I-5 North Coast Corridor Project

Draft Technical Report #6
Freeway Interchanges Operations Report

August 2007

Caltrans

NORTH COAST INTERSTATE 5 CORRIDOR

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1.0 Introduction

The Freeway Interchanges Operations Report has been prepared in support of the I-5 North Coast Corridor Project. The I-5 North Coast Corridor Project proposes 26 miles of added capacity to the I-5 corridor between La Jolla and Camp Pendleton, including new freeway main lanes, High Occupancy Vehicle (HOV)/managed lanes, and Direct Access Ramps (DARs) connecting to the HOV/managed lanes. Proposed DAR connections would be located at Voigt Drive (City of San Diego), Manchester Avenue (City of Encinitas), Cannon Road (City of Carlsbad), and Oceanside Boulevard (City of Oceanside). The DAR connections, as proposed, would provide direct access between adjacent interchange arterials and the HOV/managed lanes.

Five (5) traffic scenarios (described in Section 1.2) were evaluated for the I-5 North Coast Corridor Project, including various build options under both near-term (2015) and long-term (2030) conditions, in addition to a year 2030 No-Build option. The development of the average daily traffic volumes and peak hour turning movements for the various traffic scenarios are presented in *Technical Report No. 5 – Traffic Demand Forecasting Report, (Wilson & Company, August 2007)*. This report (*Technical Report No. 6*), the Freeway Interchanges Operations Report, provides the traffic performance and operational methodologies and analysis results using the forecast traffic volumes for interchange intersections, adjacent intersections, and ramps in the I-5 project corridor.

1.1 Project Study Area

The defined project study area includes the I-5 corridor between La Jolla Village Drive to the south and Harbor/Vandegrift Drive to the north. For the purposes of the Freeway Interchanges Operations Report, the study intersections include only interchange ramp intersections and arterial intersections within close proximity to the I-5 North Coast corridor. This includes 51 interchange ramp intersections and 25 adjacent arterial intersections.

Figure 1-1 displays the study area key map for the I-5 North Coast Corridor. Study area intersections are identified by a letter/number combination in alphabetical order from south to north.

The numbering convention for the I-5 North Coast Corridor Project was established to include additional arterial intersections for the purpose of evaluating intersections within the DAR areas of influence[1]. As a result, the intersection numbering convention in the figures for this report may appear to "skip" some intersections. The "skipped" intersections are within the **DAR areas of influence**, and therefore outside of the immediate I-5 study corridor. The intersections within the DAR areas of influence are not evaluated in this report, but are discussed in *Technical Report No. 7 – Direct Access Ramps / Local Circulation System Operations Report (Wilson & Company, August 2007)*.

1.2 Scenarios Evaluated

The five traffic scenarios analyzed as part of the project are described briefly below. Detailed elements including roadway network characteristics and related assumptions for each scenario are presented in *Technical Report No. 5 – Traffic Demand Forecasting Report, (Wilson & Company, August 2007)*.

1. *Year 2030 No-Build Scenario*. This scenario does not include any improvements to the I-5 North Coast Corridor other than those currently planned and programmed for implementation.
2. *Year 2030 10+4 without Direct Access Ramps Scenario.* This scenario includes ten (10) general purpose lanes on I-5 (south of SR 78) plus four (4) HOV/managed lanes. DAR connections to HOV/managed lanes are not included as part of this scenario.
3. *Year 2030 10+4 with Direct Access Ramps Scenario.* This scenario includes ten (10) general purpose lanes on I-5 (south of SR 78) plus four (4) HOV/managed lanes. DAR connections to HOV/managed lanes are included at the following locations, from south to north:
   a. Voigt Drive (City of San Diego)
   b. Manchester Avenue (City of Encinitas)
   c. Cannon Road (City of Carlsbad)
   d. Oceanside Boulevard (City of Oceanside)
4. *Year 2030 8+4 with DAR Scenario.* This scenario includes eight (8) general purpose lanes on I-5 plus four (4) HOV/managed lanes. DAR locations are the same as the 10+4 with DAR Scenario.
5. *Year 2015 10+4 with DAR Scenario.* This scenario is identical to the Year 2030 10+4 with DAR Scenario, but the forecast horizon year is 2015.

1.3 Report Organization

Following this introductory section, this report presents the operations analysis methodologies and the operations analysis results for each I-5 North Coast Corridor Project traffic scenario. Subsequent sections of this report are described below.

