

Appendix H. Traffic Impact Analysis

This page intentionally left blank

Highway 101 Streetscape Project

TRAFFIC IMPACT ANALYSIS REPORT

Prepared for

City of Encinitas

505 S. Vulcan Avenue,
Encinitas, CA 92024

Prepared by



5050 Avenida Encinas, Suite 260, Carlsbad, CA 92008
CONTACT: Robert Davis 760.603.6244 ROBERTDAVIS@mbakerintl.com

Draft: November 29, 2016

JN 137350

TABLE OF CONTENTS

INTRODUCTION.....	1
PROJECT DESCRIPTION	1
STUDY AREA.....	2
STUDY SCENARIOS.....	14
ANALYSIS METHODOLOGY	15
Intersection Analysis Methodology	15
Roadway Segment Analysis Methodology	16
Ramp Meter Analysis Methodology.....	17
Significant Criteria.....	17
EXISTING CONDITIONS	18
Traffic Volumes	18
Roadway Network.....	18
Existing Conditions Traffic Analysis.....	19
EXISTING PLUS PROJECT CONDITIONS	27
Existing Plus Project Conditions Traffic Analysis.....	27
FUTURE YEAR 2035 CONDITIONS.....	35
Future Year 2035 Traffic Volumes.....	35
Future Year 2305 Roadway Network and Geometry	36
Future Year 2305 Conditions Traffic Analysis.....	56
ANALYSIS OF LA COSTA AVENUE WITH REDUCED TWO-LANE COLLECTOR GEOMETRY.....	64
PEDESTRIAN CROSSING EVALUATION AT DIANA ST. & NORTH CT. ALONG HWY 101	65
SUMMARY OF IMPACTS	66
MITIGATION OF IMPACTS	66
SUMMARY OF ANALYSIS RESULTS	67
CONCLUSION	69

LIST OF EXHIBITS

Exhibit 1: Project Vicinity Map	5
Exhibit 2: Proposed Design Sheet 1	6
Exhibit 3: Proposed Design Sheet 2	7
Exhibit 4: Proposed Design Sheet 3	8
Exhibit 5: Proposed Design Sheet 4	9
Exhibit 6: Proposed Design Sheet 5	10
Exhibit 7: Proposed Design Sheet 6	11
Exhibit 8: Proposed Design Sheet 7	12
Exhibit 9: Project Study Area	13
Exhibit 10: Existing Intersection Lane Geometry – Area 1	22
Exhibit 11: Existing Intersection Lane Geometry – Area 2	23
Exhibit 12: Existing Peak Hour Intersection Volumes – Area 1	24
Exhibit 13: Existing Peak Hour Intersection Volumes – Area 2	25
Exhibit 14: Existing Roadway Segment Daily Traffic	26
Exhibit 15: Existing Plus Project Intersection Lane Geometry – Area 1	28
Exhibit 16: Existing Plus Project Intersection Lane Geometry – Area 2	29
Exhibit 17: Year 2035 No Build Intersection Lane Geometry – Area 1	37
Exhibit 18: Year 2035 No Build Intersection Lane Geometry – Area 2	38
Exhibit 19: Year 2035 No Build Peak Hour Intersection Volumes – Area 1	39
Exhibit 20: Year 2035 No Build Peak Hour Intersection Volumes – Area 2	40
Exhibit 21: Year 2035 No Build Roadway Segment Daily Traffic	41
Exhibit 22: Year 2035 Alternative 1 Intersection Lane Geometry – Area 1	42
Exhibit 23: Year 2035 Alternative 1 Intersection Lane Geometry – Area 2	43
Exhibit 24: Year 2035 Alternative 1 Peak Hour Intersection Volumes – Area 1	44
Exhibit 25: Year 2035 Alternative 1 Peak Hour Intersection Volumes – Area 2	45
Exhibit 26: Year 2035 Alternative 1 Roadway Segment Daily Traffic	46
Exhibit 27: Year 2035 Alternative 2 Intersection Lane Geometry – Area 1	47
Exhibit 28: Year 2035 Alternative 2 Intersection Lane Geometry – Area 2	48
Exhibit 29: Year 2035 Alternative 2 Peak Hour Intersection Volumes – Area 1	49
Exhibit 30: Year 2035 Alternative 2 Peak Hour Intersection Volumes – Area 2	50
Exhibit 31: Year 2035 Alternative 2 Roadway Segment Daily Traffic	51
Exhibit 32: Year 2035 Alternative 1 With SMUP Peak Hour Intersection Volumes – Area 1	52
Exhibit 33: Year 2035 Alternative 1 With SMUP Peak Hour Intersection Volumes – Area 2	53
Exhibit 34: Year 2035 Alternative 1 With SMUP Roadway Segment Daily Traffic	54
Exhibit 35: Highway 101 / La Costa Avenue: 4-Leg Signalized Intersection Condition Lane Geometry and Year 2035 Peak Hour Intersection Volumes	55

LIST OF TABLES

Table 1: Signalized, Unsignalized and Roundabout Intersection Level of Service & Delay Ranges	16
Table 2: Segment Level of Service Thresholds Based on V/C Ratios	16
Table 3: Existing Peak Hour Intersection Conditions	20
Table 4: Existing Peak Hour Directional Roadway Segment Conditions.....	21
Table 5: Existing Ramp Meter Conditions	21
Table 6: Existing Plus Project Intersection Conditions – AM Peak Hour.....	30
Table 7: Existing Plus Project Intersection Conditions – PM Peak Hour.....	31
Table 8: Existing Plus Project Peak Hour Directional Roadway Segment Conditions – AM Peak Hour	32
Table 9: Existing Plus Project Peak Hour Directional Roadway Segment Conditions – PM Peak Hour	33
Table 10: Existing Plus Project Ramp Meter Conditions.....	34
Table 11: Year 2035 Intersection Conditions – AM Peak Hour.....	58
Table 12: Year 2035 Intersection Conditions – PM Peak Hour.....	59
Table 13: Year 2035 Peak Hour Directional Roadway Segment Conditions – AM Peak Hour	60
Table 14: Year 2035 Peak Hour Directional Roadway Segment Conditions – PM Peak Hour	61
Table 15: Year 2035 No Build and Alternative 1 Ramp Meter Conditions.....	62
Table 16: Year 2035 No Build and Alternative 2 Ramp Meter Conditions.....	62
Table 17: Year 2035 No Build and Alternative 1 With SMUP Ramp Meter Conditions.....	63
Table 18: Year 2035 La Costa Avenue Intersection Conditions With Two-Lane Collector (With Side Street Stop).....	64
Table 19: Year 2035 La Costa Avenue Peak Hour Directional Roadway Segment Conditions With Two-Lane Collector	64

APPENDICES

Appendix A: Traffic Count Data

Appendix B: Caltrans Ramp Meter Rates

Appendix C: Existing and Existing Plus Project Conditions HCM and Sidra Intersection Analysis Worksheets

Appendix D: SANDAG Year 2035 Forecast Models

Appendix E: Year 2035 Conditions HCM and Sidra Intersection Analysis Worksheets

Appendix F: La Costa Avenue With Two Lane Collector - Year 2035 Conditions HCM Intersection Analysis Worksheets

Appendix G: Mitigated Intersections – Year 2035 Conditions HCM and Sidra Intersection Analysis Worksheets

INTRODUCTION

This traffic study has been prepared for the North Coast Highway 101 (Highway 101) Streetscape Project located in the City of Encinitas, which proposes to improve Highway 101 from La Costa Avenue south to Encinitas Boulevard. This traffic study assesses the impacts of the proposed project along the project corridor and the surrounding street network.

Highway 101 runs in the north/south direction, west of and parallel to Interstate 5 (I-5). Highway 101 connects the City of Encinitas with the City of Solana Beach to the south and with the City of Carlsbad to the north. As Highway 101 crosses north of La Costa Avenue, the street name changes to Carlsbad Boulevard. Exhibit 1 shows the project vicinity map.

PROJECT DESCRIPTION

The City of Encinitas proposes to transform the characteristics of Highway 101 for the 2.5 mile corridor between La Costa Avenue and A Street. The Streetscape Project's goals are to improve safety by reducing the speed, create a more bike-friendly corridor, increase pedestrian circulation, improve parking, and enhance the aesthetics of the corridor.

In general, the project proposes to reduce the number of travel lanes to one in each direction; add bike lanes; add a median; change traffic controls at six intersection locations; add enhanced crosswalks for high visibility; add bus turnout bays; improve parking; improve sidewalks on the west side of Highway 101; add sidewalk along the east side of Highway 101; add parking areas on the east side of North Coast Highway 101 at three targeted locations; and provide enhanced landscaping and aesthetics throughout the corridor. The proposed design plans are shown on Exhibits 2 thru Exhibit 8.

The Highway 101 Streetscape Project lane configurations are proposed as follows:

Roadway	Segment	Direction	Change to # Vehicular Lanes	# Vehicular Lanes Proposed	# Bike Lanes Proposed
Highway 101	La Costa Ave. to A St.	Southbound	Reduced	1	1
	A St. to Encinitas Blvd.	Southbound	No Change	2	1
		Northbound	No Change	2	1
	A St. to Marcheta St.	Northbound	No Change	2	1
	Marcheta St. to Leucadia Blvd.	Northbound	Reduced	1	1
Leucadia Blvd. to La Costa Ave.	Northbound	Unchanged	1	1	

The Streetscape Project proposes to modify the intersection controls at a number of locations along the Highway 101 corridor. These include:

ID	Intersection	Current Control	Proposed Control
1.	Hwy 101 / La Costa Avenue	Signal	Roundabout
1.	Hwy 101 / La Costa Avenue Alternate	Signal	Signal
2.	Hwy 101 / New Road (between La Costa Ave. and Bishop's Gate Rd.)	None	Roundabout
2.	Hwy 101 / New Road (between La Costa Ave. and Bishop's Gate Rd.) Alternate	Side Street Stop	Side Street Stop
3.	Hwy 101 / Bishop's Gate Rd.	Side Street Stop	Roundabout
4.	Hwy 101 / Grandview St.	Side Street Stop	Roundabout
5.	Hwy 101 / Jupiter St.	Side Street Stop	Roundabout
7.	Hwy 101 / El Portal St.	Side Street Stop	Roundabout
8.	Hwy 101 / Marcheta St.	All-Way Stop	Side Street Stop

Other surface improvements generally include improvements to existing sidewalks on the west side of North Coast Highway 101 and construction of a new sidewalk along the east side of the highway. Curb extensions are proposed at driveways and minor street approaches.

On-street parking improvements are proposed along the west side of North Coast Highway 101. Off-street parking is proposed on the east side of the highway at three locations. Each of the proposed parking areas on the east side of the highway include two rows of parallel parking separated by a one-way drive aisle. The driveways to these parking areas will be restricted to right-in/right-out vehicular movements from northbound North Coast Highway 101. The project also proposes pedestrian crossing locations across North Coast Highway 101 to access these east side parking facilities. The approximate locations of these parking areas are:

- North Court to Basil St.
- Leucadia Blvd. to Diana St.
- Jupiter St. to Avocado St.

STUDY AREA

The project study area includes twenty-seven (27) intersections, nine (9) roadway segments and six (6) ramp meter locations. The study area is shown in Exhibit 9.

Intersections

The study intersections controls consist of the following:

- 12 signal control;
- 11 two-way stop control;
- Two all-way stop control;
- And one roundabout/yield control intersection.

A new intersection, "New Road", is assumed to be constructed at a future date between La Costa Avenue and Bishop's Gate Road. The New Road intersection is proposed where a driveway exists today, accessible via right-in/right-out movements by southbound traffic on North Coast Highway 101. A left turn lane exists for northbound traffic turning left into the current driveway, but the left turn movement out of the driveway onto North Coast Highway 101 is restricted. The New Road

intersection is proposed as a future roundabout and is included in the analysis for future Year 2035 only.

At the intersection of North Coast Highway 101 and La Costa Ave., two alternates are studied due to uncertainty in the future improvements to be implemented. A private property development is proposed adjacent to the intersection. If the private development moves into construction prior to start of construction of the Streetscape project at the intersection, the private development will be responsible for constructing a signalized intersection as shown on their plans on file with the City. If the City is unable to reach agreement with the private property owners to allow the grading on private property necessary to construct a roundabout, then the City will likewise construct a signal at the intersection, within the existing right of way. However, if the private development does not move into construction before Streetscape construction proceeds at the La Costa Ave. / Highway 101 intersection, and the City is able to secure permission on the private property, then the roundabout alternative will be constructed. Therefore, two alternatives are considered: the roundabout improvements and the signalized intersection improvements.

The following intersections are studied:

ID	Intersection	Existing Control
1.	Hwy 101 / La Costa Ave.	Signal
2.	Hwy 101 / New Road "A" (Year 2035 Only)	None
3.	Hwy 101 / Bishops Gate Road	Side-Street-Stop
4.	Hwy 101 / Grandview Street	Side-Street-Stop
5.	Hwy 101 / Jupiter Street	Side-Street-Stop
6.	Hwy 101 / Leucadia Blvd.	Signal
7.	Hwy 101 / El Portal Street	Side-Street-Stop
8.	Hwy 101 / Marcheta Street	All-Way-Stop
9.	Hwy 101 / Encinitas Blvd.	Signal
10.	Neptune Ave. / Grandview Street	Side-Street-Stop
11.	Neptune Ave. / Jupiter Street	Side-Street-Stop
12.	Neptune Ave. / Leucadia Blvd.	Side-Street-Stop
13.	Neptune Ave. / N El Portal Street	Side-Street-Stop
14.	La Costa Ave. / Vulcan Ave.	Side-Street-Stop
15.	La Costa Ave. / Sheridan Road	Side-Street-Stop
16.	La Costa Ave. / I-5 Southbound Ramps	Signal
17.	La Costa Ave. / I-5 Northbound Ramps	Signal
18.	Leucadia Blvd. / Vulcan Ave.	Signal
19.	Leucadia Blvd. / Hygeia Ave.	All-Way-Stop
20.	Leucadia Blvd. / Hymettus Ave.	Roundabout
21.	Leucadia Blvd. / Orpheus Ave.	Signal
22.	Leucadia Blvd. / I-5 Southbound Ramps	Signal
23.	Leucadia Blvd. / I-5 Northbound Ramps	Signal
24.	Encinitas Blvd. / Vulcan Ave.	Signal
25.	Encinitas Blvd. / I-5 Southbound Ramps	Signal
26.	Encinitas Blvd. / I-5 Northbound Ramps	Signal
27.	Vulcan Ave. / Orpheus Ave.	Side-Street-Stop

Roadway Segments

Nine (9) roadway segments are analyzed in this study. The segment of La Costa Avenue between North Coast Highway 101 and the I-5 Southbound Ramps is included in the segment analysis in order to evaluate a potential change in the planned future lane geometry.

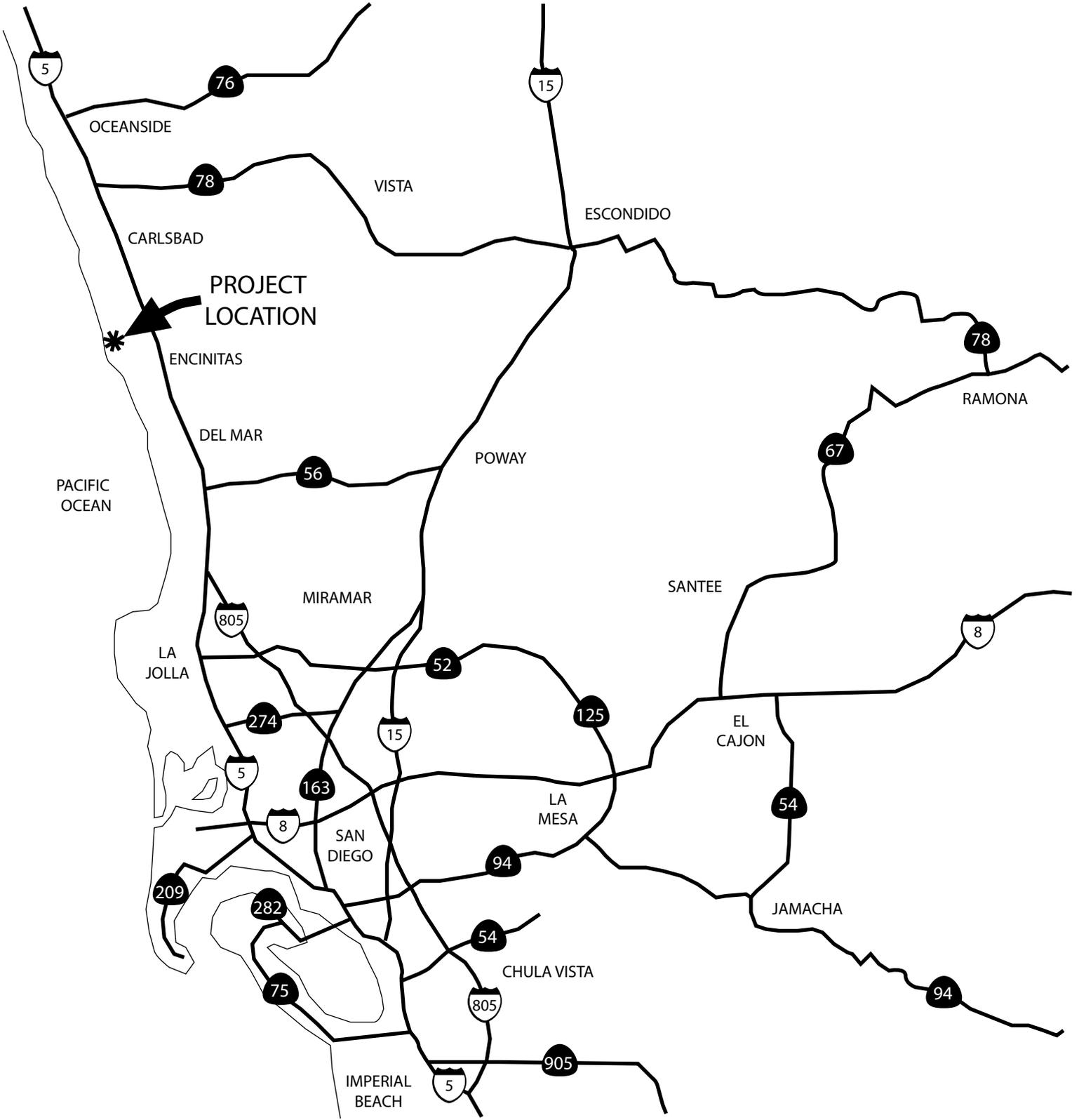
Study Locations include the following

ID	Roadway	Segment
1.	Highway 101	La Costa Avenue to Grandview Street
2.		Grandview Street to Jupiter Street
3.		Jupiter Street to Leucadia Boulevard
4.		Leucadia Boulevard to El Portal Street
5.		El Portal Street to Marcheta Street
6.		Marcheta Street to Encinitas Boulevard
7.	La Costa Avenue	Highway 101 to Vulcan Avenue
8.		Vulcan Avenue to Sheridan Road
9.		Sheridan Road to I-5 Southbound Ramps

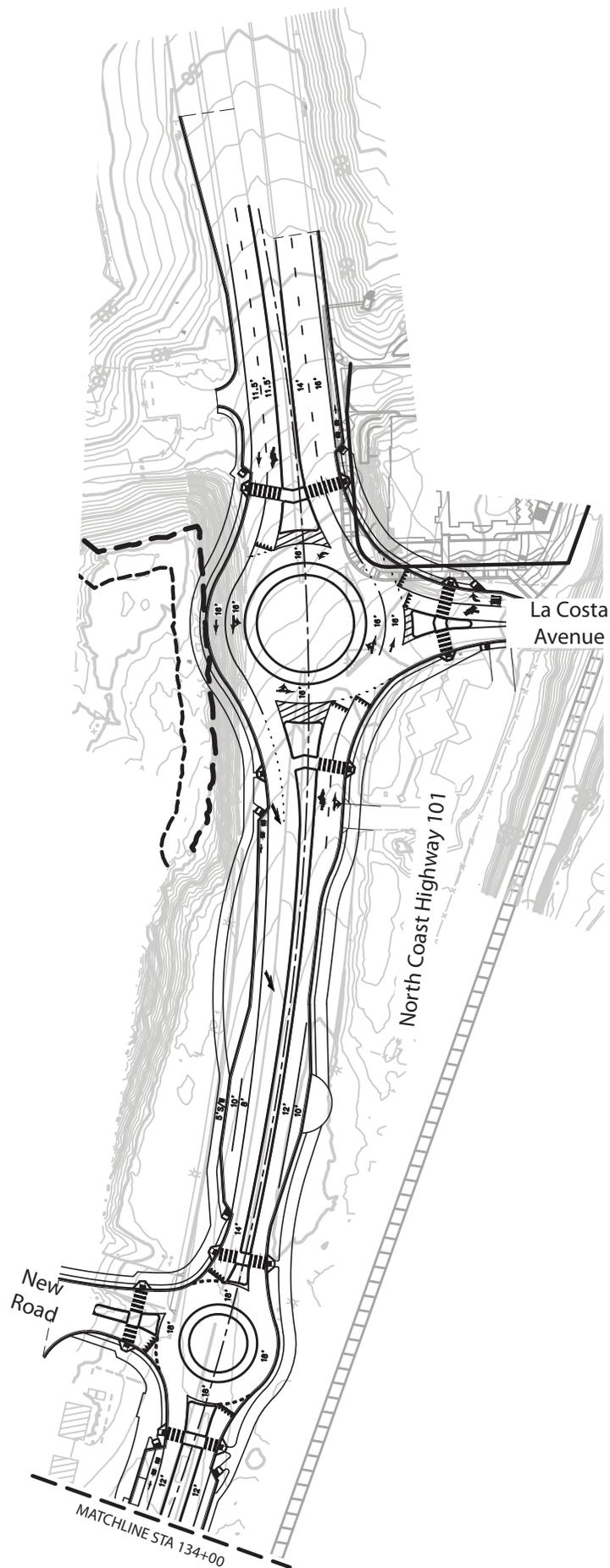
Freeway Ramp Meters

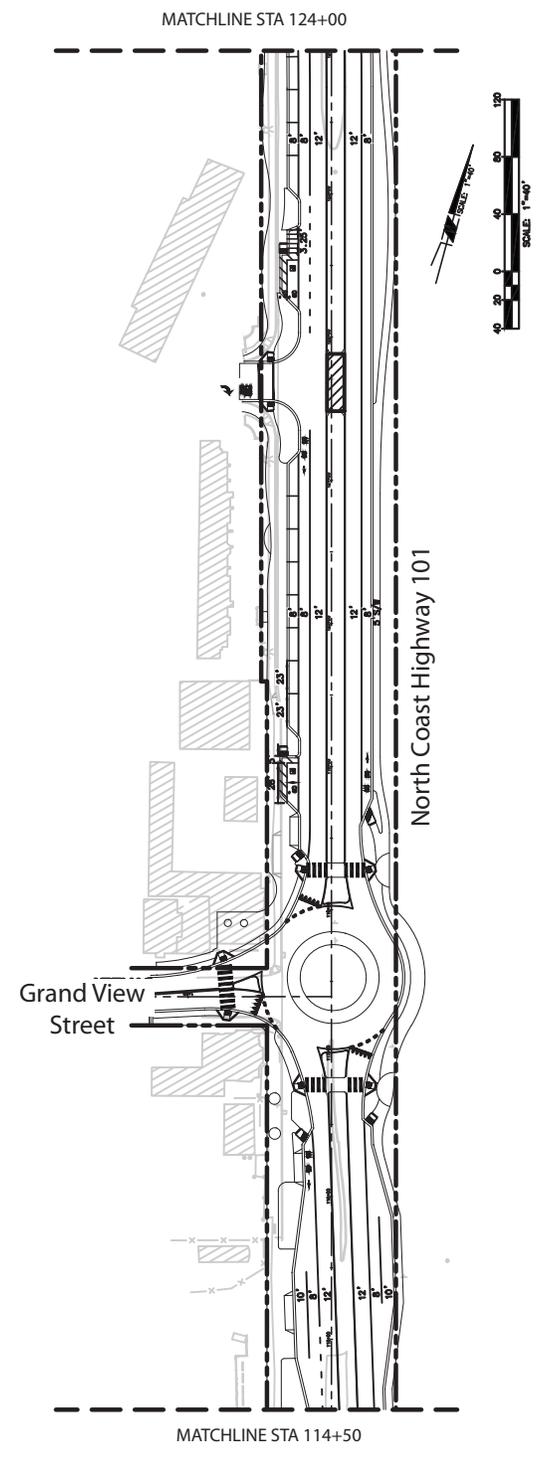
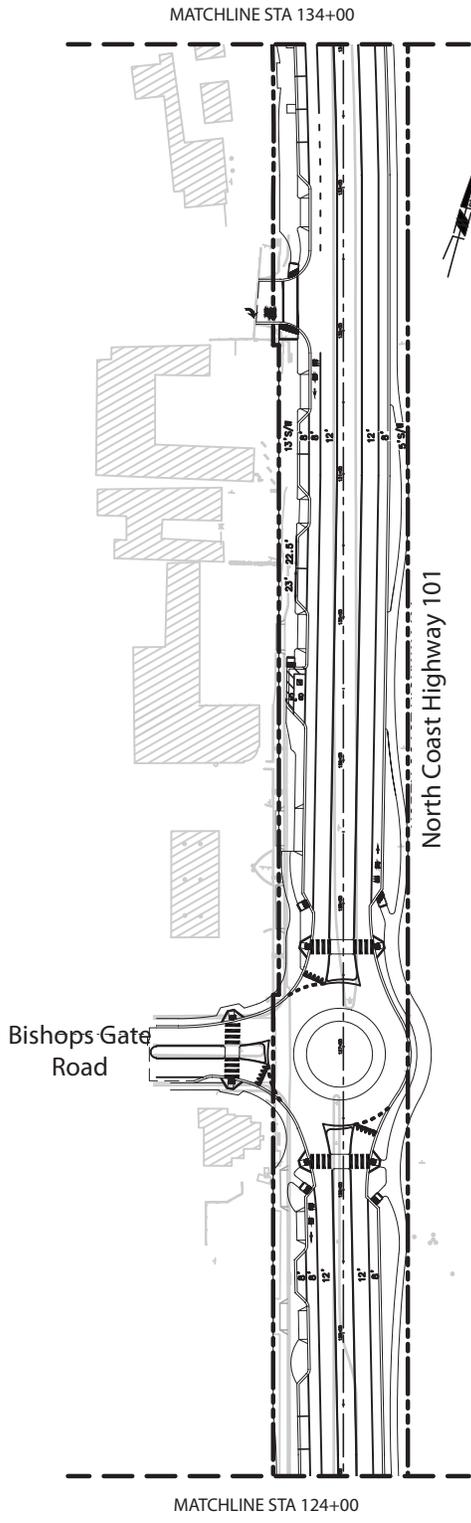
Six (6) freeway ramp meters along Interstate 5 (I-5) are analyzed in this study. Study locations include the following:

ID	Interchange	Direction
1.	I-5 / La Costa Avenue	Northbound Ramps
2.		Southbound Ramps
3.	I-5 / Leucadia Boulevard	Northbound Ramps
4.		Southbound Ramps
5.	I-5 / Encinitas Boulevard	Northbound Ramps
6.		Southbound Ramps

