	223
Total Parking Spaces									856

[1]Square footage is GFA. GLA is 536,000 SF.

Source: Walker Parking Consultants, 2011.

CITY OF SAN DIEGO REGULATIONS FOR PARKING FOR OTHER VEHICLES

In addition to requirements for single occupied vehicles, the City Code addresses parking spaces for other types of vehicles, which include carpool vehicles, motorcycles and bicycles. Additionally, the Federal government, through the Americans with Disabilities Act (ADA), requires that a number of spaces within any given supply be set aside for disabled drivers as well.

ADA SPACES

The following table shows the required number of ADA spaces for each of the blocks, their associated parking facilities, and how the spaces will be provided.

Table 17: ADA Spaces by Block

One Paseo			ADA Required		ADA Provided	
Block	Spaces Provided	ADA Req't	Standard ADA spaces	Van stalls	Standard ADA spaces	Van stalls
A	659	2%	12	2	21	4
B	675	2%	12	2	15	3
C	525	2%	9	2	10	4
D E	2230	20+1 for each 100 over	27	6	27	6
	4089		**60**	**12**	**73**	**17**

Source: Walker Parking Consultants, LDC, 2011.

MOTORCYCLE, BICYCLE, AND CARPOOL SPACES

Table 18 shows the number of spaces required per the LDC Section 142.0525 for users of motorcycles, bicycles and carpools, by phase. The total required to be set aside for these users at Build-out are as follows:

- Motorcycle spaces: 136. According to the LDC, these spaces are in addition to the required automobile spaces. Per the LDC, motorcycle spaces shall be at least 3 feet wide and 8 feet long.

- Bicycle spaces: 327, which includes 12 bicycle lockers that would require an accompanying shower facility. 283 of the bicycle spaces are required for the residential units as a result of a requirement of the 0.4 – 0.6 bicycle spaces per single – two bedroom unit.
- Carpool spaces: 162. According to the LDC, these spaces are to be part of and not in addition to the general pool of required spaces.

In some cases the number of spaces indicated as "Provided" may be lower than the code requirement, which is a result of our overall recommendation that the total number of spaces necessary for the development is less than what the LDC requires (which will be shown in subsequent sections). The following caveats and recommendations should be noted:

- To the extent that the code requirements for motorcycle, bicycle and carpool spaces are for stand-alone uses, and they do not take into account the possible efficiencies to be gained from sharing spaces. This suggests that the actual demand for these spaces could be lower than the code requirement as well. A number of the code requirements, particularly for motorcycle spaces, are a function of the code requirement for automobiles; –the ULI model peak parking demand projection for automobile spaces is roughly 20% lower than the calculated code requirement which would then translate to a motorcycle requirement that is roughly 20% than the calculated code requirement as well.
- Motorcycles and the spaces used to park them represent a far more efficient use of space than Single Occupancy Vehicles (SOV) spaces. However, because one can park a motorcycle or bicycle in an SOV space but not vice versa, these spaces cannot be "shared" and, if their usage is not maximized, can result in inefficiencies. These spaces should be provided in locations that otherwise could not be used (such as corners of the parking facilities).
- The provision of parking spaces for carpoolers, bicycle commuters and motorcyclists should result in a slight reduction in demand for automobile spaces. At a minimum, the reduction would be on an, at least, one-to-one basis for motorcycle, carpool and non-residential bicycle spaces. These items are part of a Transportation Demand Management ("TDM") Plan used to reduce the parking demand for Single-Occupant Vehicles.

Table 18: Motorcycle, Bicycle, and Carpool Spaces by Block

Phase/Block	Program Summary		Calculated Required Auto Spaces (non-residential)	Dwelling Units	Motorcycle: Code Requirement [A,B]	Motorcycle: Calculated code req't - MC Spaces	Motorcycle: Spaces Provided	Bicycle: Code Requirement [D,E,F,G,H]	Bicycle: Calculated code req't - Bicycle	Bicycle: Lockers w/ Shower Reqt[H]	Bicycle: Calculated Bike Locker Spaces Reqt	Bicycle: Spaces Provided	Carpool: Code Requirement [I]	Carpool: Calculated Total Carpoo[l] Spaces Req'[t]
PHASE 1														
Block D	Office	352,190 SF	2410	N/A	2% req'd auto	49	44	0.03 /ksf office	Maximum 25 bicycle spaces required and to be provided including racks for 12 spaces and 12 bicycle lockers per SDMC.				0.3 /ksf office	88
	Commerical							0.10 /ksf commercial						
Block E	Office	284,460 SF						0.03 /ksf office					0.3 /ksf office	74
	Commerical							0.10 /ksf commercial						
Phase 1 Total		636,650 SF				49	44		13		12	25		162
Phase 2 Total														
Block A	Residential	194 MF Units		194	0.1 /DU	20	20	0.44 /DU	86	N/A	N/A	86	N/A	N/A
	Commercial	65,610 SF	492		2% req'd auto	10	10	0.10 /ksf commercial	7			7		
Phase 2 Total		65,610 SF +194 MF Units				30	30		93			93		
Phase 3 Total														
Block B	Residential	181 MF Units		181	0.1 /DU	19	19	0.49 /DU	89	N/A	N/A	89	N/A	N/A
	Hotel	150 Hotel Rooms	105		2% req'd auto	3	3	2% req'd auto	3			3		
	Commercial	38,940 SF	300		2% req'd auto	6	6	0.10 /ksf commercial	4			4		
Block C	Residential	233 MF Units		233	0.1 /DU	24	24	0.46 /DU	108	N/A		108	N/A	N/A
	Commercial	14,800 SF	111		2% req'd auto	3	3	0.10 /ksf commercial	2			2		
Block D	Cinema	50,000 SF	109		2% req'd auto	2	2	2% req'd auto	3			3		
Phase 3 Total		103,740 SF +150 Hotel Rooms +414 MF Units				*57*	*57*		209			209		
Total at Buildout														
Total		806,000 SF +150 hotel rooms +608 MF units				136	131		315		12	327		162

[A] San Diego Municipal Code § 142.0525, page 21 (h) - Motorcycle Parking.
[B] SDMC § 142.0525, Table 142-05C, Multiple Dwelling Units, page 8.
[C] SDMC § 142.0525, Motorcycle Parking, page 21 (g).
[D] SDMC § 142.0525, Table 142-05C,Table 142-05F Parking Ratios for Specified Non-Residential Uses - Offices, page 19.
[E] SDMC § 142.0525, Table 142-05D Parking Ratios for Retail Sales, Commercial Services, page 13 - Carmel Valley.
[F] SDMC § 142.0525, Table 142-05C, Multiple Dwelling Units, page 8. Bicycle reqt represents a blended rate based on the size (bedrooms) of units as contained in our earlier section on Code Requirements.
[G] SDMC § 142.0525, Table 142-05F, Visitor Accommodations, page 18.
[H] SDMC § 142.0525, Table 142-05F Parking Ratios for Specified Non-Residential Uses - Theaters - 2% of Auto Minimum, page 18.
[I] SDMC § 142.0525, Table 142-05F, Carpool Minimum, Business and Professional Offices, page 19.

*Gross Leasable Area (excludes parking structures covered in Gross Floor Area calculations). Density transfers permitted in accordance with procedures described in the Precise Plan.
**Cinema consists of up to 10 screens and 1,200 seats.

Source: Walker Parking Consultants, LDC, 2011.

V. CONCLUSIONS AND RECOMMENDATIONS

The planned parking supply for One Paseo is 4,089 spaces (build out) and 2,230 (Phase 1). For the purpose of accommodating parking demand during peak periods without overbuilding spaces that are likely to sit vacant most or all the year, the following supply of parking spaces is recommended based on the projections of the ULI Model:

Built-out Project: 3,882 spaces
Phase I: 2,063 spaces

In addition, the following points should be noted with regard to the parking demand projections that have come from the ULI Shared Parking Model:

- The assumptions used in our model are conservative. Very little patronage of the businesses on site by the office employees and residents is assumed when in fact such patronage is likely to occur and result in fewer customers of these businesses requiring parking spaces. No commuting to the site other than by single occupancy vehicles was assumed. All parking for employees and visitors is assumed to be free.
- Spikes in the demand for retail parking, such as "Black Friday" or the days around the Christmas holidays are likely to occur when office parking demand is low and spaces that typically serve office will be available to accommodate parking for other uses.
- Parking management policies and technology that we recommend for One Paseo's large parking supply will increase the efficiency of the system and reduce the number of spaces needed as such measures lead parkers more quickly to available spaces.

The requirements needed to satisfy both marketing and leasing goals of the Project for increased parking spaces, as well as the City's shared parking code result in a higher number of spaces than that which the ULI Model projects is necessary. However, based on our research and updated model we do not project that One Paseo will experience a need for more than the 3,882 spaces for other than unusual and infrequent circumstances.

It is likely the two higher projected numbers (Applicant Scenario – 4,027 and LDC Calculation – 4,511) will result in an overbuilding of parking spaces that will not result in better service to drivers visiting the site.

DEVELOP A PARKING MANAGEMENT PLAN

Given the size of the parking supply to be provided, the accommodation of parking demand and development of a positive customer service experience for tenants and visitors can best accomplished by establishing effective parking management policies and not just simply adding additional spaces. Additional spaces may still go unused if not properly managed, while the perception of a parking shortage persists; appropriate parking management practices will be necessary whether or not additional spaces are added to the proposed supply.

WALKING DISTANCES

Every trip involving driving and parking begins and ends with a pedestrian trip. Typically the more popular the destination, the greater the walk that is required. Walker has done extensive research on walking distances and how far parkers can reasonably be expected to walk. The question is largely one of level of service. Customers and visitors require a higher level of service and usually should be required to walk less. Employees and other long-term parkers (with the exception of residents) can be provided with a lower level of service and be expected to walk greater distances. A summary of our general findings regarding walking distances is shown in the table below.

Table 19: Walking Distance Level of Service

	LOS A (feet)	LOS B (feet)	LOS C (feet)	LOS D (feet)
Maximum Walking Distance				
Within Parking Facilities				
Surface Lot	350	700	1,050	1,400
Structure	300	600	900	1,200
From Parking to Destination				
Climate Controlled	1,000	2,400	3,800	5,200
Outdoors, covered	500	1,000	1,500	2,000
Outdoors, uncovered	400	800	1,200	1,600

Source: *Parking Structures 3rd Edition*, 2001.

The size of the entire One Paseo site lends itself well to sharing parking but also, as it has been layed out, provides two additional benefits. First, the majority of the parking supply, located within Blocks D and E, is located roughly in the center of the site, minimizing walking distances to the other blocks. The parking supply for D and E is located within 600 feet of the other blocks.

Second, as shown earlier in our report, the parking supply within the site is well distributed according to where the demand for parking on the site will be generated. During the overall peak for the site (midday on a weekday), roughly 90% of the parking demand for each block can be accommodated within that block. When the demand for parking on Blocks A – C increase in the evenings and on weekends, more than 80% of the parking demand generated on these blocks can be accommodated within the individual blocks. Because the employee component of parking demand for retail or restaurant space typically represents roughly 20% of that demand, parking can be managed such that the employees will park on the adjacent blocks.

PARKING MANAGEMENT PLAN

A parking management plan for the site ensures that visitor and short-term spaces are available for those user groups while all spaces throughout the system are efficiently utilized. The Applicant has stated proper policies, signage and wayfinding will be used to efficiently distribute parking demand throughout the available spaces. The plan to do this will include:

- The establishment of a parking management operation on site, either using Campus employees or a parking operator, whose responsibility is to monitor the management of the system, enforce management policies and interact with the public in order to ensure that drivers find parking spaces and have a positive customer experience within the parking system.
- Frequent monitoring of vehicles in customer/short term spaces, particularly during peak hours, to ensure that these spaces are used by the designated parkers and to ensure that customer spaces are always available in these areas. Both “carrot and stick” policies to ensure that parkers park in the appropriate spaces will be required. Enforcement capabilities with attached fines or punishment are necessary. Given the nature of the parking system and its user groups at One Paseo, we discuss the most appropriate enforcement methods in the following section.
- Parking guidance systems, signage and wayfinding technology that indicates where available parking spaces can be found and, ideally, leads drivers directly to those spaces. Such technology is available and has been found to be popular and effective in similar, commercial centers in including Westfield’s Century City Shopping Center and The Grove in Southern California. We discuss these systems in a little more detail later in the report.
- If necessary, presence of parking staff in the mornings upon the arrival of employees to block off short-term/customer spaces needed later in the day and to lead employees to designated long-term parking area.
- Frequent monitoring of the garages to ensure that unauthorized vehicles are not left in the garage for long periods of time, taking up space needed for vehicles that are authorized to be in the garage.
- Car sharing through services such as Zipcar, already in use in a number of San Diego locations, allow residents or employees who only occasionally need an extra vehicle for trips off site, the convenience of access to a vehicle when they need it without keeping a vehicle on site all the time, thus reducing parking demand.A valet service may also offer increased efficiency customer service for One Paseo. A valet service can increase the efficiency of the parking operation by moving valet-parked cars to areas more distant from valet area. If necessary, attendants of the parking operation would be available to perform valet and attendant-assist operations.

TANDEM PARKING

Of the total 4,089 parking spaces proposed for One Paseo, the applicant has proposed 206 tandem spaces (103 two-deep parking spaces meeting LDC design standards), which will be dedicated to employee parking. LDC section 142.0555(b) states, "Tandem parking for commercial uses may be approved through a Neighborhood Development Permit provided the tandem parking is limited to the following purposes: (1) Assigned employee parking spaces; (2) Valet parking associated with restaurant use; and (3) Bed and breakfast establishments.” Therefore, the use of tandem parking is permitted by the LDC, but if a Neighborhood Development Permit is not approved both spaces would not count toward meeting the minimum parking requirement; instead the two-deep tandem space would only count as one space and not two. Based on our analysis, this still provides a parking surplus; Walker's 2.8 model produces a peak of 3,882 versus a planned supply is 4,089 (103 of those spaces are a "2nd tandem space"). The analysis shows a 207-space surplus, but if 103 of these spaces cannot count per LDC, then a 104-space surplus still results.

The use of tandem parking spaces is a common practice that we recommend as an efficient method for maximizing office employee parking. Tandem parking can be administered utilizing an attendant-assist system of management whereby employees who park in any of the 103 “front” spaces hand their keys upon parking to an attendant who is present. The attendant, a staff member of the parking operation, holds the keys in case a vehicle in one of the “back” spaces needs to exit. Another management system that is available for employee parking applications is the use of a simple “buddy system,” whereby the same two employee drivers consistently share a pair of tandem spaces and are therefore able to efficiently communicate with one another on those occasions where the “front” space vehicle needs to be moved. The tandem spaces are located in convenient locations near the elevators, making them an attractive employee parking option, as opposed to spaces located on the opposite end of the garage.

VEHICLE HANGTAGS / ENFORCEMENT

The use of access control equipment is the most effective method for managing and controlling employee parking; however, in a non-paid parking environment, this technology can also limit operational flexibility since the equipment would need to be placed at specific control points within the garage. In addition, installing this equipment internally would result in the loss of spaces to accommodate necessary equipment curb islands. In lieu of access control equipment, employee parkers would be managed through the use of vehicle hang tags. Each employee would be required to submit a parking application, which among other information, would include license plate numbers for primary and secondary vehicles. Every vehicle parked within a designated employee parking area would need to display one of these hang tags. Parking staff would periodically monitor the employee parking area to ensure that every vehicle was in compliance with this policy. An unauthorized vehicle would be issued a warning, the license plate would be recorded, and future violations could result in towing. Likewise, parking staff would also monitor the visitor parking area to ensure that employees are not parking outside of their designated area. This would be accomplished by identifying vehicles parked for long durations and checking corresponding license plates against a database of employee vehicles.

SIGNAGE AND WAYFINDING RECOMMENDATIONS

The applicant should consider the installation of space-counting systems in the garages. These systems typically work by either counting cars as they park, or as cars enter and leave a level. This count of cars is then supported by automated changeable message signs, typically at each level or at the entry, which advise motorists of the number of spaces available at each level. Such a system can also be designed to accommodate all garages on the site in a unified system to guide motorists to available parking.

In addition to external alerts, individual spaces within each structure can be installed to alert drivers to the availability of parking. These systems help to reduce “seeking” within the structure, as drivers traverse the aisles seeking a parking space. Instead drivers can pass an aisle without driving down, allowing the "seeking" to happen outside the aisles.

A similar system was recently installed at Westfield Century City to improve the operation of the parking facility. In order to judge the impact of the system, a study of some of the benefits was conducted by ARUP traffic consultants.[11] Among the system's benefits, the study found that:

- There was a 43% reduction in the average time to park;
- Customers requiring longer than 5 minutes to park was reduced from 15.2% of customers to 3.4%;
- Overall Utilization within the facility was improved.

These improvements also provided a number of other benefits, such as a reduction in fuel consumption, and similar reduction in emissions during parking operations.

ADDITIONAL WAYFINDING RECOMMENDATIONS

In order to avoid the perception that there is inadequate parking and to supplement a proposed possible parking guidance system, Kilroy should consider the installation of dynamic space availability displays. These systems typically work by either counting cars as they park, or as cars enter and leave a level. This count of cars is then supported by automated changeable message signs, typically at each level or at the entry, which advise motorists of the number of spaces available at each level. Such a system can also be designed to accommodate all garages on the site in a unified system to guide motorists to available parking. Such a system would be extremely valuable in addressing possible overflow parking for Blocks A through C.

Based on the ULI shared parking analysis, a parking deficit will be experienced within these blocks during peak periods while significant numbers of spaces remain available in the Block D and E parking facility. Individual space sensors could be used to manage and monitor the visitor spaces in the parking facilities serving Blocks A through C. Once a pre-programmed threshold of visitor spaces has been detected by the space monitoring system, dynamic message signs installed at the exterior of the garages can re-direct all visitor parkers to park across Main Street, in the parking facility serving Blocks D and E which, during peak parking demand periods for Blocks A – C, the ULI model and the Walker analysis project will have abundant parking space availability.

[11] A summary of the study was presented to a meeting of the Institute of Transportation Engineers (ITE) in 2009 and can be found on line at http://www.sfbayite.org/events/Mtg_2009_11-19/Wendy_Tao.pdf.

We look forward to discussing our findings and recommendations with you at your earliest convenience.

WALKER PARKING CONSULTANTS

Steffen Turoff, AICP
Project Manager/Parking Consultant
Walker Parking Consultants

Ezra D. Kramer, AICP, CPP
Parking Consultant
Walker Parking Consultants

ATTACHMENT A

VALIDATION OF
SHARED PARKING MODEL

VALIDATION OF SHARED PARKING MODEL FOR PROJECTS SIMILAR TO ONE PASEO

The committee updating Shared Parking conducted a series of 13 case studies to verify that the shared parking model is reasonably accurate. These studies were conducted at a variety of shopping centers in California, Arizona, Ohio, Florida, and Virginia. The centers studied varied in size from 48,566 sf to 1,274,700 sf.

Eight of the thirteen case studies were on shopping centers in southern California. The size of these centers, their respective mix of land uses and the ratio of estimated demand/observed occupancy is shown in the following table. In most cases, the shared parking model estimated the parking demand within a few percent or in the case of the Long Beach Town Centre, over projected the number of spaces necessary. In two cases, the shared parking model under-projected the parking demand; however, in the case of The Block at Orange, the under projection did not occur during a peak month, and the committee believes that "the monthly variation at this center was significantly lower than normal . . . the 'valleys' in the monthly variation of parking demand seem less deep than those commonly seen."

Shared Parking Southern California Case Studies

								Estimated Demand / Observed Occupancy			
		Size			Enter-			Weekday		Weekend	
Case	Name	(ksf)	Retail	Dining	tainment	Office	Other	Day	Evening	Day	Evening
1	Puente Hills Mall	1,190	87%	5%	7%	-	-	-	-	1.11	1.09
2	Fashion Island	1,174	88%	10%	2%	-	-	-	-	0.96	1.06
4	Long Beach Towne Center	832	77%	9%	15%	-	-	-	-	1.44	1.23
5	Covina Town Square	381	61%	10%	29%	-	-	-	-	-	1.06
6	Burbank Empire	614	92%	7%	-	1%	-	-	-	1.04	-
7	Westfield Promenade	546	81%	8%	10%	-	-	-	-	-	1.04
9	Irvine Spectrum, 2002	797	7%	13%	35%	45%	-	1.19	1.30	1.15	0.96
	Irvine Spectrum, 2003	1,274	24%	11%	20%	45%	-	1.19	1.46	0.92	0.82
12	Block at Orange[1]	1,175	40%	20%	20%	32%	3%	0.93	0.82	0.87	0.64
	SDCC	1,764	-	-	-	-	-				

1. Other is Health Club
2. Other includes Hotel (9%), Residential (32%) and Health Club (2%)

Source: Shared Parking, ULI, 2005.

Several of the case studies for centers that were near reasonable transit options were prepared with a uniform mode adjustment of 90%-95%, for all visitors and employees. The Block at Orange, for example, was initially prepared assuming a mode adjustment of 90%.