Section 2.0 describes the analysis methodologies used to evaluate the forecast traffic volumes and resulting traffic operations for the years 2015 and 2030. The evaluation methodologies undertaken for each scenario included the following:

- Intersecting Lane Vehicles (ILV) analysis for the freeway interchange ramp intersections;
- Highway Capacity Manual (HCM) 2000[2] procedures for the evaluation of signalized and unsignalized intersections using SYNCHRO[3];
- Congestion Management Program (CMP) method[4] for evaluating vehicle delays at the ramp meters; and
- CMP method for evaluating arterial roadway segment performance[5] using forecast average daily traffic (ADT) volumes and roadway capacities by classification type.

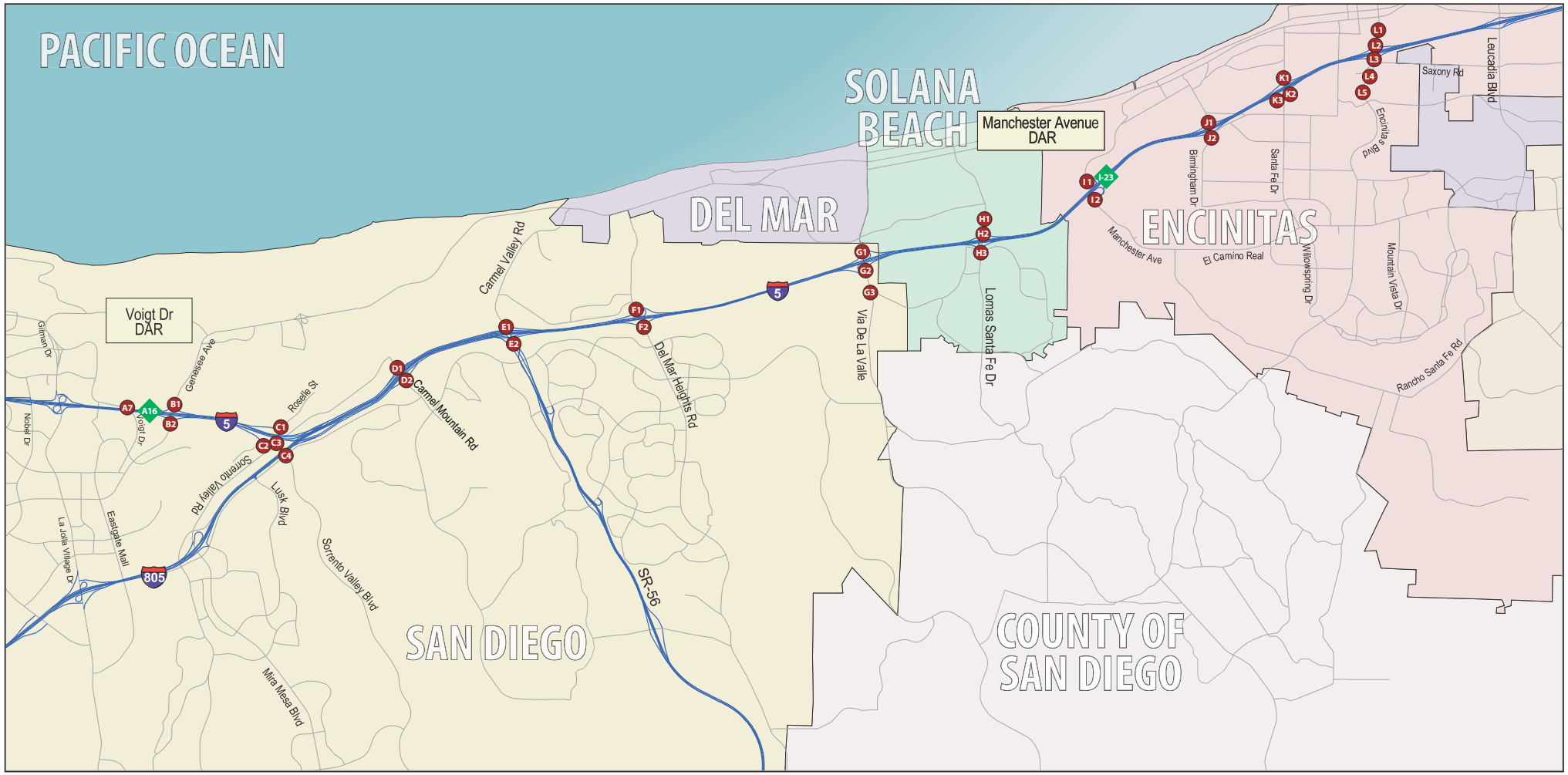
[1] The methodology utilized to identify the DAR areas of influence is discussed in more detail in *Technical Report No.1 – Area of Influence Analysis (Wilson & Company, 2004)*.