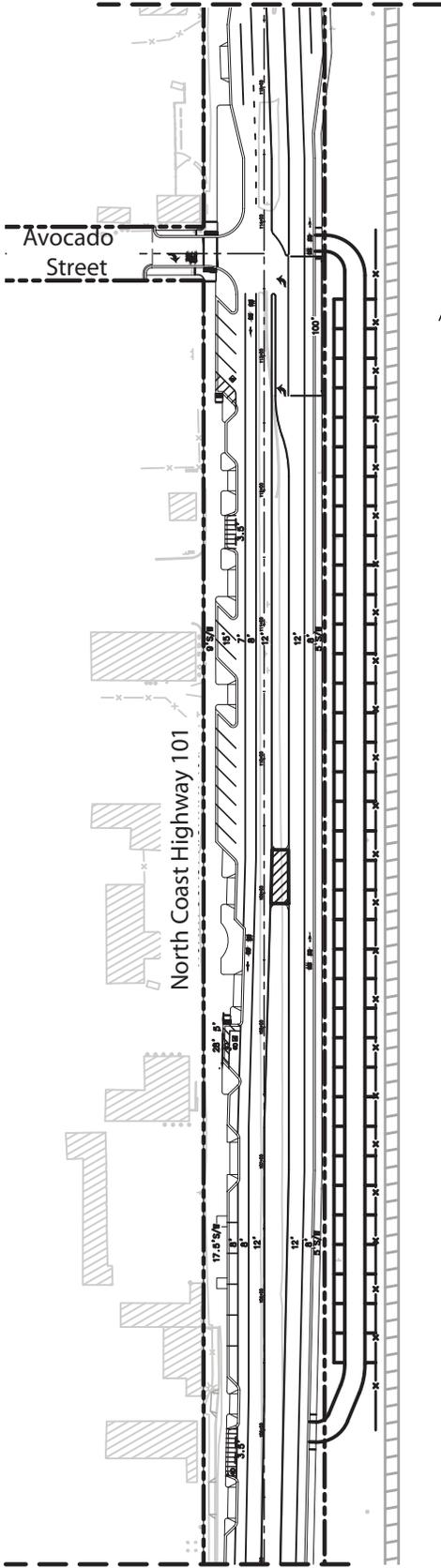


NOT TO SCALE





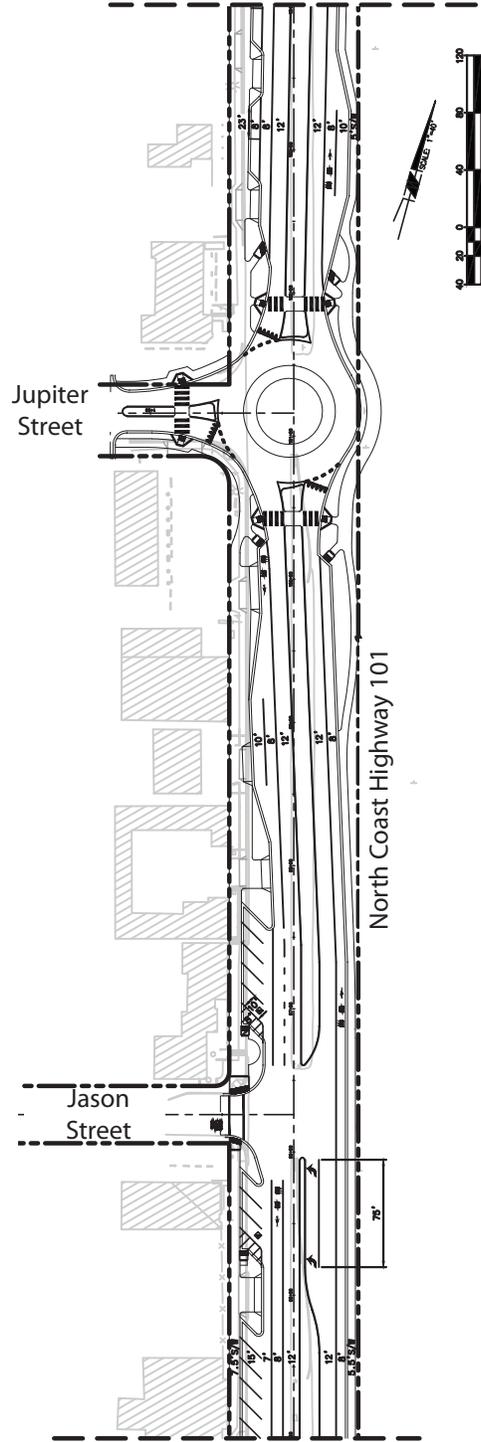
MATCHLINE STA 115+50



MATCHLINE STA 104+00

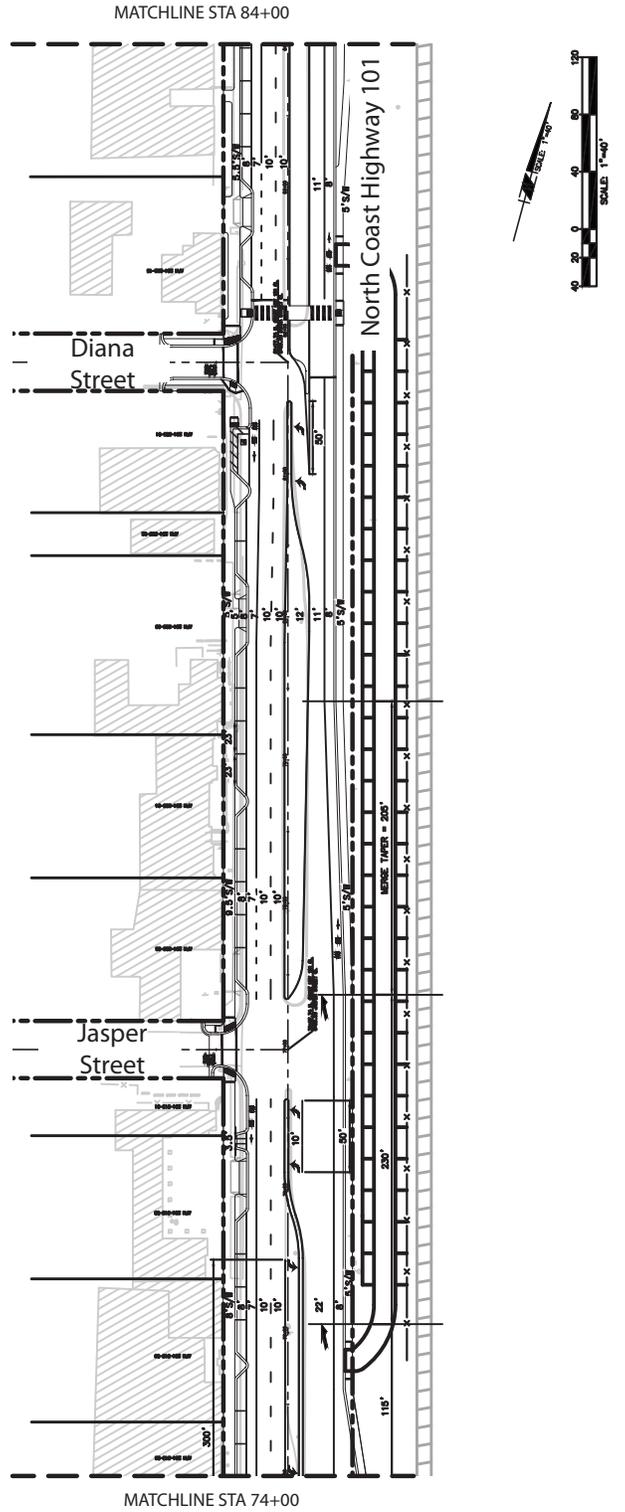
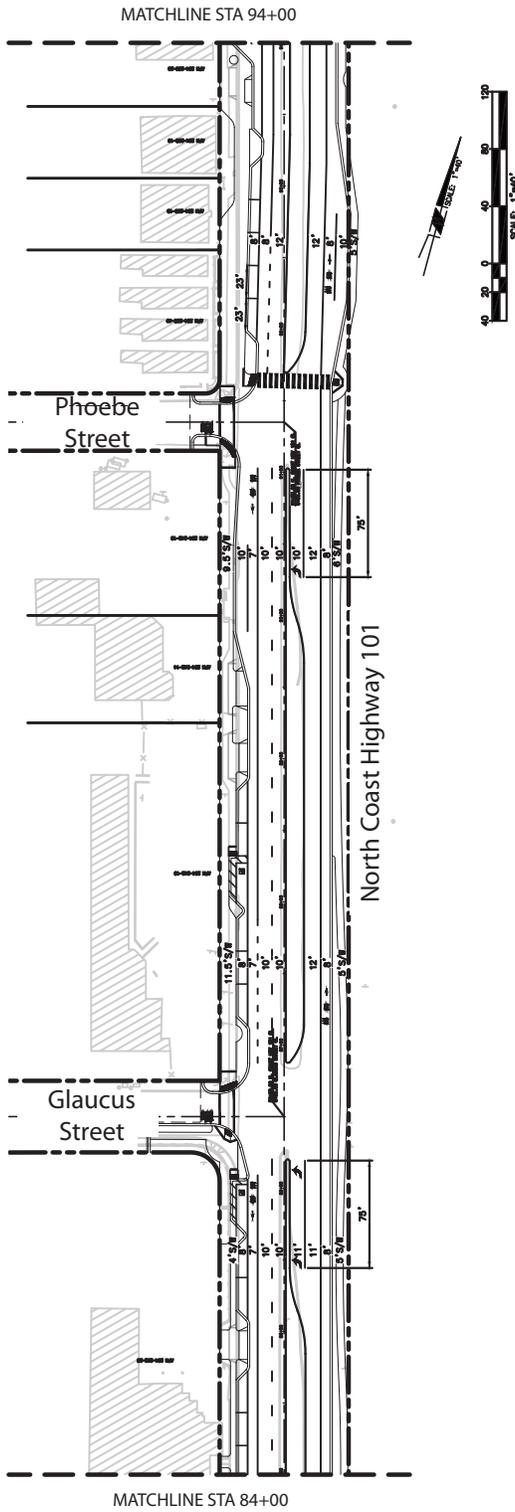


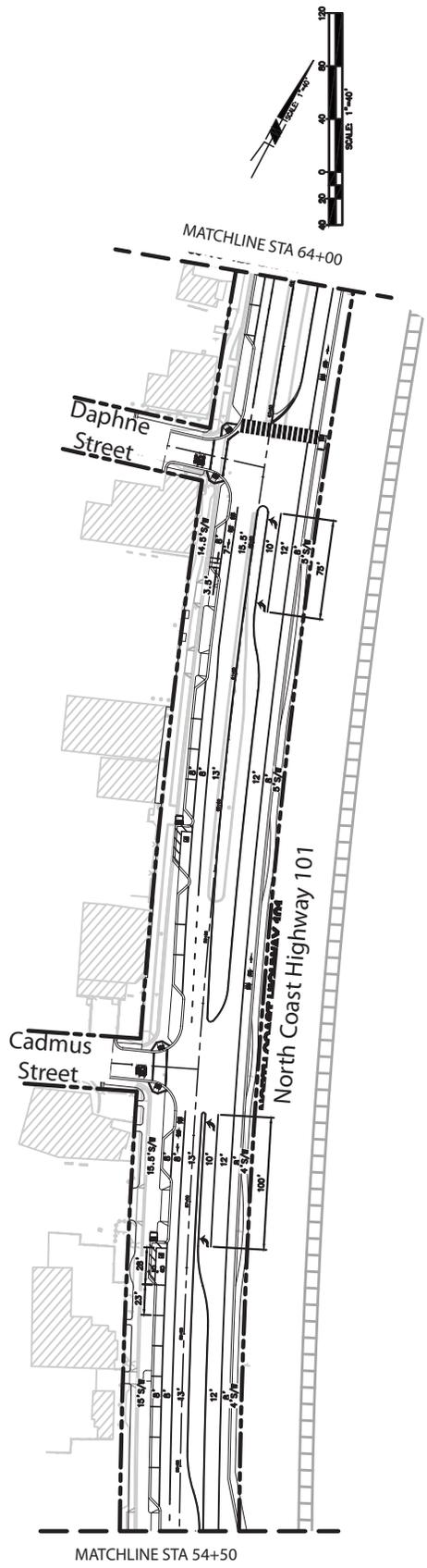
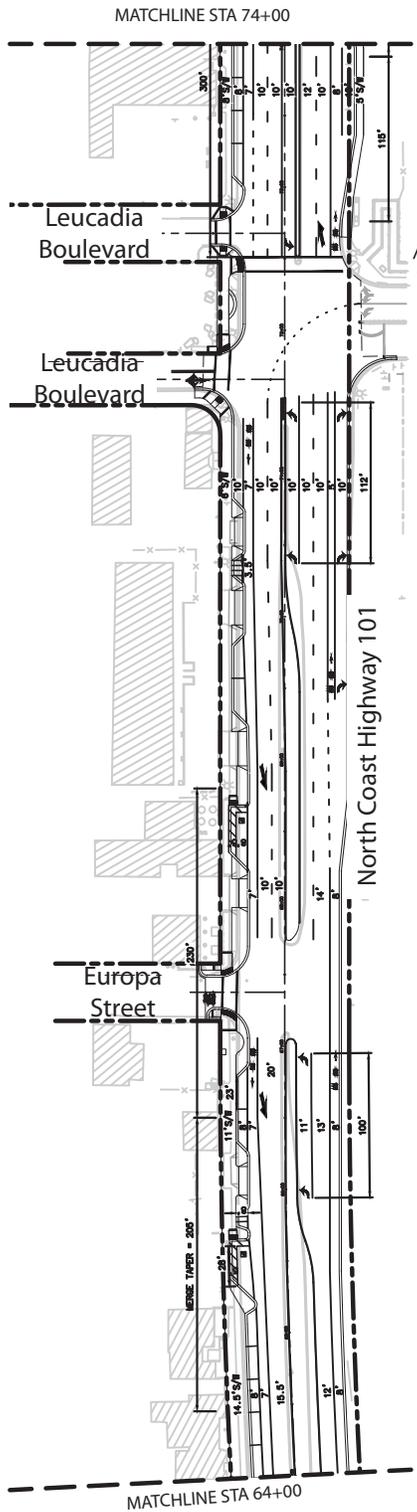
MATCHLINE STA 104+00

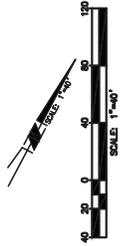
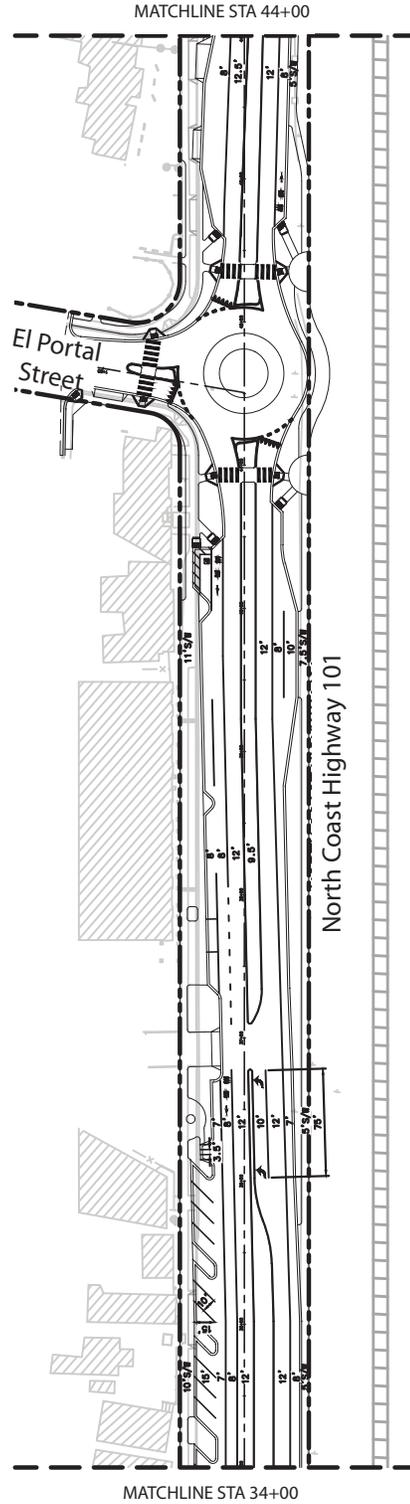
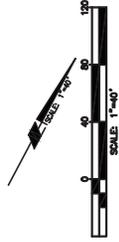
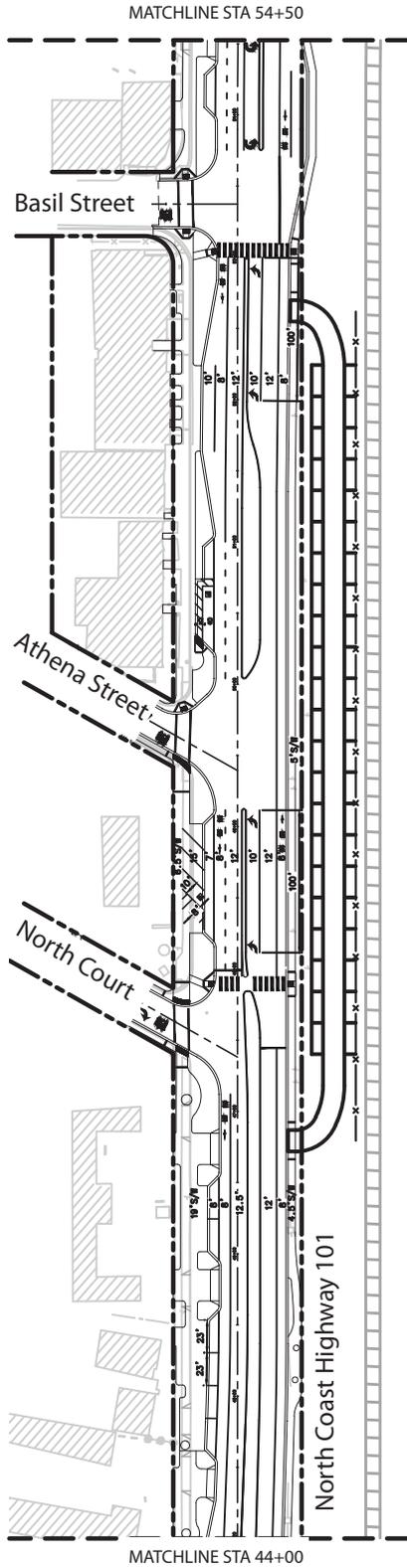


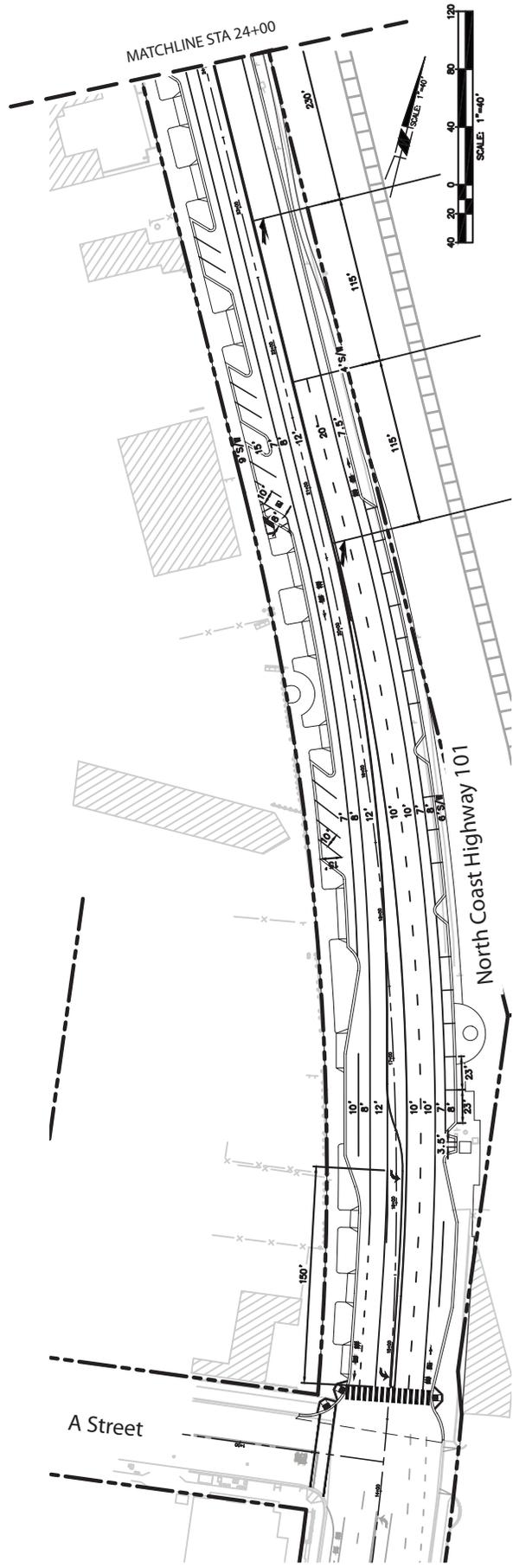
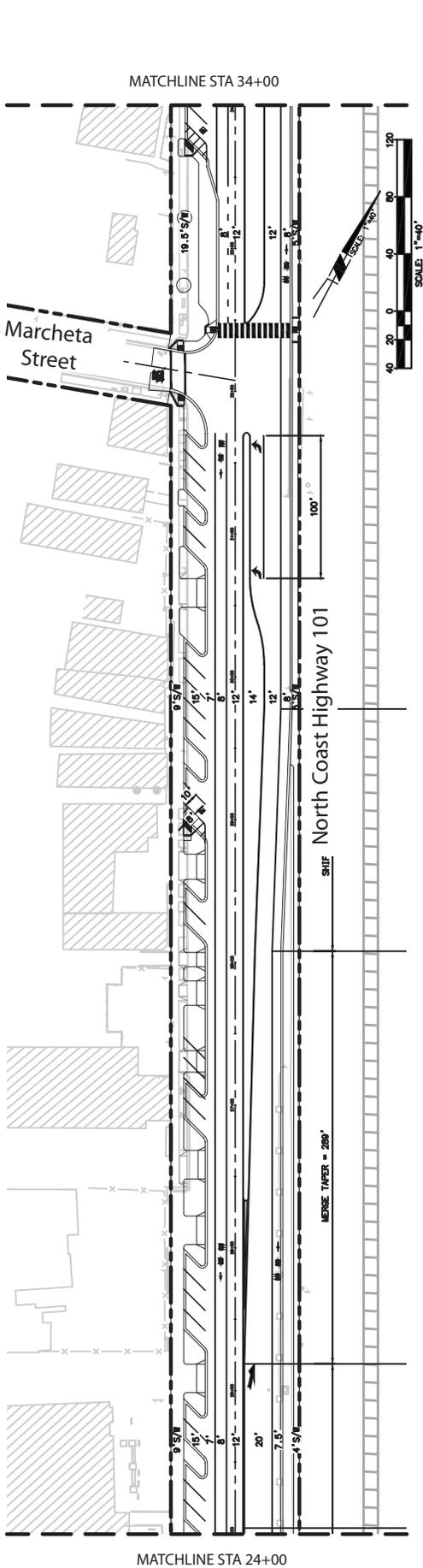
MATCHLINE STA 94+00













LEGEND

● Study Intersections



Not to Scale

STUDY SCENARIOS

This study analyzes the following scenarios:

- **Existing Conditions** – Analysis of existing traffic conditions on the roadway facilities based on current traffic counts, intersection geometry and control, roadway segment geometry and roadway network.
- **Existing Plus Project Conditions** – This scenario analyzes the traffic conditions in the study area based on current traffic volumes and with the proposed intersection geometry and control, roadway segment geometry and roadway network included in the project. This analysis is focused on those study area intersections that are directly affected by the roadway geometric changes proposed by the project.
- **Future Year 2035 No Build Conditions** – This alternative analyzes the future Year 2035 conditions with the existing lane geometry and intersection control along Highway 101. Future Year 2035 traffic volumes are based on a Series 12 model forecast conducted by SANDAG that includes land use, roadway network configuration and geometry that is specific to the City of Encinitas’s General Plan. La Costa Avenue was assumed to be a 4-lane Collector as designated in the City of Encinitas’s General Plan Circulation Element. The planned improvements at the Encinitas Boulevard / I-5 interchange was included in the analysis of this alternative.
- **Future Year 2035 Alternative 1 Conditions (Four Lane Carlsbad Blvd.)** – This alternative analyzes the future Year 2035 conditions with four lanes on Carlsbad Boulevard north of La Costa Avenue and two lanes on North Coast Highway 101 between La Costa Avenue and Encinitas Boulevard. Alternative 1 analyzes the change in intersection control to roundabouts at six intersections and a side street stop at one intersection, along North Coast Highway 101. Future Year 2035 traffic volumes are based on a Series 12 model forecast conducted by SANDAG that includes land use, roadway network configuration and geometry that is specific to the City of Encinitas’s General Plan. La Costa Avenue was assumed to be a 4-lane Collector as designated in the City of Encinitas’s General Plan Circulation Element. The planned improvements at the Encinitas Boulevard / I-5 interchange were included in the analysis of this alternative.
- **Future Year 2035 Alternative 2 Conditions (Two-Lane Carlsbad Blvd.)** – This alternative analyzes the future Year 2035 conditions with two lanes on Carlsbad Boulevard north of La Costa Avenue and two lanes on North Coast Highway 101 between La Costa Avenue and Encinitas Boulevard. Alternative 2 analyzes the change in intersection control to roundabouts at six intersections and a side street stop at one intersection, along North Coast Highway 101. Future Year 2035 traffic volumes are based on a Series 12 model forecast conducted by SANDAG that includes land use, roadway network configuration and geometry that is specific to the City of Encinitas’s General Plan. La Costa Avenue was assumed to be a 4-lane Collector as designated in the City of Encinitas’s General Plan Circulation Element. The planned improvements at the Encinitas Boulevard / I-5 interchange were included in the analysis of this alternative.

- **Future Year 2035 Alternative 1 With Mixed-Use Places (SMUP) Conditions** – This alternative analyzes the future Year 2035 conditions with the road network assumed in Alternative 1. This alternative also includes the potential traffic associated with the Sustainable Mixed-Use Places (SMUP) Housing Strategy Alternative which is part of the City of Encinitas’s Housing Element Update. Future Year 2035 traffic volumes for this alternative were derived by adding Alternative 1 traffic volumes to the project-related SMUP Housing Strategy Alternative traffic volumes.

Highway 101 / La Costa Avenue Intersection Additional Analysis – The currently approved Encinitas Beach Resort project includes a driveway to the project on North Coast Highway 101 that is aligned with La Costa Avenue. This effectively adds a west leg to the intersection. The currently approved development plan includes a signal at the intersection. The Highway 101 Streetscape Project proposes a three legged roundabout at this location with an alternative access to the Encinitas Beach Resort located further to the south. Additional analysis was conducted at this intersection for the Future Year 2035 Alternative 1 and Future Year 2035 Alternative 2 conditions in order to evaluate the potential impacts if the currently approved Encinitas Beach Resort access plan is constructed.

Currently Carlsbad Boulevard north of La Costa Avenue is a four lane roadway with a bike lane on both sides of the street. The City of Carlsbad is proposing improvements on Carlsbad Boulevard, north of La Costa Avenue, to accommodate traffic flow and enhance safety for bicyclists and pedestrians. As part of the improvements, the City of Carlsbad is evaluating the option of reconfiguring the roadway by reducing the number of lanes from four to two but has not officially decided on the preferred alternative. With the possibility of Carlsbad Boulevard being built as either two lanes or four lanes, this traffic impact study evaluates the effects of both alternatives.

ANALYSIS METHODOLOGY

Analysis of all intersections and roadway segments in the project study area is based on the SANTEC/ITE traffic study guidelines. The operating conditions of the roadway facility is described in terms of level of service (LOS) with a scale ranging from LOS A (free-flow conditions) to LOS F (severely congested conditions) are used.

Intersection Analysis Methodology

The Highway Capacity Manual (HCM) 2000 methodology was used to analyze signalized and un-signalized intersections. HCM 2010 methodology was used to analyze intersections with roundabouts. As per the methodology, the peak hour LOS for the intersection was determined by calculating control delay. LOS is based on the average delay per vehicle for all movements for all types of intersection control. Synchro and Traffix analysis software were used to calculate control delay and determine the LOS of signalized and un-signalized intersections. Sidra analysis software was used to calculate control delay and determine the LOS of roundabout intersections.

Table 1 below shows the LOS criteria for signalized, un-signalized and roundabout intersections.

**Table 1
Signalized, Un-signalized and Roundabout Intersections
Level of Service & Delay Ranges**

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	Un-signalized and Roundabout Intersections
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: 2000 Highway Capacity Manual and 2010 Highway Capacity Manual.

Roadway Segment Analysis Methodology

To better evaluate the segment operations, peak hour directional segment analysis was conducted which evaluates the worst case condition. The capacity of the segment was determined by factoring the base saturation flow rate of 2,000 vehicles per hour per lane (VPHPL) to account for friction due to on-street parking and due to turning vehicles at minor side street intersections. For the existing roadway geometry conditions along Highway 101, a composite total of 30% flow rate reduction was assumed, in the southbound direction, with a reduction of 20% due to parking friction and 10% due to turning vehicle friction. In the northbound direction, a reduction of 10% was assumed due to turning vehicle friction at stop-controlled side streets. Along Highway 101, it was assumed that the reduction in roadway capacity for project alternatives will not be the same as that of the existing geometry. With the bike lanes proposed in the project design, a buffer is created between the travelling vehicles and vehicles either parking or turning. Therefore, for the project alternative scenarios in the southbound direction, the reduction in base saturation flow rate was adjusted by 10% for parking friction and 5% due to turning vehicles at stop-controlled side streets, for a combined total of 15%. In the northbound direction, a reduction of 5% was assumed due to turning vehicle friction. For La Costa Avenue a reduction of 10% was assumed due to turning vehicle friction in both directions and for all scenarios.

The peak hour directional volume of the segment was then divided by the adjusted capacity to determine the volume to capacity (v/c) ratio of the segment. This ratio was then compared to the LOS thresholds for segments defined in the SANTEC/ITE traffic study guideline to determine the LOS of the segment. The SANTEC/ITE LOS thresholds for segments is shown in Table 2 below:

**Table 2
Segment Level of Service Thresholds Based on V/C Ratios**

LOS	V/C Ratio
A	< 0.41
B	0.42 – 0.62
C	0.63 – 0.79
D	0.80 – 0.92
E	0.93 – 1.00
F	> 1.00

Ramp Meter Analysis Methodology

The purpose of ramp meters is to regulate the flow of traffic entering the freeway mainline from the ramps. This is done to maximize capacity and reduce congestion on the freeway mainline. Ramp meter rates are adjusted based on the conditions on the freeway mainline. When there is congestion on the freeway, the ramp discharge rate will be low and with free flowing conditions on the freeway mainline the ramp discharge rate is higher.