In planning for the parking demand at any facility, the parking demand ratios are obtained (where available) from data provided by the Institute of Transportation Engineers' Parking Generation (3rd edition, 2004.). Parking Generation provides the Average Peak Period Parking Demand, the 85th Percentile Parking Demand, and the 33rd Percentile Parking Demand. As with traffic, traffic engineers and parking consultants generally consider the 85th percentile demand to represent the target that will best serve communities and developers. As these parking ratios are based on statistical data, there will be some facilities that outperform others, resulting in higher parking demand. The committee responsible for the update to Shared Parking didn't consider the variations in parking demand to invalidate the parking model, but rather "are more indicative of the strength of tenants in a particular marketplace…"

ATTACHMENT B

COMPARISON OF FACTORS USED IN
ULI/WALKER SHARED PARKING MODEL
AND CITY OF SAN DIEGO
LAND DEVELOPMENT CODE

WALKER
PARKING CONSULTANTS

Attachment B Table: Comparison of Factors – ULI / Walker Model and LDC Code

Land Use	Walker/ULI Model		LDC - Shared Parking		% LDC > ULI
Sample peak demand ratios - Weekday					
Office (for 500+ksf)	2.8	/ksf	3.3	/ksf	18%
Retail	3.6	/ksf	5	/ksf	39%
Restaurant	15 - 18	/ksf	15	/ksf	0 to 20%
Cinema	0.2	per seat	0.33	per seat	65%
Hotel - Guest	1.25	/room	1	/room	-20%
Residential incl'ing guest	2.05	/du (blended)	2.18	/du (blended)	6%
Sample time factors - 2:00 PM Wkdy					
Land Use	Walker/ULI Model		LDC - Shared Parking		% LDC > ULI
Office	100%		90%		-10%
Retail	100%		85%		-15%
Restaurant	65% - 90%		55%		-28% to -39%
Cinema	55%		70%		27%
Hotel - Guest	60%		70%		17%
Specialty Grocery	63%		85%		35%
Sample monthly factors - December					
Land Use	Walker/ULI Model		LDC - Shared Parking		% LDC > ULI
Office	100%		100%		0%
Retail	100%		100%		0%
Restaurant	100%		100%		0%
Cinema (Patron)	23%		100%		335%
Cinema (Employee)	50%		100%		100%
Hotel - Guest	67%		100%		49%
Sample Drive and Non-Captive Factors					
Land Use	Walker/ULI Model		LDC - Shared Parking		% LDC > ULI
Retail - Non-Captive	95%		100%		5%
Hotel - Guest - Drive Factor	66%		100%		52%
Specialty Grocery - Non-Captive	90%		100%		11%

Sources by land use:

Office	Data collected by Walker and other *Shared Parking* Team Members consisting of parking professionals nationwide
Retail	Parking Requirements for Shopping Centers, Second Edition. Washington DC: ULI-The Urban Land Institute, 1999
	US Census Bureau Unadjusted Estimates of Retail Sales, 1999-2002
Restaurant	Parking Generation, Third Edition. Washington DC: Institute of Transportation Engineers, 2004
	US Census Bureau Unadjusted Estimates of Retail Sales, 1999-2002
Cinema	Parking Generation, Third Edition. Washington DC: Institute of Transportation Engineers, 2004
Hotel	Parking Generation, Third Edition. Washington DC: Institute of Transportation Engineers, 2004
	Gerald Salzman, "Hotel Parking: How Much Is Enough?" Urban Land, January 1988.
	www.strglobal.com
Specialty Grocery	Compiled by Walker from field observations at Whole Foods, Trader Joes, and Wild Oats stores .

ATTACHMENT C

SELECT PAGES FROM

SHARED PARKING, 2ND EDITION, 2005

SELECT PAGES FROM *SHARED PARKING, 2ND EDITION, 2005*

Foreword

Since the first edition of this book was published in 1983, the concept of shared parking has become well established as an important element of mixed-use developments, probably beyond the wildest dreams of its authors. That pioneering study demonstrated that when developments with complementary parking patterns were able to use the same parking, less was required. At the time, there was not even a generally accepted source of documented parking needs for individual land uses, so such data were developed as part of the original study. Over the subsequent two decades, shared parking has become a routine part of the design and approval of mixed-use developments. Parking needs have changed as a result of the evolution in mixed-use developments and changes in transportation, requiring a new look at the shared parking parameters advocated in 1983. With this publication, we are pleased both to validate the original study and to provide current data for a more complex mix of different potential land uses.

It is a tribute to the ground-breaking nature and thoroughness of the original shared parking study that it has taken so long to update it, and ULI could not have done it alone. Growing concerns from within and outside the ULI community made this project a priority for the Policy and Practice Committee. The publication of the third edition of *Parking Generation* by the Institute of Transportation Engineers provided a rich source of current parking data for single land uses that served as a foundation for an updated shared parking study. The International Council of Shopping Centers partnered with us to make the study a reality. A national study team of experts was established and a lead consultant selected to direct and manage the work.

This new publication provides up-to-date parking parameters that will be useful now and well in the future for many users, including local governments, developers, shopping center owners, and lenders. These new guidelines should help those users to integrate parking and development in the most responsible way.

Robert T. Dunphy
Project Director

Table 2-1 Land Use Changes between First and Second Editions of *Shared Parking*

Land Use[1] in Second Edition	Land Use in First Edition	Comment
Office (701) <25,000 sq. ft. Office (701) 25,000 to 100,000 sq. ft. Office (701) 100,000 to 500,000 sq. ft. Office (701) >500,000 sq. ft. Data Processing Center Medical/Dental Office (720) Bank with Drive-in (912)	Single category: Office	Per *Parking Generation*, separation is appropriate.
Retail Community Center <400,000 sq. ft. (820) Regional Center 400,000 to 600,000 sq. ft. (820) Super Regional Center >600,000 sq. ft. (820)	Retail (400,000 sq. ft.) Retail (600,000 sq. ft.)[2]	n/a
Fine/Casual Dining (Quality Restaurant, 931; High Turnover with Bar, 932) Family Restaurant (High Turnover with No Bar, 932) Fast Food (ITE Fast Food, 933)	Single category: Restaurant	Unpublished study by team member and *Parking Generation* indicated separation is appropriate.
Cineplex (444) (>10 screens)	Same	First-edition ratio was applicable for 1-5 screens.
Residential, Rented (221, 222, 224) Residential, Owned (230)	Single category: Residential	Per *Parking Generation*, separation is appropriate. Specific time of day and adjustment factors are provided for suburban and transit/CBD oriented locations.
Leisure Hotel (330)—Rooms Business Hotel (312)—Rooms Restaurant/Lounge Conference Center/Banquet (20 to 50 sq. ft./room) Convention (>50 sq. ft./room)	Guest Rooms Restaurant/Lounge Conference Rooms Convention Area	Per published references, separation is appropriate.
Convention Center (455)	Not covered	Common in shared parking situations, especially in central business districts.
Health Club (492)	Not covered	Common in shared parking situations.
Performing Arts Center (441)	Not covered	Common in shared parking situations.
Active Entertainment (400 series)	Not covered	Significant trend in retail development; due to wide variation in specific tenants, default values for parking ratios are not provided.
Nightclub	Not covered	Significant trend in retail development.
Arena	Not covered	Common in shared parking situations.
Baseball Stadium	Not covered	Common in shared parking situations.
Football Stadium	Not covered	Common in shared parking situations.

Notes

[1]The ITE *Parking Generation* land use code is provided in parenthesis.
[2]The text of the first edition of *Shared Parking* recommended that, between 400,000 and 600,000 sq. ft., the ratio should be linearly interpolated from 4.0 to 5.0 spaces per thousand sq. ft., which was consistent with the then-current ULI/ICSC publication on *Parking Requirements for Shopping Centers*. The table summarizing the parking ratios, however, identified retail as noted and thus was not completely clear regarding the ratio to be used between 400,000 and 600,000 sq. ft.

WALKER
PARKING CONSULTANTS

Table 2-2 Summary of Recommended Base Parking Ratios (Spaces per Unit Land Use)

Land Use	Weekday		Weekend		Unit	Source
	Visitor	Employee	Visitor	Employee		
Community Shopping Center (<400,000 sq. ft.)	2.9	0.7	3.2	0.8	/ksf[1] GLA	1
Regional Shopping Center (400,000 to 600,000 sq. ft.)	Sliding scale between 400,000 and 600,000 sq. ft.				/ksf GLA	1
Super Regional Shopping Center (>600,000 sq. ft.)	3.2	0.8	3.6	0.9	/ksf GLA	1
Fine/Casual Dining	15.25	2.75	17.0	3.0	/ksf GLA	2, 3
Family Restaurant	9.0	1.5	12.75	2.25	/ksf GLA	3
Fast-Food Restaurant	12.75	2.25	12.0	2.0	/ksf GLA	2
Nightclub	15.25	1.25	17.5	1.5	/ksf GLA	3
Active Entertainment	Custom to each tenant					
Cineplex	0.19	0.01	0.26	0.01	/seat	3, 2
Performing Arts Theater	0.3	0.07	0.33	0.07	/seat	2
Arena	0.27	0.03	0.3	0.03	/seat	3
Pro Football Stadium	0.3	0.01	0.3	0.01	/seat	3
Pro Baseball Stadium	0.31	0.01	0.34	0.01	/seat	3
Health Club	6.6	0.4	5.5	0.25	/ksf GFA	3, 4
Convention Center	5.5	0.5	5.5	0.5	/ksf GLA	3
Hotel—Business	1.0	0.25	0.9	0.18	/room	2, 3
Hotel—Leisure	0.9	0.25	1.0	0.18	/room	2, 3
Restaurant/Lounge	10.0	—	10.0	—	/ksf GLA	2, 3, 5
Conference Center/Banquet (20 to 50 sq. ft./guest room)	30.0	—	30.0	—	/ksf GLA	2, 3, 5
Convention Space (>50 sq. ft./guest room)	20.0	—	10.0	—	/ksf GLA	2, 3, 5
Residential, Rental	0.15	1.5[2]	0.15	1.5[2]	/unit	2
Residential, Owned	0.15	1.7[2]	0.15	1.7[2]	/unit	2
Office (<25,000 sq. ft.)	0.3	3.5	0.03	0.35	/ksf GFA	2
Office (25,000 to 100,000 sq. ft.) Sliding scale between					/ksf GFA	2
25,000 sq. ft.:	0.3	3.5	0.03	0.35		
100,000 sq. ft.:	0.25	3.15	0.03	0.32		
Office (100,000 to 500,000 sq. ft.) Sliding scale between					/ksf GFA	2
100,000 sq. ft.:	0.25	3.15	0.03	0.32		
500,000 sq. ft.:	0.2	2.6	0.02	0.26		
Office >500,000 sq. ft.	0.2	2.6	0.02	0.26	/ksf GFA	2
Data Processing Office	0.25	5.75	0.03	0.58	/ksf GFA	2, 3
Medical/Dental Office	3.0	1.5	3.0	1.5	/ksf GFA	2, 3
Bank, Branch with Drive-in	3.0	1.6	3.0	1.6	/ksf GFA	2

Notes

Ratios based on peak parking spaces required with virtually 100% auto use and typical ridesharing for suburban conditions.

[1] /ksf = per thousand sq. ft.

[2] 1.0 spaces reserved for residents' sole use, 24 hours a day, remainder shared with visitors and other uses.

Sources:

1. *Parking Requirements for Shopping Centers*, 2nd ed. (Washington, D.C.: ULI–the Urban Land Institute, 1999)
2. *Parking Generation*, 3rd ed. (Washington, D.C.: Institute of Transportation Engineers, 2004)
3. Data collected by team members
4. John W. Dorsett, "Parking Requirements for Health Clubs," *The Parking Professional*, April 2004
5. Gerald Salzman, "Hotel Parking: How Much Is Enough?" *Urban Land*, January 1988

Table 2-3 Recommended Monthly Adjustment Factors for Customer/Visitor Parking

Land Use	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Late DEC	Source
Shopping Center	56%	57%	64%	63%	66%	67%	64%	69%	64%	66%	72%	100%	80%	1, 3
Restaurant	85%	86%	95%	92%	96%	95%	98%	99%	91%	96%	93%	100%	95%	1
Fast Food	85%	86%	95%	92%	96%	95%	98%	99%	91%	96%	93%	100%	95%	1
Nightclub	84%	86%	98%	90%	90%	91%	94%	96%	92%	98%	96%	100%	95%	1
Cineplex Weekdays	27%	21%	20%	19%	27%	41%	55%	40%	15%	15%	25%	23%	100%	3
Cineplex Weekends	71%	59%	67%	58%	71%	82%	92%	75%	51%	62%	78%	67%	100%	3
Performing Arts Theater	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	90%	100%	100%	2
Arena	90%	100%	100%	100%	100%	75%	—	—	60%	65%	90%	95%	95%	2
Pro Football Stadium[1]	—	—	—	—	—	—	—	67%	—	—	—	100%	100%	2
Pro Baseball Stadium	—	—	—	100%	100%	100%	100%	100%	100%	100%	—	—	—	2
Health Club	100%	95%	85%	70%	65%	65%	65%	70%	80%	85%	85%	90%	95%	2, 4
Convention Center[2]	75%	100%	90%	55%	60%	50%	45%	75%	80%	85%	100%	60%	—	2
Hotel—Business	71%	85%	91%	90%	92%	100%	98%	92%	93%	93%	81%	67%	50%	5
Hotel—Leisure	90%	100%	100%	100%	90%	90%	100%	100%	75%	75%	75%	50%	100%	5
Restaurant/Lounge	85%	86%	95%	92%	96%	95%	98%	99%	91%	96%	93%	100%	95%	1
Meeting/Banquet (20 to 50 sq. ft./guest room)	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2
Convention (>50 sq. ft./guest room)	75%	100%	90%	55%	60%	50%	45%	75%	80%	85%	100%	60%	—	2
Residential	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2
Office, Bank	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%	2, 6

Notes
December = December 1-24. Late December = December 25-31
[1]Because there is only one weeknight game and no Saturday games per NFL team September through November, and activity patterns are modified at adjacent uses due to the crowds expected, this category is not considered a "design day" for parking planning.
[2]Many convention centers are completely dark between Christmas and New Year's Day.

Sources:
1. U.S. Census Bureau, unadjusted estimates of monthly retail and food service sales, 1999-2002.
2. Data collected by team members.
3. *Parking Generation*, 3rd ed. (Washington, D.C.: Institute of Transportation Engineers, 2004).
4. John W. Dorsett, "Parking Requirements for Health Clubs," *The Parking Professional*, April 2004.
5. Smith Travel Research, www.wwstar.com
6. Parking study conducted by Patton Harris Rust & Associates for the Peterson Companies, 2001.

WALKER
PARKING CONSULTANTS

Table 2-4 Recommended Monthly Adjustment Factors for Employee Parking

Land Use	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Late DEC	Source
Shopping Center	80%	80%	80%	80%	80%	80%	80%	80%	80%	80%	90%	100%	90%	1, 2
Restaurant	95%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	1, 2
Fast Food	95%	95%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	1, 2
Nightclub	90%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	1, 2
Cineplex Weekdays	50%	50%	50%	50%	50%	75%	75%	75%	50%	50%	50%	50%	100%	3, 2
Cineplex Weekends	80%	80%	80%	80%	80%	100%	100%	90%	80%	80%	80%	80%	100%	3, 2
Performing Arts Theater	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2
Arena	100%	100%	100%	100%	100%	75%	10%	10%	75%	75%	100%	100%	100%	2
Pro Football Stadium[1]	10%	10%	10%	10%	10%	10%	10%	100%	10%	10%	10%	100%	100%	2
Pro Baseball Stadium	10%	10%	10%	10%	100%	100%	100%	100%	100%	100%	10%	10%	10%	2
Health Club	100%	100%	95%	80%	75%	75%	75%	80%	90%	95%	95%	100%	100%	4, 2
Convention Center	85%	100%	100%	65%	70%	60%	55%	85%	90%	95%	100%	70%	10%	5, 2
Hotel	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2
Residential	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2
Office, Bank	100%	100%	100%	100%	100%	100%	95%	95%	100%	100%	100%	100%	80%	6

Notes
December = December 1-24, Late December = December 25-31
[1]Because there is only one weeknight game and no Saturday games per NFL team September through November and activity patterns are modified at adjacent uses due to the crowds expected, this category is not considered a "design day" for parking planning.

Sources:
1. U.S. Census Bureau, unadjusted estimates of monthly retail and food service sales, 1999-2002
2. Data adjusted by team members.
3. *Parking Generation*, 3rd ed. (Washington, D.C.: Institute of Transportation Engineers, 2004)
4. John W. Dorsett, "Parking Requirements for Health Clubs," *The Parking Professional*, April 2004
5. Smith Travel Research, www.wwstar.com
6. Parking study conducted by Patton Harris Rust & Associates for the Peterson Companies, 2001

Table 2-5 Recommended Time-of-Day Factors for Weekdays

Land Use	User	6 a.m.	7 a.m.	8 a.m.	9 a.m.	10 a.m.	11 a.m.	Noon	1 p.m.	2 p.m.
Shopping Center—Typical	Customer	1%	5%	15%	35%	65%	85%	95%	100%	95%
Peak December	Customer	1%	5%	15%	30%	55%	75%	90%	100%	100%
Late December	Customer	1%	5%	10%	20%	40%	65%	90%	100%	100%
	Employee	10%	15%	40%	75%	85%	95%	100%	100%	100%
Fine/Casual Dining	Customer	—	—	—	—	15%	40%	75%	75%	65%
	Employee	—	20%	50%	75%	90%	90%	90%	90%	90%
Family Restaurant	Customer	25%	50%	60%	75%	85%	90%	100%	90%	50%
	Employee	50%	75%	90%	90%	100%	100%	100%	100%	100%
Fast Food	Customer	5%	10%	20%	30%	55%	85%	100%	100%	90%
	Employee	15%	20%	30%	40%	75%	100%	100%	100%	95%
Nightclub	Customer	—	—	—	—	—	—	—	—	—
	Employee	—	—	—	5%	5%	5%	5%	10%	10%
Cineplex—Typical	Customer	—	—	—	—	—	—	20%	45%	55%
Late December	Customer	—	—	—	—	—	—	35%	60%	75%
	Employee	—	—	—	—	—	—	50%	60%	60%
Performing Arts Theater	Customer	—	—	—	1%	1%	1%	1%	1%	1%
No matinee	Employee	—	10%	10%	20%	20%	20%	30%	30%	30%
Arena	Customer	—	—	—	1%	1%	1%	1%	1%	1%
No matinee	Employee	—	10%	10%	20%	20%	20%	30%	30%	30%
Stadium	Customer	—	—	—	1%	1%	1%	5%	5%	5%
8 p.m. start	Employee	—	10%	10%	20%	20%	20%	30%	30%	30%
Health Club	Customer	70%	40%	40%	70%	70%	80%	60%	70%	70%
	Employee	75%	75%	75%	75%	75%	75%	75%	75%	75%
Convention Center	Visitor	—	—	50%	100%	100%	100%	100%	100%	100%
	Employee	5%	30%	33%	33%	100%	100%	100%	100%	100%
Hotel—Business	Guest	95%	90%	80%	70%	60%	60%	55%	55%	60%
Hotel—Leisure	Guest	95%	95%	90%	80%	70%	70%	65%	65%	70%
Restaurant/Lounge	Customer	—	10%	30%	10%	10%	5%	100%	100%	33%
Conference/Banquet	Customer	—	—	30%	60%	60%	60%	65%	65%	65%
Convention	Customer	—	—	50%	100%	100%	100%	100%	100%	100%
	Employee	5%	30%	90%	90%	100%	100%	100%	100%	100%
Residential	Guest	—	10%	20%	20%	20%	20%	20%	20%	20%
Residential	Reserved	100%	100%	100%	100%	100%	100%	100%	100%	100%
Residential	Resident	100%	90%	85%	80%	75%	70%	65%	70%	70%
Office	Visitor	—	1%	20%	60%	100%	45%	15%	45%	100%
Office	Employee	3%	30%	75%	95%	100%	100%	90%	90%	100%
Medical/Dental Office	Visitor	—	—	90%	90%	100%	100%	30%	90%	100%
	Employee	—	—	60%	100%	100%	100%	100%	100%	100%
Bank	Customer	—	—	50%	90%	100%	50%	50%	50%	70%
	Employee	—	—	60%	100%	100%	100%	100%	100%	100%

3 p.m.	4 p.m.	5 p.m.	6 p.m.	7 p.m.	8 p.m.	9 p.m.	10 p.m.	11 p.m.	Midnight	Source
90%	90%	95%	95%	95%	80%	50%	30%	10%	—	1
100%	95%	85%	80%	75%	65%	50%	30%	10%	—	1
100%	95%	85%	70%	55%	40%	25%	15%	5%	—	1
100%	100%	95%	95%	95%	90%	75%	40%	15%	—	2
40%	50%	75%	95%	100%	100%	100%	95%	75%	25%	2
75%	75%	100%	100%	100%	100%	100%	100%	85%	35%	2
45%	45%	75%	80%	80%	80%	60%	55%	50%	25%	2
75%	75%	95%	95%	95%	95%	80%	65%	65%	35%	2
60%	55%	60%	85%	80%	50%	30%	20%	10%	5%	3
70%	60%	70%	90%	90%	60%	40%	30%	20%	20%	2
—	—	—	25%	50%	75%	100%	100%	100%	100%	2
10%	20%	45%	70%	100%	100%	100%	100%	100%	100%	2
55%	55%	60%	60%	80%	100%	100%	80%	65%	40%	2, 6
80%	80%	80%	70%	80%	100%	100%	85%	70%	55%	2, 6
75%	75%	100%	100%	100%	100%	100%	100%	70%	50%	2
1%	1%	1%	1%	25%	100%	100%	—	—	—	2
30%	30%	30%	100%	100%	100%	100%	30%	10%	5%	2
1%	1%	1%	10%	25%	100%	100%	85%	—	—	2
30%	30%	30%	100%	100%	100%	100%	30%	10%	5%	2
5%	5%	5%	10%	50%	100%	100%	85%	25%	—	2
30%	30%	30%	100%	100%	100%	100%	100%	25%	10%	2
70%	80%	90%	100%	90%	80%	70%	35%	10%	—	2, 4
75%	75%	100%	100%	75%	50%	20%	20%	20%	—	2, 4
100%	100%	100%	50%	30%	30%	10%	—	—	—	2
100%	90%	70%	40%	25%	20%	20%	5%	—	—	2
60%	65%	70%	75%	75%	80%	85%	95%	100%	100%	5
70%	75%	80%	85%	85%	90%	95%	95%	100%	100%	2
10%	10%	30%	55%	60%	70%	67%	60%	40%	30%	5, 3
65%	65%	100%	100%	100%	100%	100%	50%	—	—	2
100%	100%	100%	50%	30%	30%	10%	—	—	—	2
100%	90%	70%	40%	20%	20%	20%	20%	10%	5%	2
20%	20%	40%	60%	100%	100%	100%	100%	80%	50%	2
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2
70%	75%	85%	90%	97%	98%	99%	100%	100%	100%	2
45%	15%	10%	5%	2%	1%	—	—	—	—	2
100%	90%	50%	25%	10%	7%	3%	1%	—	—	3
100%	90%	80%	67%	30%	15%	—	—	—	—	2
100%	100%	100%	67%	30%	15%	—	—	—	—	2
50%	80%	100%	—	—	—	—	—	—	—	3
100%	100%	100%	—	—	—	—	—	—	—	2

Sources:

1 Confidential data provided by shopping center managers
2 Developed by team members
3 *Parking Generation*, 3rd ed (Washington, D.C.: Institute of Transportation Engineers, 2004).
4 John W. Dorsett, "Parking Requirements for Health Clubs," *The Parking Professional*, April 2004
5 Gerald Salzman, "Hotel Parking: How Much Is Enough?" *Urban Land*, January 1988.
6 Parking study conducted by Patton Harris Rust & Associates for the Peterson Companies, 2007

Table 2-6 Recommended Time-of-Day Factors for Weekends

Land Use	User	6 a.m.	7 a.m.	8 a.m.	9 a.m.	10 a.m.	11 a.m.	Noon	1 p.m.	2 p.m.
Shopping Center—Typical	Customer	1%	5%	10%	30%	50%	65%	80%	90%	100%
Peak December	Customer	1%	5%	10%	35%	60%	70%	85%	95%	100%
Late December	Customer	1%	5%	10%	20%	40%	60%	80%	95%	100%
	Employee	10%	15%	40%	75%	85%	95%	100%	100%	100%
Fine/Casual Dining	Customer	—	—	—	—	—	15%	50%	55%	45%
	Employee	—	20%	30%	60%	75%	75%	75%	75%	75%
Family Restaurant	Customer	10%	25%	45%	70%	90%	90%	100%	85%	65%
	Employee	50%	75%	90%	90%	100%	100%	100%	100%	100%
Fast Food	Customer	5%	10%	20%	30%	55%	85%	100%	100%	90%
	Employee	15%	20%	30%	40%	75%	100%	100%	100%	95%
Nightclub	Customer	—	—	—	—	—	—	—	—	—
	Employee	—	—	—	5%	5%	5%	5%	10%	10%
Cineplex—Typical	Customer	—	—	—	—	—	—	20%	45%	55%
Late December	Customer	—	—	—	—	—	—	35%	60%	75%
	Employee	—	—	—	—	—	—	50%	60%	60%
Performing Arts Theater	Customer	—	—	—	1%	1%	1%	1%	17%	67%
With matinee	Employee	—	10%	10%	20%	20%	20%	30%	100%	100%
Arena (two shows)	Customer	—	—	—	1%	1%	1%	1%	25%	95%
	Employee	—	10%	10%	20%	20%	20%	30%	100%	100%
Stadium (1 p.m. start; see weekday for evening game)	Customer	—	—	1%	1%	5%	5%	50%	100%	100%
	Employee	—	5%	10%	20%	30%	30%	100%	100%	100%
Health Club	Customer	80%	45%	35%	50%	35%	50%	50%	30%	25%
	Employee	50%	50%	50%	50%	50%	50%	50%	50%	50%
Convention Center	Visitor	—	—	50%	100%	100%	100%	100%	100%	100%
	Employee	5%	30%	33%	33%	100%	100%	100%	100%	100%
Hotel—Business	Guest	95%	90%	80%	70%	60%	60%	55%	55%	60%
Hotel—Leisure	Guest	95%	95%	90%	80%	70%	70%	65%	65%	70%
Restaurant/Lounge	Customer	—	10%	30%	10%	10%	5%	100%	100%	33%
Conference/Banquet	Customer	—	—	30%	60%	60%	60%	65%	65%	65%
Convention	Customer	—	—	50%	100%	100%	100%	100%	100%	100%
	Employee	5%	30%	90%	90%	100%	100%	100%	100%	100%
Residential	Guest	—	20%	20%	20%	20%	20%	20%	20%	20%
Residential	Reserved	100%	100%	100%	100%	100%	100%	100%	100%	100%
Residential	Resident	100%	90%	85%	80%	75%	70%	65%	70%	70%
Office	Visitor	—	20%	60%	80%	90%	100%	90%	80%	60%
Office	Employee	—	20%	60%	80%	90%	100%	90%	80%	60%
Medical/Dental Office	Visitor	—	—	90%	90%	100%	100%	30%	—	—
	Employee	—	—	60%	100%	100%	100%	100%	—	—
Bank	Customer	—	—	25%	40%	75%	100%	90%	—	—
	Employee	—	—	90%	100%	100%	100%	100%	—	—

WALKER
PARKING CONSULTANTS

3 p.m.	4 p.m.	5 p.m.	6 p.m.	7 p.m.	8 p.m.	9 p.m.	10 p.m.	11 p.m.	Midnight	Source
100%	95%	90%	80%	75%	65%	50%	35%	15%	—	1
100%	95%	90%	80%	75%	65%	50%	35%	15%	—	1
100%	95%	85%	70%	60%	50%	30%	20%	10%	—	1
100%	100%	95%	85%	80%	75%	65%	45%	15%	—	2
45%	45%	60%	90%	95%	100%	90%	90%	90%	50%	2
75%	75%	100%	100%	100%	100%	100%	100%	85%	50%	2
40%	45%	60%	70%	70%	65%	30%	25%	15%	10%	2
75%	75%	95%	95%	95%	95%	80%	65%	65%	35%	2
60%	55%	60%	85%	80%	50%	30%	20%	10%	5%	3
70%	60%	70%	90%	90%	60%	40%	30%	20%	20%	2
—	—	—	25%	50%	75%	100%	100%	100%	100%	2
10%	20%	45%	70%	100%	100%	100%	100%	100%	100%	2
55%	55%	60%	60%	80%	100%	100%	100%	80%	50%	2, 6
80%	80%	80%	70%	80%	100%	100%	100%	85%	70%	2, 6
75%	75%	100%	100%	100%	100%	100%	100%	70%	50%	2
67%	1%	1%	1%	25%	100%	100%	—	—	—	2
100%	30%	30%	100%	100%	100%	100%	30%	10%	5%	2
95%	81%	1%	1%	25%	100%	100%	—	—	—	2
100%	100%	30%	100%	100%	100%	100%	30%	10%	5%	2
85%	25%	—	—	—	—	—	—	—	—	2
100%	25%	10%	5%	5%	—	—	—	—	—	2
30%	55%	100%	95%	60%	30%	10%	1%	1%	—	2, 4
50%	75%	100%	100%	75%	50%	20%	20%	20%	—	2, 4
100%	100%	100%	50%	30%	30%	10%	—	—	—	2
100%	90%	70%	40%	25%	20%	20%	5%	—	—	2
60%	65%	70%	75%	75%	80%	85%	95%	100%	100%	5
70%	75%	80%	85%	85%	90%	95%	95%	100%	100%	2
10%	10%	30%	55%	60%	70%	67%	60%	40%	30%	5
65%	65%	100%	100%	100%	100%	100%	50%	—	—	5
100%	100%	100%	50%	30%	30%	10%	—	—	—	2
100%	90%	75%	60%	55%	55%	55%	45%	45%	30%	5
20%	20%	40%	60%	100%	100%	100%	100%	80%	50%	2
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	2
70%	75%	85%	90%	97%	98%	99%	100%	100%	100%	2
40%	20%	10%	5%	—	—	—	—	—	—	2
40%	20%	10%	5%	—	—	—	—	—	—	3
—	—	—	—	—	—	—	—	—	—	2
—	—	—	—	—	—	—	—	—	—	2
—	—	—	—	—	—	—	—	—	—	3
—	—	—	—	—	—	—	—	—	—	2

Sources:

1 Confidential data provided by shopping center managers.
2 Developed by team members.
3 *Parking Generation*, 3rd ed. (Washington, D.C.: Institute of Transportation Engineers, 2004).
4 John W. Dorsett, "Parking Requirements for Health Clubs," *The Parking Professional*, April 2004.
5 Gerald Salzman, "Hotel Parking: How Much is Enough?" *Urban Land*, January 1988.
6 Parking study conducted by Patton Harris Rust & Associates for the Peterson Companies, 2001.

planned parking, proximity to transportation, and so on) and functional design (user friendliness). Even though multiple uses may be located at a single development site, if there is a sea of asphalt for surface parking surrounding each use, it may be difficult to get those bound for a retail/dining/entertainment complex to park at a nearby office building and walk to the destination. It may be necessary to use management strategies such as valet parking or to run a shuttle to more distant parking areas when it is required to meet demand. Chapter 6 includes further exploration of these issues.

Step 2: Select Parking Ratios

The methodology requires the selection for each significant land use of a parking ratio, which is the number of spaces that would be needed if the land use were located by itself in an area with little or no transit and weak pedestrian connections with other uses (the so-called cornfield development). This book recommends parking ratios for a variety of land uses often found in shared parking situations. Where uses not discussed here are included in a shared parking situation, appropriate parking ratios must be developed.

Note that this second edition includes more land uses than the first edition and features more stratification of land uses within broad categories. Individual changes will be further discussed in the section on the development of factors for each land use; the changes and additions are also summarized in Table 2-1.

This book's recommended parking ratios aim to represent the peak accumulation of vehicles at the peak hour on a design day for that land use, as those terms have been defined in chapter 1. Unless otherwise noted in the discussion of a particular land use, the 85th percentile of observed peak-hour accumulations (ignoring seasonality) was employed in determining the parking ratios. The first edition of *Shared Parking* employed the 90th percentile of the peak-hour occupancies observed. In a 1990 article, an Institute of Transportation Engineers (ITE) committee recommended use of the 85th percentile as an appropriate design standard.[1] Weant and Levinson[2] and Smith[3] generally recommended the 85th percentile, as did the Parking Consultants Council.[4] The third edition of *Parking Generation* presents 33rd and 85th percentile values as well as the average values for each land use, to frame the variation in parking ratios and for determining appropriate parking ratios from the data set.

The issue of the appropriate design day/hour for parking has become more of a controversy in recent years as smart growth principles have become more widely accepted. Some planners argue that parking supplies should be based on the average of the peak-hour occupancies observed in order to avoid underused spaces. Others believe that "more is better" and that communities should be protected from the negative impacts of parking shortages with an effective supply factor over and above expected accumulations on most if not all days.

As noted previously, designing a parking system so that every space is occupied at a regularly occurring peak hour will result in a conclusion by owners and users, if not the community at large, that the parking is inadequate. Some have argued that recommended parking ratios should be based on the 85th percentile observation plus an additional effective supply factor of 5-10 percent. Those disagreeing point out that in many cases a system may then have enough spaces to accommodate the 100th percentile accumulation, albeit inefficiently due to increased search time for available spaces.

After considerable debate, the study team for this second edition of *Shared Parking* adopted the 85th percentile of peak-hour observations in developing recommended parking ratios. However, it should be noted that relatively few land uses in *Parking Generation* have a large enough sample size that the 85th percentile value as published was deemed reliable enough to be used directly, without further consideration. In the majority of land uses, the judgment of the *Shared*

WALKER
PARKING CONSULTANTS

Parking team was required to finalize the ratios. Individual considerations for each land use are discussed in chapter 4.

The *Shared Parking* team believes that using the 85th percentile will provide an adequate supply cushion in most locations. But a parking supply based on this ratio will be inadequate for a certain number of locations that perform above the average. For example, some new commercial developments have a "honeymoon" period of high activity after opening, only to settle into a more typical pattern after locals have had a chance to patronize the site. Conversely, there may be a period of time as long as three years during which patronage gradually climbs to a stabilized level. Competitive factors in a local marketplace may also affect whether or not a particular destination will perform above the 85th percentile of all the comparable destinations nationwide. The first entry into a marketplace that satisfies unmet consumer demand will often perform better than average. If exceptional performance by one venue is sustained, competitors will usually enter the marketplace and performance may subsequently become more typical or average.

When a proposed new concept does not quite fit established land use categories and perhaps is being beta tested at a particular development, adjustment from parking ratios for the most closely related land use may be required. While the owners of such venues may be loathe to reveal their business plan, a special parking ratio can be developed by combining likely peak-hour density of patrons and employees with assumptions for modal split and persons per car.

Customizing parking ratios for a particular tenant, however, particularly when it lowers the ratio, is usually not advisable from a longer-term perspective. One of the truisms of almost any business catering to consumer demand is that what is fashionable today can be forgotten tomorrow.

Separate parking ratios should be employed for weekends and weekdays, and thus they are provided here for the land uses included in this report. Weekdays are typically defined as the period of Monday through Friday, and weekends are typically defined as Saturday and Sunday. However, many entertainment venues are as busy on Friday nights as on Saturday nights, while few land uses generate parking needs on Sundays similar to that on Saturdays. Among the land uses that consistently do have peak activity on Sundays are places of worship and professional football stadiums. The parking for either of those uses usually overwhelms the demand from any other use at the peak hours, and thus shared parking is not generally a critical issue for Sunday conditions and there is little published data on Sunday parking needs. Therefore no recommendations are made for Sunday parking demand in this book. For the purposes of this report, "weekday" is defined to be the period from midnight Monday morning to 5 p.m. Friday afternoon. "Weekend" includes Friday evening and all day Saturday.

The adjustment of parking needs for combinations of uses is easier to understand and more reliably predicted if the parking ratios are broken into the components of visitor/customer and employee/resident demand. Other analysts have termed this long-term and short-term demand. Technically speaking, however, some customers (such as hotel guests) park as long or longer than employees, and part-time employees often qualify as short-term parkers (by most definitions, those who stay less than three or four hours). Therefore, this report's recommended parking ratios are broken into visitor/customer and employee/resident components.

The modal splits to private auto for customers and employees are likely to be somewhat different in areas where there is good public transportation. Employees of tenants in an office complex are more likely to use public transportation or to carpool than visitors to those same tenants. There are also some differences in the time-of-day adjustments, depending on whether the user is an employee/tenant. The employees, performers, and staff at a performing arts center will arrive several hours before a scheduled performance, and

If one does not have reliable data for a similarly sited project, one must make some assumptions. Let us consider a hypothetical large office building in Schaumburg, Illinois, which has reasonably good bus transit service. Many commuters, however, will have to transfer between buses in downtown Schaumburg to reach this location. While the census data indicate that 95.2 percent of employees working in this community commute by private auto, that percentage reflects those who take bus and commuter rail service to employment downtown. The local government is requiring the developer to institute transportation demand management measures in this particular activity center, but no data on modal split or ridesharing are yet available. Thus, the modal split to private auto at the project site will be lower than for commuters to areas without such programs, but higher than for commuters to the regional central business district served by transit. It would then be reasonable to assume that this location will be in the middle of the range of percentage using transit. A projection of 95 percent of the employees at the office building commuting by private auto would appear to be a reasonable starting point, equivalent to the percentage currently commuting to downtown Schaumburg by private auto. It is somewhat more difficult to adjust the workers-per-car ratio, but if 10 percent of the 95 percent commuting by private auto will arrive as passengers due to the ridesharing programs, that leaves 85 percent among all employees as drivers. Because the parking ratios assume a nearly 100 percent modal split to private auto and very little ridesharing, or nearly 100 percent drivership, the overall reduction in parking needs due to modal split and persons per car would then be achieved by multiplying the employee parking ratio by 0.85. The equivalent persons per auto of this assumption is 95%/85% or 1.12, somewhat higher than the locality's average ratio of 1.06 persons per auto for all commuters, which seems reasonable for a project that will have a coordinated ridesharing program. For the visitor component, a much lower adjustment for transit usage would be expected: perhaps 0.95 (a 5 percent reduction of parking needs as compared with a more typical "cornfield" site).

Understanding the types of employees generally associated with a land use is also important in adjusting such ratios. For example, hotel and retail employees are more likely to use transit, to carpool, or to be picked up and dropped off than office employees at the same location. However, the parking ratios already reflect the typical modal splits for a particular type of use, even though the setting is assumed to be a suburban location with little or no transit. Adjustments should be made only when the auto occupancy for that use would be unusually affected.

Step 6: Apply Noncaptive Adjustments

Both formal studies and general experience have proven that some reduction of customer parking needs occurs in a mixed-use project due to patronage of multiple land uses. The term "captive market" has been borrowed from market researchers to describe people who are already present in the immediate vicinity and are likely patrons of a second use. For example, a parking demand analysis may consider that employees in a complex or district may already have parked at another land use and thus will not generate any parking demand when they patronize a coffee store or shop for a few minutes while on a break. If an office is located on a "cornfield" site, most employees will not leave the property during breaks, and therefore the office parking ratio at lunchtime and other breaks already reflects the use of that parking space by that employee.

Determining appropriate noncaptive factors is the step that requires the greatest professional judgment and experience. It is important to understand the difference between sequential and simultaneous trips when estimating the effects of captive market influences on the parking supply.

The development community uses the term "captive" for patrons who are already nearby and may be more easily attracted to a land use. The traffic engineer similarly uses "captive" for patrons who are already present for another purpose and thus do not generate another vehicle trip to the site. The parking planner must therefore determine for each time period whether the captive patrons are already counted as parked for another land use and thus do not generate the need for additional parking spaces at that particular hour. The following examples further explain these issues.

- When a traffic engineer estimates that 20 percent of a cinema's patrons are also going to eat at the restaurants in a retail/entertainment center, it is clearly legitimate to reduce the number of inbound and outbound trips to the project to reflect the fact that new trips to the restaurants will not be made via automobile (but rather are already accounted for in the trip generation estimates for the cinema). However, if a family goes to a movie and then goes to dinner (i.e., a sequential trip), the overall parking demand for the project is not reduced either during the movie or while they dine. The car is parked in the project's parking supply for 90-120 minutes for the movie and for 60 minutes or more for dinner.
- With this same trip combination, if the parents have a leisurely dinner while the children go to a movie, this simultaneous trip to two destinations within the center would indeed result in reductions in both trip generation and parking demand. In this case, the car would be counted as parked at the restaurant, and a reduction in the parking demand would be applied to the cinema.
- The employee who stays to dine and attend a movie after work would not be captive from a parking perspective. That employee may be more likely to patronize the on-site restaurant and cinema than to stop at a restaurant or cinema somewhere else on the way home (thus reducing automobile trips to and from the project); however, the time-of-day factors in this book assume that an employee leaves after the end of normal working hours. Thus, a parking space is needed to serve an employee's visit to the restaurant and the cineplex in the evening. During the daytime, an employee patronizing a restaurant may be considered captive, as 90 percent of employees are assumed to stay on site during the lunch hour in the time-of-day factors for employee parking at office buildings.

The key then is to evaluate what percentage of the users at one land use are already counted as being parked for another land use at that particular hour.

Market studies documenting visits to multiple destinations within an existing project can be helpful in determining the noncaptive adjustments for parking needs at a project. Normally, such market studies are not designed to distinguish between sequential and simultaneous visits. The responder is usually asked simply to name all the venues visited on a particular trip to the center. To quantify sequential trips, the questioner must ask where each person arriving in a vehicle is or was at specific times, which is significantly more time-consuming for both questioner and respondent.

When the study team calibrated the shared parking model to actual conditions at one successful retail/entertainment complex, detailed market studies and customer interviews were available identifying the percentage of patrons that visited multiple venues in the complex. When these percentages were entered directly into the shared parking model as estimates of the captive market, the model seriously underestimated the parking demand revealed by actual occupancy counts. The interview percentages thus had to be reduced by 50 percent when used as noncaptive estimates, to get the model to correctly predict parking demand at the center. This complication illustrated the effects of sequential versus simultaneous trips and the need for caution in estimating high levels of captive market even when survey data are available.

Because captive market effects typically reduce the parking needs, the factor employed to adjust the parking ratio is actually the percentage of customers who are not considered captive, or the noncaptive ratio. For example, if 10 percent of the patrons for a food court are expected to be employees of other land uses, the noncaptive ratio is 90 percent.

In addition to evaluation of simultaneous versus sequential visits to destinations, the magnitude of noncaptive adjustments is affected significantly by the combinations of land uses and more specifically the relative quantities. For example, the noncaptive adjustments for a 10,000-square-foot restaurant in a 40,000-square-foot strip shopping center will be distinctly different from the adjustments for the same size restaurant in a mixed-use project with significant office space or hotel rooms. Even then, one must carefully evaluate the potential for patronage of one use by another. With a 10,000-square-foot restaurant in a complex with 100,000 square feet of office space and 30,000 square feet of retail, one would expect there to be no more than 350 employees at the office (estimated from 3.15 employee parking spaces per 1,000 square feet with 1.08 persons per car) and 25 employees at the retail stores (estimated from the weekday parking ratio of 0.70 employee spaces per 1,000 square feet of retail). Any visitor to either land use who eats lunch will be present in a sit-down restaurant for nearly an hour and therefore should be considered to be parked at the restaurant at the noon hour. The restaurant would have about 250 seats (at an estimated 25 seats per thousand square feet). If a noncaptive adjustment of 30 percent is assumed, it is effectively stating that 75 of the 375 employees, or about 20 percent, from the complex eat at the restaurant every day of the week. A 90 percent noncaptive ratio at the restaurant (25 or 10 percent of the 250 seats filled by employees from the complex at lunchtime) would be much more reasonable for this combination. If, instead, the restaurant is a 1,000-square-foot deli with seating for less than 50 people and provides carryout service as well, 75 percent or more of the patrons could be employees of the complex. If the deli is located in a 100,000-square-foot suburban office building without any retail, virtually 100 percent of the patrons may be captive office employees.

Thus, using ranges of noncaptive factors for each land use would be misleading; in fact, they would be meaningless, since the ranges could be extremely broad: zero to 100 percent of the patrons of a restaurant may be noncaptive on daytime weekdays, as demonstrated above. Therefore, suggested ranges of noncaptive factors are not tabulated in this book. Instead, the analyst must evaluate the reasonableness of the captive market estimates for each development by comparing potential patronage from other uses with the expected patronage at peak hours.

There is sometimes confusion regarding whether a patron is captive or simply uses the mode of walking. These distinctions are far easier to understand in self-contained developments, as those who walk from other uses within the project would be considered captive, while those who walked from uses outside the project would be considered to affect the mode adjustment. The issue is considerably more murky in a downtown area; some visitors to a land use may walk from offices, residences, and other land uses and thus could be considered either as captive patrons or as customers who walked to the complex. The important thing is not to double count such patrons both as captive and as noncaptive customers who do not drive and park.