[2] Highway Capacity Manual 2000, Transportation Research Board, National Research Council, National Academy of Sciences, 2000

[3] SYNCHRO/SimTraffic v6 (Build 612) (Windows 95/98/NT/2000), Copyright 1993-2003 by Trafficware.

[4] As described in Appendix D (Traffic Impact Studies Guidelines) of the 2002 Congestion Management Program Update, dated January 2003.

[5] Ibid.



LEGEND

XX = Intersection ID Number

XX = DAR Intersection ID Number

0.75 0 0.75 Miles

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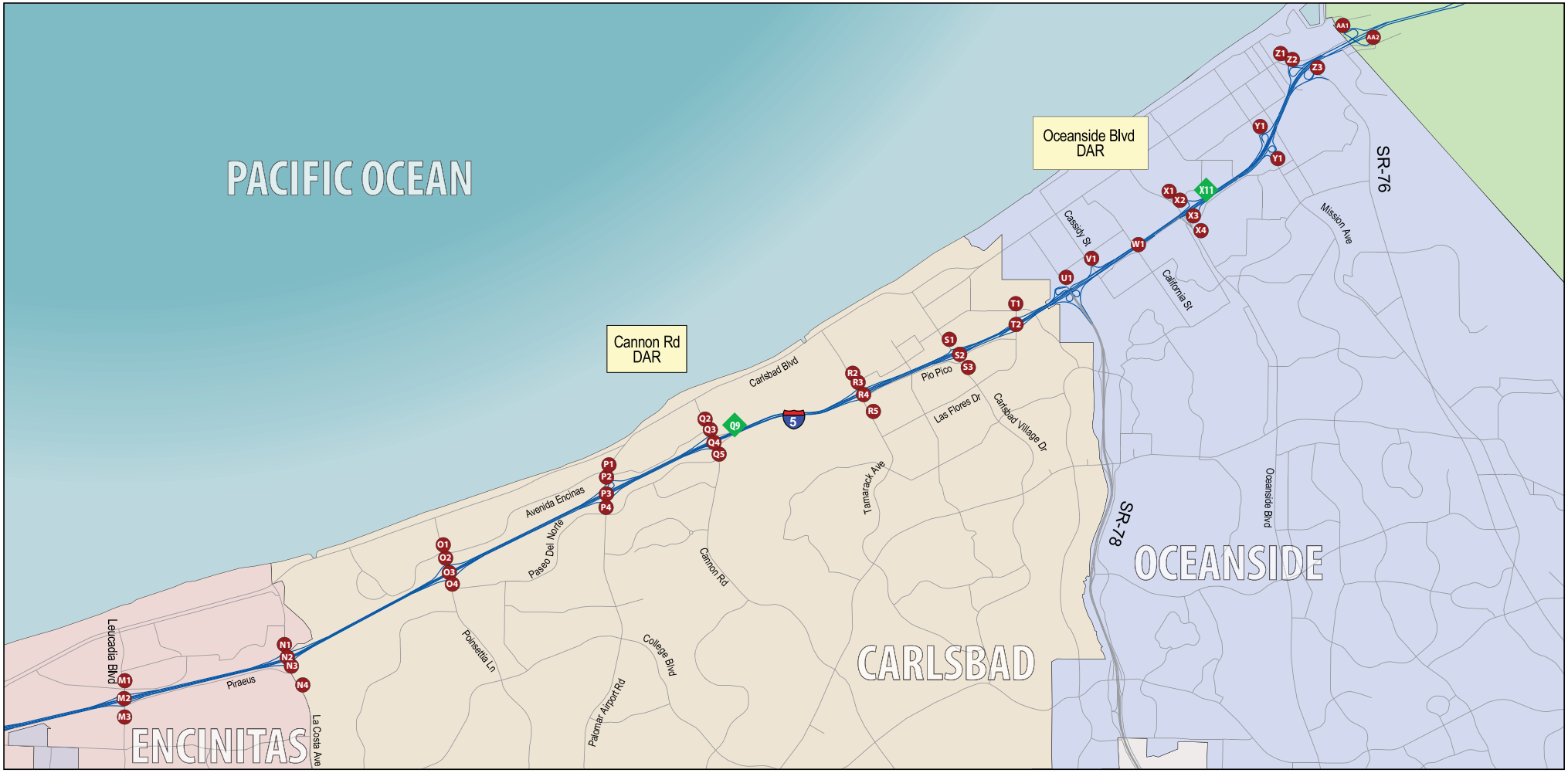
FIGURE 1-1. FREEWAY OPERATIONS STUDY AREA KEY MAP