The measure of effectiveness (MOE) for ramp meter analysis is delay in minutes. Following are the equations to calculate the delay and queue length:

$$\text{Delay} = \frac{\text{Excess Demand} \times 60 \text{ Minutes per Hour}}{\text{Meter Rate}}$$

$$\text{Queue} = \text{Excess Demand} \times 25 \text{ feet per vehicle}$$

For this study, ramp meter rates were obtained from Caltrans and are included in Appendix B. Since the discharge rate is dynamic, an average of the discharge rate was used for the calculation. The demand on the ramp was obtained by adding the corresponding turn movements entering the ramp from the adjacent intersection. A 15% reduction in the demand was made to account for traffic using the ramp HOV lane.

Traffic conditions at ramp meter locations are considered to be unacceptable if the delay exceeds 15 minutes.

Significance Criteria

As per SANTEC/ITE traffic impact study guidelines, a project is considered to have significant impact if it causes the study roadway facility to deteriorate by a certain defined threshold. Mitigation measures need to be identified for facilities that are significantly impacted by the project. In the City of Encinitas, the acceptable level of service for roadway segments and intersections is LOS D or better. When the project causes the LOS to deteriorate from LOS D or better to LOS E or F, the project is considered to cause a significant impact. For segments and intersections operating at LOS E or F, if the project increases the v/c equal to or greater than 0.02 for segments or, increases delay equal to or greater than 2 seconds at intersections, the project is considered to cause a significant impact.

SANTEC/ITE traffic impact study guideline defines a ramp meter to be significantly impacted by the project if the project trips causes the vehicle delay at the ramp meter to exceed 15 minutes. For ramp meter locations already operating at an unacceptable condition, the project is considered to cause a significant impact if it increases delay by 2 minutes or more.

EXISTING CONDITIONS

A detailed field review was conducted to determine the existing intersection geometry, traffic control devices, signal phasing and other factors, which could affect intersection or roadway segment capacity. The existing intersection lane geometry is illustrated in Exhibit 10 and Exhibit 11.

Traffic Volumes

The intersection turn movement counts for the weekday morning peak period were conducted between 7:00 AM and 9:00 AM and for the weekday evening peak period between 4:00 PM and 6:00 PM. Segment daily traffic was obtained through machine data collection. Both the intersection and segment counts were conducted in April 2015. The AM and PM peak hour intersection turn movement volumes are shown in Exhibit 12 and Exhibit 13. The segment daily traffic volumes are shown in Exhibit 14. The intersection and segment counts sheets are included in Appendix A.

Roadway Network

North Coast Highway 101 (Highway 101) - which runs in the north/south direction has two vehicle travel lanes in the southbound direction. Two vehicle travel lanes are provided in the northbound direction except for the segment between Diana Street and south of La Costa Avenue, where the number of lanes drops to one. Highway 101 is classified as four-lane Major Arterial in the City of Encinitas General Plan. A dedicated bike lane exists in the southbound direction to a point just south of La Costa Avenue. Here bikes are accommodated in a curb lane “sharrow” 570’ south of Marcheta Street where a dedicated bike lane begins. In the northbound direction, a dedicated bike lane exists from Encinitas Boulevard to A Street, where the bike lane transitions to a curb lane sharrow. The bike sharrow transitions back to a dedicated bike lane at Glaucus Street where the roadway transitions from two vehicular travel lanes to one lane. Parking is restricted along the east side of the street and permitted along most of the west side of the street. The traffic along the corridor is separated by a raised median north of Cadmus Street, by a Two-Way Left-Turn Lane (TWLTL) from Cadmus Street to south of Marcheta Street and by a double yellow stripe for the rest of the study segment. The posted speed limit along the corridor within the project study area, in both the northbound and southbound directions is 35 mph. Bus stops are provided at key locations along the corridor. The adjoining land use for most part of west of the corridor is commercial with some residential in the northern part of the corridor. No development exists most part of the east side of the corridor which consists of the railroad corridor right-of-way.

La Costa Avenue – which runs in the east/west direction has one lane in each direction and a posted speed limit of 40 mph between Highway 101 and the I-5 southbound ramps. The street has two lanes in each direction between the I-5 Ramps. Parking is not permitted within the study area and bike lanes are provided on either side of the street. Within the study area La Costa Avenue is classified as a four-lane Collector in the City of Encinitas General Plan.

Leucadia Boulevard – which runs in the east/west direction has one lane in each direction with a two way left turn lane (TWLTL) between Highway 101 and Orpheus Avenue. The street has two lanes in each direction between Orpheus Avenue and I-5 Northbound Ramps. The posted speed limit between Highway 101 and Orpheus Avenue is 30 mph. Parking is not permitted within the

study area except for a short stretch on southern side of the street between Hermes Avenue and Hygeia Avenue. Bike lanes exist on either side of the street. Within the study area Leucadia Boulevard is classified as two-lane Local Collector in the City of Encinitas General Plan.

Encinitas Boulevard – which runs in the east/west direction has two lanes in each direction within the study area. The posted speed limit is 40 mph between Highway 101 and I-5 Southbound Ramps. Parking is not permitted within the study area and bike lanes are provided on either side of the street. Bus stops are provided at key locations. Within the study area La Costa Avenue is classified as a four-lane Major Arterial in the City of Encinitas General Plan.

Vulcan Avenue – which runs in the north/south direction and parallel to Highway 101, has one lane in each direction within the study area. The street has a posted speed limit of 35 mph. Parking is permitted on some parts of the street. Within the study area Vulcan Avenue is classified as two-lane Local Collector in the City of Encinitas General Plan.

Neptune Avenue – which runs in the north/south direction is a one-way street in the northbound direction with one lane. The street has a posted speed limit of 25 mph. Parking is permitted along both sides for most of the street. The street is not classified in the City of Encinitas General Plan.

Existing Conditions Traffic Analysis

Table 3 summarizes the existing AM and PM peak hour intersection conditions for the study intersections based on the existing peak hour intersection volumes and existing intersection geometry. Detailed HCM and Sidra intersection analysis sheets are contained in Appendix C. The peak hour directional roadway segment conditions is shown in Table 4. The peak hour ramp meter conditions are shown in Table 5.

As shown in Table 3, all the intersections operate at an acceptable LOS D or better for both the time periods, except for the intersection of Highway 101 / Marcheta Street which operates at an unacceptable LOS F during the AM peak hour and the intersection of Encinitas Boulevard / I-5 Northbound Ramps, which operate at an unacceptable LOS E during the PM peak hour.

As shown in Table 4 all the segments operate at an acceptable LOS during both the AM and PM peak hour.

As shown in Table 5, all the ramp meter locations operate at an acceptable condition except for I-5 Northbound On-Ramps from Leucadia Boulevard and Encinitas Boulevard, which operate at unacceptable conditions.

**Table 3
Existing Peak Hour Intersection Conditions**

ID	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	Hwy 101 / La Costa Ave.	Signal	21.8	C	32.2	C
2	Hwy 101 / New Road	N/A	--	--	--	--
3	Hwy 101 / Bishops Gate Rd.	SSS	2.5	A	1.1	A
4	Hwy 101 / Grandview St.	SSS	2.1	A	1.5	A
5	Hwy 101 / Jupiter St.	SSS	1.0	A	0.7	A
6	Hwy 101 / Leucadia Blvd.	Signal	52.0	D	33.3	C
7	Hwy 101 / El Portal St.	SSS	1.0	A	0.9	A
8	Hwy 101 / Marcheta St.	AWS	93.6	F	25.4	D
9	Hwy 101 / Encinitas Blvd.	Signal	29.4	C	31	C
10	Neptune Ave. / Grandview St.	SSS	3.9	A	4.8	A
11	Neptune Ave. / Jupiter St.	SSS	1.6	A	1.6	A
12	Neptune Ave. / Leucadia Blvd.	SSS	5.1	A	4	A
13	Neptune Ave. / N El Portal St.	SSS	2.7	A	2.8	A
14	La Costa Ave. / Vulcan Ave.	SSS	6.1	A	5.2	A
15	La Costa Ave. / Sheridan Rd.	SSS	2.9	A	1.9	A
16	La Costa Ave. / I-5 SB Ramps	Signal	49.4	D	32.1	C
17	La Costa Ave. / I-5 NB Ramps	Signal	23.6	C	33.8	C
18	Leucadia Blvd. / Vulcan Ave.	Signal	52.2	D	44.2	D
19	Leucadia Blvd. / Hygeia Ave.	AWS	17.3	C	17	C
20	Leucadia Blvd. / Hymettus Ave.	Roundabout	9.4	A	10.7	B
21	Leucadia Blvd. / Orpheus Ave.	Signal	24.8	C	24.6	C
22	Leucadia Blvd. / I-5 SB Ramps	Signal	44.5	D	30.9	C
23	Leucadia Blvd. / I-5 NB Ramps	Signal	19.0	B	24.6	C
24	Encinitas Blvd. / Vulcan Ave.	Signal	25.0	C	33.5	C
25	Encinitas Blvd. / I-5 SB Ramps	Signal	33.8	C	40.2	D
26	Encinitas Blvd. / I-5 NB Ramps	Signal	23.3	C	68.8	E
27	Vulcan Ave. / Orpheus Ave.	SSS	6.6	A	1.2	A

SSS - Side Street Stop

AWS - All-Way Stop

**Table 4
Existing Peak Hour Directional Roadway Segment Conditions**

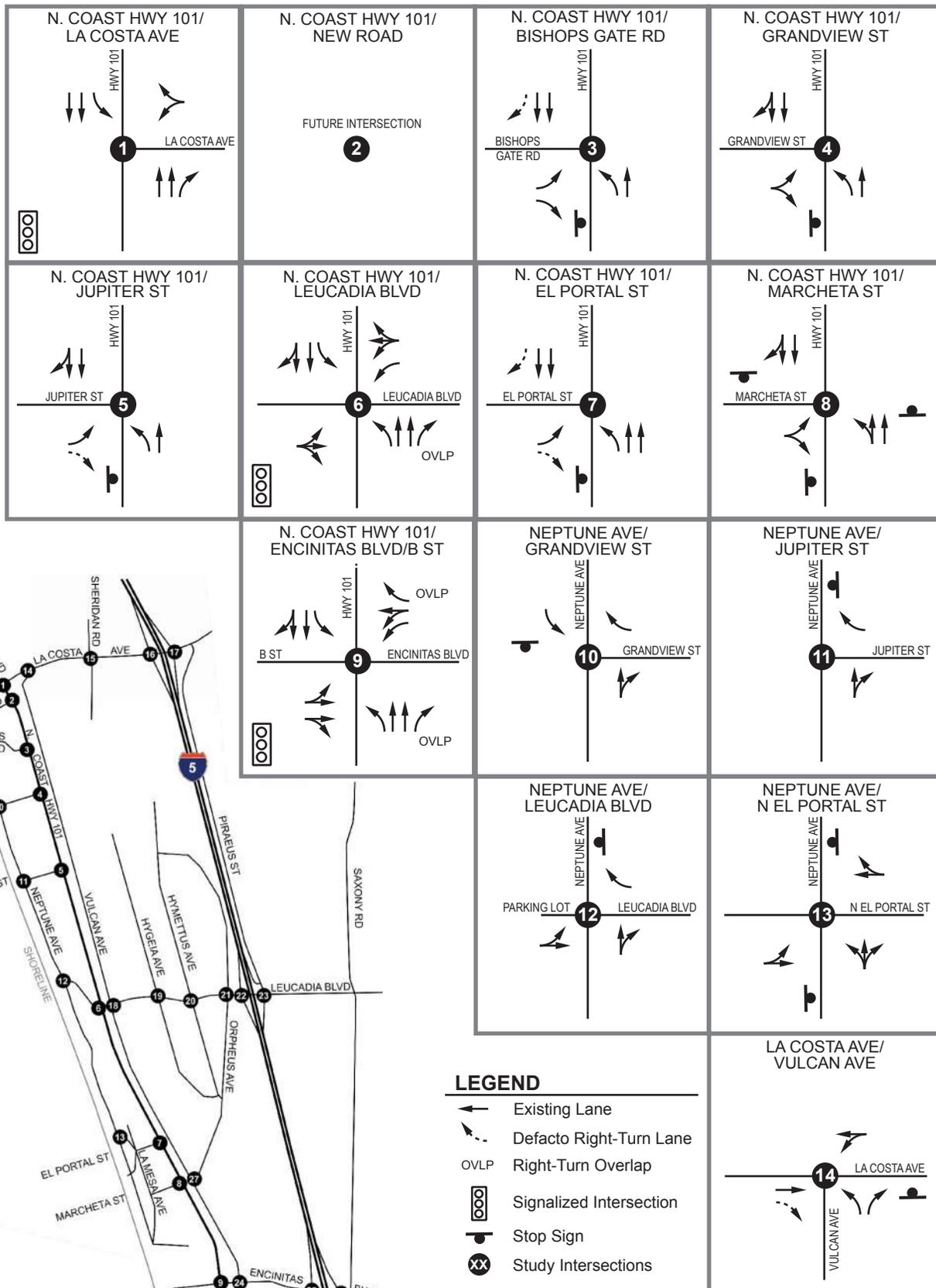
Roadway Segment	Direction	Lanes	Segment Capacity ¹	AM Peak Hour			PM Peak Hour		
				Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS
Highway 101									
Between La Costa Ave. and Grandview St.	Northbound	1-Lane	2,000	398	0.199	A	828	0.414	B
	Southbound	2-Lane	2,800	1,311	0.468	B	629	0.225	A
Between Grandview St. and Jupiter St.	Northbound	1-Lane	1,800	340	0.189	A	848	0.471	B
	Southbound	2-Lane	2,800	1,465	0.523	B	680	0.243	A
Between Jupiter St. and Leucadia Blvd.	Northbound	1-Lane	1,800	354	0.197	A	853	0.474	B
	Southbound	2-Lane	2,800	1,406	0.502	B	645	0.230	A
Between Leucadia Blvd. and El Portal St.	Northbound	2-Lane	3,600	296	0.082	A	864	0.240	A
	Southbound	2-Lane	2,800	1,392	0.497	B	630	0.225	A
Between El Portal St. and Marcheta St.	Northbound	2-Lane	3,600	274	0.076	A	925	0.257	A
	Southbound	2-Lane	2,800	1,266	0.452	B	614	0.219	A
Between Marcheta St. and Encinitas Blvd.	Northbound	2-Lane	3,600	371	0.103	A	978	0.272	A
	Southbound	2-Lane	2,800	1,286	0.459	B	667	0.238	A
La Costa Avenue									
Between Hwy 101 and Vulcan Ave.	Eastbound	1-Lane	1,800	496	0.276	A	459	0.255	A
	Westbound	1-Lane	1,800	512	0.284	A	521	0.289	A
Between Vulcan Ave. and Sheridan Rd.	Eastbound	1-Lane	1,800	600	0.333	A	603	0.335	A
	Westbound	1-Lane	1,800	733	0.407	A	600	0.333	A
Between Sheridan Rd. and I-5 Southbound Ramps	Eastbound	1-Lane	1,800	688	0.382	A	588	0.327	A
	Westbound	1-Lane	1,800	738	0.410	A	655	0.364	A

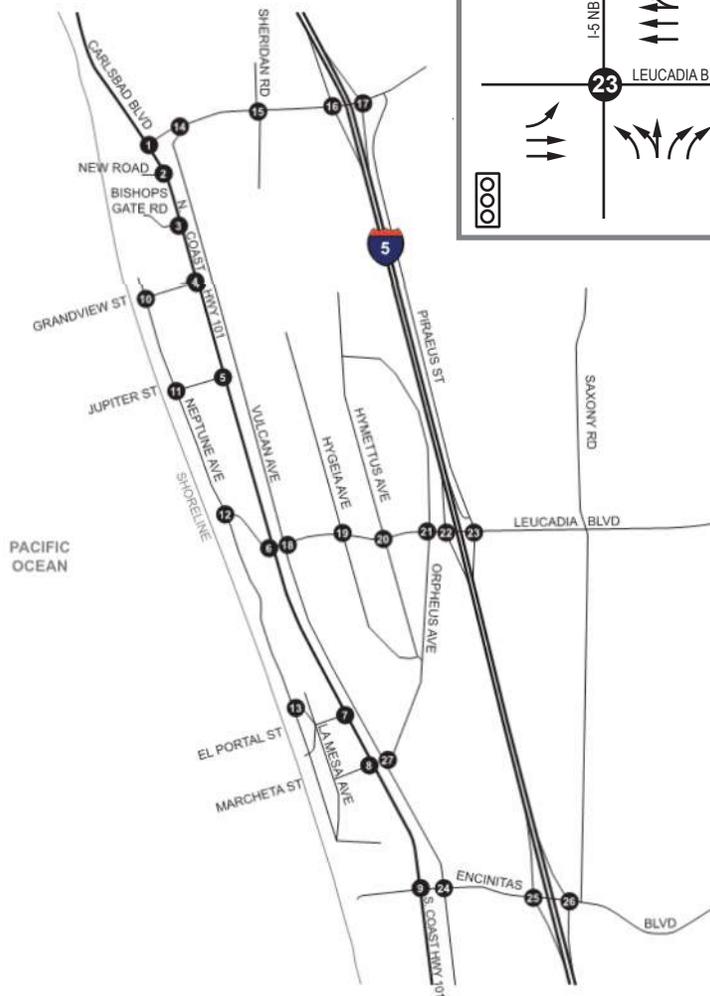
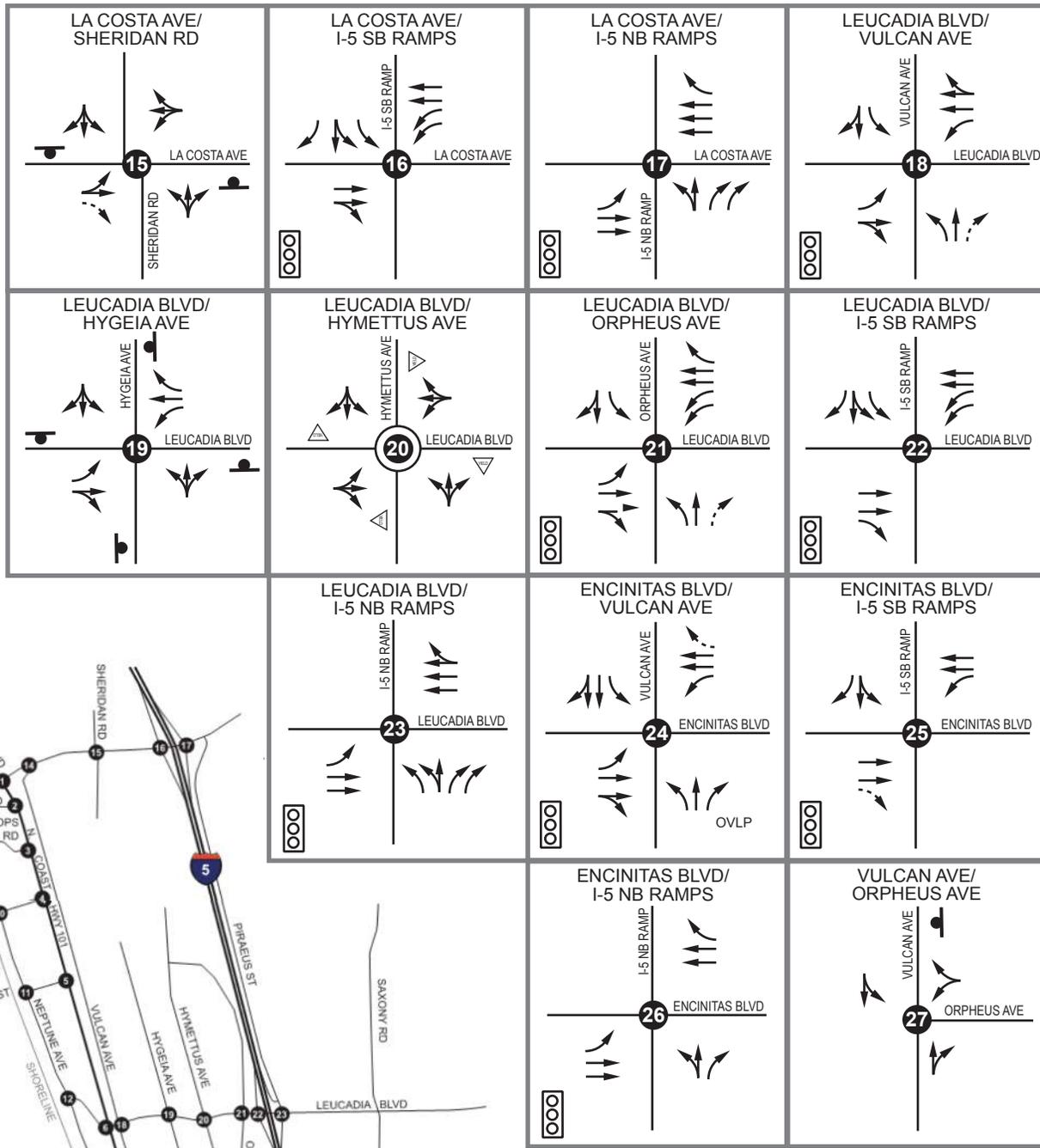
¹ - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction
- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 20% Parking Friction Reduction; 10% Turning Vehicle Friction Reduction
- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

**Table 5
Existing Ramp Meter Conditions**

Location	Peak Hour	Meter Rate (veh/hr/ln)	Demand (veh/hr/ln)	Excess Demand (veh/hr/ln)	Delay (min/ln)	Queue (ft/ln)
La Costa Avenue / I-5 Ramp						
La Costa Ave. / I-5 NB On-Ramp	PM	744	481	0	0.0	0
La Costa Ave. / I-5 SB On-Ramp	AM	455	294	0	0.0	0
La Costa Ave. / I-5 SB On-Ramp	PM	455	318	0	0.0	0
Leucadia Boulevard / I-5 Ramp						
Leucadia Blvd. / I-5 NB On-Ramp	PM	453	595	142	19	3,550
Leucadia Blvd. / I-5 SB On-Ramp	AM	255	317	62	14.6	1,550
Leucadia Blvd. / I-5 SB On-Ramp	PM	257	252	0	0.0	0
Encinitas Boulevard / I-5 Ramp						
Encinitas Blvd. / I-5 NB On-Ramp	PM	414	574	160	23.2	4,000
Encinitas Blvd. / I-5 SB On-Ramp	AM	744	617	0	0.0	0
Encinitas Blvd. / I-5 SB On-Ramp	PM	744	495	0	0.0	0

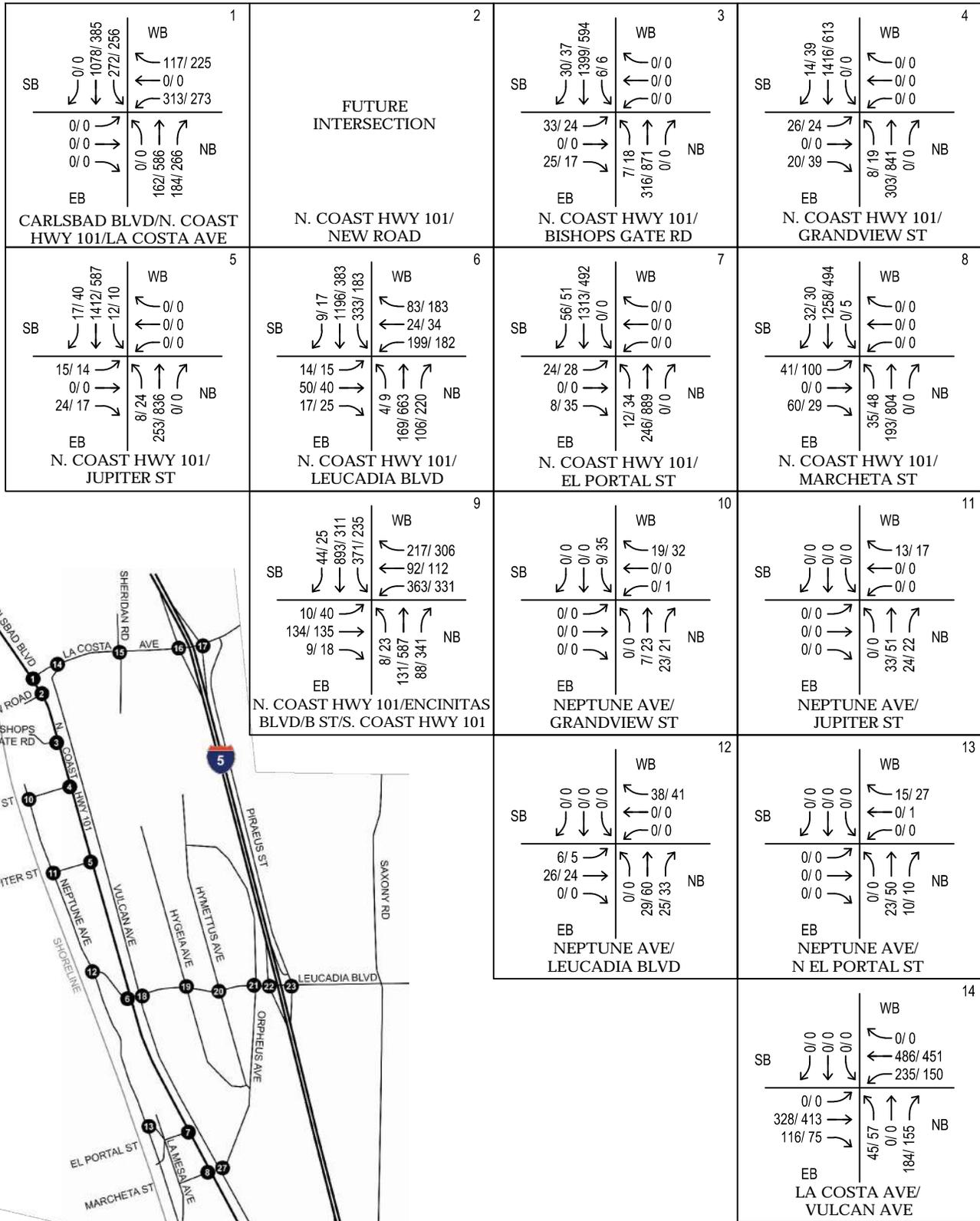
Ramp meter delay greater than 15 minutes/lane is considered unacceptable





LEGEND

- ← Existing Lane
- ↪ Defacto Right-Turn Lane
- OVLP Right-Turn Overlap
- ⓪ Signalized Intersection
- Ⓢ Stop Sign
- ⓧ Roundabout
- ⓧ Study Intersections





LEGEND

- XX Study Intersections
- X,XXX Roadway Segment Daily Traffic



Not to Scale

EXISTING PLUS PROJECT CONDITIONS

This section evaluates the effects of the project on the study area for the existing conditions. Traffic volumes were assumed to remain the same as the existing without the project conditions. The existing plus project intersection lane geometry is illustrated in Exhibit 15 and Exhibit 16.

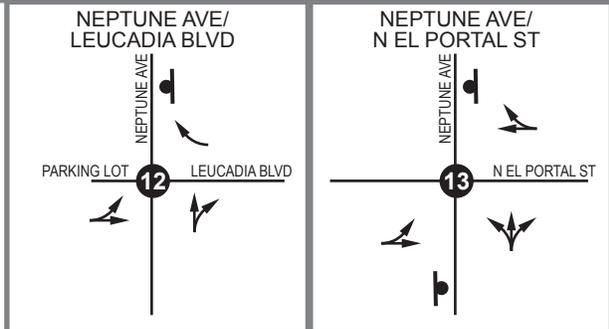
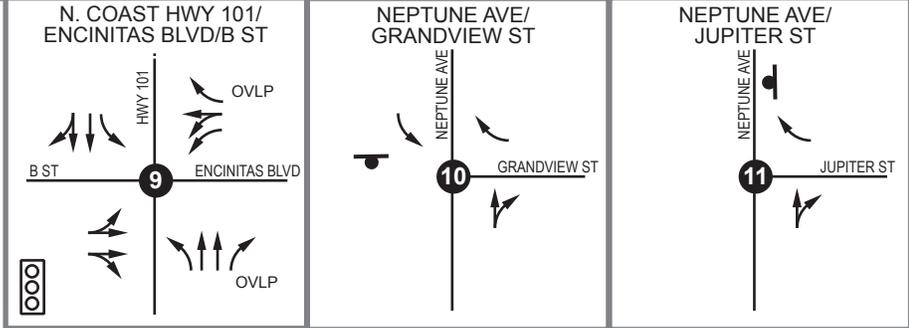
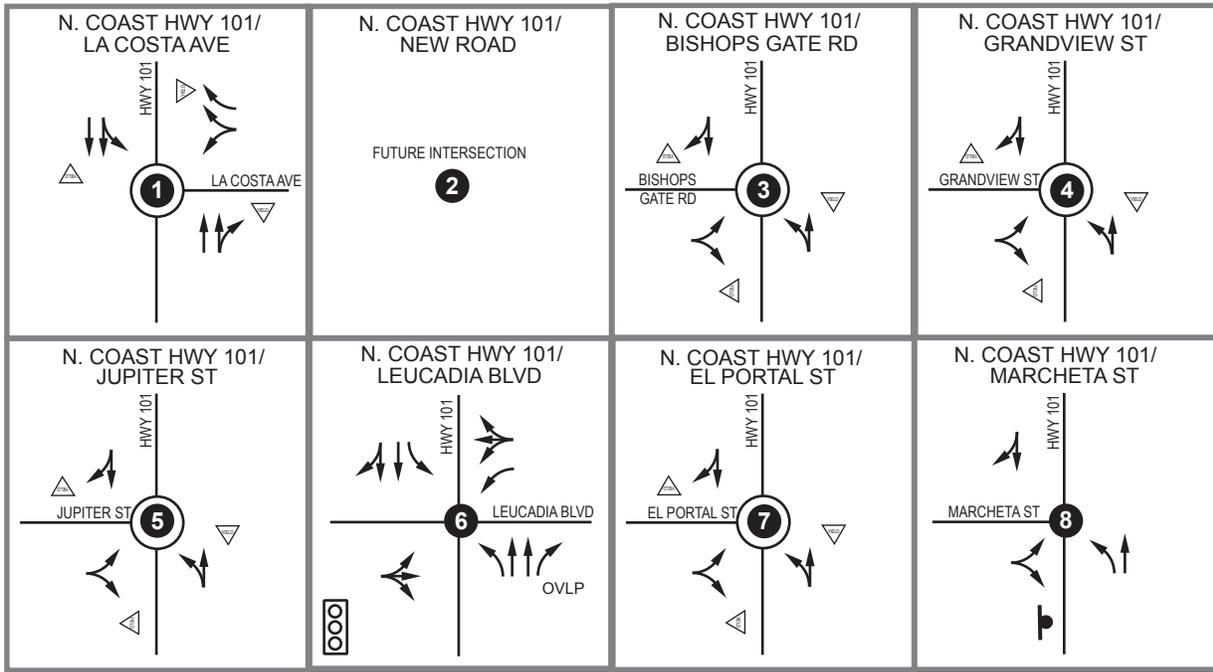
Existing Plus Project Conditions Traffic Analysis

Traffic analysis was conducted based on the existing AM and PM peak hour volumes and the proposed roadway geometry and intersection control. The AM and PM peak hour intersection conditions are presented in Table 6 and Table 7 respectively. The AM and PM peak hour directional roadway segment conditions are presented in Table 8 and Table 9 respectively. The ramp meter conditions are presented in Table 10. Detailed HCM and Sidra intersection analysis work sheets are included in Appendix C.

