APPENDIX P

SMUP TIA Memo

CITY OF ENCINITAS HOUSING ELEMENT
Sustainable Mixed Use Places "SMUP"
Housing Strategy Alternative Analysis

Technical Report

May 3, 2016

Prepared for

Prepared by

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1.0 INTRODUCTION

1.1 Purpose

Based on the City of Encinitas' request, a detailed traffic impact analysis for the Sustainable Mixed Use Places (SMUP) Housing Strategy Alternative (hereafter 'SMUP Strategy') was performed utilizing the same analysis methodology described in Section 2 of the City of Encinitas Housing Element Traffic Impact Study (TIS). The SMUP Strategy was qualitatively discussed as an alternative in the Draft EIR, and this technical report serves as a supporting document to display detailed traffic operations and mitigation for the SMUP Strategy. The purpose of this technical report is to identify and document the potential traffic related impacts associated with the SMUP Strategy, as well as to recommend mitigation measures as necessary.

1.2 SMUP Strategy

The SMUP Strategy was developed to reduce impacts of the other housing strategies addressed in the DEIR, while still meeting project objectives. . The section below details the specific housing sites included in the SMUP Strategy:

- Alt-2 – Housing site Alt-2 was included in the SMUP Strategy because this site provides an opportunity to strengthen the walkable Main Street Corridor character of Leucadia.

- OE-1 – Housing site OE-1 was included in the SMUP Strategy because it provides an opportunity to convert incompatible heavy commercial and light industrial land uses adjacent to Moonlight Beach and the downtown walkable Main Street Corridor with complementary and visitor serving uses. Visitor-serving uses are an important consideration adjacent to the beach in the Coastal Zone.

- OE-4 - Housing site OE-4 was included in the SMUP Strategy because it provides an opportunity for redevelopment of the underutilized City Hall sites into a mixed use place immediately adjacent to the Encinitas transit center.

- Alt-7 - Housing site Alt-7 was included in the SMUP Strategy because it provides an opportunity to strengthen the walkable Main Street Corridor character of Downtown Encinitas by converting underutilized sites to stitch together the whole of the downtown. Additionally, its inclusion helps meet project objectives by transitioning residential yields from moderate-income categories to lower income categories.

- OE-7 - Housing site OE-7 was included in the SMUP Strategy because while there is potential for biological resources, the site is considered an infill site. Changing the land use from commercial to residential would reduce overall vehicular traffic generation and takes advantage of adjacent bus service.

- C-3 - Housing site C-3 was included in the SMUP Strategy because it would reduce vehicular traffic generation and strengthen the walkable character of the Cardiff Town Center/Village by accommodating mixed use.

- C-1 - Housing site C-1 was included in the SMUP Strategy because it provides an opportunity to complement the Encinitas Community Park by improving entrance aesthetics and allowing residents to walk to the park rather than drive from a distant site.

- C-6 - Housing site C-6 was included in the SMUP Strategy because it provides an opportunity to meet diverse housing needs.

- NE-7 - Housing site NE-7 was included in the SMUP Strategy because it reduces vehicular traffic generation and provides a mixed use walkable place for New Encinitas. It also provides an opportunity to improve the aesthetics in the heart of the City's commercial corridor.

- Alt-3 - Housing site Alt-3 was included in the SMUP Strategy because it provides an opportunity to improve the aesthetics in the heart of the City's commercial corridor.

- NE-1 - Housing site NE-1 was included in the SMUP Strategy because it reduces vehicular traffic generation and provides a mixed use walkable place adjacent to existing shopping, park facility and planned cultural facility.

- Alt-4 - Housing site Alt-4 was included in the SMUP Strategy because it focuses the change in land use to only one of the "four corners" of Olivenhain and supports the viability of the adjacent new mixed use site, O-3.

- O-3 - Housing site O-3 was included in the SMUP Strategy because it reduces vehicular traffic generation and provides a mixed use walkable place for Olivenhain.

Figure 1 displays the SMUP Strategy housing site locations. **Table 1** below displays a comparison of the total trip generation associated with each of the housing strategies and the SMUP.

Table 1
Trip Generation

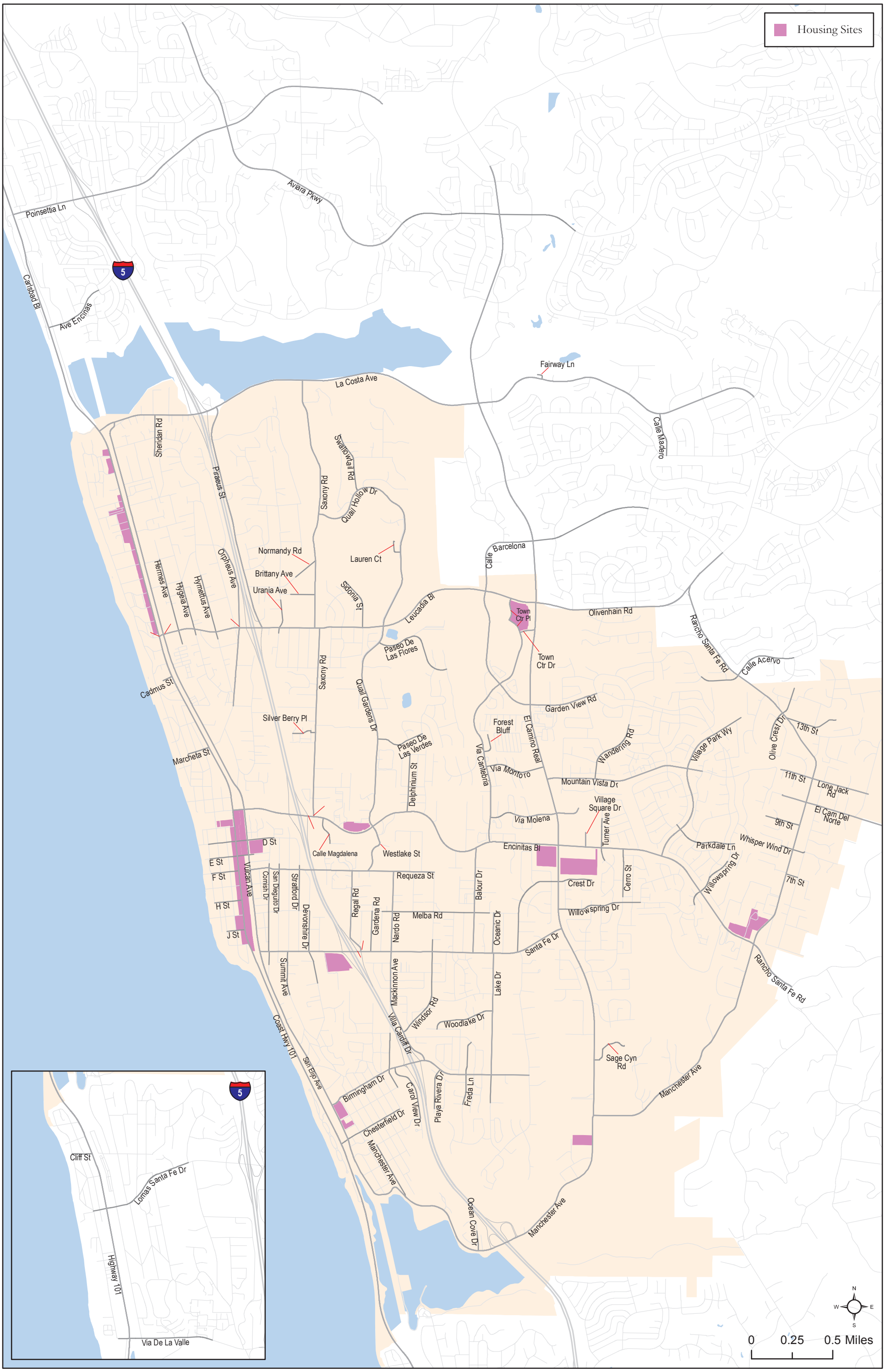
Strategy/Alternative	Daily Trip Generation
No-project/Adopted Plan	696,144
Ready-Made (RM)	712,505
Build-Your-Own (BYO)	720,710
Modified Mixed Use Places (MMUP)	726,293
SMUP	698,508

Source: Chen Ryan Associates; April 2016

As shown in Table 1, the SMUP Strategy is anticipated to generate less traffic when compared to the other housing strategies (RM, BYO, and MMUP), which were analyzed in detail in the City of Encinitas Housing Element TIS. As documented in the following sections, traffic impacts associated with the SMUP Strategy have all been identified previously in the TIS and the Draft EIR under the MMUP Strategy.

1.3 Report Organization

Following this introductory chapter, the remainder of this document is organized into the following sections: ***Chapter 2*** identifies the potential roadway, intersection, freeway, ramp intersection, and ramp metering traffic impacts associated with the SMUP Strategy when compared to future Year 2035 no-project traffic conditions; while ***Chapter 3*** discusses recommend mitigation measures, as necessary.



Encinitas Housing Element TIS

Figure 1

SMUP Strategy Housing Sites

CHEN RYAN

2.0 FUTURE YEAR 2035 TRAFFIC CONDITIONS – SMUP STRATEGY

As described in Chapter 4 of the City of Encinitas Housing Element TIS, four (4) future year scenarios (No-Project, RM, BYO, and MMUP) were analyzed. To determine the circulation system capacity and operations traffic impact of each housing strategy, the traffic volumes associated with buildout of each strategy were calculated by identifying the buildout traffic conditions and subtracting ambient growth (growth that would occur without the HEU/adopted General Plan). The analysis considers how traffic increases associated with buildout of each housing strategy would affect the existing circulation network, along with the funded Capital Improvement Projects (CIP) improvements. The potential traffic impacts associated with the SMUP Strategy were determined by utilizing the same approach as the one employed for the three previously mentioned housing strategies.

Similar to the previously analyzed future year scenarios, the roadway network under the SMUP Strategy was assumed to be identical to the existing conditions, as seen in Figure 3-1 and Figure 3-3 of the City of Encinitas Housing Element TIS, with the addition of any funded transportation projects in the respective jurisdictions.

2.1 Roadway Segment Analysis

Since the SMUP Strategy is the most similar to the MMUP Strategy with a few sites being removed (Alt-5, Alt-6, CBHMG-1, C-2, L-7, O-2, and O-4) and one site being added (C-3), the roadway volumes previously developed for the MMUP Strategy (as shown in Figure 4-5 in the TIS) were utilized as base roadway volumes under the SMUP Strategy. In order to obtain roadway volumes that reflected SMUP Strategy traffic conditions, the daily trips generated by the housing sites that were removed under the SMUP Strategy were subtracted from the base roadway volumes on the surrounding roadway facilities.

Table 2 displays the level of service analysis results for the study area roadway segments within the study area under No-Project conditions and with the implementation of the SMUP Strategy. **Figure 2** displays the projected average daily traffic volumes, the anticipated roadway level of service, as well as intersection level of service results within the study area.

As shown in Table 2, the following twenty-eight (28) roadway segments within the project study area are projected to operate at substandard level of service E or F under the SMUP Strategy, with twenty-two (22) located in Encinitas, five (5) located in Carlsbad, and one (1) located in the unincorporated County of San Diego. All 28 substandard (LOS E or F) roadway segments listed below have been previously identified as substandard in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy.