The need to carefully apply such factors to the specific peak hours being modeled necessarily makes shared parking analysis a complex undertaking, often requiring that multiple hours be individually evaluated to determine the overall peak accumulation of demand. It is for this reason that the methodology for shared parking analysis recommended in this edition has been slightly modified to clearly indicate that noncaptive adjustments should be made after time-of-day

Appendix E

SIGHT VISIBILITY ANALYSIS

Leppert Engineering CORPORATION

July 27, 2011
LEC Job No. NCW 14.01-09.08

sent via email

Ms. Victoria Huffman
City of San Diego
LDR- Transportation Division
1222 First Avenue
San Diego, CA 92101-4154

SUBJECT: REVISED SIGHT VISIBILITY ANALSIS FOR ONE PASEO, MAIN STREET AT CARMEL VALLEY, VTM 714401 / PTS# 193036

Dear Ms. Huffman:

The following letter has been revised to use the 85^{th} percentile speed for southbound El Camino Real and to address your comments from the review of our July 11, 2011 submittal.

In response to comment 105 in your review of the project dated December 13, 2010, a sight visibility analysis follows for the proposed project driveways along El Camino Real, south of Del Mar Heights Road in the City of San Diego. The northern portion of the project along El Camino Real is on the inside of a 1,000 foot radius centerline curve. Within the influence of that curve, two proposed private driveways at non-signalized connections are proposed, and one proposed private driveway is proposed as a fourth leg at the existing three way signalized intersection. A fourth private driveway connection is proposed at the extreme southern end of the project, on the outside of an 1,800 foot radius centerline curve, and by inspection, no issues with sight distance are present at that location.

The American Association of State Highway and Transportation Officials (AASHTO) guidelines, 2004 edition, were utilized to determine the required sight distance and possible sight visibility easements for each driveway, (see Attachment A). Intersection Sight Distance is used for *Case B2-Right Turn from Minor Road* conditions at the two non-signalized intersections (Attachment A, page 657). Intersection Sight Distance is calculated using the formula of ISD = 1.47 $V_{major}t_g$, where ISD is the Intersection Sight Distance, V_{major} is the 85^{th} percentile speed (in miles per hour) of the major street, and t_g is the time gap for a minor road vehicle (passenger vehicle) to enter the major road (Attachment A, page 659). The City of San Diego speed survey dated April 27, 2011, for southbound El Camino Real between Ted Williams and Del Mar Heights Road, shows the 85^{th} percentile speed as 48 miles per hour. T_g is adjusted from 7.5 seconds to 6.5 seconds for vehicles making a right-turn from stop (Attachment A, page 663). The resultant ISD is 459 feet for 48 miles per hour approach speeds. For the signalized intersection, *Case D – Intersections with Traffic Signal Control* applies. However where permitted right turns on red are allowed, it defers back to *Case B2 – Right Turn from Minor Road.*

5190 Governor Drive · Suite 205 · San Diego, California 92122 · (858) 597-2001 · Fax (858) 597-2009

Several sight visibility easement areas will be required at the various driveway locations. These easement areas will be graded at 2% or flatter from the adjoining public sidewalks in El Camino Real.

The follow is a summary of the findings of the sight distance analysis at each of the proposed driveways:

Exhibit A shows the plan view of the proposed private driveway at Station 125+40 El Camino Real. It is a 26 foot wide right-turn-in / right-turn-out driveway, located mid way between Del Mar Heights Road and the existing signalized entrance to the Del Mar Highlands Town Center. There is a raised median in El Camino Real to prohibit left turns at this location. A deceleration lane with 100 feet of storage has been provided in El Camino Real, just before the driveway. The line of sight is mostly contained within the parkway area of El Camino Real, with two minor sight visibility easement areas being required. The first easement area, closest to this driveway, has a chord length of approximately 108 feet by 1.7 feet in the middle needed to be granted at this location. The second easement area, located in the irregular transition area for the deceleration lane, has a chord length of approximately 79 feet, with a maximum width of 2.4 feet. The attached Exhibit A Profile of the sight visibility line shows no vertical obstructions within the sight line between the driver's eye and the approaching vehicle.

Exhibit B shows the plan view of the proposed private driveway at Station 121+72.52 El Camino Real. It is proposed as the addition of the fourth leg of the existing signalized 3-way intersection of El Camino Real and the entrance into the Del Mar Highlands Town Center. There are two lanes into the project and two lanes out of the project at this location. There is a deceleration lane provided before the intersection, tying into the deceleration lane from the driveway at 125+40 El Camino Real. Since it is a fully signalized intersection, the condition of concern is the right-turn-on-red condition. The 459' sight visibility line is mostly contained within the existing and proposed right of way of El Camino Real, with a minor sight visibility easement required at this location. The easement area has a chord length of 148 feet, with a width of 3 feet at the midpoint. The attached Exhibit B Profile of the sight visibility line shows no vertical obstructions within the sight line between the driver's eye and the approaching vehicle.

Exhibit C shows the proposed driveway at Station 117+30 El Camino Real. It is a 26 foot wide right-turn-in / right-turn-out driveway, located approximately 440 feet south of the signalized entrance at 121+72.52 El Camino Real. There is a raised median in El Camino Real to prohibit left turns at this location. A deceleration lane with 100 feet of storage is proposed just before this proposed driveway. An irregular shaped sight visibility easement area will be required, with a chord of 253 feet being needed in the same location as the curb transition area for the deceleration lane being provided. The maximum width of the easement area is 13.9 feet. The attached Exhibit C Profile of the sight visibility line shows no vertical obstructions within the sight line between the driver's eye and the approaching vehicle.

In conclusion, the intersections proposed along El Camino Real can be provided with adequate sight distance for drivers leaving the proposed project. Minor sight distance easements will be provided at four locations that will restrict the placement of structures and landscape materials used in these locations to a height of 30 inches. Parkway trees however will be allowed, but at maturity their trunks should not exceed 12 inches in diameter and their canopies should not hang down below eight feet above street level.

If you have any questions, please contact us at (858) 597-2001.

Sincerely,

LEPPERT ENGINEERING CORPORATION

Anthony M. Dieli

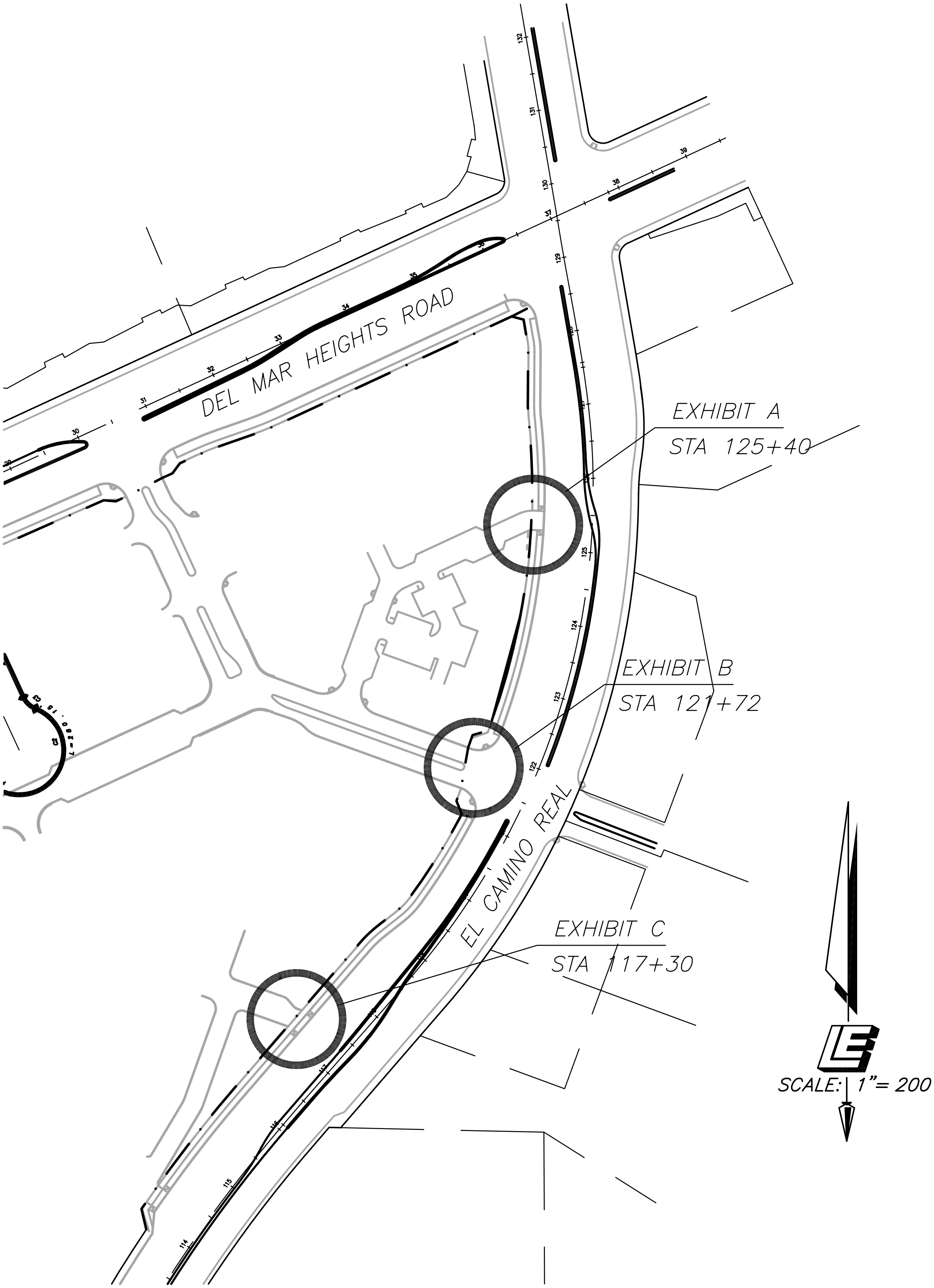
Anthony M. Dieli, PE
RCE 31615, Exp 12/31/2012

REGISTERED PROFESSIONAL ENGINEER
ANTHONY MICHAEL DIELI
C-031615
CIVIL
STATE OF CALIFORNIA

Attachments

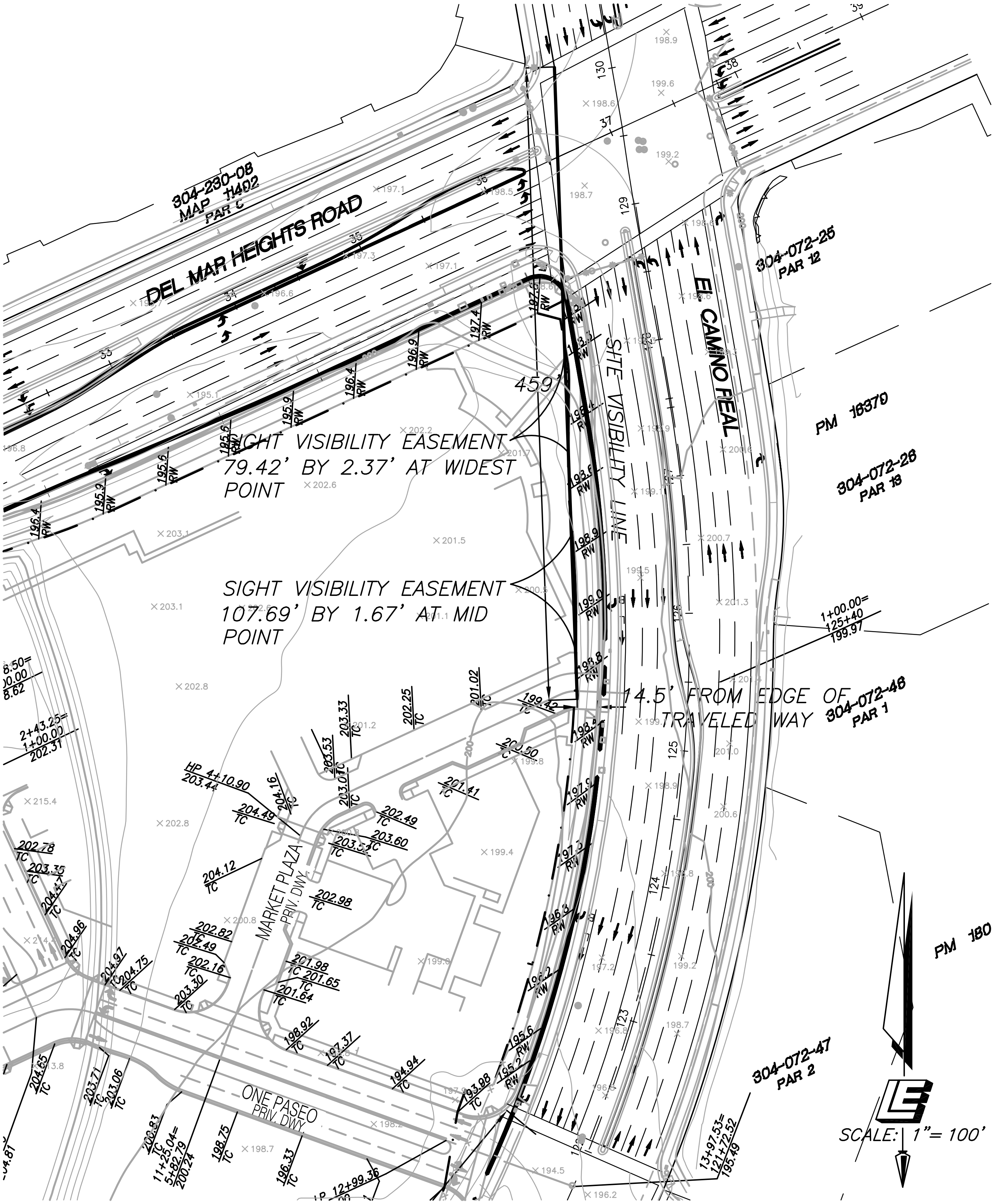
EXHIBITS

LOCATION MAP -- SIGHT VISIBILITY ANALYSIS



Leppert
Engineering
CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (619) 597-2001 Fax: (619) 597-2009

EXHIBIT A ~ SIGHT VISIBILITY AT DRIVEWAY 125+40

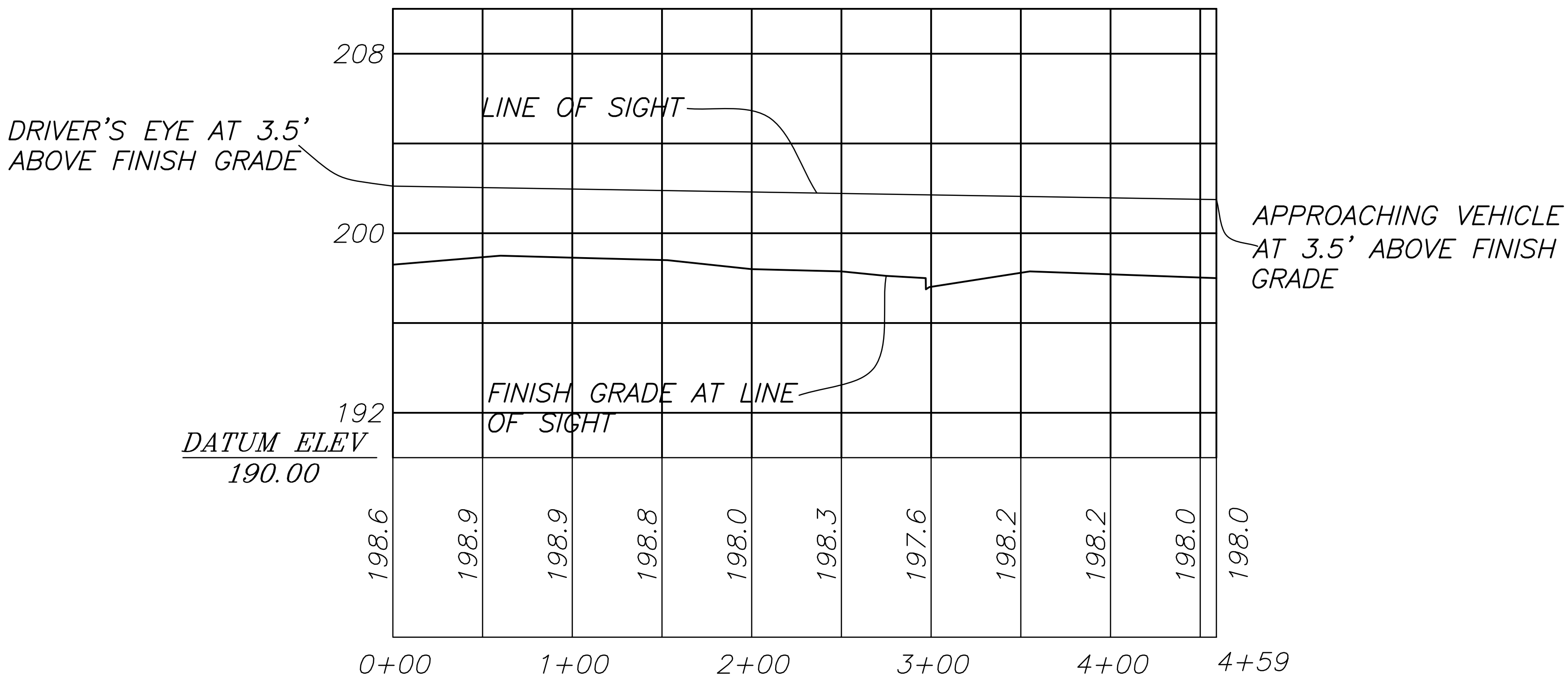


SCALE: 1"= 100'

SIGHT VISIBILITY EASEMENT

Leppert Engineering CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (619) 597-2001 Fax: (619) 597-2009

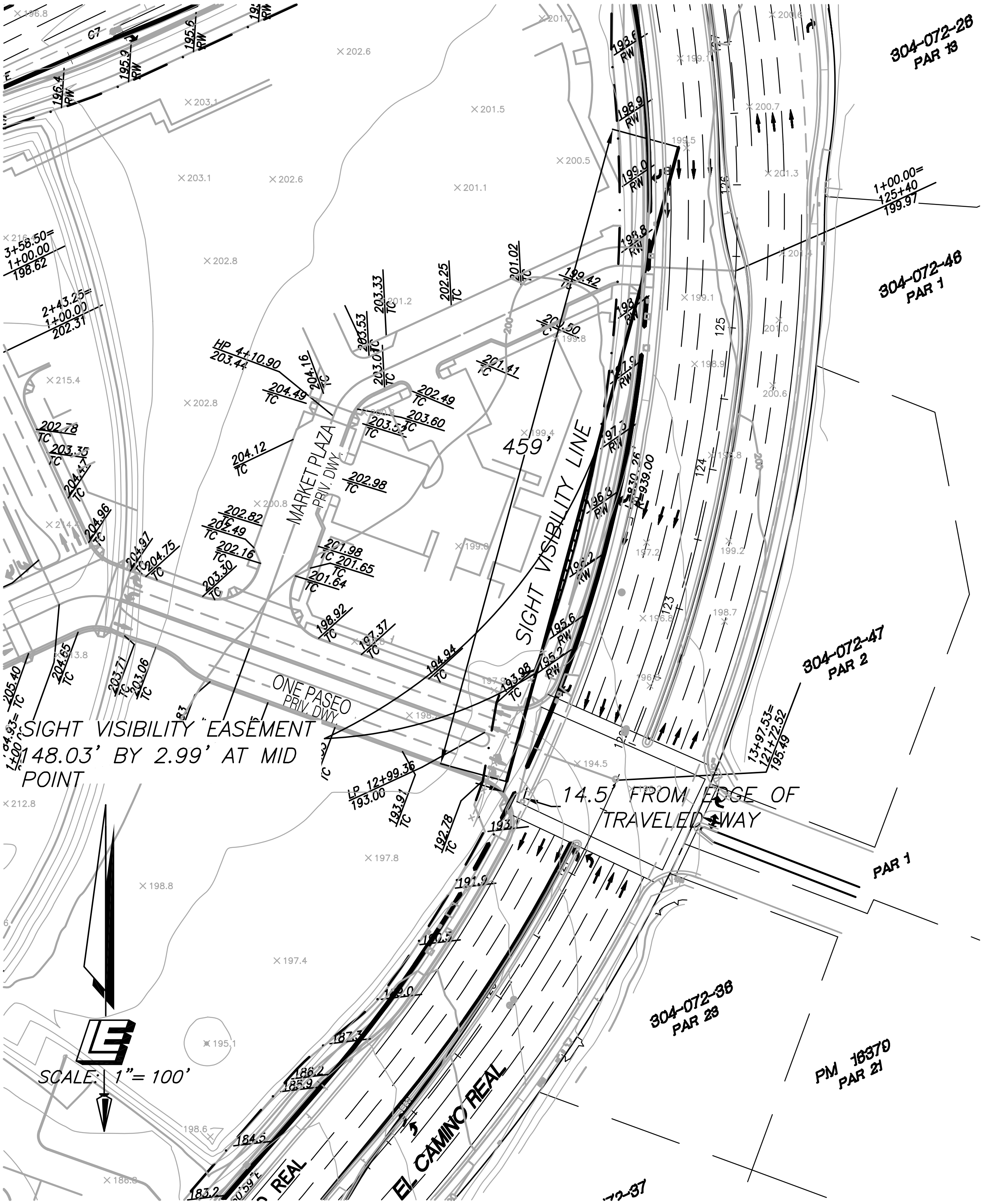
EXHIBIT A ~ SIGHT VISIBILITY AT DRIVEWAY 125+40



Leppert Engineering CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (619) 597-2001 Fax: (619) 597-2009

SCALE: HORIZONTAL1" = 100'
VERTICAL 1" = 8'