As shown in Table 6, all the intersections for the Existing Plus Project conditions operated at an acceptable LOS D or better during the AM peak hour. During the PM peak hour, as shown in Table 7, all intersections operate at an acceptable LOS D or better except for the intersection at Encinitas Boulevard / I-5 Northbound Ramps, which operates an unacceptable LOS E. It is important to note that the project does not result in changes to either the intersection configuration or the traffic volumes at this intersection and the delay and LOS is exactly the same as Existing conditions. Comparing the Existing Plus Project condition with the Existing conditions, the project does not cause any significant impact at any of the intersection locations.

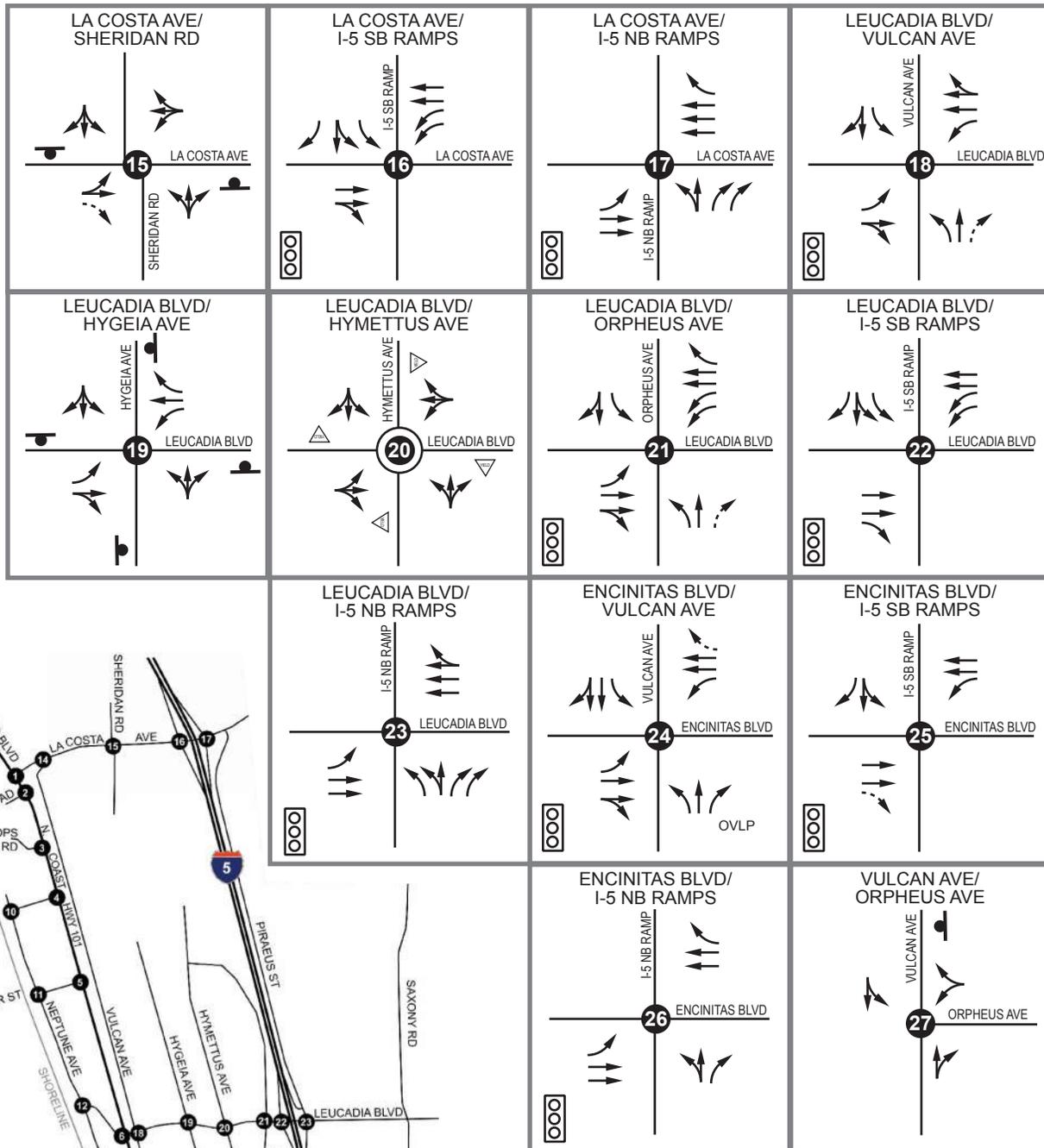
As shown in Table 8 and Table 9 all the segments operate at an acceptable LOS for the Existing Plus Project conditions, during both the AM and PM peak hours. Comparing the Existing Plus Project condition with the Existing conditions, the project does not cause any significant impact on any of the roadway segments.

Because the project does not propose any modifications to the studied ramp meter locations and traffic volumes are the same as without project conditions, the Existing Plus Project ramp meter analysis is the same as Existing Without Project. As shown in Table 10, all the ramp meter locations operate at an acceptable condition except for I-5 Northbound On-Ramps from Leucadia Boulevard and Encinitas Boulevard, operates at unacceptable conditions. These results are consistent with the Existing Without Project scenario. Therefore the project does not cause any significant impacts at any ramp meter locations.



LEGEND

- Existing Lane
- Defacto Right-Turn Lane
- Right-Turn Overlap
- Signalized Intersection
- Stop Sign
- Roundabout
- Study Intersections



- LEGEND**
- ← Existing Lane
 - ↪ Defacto Right-Turn Lane
 - OVLP Right-Turn Overlap
 - ◻◻◻ Signalized Intersection
 - ⊥ Stop Sign
 - ⊗ Roundabout
 - ⊗ Study Intersections

**Table 6
Existing Plus Project Intersection Conditions - AM Peak Hour**

ID	Intersection	Existing Conditions			Existing With Project Conditions			Δ Delay	Significant
		Control	Delay	LOS	Control	Delay	LOS		
1	Hwy 101 / La Costa Ave.	Signal	21.8	C	R	4.4	A	-17.4	No
2	Hwy 101 / New Road	--	--	--	--	--	--	--	--
3	Hwy 101 / Bishops Gate Rd.	SSS	2.5	A	R	4.8	A	2.3	No
4	Hwy 101 / Grandview St.	SSS	2.1	A	R	3.2	A	1.1	No
5	Hwy 101 / Jupiter St.	SSS	1.0	A	R	3.1	A	2.1	No
6	Hwy 101 / Leucadia Blvd.	Signal	52.0	D	Signal	52.0	D	0.0	No
7	Hwy 101 / El Portal St.	SSS	1.0	A	R	3.3	A	2.3	No
8	Hwy 101 / Marcheta St.	AWS	93.6	F	SSS	6.6	A	-87.0	No
9	Hwy 101 / Encinitas Blvd.	Signal	29.4	C	Signal	29.4	C	0.0	No
10	Neptune Ave. / Grandview St.	SSS	3.9	A	SSS	3.9	A	0.0	No
11	Neptune Ave. / Jupiter St.	SSS	1.6	A	SSS	1.6	A	0.0	No
12	Neptune Ave. / Leucadia Blvd.	SSS	5.1	A	SSS	5.1	A	0.0	No
13	Neptune Ave. / N El Portal St.	SSS	2.7	A	SSS	2.7	A	0.0	No
14	La Costa Ave. / Vulcan Ave.	SSS	6.1	A	SSS	6.1	A	0.0	No
15	La Costa Ave. / Sheridan Rd.	SSS	2.9	A	SSS	2.9	A	0.0	No
16	La Costa Ave. / I-5 SB Ramps	Signal	49.4	D	Signal	49.4	D	0.0	No
17	La Costa Ave. / I-5 NB Ramps	Signal	23.6	C	Signal	23.6	C	0.0	No
18	Leucadia Blvd. / Vulcan Ave.	Signal	52.2	D	Signal	52.2	D	0.0	No
19	Leucadia Blvd. / Hygeia Ave.	AWS	17.3	C	AWS	17.3	C	0.0	No
20	Leucadia Blvd. / Hymettus Ave.	Roundabout	9.4	A	R	9.4	A	0.0	No
21	Leucadia Blvd. / Orpheus Ave.	Signal	24.8	C	Signal	24.8	C	0.0	No
22	Leucadia Blvd. / I-5 SB Ramps	Signal	44.5	D	Signal	44.5	D	0.0	No
23	Leucadia Blvd. / I-5 NB Ramps	Signal	19.0	B	Signal	19.0	B	0.0	No
24	Encinitas Blvd. / Vulcan Ave.	Signal	25.0	C	Signal	25.0	C	0.0	No
25	Encinitas Blvd. / I-5 SB Ramps	Signal	33.8	C	Signal	33.8	C	0.0	No
26	Encinitas Blvd. / I-5 NB Ramps	Signal	23.3	C	Signal	23.3	C	0.0	No
27	Vulcan Ave. / Orpheus Ave.	SSS	6.6	A	SSS	6.6	A	0.0	No

SSS - Side Street Stop

AWS - All-Way Stop

R- Roundabout

**Table 7
Existing Plus Project Intersection Conditions - PM Peak Hour**

ID	Intersection	Existing Conditions			Existing With Project Conditions			Δ Delay	Significant
		Control	Delay	LOS	Control	Delay	LOS		
1	Hwy 101 / La Costa Ave.	Signal	32.2	C	R	7.3	A	-24.9	No
2	Hwy 101 / New Road	--	--	--	--	--	--	--	--
3	Hwy 101 / Bishops Gate Rd.	SSS	1.1	A	R	2.7	A	1.6	No
4	Hwy 101 / Grandview St.	SSS	1.5	A	R	2.6	A	1.1	No
5	Hwy 101 / Jupiter St.	SSS	0.7	A	R	2.6	A	1.9	No
6	Hwy 101 / Leucadia Blvd.	Signal	33.3	C	Signal	33.3	C	0.0	No
7	Hwy 101 / El Portal St.	SSS	0.9	A	R	3.1	A	2.2	No
8	Hwy 101 / Marcheta St.	AWS	25.4	D	SSS	10.7	B	-14.7	No
9	Hwy 101 / Encinitas Blvd.	Signal	31.0	C	Signal	31.0	C	0.0	No
10	Neptune Ave. / Grandview St.	SSS	4.8	A	SSS	4.8	A	0.0	No
11	Neptune Ave. / Jupiter St.	SSS	1.6	A	SSS	1.6	A	0.0	No
12	Neptune Ave. / Leucadia Blvd.	SSS	4.0	A	SSS	4.0	A	0.0	No
13	Neptune Ave. / N El Portal St.	SSS	2.8	A	SSS	2.8	A	0.0	No
14	La Costa Ave. / Vulcan Ave.	SSS	5.2	A	SSS	5.2	A	0.0	No
15	La Costa Ave. / Sheridan Rd.	SSS	1.9	A	SSS	1.9	A	0.0	No
16	La Costa Ave. / I-5 SB Ramps	Signal	32.1	C	Signal	32.1	C	0.0	No
17	La Costa Ave. / I-5 NB Ramps	Signal	33.8	C	Signal	33.8	C	0.0	No
18	Leucadia Blvd. / Vulcan Ave.	Signal	44.2	D	Signal	44.2	D	0.0	No
19	Leucadia Blvd. / Hygeia Ave.	AWS	17.0	C	AWS	17.0	C	0.0	No
20	Leucadia Blvd. / Hymettus Ave.	Roundabout	10.7	B	R	10.7	B	0.0	No
21	Leucadia Blvd. / Orpheus Ave.	Signal	24.6	C	Signal	24.6	C	0.0	No
22	Leucadia Blvd. / I-5 SB Ramps	Signal	30.9	C	Signal	30.9	C	0.0	No
23	Leucadia Blvd. / I-5 NB Ramps	Signal	24.6	C	Signal	24.6	C	0.0	No
24	Encinitas Blvd. / Vulcan Ave.	Signal	33.5	C	Signal	33.5	C	0.0	No
25	Encinitas Blvd. / I-5 SB Ramps	Signal	40.2	D	Signal	40.2	D	0.0	No
26	Encinitas Blvd. / I-5 NB Ramps	Signal	68.8	E	Signal	68.8	E	0.0	No
27	Vulcan Ave. / Orpheus Ave.	SSS	1.2	A	SSS	1.2	A	0.0	No

SSS - Side Street Stop

AWS - All-Way Stop

R- Roundabout

**Table 8
Existing Plus Project Peak Hour Directional Roadway Segment Conditions -
AM Peak Hour**

Roadway Segment	Direction	Peak Hour Volume	Existing Conditions				Existing Plus Project Conditions			
			Lanes	Segment Capacity ¹	V/C	LOS	Lanes	Segment Capacity ²	V/C	LOS
Highway 101										
Between La Costa Ave. and Grandview St	Northbound	398	1-Lane	2,000	0.199	A	1-Lane	1,900	0.209	A
	Southbound	1,311	2-Lane	2,800	0.468	B	1-Lane	1,800	0.728	C
Between Grandview St and Jupiter St	Northbound	340	1-Lane	1,800	0.189	A	1-Lane	1,800	0.189	A
	Southbound	1,465	2-Lane	2,800	0.523	B	1-Lane	1,800	0.814	D
Between Jupiter St and Leucadia Blvd.	Northbound	354	1-Lane	1,800	0.197	A	1-Lane	1,800	0.197	A
	Southbound	1,406	2-Lane	2,800	0.502	B	2-Lane	3,400	0.414	B
Between Leucadia Blvd. and El Portal St	Northbound	296	2-Lane	3,600	0.082	A	1-Lane	1,800	0.164	A
	Southbound	1,392	2-Lane	2,800	0.497	B	1-Lane	1,700	0.819	D
Between El Portal St and Marcheta St	Northbound	274	2-Lane	3,600	0.076	A	1-Lane	1,900	0.144	A
	Southbound	1,266	2-Lane	2,800	0.452	B	1-Lane	1,800	0.703	C
Between Marcheta St and Encinitas Blvd.	Northbound	371	2-Lane	3,600	0.103	A	2-Lane	3,800	0.098	A
	Southbound	1,286	2-Lane	2,800	0.459	B	1-Lane	1,700	0.756	C
La Costa Avenue										
Between Hwy 101 and Vulcan Ave.	Eastbound	496	1-Lane	1,800	0.276	A	1-Lane	1,800	0.276	A
	Westbound	512	1-Lane	1,800	0.284	A	1-Lane	1,800	0.284	A
Between Vulcan Ave. and Sheridan Rd.	Eastbound	600	1-Lane	1,800	0.333	A	1-Lane	1,800	0.333	A
	Westbound	733	1-Lane	1,800	0.407	A	1-Lane	1,800	0.407	A
Between Sheridan Rd. and I-5 Southbound Ramps	Eastbound	688	1-Lane	1,800	0.382	A	1-Lane	1,800	0.382	A
	Westbound	738	1-Lane	1,800	0.410	A	1-Lane	1,800	0.410	A

¹ - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 20% Parking Friction Reduction; 10% Turning Vehicle Friction Reduction

- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

² - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 5% Turning Vehicle Friction Reduction; Additional 5% Turning Vehicle Friction Red

- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 10% Parking Friction Reduction; 5% Turning Vehicle Friction Reduction

- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

**Table 9
Existing Plus Project Peak Hour Directional Roadway Segment Conditions -
PM Peak Hour**

Roadway Segment	Direction	Peak Hour Volume	Existing Conditions				Existing Plus Project Conditions			
			Lanes	Segment Capacity ¹	V/C	LOS	Lanes	Segment Capacity ²	V/C	LOS
Highway 101										
Between La Costa Ave. and Grandview St	Northbound	828	1-Lane	2,000	0.414	B	1-Lane	1,900	0.436	B
	Southbound	629	2-Lane	2,800	0.225	A	1-Lane	1,800	0.349	A
Between Grandview St and Jupiter St	Northbound	848	1-Lane	1,800	0.471	B	1-Lane	1,800	0.471	B
	Southbound	680	2-Lane	2,800	0.243	A	1-Lane	1,800	0.378	A
Between Jupiter St and Leucadia Blvd.	Northbound	853	1-Lane	1,800	0.474	B	1-Lane	1,800	0.474	B
	Southbound	645	2-Lane	2,800	0.230	A	2-Lane	3,400	0.190	A
Between Leucadia Blvd. and El Portal St	Northbound	864	2-Lane	3,600	0.240	A	1-Lane	1,800	0.480	B
	Southbound	630	2-Lane	2,800	0.225	A	1-Lane	1,700	0.371	A
Between El Portal St and Marcheta St	Northbound	925	2-Lane	3,600	0.257	A	1-Lane	1,900	0.487	B
	Southbound	614	2-Lane	2,800	0.219	A	1-Lane	1,800	0.341	A
Between Marcheta St and Encinitas Blvd.	Northbound	978	2-Lane	3,600	0.272	A	2-Lane	3,800	0.257	A
	Southbound	667	2-Lane	2,800	0.238	A	1-Lane	1,700	0.392	A
La Costa Avenue										
Between Hwy 101 and Vulcan Ave.	Eastbound	459	1-Lane	1,800	0.255	A	1-Lane	1,800	0.255	A
	Westbound	521	1-Lane	1,800	0.289	A	1-Lane	1,800	0.289	A
Between Vulcan Ave. and Sheridan Rd.	Eastbound	603	1-Lane	1,800	0.335	A	1-Lane	1,800	0.335	A
	Westbound	600	1-Lane	1,800	0.333	A	1-Lane	1,800	0.333	A
Between Sheridan Rd. and I-5 Southbound Ramps	Eastbound	588	1-Lane	1,800	0.327	A	1-Lane	1,800	0.327	A
	Westbound	655	1-Lane	1,800	0.364	A	1-Lane	1,800	0.364	A

¹ - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 20% Parking Friction Reduction; 10% Turning Vehicle Friction Reduction

- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

² - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 5% Turning Vehicle Friction Reduction; Additional 5% Turning Vehicle Friction Red

- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 10% Parking Friction Reduction; 5% Turning Vehicle Friction Reduction

- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

**Table 10
Existing Plus Project Ramp Meter Conditions**

Location	Peak Hour	Meter Rate (veh/hr/ln)	Demand (veh/hr/ln)	Excess Demand (veh/hr/ln)	Delay (min/ln)	Queue (ft/ln)
La Costa Avenue / I-5 Ramp						
La Costa Ave. / I-5 NB On-Ramp	PM	744	481	0	0.0	0
La Costa Ave. / I-5 SB On-Ramp	AM	455	294	0	0.0	0
La Costa Ave. / I-5 SB On-Ramp	PM	455	318	0	0.0	0
Leucadia Boulevard / I-5 Ramp						
Leucadia Blvd. / I-5 NB On-Ramp	PM	453	595	142	19	3,550
Leucadia Blvd. / I-5 SB On-Ramp	AM	255	317	62	14.6	1,550
Leucadia Blvd. / I-5 SB On-Ramp	PM	257	252	0	0.0	0
Encinitas Boulevard / I-5 Ramp						
Encinitas Blvd. / I-5 NB On-Ramp	PM	414	574	160	23.2	4,000
Encinitas Blvd. / I-5 SB On-Ramp	AM	744	617	0	0.0	0
Encinitas Blvd. / I-5 SB On-Ramp	PM	744	495	0	0.0	0

Notes:

Ramp meter delay greater than 15 minutes/lane is considered unacceptable

Existing With Project ramp meter analysis results are the same as without project conditions (See Table 5)

FUTURE YEAR 2035 CONDITIONS

Future Year 2035 Traffic Volumes

Future year 2035 traffic volumes were calculated based on separate model runs performed for Alternative 1 and Alternative 2. Future Year 2035 traffic volumes are based on a SANDAG Series 12 model forecast that includes land use, roadway network configuration and geometry specific to the City of Encinitas's General Plan. La Costa Avenue was assumed to be a 4-lane Collector as designated in the City of Encinitas's General Plan Circulation Element. The planned improvements at the Encinitas Boulevard / I-5 interchange was included in the analysis of these alternatives. The future Year 2035 traffic model runs also assume the completion of the I-5 North Coast Corridor Managed Lanes Project. The model forecast plots are included in Appendix D.

The model forecast for Alternative 1 was conducted with 4 lanes on Carlsbad Boulevard north of La Costa Avenue and the model forecast for Alternative 2 included 2 lanes on Carlsbad Boulevard north of La Costa Avenue. Both the model runs were conducted with 2 lanes on Highway 101, between La Costa Avenue and Encinitas Boulevard and changes in intersection control at six intersections along Highway 101. The intersection locations that had a change in the type of control are as follows:

- La Costa Avenue changed from signal to roundabout
- Bishops Gate Road from side street stop to roundabout
- Grandview Street from side street stop to roundabout
- Jupiter Street from side street stop to roundabout
- El Portal Street from side street stop to roundabout
- Marcheta Street from all-way stop to side street stop

With the reduction in the number of travel lanes along Highway 101, both the model runs show a decrease in the forecast daily trips on Highway 101, south of La Costa Avenue, for future Year 2035 conditions when compared to the existing (Year 2015) daily trips. The models show an increase in forecast daily trips on La Costa Avenue and Vulcan Avenue when compared to the existing daily trips. Both the model runs show a resulting change in traffic pattern due to the proposed project with a relatively small amount of traffic being diverted to La Costa Avenue, Vulcan Avenue and I-5.

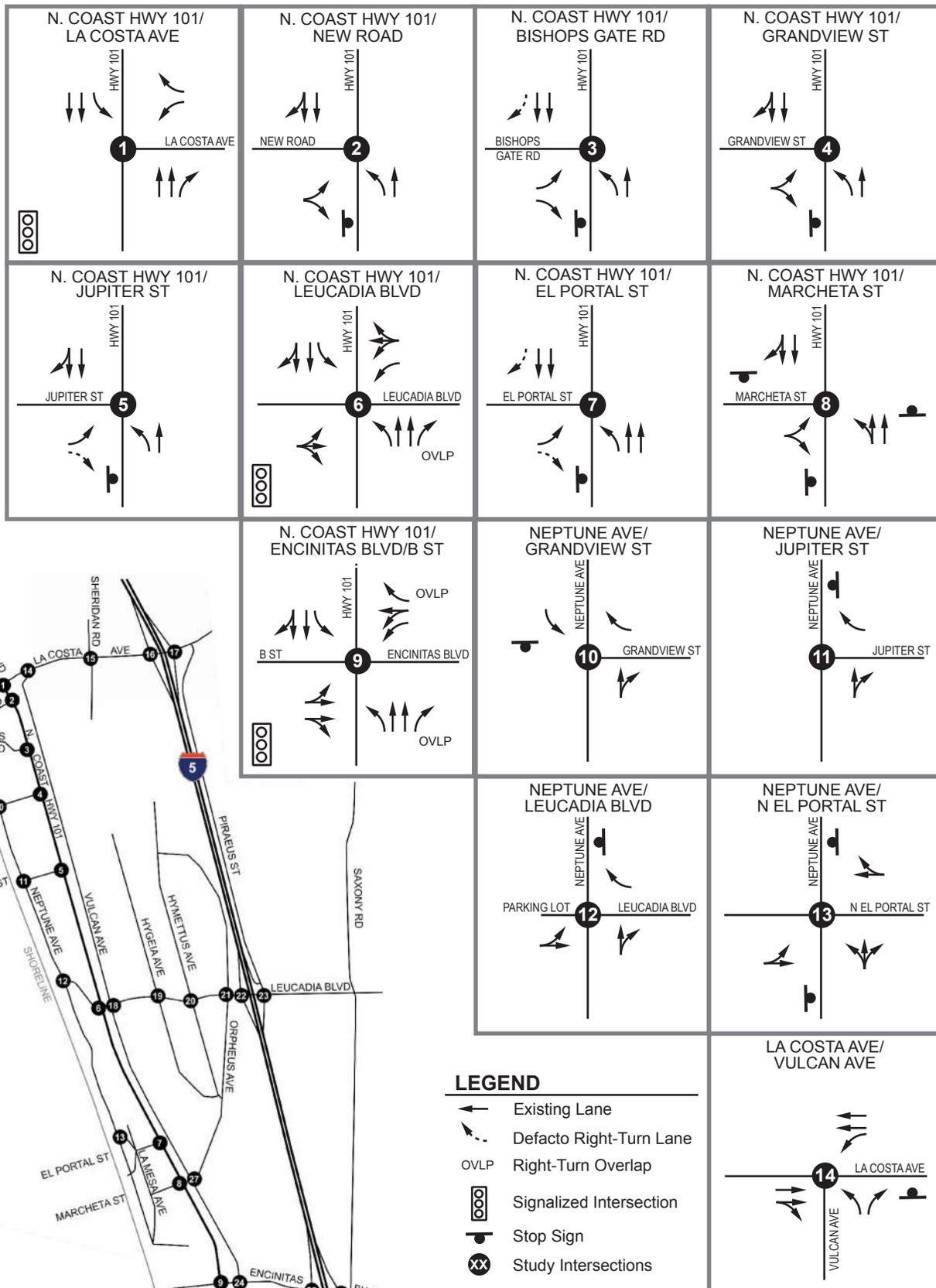
Comparing the daily trips along Highway 101 between the two lane configurations alternatives for Carlsbad Boulevard, the model run for Alternative 1 shows slightly higher daily trips compared to the model forecast for Alternative 2.

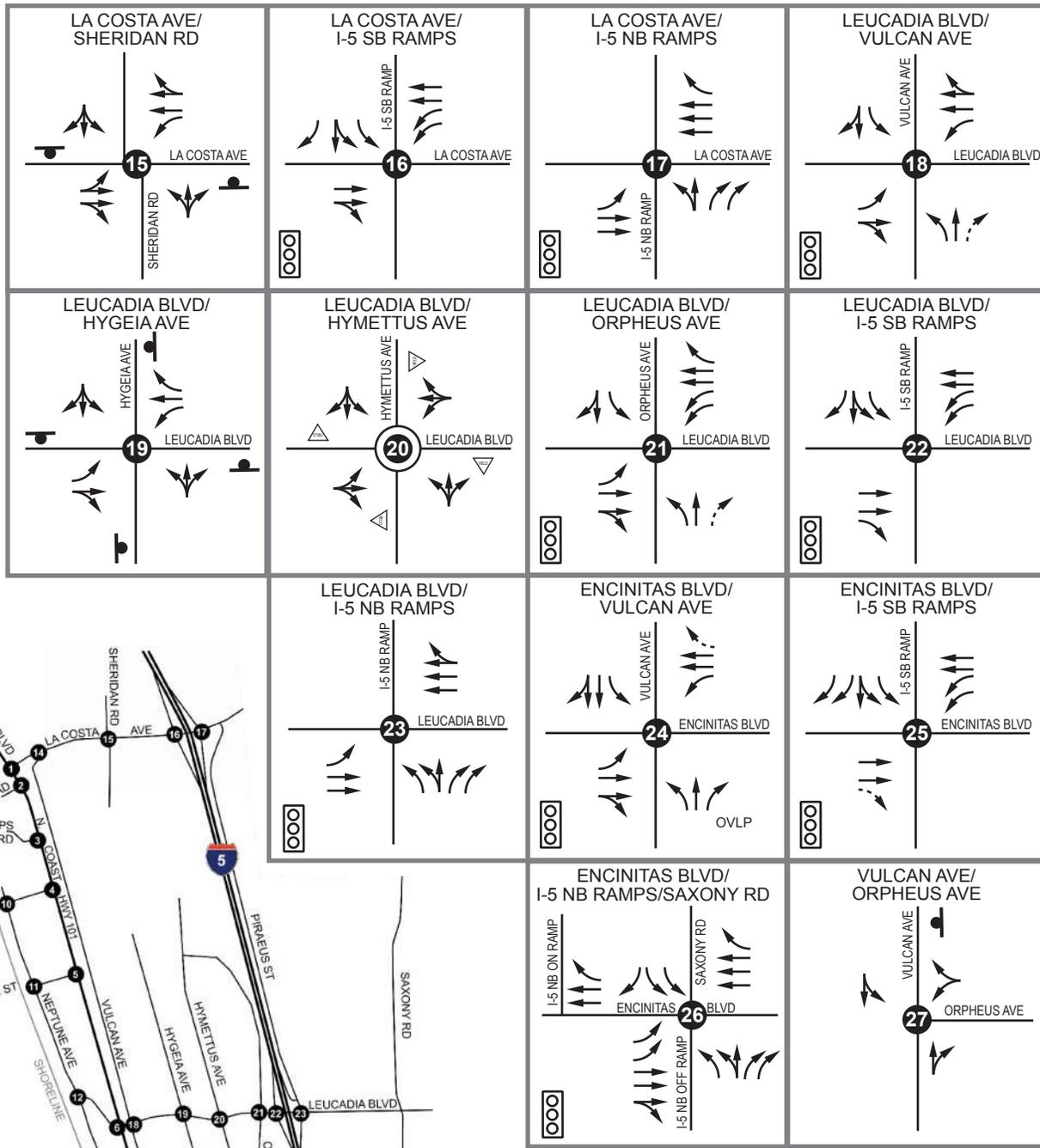
Future year 2035 daily volumes were used to post-process existing peak hour volumes to generate the intersection peak hour turning movement volumes for the future alternative conditions. With an understanding of the current peak hour directional distribution characteristics, the post processed traffic volumes were reviewed to ensure reasonable growth based on existing and Year 2035 daily traffic volumes.