LEGEND

XX = Intersection ID Number

XX = DAR Intersection ID Number

0.8 0 0.8 Miles

FIGURE 1-1. FREEWAY OPERATIONS STUDY AREA KEY MAP

Section 3.0 presents the operations analysis results for each of the scenarios, including the following information:

- Assumed intersection lane geometry based on adopted transportation plans and operational needs;
- ILV intersection analysis results, including a calculation of ILV hourly volume compared to the ILV capacity threshold criteria and reported as *under, at,* or *over* capacity;
- SYNCHRO analysis results, including reported intersection delay and Level of Service (LOS);
- Ramp metering analysis results, including estimated vehicle delay in minutes; and
- Arterial roadway segment capacity analysis results, using CMP roadway classification-based capacity thresholds and identified as *under* or *over* the capacity threshold.

Section 4.0 presents a summary of the operations analysis results, including comparisons with Year 2030 No-Build conditions and identification of project benefits and impacts associated with the various project traffic scenarios evaluated in this report.

2.0 Analysis Methodologies

As reported in Technical Report No. 4 – Existing Conditions Traffic Analysis, *(Wilson & Company, March 2006)*, a uniform set of methodologies and standards was established for the I-5 North Coast Corridor Project traffic operational assessments. The adopted approach is consistent with the procedures detailed in Appendix D (Traffic Impact Studies Guidelines) of the 2002 Congestion Management Program Update, *(January 2003),* which were prepared under the direction of the San Diego Traffic Engineers' Council (SANTEC) and the Institute of Transportation Engineers (ITE – California Border Section).

The following sections summarize key aspects of the traffic performance and operational assessment methodologies and threshold criteria that were utilized in this study. The methodologies used for the operational evaluations included:

- Ramp intersection capacity analysis using the Intersecting Lane Vehicles (ILV) methodology;
- Intersection operational analysis using the Highway Capacity Manual (HCM) 2000 Level of Service (LOS) methodology via SYNCHRO;
- Ramp metering analysis using Congestion Management Program (CMP) methodologies; and
- Roadway segment analysis using the Average Daily Traffic (ADT) Arterial Capacity Analysis methodology presented in the CMP guidelines.

2.1 Ramp Intersection Capacity Analysis (ILV)

Consistent with Caltrans requirements, the assessment of AM and PM peak hour operations at signalized I-5 freeway ramp intersections were analyzed using the Intersecting Lane Vehicles (ILV) procedures. The ILV procedures are described in Topic 406 of the Caltrans Highway Design Manual (HDM), 5th Edition. The ILV analysis estimates the performance of signalized ramp intersections by categorizing the intersections as being *under capacity*, *at capacity*, or *over capacity* as detailed in **Table 2.1**. The ILV analysis also provides validation of the signalized intersections capacity results generated by the HCM methodology. Ramp intersections identified as *over capacity* are called out in the analysis.

Table 2.1 ILV Traffic Flow Conditions At Ramp Intersections At Various Levels Of Operation

ILV/hr	Description
<1200: (Under Capacity)	Stable flow with slight, but acceptable delay. Occasional signal loading may develop. Free midblock operations.
1200-1500: (At Capacity)	Unstable flow with considerable delays possible. Some vehicles occasionally wait two or more cycles to pass through the intersection. Continuous backup occurs on some approaches.
>1500: (Over Capacity)	Stop-and-go operation with severe delay and heavy congestion (1). Traffic volume is limited by maximum discharge rates of each phase. Continuous backup in varying degrees occurs on all approaches. Where downstream capacity is restrictive, mainline congestion can impede orderly discharge through the intersection.

Source: Caltrans Highway Design Manual 5th Edition, Topic 406
(1) The amount of congestion depends on how much the ILV/hr value exceeds 1500. Observed flow rates will normally not exceed 1500ILV/hr, and the excess will be delayed in a queue.

2.2 Intersection Operations Analysis (HCM)

The assessment of AM and PM peak hour operations at the interchange ramp intersections and adjacent intersections was conducted using SYNCHRO. This program is widely used as an operations analysis tool for signalized and unsignalized intersections, interchange areas, and arterials. SYNCHRO uses the Highway Capacity Manual (HCM) 2000 signalized intersection methodology to generate a measure of effectiveness called Level of Service (LOS).