EXHIBIT B ~ SIGHT VISIBILITY AT DRIVEWAY 121+72.52

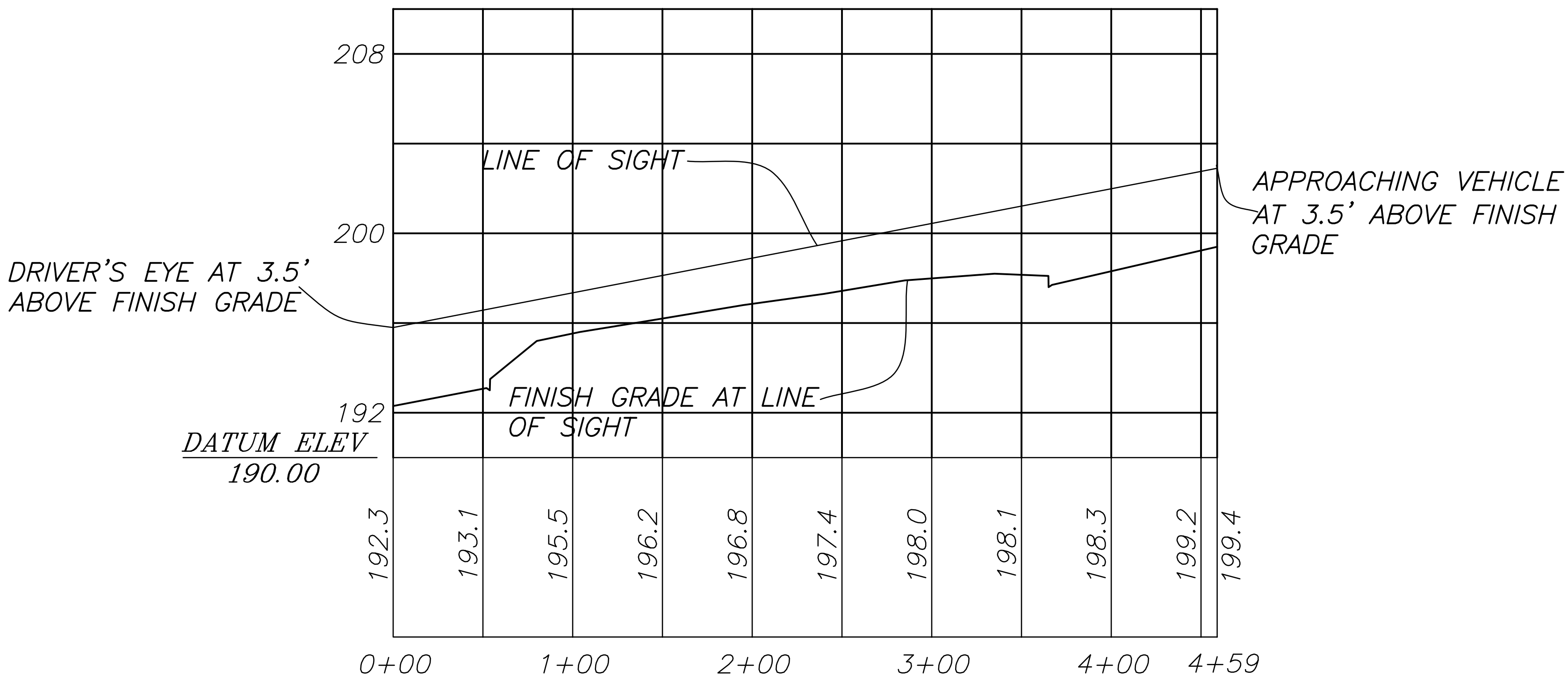


SIGHT VISIBILITY EASEMENT

Leppert Engineering CORPORATION

5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (619) 597-2001 Fax: (619) 597-2009

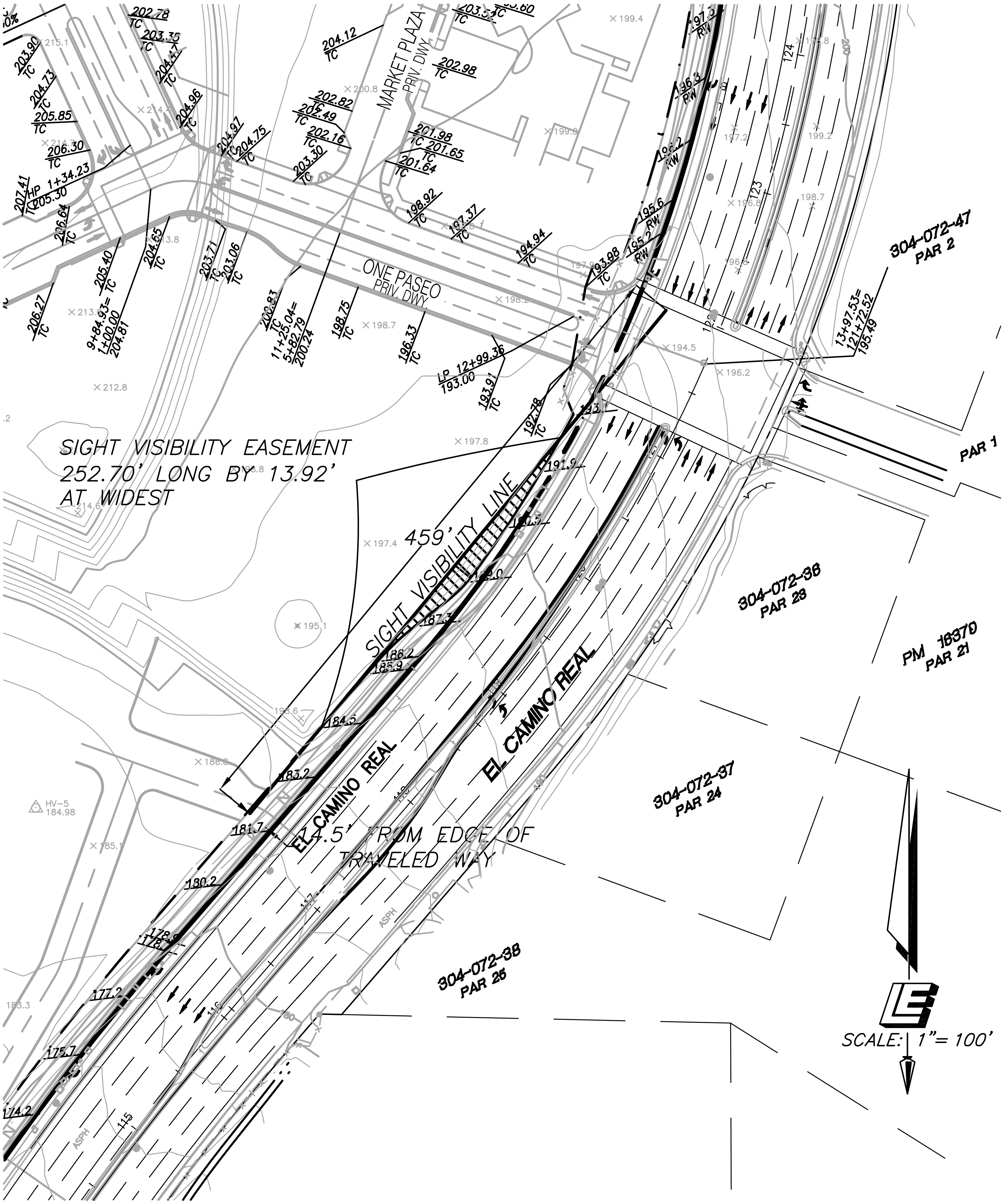
EXHIBIT B ~ SIGHT VISIBILITY AT DRIVEWAY 121+72.52



Leppert Engineering CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (619) 597-2001 Fax: (619) 597-2009

SCALE: HORIZONTAL 1" = 100'
VERTICAL 1" = 8'

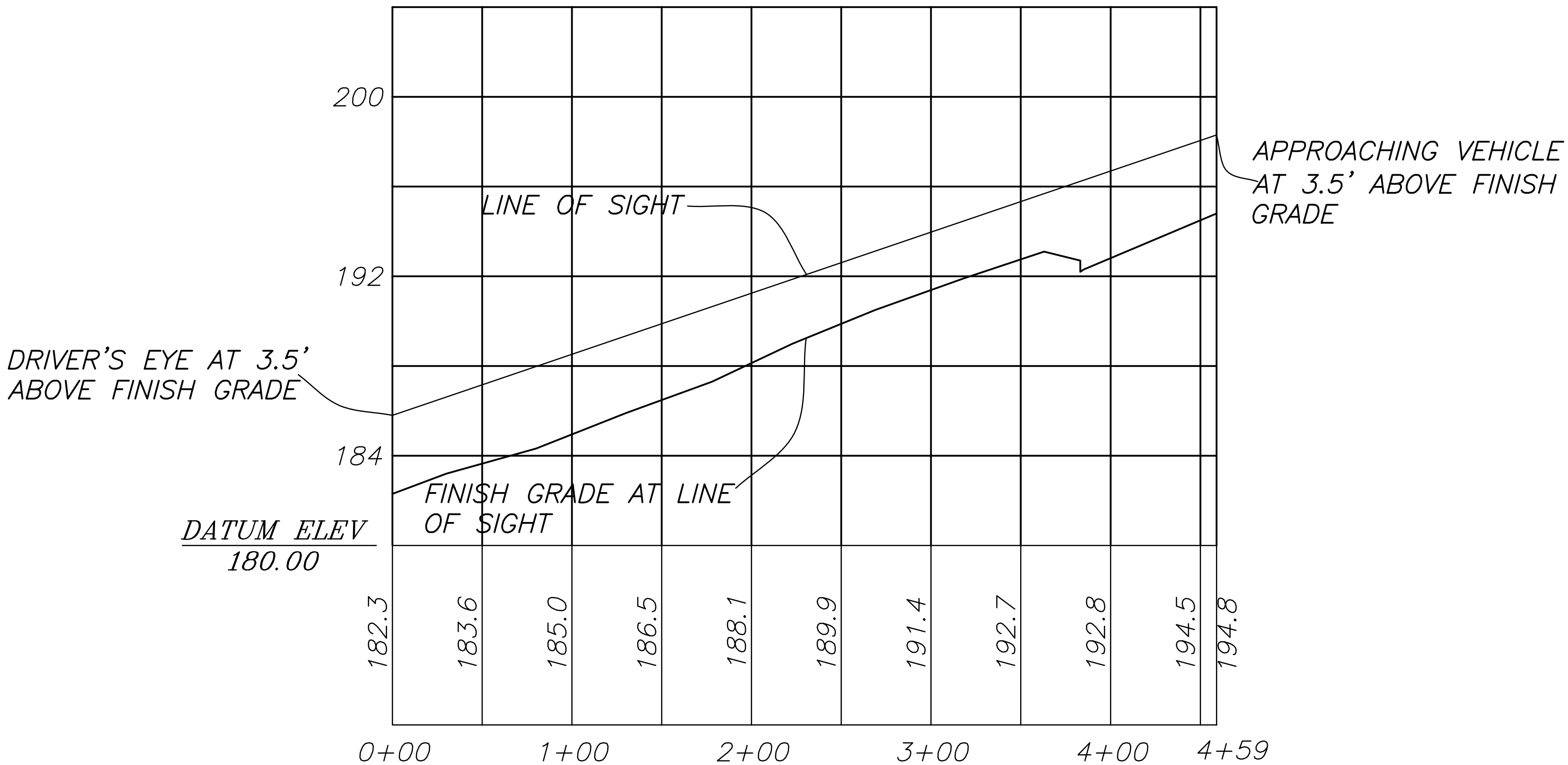
EXHIBIT C ~ SIGHT VISIBILITY AT DRIVEWAY 117+30



Leppert
Engineering
CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (619) 597-2001 Fax: (619) 597-2009

SIGHT VISIBILITY EASEMENT

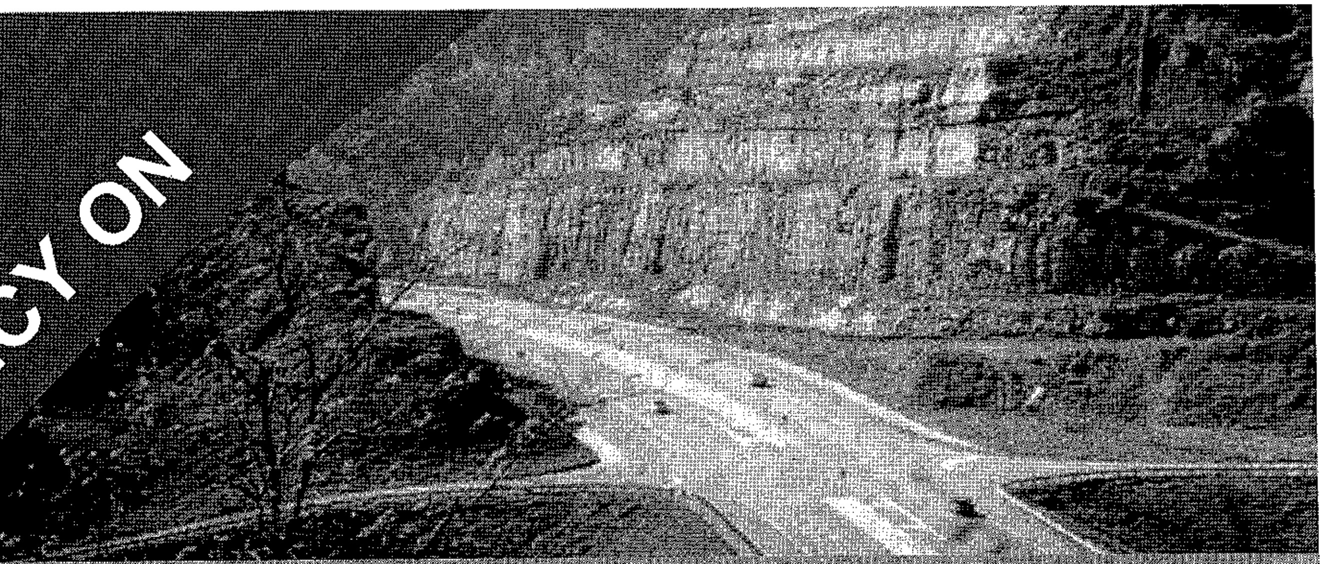
EXHIBIT C ~ SIGHT VISIBILITY AT DRIVEWAY 117+30



Leppert
Engineering
CORPORATION
5190 Governor Drive, Suite 205, San Diego, Ca. 92122-2848
Phone: (619) 597-2001 Fax: (619) 597-2009

SCALE: HORIZONTAL1" = 100'
VERTICAL 1" = 8'

Attachment A

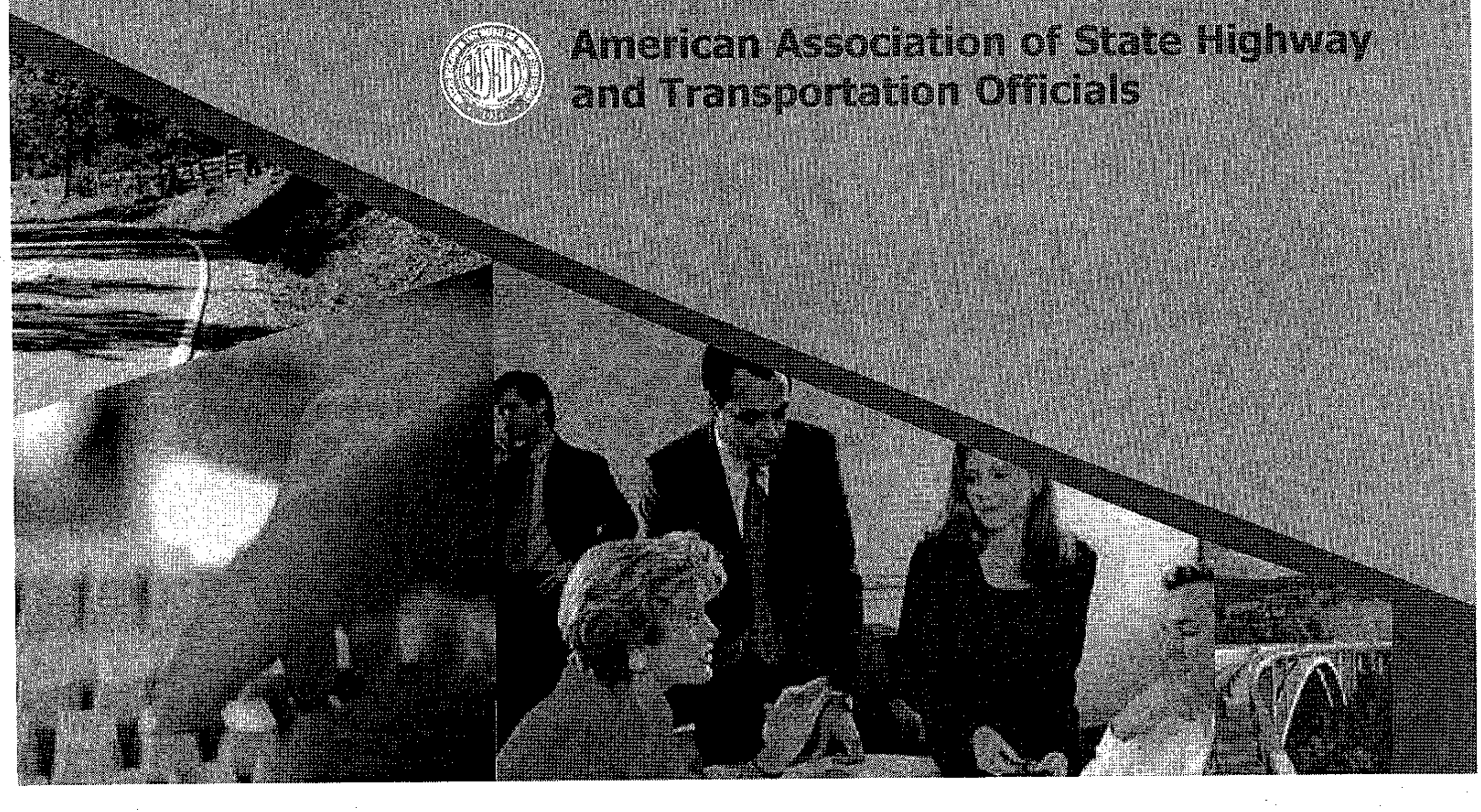


A POLICY ON

Geometric Design of Highways and Streets

2004

American Association of State Highway and Transportation Officials



Geometric design should not be considered complete nor should it be implemented until it has been determined that needed traffic devices will have the desired effect in controlling traffic.

Most of the intersection types illustrated and described in the following discussions are adaptable to either signing control, signal control, or a combination of both. At intersections that do not need signal control, the normal roadway widths of the approach highways are carried through the intersection with the possible addition of speed-change lanes, median lanes, auxiliary lanes, or pavement tapers. Where volumes are sufficient to indicate signal control, the number of lanes for through movements may also need to be increased. Where the volume approaches the uninterrupted flow capacity of the intersection leg, the number of lanes in each direction may have to be doubled at the intersection to accommodate the volume under stop-and-go control. Other geometric features that may be affected by signalization are length and width of storage areas, location and position of turning roadways, spacing of other subsidiary intersections, access connections, and the possible location and size of islands to accommodate signal posts or supports.

At high-volume intersections at grade, the design of the signals should be sophisticated enough to respond to the varying traffic demands, the objective being to keep the vehicles moving through the intersection. Factors affecting capacity and computation procedures for signalized intersections are covered in the HCM (**6**).

An intersection that needs traffic signal control is best designed by considering jointly the geometric design, capacity analysis, design hour volumes, and physical controls. Details on the design and location of most forms of traffic control signals, including the general warrants, are given in the MUTCD (**9**).

INTERSECTION SIGHT DISTANCE

General Considerations

Each intersection has the potential for several different types of vehicular conflicts. The possibility of these conflicts actually occurring can be greatly reduced through the provision of proper sight distances and appropriate traffic controls. The avoidance of conflicts and the efficiency of traffic operations still depend on the judgment, capabilities, and response of each individual driver.

Stopping sight distance is provided continuously along each highway or street so that drivers have a view of the roadway ahead that is sufficient to allow drivers to stop. The provision of stopping sight distance at all locations along each highway or street, including intersection approaches, is fundamental to intersection operation.

Vehicles are assigned the right-of-way at intersections by traffic-control devices or, where no traffic-control devices are present, by the rules of the road. A basic rule of the road, at an intersection where no traffic-control devices are present, requires the vehicle on the left to yield to the vehicle on the right if they arrive at approximately the same time. Sight distance is provided at intersections to allow drivers to perceive the presence of potentially conflicting vehicles. This should occur in sufficient time for a motorist to stop or adjust their speed, as appropriate, to avoid colliding in the intersection. The methods for determining the sight distances needed by drivers approaching intersections are based on the same principles as stopping sight distance, but incorporate modified assumptions based on observed driver behavior at intersections.

The driver of a vehicle approaching an intersection should have an unobstructed view of the entire intersection, including any traffic-control devices, and sufficient lengths along the intersecting highway to permit the driver to anticipate and avoid potential collisions. The sight distance needed under various assumptions of physical conditions and driver behavior is directly related to vehicle speeds and to the resultant distances traversed during perception-reaction time and braking.

Sight distance is also provided at intersections to allow the drivers of stopped vehicles a sufficient view of the intersecting highway to decide when to enter the intersecting highway or to cross it. If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.

Sight Triangles

Specified areas along intersection approach legs and across their included corners should be clear of obstructions that might block a driver's view of potentially conflicting vehicles. These specified areas are known as clear sight triangles. The dimensions of the legs of the sight triangles depend on the design speeds of the intersecting roadways and the type of traffic control used at the intersection. These dimensions are based on observed driver behavior and are documented by space-time profiles and speed choices of drivers on intersection approaches (**10**). Two types of clear sight triangles are considered in intersection design, approach sight triangles, and departure sight triangles.

Approach Sight Triangles

Each quadrant of an intersection should contain a triangular area free of obstructions that might block an approaching driver's view of potentially conflicting vehicles. The length of the legs of this triangular area, along both intersecting roadways, should be such that the drivers can see any potentially conflicting vehicles in sufficient time to slow or stop before colliding within the intersection. Exhibit 9-50A shows typical clear sight triangles to the left and to the right for a vehicle approaching an uncontrolled or yield-controlled intersection.