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Carlsbad Blvd	Between Poinsettia Lane and Avenida Encinas	4-Lane Major Arterial	25,500	40,000	0.638	C	25,300	0.633	C	0.005	City of Carlsbad	No
	Between Avenida Encinas and La Costa Avenue	4-Lane Major Arterial	25,400	40,000	0.635	C	24,700	0.618	C	0.017	City of Carlsbad	No
North Coast Highway 101	Between La Costa Avenue and 600 feet south of La Costa Avenue	4-Lane Major Roadway	21,800	35,200	0.619	C or better	19,900	0.565	C or better	0.054	City of Encinitas	No
	Between 600 feet south of La Costa Avenue and Leucadia Blvd	3-Lane Major Roadway[2]	20,410	26,400	0.773	C or better	18,100	0.686	C or better	0.087	City of Encinitas	No
	Between Leucadia Blvd and Cadmus Street	4-Lane Major Roadway	20,800	35,200	0.591	C or better	19,900	0.565	C or better	0.026	City of Encinitas	No
	Between Cadmus Street and Marcheta Street	4-Lane Major Roadway	20,800	35,200	0.591	C or better	19,900	0.565	C or better	0.026	City of Encinitas	No
	Between Marcheta Street and 660 feet south of Marcheta Street	4-Lane Major Roadway	18,800	35,200	0.534	C or better	19,900	0.565	C or better	-0.031	City of Encinitas	No
	Between 660 feet south of Marcheta Street and Encinitas Blvd	4-Lane Major Roadway	19,100	35,200	0.543	C or better	19,900	0.565	C or better	-0.022	City of Encinitas	No

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Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
South Coast Highway 101	Between Encinitas Blvd and D Street	4-Lane Major Roadway	18,800	35,200	0.534	C or better	19,400	0.551	C or better	-0.017	City of Encinitas	No
	Between D Street and E Street	4-Lane Major Roadway	18,800	35,200	0.534	C or better	19,400	0.551	C or better	-0.017	City of Encinitas	No
	Between E Street and F Street	4-Lane Major Roadway	18,800	35,200	0.534	C or better	19,400	0.551	C or better	-0.017	City of Encinitas	No
	Between F Street and H Street	4-Lane Major Roadway	18,800	35,200	0.534	C or better	19,400	0.551	C or better	-0.017	City of Encinitas	No
	Between H Street and J Street	4-Lane Major Roadway	20,400	35,200	0.580	C or better	21,100	0.599	C or better	-0.019	City of Encinitas	No
	Between J Street and Swami's Parking	3-Lane Major Roadway[2]	20,400	26,400	0.773	C or better	21,100	0.799	C or better	-0.026	City of Encinitas	No
	Between Swami's Parking and San Elijo State Beach	2-Lane Local Roadway	21,100	14,000	1.507	**F**	21,300	1.521	**F**	-0.014	City of Encinitas	No
	Between San Elijo State Beach and Chesterfield	4-Lane Major Roadway	21,400	35,200	0.608	C or better	21,300	0.605	C or better	0.003	City of Encinitas	No
	Between Chesterfield and Cardiff State Beach traffic signal	4-Lane Major Roadway	23,200	35,200	0.659	C or better	23,200	0.659	C or better	0.000	City of Encinitas	No

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Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
South Coast Highway 101	Between Cardiff Beach State and Chart House traffic signal	4-Lane Major Roadway	23,200	35,200	0.659	C or better	23,200	0.659	C or better	0.000	City of Encinitas	No
	Between Chart House traffic signal and Las Olas Mexican Restaurant traffic signal	4-Lane Major Roadway	23,200	35,200	0.659	C or better	23,200	0.659	C or better	0.000	City of Encinitas	No
	Between Las Olas Mexican Restaurant traffic signal and City of Solana Beach boundary	4-Lane Major Roadway	23,200	35,200	0.659	C or better	23,200	0.659	C or better	0.000	City of Encinitas	No
North Highway 101	Between City of Solana Beach boundary and West Cliff Street	4-Lane Major Arterial	22,600	40,000	0.565	C	22,500	0.563	C	0.002	City of Solana Beach	No
	Between West Cliff and Lomas Santa Fe	4-Lane Major Arterial	25,000	40,000	0.625	C	25,000	0.625	C	0.000	City of Solana Beach	No
	Between Lomas Santa Fe Drive and Via De La Valle	4-Lane Major Arterial	23,600	40,000	0.590	C	23,600	0.590	C	0.000	City of Solana Beach	No
Vulcan Avenue	Between La Costa Avenue and Leucadia Boulevard	2-Lane Local Roadway	7,300	14,000	0.521	C or better	7,000	0.500	C or better	0.021	City of Encinitas	No
	Between Leucadia Blvd and Encinitas Boulevard	2-Lane Local Roadway	7,600	14,000	0.543	C or better	7,500	0.536	C or better	0.007	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Vulcan Avenue	Between Encinitas Boulevard and D Street	4-Lane Collector	12,900	32,400	0.398	C or better	12,900	0.398	C or better	0.000	City of Encinitas	No
	Between D Street and E Street	4-Lane Collector	12,900	32,400	0.398	C or better	12,900	0.398	C or better	0.000	City of Encinitas	No
	Between E Street and Santa Fe Drive	2-Lane Local Roadway – Augmented	13,300	20,000	0.665	C or better	13,100	0.655	C or better	0.010	City of Encinitas	No
San Elijo Avenue	Between Santa Fe Drive and Birmingham Drive	2-Lane Local Roadway	10,000	14,000	0.714	C or better	10,100	0.721	C or better	-0.007	City of Encinitas	No
	Between Birmingham Drive and Chesterfield Drive	2-Lane Local Roadway - Augmented	12,900	20,000	0.645	C or better	12,500	0.625	C or better	0.020	City of Encinitas	No
	Between Chesterfield Drive and Manchester Avenue	2-Lane Local Roadway – Augmented	13,200	20,000	0.660	C or better	9,500	0.475	C or better	0.185	City of Encinitas	No
Saxony Road	Between La Costa Avenue and Quail Gardens Drive	2-Lane Local Roadway	4,600	14,000	0.329	C or better	4,600	0.329	C or better	0.000	City of Encinitas	No
	Between Quail Hollow Drive and Normandy Road	2-Lane Local Roadway	3,400	14,000	0.243	C or better	3,400	0.243	C or better	0.000	City of Encinitas	No
	Between Normandy Road and Brittany Avenue	2-Lane Local Roadway	3,800	14,000	0.271	C or better	3,900	0.279	C or better	-0.008	City of Encinitas	No

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Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Saxony Road	Between Brittany Avenue and Leucadia Boulevard	2-Lane Local Roadway	3,400	14,000	0.243	C or better	3,500	0.250	C or better	-0.007	City of Encinitas	No
	Between Leucadia Boulevard and Silver Berry Place	2-Lane Local Roadway	11,900	14,000	0.850	D	11,800	0.843	D	0.007	City of Encinitas	No
	Between Silver Berry Place and Encinitas Boulevard	2-Lane Local Roadway – Augmented	14,000	20,000	0.700	C or better	13,800	0.690	C or better	0.010	City of Encinitas	No
Quail Hollow Drive	Between Swallow Tail Road and Saxony Road	2-Lane Local Roadway	5,000	14,000	0.357	C or better	5,000	0.357	C or better	0.000	City of Encinitas	No
Quail Gardens Drive	Between Swallow Tail Road and Lauren Court	2-Lane Local Roadway - Augmented	4,900	20,000	0.245	C or better	4,900	0.245	C or better	0.000	City of Encinitas	No
	Between Lauren Court and Leucadia Boulevard	2-Lane Local Roadway - Augmented	5,300	20,000	0.265	C or better	5,300	0.265	C or better	0.000	City of Encinitas	No
	Between Leucadia Boulevard and Paseo De Las Flores	2-Lane Local Roadway - Augmented	9,100	20,000	0.455	C or better	9,100	0.455	C or better	0.000	City of Encinitas	No
	Between Paseo De Las Flores and Paseo De Las Verdes	2-Lane Local Roadway - Augmented	8,900	20,000	0.445	C or better	8,900	0.445	C or better	0.000	City of Encinitas	No
	Between Paseo De Las Verdes and Encinitas Boulevard	2-Lane Local Roadway - Augmented	8,200	20,000	0.410	C or better	8,200	0.410	C or better	0.000	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Westlake Street	Between Encinitas Boulevard and Requeza Street	2-Lane Local Roadway – Augmented	11,800	20,000	0.590	C or better	11,800	0.590	C or better	0.000	City of Encinitas	No
Nardo Drive	Between Requeza Street and Melba Road	2-Lane Local Roadway	5,200	14,000	0.371	C or better	5,100	0.364	C or better	0.007	City of Encinitas	No
	Between Melba Road and Santa Fe Drive	2-Lane Local Roadway	5,200	14,000	0.371	C or better	5,100	0.364	C or better	0.007	City of Encinitas	No
MacKinnon Avenue	Between Santa Fe Drive and Villa Cardiff Drive	2-Lane Local Roadway	6,300	14,000	0.450	C or better	6,200	0.443	C or better	0.007	City of Encinitas	No
Villa Cardiff Drive	Between MacKinnon Avenue and Windsor Road	2-Lane Local Roadway	6,600	14,000	0.471	C or better	6,500	0.464	C or better	0.007	City of Encinitas	No
	Between Windsor Road and Birmingham Drive	2-Lane Local Roadway	5,800	14,000	0.414	C or better	5,700	0.407	C or better	0.007	City of Encinitas	No
Garden View Road	Between Leucadia Boulevard and Via Cantebria	4-Lane Major Roadway	11,500	35,200	0.327	C or better	11,500	0.327	C or better	0.000	City of Encinitas	No
	Between Via Cantebria and El Camino Real	4-Lane Major Roadway	12,800	35,200	0.364	C or better	12,900	0.366	C or better	-0.002	City of Encinitas	No
Town Center Place	Between Leucadia Boulevard and Town Center Place	4-Lane Collector (Not a CE)	20,200	32,400	0.623	C or better	20,000	0.617	C or better	0.006	City of Encinitas	No
	Between Town Center Place and Town Center Drive	4-Lane Collector (Not a CE)	17,200	32,400	0.531	C or better	17,800	0.549	C or better	-0.018	City of Encinitas	No

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Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Via Cantebria	Between Town Center Drive and Garden View Road	2-Lane Local Roadway(Not a CE)	15,700	14,000	1.121	**F**	15,800	1.129	**F**	-0.008	City of Encinitas	No
	Between Garden View Road and Forrest Bluff	3-Lane Collector[3]	15,100	24,300	0.621	C or better	14,900	0.613	C or better	0.008	City of Encinitas	No
	Between Forrest Bluff and Via Montoro	4-Lane Collector	15,400	32,400	0.475	C or better	15,200	0.469	C or better	0.006	City of Encinitas	No
	Between Via Montoro and Via Molena	4-Lane Collector	17,300	32,400	0.534	C or better	17,900	0.552	C or better	-0.018	City of Encinitas	No
	Between Via Molena and Encinitas Boulevard	4-Lane Collector	18,200	32,400	0.562	C or better	17,500	0.540	C or better	0.022	City of Encinitas	No
Balour Drive	Between Encinitas Boulevard and Melba Road	2-Lane Local Roadway	11,300	14,000	0.807	D	11,200	0.800	C or better	0.007	City of Encinitas	No
	Between Melba Road and Santa Fe Drive	2-Lane Local Roadway	11,100	14,000	0.793	C or better	10,700	0.764	C or better	0.029	City of Encinitas	No
Lake Drive	Between Santa Fe Drive and Woodlake Drive	2-Lane Local Roadway	6,600	14,000	0.471	C or better	6,600	0.471	C or better	0.000	City of Encinitas	No
	Between Woodlake Drive and Birmingham Drive	2-Lane Local Roadway	6,600	14,000	0.471	C or better	6,600	0.471	C or better	0.000	City of Encinitas	No

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Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
El Camino Real	Between Aviara Parkway and La Costa Avenue	5-Lane Prime Arterial[4]	54,400	50,000	1.088	**F**	54,300	1.086	**F**	0.002	City of Carlsbad	No
	Between La Costa Avenue and Calle Barcelona	6-Lane Prime Arterial	38,700	60,000	0.645	C	38,400	0.640	C	0.005	City of Carlsbad	No
	Between Calle Barcelona and City of Carlsbad boundary	6-Lane Prime Arterial	36,400	60,000	0.607	C	36,500	0.608	C	-0.001	City of Carlsbad	No
	Between City of Carlsbad boundary and Leucadia Boulevard	6-Lane Prime Arterial - Augmented	46,500	66,000	0.705	C or better	46,700	0.708	C or better	-0.003	City of Encinitas	No
	Between Leucadia Boulevard and Town Center Drive	6-Lane Prime Arterial - Augmented	58,900	66,000	0.892	D	58,600	0.888	D	0.004	City of Encinitas	No
	Between Town Center Drive and Garden View Road	6-Lane Prime Arterial - Augmented	54,200	66,000	0.821	D	54,200	0.821	D	0.000	City of Encinitas	No
	Between Garden View Road and 331-339 El Camino Real	6-Lane Prime Arterial - Augmented	43,100	66,000	0.653	C or better	42,900	0.650	C or better	0.003	City of Encinitas	No
	Between 331-339 El Camino Real and Via Montoro	6-Lane Prime Arterial - Augmented	49,300	66,000	0.747	C or better	48,900	0.741	C or better	0.006	City of Encinitas	No
	Between Via Montoro and Mountain Vista	6-Lane Prime Arterial - Augmented	44,900	66,000	0.680	C or better	44,300	0.671	C or better	0.009	City of Encinitas	No