SYNCHRO is particularly useful in modeling the flow of traffic through a network of intersections, while accounting for the impacts of adjacent intersection operations. This is beneficial in analyzing closely spaced signalized intersections where traffic flow is significantly affected by signal coordination and/or vehicle spillback from the adjacent intersections. Since these characteristics are prevalent at the I-5 interchange intersections as well as the adjacent nearby surface street intersections, the SYNCHRO software was determined to be appropriate for this study.

A SYNCHRO network model was developed for each interchange area in the project corridor. Network inputs included the lane geometry of the roadway links comprising the network, intersection geometrics, peak hour traffic volumes and flow characteristics, and signal control parameters.

The measure of effectiveness reported for the analyses is the overall intersection control delay. The LOS delay thresholds are different for signalized intersections versus unsignalized intersections. As shown in **Table 2.2.** The Level of Service threshold value for intersections in this analysis is LOS D. Consistent with 2002 SANDAG CMP standards[6], any intersection at or above LOS D is considered acceptable, while intersections operating at or over capacity (LOS E or F) are unacceptable and called out in the analysis.

Table 2.2. Level of Service Standards for Signalized and Unsignalized Intersections

LOS*	Signalized Intersection Control Delay (s/veh)	Unsignalized Intersection Control Delay (s/veh)
A	≤ 10	≤ 10
B	10-20	10-15
C	20-35	15-25
D	35-55	25-35
E	**55-80**	**35-50**
F	**≥80**	**≥50**

Source: Highway Capacity Manual 2000
**LOS Threshold Value for the analysis is LOS D*

[6] Some jurisdictions may have different threshold standards other than the one used for this analysis.

2.3 Ramp Metering Analysis

Under both future year 2015 and 2030 conditions, all freeway interchange on-ramps within the project study area will be metered. These locations required specific procedures to determine the effect of ramp metering on the adjacent ramp intersections and the associated approach lanes.

In addition to general purpose lanes, the proposed project would include HOV lanes at 29 of the 46 interchange ramp meter locations in the study corridor. The HOV lanes were assumed to be metered at the same rate as the general purpose lanes. The general purpose lanes were considered separately in analyzing the effects of queuing on the adjacent intersections and arterial system, based upon the assumption that the HOV volumes would result in minimal queuing with no impact on adjacent intersections.

The ramp metering methodology described in *Appendix D (Traffic Impact Studies Guidelines)* of the *2002 Congestion Management Program Update* was used for this analysis. The analysis calculates the excess demand at a ramp meter (given an assumed ramp metering rate) and yields a value for delay in minutes.

2.4 Roadway Segment Analysis

The operations of major arterial roadway segments in the study area were evaluated using the methodology described in Appendix D (Traffic Impact Studies Guidelines) of the *2002 Congestion Management Program (CMP) Update*. **Table 2.3** displays the capacity thresholds identified in the CMP plus a number of additional classifications not accounted for in the CMP.

For the arterial roadway segment analysis, the forecast Year 2015/2030 arterial ADT for each scenario was compared against the respective roadway classification capacity threshold. The arterial roadway segments were then identified as *under* or *over* the capacity threshold. Arterial segments identified as being over the capacity threshold are called out in the analysis.

The capacity threshold standards shown in Table 2.3 are generally used as long-range planning guidelines to determine the functional classification of roadways. The actual capacity of roadway facilities can vary by the specific characteristics of each facility. Typically, the performance or LOS of a roadway segment is based on its ability to accommodate peak hour traffic volumes. Within the San Diego region, the standard practice is to focus on the performance of the intersections along a roadway segment, rather than the roadway segment as a whole. Since intersection performance is considered a better indicator of the level of traffic operations, corrective improvements are also typically based on intersection performance.