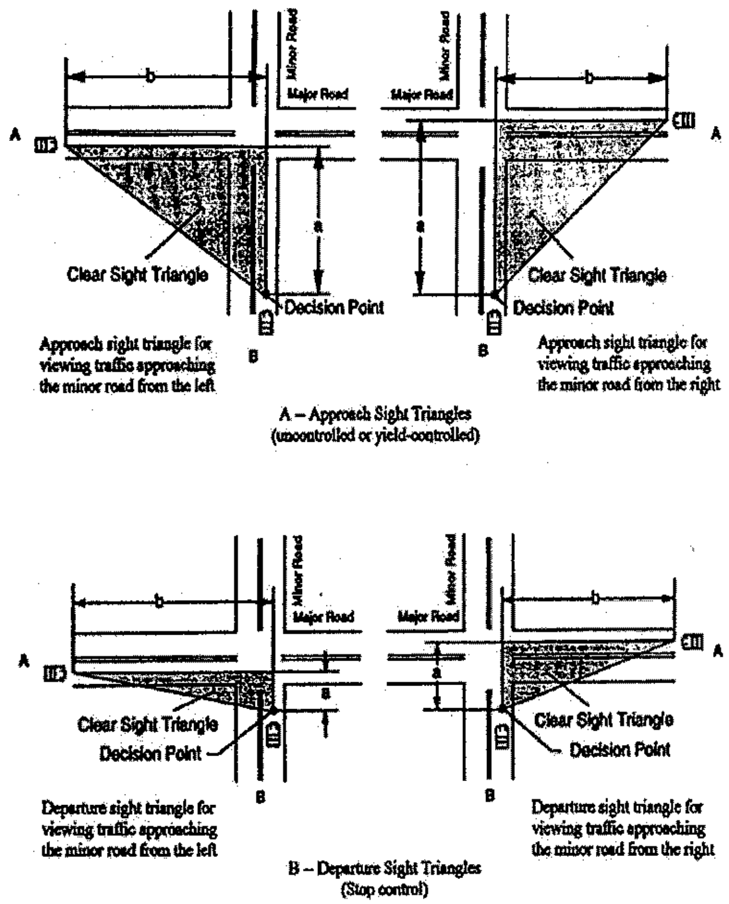


Exhibit 9-50. Intersection Sight Triangles

The vertex of the sight triangle on a minor-road approach (or an uncontrolled approach) represents the decision point for the minor-road driver (see Exhibit 9-50A). This decision point is the location at which the minor-road driver should begin to brake to a stop if another vehicle is present on an intersecting approach. The distance from the major road, along the minor road, is illustrated by the dimension "a" in Exhibit 9-50A.

The geometry of a clear sight triangle is such that when the driver of a vehicle without the right of way sees a vehicle that has the right of way on an intersecting approach, the driver of that potentially conflicting vehicle can also see the first vehicle. Dimension "b" illustrates the length of this leg of the sight triangle. Thus, the provision of a clear sight triangle for vehicles without the right-of-way also permits the drivers of vehicles with the right-of-way to slow, stop, or avoid other vehicles, should it become necessary.

Although desirable at higher volume intersections, approach sight triangles like those shown in Exhibit 9-50A are not needed for intersection approaches controlled by stop signs or traffic signals. In that case, the need for approaching vehicles to stop at the intersection is determined by the traffic control devices and not by the presence or absence of vehicles on the intersecting approaches.

Departure Sight Triangles

A second type of clear sight triangle provides sight distance sufficient for a stopped driver on a minor-road approach to depart from the intersection and enter or cross the major road. Exhibit 9-50B shows typical departure sight triangles to the left and to the right of the location of a stopped vehicle on the minor road. Departure sight triangles should be provided in each quadrant of each intersection approach controlled by stop or yield signs. Departure sight triangles should also be provided for some signalized intersection approaches (see Case D in the section on "Intersection Control").

The recommended dimensions of the clear sight triangle for desirable traffic operations where stopped vehicles enter or cross a major road are based on assumptions derived from field observations of driver gap-acceptance behavior (**10**). The provision of clear sight triangles like those shown in Exhibit 9-50B also allows the drivers of vehicles on the major road to see any vehicles stopped on the minor-road approach and to be prepared to slow or stop, if necessary.

Identification of Sight Obstructions within Sight Triangles

The profiles of the intersecting roadways should be designed to provide the recommended sight distances for drivers on the intersection approaches. Within a sight triangle, any object at a height above the elevation of the adjacent roadways that would obstruct the driver's view should be removed or lowered, if practical. Such objects may include buildings, parked vehicles, highway structures, roadside hardware, hedges, trees, bushes, unmowed grass, tall crops, walls, fences, and the terrain itself. Particular attention should be given to the evaluation of clear sight triangles at interchange ramp/crossroad intersections where features such as bridge railings, piers, and abutments are potential sight obstructions.

The determination of whether an object constitutes a sight obstruction should consider both the horizontal and vertical alignment of both intersecting roadways, as well as the height and position of the object. In making this determination, it should be assumed that the driver's eye is 1 080 mm [3.5 ft] above the roadway surface and that the object to be seen is 1 080 mm [3.5 ft] above the surface of the intersecting road.

This object height is based on a vehicle height of 1 330 mm [4.35 ft], which represents the 15th percentile of vehicle heights in the current passenger car population less an allowance of 250 mm [10 in]. This allowance represents a near-maximum value for the portion of a passenger car height that needs to be visible for another driver to recognize it as the object. The use of an object height equal to the driver eye height makes intersection sight distances reciprocal (i.e., if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle).

Where the sight-distance value used in design is based on a single-unit or combination truck as the design vehicle, it is also appropriate to use the eye height of a truck driver in checking sight obstructions. The recommended value of a truck driver's eye height is 2 330 mm [7.6 ft] above the roadway surface.

Intersection Control

The recommended dimensions of the sight triangles vary with the type of traffic control used at an intersection because different types of control impose different legal constraints on drivers and, therefore, result in different driver behavior. Procedures to determine sight distances at intersections are presented below according to different types of traffic control, as follows:

Case A—Intersections with no control
Case B—Intersections with stop control on the minor road
  Case B1—Left turn from the minor road
  Case B2—Right turn from the minor road
  Case B3—Crossing maneuver from the minor road
Case C—Intersections with yield control on the minor road
  Case C1—Crossing maneuver from the minor road
  Case C2—Left or right turn from the minor road
Case D—Intersections with traffic signal control
Case E—Intersections with all-way stop control
Case F—Left turns from the major road

Case A—Intersections with No Control

For intersections not controlled by yield signs, stop signs, or traffic signals, the driver of a vehicle approaching an intersection should be able to see potentially conflicting vehicles in sufficient time to stop before reaching the intersection. The location of the decision point (driver's eye) of the sight triangles on each approach is determined from a model that is analogous to the stopping sight distance model, with slightly different assumptions.

While some perceptual tasks at intersections may need substantially less time, the detection and recognition of a vehicle that is a substantial distance away on an intersecting approach, and is near the limits of the driver's peripheral vision, may take up to 2.5 s. The distance to brake to a stop can be determined from the same braking coefficients used to determine stopping sight distance in Exhibit 3-1.

Field observations indicate that vehicles approaching uncontrolled intersections typically slow to approximately 50 percent of their midblock running speed. This occurs even when no potentially conflicting vehicles are present (**10**). This initial slowing typically occurs at deceleration rates up to 1.5 m/s^2 [5 ft/s^2]. Deceleration at this gradual rate has been observed to begin even before a potentially conflicting vehicle comes into view. Braking at greater deceleration rates, which can approach those assumed in stopping sight distance, can begin up to 2.5 s after a vehicle on the intersecting approach comes into view. Thus, approaching vehicles may be traveling at less than their midblock running speed during all or part of the perception-reaction time and can, therefore, where necessary, brake to a stop from a speed less than the midblock running speed.

Exhibit 9-51 shows the distance traveled by an approaching vehicle during perception-reaction and braking time as a function of the design speed of the roadway on which the intersection approach is located. These distances should be used as the legs of the sight triangles shown in Exhibit 9-50A. Referring to Exhibit 9-50A, highway A with an assumed design speed of 80 km/h [50 mph] and highway B with an assumed design speed of 50 km/h [30 mph] require a clear sight triangle with legs extending at least 75 m and 45 m [245 and 140 ft] along highways A and B, respectively. Exhibit 9-52 indicates the length of the legs of the sight triangle from Exhibit 9-51.

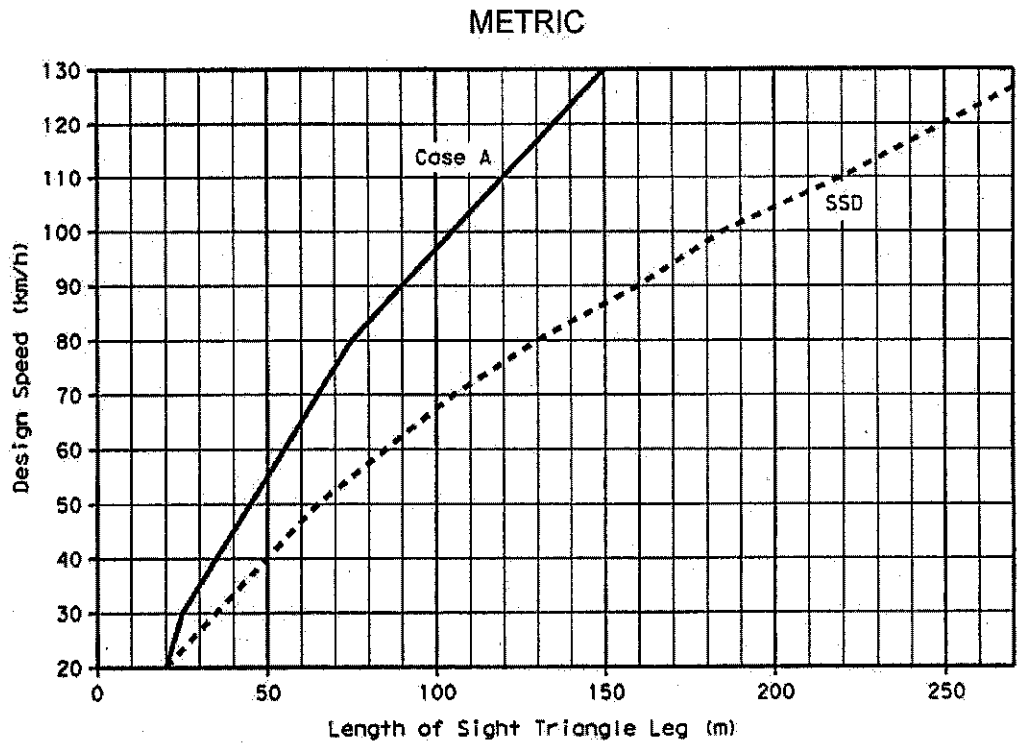
Metric		US Customary	
Design speed (km/h)	Length of leg (m)	Design speed (mph)	Length of leg (ft)
20	20	15	70
30	25	20	90
40	35	25	115
50	45	30	140
60	55	35	165
70	65	40	195
80	75	45	220
90	90	50	245
100	105	55	285
110	120	60	325
120	135	65	365
130	150	70	405
		75	445
		80	485

Note: For approach grades greater than 3%, multiply the sight distance values in this exhibit by the appropriate adjustment factor from Exhibit 9-53.

Exhibit 9-51. Length of Sight Triangle Leg—Case A—No Traffic Control

This clear triangular area will permit the vehicles on either road to stop, if necessary, before reaching the intersection. If the design speed of any approach is not known, it can be estimated by using the 85th percentile of the midblock running speeds for that approach.

The distances shown in Exhibit 9-51 are generally less than the corresponding values of stopping sight distance for the same design speed. This relationship is illustrated in Exhibit 9-52. Where a clear sight triangle has legs that correspond to the stopping sight distances on their respective approaches, an even greater margin of efficient operation is provided. However, since field observations show that motorists slow down to some extent on approaches to uncontrolled intersections, the provision of a clear sight triangle with legs equal to the full stopping sight distance is not essential.



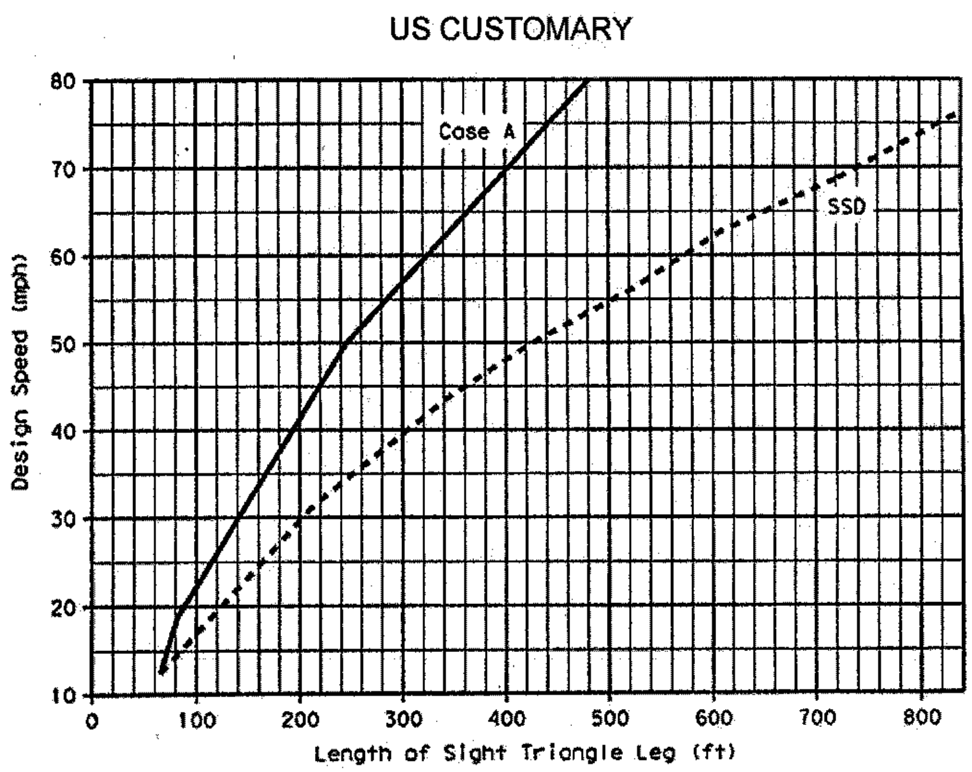


Exhibit 9-52. Length of Sight Triangle Leg—Case A—No Traffic Control

Where the grade along an intersection approach exceeds 3 percent, the leg of the clear sight triangle along that approach should be adjusted by multiplying the appropriate sight distance from Exhibit 9-51 by the appropriate adjustment factor from Exhibit 9-53.

If the sight distances given in Exhibit 9-51, as adjusted for grades, cannot be provided, consideration should be given to installing regulatory speed signing to reduce speeds or installing stop signs on one or more approaches.

No departure sight triangle like that shown in Exhibit 9-50B is needed at an uncontrolled intersection because such intersections typically have very low traffic volumes. If a motorist finds it necessary to stop at an uncontrolled intersection because of the presence of a conflicting vehicle on an intersecting approach, it is very unlikely another potentially conflicting vehicle will be encountered as the first vehicle departs the intersection.

Case B—Intersections with Stop Control on the Minor Road

Departure sight triangles for intersections with stop control on the minor road should be considered for three situations:

Case B1—Left turns from the minor road;
Case B2—Right turns from the minor road; and
Case B3—Crossing the major road from a minor-road approach.

Intersection sight distance criteria for stop-controlled intersections are longer than stopping sight distance to ensure that the intersection operates smoothly. Minor-road vehicle operators can wait until they can proceed safely without forcing a major-road vehicle to stop.

Case B1—Left Turn from the Minor Road

Departure sight triangles for traffic approaching from either the right or the left, like those shown in Exhibit 9-50B, should be provided for left turns from the minor road onto the major road for all stop-controlled approaches. The length of the leg of the departure sight triangle along the major road in both directions is the recommended intersection sight distance for Case B1.

The vertex (decision point) of the departure sight triangle on the minor road should be 4.4 m [14.5 ft] from the edge of the major-road traveled way. This represents the typical position of the minor-road driver's eye when a vehicle is stopped relatively close to the major road. Field observations of vehicle stopping positions found that, where necessary, drivers will stop with the front of their vehicle 2.0 m [6.5 ft] or less from the edge of the major-road traveled way. Measurements of passenger cars indicate that the distance from the front of the vehicle to the driver's eye for the current U.S. passenger car population is nearly always 2.4 m [8 ft] or less (**10**). Where practical, it is desirable to increase the distance from the edge of the major-road traveled way to the vertex of the clear sight triangle from 4.4 m to 5.4 m [14.5 to 18 ft]. This

Metric

Approach grade (%)	Design speed (km/h) 20	30	40	50	60	70	80	90	100	110	120	130
−6	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2
−5	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
−4	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
−3 to +3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
+4	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+5	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+6	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

US Customary

Approach grade (%)	Design speed (mph) 15	20	25	30	35	40	45	50	55	60	65	70	75	80
−6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2
−5	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2
−4	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
−3 to +3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
+4	1.0	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+5	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
+6	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9

Note: Based on ratio of stopping sight distance on specified approach grade to stopping sight distance on level terrain.

Exhibit 9-53. Adjustment Factors for Sight Distance Based on Approach Grade

increase allows 3.0 m [10 ft] from the edge of the major-road traveled way to the front of the stopped vehicle, providing a larger sight triangle. The length of the sight triangle along the minor road (distance a in Exhibit 9-50B) is the sum of the distance from the major road plus 1/2 lane width for vehicles approaching from the left, or 1-1/2 lane width for vehicles approaching from the right.

Field observations of the gaps in major-road traffic actually accepted by drivers turning onto the major road have shown that the values in Exhibit 9-54 provide sufficient time for the minor-road vehicle to accelerate from a stop and complete a left turn without unduly interfering with major-road traffic operations. The time gap acceptance time does not vary with approach speed on the major road. Studies have indicated that a constant value of time gap, independent of approach speed, can be used as a basis for intersection sight distance determinations. Observations have also shown that major-road drivers will reduce their speed to some extent when minor-road vehicles turn onto the major road. Where the time gap acceptance values in Exhibit 9-54 are used to determine the length of the leg of the departure sight triangle, most major-road drivers should not need to reduce speed to less than 70 percent of their initial speed **(10)**.

The intersection sight distance in both directions should be equal to the distance traveled at the design speed of the major road during a period of time equal to the time gap. In applying Exhibit 9-54, it can usually be assumed that the minor-road vehicle is a passenger car. However, where substantial volumes of heavy vehicles enter the major road, such as from a ramp terminal, the use of tabulated values for single-unit or combination trucks should be considered.

Exhibit 9-54 includes appropriate adjustments to the gap times for the number of lanes on the major road and for the approach grade of the minor road. The adjustment for the grade of the minor-road approach is needed only if the rear wheels of the design vehicle would be on an upgrade that exceeds 3 percent when the vehicle is at the stop line of the minor-road approach.

The intersection sight distance along the major road (dimension "b" in Exhibit 9-50B) is determined by:

Metric	**US Customary**
$ISD = 0.278\ V_{major}\, t_g$	$ISD = 1.47\ V_{major}\, t_g$ **(9-1)**
where: ISD = intersection sight distance (length of the leg of sight triangle along the major road) (m) V_{major} = design speed of major road (km/h) t_g = time gap for minor road vehicle to enter the major road (s)	where: ISD = intersection sight distance (length of the leg of sight triangle along the major road) (ft) V_{major} = design speed of major road (mph) t_g = time gap for minor road vehicle to enter the major road (s)

Design vehicle	Time gap (t_g) (seconds) at design speed of major road
Passenger car	7.5
Single-unit truck	9.5
Combination truck	11.5

Note: Time gaps are for a stopped vehicle to turn left onto a two-lane highway with no median and grades 3 percent or less. The table values require adjustment as follows:

For multilane highways:

For left turns onto two-way highways with more than two lanes, add 0.5 seconds for passenger cars or 0.7 seconds for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.

For minor road approach grades:

If the approach grade is an upgrade that exceeds 3 percent; add 0.2 seconds for each percent grade for left turns

Exhibit 9-54. Time Gap for Case B1—Left Turn from Stop

For example, a passenger car turning left onto a two-lane major road should be provided sight distance equivalent to a time gap of 7.5 s in major-road traffic. If the design speed of the major road is 100 km/h [60 mph], this corresponds to a sight distance of 0.278(100)(7.5) = 208.5 or 210 m [1.47(60)(7.5) = 661.5 or 665 ft], rounded for design.

A passenger car turning left onto a four-lane undivided roadway will need to cross two near lanes, rather than one. This increases the recommended gap in major-road traffic from 7.5 to 8.0 s. The corresponding value of sight distance for this example would be 223 m [706 ft]. If the minor-road approach to such an intersection is located on a 4 percent upgrade, then the time gap selected for intersection sight distance design for left turns should be increased from 8.0 to 8.8 s, equivalent to an increase of 0.2 s for each percent grade.

The design values for intersection sight distance for passenger cars are shown in Exhibit 9-55. Exhibit 9-56 includes design values, based on the time gaps for the design vehicles included in Exhibit 9-54.

No adjustment of the recommended sight distance values for the major-road grade is generally needed because both the major- and minor-road vehicle will be on the same grade when departing from the intersection. However, if the minor-road design vehicle is a heavy truck and the intersection is located near a sag vertical curve with grades over 3 percent, then an adjustment to extend the recommended sight distance based on the major-road grade should be considered.

Metric				US Customary			
Design speed (km/h)	Stopping sight distance (m)	Intersection sight distance for passenger cars: Calculated (m)	Intersection sight distance for passenger cars: Design (m)	Design speed (mph)	Stopping sight distance (ft)	Intersection sight distance for passenger cars: Calculated (ft)	Intersection sight distance for passenger cars: Design (ft)
20	20	41.7	45	15	80	165.4	170
30	35	62.6	65	20	115	220.5	225
40	50	83.4	85	25	155	275.6	280
50	65	104.3	105	30	200	330.8	335
60	85	125.1	130	35	250	385.9	390
70	105	146.0	150	40	305	441.0	445
80	130	166.8	170	45	360	496.1	500
90	160	187.7	190	50	425	551.3	555
100	185	208.5	210	55	495	606.4	610
110	220	229.4	230	60	570	661.5	665
120	250	250.2	255	65	645	716.6	720
130	285	271.1	275	70	730	771.8	775
				75	820	826.9	830
				80	910	882.0	885

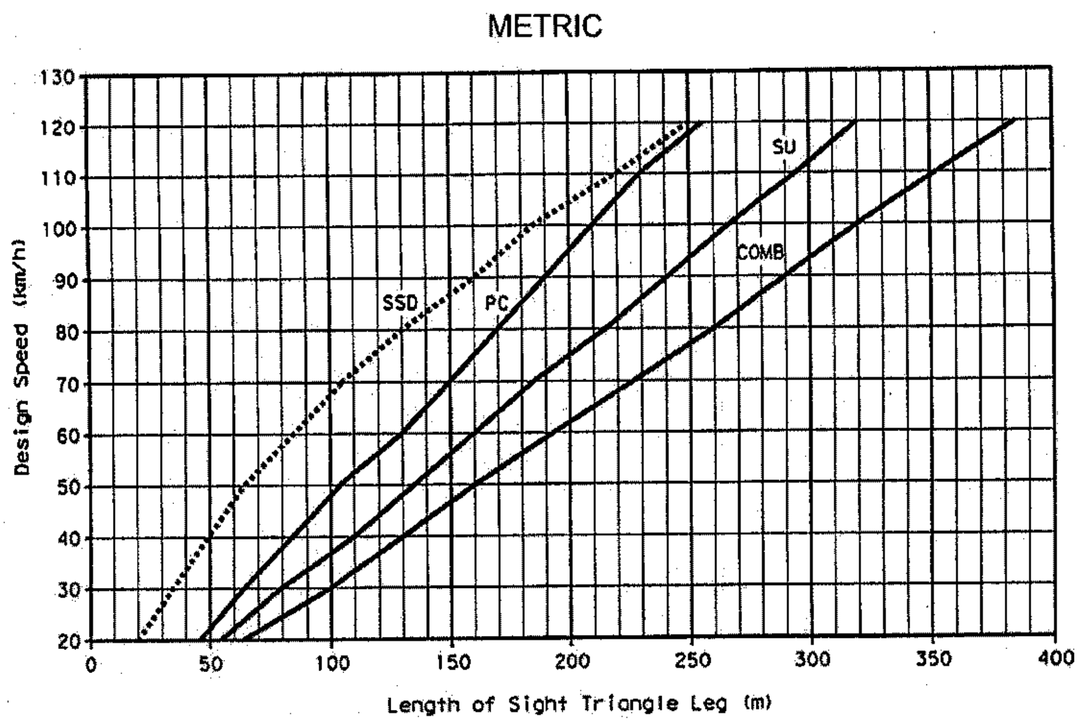
Note: Intersection sight distance shown is for a stopped passenger car to turn left onto a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap must be adjusted and required sight distance recalculated.