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Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
El Camino Real	Between Mountain Vista and Via Molena	6-Lane Prime Arterial - Augmented	47,000	66,000	0.712	C or better	47,000	0.712	C or better	0.000	City of Encinitas	No
	Between Via Molena and Encinitas Boulevard	6-Lane Prime Arterial - Augmented	56,900	66,000	0.862	D	56,900	0.862	D	0.000	City of Encinitas	No
	Between Encinitas Boulevard and 213 S El Camino Real	6-Lane Prime Arterial	39,400	57,000	0.691	C or better	39,400	0.691	C or better	0.000	City of Encinitas	No
	Between 213 S El Camino Real and Crest Drive	6-Lane Prime Arterial	33,800	57,000	0.593	C or better	33,800	0.593	C or better	0.000	City of Encinitas	No
	Between Crest Drive and Willowspring Drive	6-Lane Prime Arterial	36,200	57,000	0.635	C or better	36,200	0.635	C or better	0.000	City of Encinitas	No
	Between Willowspring Drive and Santa Fe Drive	4 Lane Major Roadway- Augmented	37,500	45,400	0.826	D	37,500	0.826	D	0.000	City of Encinitas	No
	Between Santa Fe Drive and Sage Canyon Drive	4 Lane Major Roadway- Augmented	28,400	45,400	0.626	C or better	28,400	0.626	C or better	0.000	City of Encinitas	No
	Between Sage Canyon Drive and Manchester Avenue	4-Lane Major Roadway	27,700	35,200	0.787	C or better	27,700	0.787	C or better	0.000	City of Encinitas	No

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Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Village Park Way	Between Mountain Vista Drive and Parkdale Drive	4-Lane Major Roadway	11,400	35,200	0.324	C or better	10,900	0.310	C or better	0.014	City of Encinitas	No
	Between Parkdale Drive and Encinitas Boulevard	4-Lane Major Roadway	14,700	35,200	0.418	C or better	14,200	0.403	C or better	0.015	City of Encinitas	No
Rancho Santa Fe Road	Between Olivenhain Road and Calle Acervo	4-Lane Major Arterial	17,400	40,000	0.435	B	17,400	0.435	B	0.000	City of Carlsbad	No
	Between Calle Acervo/Avenida La Posta and Olive Crest Drive	2-Lane Local Roadway – Augmented	15,900	20,000	0.795	C or better	15,900	0.795	C or better	0.000	City of Encinitas	No
	Between Olive Crest Drive and 13th Street	2-Lane Local Roadway – Augmented	15,800	20,000	0.790	C or better	15,800	0.790	C or better	0.000	City of Encinitas	No
	Between 13th Street and 11th Street	2-Lane Local Roadway - Augmented	15,700	20,000	0.785	C or better	15,700	0.785	C or better	0.000	City of Encinitas	No
	Between 11th Street and El Camino Del Norte	2-Lane Local Roadway - Augmented	15,800	20,000	0.790	C or better	15,800	0.790	C or better	0.000	City of Encinitas	No
	Between El Camino Del Norte and 9th Street	2-Lane Local Roadway - Augmented	13,300	20,000	0.665	C or better	13,300	0.665	C or better	0.000	City of Encinitas	No
	Between 9th Street and 8th Street	2-Lane Local Roadway	13,500	14,000	0.964	**E**	13,500	0.964	**E**	0.000	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Rancho Santa Fe Road	Between 8th Street and 7th Street	2-Lane Local Roadway	13,900	14,000	0.993	**E**	13,900	0.993	**E**	0.000	City of Encinitas	No
	Between 7th Street and Encinitas Boulevard	2-Lane Local Roadway - Augmented	15,200	20,000	0.760	C or better	15,200	0.760	C or better	0.000	City of Encinitas	No
Manchester Avenue	Between Encinitas Boulevard and El Camino Real	2-Lane Local Roadway – Augmented	13,400	20,000	0.670	C or better	12,300	0.615	C or better	0.055	City of Encinitas	No
	Between Manchester Avenue and Mira Costa College	4 Lane Major Roadway- Augmented	35,400	45,400	0.780	C or better	35,400	0.780	C or better	0.000	City of Encinitas	No
	Between Mira Costa College and I-5 NB On-Ramp	4 Lane Major Roadway- Augmented	35,700	45,400	0.786	C or better	35,700	0.786	C or better	0.000	City of Encinitas	No
	Between I-5 NB Ramps and I-5 SB Ramps	2-Lane Local Roadway - Augmented	40,200	20,000	2.010	**F**	40,200	2.010	**F**	0.000	City of Encinitas	No
	Between I-5 SB Ramps and Ocean Cove Drive	2-Lane Local Roadway - Augmented	12,200	20,000	0.610	C or better	11,900	0.595	C or better	0.015	City of Encinitas	No
	Between Ocean Cove Drive and Seaside Cardiff-by-the-sea residential area driveway	2-Lane Local Roadway	12,100	14,000	0.864	D	11,900	0.850	D	0.014	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Manchester Avenue	Between Seaside Cardiff-by-the-sea residential area driveway and San Elijo Water Reclamation Facility Driveway	2-Lane Local Roadway - Augmented	12,100	20,000	0.605	C or better	11,900	0.595	C or better	0.010	City of Encinitas	No
	Between San Elijo Water Reclamation Facility Driveway and Manchester Avenue	2-Lane Local Roadway	12,000	14,000	0.857	D	11,800	0.843	D	0.014	City of Encinitas	No
La Costa Avenue	Between North Coast Highway 101 and Vulcan Avenue	2-Lane Local Roadway	17,700	14,000	1.264	**F**	16,400	1.164	**F**	0.100	City of Encinitas	**Yes**
	Between Vulcan Avenue and Sheridan Road	2-Lane Local Roadway	17,300	14,000	1.236	**F**	16,300	1.164	**F**	0.072	City of Encinitas	**Yes**
	Between Sheridan Road and I-5 SB Ramps	2-Lane Local Roadway - Augmented	22,900	20,000	1.145	**F**	22,000	1.100	**F**	0.045	City of Encinitas	**Yes**
	Between I-5 SB Ramps and I-5 NB Ramps	4-Lane Major Arterial	30,000	40,000	0.750	C	29,300	0.733	C	0.017	City of Carlsbad	No
	Between I-5 NB Ramps and Piraeus Street	5-Lane Major Arterial[5]	39,700	41,667	0.953	**E**	39,500	0.948	**E**	0.005	City of Carlsbad	No
	Between Piraeus Street and Saxony Road	4-Lane Major Arterial	39,800	40,000	0.995	**E**	39,600	0.990	**E**	0.005	City of Carlsbad	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
La Costa Avenue	Between Saxony Road and El Camino Real	4-Lane Major Arterial	42,100	40,000	1.053	**F**	42,000	1.050	**F**	0.003	City of Carlsbad	No
	Between El Camino Real and La Costa Towne Center traffic signal	4-Lane Major Arterial	21,000	40,000	0.525	B	20,700	0.518	B	0.007	City of Carlsbad	No
	Between La Costa Towne Center traffic signal and Fairway Lane	4-Lane Major Arterial	21,200	40,000	0.530	C	20,900	0.523	B	0.007	City of Carlsbad	No
	Between Fairway Lane and Calle Madero	3-Lane Collector[6]	20,800	22,500	0.924	**E**	20,700	0.920	**E**	0.004	City of Carlsbad	No
Leucadia Blvd	Between North Coast Highway 101 and Vulcan Avenue	4-Lane Collector	16,100	32,400	0.497	C or better	14,300	0.441	C or better	0.056	City of Encinitas	No
	Between Vulcan Avenue and Hermes Avenue	2-Lane Local Roadway - Augmented	17,700	20,000	0.885	D	16,300	0.815	D	0.070	City of Encinitas	No
	Between Hermes Avenue and Hygeia Avenue	2-Lane Local Roadway - Augmented	17,000	20,000	0.850	D	15,700	0.785	C or better	0.065	City of Encinitas	No
	Between Hygeia Avenue and Hymettus Avenue	2-Lane Local Roadway - Augmented	15,000	20,000	0.750	C or better	17,400	0.870	D	-0.120	City of Encinitas	No
	Between Hymettus Avenue and Orpheus Avenue	2-Lane Local Roadway - Augmented	20,200	20,000	1.010	**F**	19,200	0.960	**E**	0.050	City of Encinitas	**Yes**