Future Year 2035 Roadway Network and Geometry

Future year 2035 intersection lane geometry and traffic volumes for each scenario are provided graphically in the following exhibits:

- Exhibit 17: Year 2035 No Build Intersection Lane Geometry - Area 1
- Exhibit 18: Year 2035 No Build Intersection Lane Geometry - Area 2
- Exhibit 19: Year 2035 No Build Peak Hour Intersection Volumes - Area 1
- Exhibit 20: Year 2035 No Build Peak Hour Intersection Volumes - Area 2
- Exhibit 21: Year 2035 No Build Roadway Segment Daily Traffic
- Exhibit 22: Year 2035 Alternative 1 Intersection Lane Geometry - Area 1
- Exhibit 23: Year 2035 Alternative 1 Intersection Lane Geometry - Area 2
- Exhibit 24: Year 2035 Alternative 1 Peak Hour Intersection Volumes - Area 1
- Exhibit 25: Year 2035 Alternative 1 Peak Hour Intersection Volumes - Area 2
- Exhibit 26: Year 2035 Alternative 1 Roadway Segment Daily Traffic
- Exhibit 27: Year 2035 Alternative 2 Intersection Lane Geometry - Area 1
- Exhibit 28: Year 2035 Alternative 2 Intersection Lane Geometry - Area 2
- Exhibit 29: Year 2035 Alternative 2 Peak Hour Intersection Volumes - Area 1
- Exhibit 30: Year 2035 Alternative 2 Peak Hour Intersection Volumes - Area 2
- Exhibit 31: Year 2035 Alternative 2 Roadway Segment Daily Traffic
- Exhibit 32: Year 2035 Alternative 1 With SMUP Peak Hour Intersection Volumes - Area 1
- Exhibit 33: Year 2035 Alternative 1 With SMUP Peak Hour Intersection Volumes – Area 2
- Exhibit 34: Year 2035 Alternative 1 With SMUP Roadway Segment Daily Traffic
- Exhibit 35: Highway 101 / La Costa Avenue: 4–Leg Signalized Intersection Condition Lane Geometry and Year 2035 Peak Hour Intersection Volumes





- LEGEND**
- Existing Lane
 - Defacto Right-Turn Lane
 - Right-Turn Overlap
 - Signalized Intersection
 - Stop Sign
 - Roundabout
 - Study Intersections

<p>1</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 1300/600 & 375/375 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 152/292 & 0/0 & 407/300 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 225/725 & 214/275 \end{matrix}$ </td> </tr> </table> <p>CARLSBAD BLVD/N. COAST HWY 101/LA COSTA AVE</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 1300/600 & 375/375 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 152/292 & 0/0 & 407/300 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 225/725 & 214/275 \end{matrix}$	<p>2</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 52/88 & 1655/900 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 34/89 & 0/0 & 11/29 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 17/29 & 405/1000 & 0/0 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/NEW ROAD</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 52/88 & 1655/900 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 34/89 & 0/0 & 11/29 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 17/29 & 405/1000 & 0/0 \end{matrix}$	<p>3</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 35/43 & 1625/775 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 36/26 & 0/0 & 28/19 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 8/21 & 400/1011 & 0/0 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/BISHOPS GATE RD</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 35/43 & 1625/775 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 36/26 & 0/0 & 28/19 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 8/21 & 400/1011 & 0/0 \end{matrix}$	<p>4</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 16/45 & 1644/750 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 29/26 & 0/0 & 22/43 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 10/24 & 385/1068 & 0/0 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/GRANDVIEW ST</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 16/45 & 1644/750 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 29/26 & 0/0 & 22/43 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 10/24 & 385/1068 & 0/0 \end{matrix}$
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 1300/600 & 375/375 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 152/292 & 0/0 & 407/300 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 225/725 & 214/275 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 52/88 & 1655/900 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 34/89 & 0/0 & 11/29 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 17/29 & 405/1000 & 0/0 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 35/43 & 1625/775 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 36/26 & 0/0 & 28/19 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 8/21 & 400/1011 & 0/0 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 16/45 & 1644/750 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 29/26 & 0/0 & 22/43 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 10/24 & 385/1068 & 0/0 \end{matrix}$																																
<p>5</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 22/51 & 1675/745 & 13/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 17/15 & 0/0 & 26/19 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 9/28 & 300/992 & 0/0 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/JUPITER ST</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 22/51 & 1675/745 & 13/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 17/15 & 0/0 & 26/19 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 9/28 & 300/992 & 0/0 \end{matrix}$	<p>6</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 11/20 & 1420/500 & 395/200 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 109/240 & 32/45 & 261/200 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 15/17 & 55/44 & 19/28 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 4/10 & 200/729 & 150/250 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/LEUCADIA BLVD</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 11/20 & 1420/500 & 395/200 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 109/240 & 32/45 & 261/200 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 15/17 & 55/44 & 19/28 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 4/10 & 200/729 & 150/250 \end{matrix}$	<p>7</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 62/56 & 1550/600 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 26/31 & 0/0 & 9/39 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 13/37 & 325/1000 & 0/0 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/EL PORTAL ST</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 62/56 & 1550/600 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 26/31 & 0/0 & 9/39 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 13/37 & 325/1000 & 0/0 \end{matrix}$	<p>8</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 35/33 & 1475/575 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 45/110 & 0/0 & 66/32 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 50/53 & 300/925 & 0/0 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/MARCHETA ST</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 35/33 & 1475/575 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 45/110 & 0/0 & 66/32 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 50/53 & 300/925 & 0/0 \end{matrix}$
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 22/51 & 1675/745 & 13/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 17/15 & 0/0 & 26/19 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 9/28 & 300/992 & 0/0 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 11/20 & 1420/500 & 395/200 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 109/240 & 32/45 & 261/200 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 15/17 & 55/44 & 19/28 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 4/10 & 200/729 & 150/250 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 62/56 & 1550/600 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 26/31 & 0/0 & 9/39 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 13/37 & 325/1000 & 0/0 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 35/33 & 1475/575 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 45/110 & 0/0 & 66/32 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 50/53 & 300/925 & 0/0 \end{matrix}$																																
<p>9</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 48/28 & 1100/375 & 400/259 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 247/349 & 105/150 & 414/377 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 20/80 & 225/250 & 18/36 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 9/25 & 144/646 & 97/375 \end{matrix}$ </td> </tr> </table> <p>N. COAST HWY 101/ENCINITAS BLVD/B ST/S. COAST HWY 101</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 48/28 & 1100/375 & 400/259 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 247/349 & 105/150 & 414/377 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 20/80 & 225/250 & 18/36 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 9/25 & 144/646 & 97/375 \end{matrix}$	<p>10</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 10/39 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 21/35 & 0/0 & 0/1 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 8/25 & 25/23 \end{matrix}$ </td> </tr> </table> <p>NEPTUNE AVE/GRANDVIEW ST</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 10/39 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 21/35 & 0/0 & 0/1 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 8/25 & 25/23 \end{matrix}$	<p>11</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 14/19 & 0/0 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 36/56 & 26/24 \end{matrix}$ </td> </tr> </table> <p>NEPTUNE AVE/JUPITER ST</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 14/19 & 0/0 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 36/56 & 26/24 \end{matrix}$	<p>12</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 42/45 & 0/1 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 7/6 & 29/26 & 0/0 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 32/66 & 28/36 \end{matrix}$ </td> </tr> </table> <p>NEPTUNE AVE/LEUCADIA BLVD</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 42/45 & 0/1 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 7/6 & 29/26 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 32/66 & 28/36 \end{matrix}$
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 48/28 & 1100/375 & 400/259 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 247/349 & 105/150 & 414/377 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 20/80 & 225/250 & 18/36 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 9/25 & 144/646 & 97/375 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 10/39 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 21/35 & 0/0 & 0/1 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 8/25 & 25/23 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 14/19 & 0/0 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 36/56 & 26/24 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 42/45 & 0/1 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 7/6 & 29/26 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 32/66 & 28/36 \end{matrix}$																																
<p>13</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 17/30 & 0/1 & 0/0 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 25/55 & 11/11 \end{matrix}$ </td> </tr> </table> <p>NEPTUNE AVE/N EL PORTAL ST</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 17/30 & 0/1 & 0/0 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 25/55 & 11/11 \end{matrix}$	<p>14</p> <table border="1"> <tr> <td>SB</td> <td> $\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$ </td> <td>WB</td> <td> $\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 535/496 & 259/165 \end{matrix}$ </td> </tr> <tr> <td>EB</td> <td> $\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 426/537 & 151/97 \end{matrix}$ </td> <td>NB</td> <td> $\begin{matrix} \uparrow & \uparrow & \uparrow \\ 55/69 & 0/0 & 224/189 \end{matrix}$ </td> </tr> </table> <p>LA COSTA AVE/VULCAN AVE</p>	SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 535/496 & 259/165 \end{matrix}$	EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 426/537 & 151/97 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 55/69 & 0/0 & 224/189 \end{matrix}$																		
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 17/30 & 0/1 & 0/0 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 0/0 & 25/55 & 11/11 \end{matrix}$																																
SB	$\begin{matrix} \downarrow & \downarrow & \downarrow \\ 0/0 & 0/0 & 0/0 \end{matrix}$	WB	$\begin{matrix} \leftarrow & \leftarrow & \leftarrow \\ 0/0 & 535/496 & 259/165 \end{matrix}$																																
EB	$\begin{matrix} \rightarrow & \rightarrow & \rightarrow \\ 0/0 & 426/537 & 151/97 \end{matrix}$	NB	$\begin{matrix} \uparrow & \uparrow & \uparrow \\ 55/69 & 0/0 & 224/189 \end{matrix}$																																



<p>15</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>4/7 3/0 3/2</td> <td>12/11 800/675 74/53</td> </tr> <tr> <td>2/7 675/650 15/24</td> <td>17/13 0/1 87/47</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LA COSTA AVE/ SHERIDAN RD</p>	SB	WB	4/7 3/0 3/2	12/11 800/675 74/53	2/7 675/650 15/24	17/13 0/1 87/47	EB	NB	<p>16</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>350/212 2/3 609/499</td> <td>0/0 567/570 671/713</td> </tr> <tr> <td>0/0 675/625 92/113</td> <td>0/0 0/0 0/0</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LA COSTA AVE/ I-5 SB RAMPS</p>	SB	WB	350/212 2/3 609/499	0/0 567/570 671/713	0/0 675/625 92/113	0/0 0/0 0/0	EB	NB	<p>17</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>0/0 0/0 0/0</td> <td>648/443 1165/1134 0/0</td> </tr> <tr> <td>207/177 1052/950 0/0</td> <td>73/150 2/1 740/963</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LA COSTA AVE/ I-5 NB RAMPS</p>	SB	WB	0/0 0/0 0/0	648/443 1165/1134 0/0	207/177 1052/950 0/0	73/150 2/1 740/963	EB	NB	<p>18</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>42/51 267/67 25/29</td> <td>19/48 323/345 129/67</td> </tr> <tr> <td>45/93 300/375 285/62</td> <td>31/74 53/152 87/122</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ VULCAN AVE</p>	SB	WB	42/51 267/67 25/29	19/48 323/345 129/67	45/93 300/375 285/62	31/74 53/152 87/122	EB	NB
SB	WB																																		
4/7 3/0 3/2	12/11 800/675 74/53																																		
2/7 675/650 15/24	17/13 0/1 87/47																																		
EB	NB																																		
SB	WB																																		
350/212 2/3 609/499	0/0 567/570 671/713																																		
0/0 675/625 92/113	0/0 0/0 0/0																																		
EB	NB																																		
SB	WB																																		
0/0 0/0 0/0	648/443 1165/1134 0/0																																		
207/177 1052/950 0/0	73/150 2/1 740/963																																		
EB	NB																																		
SB	WB																																		
42/51 267/67 25/29	19/48 323/345 129/67																																		
45/93 300/375 285/62	31/74 53/152 87/122																																		
EB	NB																																		
<p>19</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>18/15 77/13 109/79</td> <td>48/84 383/453 73/55</td> </tr> <tr> <td>9/24 368/511 17/13</td> <td>50/16 36/16 117/56</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ HYGEIA AVE</p>	SB	WB	18/15 77/13 109/79	48/84 383/453 73/55	9/24 368/511 17/13	50/16 36/16 117/56	EB	NB	<p>20</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>41/10 39/18 90/54</td> <td>19/40 492/592 26/21</td> </tr> <tr> <td>8/13 572/600 6/2</td> <td>3/9 14/38 9/23</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ HYMETTUS AVE</p>	SB	WB	41/10 39/18 90/54	19/40 492/592 26/21	8/13 572/600 6/2	3/9 14/38 9/23	EB	NB	<p>21</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>30/22 20/14 194/175</td> <td>168/175 506/625 137/150</td> </tr> <tr> <td>36/25 580/619 20/20</td> <td>8/10 8/12 122/202</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ ORPHEUS AVE</p>	SB	WB	30/22 20/14 194/175	168/175 506/625 137/150	36/25 580/619 20/20	8/10 8/12 122/202	EB	NB	<p>22</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>16/175 1/2 209/406</td> <td>0/0 650/775 600/475</td> </tr> <tr> <td>0/0 686/800 234/216</td> <td>0/0 0/0 0/0</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ I-5 SB RAMPS</p>	SB	WB	16/175 1/2 209/406	0/0 650/775 600/475	0/0 686/800 234/216	0/0 0/0 0/0	EB	NB
SB	WB																																		
18/15 77/13 109/79	48/84 383/453 73/55																																		
9/24 368/511 17/13	50/16 36/16 117/56																																		
EB	NB																																		
SB	WB																																		
41/10 39/18 90/54	19/40 492/592 26/21																																		
8/13 572/600 6/2	3/9 14/38 9/23																																		
EB	NB																																		
SB	WB																																		
30/22 20/14 194/175	168/175 506/625 137/150																																		
36/25 580/619 20/20	8/10 8/12 122/202																																		
EB	NB																																		
SB	WB																																		
16/175 1/2 209/406	0/0 650/775 600/475																																		
0/0 686/800 234/216	0/0 0/0 0/0																																		
EB	NB																																		
<p>23</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>0/0 0/0 0/0</td> <td>384/519 1092/1000 0/0</td> </tr> <tr> <td>230/285 700/925 0/0</td> <td>160/225 83/65 396/755</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ I-5 NB RAMPS</p>	SB	WB	0/0 0/0 0/0	384/519 1092/1000 0/0	230/285 700/925 0/0	160/225 83/65 396/755	EB	NB	<p>24</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>80/31 650/167 275/90</td> <td>165/200 650/775 300/350</td> </tr> <tr> <td>33/91 500/650 154/93</td> <td>54/83 141/300 147/325</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>ENCINITAS BLVD/ VULCAN AVE</p>	SB	WB	80/31 650/167 275/90	165/200 650/775 300/350	33/91 500/650 154/93	54/83 141/300 147/325	EB	NB	<p>25</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>185/360 2/4 197/456</td> <td>0/0 900/950 475/550</td> </tr> <tr> <td>0/0 675/950 300/200</td> <td>0/0 0/0 0/0</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>ENCINITAS BLVD/ I-5 SB RAMPS</p>	SB	WB	185/360 2/4 197/456	0/0 900/950 475/550	0/0 675/950 300/200	0/0 0/0 0/0	EB	NB	<p>26</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>450/450 0/0 287/438</td> <td>227/347 1150/1300 0/0</td> </tr> <tr> <td>238/360 505/854 191/268</td> <td>225/258 62/71 562/641</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>ENCINITAS BLVD/ I-5 NB RAMPS</p>	SB	WB	450/450 0/0 287/438	227/347 1150/1300 0/0	238/360 505/854 191/268	225/258 62/71 562/641	EB	NB
SB	WB																																		
0/0 0/0 0/0	384/519 1092/1000 0/0																																		
230/285 700/925 0/0	160/225 83/65 396/755																																		
EB	NB																																		
SB	WB																																		
80/31 650/167 275/90	165/200 650/775 300/350																																		
33/91 500/650 154/93	54/83 141/300 147/325																																		
EB	NB																																		
SB	WB																																		
185/360 2/4 197/456	0/0 900/950 475/550																																		
0/0 675/950 300/200	0/0 0/0 0/0																																		
EB	NB																																		
SB	WB																																		
450/450 0/0 287/438	227/347 1150/1300 0/0																																		
238/360 505/854 191/268	225/258 62/71 562/641																																		
EB	NB																																		
<p>27</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>0/0 740/156 2/4</td> <td>8/6 0/0 188/54</td> </tr> <tr> <td>0/0 0/0 0/0</td> <td>0/0 226/327 26/102</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>VULCAN AVE/ ORPHEUS AVE</p>	SB	WB	0/0 740/156 2/4	8/6 0/0 188/54	0/0 0/0 0/0	0/0 226/327 26/102	EB	NB																											
SB	WB																																		
0/0 740/156 2/4	8/6 0/0 188/54																																		
0/0 0/0 0/0	0/0 226/327 26/102																																		
EB	NB																																		



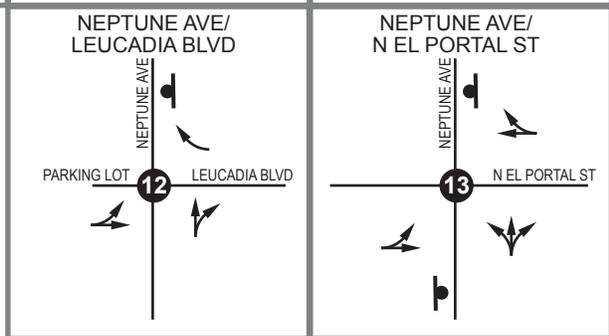
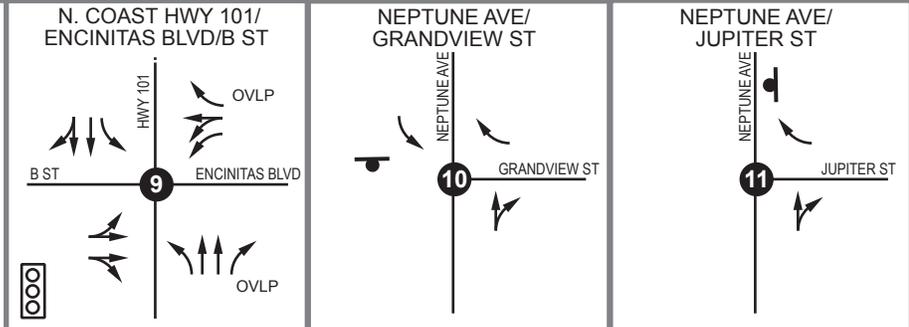
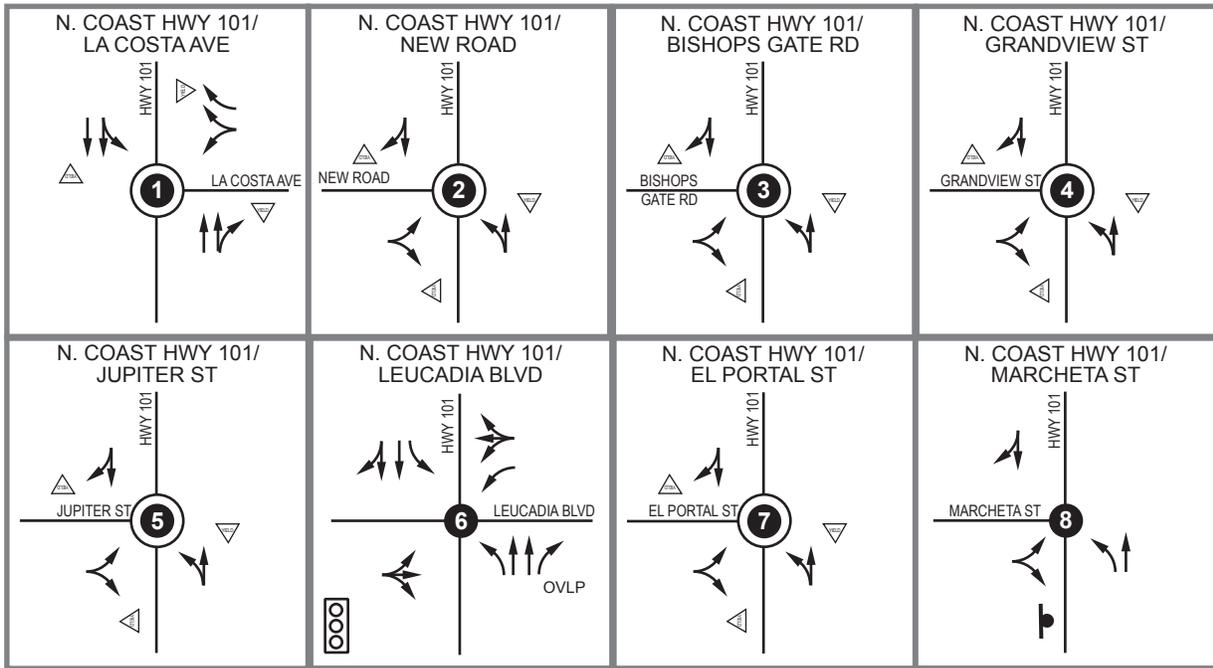


LEGEND

- XX Study Intersections
- X,XXX Roadway Segment Daily Traffic

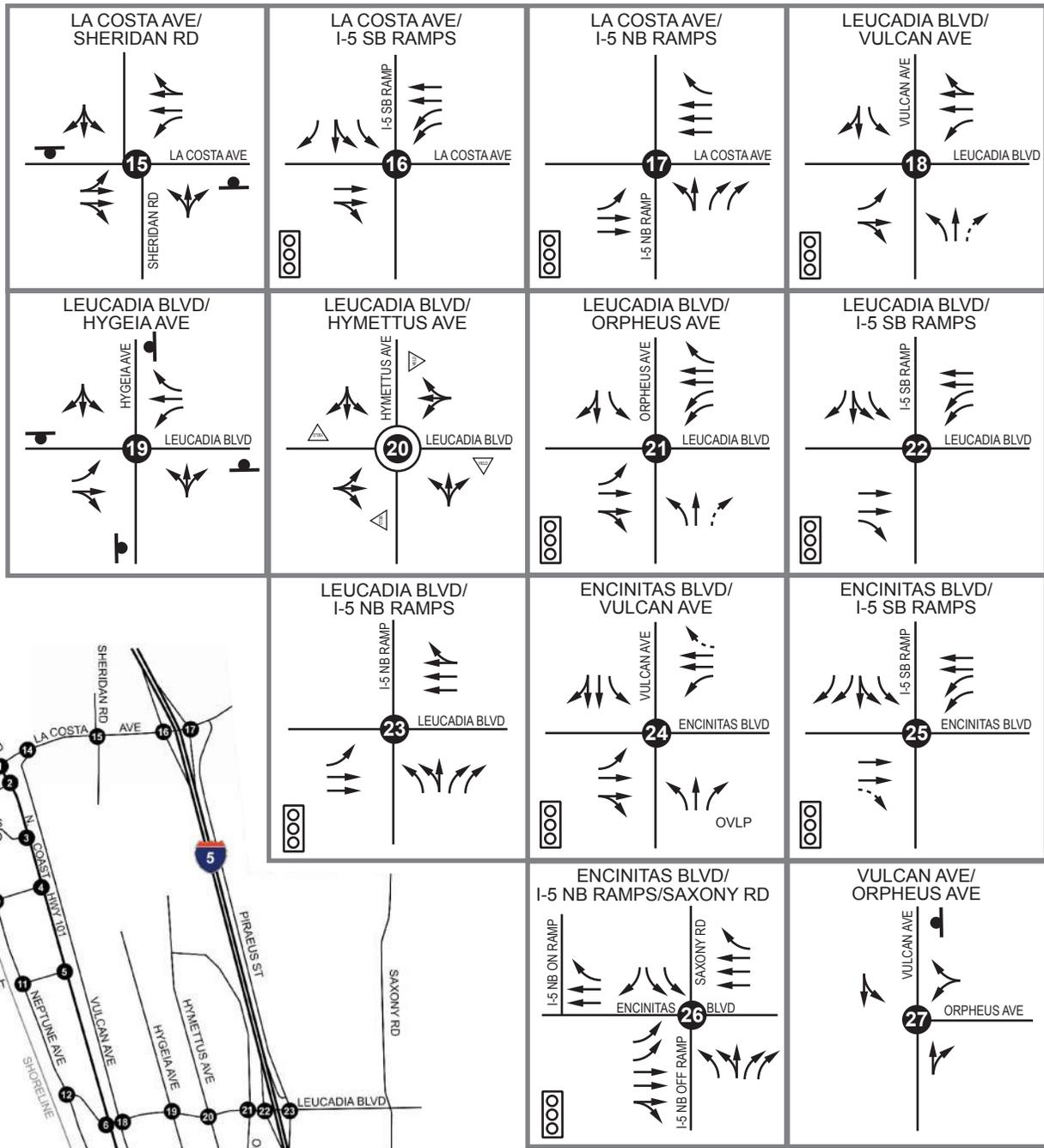


Not to Scale

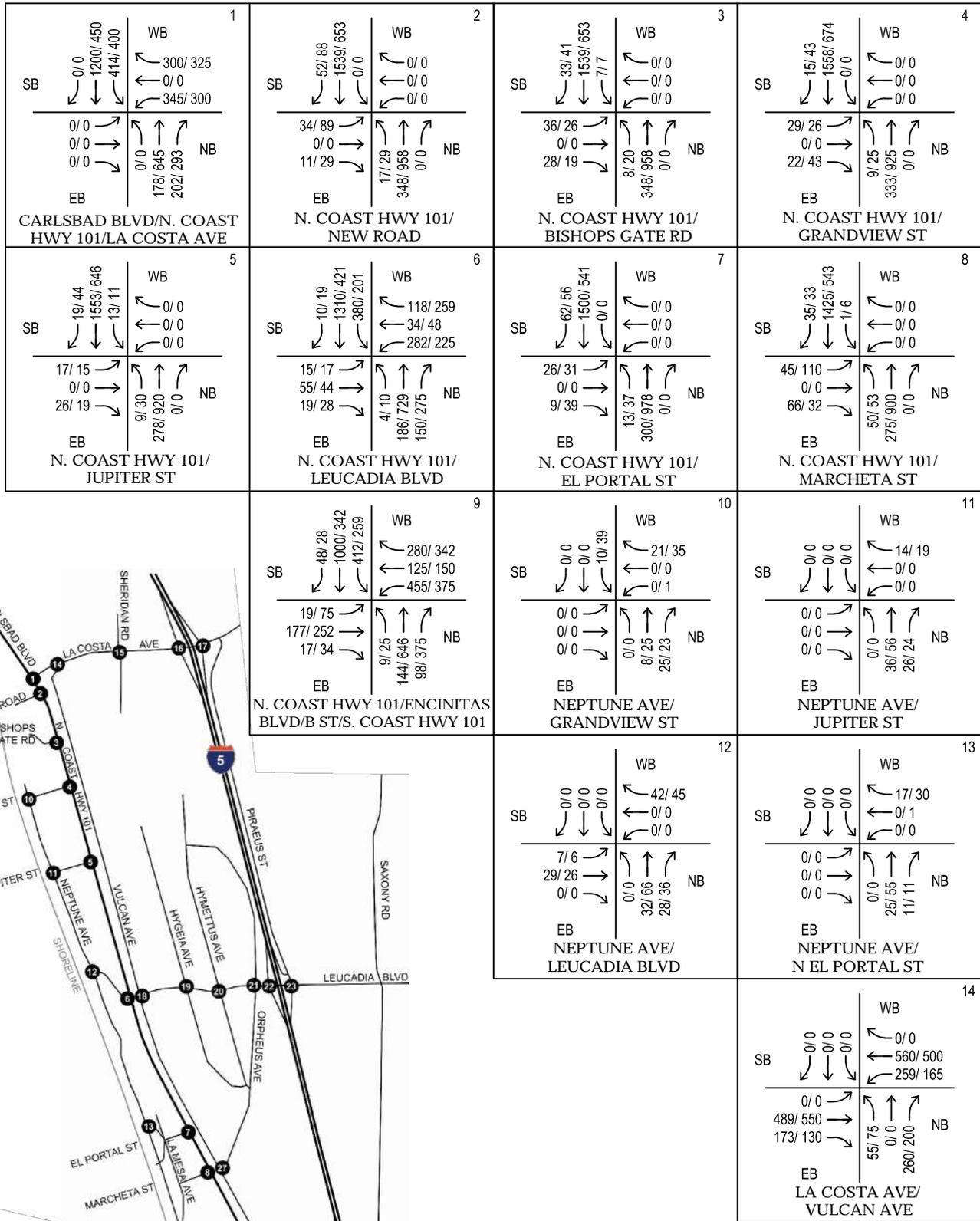


LEGEND

- Existing Lane
- Defacto Right-Turn Lane
- Right-Turn Overlap
- Signalized Intersection
- Stop Sign
- Roundabout
- Study Intersections