Exhibit 9-55. Design Intersection Sight Distance—Case B1—Left Turn from Stop

Sight distance design for left turns at divided-highway intersections should consider multiple design vehicles and median width. If the design vehicle used to determine sight distance for a divided-highway intersection is larger than a passenger car, then sight distance for left turns will need to be checked for that selected design vehicle and for smaller design vehicles as well. If the divided-highway median is wide enough to store the design vehicle with a clearance to the through lanes of approximately 1 m [3 ft] at both ends of the vehicle, no separate analysis for the departure sight triangle for left turns is needed on the minor-road approach for the near roadway to the left. In most cases, the departure sight triangle for right turns (Case B2) will provide sufficient sight distance for a passenger car to cross the near roadway to reach the median. Possible exceptions are addressed in the discussion of Case B3.

If the design vehicle can be stored in the median with adequate clearance to the through lanes, a departure sight triangle to the right for left turns should be provided for that design vehicle turning left from the median roadway. Where the median is not wide enough to store the design vehicle, a departure sight triangle should be provided for that design vehicle to turn left from the minor-road approach.

The median width should be considered in determining the number of lanes to be crossed. The median width should be converted to equivalent lanes. For example, a 7.2-m [24-ft] median should be considered as two additional lanes to be crossed in applying the multilane highway adjustment for time gaps in Exhibit 9-54. Furthermore, a departure sight triangle for left turns



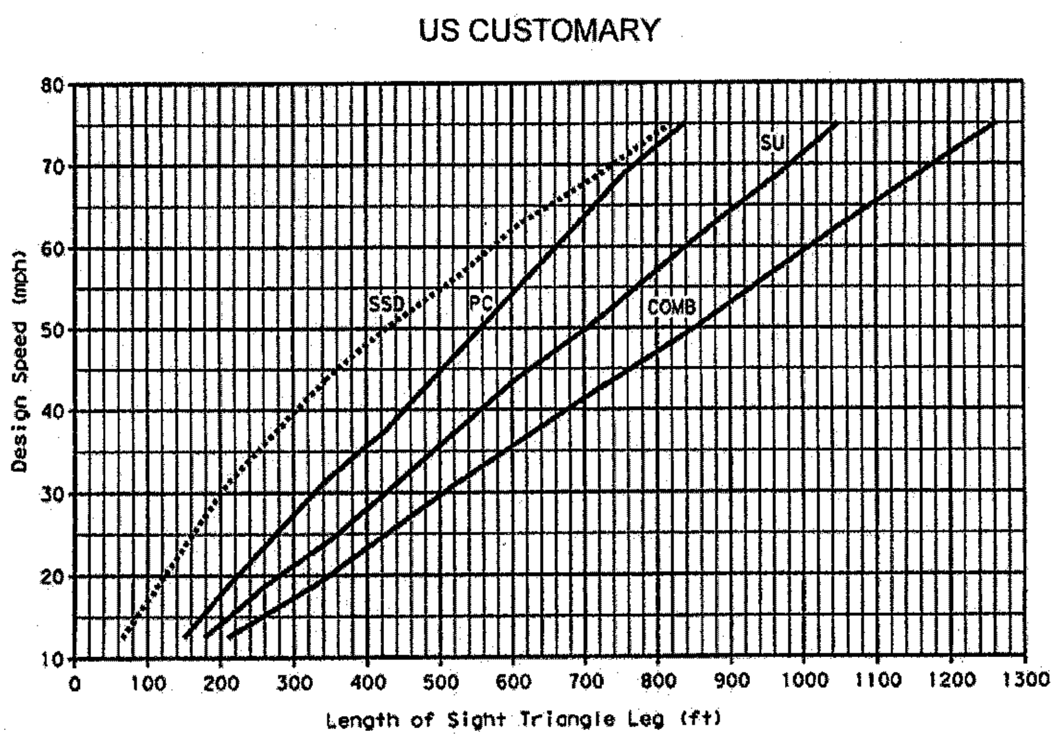


Exhibit 9-56. Intersection Sight Distance—Case B1—Left Turn from Stop

from the median roadway should be provided for the largest design vehicle that can be stored on the median roadway with adequate clearance to the through lanes. If a divided highway intersection has a 12-m [40-ft] median width and the design vehicle for sight distance is a 22-m [74-ft] combination truck, departure sight triangles should be provided for the combination truck turning left from the minor-road approach and through the median. In addition, a departure sight triangle should also be provided to the right for a 9-m [30-ft] single unit truck turning left from a stopped position in the median.

If the sight distance along the major road shown in Exhibit 9-55, including any appropriate adjustments, cannot be provided, then consideration should be given to installing regulatory speed signing on the major-road approaches.

Case B2—Right Turn from the Minor Road

A departure sight triangle for traffic approaching from the left like that shown in Exhibit 9-50B should be provided for right turns from the minor road onto the major road. The intersection sight distance for right turns is determined in the same manner as for Case B1, except that the time gaps (t_g) in Exhibit 9-54 should be adjusted. Field observations indicate that, in making right turns, drivers generally accept gaps that are slightly shorter than those accepted in making left turns (**10**). The time gaps in Exhibit 9-54 can be decreased by 1.0 s for right-turn maneuvers without undue interference with major-road traffic. These adjusted time gaps for the right turn from the minor road are shown in Exhibit 9-57. Design values based on these adjusted time gaps are shown in Exhibit 9-58 for passenger cars. Exhibit 9-59 includes the design values for the design vehicles for each of the time gaps in Exhibit 9-57. When the minimum recommended sight distance for a right-turn maneuver cannot be provided, even with the reduction of 1.0 s from the values in Exhibit 9-54, consideration should be given to installing regulatory speed signing or other traffic control devices on the major-road approaches.

Case B3—Crossing Maneuver from the Minor Road

In most cases, the departure sight triangles for left and right turns onto the major road, as described for Cases B1 and B2, will also provide more than adequate sight distance for minor-road vehicles to cross the major road. However, in the following situations, it is advisable to check the availability of sight distance for crossing maneuvers:

- where left and/or right turns are not permitted from a particular approach and the crossing maneuver is the only legal maneuver;
- where the crossing vehicle would cross the equivalent width of more than six lanes; or
- where substantial volumes of heavy vehicles cross the highway and steep grades that might slow the vehicle while its back portion is still in the intersection are present on the departure roadway on the far side of the intersection.

Design vehicle	Time gap (t_g) (seconds) at design speed of major road
Passenger car	6.5
Single-unit truck	8.5
Combination truck	10.5

Note: Time gaps are for a stopped vehicle to turn right onto or cross a two-lane highway with no median and grades 3 percent or less. The table values require adjustment as follows:

For multilane highways:

For crossing a major road with more than two lanes, add 0.5 seconds for passenger cars and 0.7 seconds for trucks for each additional lane to be crossed and for narrow medians that cannot store the design vehicle.

For minor road approach grades:

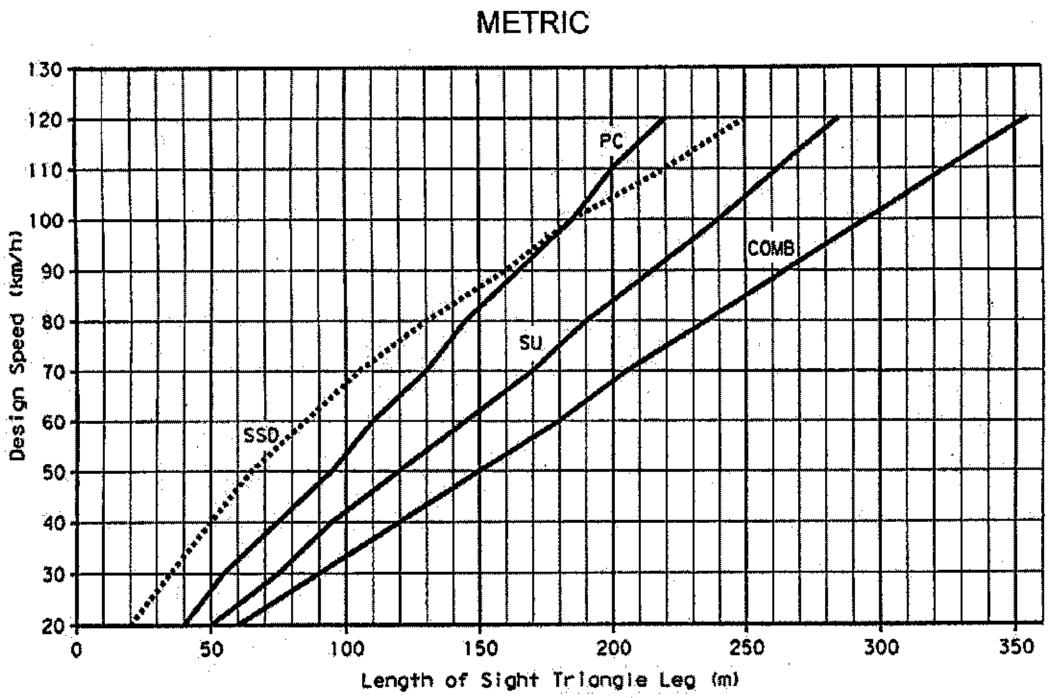
If the approach grade is an upgrade that exceeds 3 percent, add 0.1 seconds for each percent grade.

Exhibit 9-57. Time Gap for Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

Metric				US Customary			
		Intersection sight distance for passenger cars				Intersection sight distance for passenger cars	
Design speed (km/h)	Stopping sight distance (m)	Calculated (m)	Design (m)	Design speed (mph)	Stopping sight distance (ft)	Calculated (ft)	Design (ft)
20	20	36.1	40	15	80	143.3	145
30	35	54.2	55	20	115	191.1	195
40	50	72.3	75	25	155	238.9	240
50	65	90.4	95	30	200	286.7	290
60	85	108.4	110	35	250	334.4	335
70	105	126.5	130	40	305	382.2	385
80	130	144.6	145	45	360	430.0	430
90	160	162.6	165	50	425	477.8	480
100	185	180.7	185	55	495	525.5	530
110	220	198.8	200	60	570	573.3	575
120	250	216.8	220	65	645	621.1	625
130	285	234.9	235	70	730	668.9	670
				75	820	716.6	720
				80	910	764.4	765

Note: Intersection sight distance shown is for a stopped passenger car to turn right onto or cross a two-lane highway with no median and grades 3 percent or less. For other conditions, the time gap must be adjusted and required sight distance recalculated.

Exhibit 9-58. Design Intersection Sight Distance—Case B2—Right Turn from Stop and Case B3—Crossing Maneuver



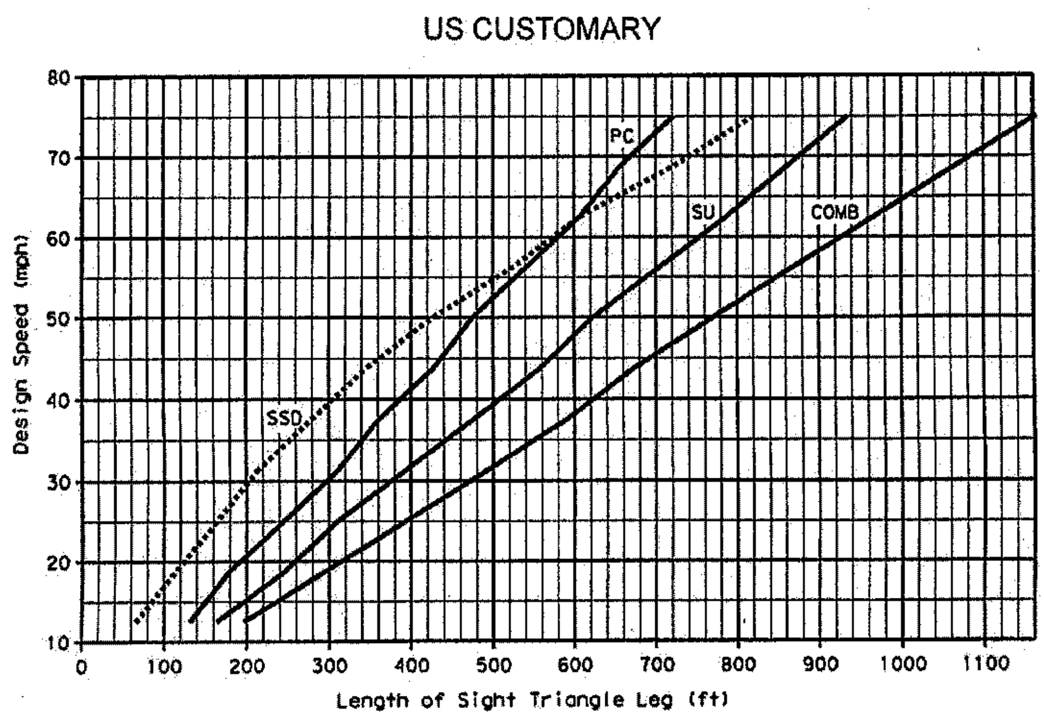


Exhibit 9-59. Intersection Sight Distance—Case B2—Right Turn from Stop and Case B3—Crossing Maneuver

The formula for intersection sight distance in Case B1 is used again for the crossing maneuver except that time gaps (t_g) are obtained from Exhibit 9-57. Exhibit 9-57 presents time gaps and appropriate adjustment factors to determine the intersection sight distance along the major road to accommodate crossing maneuvers. At divided highway intersections, depending on the relative magnitudes of the median width and the length of the design vehicle, intersection sight distance may need to be considered for crossing both roadways of the divided highway or for crossing the near lanes only and stopping in the median before proceeding. The application of adjustment factors for median width and grade is discussed under Case B1.

Exhibit 9-58 shows the design values for passenger cars for the crossing maneuver based on the unadjusted time gaps in Exhibit 9-57. Exhibit 9-59 includes the design values based on the time gaps for the design vehicles in Exhibit 9-57.

Case C—Intersections with Yield Control on the Minor Road

Drivers approaching yield signs are permitted to enter or cross the major road without stopping, if there are no potentially conflicting vehicles on the major road. The sight distances needed by drivers on yield-controlled approaches exceed those for stop-controlled approaches.

For four-leg intersections with yield control on the minor road, two separate pairs of approach sight triangles like those shown in Exhibit 9-50A should be provided. One set of approach sight triangles is needed to accommodate crossing the major road and a separate set of sight triangles is needed to accommodate left and right turns onto the major road. Both sets of sight triangles should be checked for potential sight obstructions.

For three-leg intersections with yield control on the minor road, only the approach sight triangles to accommodate left- and right-turn maneuvers need be considered, because the crossing maneuver does not exist.

Case C1—Crossing Maneuver from the Minor Road

The length of the leg of the approach sight triangle along the minor road to accommodate the crossing maneuver from a yield-controlled approach (distance *a* in Exhibit 9-50A) is given in Exhibit 9-60. The distances in Exhibit 9-60 are based on the same assumptions as those for Case A except that, based on field observations, minor-road vehicles that do not stop are assumed to decelerate to 60 percent of the minor-road design speed, rather than 50 percent.

Sufficient travel time for the major road vehicle should be provided to allow the minor-road vehicle: (1) to travel from the decision point to the intersection, while decelerating at the rate of 1.5 m/s^2 [5 ft/s^2] to 60 percent of the minor-road design speed; and then (2) to cross and clear the intersection at that same speed. The intersection sight distance along the major road to accommodate the crossing maneuver (distance b in Exhibit 9-50A) should be computed with the following equations:

Metric	US Customary	
$t_g = t_a + \dfrac{w + L_a}{0.167V_{\text{minor}}}$ $b = 0.278V_{major}t_g$	$t_g = t_a + \dfrac{w + L_a}{0.88V_{\text{minor}}}$ $b = 1.47V_{major}t_g$	**(9-2)**
where: t_g = travel time to reach and clear the major road (s) b = length of leg of sight triangle along the major road (m) t_a = travel time to reach the major road from the decision point for a vehicle that does not stop (s) (use appropriate value for the minor-road design speed from Exhibit 9-60 adjusted for approach grade, where appropriate) w = width of intersection to be crossed (m) L_a = length of design vehicle (m) V_{minor} = design speed of minor road (km/h) V_{major} = design speed of major road (km/h)	where: t_g = travel time to reach and clear the major road (s) b = length of leg of sight triangle along the major road (ft) t_a = travel time to reach the major road from the decision point for a vehicle that does not stop (s) (use appropriate value for the minor-road design speed from Exhibit 9-60 adjusted for approach grade, where appropriate) w = width of intersection to be crossed (ft) L_a = length of design vehicle (ft) V_{minor} = design speed of minor road (mph) V_{major} = design speed of major road (mph)	

The value of t_g should equal or exceed the appropriate travel time for crossing the major road from a stop-controlled approach, as shown in Exhibit 9-57. The design values for the time gap (t_g) shown in Exhibit 9-60 incorporate these crossing times for two-lane highways and are used to develop the length of the leg of the sight triangle along the major road in Exhibit 9-61. These basic unadjusted lengths are illustrated in Exhibit 9-62 for passenger cars and should be calculated separately for other design vehicle types.

The distances and times in Exhibit 9-60 should be adjusted for the grade of the minor-road approach using the factors in Exhibit 9-53. If the major road is a divided highway with a median wide enough to store the design vehicle for the crossing maneuver, then only crossing of the near lanes needs to be considered and a departure sight triangle for accelerating from a stopped position in the median should be provided based on Case B3. For median widths not wide enough to store the design vehicle, the crossing width should be adjusted as discussed in Case B1.

Metric					US Customary				
	Minor-road approach		Travel time (t_g) (seconds)			Minor-road approach		Travel time (t_g) (seconds)	
Design speed (km/h)	Length of leg[1] (m)	Travel time t_a[1,2] (seconds)	Calculated value	Design value[3,4]	Design speed (mph)	Length of leg[1] (ft)	Travel time t_a[1,2] (seconds)	Calculated value	Design value[3,4]
20	20	3.2	7.1	7.1	15	75	3.4	6.7	6.7
30	30	3.6	6.2	6.5	20	100	3.7	6.1	6.5
40	40	4.0	6.0	6.5	25	130	4.0	6.0	6.5
50	55	4.4	6.0	6.5	30	160	4.3	5.9	6.5
60	65	4.8	6.1	6.5	35	195	4.6	6.0	6.5
70	80	5.1	6.2	6.5	40	235	4.9	6.1	6.5
80	100	5.5	6.5	6.5	45	275	5.2	6.3	6.5
90	115	5.9	6.8	6.8	50	320	5.5	6.5	6.5
100	135	6.3	7.1	7.1	55	370	5.8	6.7	6.7
110	155	6.7	7.4	7.4	60	420	6.1	6.9	6.9
120	180	7.0	7.7	7.7	65	470	6.4	7.2	7.2
130	205	7.4	8.0	8.0	70	530	6.7	7.4	7.4
					75	590	7.0	7.7	7.7
					80	660	7.3	7.9	7.9

1 For minor-road approach grades that exceed 3 percent, multiply the distance or the time in this table by the appropriate adjustment factor from Exhibit 9-53.

2 Travel time applies to a vehicle that slows before crossing the intersection but does not stop.

3 The value of t_g should equal or exceed the appropriate time gap for crossing the major road from a stop-controlled approach.