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Leucadia Blvd	Between Orpheus Avenue and I-5 SB Ramps	4-Lane Major Roadway	15,200	35,200	0.432	C or better	17,700	0.503	C or better	-0.071	City of Encinitas	No
	Between I-5 SB Ramps and I-5 NB Ramps	4-Lane Major Roadway	28,600	35,200	0.813	D	28,600	0.813	D	0.000	City of Encinitas	No
	Between Piraeus Street and Urania Avenue	4 Lane Major Roadway-Augmented	43,300	45,400	0.954	**E**	44,100	0.971	**E**	-0.017	City of Encinitas	No
	Between Urania Avenue and Saxony Road	4 Lane Major Roadway-Augmented	43,300	45,400	0.954	**E**	44,100	0.971	**E**	-0.017	City of Encinitas	No
	Between Saxony Road and Sidonia Street	4 Lane Major Roadway-Augmented	41,500	45,400	0.914	**E**	42,400	0.934	**E**	-0.020	City of Encinitas	No
	Between Sidonia Street and Quail Gardens Drive	4 Lane Major Roadway-Augmented	41,500	45,400	0.914	**E**	42,400	0.934	**E**	-0.020	City of Encinitas	No
	Between Quail Gardens Drive and Garden View Road	4 Lane Major Roadway-Augmented	46,400	45,400	1.022	**F**	47,100	1.037	**F**	-0.015	City of Encinitas	No
	Between Garden View Road and Town Center Place	4 Lane Major Roadway-Augmented	31,100	45,400	0.685	C or better	34,700	0.764	C or better	-0.079	City of Encinitas	No
	Between Town Center Place and El Camino Real	6-Lane Prime Arterial	38,400	57,000	0.674	C or better	39,000	0.684	C or better	-0.010	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Mountain Vista Drive	Between El Camino Real and Wandering Road	2-Lane Local Roadway - Augmented	15,100	20,000	0.755	C or better	15,000	0.750	C or better	0.005	City of Encinitas	No
	Between Wandering Road and Village Park Way	2-Lane Local Roadway - Augmented	9,300	20,000	0.465	C or better	9,300	0.465	C or better	0.000	City of Encinitas	No
Lone Jack Drive	Between Rancho Santa Fe Road and northern terminus	2-Lane Local Roadway	8,000	14,000	0.571	C or better	8,400	0.600	C or better	-0.029	City of Encinitas	No
El Camino Del Norte	Between Rancho Santa Fe Road and San Dieguito CPA boundary	2-Lane Local Roadway	7,300	14,000	0.521	C or better	7,900	0.564	C or better	-0.043	City of Encinitas	No
	Between San Dieguito CPA boundary to Via De Fortuna	2-Lane Light Collector with Reduced Shoulder	7,000	9,700	0.722	C	7,800	0.804	D	-0.082	County of San Diego	No
Encinitas Blvd	Between North Coast Highway 101 and Vulcan Avenue	4-Lane Collector	23,300	32,400	0.719	C or better	22,300	0.688	C or better	0.031	City of Encinitas	No
	Between Vulcan Avenue and I-5 SB Ramps	4-Lane Major Roadway – Augmented	34,800	45,400	0.767	C or better	34,100	0.751	C or better	0.016	City of Encinitas	No
	Between I-5 SB Ramps and I-5 NB Ramps	4-Lane Major Roadway	38,900	35,200	1.105	**F**	38,500	1.094	**F**	0.011	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Encinitas Blvd	Between I-5 NB Ramps and Saxony Road	4-Lane Major Roadway	42,000	35,200	1.193	**F**	41,400	1.176	**F**	0.017	City of Encinitas	No
	Between Saxony Road and Calle Magdalena	6-Lane Prime Arterial - Augmented	35,700	66,000	0.541	C or better	35,400	0.536	C or better	0.005	City of Encinitas	No
	Between Calle Magdalena and Encinitas Town Country traffic signal	6-Lane Prime Arterial	40,200	57,000	0.705	C or better	40,000	0.702	C or better	0.003	City of Encinitas	No
	Between Encinitas Town Country traffic signal and Quail Gardens Drive	4-Lane Major Roadway- Augmented	36,600	45,400	0.806	D	36,000	0.793	C or better	0.013	City of Encinitas	No
	Between Quails Garden Drive and Delphinium Street	4-Lane Major Roadway	38,200	35,200	1.085	**F**	37,700	1.071	**F**	0.014	City of Encinitas	No
	Between Delphinium Street and Balour Drive	4-Lane Major Roadway	38,600	35,200	1.097	**F**	38,300	1.088	**F**	0.009	City of Encinitas	No
	Between Balour Drive and Via Cantebria	4-Lane Major Roadway	47,500	35,200	1.349	**F**	47,500	1.349	**F**	0.000	City of Encinitas	No
	Between Via Cantebria and El Camino Real	4-Lane Major Roadway	29,400	35,200	0.835	D	29,400	0.835	D	0.000	City of Encinitas	No
	Between El Camino Real and Village Square Drive	4-Lane Major Roadway	28,200	35,200	0.801	C or better	31,000	0.881	D	-0.080	City of Encinitas	No
	Between Village Square Drive and Turner Avenue	4-Lane Major Roadway	29,300	35,200	0.832	D	29,300	0.832	D	0.000	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Encinitas Blvd	Between Turner Avenue and Cerro Street	4-Lane Major Roadway	29,300	35,200	0.832	D	29,300	0.832	D	0.000	City of Encinitas	No
	Between Cerro Street and Village Park Way	4-Lane Major Roadway	30,100	35,200	0.855	D	29,700	0.844	D	0.011	City of Encinitas	No
	Between Village Park Way to Willowspring Drive	4-Lane Major Roadway	27,900	35,200	0.793	C or better	27,900	0.793	C or better	0.000	City of Encinitas	No
	Between Willowspring Drive to Rancho Santa Fe Road	4-Lane Major Roadway	22,700	35,200	0.645	C or better	22,700	0.645	C or better	0.000	City of Encinitas	No
South Rancho Santa Fe Road	Between Manchester Avenue and City of Encinitas Limits	2-Lane Local Roadway - Augmented	19,600	20,000	0.980	**E**	18,580	0.930	**E**	0.050	City of Encinitas	**Yes**
	Between City of Encinitas Limits and El Mirlo	2-Lane Light Collector with Reduced Shoulder	19,600	9,700	2.021	**F**	18,580	1.915	**F**	0.106	County of San Diego	**Yes**
F Street	Between Vulcan Avenue and Cornish Drive	2-Lane Local Roadway	6,400	14,000	0.457	C or better	6,200	0.443	C or better	0.014	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Requeza Street	Between Cornish Drive and San Dieguito Drive	2-Lane Local Roadway	6,700	14,000	0.479	C or better	6,300	0.450	C or better	0.029	City of Encinitas	No
	Between San Dieguito Drive and Stratford Drive	2-Lane Local Roadway	6,700	14,000	0.479	C or better	6,300	0.450	C or better	0.029	City of Encinitas	No
	Between Stratford Drive and Regal Road	2-Lane Local Roadway	7,000	14,000	0.500	C or better	6,800	0.486	C or better	0.014	City of Encinitas	No
	Between Regal Road and West Lake Drive	2-Lane Local Roadway	6,400	14,000	0.457	C or better	6,400	0.457	C or better	0.000	City of Encinitas	No
	Between West Lake Drive and Nardo Drive	2-Lane Local Roadway	4,900	14,000	0.350	C or better	4,800	0.343	C or better	0.007	City of Encinitas	No
Santa Fe Drive	Between Vulcan Avenue and Cornish Drive	2-Lane Local Roadway	8,500	14,000	0.607	C or better	9,000	0.643	C or better	-0.036	City of Encinitas	No
	Between Cornish Drive and Summit Avenue	2-Lane Local Roadway	9,300	14,000	0.664	C or better	9,000	0.643	C or better	0.021	City of Encinitas	No
	Between Summit Avenue and Devonshire	2-Lane Local Roadway	10,100	14,000	0.721	C or better	10,100	0.721	C or better	0.000	City of Encinitas	No
	Between Devonshire Drive and Scripps Memorial Hospital Encinitas traffic signal	2-Lane Local Roadway - Augmented	15,300	20,000	0.765	C or better	15,200	0.760	C or better	0.005	City of Encinitas	No
	Between Scripps Memorial Hospital Encinitas traffic signal and I-5 SB Ramps	4-Lane Collector	15,300	32,400	0.472	C or better	15,200	0.469	C or better	0.003	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Santa Fe Drive	Between I-5 SB Ramps and I-5 NB Ramps	3-Lane Major Roadway	22,400	26,400	0.848	D	22,400	0.848	D	0.000	City of Encinitas	No
	Between I-5 NB Ramps and Regal Road	2-Lane Local Roadway - Augmented	16,100	20,000	0.805	D	16,100	0.805	D	0.000	City of Encinitas	No
	Between Regal Road and Gardena Road	2-Lane Local Roadway - Augmented	16,100	20,000	0.805	D	16,100	0.805	D	0.000	City of Encinitas	No
	Between Gardena Road and Nardo Road	2-Lane Local Roadway - Augmented	16,100	20,000	0.805	D	16,100	0.805	D	0.000	City of Encinitas	No
	Between Nardo Road and Windsor Road/Bonita Drive	2-Lane Local Roadway - Augmented	17,700	20,000	0.885	D	17,700	0.885	D	0.000	City of Encinitas	No
	Between Windsor Road/Bonita Drive and Balour Drive	2-Lane Local Roadway - Augmented	17,700	20,000	0.885	D	17,700	0.885	D	0.000	City of Encinitas	No
	Between Balour Drive and Lake Drive	2-Lane Local Roadway - Augmented	18,600	20,000	0.930	**E**	18,600	0.930	**E**	0.000	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

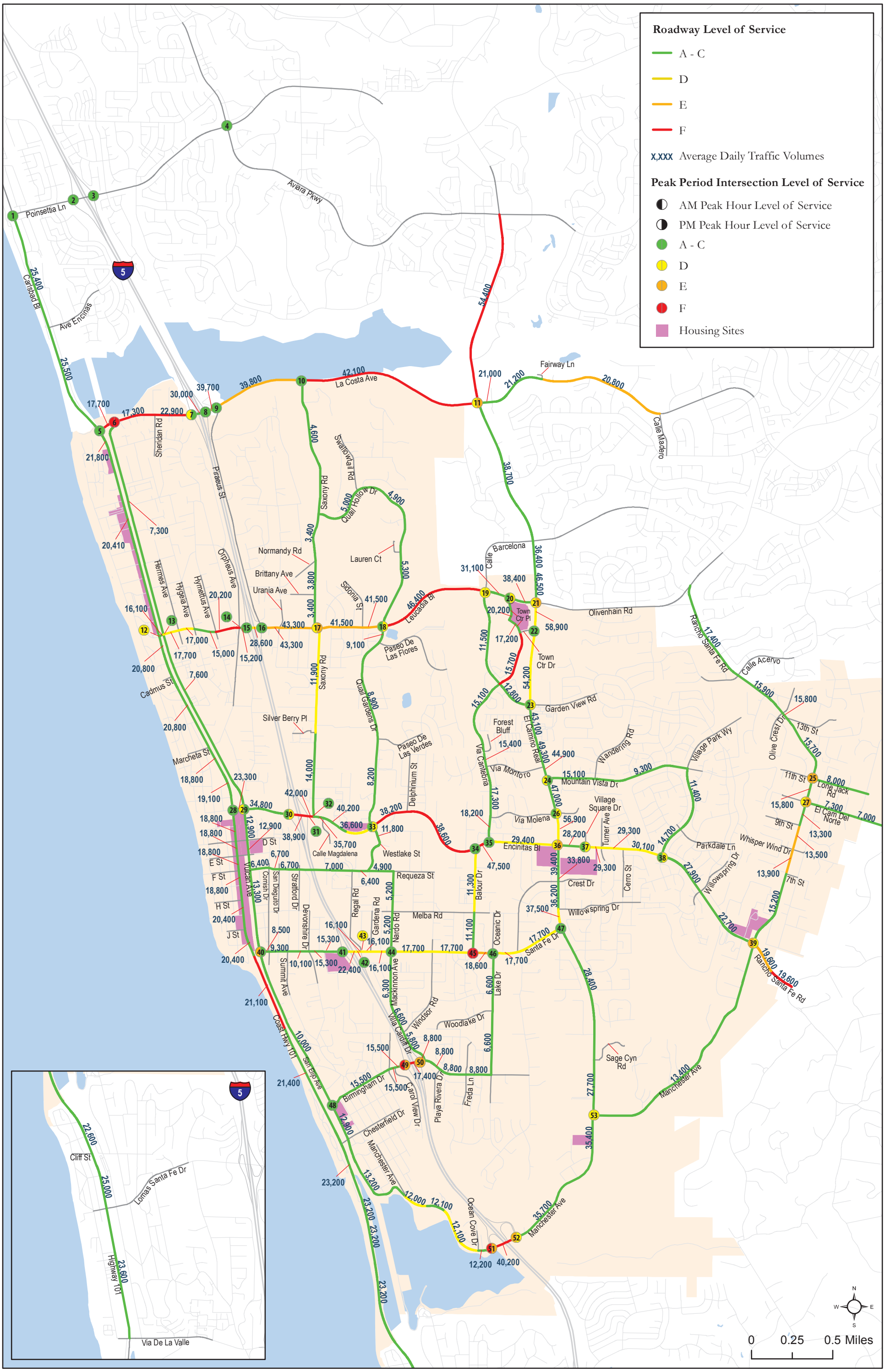
Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Santa Fe Drive	Between Lake Drive and Crest Drive	2-Lane Local Roadway – Augmented	17,700	20,000	0.885	D	17,700	0.885	D	0.000	City of Encinitas	No
	Between Crest Drive and El Camino Real	2-Lane Local Roadway - Augmented	17,700	20,000	0.885	D	17,700	0.885	D	0.000	City of Encinitas	No
Birmingham Drive	Between San Elijo Avenue and MacKinnon Avenue	2-Lane Local Roadway – Augmented	15,500	20,000	0.775	C or better	15,500	0.775	C or better	0.000	City of Encinitas	No
	Between MacKinnon Avenue and Carol View Drive	2-Lane Local Roadway - Augmented	15,500	20,000	0.775	C or better	15,500	0.775	C or better	0.000	City of Encinitas	No
	Between Carol View Drive and I-5 SB Ramps	2-Lane Local Roadway - Augmented	15,500	20,000	0.775	C or better	15,500	0.775	C or better	0.000	City of Encinitas	No
	Between I-5 SB Ramps and I-5 NB Ramps	2-Lane Local Roadway	17,400	14,000	1.243	**F**	17,400	1.243	**F**	0.000	City of Encinitas	No
	Between I-5 NB Ramps and Villa Cardiff Drive	2-Lane Local Roadway	8,800	14,000	0.629	C or better	8,800	0.629	C or better	0.000	City of Encinitas	No

Table 2
Roadway Segment Level of Service – Future Year 2035 SMUP Strategy

Roadway	Segment	Functional Classification[1]	SMUP Strategy				No-Project			Δ V/C	Jurisdiction	SI?
			ADT	Capacity (LOS E)	V/C	LOS	ADT	V/C	LOS			
Birmingham Drive	Between Villa Cardiff Drive and Playa Riviera	2-Lane Local Roadway	8,800	14,000	0.629	C or better	8,800	0.629	C or better	0.000	City of Encinitas	No
	Between Playa Riviera and Freda Lane	2-Lane Local Roadway	8,800	14,000	0.629	C or better	8,800	0.629	C or better	0.000	City of Encinitas	No
	Between Freda Lane and Lake Drive	2-Lane Local Roadway	8,800	14,000	0.629	C or better	8,800	0.629	C or better	0.000	City of Encinitas	No

Source: Chen Ryan Associates, April 2016.

Notes:
Bold letter indicates substandard LOS E or F.
SI? = Significant Impact?
[1] Functional Classification is representative of existing segment functionality and does not take into consideration the ultimate or final classification.
[2] 3-Lane Major Roadway is 75% capacity of a 4-Lane Major Roadway.
[3] 3-Lane Collector is 75% capacity of a 4-Lane Collector.
[4] 5-Lane Prime is 84% capacity of 6-Lane Prime Arterial (SANTEC).
[5] 5-Lane Major is 84% capacity of 6-Lane Major Arterial (SANTEC).
[6] 3-Lane Collector is 75% capacity of 4-Lane Collector (SANTEC).