- LEGEND**
- Existing Lane
 - Defacto Right-Turn Lane
 - Right-Turn Overlap
 - Signalized Intersection
 - Stop Sign
 - Roundabout
 - Study Intersections



<p>15</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>4/7 3/0 3/2</td> <td>12/11 850/675 75/53</td> </tr> <tr> <td>2/7 750/700 15/50</td> <td>17/13 0/1 87/60</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LA COSTA AVE/ SHERIDAN RD</p>	SB	WB	4/7 3/0 3/2	12/11 850/675 75/53	2/7 750/700 15/50	17/13 0/1 87/60	EB	NB	<p>16</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>360/212 2/3 620/499</td> <td>0/0 570/570 680/713</td> </tr> <tr> <td>0/0 680/653 150/114</td> <td>0/0 0/0 0/0</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LA COSTA AVE/ I-5 SB RAMPS</p>	SB	WB	360/212 2/3 620/499	0/0 570/570 680/713	0/0 680/653 150/114	0/0 0/0 0/0	EB	NB	<p>17</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>0/0 0/0 0/0</td> <td>648/443 1165/1134 0/0</td> </tr> <tr> <td>225/190 1075/950 0/0</td> <td>73/150 2/1 740/963</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LA COSTA AVE/ I-5 NB RAMPS</p>	SB	WB	0/0 0/0 0/0	648/443 1165/1134 0/0	225/190 1075/950 0/0	73/150 2/1 740/963	EB	NB	<p>18</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>62/75 360/99 37/42</td> <td>20/47 325/375 130/66</td> </tr> <tr> <td>48/101 300/400 290/67</td> <td>50/106 75/218 125/176</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ VULCAN AVE</p>	SB	WB	62/75 360/99 37/42	20/47 325/375 130/66	48/101 300/400 290/67	50/106 75/218 125/176	EB	NB
SB	WB																																		
4/7 3/0 3/2	12/11 850/675 75/53																																		
2/7 750/700 15/50	17/13 0/1 87/60																																		
EB	NB																																		
SB	WB																																		
360/212 2/3 620/499	0/0 570/570 680/713																																		
0/0 680/653 150/114	0/0 0/0 0/0																																		
EB	NB																																		
SB	WB																																		
0/0 0/0 0/0	648/443 1165/1134 0/0																																		
225/190 1075/950 0/0	73/150 2/1 740/963																																		
EB	NB																																		
SB	WB																																		
62/75 360/99 37/42	20/47 325/375 130/66																																		
48/101 300/400 290/67	50/106 75/218 125/176																																		
EB	NB																																		
<p>19</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>18/15 77/13 109/79</td> <td>50/84 380/450 73/55</td> </tr> <tr> <td>20/24 365/510 30/15</td> <td>50/15 35/15 117/53</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ HYGEIA AVE</p>	SB	WB	18/15 77/13 109/79	50/84 380/450 73/55	20/24 365/510 30/15	50/15 35/15 117/53	EB	NB	<p>20</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>41/10 39/18 90/60</td> <td>19/50 492/600 26/40</td> </tr> <tr> <td>8/25 572/610 6/10</td> <td>3/9 14/38 9/23</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ HYMETTUS AVE</p>	SB	WB	41/10 39/18 90/60	19/50 492/600 26/40	8/25 572/610 6/10	3/9 14/38 9/23	EB	NB	<p>21</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>30/22 20/14 194/175</td> <td>171/175 517/650 140/150</td> </tr> <tr> <td>36/25 600/630 20/25</td> <td>8/10 8/12 124/205</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ ORPHEUS AVE</p>	SB	WB	30/22 20/14 194/175	171/175 517/650 140/150	36/25 600/630 20/25	8/10 8/12 124/205	EB	NB	<p>22</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>161/175 1/2 209/425</td> <td>0/0 680/800 620/500</td> </tr> <tr> <td>0/0 700/800 238/221</td> <td>0/0 0/0 0/0</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ I-5 SB RAMPS</p>	SB	WB	161/175 1/2 209/425	0/0 680/800 620/500	0/0 700/800 238/221	0/0 0/0 0/0	EB	NB
SB	WB																																		
18/15 77/13 109/79	50/84 380/450 73/55																																		
20/24 365/510 30/15	50/15 35/15 117/53																																		
EB	NB																																		
SB	WB																																		
41/10 39/18 90/60	19/50 492/600 26/40																																		
8/25 572/610 6/10	3/9 14/38 9/23																																		
EB	NB																																		
SB	WB																																		
30/22 20/14 194/175	171/175 517/650 140/150																																		
36/25 600/630 20/25	8/10 8/12 124/205																																		
EB	NB																																		
SB	WB																																		
161/175 1/2 209/425	0/0 680/800 620/500																																		
0/0 700/800 238/221	0/0 0/0 0/0																																		
EB	NB																																		
<p>23</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>0/0 0/0 0/0</td> <td>390/519 1100/1050 0/0</td> </tr> <tr> <td>230/289 720/950 0/0</td> <td>160/250 83/65 396/755</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>LEUCADIA BLVD/ I-5 NB RAMPS</p>	SB	WB	0/0 0/0 0/0	390/519 1100/1050 0/0	230/289 720/950 0/0	160/250 83/65 396/755	EB	NB	<p>24</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>80/31 685/167 300/125</td> <td>172/225 700/800 325/375</td> </tr> <tr> <td>32/89 500/675 151/92</td> <td>54/83 141/318 200/350</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>ENCINITAS BLVD/ VULCAN AVE</p>	SB	WB	80/31 685/167 300/125	172/225 700/800 325/375	32/89 500/675 151/92	54/83 141/318 200/350	EB	NB	<p>25</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>208/375 3/4 221/475</td> <td>0/0 950/1000 500/550</td> </tr> <tr> <td>0/0 725/1000 350/225</td> <td>0/0 0/0 0/0</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>ENCINITAS BLVD/ I-5 SB RAMPS</p>	SB	WB	208/375 3/4 221/475	0/0 950/1000 500/550	0/0 725/1000 350/225	0/0 0/0 0/0	EB	NB	<p>26</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>500/450 0/0 280/488</td> <td>253/375 1200/1400 0/0</td> </tr> <tr> <td>265/375 562/951 212/275</td> <td>250/288 69/79 562/650</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>ENCINITAS BLVD/ I-5 NB RAMPS</p>	SB	WB	500/450 0/0 280/488	253/375 1200/1400 0/0	265/375 562/951 212/275	250/288 69/79 562/650	EB	NB
SB	WB																																		
0/0 0/0 0/0	390/519 1100/1050 0/0																																		
230/289 720/950 0/0	160/250 83/65 396/755																																		
EB	NB																																		
SB	WB																																		
80/31 685/167 300/125	172/225 700/800 325/375																																		
32/89 500/675 151/92	54/83 141/318 200/350																																		
EB	NB																																		
SB	WB																																		
208/375 3/4 221/475	0/0 950/1000 500/550																																		
0/0 725/1000 350/225	0/0 0/0 0/0																																		
EB	NB																																		
SB	WB																																		
500/450 0/0 280/488	253/375 1200/1400 0/0																																		
265/375 562/951 212/275	250/288 69/79 562/650																																		
EB	NB																																		
<p>27</p> <table border="1"> <tr> <td>SB</td> <td>WB</td> </tr> <tr> <td>0/0 800/197 3/6</td> <td>8/6 0/0 188/54</td> </tr> <tr> <td>0/0 0/0 0/0</td> <td>0/0 300/511 41/160</td> </tr> <tr> <td>EB</td> <td>NB</td> </tr> </table> <p>VULCAN AVE/ ORPHEUS AVE</p>	SB	WB	0/0 800/197 3/6	8/6 0/0 188/54	0/0 0/0 0/0	0/0 300/511 41/160	EB	NB																											
SB	WB																																		
0/0 800/197 3/6	8/6 0/0 188/54																																		
0/0 0/0 0/0	0/0 300/511 41/160																																		
EB	NB																																		

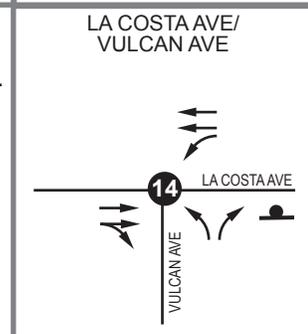
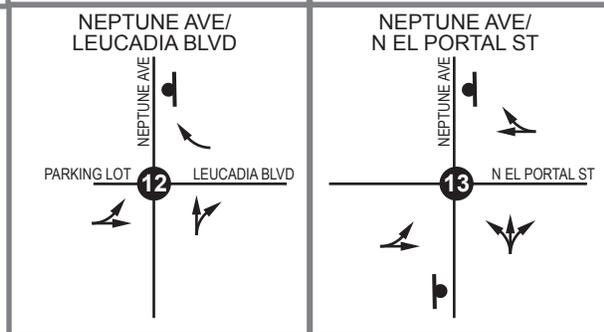
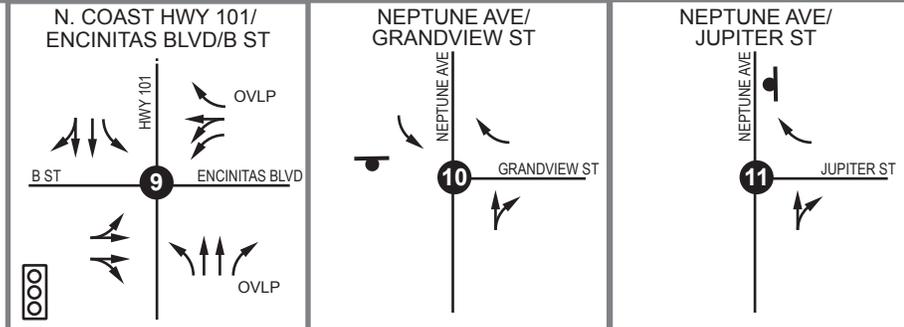
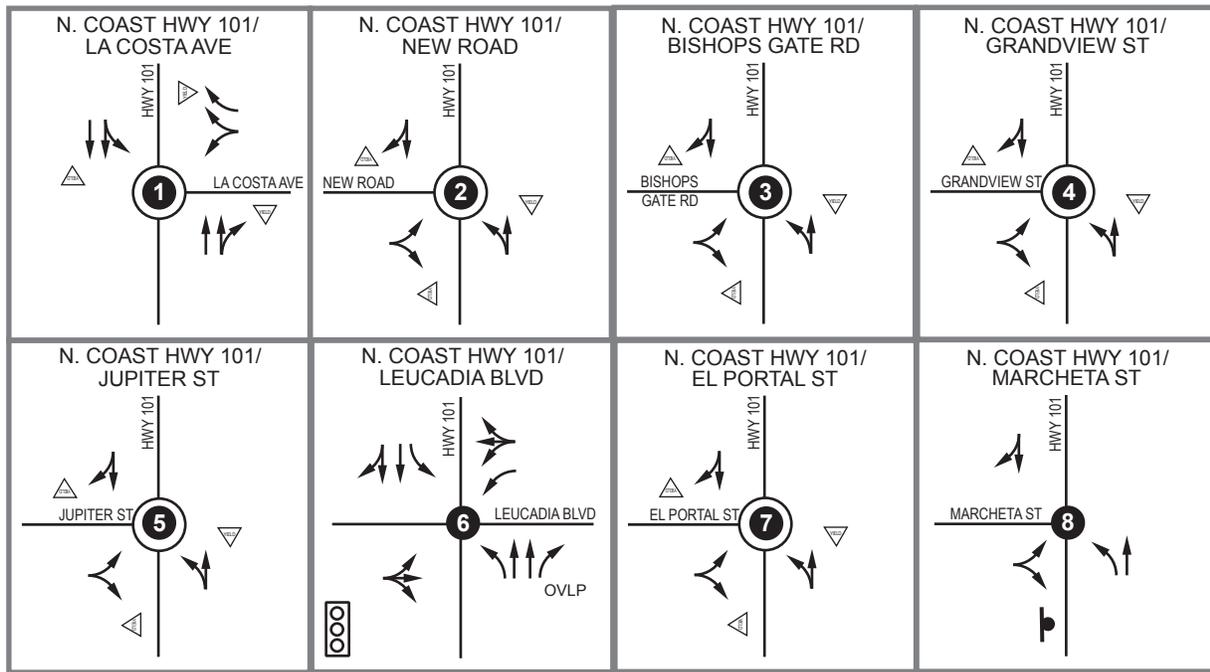


LEGEND

- XX Study Intersections
- X,XXX Roadway Segment Daily Traffic



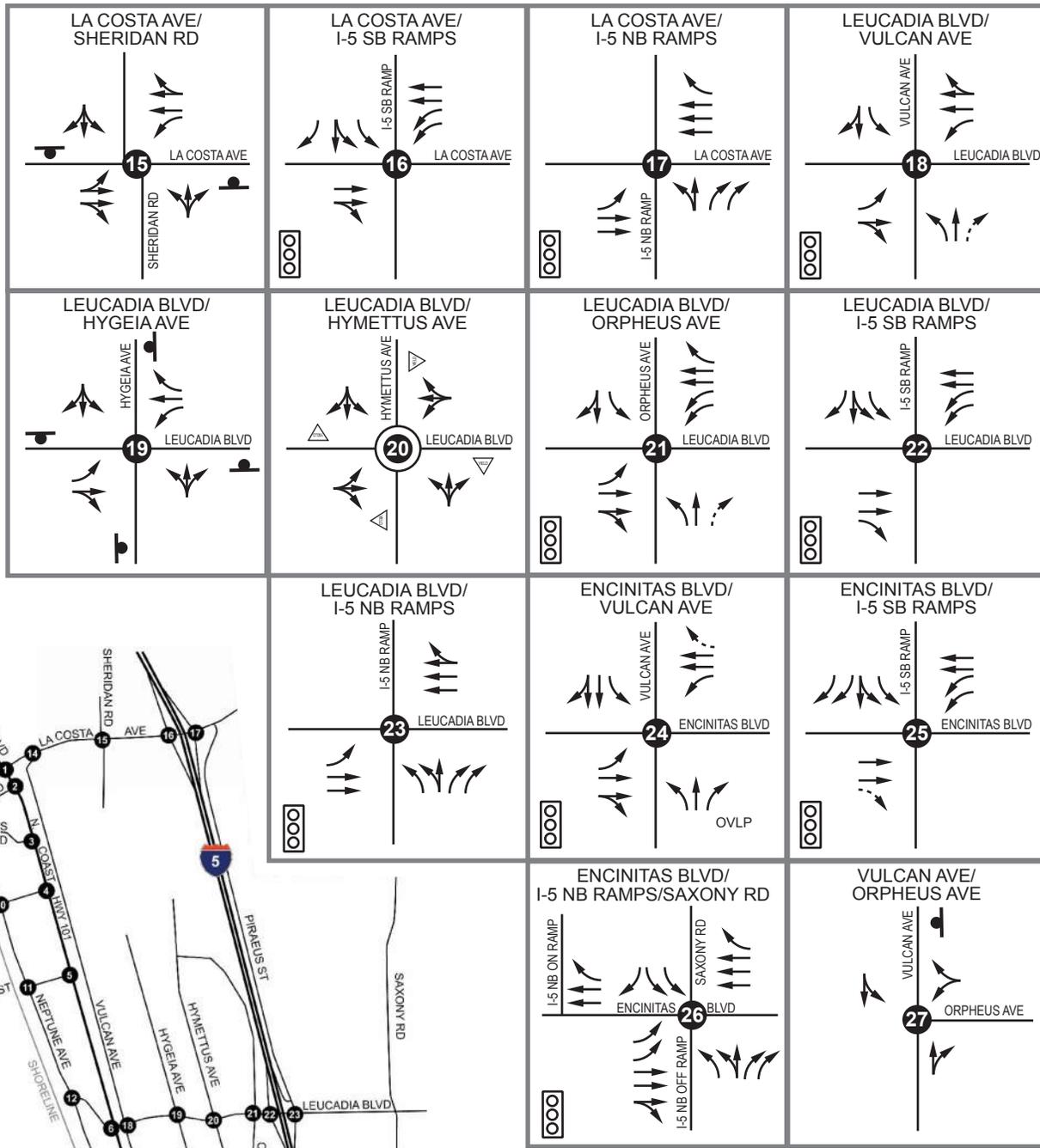
Not to Scale



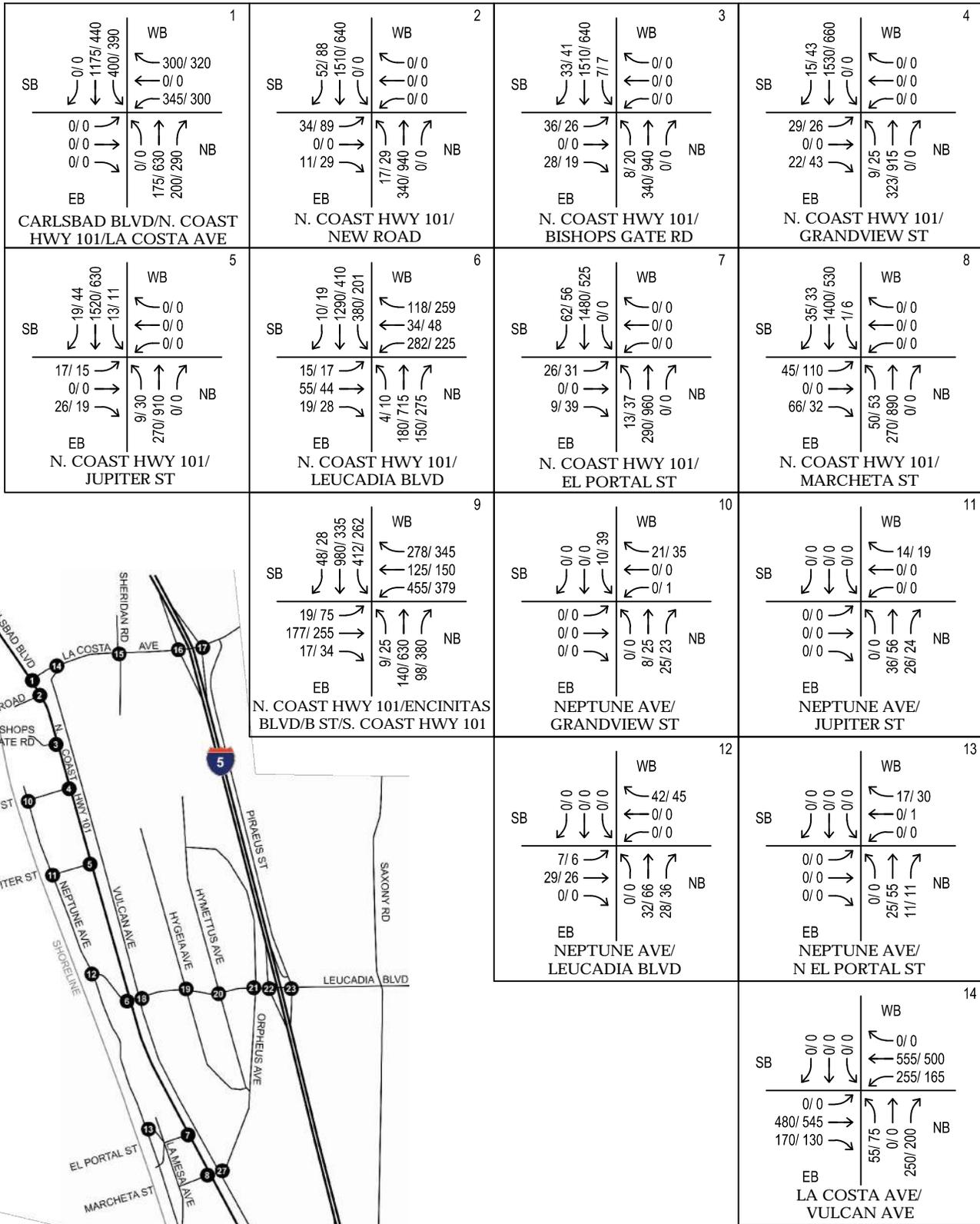
LEGEND

- Existing Lane
- Defacto Right-Turn Lane
- Right-Turn Overlap
- Signalized Intersection
- Stop Sign
- Roundabout
- Study Intersections





- LEGEND**
- Existing Lane
 - Defacto Right-Turn Lane
 - Right-Turn Overlap
 - Signalized Intersection
 - Stop Sign
 - Roundabout
 - Study Intersections