4 Values shown are for a passenger car crossing a two-lane highway with no median and grades 3 percent or less.

Exhibit 9-60. Case C1—Crossing Maneuvers from Yield-Controlled Approaches—Length of Minor Road Leg and Travel Times

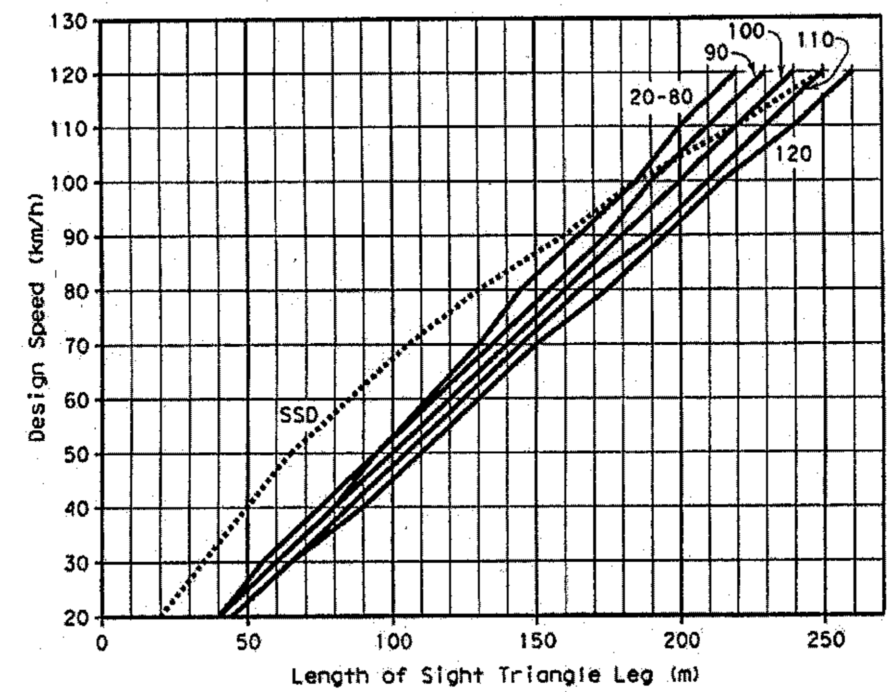
Metric									
Major road design speed (km/h)	Stopping sight distance (m)	Minor-road design speed (km/h)							
		20	30–80	90	100	110	120	130	
		Design values (m)							
20	20	40	40	40	40	45	45	45	
30	35	60	55	60	60	65	65	70	
40	50	80	75	80	80	85	90	90	
50	65	100	95	95	100	105	110	115	
60	85	120	110	115	120	125	130	135	
70	105	140	130	135	140	145	150	160	
80	130	160	145	155	160	165	175	180	
90	160	180	165	175	180	190	195	205	
100	185	200	185	190	200	210	215	225	
110	220	220	200	210	220	230	240	245	
120	250	240	220	230	240	250	260	270	
130	285	260	235	250	260	270	280	290	

US Customary									
Major road design speed (mph)	Stopping sight distance (ft)	Minor-road design speed (mph)							
		15	20–50	55	60	65	70	75	80
		Design values (ft)							
15	80	150	145	150	155	160	165	170	175
20	115	200	195	200	205	215	220	230	235
25	155	250	240	250	255	265	275	285	295
30	200	300	290	300	305	320	330	340	350
35	250	345	335	345	360	375	385	400	410
40	305	395	385	395	410	425	440	455	465
45	360	445	430	445	460	480	490	510	525
50	425	495	480	495	510	530	545	570	585
55	495	545	530	545	560	585	600	625	640
60	570	595	575	595	610	640	655	680	700
65	645	645	625	645	660	690	710	740	755
70	730	690	670	690	715	745	765	795	815
75	820	740	720	740	765	795	820	850	875
80	910	790	765	790	815	850	875	910	930

Note: Values in the table are for passenger cars and are based on the unadjusted distances and times in Exhibit 9-60. The distances and times in Exhibit 9-60 need to be adjusted using the factors in Exhibit 9-53.

Exhibit 9-61. Length of Sight Triangle Leg along Major Road—Case C1—Crossing Maneuver at Yield Controlled Intersections

METRIC



US CUSTOMARY

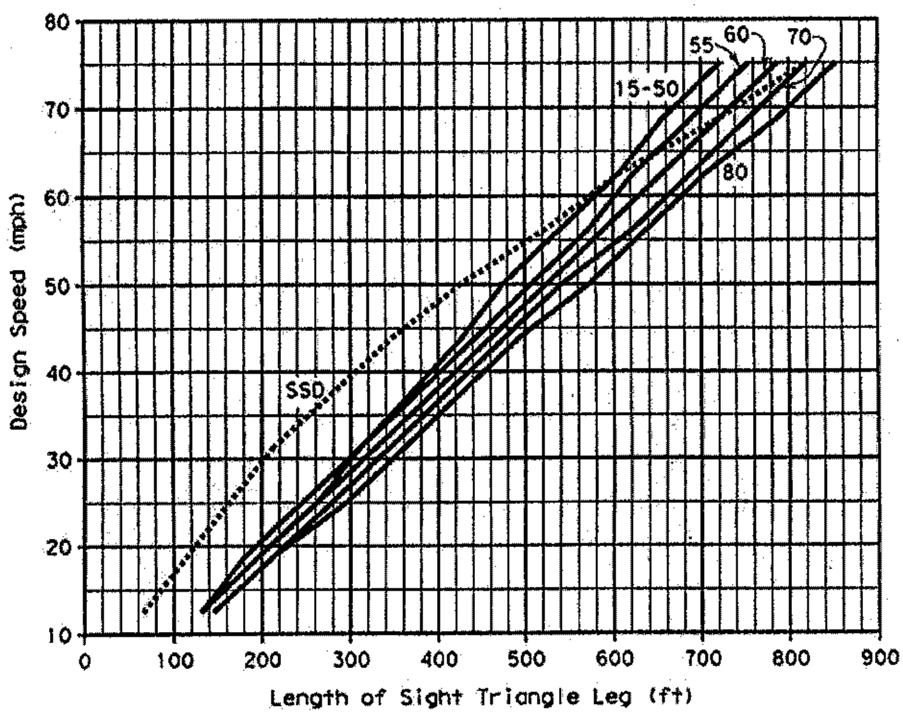


Exhibit 9-62. Length of Sight Triangle Leg along Major Road for Passenger Cars—Case C1—Crossing Maneuver

Case C2—Left- and Right-Turn Maneuvers

The length of the leg of the approach sight triangle along the minor road to accommodate left and right turns without stopping (distance a in Exhibit 9-50A) should be 25 m [82 ft]. This distance is based on the assumption that drivers making left and right turns without stopping will slow to a turning speed of 16 km/h [10 mph].

The leg of the approach sight triangle along the major road (distance b in Exhibit 9-50A) is similar to the major-road leg of the departure sight triangle for a stop-controlled intersections in Cases B1 and B2. However, the time gaps in Exhibit 9-54 should be increased by 0.5 s to the values shown in Exhibit 9-63. The appropriate lengths of the sight triangle leg are shown in Exhibit 9-64 for passenger cars and in Exhibit 9-65 for the general design vehicle categories. The minor-road vehicle needs 3.5 s to travel from the decision point to the intersection. This represents additional travel time that is needed at a yield-controlled intersection, but is not needed at a stop-controlled intersection (Case B). However, the acceleration time after entering the major road is 3.0 s less for a yield sign than for a stop sign because the turning vehicle accelerates from 16 km/h [10 mph] rather than from a stop condition. The net 0.5-s increase in travel time for a vehicle turning from a yield-controlled approach is the difference between the 3.5-s increase in travel time and the 3.0-s reduction in travel time.

Departure sight triangles like those provided for stop-controlled approaches (see Cases B1, B2, and B3) should also be provided for yield-controlled approaches to accommodate minor-road vehicles that stop at the yield sign to avoid conflicts with major-road vehicles. However, since approach sight triangles for turning maneuvers at yield-controlled approaches are larger than the departure sight triangles used at stop-controlled intersections, no specific check of departure sight triangles at yield-controlled intersection should be needed.

Yield-controlled approaches generally need greater sight distance than stop-controlled approaches, especially at four-leg yield-controlled intersections where the sight distance needs of the crossing maneuver should be considered. If sight distance sufficient for yield control is not available, use of a stop sign instead of a yield sign should be considered. In addition, at locations where the recommended sight distance cannot be provided, consideration should be given to installing regulatory speed signing or other traffic control devices at the intersection on the major road to reduce the speeds of approaching vehicles.

Case D—Intersections with Traffic Signal Control

At signalized intersections, the first vehicle stopped on one approach should be visible to the driver of the first vehicle stopped on each of the other approaches. Left-turning vehicles should have sufficient sight distance to select gaps in oncoming traffic and complete left turns. Apart from these sight conditions, there are generally no other approach or departure sight triangles needed for signalized intersections. Signalization may be an appropriate crash countermeasure for higher volume intersections with restricted sight distance that have experienced a pattern of sight-distance related crashes.

Design vehicle	Time gap (t_g) seconds
Passenger car	8.0
Single-unit truck	10.0
Combination truck	12.0

Note: Time gaps are for a vehicle to turn right or left onto a two-lane highway with no median. The table values require adjustments for multilane highways as follows:

For left turns onto two-way highways with more than two lanes, add 0.5 seconds for passenger cars or 0.7 seconds for trucks for each additional lane, from the left, in excess of one, to be crossed by the turning vehicle.

For right turns, no adjustment is necessary.

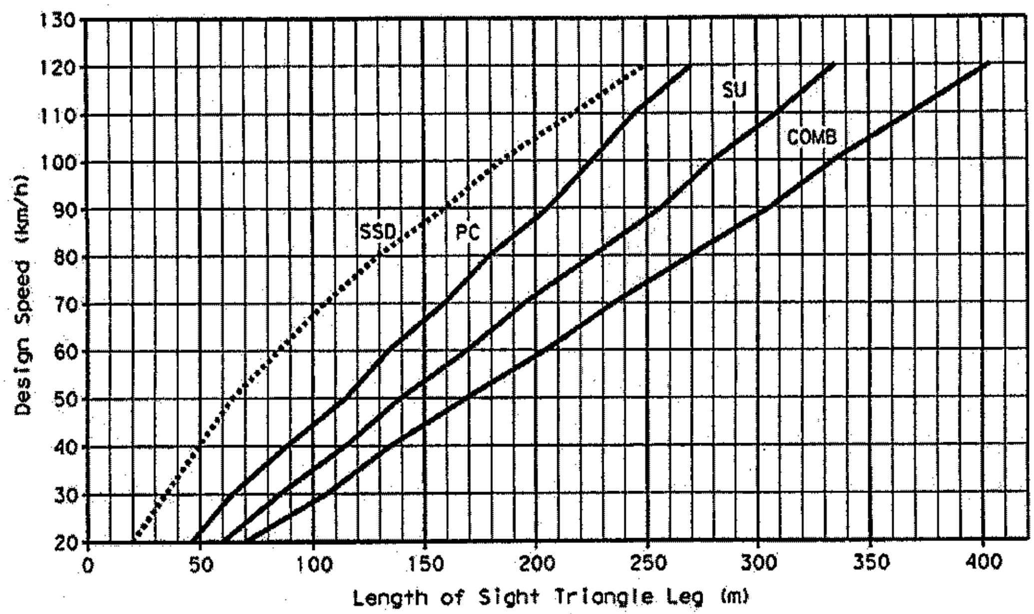
Exhibit 9-63. Time Gap for Case C2—Left or Right Turn

Metric				US Customary			
		Length of leg				Length of leg	
Design speed (km/h)	Stopping sight distance (m)	Passenger cars Calculated (m)	Passenger cars Design (m)	Design speed (mph)	Stopping sight distance (ft)	Passenger cars Calculated (ft)	Passenger cars Design (ft)
20	20	44.5	45	15	80	176.4	180
30	35	66.7	70	20	115	235.2	240
40	50	89.0	90	25	155	294.0	295
50	65	111.2	115	30	200	352.8	355
60	85	133.4	135	35	250	411.6	415
70	105	155.7	160	40	305	470.4	475
80	130	177.9	180	45	360	529.2	530
90	160	200.2	205	50	425	588.0	590
100	185	222.4	225	55	495	646.8	650
110	220	244.6	245	60	570	705.6	710
120	250	266.9	270	65	645	764.4	765
130	285	289.1	290	70	730	823.2	825
				75	820	882.0	885
				80	910	940.8	945

Note: Intersection sight distance shown is for a passenger car making a right or left turn without stopping onto a two-lane road.

Exhibit 9-64. Design Intersection Sight Distance—Case C2—Left or Right Turn at Yield-Controlled Intersections

METRIC



US CUSTOMARY

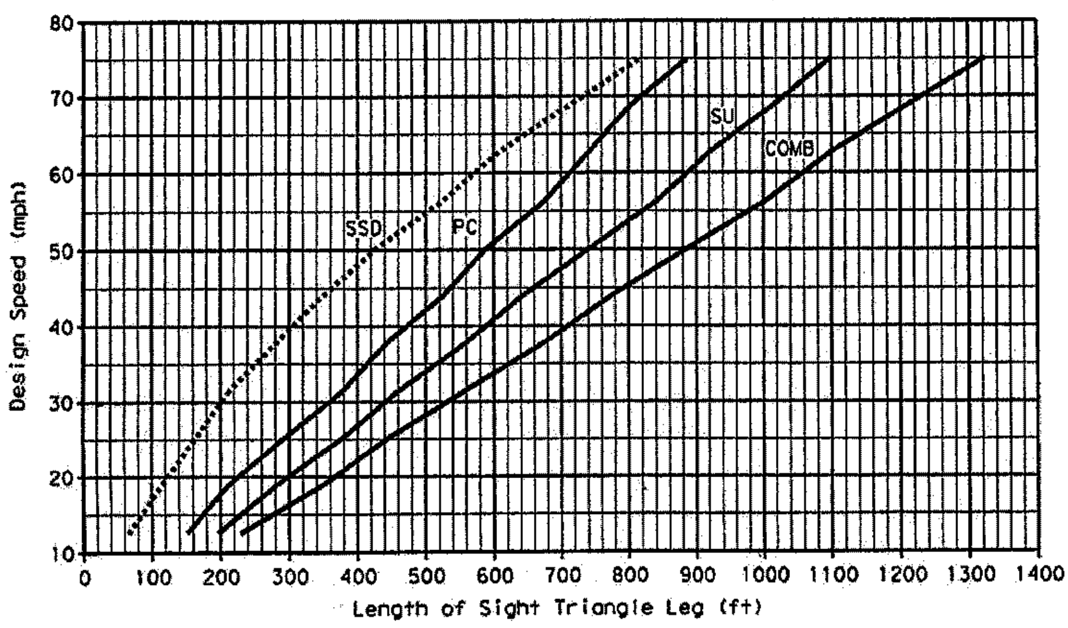


Exhibit 9-65. Intersection Sight Distance—Case C2—Yield-Controlled Left or Right Turn

However, if the traffic signal is to be placed on two-way flashing operation (i.e., flashing yellow on the major-road approaches and flashing red on the minor-road approaches) under off-peak or nighttime conditions, then the appropriate departure sight triangles for Case B, both to the left and to the right, should be provided for the minor-road approaches. In addition, if right turns on a red signal are to be permitted from any approach, then the appropriate departure sight triangle to the left for Case B2 should be provided to accommodate right turns from that approach.

Case E—Intersections with All-Way Stop Control

At intersections with all-way stop control, the first stopped vehicle on one approach should be visible to the drivers of the first stopped vehicles on each of the other approaches. There are no other sight distance criteria applicable to intersections with all-way stop control and, indeed, all-way stop control may be the best option at a limited number of intersections where sight distance for other control types cannot be attained.

Case F—Left Turns from the Major Road

All locations along a major highway from which vehicles are permitted to turn left across opposing traffic, including intersections and driveways, should have sufficient sight distance to accommodate the left-turn maneuver. Left-turning drivers need sufficient sight distance to decide when it is safe to turn left across the lane(s) used by opposing traffic. Sight distance design should be based on a left turn by a stopped vehicle, since a vehicle that turns left without stopping would need less sight distance. The sight distance along the major road to accommodate left turns is the distance traversed at the design speed of the major-road in the travel time for the design vehicle given in Exhibit 9-66.

Design vehicle	Time gap (t_g) (seconds) at design speed of major road
Passenger car	5.5
Single-unit truck	6.5
Combination truck	7.5

Adjustment for multilane highways:

For left-turning vehicles that cross more than one opposing lane, add 0.5 seconds for passenger cars and 0.7 seconds for trucks for each additional lane to be crossed.

Exhibit 9-66. Time Gap for Case F—Left Turns from the Major Road

The table also contains appropriate adjustment factors for the number of major-road lanes to be crossed by the turning vehicle. The unadjusted time gap in Exhibit 9-66 for passenger cars was used to develop the sight distances in Exhibit 9-67 and illustrated in Exhibit 9-68.

Metric				US Customary			
		Intersection sight distance				Intersection sight distance	
Design speed (km/h)	Stopping sight distance (m)	Passenger cars Calculated (m)	Passenger cars Design (m)	Design speed (mph)	Stopping sight distance (ft)	Passenger cars Calculated (ft)	Passenger cars Design (ft)
20	20	30.6	35	15	80	121.3	125
30	35	45.9	50	20	115	161.7	165
40	50	61.2	65	25	155	202.1	205
50	65	76.5	80	30	200	242.6	245
60	85	91.7	95	35	250	283.0	285
70	105	107.0	110	40	305	323.4	325
80	130	122.3	125	45	360	363.8	365
90	160	137.6	140	50	425	404.3	405
100	185	152.9	155	55	495	444.7	445
110	220	168.2	170	60	570	485.1	490
120	250	183.5	185	65	645	525.5	530
130	285	198.8	200	70	730	566.0	570
				75	820	606.4	610
				80	910	646.8	650

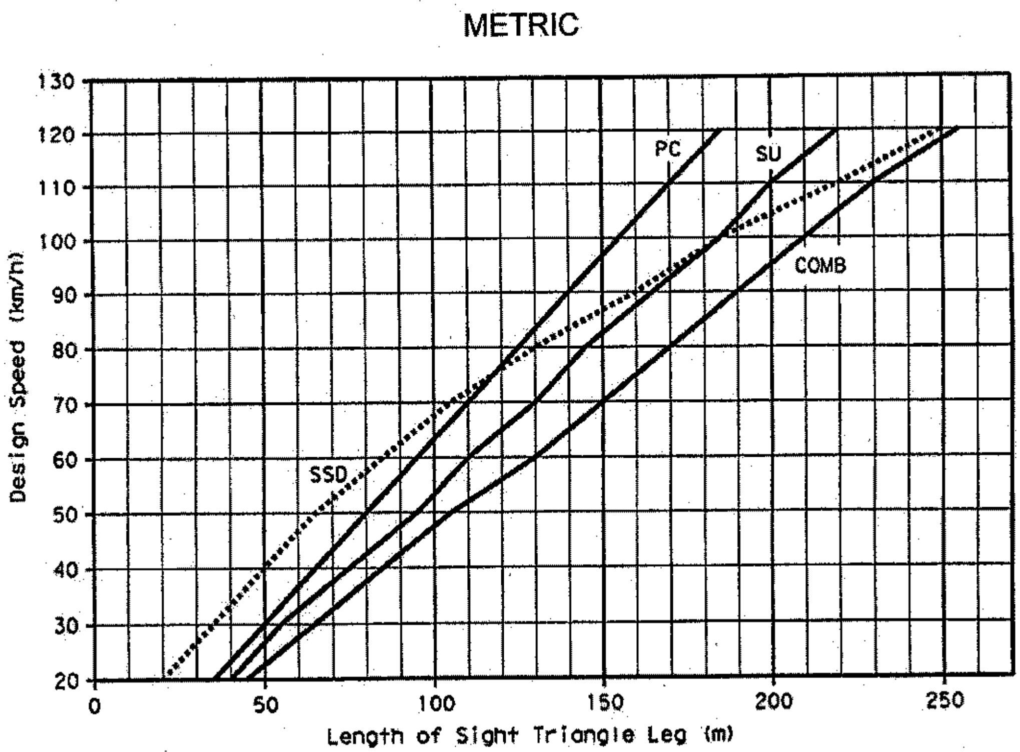
Note: Intersection sight distance shown is for a passenger car making a left turn from an undivided highway. For other conditions and design vehicles, the time gap should be adjusted and the sight distance recalculated.

Exhibit 9-67. Intersection Sight Distance—Case F—Left Turn from Major Road

If stopping sight distance has been provided continuously along the major road and if sight distance for Case B (stop control) or Case C (yield control) has been provided for each minor-road approach, sight distance will generally be adequate for left turns from the major road. Therefore, no separate check of sight distance for Case F may be needed.

However, at three-leg intersections or driveways located on or near a horizontal curve or crest vertical curve on the major road, the availability of adequate sight distance for left turns from the major road should be checked. In addition, the availability of sight distance for left turns from divided highways should be checked because of the possibility of sight obstructions in the median.

At four-leg intersections on divided highways, opposing vehicles turning left can block a driver's view of oncoming traffic. Exhibit 9-98, presented later in this chapter, illustrates intersection designs that can be used to offset the opposing left-turn lanes and provide left-turning drivers with a better view of oncoming traffic.



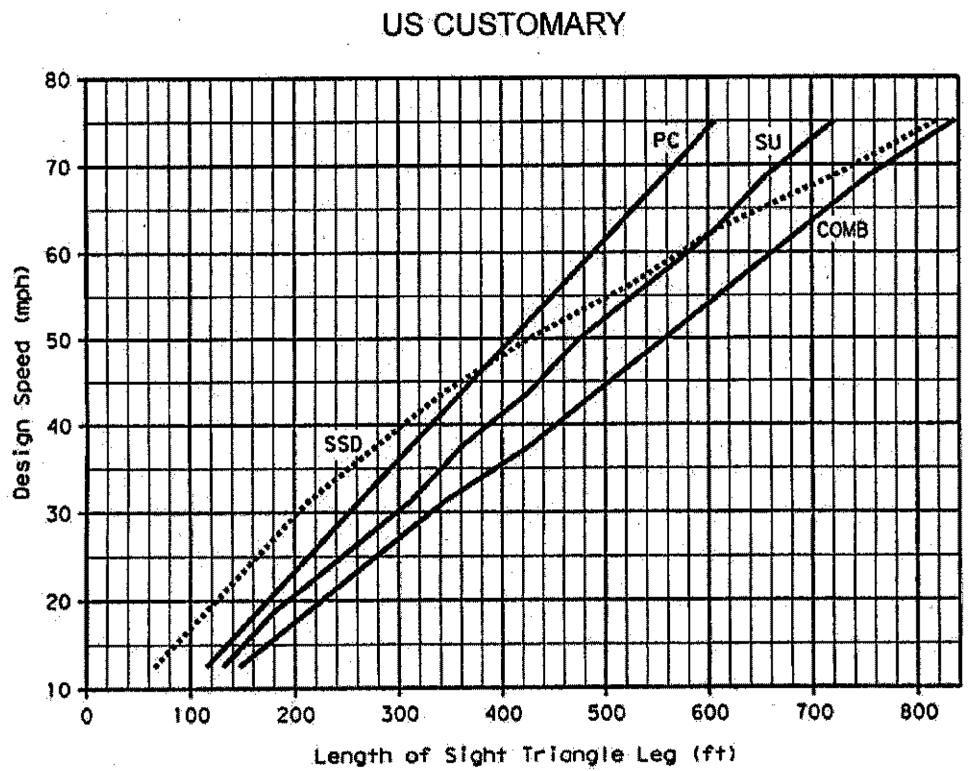


Exhibit 9-68. Intersection Sight Distance—Case F—Left Turn from Major Road