Encinitas Housing Element TIS

Figure 2

SMUP Strategy Future Year 2035 Daily Traffic Volumes

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City of Encinitas (22)

- South Coast Highway 101, between Swami's Parking and San Elijo State Beach – LOS F;
- Via Cantebria, between Town Center Drive and Garden View Road – LOS F (Not a CE road);
- Rancho Santa Fe Road, between 9th Street and 8th Street – LOS E;
- Rancho Santa Fe Road, between 8th Street and 7th Street – LOS E;
- Manchester Avenue, between I-5 NB Ramps and I-5 SB Ramps – LOS F;
- La Costa Avenue, between North Coast Highway 101 and Vulcan Avenue – LOS F;
- La Costa Avenue, between Vulcan Avenue and Sheridan Road – LOS F;
- La Costa Avenue, between Sheridan Road and I-5 SB Ramps – LOS F;
- Leucadia Boulevard, between Hymettus Avenue and Orpheus Avenue – LOS F;
- Leucadia Boulevard, between Piraeus Street and Urania Avenue – LOS E;
- Leucadia Boulevard, between Urania Avenue and Saxony Road – LOS E;
- Leucadia Boulevard, between Saxony Road and Sidonia Street – LOS E;
- Leucadia Boulevard, between Sidonia Street and Quail Gardens Drive – LOS E;
- Leucadia Boulevard, between Quail Gardens Drive and Garden View Road – LOS F;
- Encinitas Boulevard, between I-5 SB Ramps and I-5 NB Ramps – LOS F;
- Encinitas Boulevard, between I-5 NB Ramps and Saxony Road – LOS F;
- Encinitas Boulevard, between Quail Gardens Drive and Delphinium Street – LOS F;
- Encinitas Boulevard, between Delphinium Street and Balour Drive – LOS F;
- Encinitas Boulevard, between Balour Drive and Via Cantebria – LOS F;
- South Rancho Santa Fe Road, between Manchester Avenue and City of Encinitas Limits – LOS E;
- Santa Fe Drive, between Balour Drive and Lake Drive – LOS E; and
- Birmingham Drive, between I-5 SB Ramps and I-5 NB Ramps – LOS F.

City of Carlsbad (5)

- El Camino Real, between Aviara Parkway and La Costa Avenue – LOS F;
- La Costa Avenue, between I-5 NB Ramps and Piraeus Street – LOS E;
- La Costa Avenue, between Piraeus Street and Saxony Road – LOS E;
- La Costa Avenue, between Saxony Road and El Camino Real – LOS F; and
- La Costa Avenue, between Fairway Lane and Calle Madero – LOS E.

County of San Diego (1)

- South Rancho Santa Fe Road, between City of Encinitas Limits and El Mirlo – LOS F.

Out of the 28 deficient roadway segments, the following six (6) segments are anticipated to be impacted under the SMUP Strategy, based on the significance criteria outlined in Section 2.8 from the City of Encinitas Housing Element TIS. It is important to note that all 6 roadway segment impacts identified below have been previously identified as traffic impacts in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy.

City of Encinitas (5)

- La Costa Avenue, between North Coast Highway 101 and Vulcan Avenue – LOS F;
- La Costa Avenue, between Vulcan Avenue and Sheridan Road – LOS F;
- La Costa Avenue, between Sheridan Road and I-5 SB Ramps – LOS F;
- Leucadia Boulevard, between Hymettus Avenue and Orpheus Avenue – LOS F; and
- South Rancho Santa Fe Road, between Manchester Avenue and City of Encinitas Limits – LOS E.

County of San Diego (1)

- South Rancho Santa Fe Road, between City of Encinitas Limits and El Mirlo – LOS F.

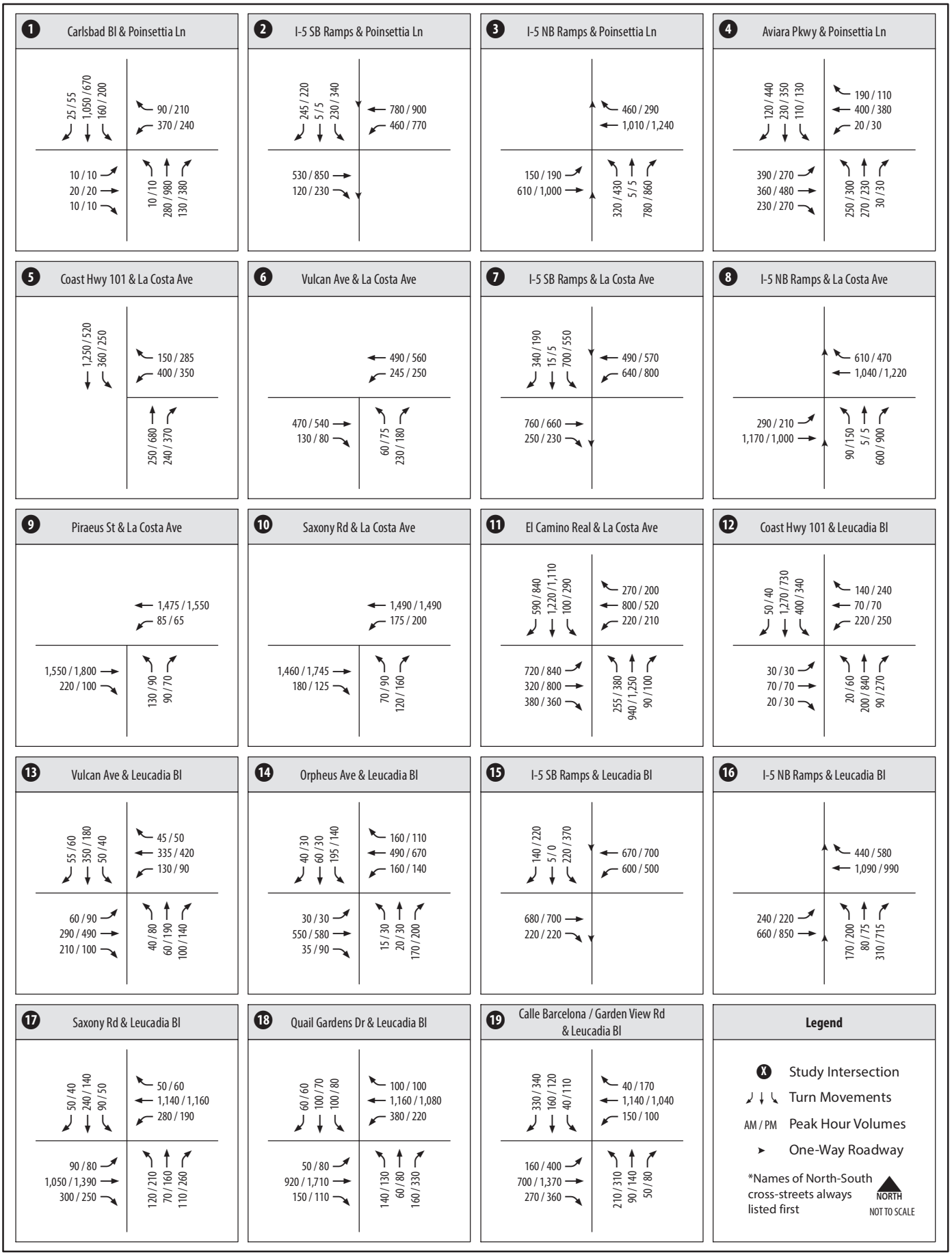
Mitigation measures addressing these roadway segment impacts are discussed in Chapter 3.

2.2 Intersection Analysis

Figure 3 shows the future year 2035 projected turning movement volumes for both the AM and PM peak hours under the SMUP Strategy. Peak hour intersection turning movements were developed by comparing daily MMUP roadway segment volumes to the developed daily SMUP roadway volumes. Based on this comparison, growth and reduction rates were applied respectively, to previously developed MMUP peak hour intersection approach and departure volumes. Manual adjustments were also made to ensure that traffic volumes among adjacent intersections are reasonably balanced.

Table 3 summarizes the level of service analysis results for the 53 key study area intersections, identical to those analyzed in the TIS, conducted using the methodologies outlined in Chapter 2 from the City of Encinitas Housing Element TIS. Intersection level of service worksheets are provided in **Appendix A**. Figure 2 displays the projected intersection LOS analysis results under the SMUP Strategy. It should be noted that the intersection signal timings were assumed to be optimized under future year conditions; therefore, some intersections experienced an improvement in delay from existing conditions.

As shown in Table 3, the following fourteen (14) intersections, including thirteen (13) in the City of Encinitas and one (1) in the City of Carlsbad, are projected to operate at a substandard LOS E or F. All 14 substandard (LOS E or F) intersections listed below have been previously identified as substandard in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy.

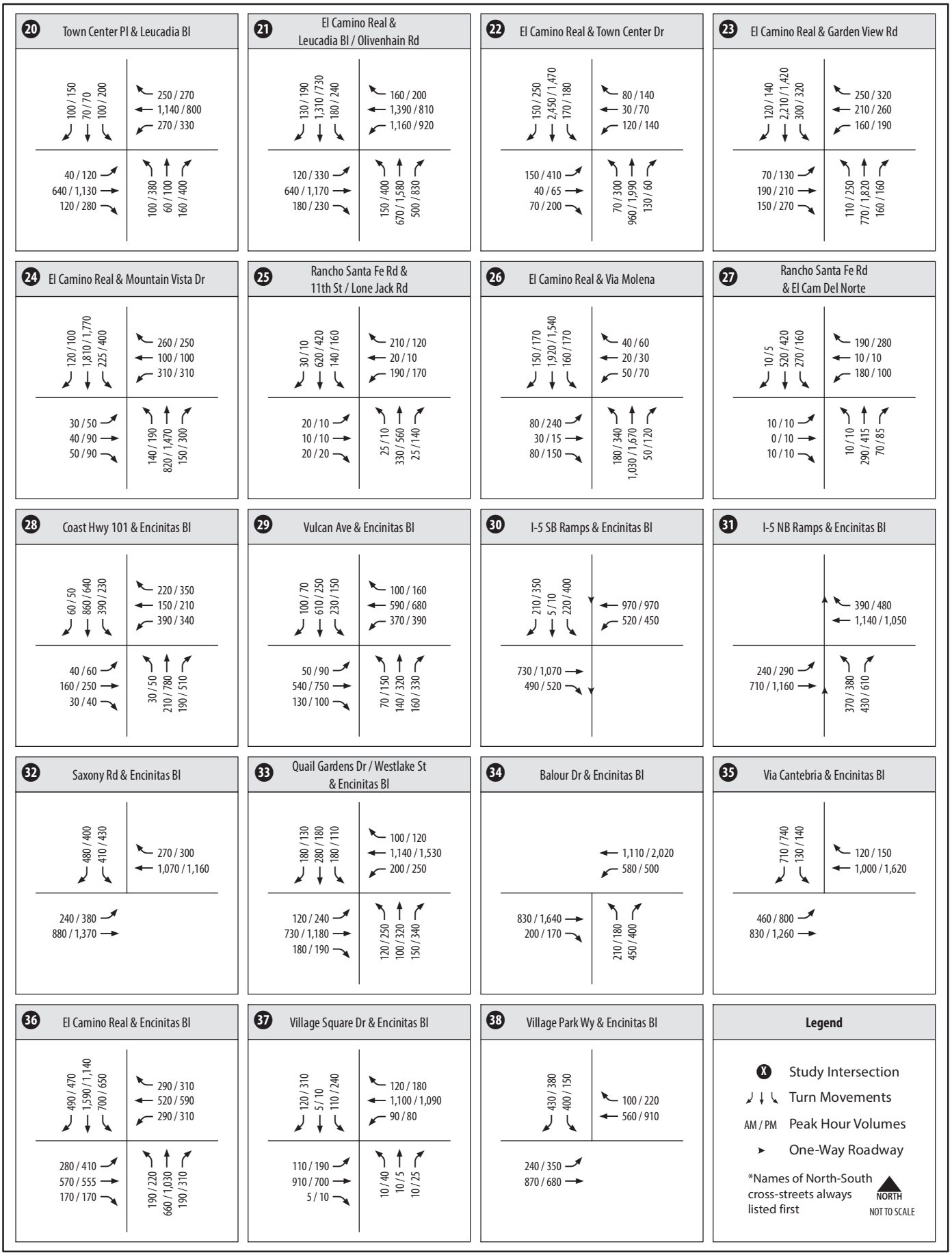


Encinitas Housing Element TIS

Figure 3

SMUP Strategy Future Year 2035 AM/PM Peak Hour Intersection Volumes (Intersections 1-19)