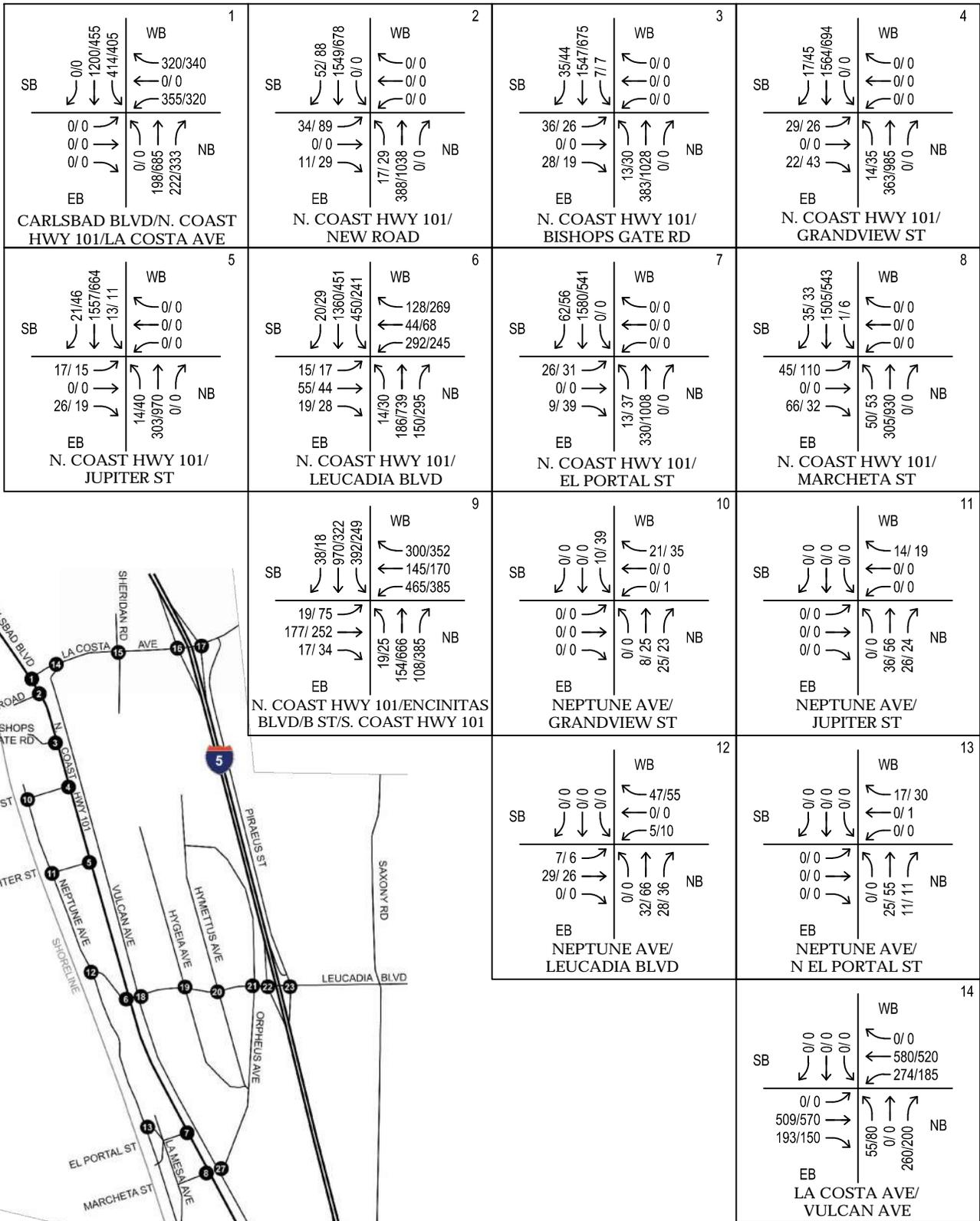




LEGEND

- xx Study Intersections
- X,XXX Roadway Segment Daily Traffic


Not to Scale



<p>15</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 12/11</td> <td>↗ 885/715</td> </tr> <tr> <td>↖ 75/53</td> <td></td> </tr> <tr> <td>↖ 4/7</td> <td>↖ 3/0</td> </tr> <tr> <td>↖ 3/2</td> <td></td> </tr> <tr> <td>↖ 2/7</td> <td></td> </tr> <tr> <td>↖ 770/720</td> <td></td> </tr> <tr> <td>↖ 15/50</td> <td></td> </tr> <tr> <td>↖ 17/13</td> <td>↖ 0/1</td> </tr> <tr> <td>↖ 87/60</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LA COSTA AVE/ SHERIDAN RD</p>	WB		↖ 12/11	↗ 885/715	↖ 75/53		↖ 4/7	↖ 3/0	↖ 3/2		↖ 2/7		↖ 770/720		↖ 15/50		↖ 17/13	↖ 0/1	↖ 87/60		NB		<p>16</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td>↗ 570/580</td> </tr> <tr> <td>↖ 680/723</td> <td></td> </tr> <tr> <td>↖ 360/212</td> <td>↖ 2/3</td> </tr> <tr> <td>↖ 620/499</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 690/663</td> <td></td> </tr> <tr> <td>↖ 160/124</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td>↖ 0/0</td> </tr> <tr> <td>↖ 0/0</td> <td>↖ 0/0</td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LA COSTA AVE/ I-5 SB RAMPS</p>	WB		↖ 0/0	↗ 570/580	↖ 680/723		↖ 360/212	↖ 2/3	↖ 620/499		↖ 0/0		↖ 690/663		↖ 160/124		↖ 0/0	↖ 0/0	↖ 0/0	↖ 0/0	NB		<p>17</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 648/443</td> <td>↗ 1165/1134</td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 235/200</td> <td></td> </tr> <tr> <td>↖ 1085/950</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 73/150</td> <td>↖ 2/1</td> </tr> <tr> <td>↖ 740/963</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LA COSTA AVE/ I-5 NB RAMPS</p>	WB		↖ 648/443	↗ 1165/1134	↖ 0/0		↖ 235/200		↖ 1085/950		↖ 0/0		↖ 73/150	↖ 2/1	↖ 740/963		NB		<p>18</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 25/57</td> <td>↗ 330/385</td> </tr> <tr> <td>↖ 140/76</td> <td></td> </tr> <tr> <td>↖ 67/75</td> <td>↖ 360/99</td> </tr> <tr> <td>↖ 371/42</td> <td></td> </tr> <tr> <td>↖ 68/121</td> <td></td> </tr> <tr> <td>↖ 320/420</td> <td></td> </tr> <tr> <td>↖ 310/87</td> <td></td> </tr> <tr> <td>↖ 50/106</td> <td>↖ 75/218</td> </tr> <tr> <td>↖ 125/176</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LEUCADIA BLVD/ VULCAN AVE</p>	WB		↖ 25/57	↗ 330/385	↖ 140/76		↖ 67/75	↖ 360/99	↖ 371/42		↖ 68/121		↖ 320/420		↖ 310/87		↖ 50/106	↖ 75/218	↖ 125/176		NB					
WB																																																																																											
↖ 12/11	↗ 885/715																																																																																										
↖ 75/53																																																																																											
↖ 4/7	↖ 3/0																																																																																										
↖ 3/2																																																																																											
↖ 2/7																																																																																											
↖ 770/720																																																																																											
↖ 15/50																																																																																											
↖ 17/13	↖ 0/1																																																																																										
↖ 87/60																																																																																											
NB																																																																																											
WB																																																																																											
↖ 0/0	↗ 570/580																																																																																										
↖ 680/723																																																																																											
↖ 360/212	↖ 2/3																																																																																										
↖ 620/499																																																																																											
↖ 0/0																																																																																											
↖ 690/663																																																																																											
↖ 160/124																																																																																											
↖ 0/0	↖ 0/0																																																																																										
↖ 0/0	↖ 0/0																																																																																										
NB																																																																																											
WB																																																																																											
↖ 648/443	↗ 1165/1134																																																																																										
↖ 0/0																																																																																											
↖ 235/200																																																																																											
↖ 1085/950																																																																																											
↖ 0/0																																																																																											
↖ 73/150	↖ 2/1																																																																																										
↖ 740/963																																																																																											
NB																																																																																											
WB																																																																																											
↖ 25/57	↗ 330/385																																																																																										
↖ 140/76																																																																																											
↖ 67/75	↖ 360/99																																																																																										
↖ 371/42																																																																																											
↖ 68/121																																																																																											
↖ 320/420																																																																																											
↖ 310/87																																																																																											
↖ 50/106	↖ 75/218																																																																																										
↖ 125/176																																																																																											
NB																																																																																											
<p>19</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 50/84</td> <td>↗ 400/480</td> </tr> <tr> <td>↖ 73/55</td> <td></td> </tr> <tr> <td>↖ 18/15</td> <td>↖ 77/13</td> </tr> <tr> <td>↖ 109/79</td> <td></td> </tr> <tr> <td>↖ 20/24</td> <td></td> </tr> <tr> <td>↖ 385/530</td> <td></td> </tr> <tr> <td>↖ 30/15</td> <td></td> </tr> <tr> <td>↖ 50/15</td> <td>↖ 35/15</td> </tr> <tr> <td>↖ 117/53</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LEUCADIA BLVD/ HYGEIA AVE</p>	WB		↖ 50/84	↗ 400/480	↖ 73/55		↖ 18/15	↖ 77/13	↖ 109/79		↖ 20/24		↖ 385/530		↖ 30/15		↖ 50/15	↖ 35/15	↖ 117/53		NB		<p>20</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 19/50</td> <td>↗ 442/550</td> </tr> <tr> <td>↖ 26/40</td> <td></td> </tr> <tr> <td>↖ 41/10</td> <td>↖ 39/18</td> </tr> <tr> <td>↖ 90/60</td> <td></td> </tr> <tr> <td>↖ 8/25</td> <td></td> </tr> <tr> <td>↖ 582/620</td> <td></td> </tr> <tr> <td>↖ 6/10</td> <td></td> </tr> <tr> <td>↖ 3/9</td> <td>↖ 14/38</td> </tr> <tr> <td>↖ 9/23</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LEUCADIA BLVD/ HYMETTUS AVE</p>	WB		↖ 19/50	↗ 442/550	↖ 26/40		↖ 41/10	↖ 39/18	↖ 90/60		↖ 8/25		↖ 582/620		↖ 6/10		↖ 3/9	↖ 14/38	↖ 9/23		NB		<p>21</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 121/115</td> <td>↗ 467/600</td> </tr> <tr> <td>↖ 90/90</td> <td></td> </tr> <tr> <td>↖ 30/22</td> <td>↖ 20/14</td> </tr> <tr> <td>↖ 194/175</td> <td></td> </tr> <tr> <td>↖ 36/25</td> <td></td> </tr> <tr> <td>↖ 610/640</td> <td></td> </tr> <tr> <td>↖ 25/35</td> <td></td> </tr> <tr> <td>↖ 3/10</td> <td>↖ 8/12</td> </tr> <tr> <td>↖ 124/205</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LEUCADIA BLVD/ ORPHEUS AVE</p>	WB		↖ 121/115	↗ 467/600	↖ 90/90		↖ 30/22	↖ 20/14	↖ 194/175		↖ 36/25		↖ 610/640		↖ 25/35		↖ 3/10	↖ 8/12	↖ 124/205		NB		<p>22</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td>↗ 680/800</td> </tr> <tr> <td>↖ 620/500</td> <td></td> </tr> <tr> <td>↖ 161/175</td> <td>↖ 1/2</td> </tr> <tr> <td>↖ 209/425</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 650/740</td> <td></td> </tr> <tr> <td>↖ 188/161</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td>↖ 0/0</td> </tr> <tr> <td>↖ 0/0</td> <td>↖ 0/0</td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LEUCADIA BLVD/ I-5 SB RAMPS</p>	WB		↖ 0/0	↗ 680/800	↖ 620/500		↖ 161/175	↖ 1/2	↖ 209/425		↖ 0/0		↖ 650/740		↖ 188/161		↖ 0/0	↖ 0/0	↖ 0/0	↖ 0/0	NB	
WB																																																																																											
↖ 50/84	↗ 400/480																																																																																										
↖ 73/55																																																																																											
↖ 18/15	↖ 77/13																																																																																										
↖ 109/79																																																																																											
↖ 20/24																																																																																											
↖ 385/530																																																																																											
↖ 30/15																																																																																											
↖ 50/15	↖ 35/15																																																																																										
↖ 117/53																																																																																											
NB																																																																																											
WB																																																																																											
↖ 19/50	↗ 442/550																																																																																										
↖ 26/40																																																																																											
↖ 41/10	↖ 39/18																																																																																										
↖ 90/60																																																																																											
↖ 8/25																																																																																											
↖ 582/620																																																																																											
↖ 6/10																																																																																											
↖ 3/9	↖ 14/38																																																																																										
↖ 9/23																																																																																											
NB																																																																																											
WB																																																																																											
↖ 121/115	↗ 467/600																																																																																										
↖ 90/90																																																																																											
↖ 30/22	↖ 20/14																																																																																										
↖ 194/175																																																																																											
↖ 36/25																																																																																											
↖ 610/640																																																																																											
↖ 25/35																																																																																											
↖ 3/10	↖ 8/12																																																																																										
↖ 124/205																																																																																											
NB																																																																																											
WB																																																																																											
↖ 0/0	↗ 680/800																																																																																										
↖ 620/500																																																																																											
↖ 161/175	↖ 1/2																																																																																										
↖ 209/425																																																																																											
↖ 0/0																																																																																											
↖ 650/740																																																																																											
↖ 188/161																																																																																											
↖ 0/0	↖ 0/0																																																																																										
↖ 0/0	↖ 0/0																																																																																										
NB																																																																																											
<p>23</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 380/509</td> <td>↗ 1080/1040</td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 230/259</td> <td></td> </tr> <tr> <td>↖ 720/920</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 160/250</td> <td>↖ 83/65</td> </tr> <tr> <td>↖ 396/755</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>LEUCADIA BLVD/ I-5 NB RAMPS</p>	WB		↖ 380/509	↗ 1080/1040	↖ 0/0		↖ 230/259		↖ 720/920		↖ 0/0		↖ 160/250	↖ 83/65	↖ 396/755		NB		<p>24</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 192/245</td> <td>↗ 710/790</td> </tr> <tr> <td>↖ 335/385</td> <td></td> </tr> <tr> <td>↖ 80/31</td> <td>↖ 685/167</td> </tr> <tr> <td>↖ 300/125</td> <td></td> </tr> <tr> <td>↖ 82/179</td> <td></td> </tr> <tr> <td>↖ 500/665</td> <td></td> </tr> <tr> <td>↖ 171/112</td> <td></td> </tr> <tr> <td>↖ 59/83</td> <td>↖ 141/318</td> </tr> <tr> <td>↖ 200/350</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>ENCINITAS BLVD/ VULCAN AVE</p>	WB		↖ 192/245	↗ 710/790	↖ 335/385		↖ 80/31	↖ 685/167	↖ 300/125		↖ 82/179		↖ 500/665		↖ 171/112		↖ 59/83	↖ 141/318	↖ 200/350		NB		<p>25</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td>↗ 930/980</td> </tr> <tr> <td>↖ 500/560</td> <td></td> </tr> <tr> <td>↖ 208/375</td> <td>↖ 3/4</td> </tr> <tr> <td>↖ 221/475</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 715/990</td> <td></td> </tr> <tr> <td>↖ 360/235</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td>↖ 0/0</td> </tr> <tr> <td>↖ 0/0</td> <td>↖ 0/0</td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>ENCINITAS BLVD/ I-5 SB RAMPS</p>	WB		↖ 0/0	↗ 930/980	↖ 500/560		↖ 208/375	↖ 3/4	↖ 221/475		↖ 0/0		↖ 715/990		↖ 360/235		↖ 0/0	↖ 0/0	↖ 0/0	↖ 0/0	NB																												
WB																																																																																											
↖ 380/509	↗ 1080/1040																																																																																										
↖ 0/0																																																																																											
↖ 230/259																																																																																											
↖ 720/920																																																																																											
↖ 0/0																																																																																											
↖ 160/250	↖ 83/65																																																																																										
↖ 396/755																																																																																											
NB																																																																																											
WB																																																																																											
↖ 192/245	↗ 710/790																																																																																										
↖ 335/385																																																																																											
↖ 80/31	↖ 685/167																																																																																										
↖ 300/125																																																																																											
↖ 82/179																																																																																											
↖ 500/665																																																																																											
↖ 171/112																																																																																											
↖ 59/83	↖ 141/318																																																																																										
↖ 200/350																																																																																											
NB																																																																																											
WB																																																																																											
↖ 0/0	↗ 930/980																																																																																										
↖ 500/560																																																																																											
↖ 208/375	↖ 3/4																																																																																										
↖ 221/475																																																																																											
↖ 0/0																																																																																											
↖ 715/990																																																																																											
↖ 360/235																																																																																											
↖ 0/0	↖ 0/0																																																																																										
↖ 0/0	↖ 0/0																																																																																										
NB																																																																																											
<p>26</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 263/375</td> <td>↗ 1180/1380</td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 275/385</td> <td></td> </tr> <tr> <td>↖ 552/931</td> <td></td> </tr> <tr> <td>↖ 212/275</td> <td></td> </tr> <tr> <td>↖ 250/288</td> <td>↖ 69/79</td> </tr> <tr> <td>↖ 562/650</td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>ENCINITAS BLVD/ I-5 NB RAMPS</p>	WB		↖ 263/375	↗ 1180/1380	↖ 0/0		↖ 275/385		↖ 552/931		↖ 212/275		↖ 250/288	↖ 69/79	↖ 562/650		NB		<p>27</p> <table border="1"> <tr> <td>WB</td> <td></td> </tr> <tr> <td>↖ 8/6</td> <td>↗ 188/54</td> </tr> <tr> <td>↖ 0/0</td> <td></td> </tr> <tr> <td>↖ 0/0</td> <td>↖ 0/0</td> </tr> <tr> <td>↖ 300/511</td> <td>↖ 41/160</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td>NB</td> <td></td> </tr> </table> <p>VULCAN AVE/ ORPHEUS AVE</p>	WB		↖ 8/6	↗ 188/54	↖ 0/0		↖ 0/0		↖ 0/0		↖ 0/0		↖ 0/0	↖ 0/0	↖ 300/511	↖ 41/160			NB																																																					
WB																																																																																											
↖ 263/375	↗ 1180/1380																																																																																										
↖ 0/0																																																																																											
↖ 275/385																																																																																											
↖ 552/931																																																																																											
↖ 212/275																																																																																											
↖ 250/288	↖ 69/79																																																																																										
↖ 562/650																																																																																											
NB																																																																																											
WB																																																																																											
↖ 8/6	↗ 188/54																																																																																										
↖ 0/0																																																																																											
↖ 0/0																																																																																											
↖ 0/0																																																																																											
↖ 0/0																																																																																											
↖ 0/0	↖ 0/0																																																																																										
↖ 300/511	↖ 41/160																																																																																										
NB																																																																																											





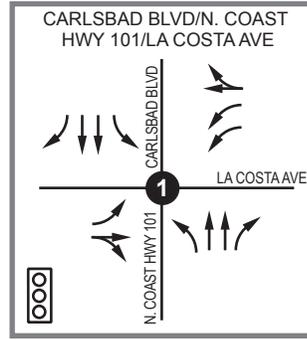
LEGEND

-  Study Intersections
-  Roadway Segment Daily Traffic



Not to Scale

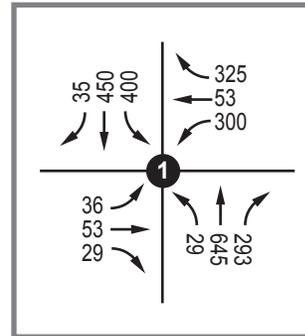
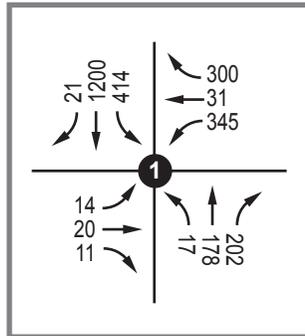
GEOMETRY



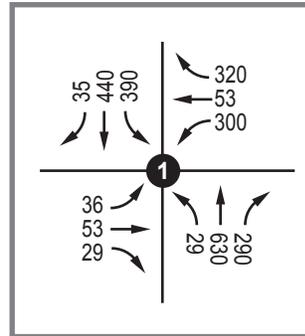
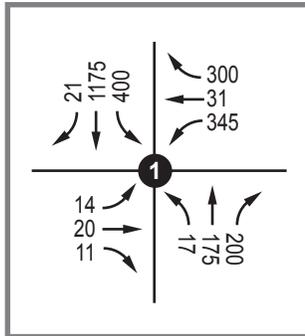
AM PEAK HOUR

PM PEAK HOUR

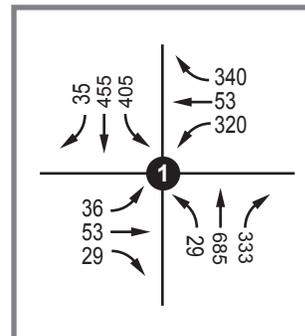
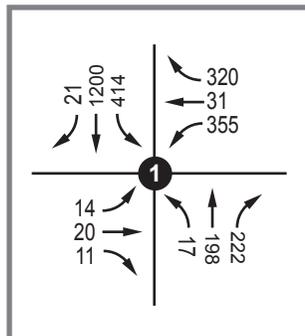
2035 ALTERNATIVE 1
VOLUMES



2035 ALTERNATIVE 2
VOLUMES



2035 ALTERNATIVE 1
WITH SMUP
VOLUMES



Carlsbad Boulevard / N. Coast Highway 101 and La Costa Avenue:
4-Leg Signalized Intersection Condition Lane Geometry
and Year 2035 Peak Hour Intersection Volumes

Future Year 2035 Conditions Traffic Analysis

This section evaluates the effect of the project on the study area. Following tables summarize the results of the analysis for both Alternative 1 and Alternative 2 lane configuration conditions on Carlsbad Boulevard. The lane configuration assumed for Alternative 1 is also used for the Alternative 1 With SMUP condition. The AM and PM peak hour intersection conditions are presented in Table 11 and Table 12 respectively. The AM and PM peak hour directional roadway segment conditions are presented in Table 13 and Table 14 respectively. The ramp meter conditions for Alternative 1 and Alternative 2 are presented in Table 15 and Table 16 respectively. Detailed HCM and Sidra intersection analysis work sheets are included in Appendix E.

Intersection Conditions Analysis

During the AM peak hour as shown in Table 11, for the No Build conditions, a total of three intersections operate at an unacceptable LOS. The intersections of Highway 101 / Leucadia Boulevard and the intersection of Leucadia Boulevard / Vulcan Avenue operate at LOS E and the intersection of Highway 101 and Marcheta Street operates at LOS F. For the project with Alternative 1, Alternative 2, and Alternative 1 With SMUP conditions, the intersection of Highway 101 / Leucadia Boulevard and the intersection of Leucadia Boulevard / Vulcan Avenue operate at an unacceptable LOS E. Comparing Alternative 1, Alternative 2, and Alternative 1 With SMUP to the No Build condition, the project results in no significant impacts at any of the study area intersection locations.

Future conditions during the AM peak hour improve at the Highway 101 / Marcheta Street intersection with the project and with both the four-lane and two-lane alternatives on Carlsbad Boulevard. This is due to the proposed side street stop control which reduces the overall intersection average delay.

During the PM peak hour as shown in Table 12, for the No Build conditions, the intersection of Highway 101 / New Road and the intersection of Highway 101 and Marcheta Street operate at an unacceptable LOS E. For Alternative 1, Alternative 2, and Alternative 1 With SMUP scenarios, all the intersections are found to operate at an acceptable LOS. All of the project alternatives result in no significant impact at any of the study area intersections during the PM peak hour.

Future conditions during the PM peak hour improve at these two intersections with the project and with both the four-lane and two-lane alternatives on Carlsbad Boulevard. This is due to the proposed roundabout improving side street access to Highway 101 at the New Road intersection. And at the Highway 101 / Marcheta Street intersection, the proposed side street stop control improves the overall intersection average delay.

Segment Conditions Analysis

As shown in Table 13, during the AM peak hour, all the segments operate at an acceptable LOS under all the future scenarios with the exception of North Coast Highway 101 between Leucadia Boulevard and El Portal Street in the Year 2035 Alternative 1 With SMUP scenario. For this

scenario, this segment would operate at an unacceptable LOS E and would result in a significant impact when compared to the Year 2035 No Build scenario.

During the PM peak hour, as shown in Table 14, all the segments operate at an acceptable LOS under all the future scenarios.

Ramp Meter Conditions Analysis

As shown in Table 15 and Table 16, the ramp meter conditions on the I-5 southbound on-ramp from Leucadia Boulevard operate at an unacceptable level for Alternative 1 and 2 during the AM peak hour. Comparison of the project Alternatives 1 and 2 with the No Build condition show that the project causes a significant impact at the ramp meter under both Leucadia Boulevard lane configuration alternatives. As shown in Table 17, the ramp meter delays on the I-5 southbound on-ramp from Leucadia Boulevard exceed 15 minutes under the Alternative 1 With SMUP condition. Comparison of the project Alternative 1 With SMUP condition with the No Build condition show that the project does not cause any significant impacts at the ramp meter since the change in delay does not exceed 2 minutes.

**Table 11
Year 2035 Intersection Conditions - AM Peak Hour**

ID	Intersection	Year 2035 No Build			Control (With Project)	Year 2035 Alternative 1				Year 2035 Alternative 2				Year 2035 Alternative 1 With SMUP			
		Control	Delay	LOS		Delay	LOS	Δ Delay (sec)	Significant?	Delay	LOS	Δ Delay (sec)	Significant?	Delay	LOS	Δ Delay (sec)	Significant?
1	Hwy 101 / La Costa Ave.	Signal	25.8	C	R	5.3	A	-20.5	No	2.8	A	-23.0	No	5.6	A	-20.2	No
					Signal ¹	24.5	C	-1.3	No	24.4	C	-1.4	No	24.8	C	-1.0	No
2	Hwy 101 / New Road	SSS	6.3	A	R	34.8	D	28.5	No	28.3	D	22.0	No	34.9	D	28.6	No
3	Hwy 101 / Bishops Gate Rd.	SSS	6.1	A	R	33.8	D	27.7	No	27.5	D	21.4	No	34.2	D	28.1	No
4	Hwy 101 / Grandview St.	SSS	5.8	A	R	21.4	C	15.6	No	15.6	C	9.8	No	26.4	D	20.6	No
5	Hwy 101 / Jupiter St.	SSS	1.7	A	R	18.0	C	16.3	No	11.5	B	9.8	No	20.7	C	19.0	No
6	Hwy 101 / Leucadia Blvd.	Signal	69.5	E	Signal	70.8	E	1.3	No	68.3	E	-1.2	No	71.3	E	1.8	No
7	Hwy 101 / El Portal St.	SSS	1.6	A	R	18.9	C	17.3	No	14.7	B	13.1	No	26.2	D	24.6	No
8	Hwy 101 / Marcheta St.	AWS	158.5	F	SSS	17.9	C	-140.6	No	16.6	C	-141.9	No	23.1	C	-135.4	No
9	Hwy 101 / Encinitas Blvd.	Signal	35.6	D	Signal	35.4	D	-0.2	No	35.3	D	-0.3	No	36.2	D	0.6	No
10	Neptune Ave. / Grandview St.	SSS	3.9	A	SSS	3.9	A	0.0	No	3.9	A	0.0	No	3.9	A	0.0	No
11	Neptune Ave. / Jupiter St.	SSS	1.6	A	SSS	1.6	A	0.0	No	1.6	A	0.0	No	1.6	A	0.0	No
12	Neptune Ave. / Leucadia Blvd.	SSS	5.1	A	SSS	5.1	A	0.0	No	5.1	A	0.0	No	5.3	A	0.2	No
13	Neptune Ave. / N El Portal St.	SSS	2.7	A	SSS	2.7	A	0.0	No	2.7	A	0.0	No	2.7	A	0.0	No
14	La Costa Ave. / Vulcan Ave.	SSS	6.7	A	SSS	8.0	A	1.3	No	7.5	A	0.8	No	15.5	C	8.8	No
15	La Costa Ave. / Sheridan Rd.	SSS	2.0	A	SSS	2.1	A	0.1	No	2.1	A	0.1	No	2.2	A	0.2	No
16	La Costa Ave. / I-5 SB Ramps	Signal	52.3	D	Signal	54.4	D	2.1	No	54.3	D	2.0	No	54.7	D	2.4	No
17	La Costa Ave. / I-5 NB Ramps	Signal	29.1	C	Signal	30.1	C	1.0	No	30.7	C	1.6	No	30.7	C	1.6	No
18	Leucadia Blvd. / Vulcan Ave.	Signal	68.8	E	Signal	70.5	E	1.7	No	70.6	E	1.8	No	70.7	E	1.9	No
19	Leucadia Blvd. / Hygeia Ave.	AWS	24.4	C	AWS	25.0	C	0.6	No	25.0	C	0.6	No	25.7	D	1.3	No
20	Leucadia Blvd. / Hymettus Ave.	R	11.7	B	R	11.7	B	0.0	No	11.7	B	0.0	No	11.5	B	-0.2	No
21	Leucadia Blvd. / Orpheus Ave.	Signal	27.3	C	Signal	28.0	C	0.7	No	28.0	C	0.7	No	28.8	C	1.5	No
22	Leucadia Blvd. / I-5 SB Ramps	Signal	48.6	D	Signal	47.9	D	-0.7	No	49.0	D	0.4	No	42.6	D	-6.0	No
23	Leucadia Blvd. / I-5 NB Ramps	Signal	20.7	C	Signal	20.7	C	0.0	No	20.8	C	0.1	No	20.6	C	-0.1	No
24	Encinitas Blvd. / Vulcan Ave.	Signal	33.4	C	Signal	35.8	D	2.4	No	36.0	D	2.6	No	38.0	D	4.6	No
25	Encinitas Blvd. / I-5 SB Ramps	Signal	17.0	B	Signal	17.6	B	0.6	No	17.5	B	0.5	No	17.6	B	0.6	No
26	Encinitas Blvd. / I-5 NB Ramps	Signal	34.5	C	Signal	38.6	D	4.1	No	39.6	D	5.1	No	38.0	D	3.5	No
27	Vulcan Ave. / Orpheus Ave.	SSS	10.9	B	SSS	18.5	C	7.6	No	18.5	C	7.6	No	18.5	C	7.6	No

Note: Alternative 1 is 4-Lanes on Carlsbad Blvd north of La Costa Ave. Alternative 2 is 2-Lanes on Carlsbad Blvd north of La Costa Ave.

¹ - 4 Leg Intersection with Signal instead of roundabout (see Exhibit 35)

SSS - Side Street Stop

AWS - All-Way Stop

R - Roundabout

SMUP - Sustainable Mixed Use Places

Table 12
Year 2035 Intersection Conditions - PM Peak Hour

ID	Intersection	Year 2035 No Build			Control (With Project)	Year 2035 Alternative 1				Year 2035 Alternative 2				Year 2035 Alternative 1 With SMUP			
		Control	Delay	LOS		Delay	LOS	Δ Delay (sec)	Significant?	Delay	LOS	Δ Delay (sec)	Significant?	Delay	LOS	Δ Delay (sec)	Significant?
1	Hwy 101 / La Costa Ave.	Signal	28.4	C	R	10.4	B	-18.0	No	3.9	A	-24.5	No	12.1	B	-16.3	No
					Signal ¹	40.3	D	11.9	No	37.8	D	9.4	No	43.0	D	14.6	No
2	Hwy 101 / New Road	SSS	46.8	E	R	3.6	A	-43.2	No	3.6	A	-43.2	No	3.8	A	-43.0	No
3	Hwy 101 / Bishops Gate Rd.	SSS	2.1	A	R	2.8	A	0.7	No	2.8	A	0.7	No	2.9	A	0.8	No
4	Hwy 101 / Grandview St.	SSS	3.4	A	R	2.7	A	-0.7	No	2.7	A	-0.7	No	2.8	A	-0.6	No
5	Hwy 101 / Jupiter St.	SSS	1.1	A	R	2.6	A	1.5	No	2.6	A	1.5	No	2.7	A	1.6	No
6	Hwy 101 / Leucadia Blvd.	Signal	36.8	D	Signal	40.0	D	3.2	No	39.7	D	2.9	No	41.7	D	4.9	No
7	Hwy 101 / El Portal St.	SSS	1.1	A	R	3.1	A	2.0	No	3.1	A	2.0	No	3.1	A	2.0	No
8	Hwy 101 / Marcheta St.	AWS	46.4	E	SSS	22.8	C	-23.6	No	21.4	C	-25.0	No	22.0	C	-24.4	No
9	Hwy 101 / Encinitas Blvd.	Signal	38.4	D	Signal	38.1	D	-0.3	No	38.1	D	-0.3	No	38.6	D	0.2	No
10	Neptune Ave. / Grandview St.	SSS	4.9	A	SSS	4.9	A	0.0	No	4.9	A	0.0	No	4.7	A	-0.2	No
11	Neptune Ave. / Jupiter St.	SSS	1.7	A	SSS	1.7	A	0.0	No	1.7	A	0.0	No	1.9	A	0.2	No
12	Neptune Ave. / Leucadia Blvd.	SSS	4.0	A	SSS	4.0	A	0.0	No	4.0	A	0.0	No	4.6	A	0.6	No
13	Neptune Ave. / N El Portal St.	SSS	2.8	A	SSS	2.8	A	0.0	No	2.8	A	0.0	No	2.8	A	0.0	No
14	La Costa Ave. / Vulcan Ave.	SSS	5.6	A	SSS	6.5	A	0.9	No	6.4	A	0.8	No	3.9	A	-1.7	No
15	La Costa Ave. / Sheridan Rd.	SSS	1.3	A	SSS	1.4	A	0.1	No	1.4	A	0.1	No	0.9	A	-0.4	No
16	La Costa Ave. / I-5 SB Ramps	Signal	35.9	D	Signal	39.6	D	3.7	No	42.3	D	6.4	No	29.6	C	-6.3	No
17	La Costa Ave. / I-5 NB Ramps	Signal	43.7	D	Signal	52.4	D	8.7	No	53.7	D	10.0	No	22.1	C	-21.6	No
18	Leucadia Blvd. / Vulcan Ave.	Signal	47.9	D	Signal	54.1	D	6.2	No	54.0	D	6.1	No	54.6	D	6.7	No
19	Leucadia Blvd. / Hygeia Ave.	AWS	32.2	D	AWS	31.6	D	-0.6	No	31.6	D	-0.6	No	32.7	D	0.5	No
20	Leucadia Blvd. / Hymettus Ave.	R	12.9	B	R	14.7	B	1.8	No	14.7	B	1.8	No	14.0	B	1.1	No
21	Leucadia Blvd. / Orpheus Ave.	Signal	27.6	C	Signal	28.1	C	0.5	No	28.1	C	0.5	No	29.3	C	1.7	No
22	Leucadia Blvd. / I-5 SB Ramps	Signal	38.3	D	Signal	42.7	D	4.4	No	43.8	D	5.5	No	37.8	D	-0.5	No
23	Leucadia Blvd. / I-5 NB Ramps	Signal	30.9	C	Signal	30.6	C	-0.3	No	30.9	C	0.0	No	31.1	C	0.2	No
24	Encinitas Blvd. / Vulcan Ave.	Signal	37.1	D	Signal	39.6	D	2.5	No	39.6	D	2.5	No	40.0	D	2.9	No
25	Encinitas Blvd. / I-5 SB Ramps	Signal	38.5	D	Signal	39.2	D	0.7	No	39.2	D	0.7	No	30.0	C	-8.5	No
26	Encinitas Blvd. / I-5 NB Ramps	Signal	38.7	D	Signal	44.2	D	5.5	No	43.1	D	4.4	No	47.8	D	9.1	No
27	Vulcan Ave. / Orpheus Ave.	SSS	1.3	A	SSS	1.3	A	0.0	No	1.3	A	0.0	No	1.3	A	0.0	No

Note: Alternative 1 is 4-Lanes on Carlsbad Blvd north of La Costa Ave. Alternative 2 is 2-Lanes on Carlsbad Blvd north of La Costa Ave.