CHEN RYAN

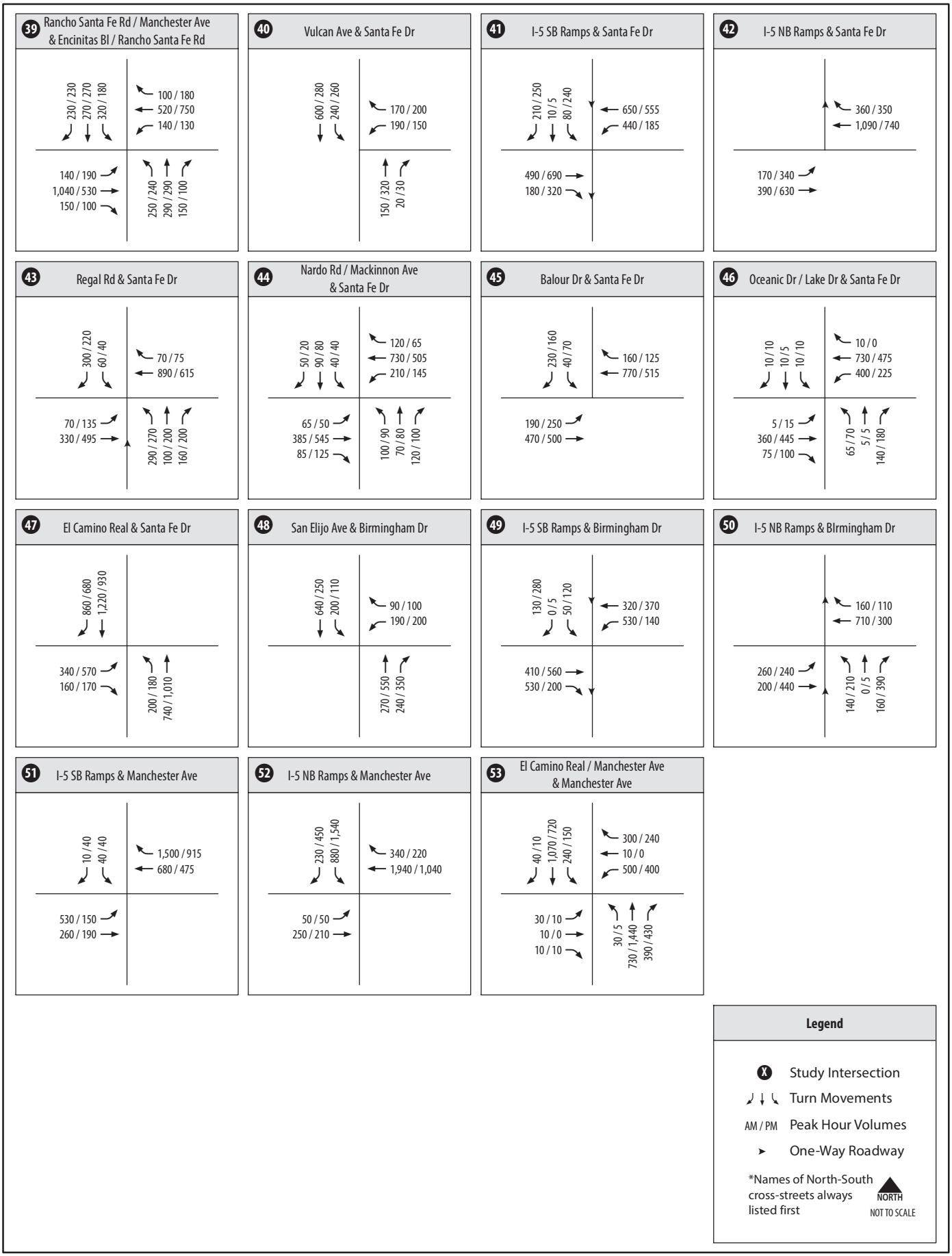


Encinitas Housing Element TIS

Figure 3

SMUP Strategy Future Year 2035 AM/PM Peak Hour Intersection Volumes (Intersections 20-38)

CHEN RYAN



Encinitas Housing Element TIS

Figure 3

SMUP Strategy Future Year 2035 AM/PM Peak Hour Intersection Volumes (Intersections 39-53)

CHEN RYAN

Table 3
AM / PM Peak Hour Intersection Level of Service – Future Year 2035 SMUP Strategy

ID	Intersection	Control	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Δ in Delay (sec)	Jurisdiction	SI?
			Avg. Delay (Sec)	LOS	Avg. Delay (Sec)	LOS					
1	Carlsbad Boulevard & Poinsettia Lane	Signalized	11.7	B	10.8	B	11.7 / 10.6	B / B	0.0 / 0.2	City of Carlsbad	No
2	I-5 SB Ramps & Poinsettia Lane	Signalized	15.2	B	21.6	C	15.2 / 21.6	B / C	0.0 / 0.0	Caltrans	No
3	I-5 NB Ramps & Poinsettia Lane	Signalized	32.4	C	34.8	C	32.4 / 29.7	C / C	0.0 / 5.1	Caltrans	No
4	Aviara Parkway & Poinsettia Lane	Signalized	29.1	C	30.8	C	29.1 / 30.8	C / C	0.0 / 0.0	City of Carlsbad	No
5	North Coast Highway 101 & La Costa Avenue	Signalized	19.6	B	18.2	B	18.8 / 16.8	B / B	0.8 / 1.4	City of Encinitas	No
6	Vulcan Avenue & La Costa Avenue	SSSC	60.2	**F**	161.4	**F**	45.2 / 96.4	**E** / **F**	15.0 / 65.0	City of Encinitas	**Yes**
7	I-5 SB Ramps & La Costa Avenue	Signalized	44.8	D	34.7	C	44.3 / 34.1	D / C	0.5 / 0.6	Caltrans	No
8	I-5 NB Ramps & La Costa Avenue	Signalized	28.5	C	31.8	C	28.2 / 31.2	C / C	0.3 / 0.6	Caltrans	No
9	Piraeus Street & La Costa Avenue	Signalized	22.4	C	34.9	C	22.4 / 34.9	C / C	0.0 / 0.0	Caltrans	No
10	Saxony Road & La Costa Avenue	Signalized	19.2	B	28.7	C	19.2 / 28.3	B / C	0.0 / 0.4	City of Carlsbad	No
11	El Camino Real & La Costa Avenue	Signalized	51.7	D	58.8	**E**	51.7 / 58.3	D / **E**	0.0 / 0.5	City of Carlsbad	No
12	North Coast Highway 101 & Leucadia Boulevard	Signalized	35.8	D	43.3	D	30.1 / 35.3	C / D	5.7 / 8.0	City of Encinitas	No
13	Vulcan Avenue & Leucadia Boulevard	Signalized	13.5	B	12.5	B	12.5 / 11.9	B / B	1.0 / 0.6	City of Encinitas	No
14	Orpheus Avenue & Leucadia Boulevard	Signalized	16.8	B	16.7	B	17.1 / 16.5	B / B	-0.3 / 0.2	Caltrans	No
15	I-5 SB Ramps & Leucadia Boulevard	Signalized	14.1	B	15.7	B	14.5 / 16.3	B / B	-0.4 / -0.6	Caltrans	No

Table 3
AM / PM Peak Hour Intersection Level of Service – Future Year 2035 SMUP Strategy

ID	Intersection	Control	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Δ in Delay (sec)	Jurisdiction	SI?
			Avg. Delay (Sec)	LOS	Avg. Delay (Sec)	LOS					
16	I-5 NB Ramps & Leucadia Boulevard	Signalized	13.4	B	34.0	C	13.3 / 36.4	B / D	0.1 / -2.4	Caltrans	No
17	Saxony Road & Leucadia Boulevard	Signalized	54.5	D	74.6	**E**	60.8 / 79.4	**E** / **E**	-6.3 / -4.8	City of Encinitas	No
18	Quail Gardens Drive & Leucadia Boulevard	Signalized	30.4	C	40.2	D	31.8 / 42.8	C / D	-1.4 / -2.6	City of Encinitas	No
19	Garden View Road & Leucadia Boulevard	Signalized	43.6	D	52.2	D	47.1 / 53.7	D / D	-3.5 / -1.5	City of Encinitas	No
20	Town Center Place & Leucadia Boulevard	Signalized	25.0	C	42.3	D	24.6 / 43.9	C / D	0.4 / -1.6	City of Encinitas	No
21	El Camino Real & Leucadia Boulevard	Signalized	47.8	D	61.2	**E**	48.7 / 67.3	D / **E**	-0.9 / -6.1	City of Encinitas	No
22	El Camino Real & Town Center Drive	Signalized	11.7	B	23.6	C	11.6 / 23.5	B / C	0.1 / 0.1	City of Encinitas	No
23	El Camino Real & Garden View Road	Signalized	27.9	C	49.8	D	27.7 / 49.6	C / D	0.2 / 0.2	City of Encinitas	No
24	El Camino Real & Mountain Vista Drive	Signalized	53.5	D	31.2	C	49.4 / 30.9	D / C	4.1 / 0.3	City of Encinitas	No
25	Rancho Santa Fe Road & Lone Jack Road	AWSC	39.7	**E**	40.4	**E**	40.1 / 41.1	**E** / **E**	-0.4 / -0.7	City of Encinitas	No
26	El Camino Real & Via Molena	Signalized	27.6	C	35.4	D	27.0 / 35.1	C / D	0.6 / 0.3	City of Encinitas	No
27	Rancho Santa Fe Road & El Camino Del Norte	AWSC	34.3	D	37.9	**E**	34.6 / 41.9	D / **E**	-0.3 / -4	City of Encinitas	No
28	North Coast Highway 101 & Encinitas Boulevard	Signalized	34.8	C	34.4	C	35.3 / 34	D / C	-0.5 / 0.4	City of Encinitas	No

Table 3
AM / PM Peak Hour Intersection Level of Service – Future Year 2035 SMUP Strategy

ID	Intersection	Control	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Δ in Delay (sec)	Jurisdiction	SI?
			Avg. Delay (Sec)	LOS	Avg. Delay (Sec)	LOS					
29	S Vulcan Avenue & Encinitas Boulevard	Signalized	42.2	D	33.5	C	39.1 / 32.3	D / C	3.1 / 1.2	City of Encinitas	No
30	I-5 SB Ramps & Encinitas Boulevard	Signalized	29.3	C	48.0	D	29.1 / 47.8	C / D	0.2 / 0.2	Caltrans	No
31	I-5 NB Ramps & Encinitas Boulevard	Signalized	21.4	C	28.3	C	20.9 / 27.5	C / C	0.5 / 0.8	Caltrans	No
32	Saxony Road & Encinitas Boulevard	Signalized	32.3	C	18.0	B	32.0 / 17.3	C / B	0.3 / 0.7	Caltrans	No
33	Quail Gardens Drive & Encinitas Boulevard	Signalized	32.4	C	53.8	D	32.2 / 53.9	C / D	0.2 / -0.1	City of Encinitas	No
34	Balour Drive & Encinitas Boulevard	Signalized	12.1	B	17.9	B	12.1 / 17.7	B / B	0.0 / 0.2	City of Encinitas	No
35	Via Cantebria & Encinitas Boulevard	Signalized	21.1	C	21.5	C	21.5 / 20.7	C / C	-0.4 / 0.8	City of Encinitas	No
36	El Camino Real & Encinitas Boulevard	Signalized	48.0	D	66.9	**E**	50.7 / 70.4	D / **E**	-2.7 / -3.5	City of Encinitas	No
37	Village Square Drive & Encinitas Boulevard	Signalized	17.3	B	43.8	D	18.4 / 44.5	B / D	-1.1 / -0.7	City of Encinitas	No
38	Village Park Way & Encinitas Boulevard	Signalized	26.7	C	46.3	D	26.0 / 44.8	C / D	0.7 / 1.5	City of Encinitas	No
39	Rancho Santa Fe Road & Encinitas Boulevard	Signalized	66.7	**E**	47.4	D	77.1 / 48	**E** / D	-10.4 / -0.6	City of Encinitas	No
40	San Elijo Avenue & Santa Fe Drive	AWSC	36.3	**E**	18.3	C	37.0 / 18.8	**E** / C	-0.7 / -0.5	City of Encinitas	No
41	I-5 SB Ramps & Santa Fe Drive	Signalized	24.3	C	26.3	C	24.3 / 30.7	C / C	0.0 / -4.4	Caltrans	No

Table 3
AM / PM Peak Hour Intersection Level of Service – Future Year 2035 SMUP Strategy

ID	Intersection	Control	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Δ in Delay (sec)	Jurisdiction	SI?
			Avg. Delay (Sec)	LOS	Avg. Delay (Sec)	LOS					
42	I-5 NB On-Ramp & Santa Fe Drive	Signalized	5.5	A	4.2	A	5.5 / 4.1	A / A	0.0 / 0.1	Caltrans	No
43	I-5 NB Off-Ramp/Regal Road & Santa Fe Drive	Signalized	38.5	D	42.9	D	38.5 / 42.9	D / D	0.0 / 0.0	Caltrans	No
44	MacKinnon Avenue & Santa Fe Drive	Signalized	28.5	C	20.1	C	28.5 / 20.1	C / C	0.0 / 0.0	City of Encinitas	No
45	Balour Drive & Santa Fe Drive	SSSC	97.6	**F**	51.7	**F**	84.7 / 51.7	**F / F**	12.9 / 0.0	City of Encinitas	**Yes**
46	Lake Drive & Santa Fe Drive	Signalized	9.3	A	8.7	A	9.3 / 8.9	A / A	0.0 / -0.2	City of Encinitas	No
47	El Camino Real & Santa Fe Drive	Signalized	21.1	C	28.4	C	20.0 / 23.4	B / C	1.1 / 5.0	City of Encinitas	No
48	San Elijo Avenue & Birmingham Drive	Signalized	13.4	B	25.0	C	13.0 / 24.2	B / C	0.4 / 0.8	City of Encinitas	No
49	I-5 SB Ramps & Birmingham Drive	SSSC	250.6	**F**	47.5	**E**	250.6 / 47.5	**F / E**	0.0 / 0.0	Caltrans	No
50	I-5 NB Ramps & Birmingham Drive	AWSC	45.5	**E**	41.1	**E**	45.5 / 41.1	**E / E**	0.0 / 0.0	Caltrans	No
51	I-5 SB Ramps & Manchester Avenue	AWSC	54.5	**F**	35.5	**E**	54.5 / 35.5	**F / E**	0.0 / 0.0	Caltrans	No
52	I-5 NB Ramps & Manchester Avenue	Signalized	56.7	**E**	45.0	D	57.5 / 45	**E** / D	-0.8 / 0.0	Caltrans	No
53	El Camino Real & Manchester Avenue	Signalized	39.0	D	42.0	D	36.2 / 38.8	D / D	2.8 / 3.2	City of Encinitas	No

Source: Chen Ryan Associates; April 2016.

Notes:
Bold letter indicates substandard LOS E or F.
SI? = Significant Impact?
AWSC = All Way Stop Control.
SSSC = Side Street Stop Control. For SSSC intersections, the delay shown is the worst delay experienced by any of the approaches.

City of Encinitas (13)

6. Vulcan Avenue & La Costa Avenue – LOS F during both AM and PM peak hours;
17. Saxony Road & Leucadia Boulevard – LOS E during the PM peak hour;
21. El Camino Real & Leucadia Boulevard – LOS E during PM peak hour;
25. Rancho Santa Fe Road & Lone Jack Road – LOS E during both AM and PM peak hours;
27. Rancho Santa Fe Road & El Camino Del Norte – LOS E during PM peak hour;
36. El Camino Real & Encinitas Boulevard – LOS E during PM peak hour;
39. Rancho Santa Fe Road & Encinitas Boulevard – LOS E during AM peak hour;
40. San Elijo Avenue & Santa Fe Drive – LOS E during AM peak hour;
45. Balour Drive & Santa Fe Drive – LOS F during both AM and PM peak hours;
49. I-5 SB Ramps & Birmingham Drive – LOS F during the AM peak hour and LOS E during the PM peak hour;
50. I-5 NB Ramps & Birmingham Drive – LOS E during both AM and PM peak hours;
51. I-5 SB Ramps & Manchester Avenue – LOS F during AM peak hour and LOS E during PM peak hour; and
52. I-5 NB Ramps & Manchester Avenue – LOS E during AM peak hour.

City of Carlsbad (1)

11. El Camino Real & La Costa Avenue – LOS E during PM peak hour.

Out of the 14 deficient intersections identified, the following two (2) would be significantly impacted under the SMUP Strategy, based on the significance criteria outlined in Section 2.8 from the City of Encinitas Housing Element TIS. It is important to note that both intersection impacts identified below have been previously identified as traffic impacts in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy.

6. Vulcan Avenue & La Costa Avenue – LOS F during both AM and PM peak hours; and
45. Balour Drive & Santa Fe Drive – LOS F during both AM and PM peak hours.

Mitigation measures addressing these intersection impacts are discussed in Chapter 3.

2.3 Freeway Segment Analysis

Table 4 displays freeway segment LOS analysis results for the key I-5 freeway segments in the vicinity of the project study area under the SMUP Strategy. Average Daily Traffic (ADT) volumes were calculated by subtracting the daily trips generated by the removed housing sites under the SMUP scenario from MMUP freeway volumes.

As shown in Table 4, all freeway segments within the study area are projected to operate at LOS D or better. In addition, the SMUP Strategy would not create a significant traffic related impact to any of the study area freeway segments, based on the significance criteria outlined in Section 2.8 from the City of Encinitas Housing Element TIS. The I-5 North Coast Improvement project, which will ultimately improve I-5, from La Jolla Village Drive in San Diego to Harbor Drive in Oceanside, to eight all-purpose lanes and four HOV lanes, was assumed under this scenario.

Table 4
Freeway Segment Level of Service – Future Year 2035 SMUP Strategy

Freeway	Segment	ADT[a] *	Direction	# of Lanes	Capacity [b]	D[c]	K[d]	HVF[e]	Peak Hour Volume	V/C	LOS	No-Project V/C	No-Project LOS	Δ V/C	SI?
I-5	Palomar Airport Road and Poinsettia Lane	200,900	NB	4M+1A	10,810	51.3%	6.9%	4.8%	7,500	0.69	C	0.69	C	0.01	No
			SB	4M+1A	10,810	54.2%	7.3%	4.8%	8,400	0.78	C	0.78	C	0.0	No
	Poinsettia Lane and La Costa Avenue	198,600	NB	4M	9,400	51.9%	6.9%	4.8%	7,500	0.80	D	0.81	D	0.0	No
			SB	4M	9,400	54.2%	7.3%	4.8%	8,300	0.88	D	0.88	D	0.0	No
	La Costa Avenue and Leucadia Boulevard	195,400	NB	4M	9,400	51.4%	7.1%	4.8%	7,500	0.80	D	0.81	D	0.0	No
			SB	4M+1A	10,810	63.0%	5.7%	4.8%	7,400	0.68	C	0.69	C	0.0	No
	Leucadia Boulevard and Encinitas Boulevard	116,800	NB	4M+1A	10,810	87.1%	7.1%	4.8%	7,600	0.70	C	0.71	C	0.0	No
			SB	4M	9,400	63.0%	5.7%	4.8%	4,400	0.47	B	0.47	B	0.01	No
	Encinitas Boulevard and Santa Fe Drive	194,900	NB	4M	9,400	51.2%	7.1%	4.8%	7,500	0.80	D	0.80	D	0.0	No
			SB	4M+1A	10,810	53.8%	6.8%	4.8%	7,500	0.69	C	0.69	C	0.0	No
	Santa Fe Drive and Birmingham Drive	194,300	NB	4M+1A	10,810	52.3%	7.1%	4.8%	7,600	0.70	C	0.71	C	0.0	No
			SB	4M+1A	10,810	53.8%	6.8%	4.8%	7,400	0.68	C	0.69	C	0.0	No

Table 4
Freeway Segment Level of Service – Future Year 2035 SMUP Strategy

Freeway	Segment	ADT[a] *	Direction	# of Lanes	Capacity [b]	D[c]	K[d]	HVF[e]	Peak Hour Volume	V/C	LOS	No-Project V/C	No-Project LOS	Δ V/C	SI?
I-5	Birmingham Drive and Manchester Avenue	196,800	NB	4M+1A	10,810	54.1%	7.1%	4.8%	8,000	0.74	C	0.74	C	0.0	No
			SB	4M+1A	10,810	53.8%	6.8%	4.8%	7,500	0.69	C	0.70	C	0.0	No
	Manchester Avenue and Lomas Santa Fe Drive	245,900	NB	4M+1A	10,810	50.1%	7.1%	4.8%	9,200	0.85	D	0.86	D	0.0	No
			SB	4M+1A	10,810	53.8%	6.8%	4.8%	9,400	0.87	D	0.88	D	0.0	No
	Lomas Santa Fe Drive and Via De La Valle	245,700	NB	4M+1A	10,810	50.5%	7.1%	4.8%	9,300	0.86	D	0.87	D	-0.01	No
			SB	4M+1A	10,810	53.8%	6.8%	4.8%	9,400	0.87	D	0.89	D	-0.01	No

Source: Chen Ryan Associates; April 2016.

Notes:
Bold letter indicates unacceptable LOS E or F.
SI? = Significant Impact?
M = Mainline. A = Auxiliary Lane.
[a] Traffic volumes provided by Caltrans (2013). | * Reduction of estimated HOV volume was applied to the AADT.
[b] The capacity is calculated as 2,350 ADT per main lane and 1,410 ADT (60% of the main lane capacity) per auxiliary lane.
[c] D = Directional split.| [d] K = Peak hour %. | [e] HV = Heavy vehicle %

2.4 Ramp Intersection Capacity Analysis

Consistent with Caltrans requirements, the ramp intersections located at the freeway interchanges were analyzed using ILV procedures, as described in Section 2.6 of the Encinitas Housing Element TIS. ILV analysis results are displayed in **Table 5** and analysis worksheets for the SMUP Strategy conditions are provided in **Appendix B.**

Table 5
Ramp Intersection Capacity Analysis – Future Year 2035 SMUP Strategy

		SMUP Strategy			No-Project	
#	Ramp Intersection	Peak Hour	ILV/Hour	Description	ILV/Hour	Description
2	I-5 SB Ramps / Poinsettia Lane	AM	740	Under Capacity	740	Under Capacity
		PM	1,030	Under Capacity	1,030	Under Capacity
3	I-5 NB Ramps / Poinsettia Lane	AM	1,000	Under Capacity	1,000	Under Capacity
		PM	1,034	Under Capacity	1,044	Under Capacity
7	I-5 SB Ramps / La Costa Avenue	AM	1,350	At Capacity	1,275	At Capacity
		PM	1,240	At Capacity	1,220	At Capacity
8	I-5 NB Ramps / La Costa Avenue	AM	1,205	At Capacity	1,205	At Capacity
		PM	1,135	Under Capacity	1,125	Under Capacity
15	I-5 SB Ramps / Leucadia Boulevard	AM	780	Under Capacity	805	Under Capacity
		PM	830	Under Capacity	850	Under Capacity
16	I-5 NB Ramps / Leucadia Boulevard	AM	1,209	At Capacity	1,225	At Capacity
		PM	1,488	At Capacity	1,531	**Over Capacity**
30	I-5 SB Ramps / Encinitas Boulevard	AM	1,600	**Over Capacity**	1,595	**Over Capacity**
		PM	1,915	**Over Capacity**	1,900	**Over Capacity**
31	I-5 NB Ramps / Encinitas Boulevard	AM	1,240	At Capacity	1,240	At Capacity
		PM	1,425	At Capacity	1,425	At Capacity
41	I-5 SB Ramps / Santa Fe Drive	AM	1,140	Under Capacity	1,140	Under Capacity
		PM	1,125	Under Capacity	1,135	Under Capacity
42	I-5 NB On-Ramp / Santa Fe Drive	AM	715	Under Capacity	715	Under Capacity
		PM	710	Under Capacity	710	Under Capacity
43	I-5 NB Off-Ramp / Regal Road	AM	1062	Under Capacity	1062	Under Capacity
		PM	1150	Under Capacity	1,150	Under Capacity
52	I-5 NB Ramps / Manchester Avenue	AM	1,460	At Capacity	1,460	At Capacity
		PM	1,340	At Capacity	1,340	At Capacity

Source: Chen Ryan Associates; April 2016.

As shown in Table 5, all of the signalized ramp intersections are projected to operate at "Under Capacity" or "At Capacity" conditions during both the AM and PM peak hours with the exception of the following:

- I-5 NB Ramps / Leucadia Boulevard – Over Capacity during PM peak hour.
- I-5 SB Ramps / Encinitas Boulevard – Over Capacity during both AM and PM peak hour.

Neither Caltrans nor the City uses ILV results in determining significance of project impacts, but the analysis is included for informational purposes.