¹ - 4 Leg Intersection with Signal instead of roundabout (see Exhibit 35)

SSS - Side Street Stop

AWS - All-Way Stop

R - Roundabout

SM UP - Sustainable Mixed Use Places

Table 13
Year 2035 Peak Hour Directional Roadway Segment Conditions - AM Peak Hour

Roadway Segment	Direction	Year 2035 No Build					Lanes (With Project)	Segment Capacity ² (With Project)	Year 2035 Alternative 1			Year 2035 Alternative 2			Year 2035 Alternative 1 With SMUP		
		Lanes	Segment Capacity ¹	Peak Hour Volume	V/C	LOS			Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS
Highway 101																	
Between La Costa Ave. and Grandview St	Northbound	1-Lane	2,000	440	0.220	A	1-Lane	1,900	390	0.205	A	380	0.200	A	420	0.221	A
	Southbound	2-Lane	2,800	1,700	0.607	B	1-Lane	1,800	1,580	0.878	D	1,550	0.861	D	1,580	0.878	D
Between Grandview St and Jupiter St	Northbound	1-Lane	1,800	400	0.222	A	1-Lane	1,800	340	0.189	A	330	0.183	A	320	0.178	A
	Southbound	2-Lane	2,800	1,710	0.611	B	1-Lane	1,800	1,590	0.883	D	1,550	0.861	D	1,590	0.883	D
Between Jupiter St and Leucadia Blvd.	Northbound	1-Lane	1,800	330	0.183	A	1-Lane	1,800	320	0.178	A	310	0.172	A	320	0.178	A
	Southbound	2-Lane	2,800	1,830	0.654	C	2-Lane	3,400	1,700	0.500	B	1,680	0.494	B	1,830	0.538	B
Between Leucadia Blvd. and El Portal St	Northbound	2-Lane	3,600	360	0.100	A	1-Lane	1,800	340	0.189	A	340	0.189	A	350	0.194	A
	Southbound	2-Lane	2,800	1,700	0.607	B	1-Lane	1,700	1,560	0.918	D	1,540	0.906	D	1,640	0.965	E
Between El Portal St and Marcheta St	Northbound	2-Lane	3,600	350	0.097	A	1-Lane	1,900	320	0.168	A	320	0.168	A	340	0.179	A
	Southbound	2-Lane	2,800	1,560	0.557	B	1-Lane	1,800	1,510	0.839	D	1,490	0.828	D	1,640	0.911	D
Between Marcheta St and Encinitas Blvd.	Northbound	2-Lane	3,600	410	0.114	A	2-Lane	3,800	440	0.116	A	440	0.116	A	360	0.095	A
	Southbound	2-Lane	2,800	1,550	0.554	B	1-Lane	1,700	1,490	0.876	D	1,470	0.865	D	1,400	0.824	D
La Costa Avenue																	
Between Hwy 101 and Vulcan Ave.	Eastbound	2-Lane	3,600	590	0.164	A	2-Lane	3,600	660	0.183	A	650	0.181	A	700	0.194	A
	Westbound	2-Lane	3,600	590	0.164	A	2-Lane	3,600	650	0.181	A	650	0.181	A	680	0.189	A
Between Vulcan Ave. and Sheridan Rd.	Eastbound	2-Lane	3,600	700	0.194	A	2-Lane	3,600	770	0.214	A	760	0.211	A	790	0.219	A
	Westbound	2-Lane	3,600	820	0.228	A	2-Lane	3,600	870	0.242	A	860	0.239	A	850	0.236	A
Between Sheridan Rd. and I-5 Southbound Ramps	Eastbound	2-Lane	3,600	770	0.214	A	2-Lane	3,600	840	0.233	A	830	0.231	A	850	0.236	A
	Westbound	2-Lane	3,600	920	0.256	A	2-Lane	3,600	940	0.261	A	930	0.258	A	970	0.269	A

Note: Alternative 1 is 4-Lanes on Carlsbad Blvd north of La Costa Ave. Alternative 2 is 2-Lanes on Carlsbad Blvd north of La Costa Ave.

- ¹ - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction
- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 20% Parking Friction Reduction; 10% Turning Vehicle Friction Reduction
- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction
- ² - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 5% Turning Vehicle Friction Reduction; Additional 5% Turning Vehicle Friction Reduction at Proposed Parking Areas
- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 10% Parking Friction Reduction; 5% Turning Vehicle Friction Reduction
- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

Table 14
Year 2035 Peak Hour Directional Roadway Segment Conditions - PM Peak Hour

Roadway Segment	Direction	Year 2035 No Build					Lanes (With Project)	Segment Capacity ² (With Project)	Year 2035 Alternative 1			Year 2035 Alternative 2			Year 2035 Alternative 1 With SMUP		
		Lanes	Segment Capacity ¹	Peak Hour Volume	V/C	LOS			Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS
Highway 101																	
Between La Costa Ave. and Grandview St	Northbound	1-Lane	2,000	1,100	0.550	B	1-Lane	1,900	980	0.516	B	970	0.511	B	1,020	0.537	B
	Southbound	2-Lane	2,800	900	0.321	A	1-Lane	1,800	750	0.417	B	740	0.411	B	740	0.411	B
Between Grandview St and Jupiter St	Northbound	1-Lane	1,800	1,090	0.606	B	1-Lane	1,800	950	0.528	B	940	0.522	B	990	0.550	B
	Southbound	2-Lane	2,800	810	0.289	A	1-Lane	1,800	720	0.400	A	700	0.389	A	720	0.400	A
Between Jupiter St and Leucadia Blvd.	Northbound	1-Lane	1,800	1,020	0.567	B	1-Lane	1,800	1,000	0.556	B	990	0.550	B	1,010	0.561	B
	Southbound	2-Lane	2,800	770	0.275	A	2-Lane	3,400	670	0.197	A	650	0.191	A	720	0.212	A
Between Leucadia Blvd. and El Portal St	Northbound	2-Lane	3,600	1,030	0.286	A	1-Lane	1,800	1,010	0.561	B	1,000	0.556	B	1,060	0.589	B
	Southbound	2-Lane	2,800	730	0.261	A	1-Lane	1,700	680	0.400	A	660	0.388	A	600	0.353	A
Between El Portal St and Marcheta St	Northbound	2-Lane	3,600	1,040	0.289	A	1-Lane	1,900	1,020	0.537	B	1,000	0.526	B	1,050	0.553	B
	Southbound	2-Lane	2,800	640	0.229	A	1-Lane	1,800	580	0.322	A	570	0.317	A	600	0.333	A
Between Marcheta St and Encinitas Blvd.	Northbound	2-Lane	3,600	1,080	0.300	A	2-Lane	3,800	1,060	0.279	A	1,050	0.276	A	980	0.258	A
	Southbound	2-Lane	2,800	660	0.236	A	1-Lane	1,700	630	0.371	A	630	0.371	A	590	0.347	A
La Costa Avenue																	
Between Hwy 101 and Vulcan Ave.	Eastbound	2-Lane	3,600	650	0.181	A	2-Lane	3,600	690	0.192	A	680	0.189	A	720	0.200	A
	Westbound	2-Lane	3,600	590	0.164	A	2-Lane	3,600	630	0.175	A	620	0.172	A	660	0.183	A
Between Vulcan Ave. and Sheridan Rd.	Eastbound	2-Lane	3,600	730	0.203	A	2-Lane	3,600	760	0.211	A	760	0.211	A	780	0.217	A
	Westbound	2-Lane	3,600	700	0.194	A	2-Lane	3,600	700	0.194	A	690	0.192	A	710	0.197	A
Between Sheridan Rd. and I-5 Southbound Ramps	Eastbound	2-Lane	3,600	740	0.206	A	2-Lane	3,600	770	0.214	A	770	0.214	A	790	0.219	A
	Westbound	2-Lane	3,600	780	0.217	A	2-Lane	3,600	780	0.217	A	790	0.219	A	780	0.217	A

Note: Alternative 1 is 4-Lanes on Carlsbad Blvd north of La Costa Ave. Alternative 2 is 2-Lanes on Carlsbad Blvd north of La Costa Ave.

- ¹ - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction
- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 20% Parking Friction Reduction; 10% Turning Vehicle Friction Reduction
- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction
- ² - For Highway 101 Northbound; Base Saturation Flow = 2,000 v/h/l; 5% Turning Vehicle Friction Reduction; Additional 5% Turning Vehicle Friction Reduction at Proposed Parking Areas
- For Highway 101 Southbound; Base Saturation Flow = 2,000 v/h/l; 10% Parking Friction Reduction; 5% Turning Vehicle Friction Reduction
- For La Costa Ave.; Base Saturation Flow = 2,000 v/h/l; 10% Turning Vehicle Friction Reduction

Table 15
Year 2035 No Build and Alternative 1 Ramp Meter Conditions

Location	Peak Hour	Meter Rate (veh/hr/ln)	Year 2035 No Build				Year 2035 Alternative 1				Comparison	
			Demand (veh/hr/ln)	Excess Demand (veh/hr/ln)	Delay (min/ln)	Queue (ft/ln)	Demand (veh/hr/ln)	Excess Demand (veh/hr/ln)	Delay (min/ln)	Queue (ft/ln)	Δ Delay (min)	Significant?
La Costa Avenue / I-5 Ramp												
La Costa Ave. / I-5 NB On-Ramp	PM	744	260	0	0.0	0	270	0	0	0	0.0	No
La Costa Ave. / I-5 SB On-Ramp	AM	455	330	0	0.0	0	350	0	0	0	0.0	No
La Costa Ave. / I-5 SB On-Ramp	PM	455	350	0	0.0	0	350	0	0	0	0.0	No
Leucadia Boulevard / I-5 Ramp												
Leucadia Blvd. / I-5 NB On-Ramp	PM	453	370	0	0.0	0	370	0	0	0	0.0	No
Leucadia Blvd. / I-5 SB On-Ramp	AM	255	360	105	24.7	2,625	370	115	27.1	2,875	2.4	Yes
Leucadia Blvd. / I-5 SB On-Ramp	PM	257	300	43	10.0	1,075	310	53	12.4	1,325	2.3	No
Encinitas Boulevard / I-5 Ramp												
Encinitas Blvd. / I-5 NB On-Ramp (Slip)	PM	414	210	0	0.0	0	230	0	0	0	0.0	No
Encinitas Blvd. / I-5 NB On-Ramp (Loop)	PM	414	230	0	0.0	0	230	0	0	0	0.0	No
Encinitas Blvd. / I-5 SB On-Ramp	AM	744	330	0	0.0	0	360	0	0	0	0.0	No
Encinitas Blvd. / I-5 SB On-Ramp	PM	744	320	0	0.0	0	330	0	0	0	0.0	No

Ramp meter delay greater than 15 minutes/lane is considered unacceptable

Table 16
Year 2035 No Build and Alternative 2 Ramp Meter Conditions

Location	Peak Hour	Meter Rate (veh/hr/ln)	Year 2035 No Build				Year 2035 Alternative 2				Comparison	
			Demand (veh/hr/ln)	Excess Demand (veh/hr/ln)	Delay (min/ln)	Queue (ft/ln)	Demand (veh/hr/ln)	Excess Demand (veh/hr/ln)	Delay (min/ln)	Queue (ft/ln)	Δ Delay (min)	Significant?
La Costa Avenue / I-5 Ramp												
La Costa Ave. / I-5 NB On-Ramp	PM	744	260	0	0.0	0	270	0	0.0	0	0.0	No
La Costa Ave. / I-5 SB On-Ramp	AM	455	330	0	0.0	0	310	0	0.0	0	0.0	No
La Costa Ave. / I-5 SB On-Ramp	PM	455	350	0	0.0	0	360	0	0.0	0	0.0	No
Leucadia Boulevard / I-5 Ramp												
Leucadia Blvd. / I-5 NB On-Ramp	PM	453	370	0	0.0	0	380	0	0.0	0	0.0	No
Leucadia Blvd. / I-5 SB On-Ramp	AM	255	360	105	24.7	2,625	370	115	27.1	2,875	2.4	Yes
Leucadia Blvd. / I-5 SB On-Ramp	PM	257	300	43	10.0	1,075	310	53	12.4	1,325	2.3	No
Encinitas Boulevard / I-5 Ramp												
Encinitas Blvd. / I-5 NB On-Ramp (Slip)	PM	414	210	0	0.0	0	230	0	0.0	0	0.0	No
Encinitas Blvd. / I-5 NB On-Ramp (Loop)	PM	414	230	0	0.0	0	230	0	0.0	0	0.0	No
Encinitas Blvd. / I-5 SB On-Ramp	AM	744	330	0	0.0	0	360	0	0.0	0	0.0	No
Encinitas Blvd. / I-5 SB On-Ramp	PM	744	320	0	0.0	0	330	0	0.0	0	0.0	No

Ramp meter delay greater than 15 minutes/lane is considered unacceptable

**Table 17
Year 2035 No Build and Alternative 1 With SMUP Ramp Meter Conditions**

Location	Peak Hour	Meter Rate (veh/hr/lane)	Year 2035 No Build				Year 2035 Alternative 1 With SMUP				Comparison	
			Demand (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay (min/lane)	Queue (ft/lane)	Demand (veh/hr/lane)	Excess Demand (veh/hr/lane)	Delay (min/lane)	Queue (ft/lane)	Δ Delay (min)	Significant?
La Costa Avenue / I-5 Ramp												
La Costa Ave. / I-5 NB On-Ramp	PM	744	260	0	0.0	0	270	0	0.0	0	0.0	No
La Costa Ave. / I-5 SB On-Ramp	AM	455	330	0	0.0	0	360	0	0.0	0	0.0	No
La Costa Ave. / I-5 SB On-Ramp	PM	455	350	0	0.0	0	360	0	0.0	0	0.0	No
Leucadia Boulevard / I-5 Ramp												
Leucadia Blvd. / I-5 NB On-Ramp	PM	453	370	0	0.0	0	360	0	0.0	0	0.0	No
Leucadia Blvd. / I-5 SB On-Ramp	AM	255	360	105	24.7	2,625	340	85	20.0	2,125	-4.7	No
Leucadia Blvd. / I-5 SB On-Ramp	PM	257	300	43	10.0	1,075	280	23	5.4	575	-4.7	No
Encinitas Boulevard / I-5 Ramp												
Encinitas Blvd. / I-5 NB On-Ramp	PM	414	210	0	0.0	0	160	0	0.0	0	0.0	No
Encinitas Blvd. / I-5 NB On-Ramp	PM	414	230	0	0.0	0	230	0	0.0	0	0.0	No
Encinitas Blvd. / I-5 SB On-Ramp	AM	744	330	0	0.0	0	370	0	0.0	0	0.0	No
Encinitas Blvd. / I-5 SB On-Ramp	PM	744	320	0	0.0	0	340	0	0.0	0	0.0	No

Ramp meter delay greater than 15 minutes/lane is considered unacceptable

SMUP - Sustainable Mixed Use Places

Note:

Excess demand = Demand - Meter Rate

Delay = (Excess Demand/Meter Rate)*60 minutes

Queue = Excess Demand*25 feet/vehicle

ANALYSIS OF LA COSTA AVENUE WITH REDUCED TWO-LANE COLLECTOR GEOMETRY

Additional analysis was performed on La Costa Avenue, between North Coast Highway 101 and I-5 Southbound Ramps, with 2035 conditions and one lane in each direction instead of two lanes in each direction. The purpose of this analysis is to assess if a two-lane Collector roadway can accommodate the future traffic demand. The intersections of La Costa Avenue / Vulcan Avenue and La Costa Avenue / Sheridan Road are included in the analysis and the results are presented in Table 18. The segment conditions, between North Coast Highway 101 and I-5 Southbound Ramps, are presented in Table 19. Detailed HCM intersection analysis worksheets are included in Appendix F.

Table 18
Year 2035 La Costa Avenue Intersection Conditions With Two-Lane Collector
(With Side Street Stop)

ID	Intersection	Control	Year 2035 No Build		Year 2035 Alternative 1		Year 2035 Alternative 2		Year 2035 Alternative 1 With SMUP	
			Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
AM Peak Hour										
14	La Costa Ave. / Vulcan Ave.	SSS	9.3	A	16.1	C	14.1	B	28.7	D
15	La Costa Ave. / Sheridan Rd.	SSS	5.3	A	7.6	A	7.2	A	8.9	A
PM Peak Hour										
14	La Costa Ave. / Vulcan Ave.	SSS	7.9	A	9.1	A	9.0	A	22.9	C
15	La Costa Ave. / Sheridan Rd.	SSS	2.5	A	2.8	A	2.8	A	3.1	A

SSS - Side Street Stop

Table 19
Year 2035 La Costa Avenue Peak Hour Directional Roadway Segment Conditions With Two-Lane Collector

Roadway Segment	Direction	Lanes	Segment Capacity ¹	Year 2035 No Build			Year 2035 Alternative 1			Year 2035 Alternative 2			Year 2035 Alternative 1 With SMUP		
				Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS	Peak Hour Volume	V/C	LOS
AM Peak Hour															
Between Hwy 101 and Vulcan Ave.	Eastbound	1-Lane	1,800	590	0.328	A	660	0.367	A	650	0.361	A	700	0.389	A
	Westbound	1-Lane	1,800	590	0.328	A	650	0.361	A	650	0.361	A	680	0.378	A
Between Vulcan Ave. and Sheridan Rd.	Eastbound	1-Lane	1,800	700	0.389	A	770	0.428	B	760	0.422	B	790	0.439	B
	Westbound	1-Lane	1,800	820	0.456	B	870	0.483	B	860	0.478	B	850	0.472	B
Between Sheridan Rd. and I-5 Southbound Ramps	Eastbound	1-Lane	1,800	770	0.428	B	840	0.467	B	830	0.461	B	850	0.472	B
	Westbound	1-Lane	1,800	920	0.511	B	940	0.522	B	930	0.517	B	970	0.539	B
PM Peak Hour															
Between Hwy 101 and Vulcan Ave.	Eastbound	1-Lane	1,800	650	0.361	A	690	0.383	A	680	0.378	A	720	0.400	A
	Westbound	1-Lane	1,800	590	0.328	A	630	0.350	A	620	0.344	A	660	0.367	A
Between Vulcan Ave. and Sheridan Rd.	Eastbound	1-Lane	1,800	730	0.406	A	760	0.422	B	760	0.422	B	780	0.433	B
	Westbound	1-Lane	1,800	700	0.389	A	700	0.389	A	690	0.383	A	710	0.394	A
Between Sheridan Rd. and I-5 Southbound Ramps	Eastbound	1-Lane	1,800	740	0.411	B	770	0.428	B	770	0.428	B	790	0.439	B
	Westbound	1-Lane	1,800	780	0.433	B	780	0.433	B	790	0.439	B	780	0.433	B

¹ - Base Saturation Flow = 2000 v/h/M; 10% Turning Vehicle Friction Reduction

As shown in Table 18, the two study intersections along La Costa Avenue operate at an acceptable LOS for all the alternative scenarios during both the peak hours.

As shown in Table 19, the segments along La Costa Avenue, between North Coast Highway 101 and I-5 Southbound Ramps, operate at acceptable LOS for all the alternative scenarios during both the peak hours.

PEDESTRIAN CROSSING EVALUATION AT DIANA STREET & NORTH COURT ALONG HWY 101

North Coast Highway 101 / Diana Street

As shown in Exhibit 5, a pedestrian signal is proposed at the intersection of Highway 101 and Diana Street. Currently, this location operates as a one-way stop controlled intersection without any crosswalks. The proposed pedestrian signal would provide a designated protected location for pedestrians and bicyclists to cross Highway 101. The intersection improvements would include a modification to the raised median restricting vehicles from turning left onto Highway 101 from Diana Street. As shown, a northbound left turn pocket would be constructed to allow left turn movements onto Diana Street and vehicular traffic on Diana Street approaching Highway 101 would continue to use the stop sign that exists today.

As part of the Highway 101 Streetscape project, a surface parking lot will be constructed along the east side of Highway 101 across from Diana Street. To accommodate pedestrians crossing Highway 101 from the new parking lot to local business attractions, a marked pedestrian crosswalk is proposed on the north side of the intersection with a pedestrian activated signal. Given the distance of Diana Street to Leucadia Boulevard which is approximately 950 feet, the pedestrian signal will likely use a separate controller and be coordinated with the signal at Leucadia Boulevard.

A supplemental peak hour queuing analysis under the Year 2035 with Alternative 1 (SMUP) condition was conducted along Highway 101 between Diana Street and Leucadia Boulevard to assess the impact of the proposed pedestrian signal on traffic flow along Highway 101 to and from Leucadia Boulevard. The traffic volumes used in the queuing analysis are based on the Alternative 1 with SMUP condition since these volumes are higher compared to the other alternatives. Without signal coordination along Highway 101, the analysis results showed the queues would approach, but not spill back into the upstream Leucadia Boulevard intersection in the northbound approach during the critical (PM) peak hour. However, with the planned coordinated system between the two signals, the queues at each intersection approach would be reduced by at least 50%. Queuing along Highway 101 can be minimized by limiting the pedestrian phase at Diana Street to coincide with the phases serving traffic on Leucadia Boulevard versus Highway 101. The eastbound and westbound approaches at Leucadia Boulevard contribute less traffic to Highway 101 compared to the through traffic on Highway 101 and would generate lower queues at the new pedestrian signal. The analysis of the planned pedestrian signal indicates that it would not result in a significant impact on traffic operations.

North Coast Highway 101 / North Court

As shown in Exhibit 7, a pedestrian signal is proposed at the intersection of Highway 101 and North Court. This intersection currently operates as a one-way stop controlled intersection with vehicular traffic flowing free on Highway 101. The Highway 101 Streetscape project would construct a raised median on Highway 101 restricting left turn movements at the intersection, thus allowing only right turns in/out of North Court. Due to

increase in retail shops and restaurants along Highway 101, the parking demand has also increased. Therefore, as part of the Highway 101 Streetscape project, additional parking will be provided on the east side of Highway 101. To accommodate pedestrians crossing Highway 101 from the new parking lot to local business attractions, a marked pedestrian crosswalk is proposed on the north side of the intersection with a pedestrian activated signal. We recommend the pedestrian signal use a separate controller and coordinate with the Leucadia Boulevard signal which is approximately 2,500 feet to improve traffic flow on Highway 101.

Under the Year 2035 with Alternative 1 (SMUP) condition, a supplemental queuing analysis using the most conservative traffic volumes was conducted along Highway 101 between North Court and Leucadia Boulevard to assess the impact of the proposed pedestrian signal on traffic flow along Highway 101. As an uncoordinated system, the analysis results showed the queues from the pedestrian signal would approach, but not block the upstream intersection at Leucadia Blvd., specifically in the southbound direction during the critical (AM) peak hour. However, with the planned coordinated system between the two signals, the queues at each intersection approach would be reduced by more than 50%. The analysis of the planned pedestrian signal indicates that it would not result in a significant impact on traffic operations.

SUMMARY OF SIGNIFICANT IMPACTS

This section summarizes the significant impacts of the project on the roadway facilities. Following are the locations that will be significantly impacted by the proposed project:

Year 2035 Alternative 1 With SMUP Street Segment Impact

- Highway 101 between Leucadia Boulevard and El Portal Street

Year 2035 Alternative 1 Ramp Meter Impact

- Leucadia Boulevard / I-5 Southbound On-Ramp (AM peak hour)

Year 2035 Alternative 2 Ramp Meter Impact

- Leucadia Boulevard / I-5 Southbound On-Ramp (AM peak hour)

MITIGATION OF SIGNIFICANT IMPACTS

This section discusses mitigation measures that address the significant impacts identified to be caused by the project under either alternative lane configuration for Carlsbad Boulevard north of La Costa Avenue. Detailed HCM and Sidra intersection analysis work sheets are included in Appendix G.

Street Segment Mitigation Measures

For Year 2035 Alternative 1 With SMUP conditions, there are no mitigation measures that could be identified that would not conflict with the fundamental design features of the proposed project. Therefore the impact on the southbound North Coast Highway 101 roadway segment between Leucadia Boulevard and El Portal Street would remain significant and unavoidable.

Ramp Meter Location Mitigation Measures

For Year 2035 forecast conditions, it is assumed that the I-5 North Coast Corridor Project Managed Lanes would be completed either with one additional managed lane in the median area in each direction or two additional managed lanes in the median area in each direction. According to the construction phasing discussed in the I-5 North Coast Corridor Project Final EIR/EIS, two HOV/Managed Lanes would be built between 2020 and 2030 and a total of four HOV/Managed Lanes would be scheduled by 2015. With the installation of managed lanes, the freeway main line will likely operate at a higher average speed than current conditions without the managed lanes. With the freeway mainline operating at better level of service, the discharge rate from the ramp metering on southbound on-ramp from Leucadia Boulevard may be adjusted by Caltrans to provide a slightly higher discharge rate resulting in less delay and queuing.

With an increase in average discharge rate of only 2 vehicles/hour/lane, the ramp meter delay added by the project would drop below the 2 minute significance threshold eliminating the significant project impact. This notwithstanding, since the City has no control over the ramp meter discharge rates, which is determined by Caltrans, this project impact would be considered significant and unavoidable.

The major portion of the southbound on-ramp volume originates from the Leucadia Boulevard westbound left turn movement during both the peak hours. Currently the inside lane on westbound Leucadia Boulevard from Clark Avenue to the I-5 northbound ramps, provides additional storage to the left turning traffic. Including the storage of the westbound left turn lanes at the ramp intersection and the extended storage a total of approximately 1,200 feet of storage is available for vehicle queuing in advance of the southbound on-ramp. For eastbound traffic from Leucadia Boulevard onto the I-5 southbound on-ramp, the existing 160-foot right turn lane will provide additional storage if queue backs up from the southbound on-ramp. With this additional storage on Leucadia Boulevard, any future queuing on the on-ramp, during the peak hours, could be accommodated on the surface street without significantly impacting traffic flow.

SUMMARY OF ANALYSIS RESULTS

The analysis of the study area roadway network indicates that under existing conditions, the intersection of Highway 101 / Marcheta Street operates at an unacceptable LOS F in the AM peak hour and the intersection of Encinitas Boulevard / I-5 NB Ramps operates at an unacceptable LOS E in the PM peak hour. All of the segments operate at an acceptable LOS during both the AM and PM peak hours. The ramp meters at the northbound on-ramps from Leucadia Boulevard and Encinitas Boulevard operate at an unacceptable conditions during the PM peak hour.

The existing plus project conditions analysis results indicate that the intersection of Encinitas Boulevard / I-5 NB Ramps operates at an unacceptable LOS E in the PM peak hour.. All of the segments operate at an acceptable LOS during both the AM and PM peak hours. The ramp meter at the northbound on-ramps from Leucadia Boulevard and Encinitas Boulevard operate at an unacceptable conditions during the PM peak hour. A comparison of the existing plus project with existing without project conditions indicate that the project does not cause any significant impacts on the project study locations.

The future Year 2035 No Build conditions analysis results indicate that the intersections at Highway 101 / Leucadia Boulevard and Leucadia Boulevard / Vulcan Avenue operate at an unacceptable LOS E in the AM peak hour while the intersection of Highway 101 / Marcheta Street operates at LOS F. During the PM peak hour, the intersections at Highway 101 / New Road and Highway 101 / Marcheta Street operate at unacceptable LOS E. All the segments operate at an acceptable LOS during both the AM and PM peak hours. The ramp meter at the southbound on-ramps from Leucadia Boulevard operates at an unacceptable condition during the AM peak hour.

The future Year 2035 conditions with the project and Alternative 1 conditions on North Coast Highway 101 indicate that the intersections at Highway 101 / Leucadia Boulevard and Leucadia Boulevard / Vulcan Avenue operate at an unacceptable LOS E during the AM peak hour. The ramp meter at the southbound on-ramp from Leucadia Boulevard would operate at an unacceptable level during the AM peak hour. A comparison of the project with Alternative 1 conditions with the No-Build condition indicate that the project causes a significant impact at the ramp meter located at Leucadia Boulevard / I-5 SB Ramp during the AM peak hour.

The future Year 2035 with the project and Alternative 2 conditions on North Coast Highway 101 indicate that the intersections at Highway 101 / Leucadia Boulevard and Leucadia Boulevard / Vulcan Avenue operate at an unacceptable LOS E during the AM peak hour. The ramp meter at the southbound on-ramp from Leucadia Boulevard would operate at an unacceptable condition during the AM peak hour. A comparison of the project with Alternative 2 conditions with the No-Build condition indicate that the project causes a significant impact at the ramp meter located at Leucadia Boulevard / I-5 SB Ramp during the AM peak hour.

The future Year 2035 with the project and Alternative 1 With SMUP conditions on North Coast Highway 101 indicate that the intersections at Highway 101 / Leucadia Boulevard and Leucadia Boulevard / Vulcan Avenue operate at an unacceptable LOS E during the AM peak hour. The street segment analysis indicate that a street segment on Highway 101 between Leucadia Boulevard and El Portal Street operates at an unacceptable level of service in the AM peak hour. A comparison of the project with Alternative 1 With SMUP conditions with the No-Build condition indicate that the project causes a significant impacts at this location There are no mitigation measures that can be implemented that would not conflict with fundamental design features of the proposed project. Therefore the impact on North Coast Highway 101 between Leucadia Boulevard and El Portal Street would remain significant and unavoidable.

CONCLUSION

Some of the goals of the project are to enhance safety, improve pedestrian circulation and create a friendlier bicycle environment along North Coast Highway 101. With the project, this is accomplished through measures that reduce the number of vehicle lanes to accommodate a dedicated bike lane; reduce travel speeds; and change traffic controls at intersections to provide for more balanced treatment for motorists, bicyclists and pedestrians. Such measures would have a traffic calming effect with reduced segment capacity which would lower the levels of service in the southbound direction during the morning peak period. Although some segments in the southbound direction would operate at somewhat lower levels of service, this would be offset by enhancements in travel for bicycle and pedestrian travel modes. In addition, with the identified mitigation measures in place for the impacted intersection, all the intersections will operate at an acceptable LOS.