2.5 Ramp Metering Analysis

Table 6 displays the ramp metering analysis conducted at the I-5 on-ramps at Poinsettia Lane, La Costa Avenue, Leucadia Boulevard, Encinitas Boulevard, Santa Fe Drive, Birmingham Drive, and Manchester Avenue under the SMUP Strategy. Estimated HOV volumes were deducted from the total on-ramp peak hour volumes utilizing the method previously discussed in Section 3.4 from the City of Encinitas Housing Element TIS. To be conservative, existing ramp metering rates were assumed for this analysis.

Table 6
Ramp Metering Analysis – Future Year 2035 SMUP Strategy

Location	Peak Hour	Demand[1] (veh/hr)	Estimated SOV Demand[2] (veh/hr)	Demand per Lane (veh/hr/ln)	Meter Rate[3] (veh/hr/ln)	Future Excess Demand (veh/hr)	Future Delay beyond Peak Hour (min)	Future Queue (ft)	No-Project		
									Excess Demand (veh/hr)	Delay beyond Peak Hour (min)	Queue (ft)
I-5 NB On-Ramp @ Poinsettia Lane	AM	615	529	529	Not Metered	0	0	0	0	0	0
	PM	485	373	373	720	0	0	0	0	0	0
I-5 SB On-Ramp @ Poinsettia Lane	AM	585	515	257	720	0	0	0	0	0	0
	PM	1005	864	432	720	0	0	0	0	0	0
I-5 NB On-Ramp @ La Costa Avenue	AM	905	851	851	Not Metered	0	0	0	0	0	0
	PM	685	527	527	720	0	0	0	0	0	0
I-5 SB On-Ramp @ La Costa Avenue	AM	905	796	398	720	0	0	0	0	0	0
	PM	1035	890	445	720	0	0	0	0	0	0
I-5 NB On-Ramp @ Leucadia Boulevard	AM	418	383	383	Not Metered	0	0	0	0	0	0
	PM	664	474	474	360	114	19.0	3,300	114	19.0	3,300
I-5 SB On-Ramp @	AM	825	726	363	360	3	0.5	75	25	4.5	725

Table 6
Ramp Metering Analysis – Future Year 2035 SMUP Strategy

Location	Peak Hour	Demand[1] (veh/hr)	Estimated SOV Demand[2] (veh/hr)	Demand per Lane (veh/hr/ln)	Meter Rate[3] (veh/hr/ln)	Future Excess Demand (veh/hr)	Future Delay beyond Peak Hour (min)	Future Queue (ft)	No-Project		
									Excess Demand (veh/hr)	Delay beyond Peak Hour (min)	Queue (ft)
Leucadia Boulevard	PM	720	619	310	360	0	0	0	0	0	0
I-5 NB On-Ramp @ Encinitas Boulevard	AM	630	599	599	Not Metered	0	0	0	0	0	0
	PM	770	462	462	360	102	17.0	2,950	96	16.0	2,775
I-5 SB On-Ramp @ Encinitas Boulevard	AM	1,015	893	893	720	173	15.0	5,025	164	14.0	4,750
	PM	980	843	843	720	123	11.0	3,575	106	9.0	3,075
I-5 NB On-Ramp @ Santa Fe Drive	AM	530	530	530	Not Metered	0	0	0	0	0	0
	PM	690	690	690	720	0	0	0	0	0	0
I-5 SB On-Ramp @ Santa Fe Drive	AM	630	554	554	360	194	33.0	5,625	177	30.0	5,125
	PM	510	439	439	Not Metered	0	0	0	0	0	0
I-5 NB On-Ramp @ Birmingham Drive	AM	570	523	523	Not Metered	0	0	0	0	0	0
	PM	485	346	346	360	0	0	0	0	0	0
I-5 SB On-Ramp @ Birmingham Drive	AM	1,080	1,080	540	720	0	0	0	0	0	0
	PM	395	395	198	720	0	0	0	0	0	0
I-5 NB On-Ramp @ Manchester Avenue	AM	420	420	420	Not Metered	0	0	0	0	0	0
	PM	280	280	280	360	0	0	0	0	0	0
I-5 SB On-Ramp @ Manchester Avenue	AM	2,030	2,030	1015	720	295	25.0	8,550	295	25.0	8,550
	PM	1,065	1,065	533	720	0	0	0	0	0	0

Source: Chen Ryan Associates; April 2016.

Notes:
1. Demand is the peak hour demand expected to use the on-ramp.
2. HOV volumes was deducted from total demand volumes. SOV = Single Occupancy Vehicle.
3. Meter Rate is the peak hour capacity expected to be processed through the ramp meter. This value was obtained from Caltrans. The lowest rate within range was utilized for a more conservative calculation.
4. Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.
5. Delay = (Excess Demand / Meter Rate) X 60 min/hr. This delay represents how long the peak hour would need to be extended in order to accommodate the excess demand.
6. Queue = (Excess Demand) X 29 ft/veh.

As shown in Table 6, the majority of the I-5 on-ramps within the study area are not projected to experience significant delays associated with ramp meters during peak hours (over 15 minutes), with the following four (4) exceptions where a delay of 15-minute or more was calculated. All 4 freeway on-ramps with significant delays listed below have been previously identified in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy.

- I-5 NB On-Ramp @ Leucadia Boulevard – 19.0 minutes during PM peak hour;
- I-5 NB On-Ramp @ Encinitas Boulevard – 17.0 minutes during PM peak hour;
- I-5 SB On-Ramp @ Santa Fe Drive – 33.0 minutes during AM peak hour; and
- I-5 SB On-Ramp @ Manchester Avenue – 25.0 minutes during AM peak hour.

Out of the four (4) ramps identified, the following ramp is anticipated to be impacted under the SMUP Strategy, based on the significance criteria outlined in Section 2.8 from the City of Encinitas Housing Element TIS:

- I-5 SB On-Ramp @ Santa Fe Drive – 33.0 minutes during AM peak hour.

It is important to note that this on-ramp impact identified has been previously identified as a traffic impact in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy. The City of Encinitas shall coordinate with Caltrans to increase ramp capacity at this impacted on-ramp location, such improvement could include additional lanes, interchange reconfiguration, etc.

3.0 SIGNIFICANT IMPACTS AND MITIGATION MEASURES

This section identifies recommended mitigation measures for roadway facilities and intersections that would be significantly impacted by the City of Encinitas Housing Element Update under the SMUP Strategy. It is important to note that all traffic impacts and recommend mitigation measures associated with the SMUP Strategy have been previously identified in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy.

Roadway Mitigation Measures

City of Encinitas (5)

- La Costa Avenue between North Coast Highway 101 and Vulcan Avenue – Provide additional right-of-way and widen the roadway to a 4-Lane Collector, which is consistent with the currently adopted Circulation Element. The significant traffic impact associated with the SMUP Strategy along this roadway segment would be fully mitigated with the implementation of this measure.

- La Costa Avenue, between Vulcan Avenue and Sheridan Road – Provide additional right-of-way and widen the roadway to a 4-Lane Collector, which is consistent with the currently adopted Circulation Element. The significant traffic impact associated with the SMUP Strategy along this roadway segment would be fully mitigated with the implementation of this measure.

- La Costa Avenue, between Sheridan Road and I-5 SB Ramps – Provide additional right-of-way and widen the roadway to a 4-Lane Collector, which is consistent with the currently adopted Circulation Element. The significant traffic impact associated with the Modified Sustainable Use Plan strategy along this roadway segment would be fully mitigated with the implementation of this measure.

- Leucadia Boulevard, between Hymettus Avenue and Orpheus Avenue – Provide additional right-of-way and widen the roadway to a 4-Lane Collector, which exceeds the roadway classification designation in the currently adopted Circulation Element. The significant traffic impact associated with the Sustainable Mixed Use strategy along this roadway segment would be fully mitigated with the implementation of this measure.

- South Rancho Santa Fe Road, between Manchester Avenue and City of Encinitas Limits – Provide additional right-of-way and widen the roadway to 4-Lane Major Roadway which exceeds the roadway classification designation in the currently adopted City of Encinitas Circulation Element. The significant traffic impact associated with the SMUP Strategy along this roadway segment would be fully mitigated with the implementation of this measure.

County of San Diego (1)

- South Rancho Santa Fe Road, between City of Encinitas Limits and El Mirlo – Provide additional right-of-way and widen the roadway to a 2-Lane Community Collector with Improvement Options, which exceeds the roadway classification designation in the currently adopted County of San Diego Circulation Element. The significant traffic impact associated with the SMUP Strategy along this roadway segment would be fully mitigated with the implementation of this measure.

Table 7 displays a summary of the impacted roadways and the mitigation measures under the SMUP Strategy.

Table 7
Mitigated Roadway Level of Service
Future Year 2035 - SMUP Strategy

			After Mitigation		Before Mitigation	
Roadway	**Segment**	**Jurisdiction**	**Functional Classification**	**LOS**	**Functional Classification**	**LOS**
La Costa Avenue	Between North Coast Highway 101 and Vulcan Avenue	City of Encinitas	4-Lane Collector	C or better	2-Lane Local Roadway	**F**
	Between Vulcan Avenue and Sheridan Road	City of Encinitas	4-Lane Collector	C or better	2-Lane Local Roadway	**F**
	Between Sheridan Road and I-5 SB Ramps	City of Encinitas	4-Lane Collector	C or better	2-Lane Local Roadway – Augmented	**F**
Leucadia Blvd	Between Hymettus Avenue and Orpheus Avenue	City of Encinitas	4-Lane Collector	C or better	2-Lane Local Roadway - Augmented	**F**
South Rancho Santa Fe Road	Between Manchester Avenue and City of Encinitas Limits	City of Encinitas	4-Lane Major Roadway	C or better	2-Lane Local Roadway - Augmented	**E**
	Between City of Encinitas Limits and El Mirlo	County of San Diego	2-Lane Community Collector with Improvement Options	D	2-Lane Light Collector with Reduced Shoulder	**F**

Source: Chen Ryan Associates; April 2016

Intersection Mitigation Measures

The SMUP Strategy traffic would create a direct impact at two (2) study area intersections, both of which were identified as traffic impacts in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy. The following intersection improvements would be required to mitigate the identified traffic impacts:

City of Encinitas

- Vulcan Avenue & La Costa Avenue (Side Street Stop Controlled) –
  A traffic signal warrant was conducted. Based upon California Manual on Uniform Traffic Control Devices (MUTCD) 2014 Edition Figure 4C-103 (CA), this intersection would meet both the "Minimum Vehicular Volume" and the "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in **Appendix C**.

- Balour Drive & Santa Fe Drive (Side Street Stop Controlled) –
  Signalization and construction of a left-turn lane at the eastbound Santa Fe Drive approach would be required to mitigate direct project impacts. A traffic signal warrant was conducted. Based upon California Manual on Uniform Traffic Control Devices (MUTCD) 2014 Edition Figure 4C-103 (CA), this intersection would meet both the "Minimum Vehicular Volume" and the "Interruption of Continuous Traffic" warrants. The signal warrant worksheet for this intersection is provided in Appendix C.

Table 8 displays level of service analysis results for the mitigated intersections under the SMUP Strategy. Calculation worksheets for the intersection analysis are provided in **Appendix D**.

As shown, after installation of the proposed mitigation measures, the two impacted intersections would operate at acceptable LOS D or better during both the AM and PM peak hours.

Table 8
Mitigated Intersection Level of Service
Future Year 2035 - SMUP Strategy

		After Mitigation				Before Mitigation	
		AM Peak Hour		PM Peak Hour			
ID	Intersection	Avg. Delay (Sec)	LOS	Avg. Delay (Sec)	LOS	Avg. Delay AM/PM (Sec)	LOS AM/PM
6	Vulcan Avenue & La Costa Avenue	31.8	C	31.8	C	45.2 / 96.4	**E / F**
45	Balour Drive & Santa Fe Drive	49.0	D	22.5	C	84.7 / 51.7	**F / F**

Source: Chen Ryan Associates; April 2016

Freeway Mitigation Measures

No freeway facilities were identified to be impacted under the SMUP Strategy.

Ramp Metering Mitigation Measures

The following on-ramp is anticipated to be impacted under the SMUP strategy which has been previously identified in the City of Encinitas Housing Element TIS and the Draft EIR under the MMUP Strategy.

- I-5 SB On-Ramp @ Santa Fe Drive – 33 minutes during AM peak hour.

The City of Encinitas shall coordinate with Caltrans to increase ramp capacity at this impacted on-ramp location, such improvement could include additional lanes, interchange reconfiguration, etc.