Table 2.3 All-Day Roadway Capacity Thresholds

Roadway Classification	Number of Lanes	Vehicles per Day
Expressway	6	70,000
Prime Arterial	6	55,000
Prime Arterial	8	72,000
Major Arterial	6	45,000
Major Arterial	4	35,000
Secondary Arterial/Collector	4	25,000
Secondary Arterial/Collector	2	12,000
Collector – no center turn lane	4	13,000
Collector – continuous left turn lane	2	13,000
Collector – no fronting property	2	9,000

Source: Table D-2, Appendix D (Traffic Impact Studies Guidelines) of the 2002 Congestion Management Program Update

3.0 Operations Analysis

This chapter presents the operations analysis results for the five I-5 North Coast Corridor Project future year traffic scenarios including the Year 2030 10+4 with and without DAR scenarios, Year 2030 8+4 with DAR scenario, and Year 2015 10+4 with DAR scenario. In addition, for comparison purposes, similar information is also presented for existing conditions, as documented in *Technical Report No. 4 – Existing Conditions Traffic Analysis, (Wilson & Company, March 2006).*

The following operations analyses were conducted:

- Ramp intersection capacity analysis using the Intersecting Lane Vehicles (ILV) methodology;
- Intersection operational analysis using the Highway Capacity Manual (HCM) 2000 Level of Service (LOS) methodology via SYNCHRO;
- Ramp metering analysis using Congestion Management Program (CMP) methodologies; and
- Roadway segment analysis using the Average Daily Traffic (ADT) Arterial Capacity Analysis methodology presented in the CMP guidelines.

3.1 Year 2015/2030 Lane Configurations

The operations analysis results for each of the scenarios are based on the assumed Year 2015 and 2030 roadway lane configurations. These were developed in coordination with Caltrans staff, as well as the local jurisdictions, to reflect implementation of an expanded I-5 freeway cross-section, implementation of the proposed DAR's, and build-out of the local roadway networks consistent with local circulation elements and planned capital improvement projects.

Figure 3-1 (**Appendix A**) displays the assumed roadway and intersection lane configurations under the Year 2030 No-Build Scenario. The assumed local roadway network updates were based upon local circulation elements, as well as planned capital improvement projects that are not part of the I-5 North Coast Corridor Project. The assumed network updates are noted in the figure in **orange**.

Figure 3-2 (Appendix B) displays the assumed roadway and intersection lane configurations under all of the build scenarios including the Year 2030 10+4 with and without DAR scenarios, Year 2030 8+4 with DAR scenario, and Year 2015 10+4 with DAR scenario. Consistent with Figure 3-1, the assumed local roadway network updates were based upon local circulation elements, as well as planned capital improvement projects that are not part of the I-5 North Coast Corridor Project. These assumed network updates are noted in **orange**. In addition, implementation of the proposed DARs would create new or modified intersections, as noted in the figure in **green**. Along with the proposed DAR related network changes, the I-5 North Coast Corridor Project would also include improvements to key interchange intersections, as noted in the figure in **blue.**

In general, the proposed intersection improvements (shown in Figure 3-2 in **blue)** are the result of operations analyses leading to the specification of roadway/intersection geometry modifications to address identified operational deficiencies. Feasibility and consistency with the scope of the I-5 North Coast Corridor Project also determined the nature of the identified project improvements.

Table 3.1 describes the intersection lane configuration modifications and updates included in the I-5 North Coast Corridor Project.

Table 3.1 I-5 North Coast Corridor Proposed Ramp Intersection Improvements

Interchange	ID	Location	Assumed Lane Geometry Modifications
Del Mar Heights Rd	F2	I-5 NB Ramps/ Del Mar Heights Rd	Convert NB left/through/right lane to a shared through right turn lane, add a second left turn lane (creating dual right and dual lefts)
Encinitas Blvd	L2	I-5 SB Ramps / Encinitas Blvd	Addition of an exclusive SB left turn-lane (creating dual left turn-lanes)
			Addition of an exclusive SB right turn-lane (creating dual right turn-lanes)
Palomar Airport Rd	P2	I-5 SB Ramps / Palomar Airport Rd	Addition of a WB right turn-lane (creating dual right turn-lanes)
Tamarack Dr	R3	I-5 SB Ramps / Tamarack Ave	Addition of a WB left turn-lane (creating dual lefts)
	R4	I-5 NB Ramps/ Tamarack Ave	Addition of a NB right turn-lane (creating dual right turn-lanes)
Carlsbad Village Dr	S1	I-5 SB Ramps / Carlsbad Village Dr	Convert the SB shared left/through/right lane to a shared right/though lane, add an exclusive SB left turn lane (creating a single left-turn lane and dual right-turn lanes).
	S2	I-5 NB Ramps/ Carlsbad Village Dr	NB left turn-lane separated, right turn-lane converted to a shared left/through/right lane
Oceanside Blvd	X1	I-5 SB Ramps / Oceanside Blvd	Convert SB through/right turn-lane into two separate lanes
Mission Ave	Y1	I-5 SB Ramps / Mission Ave	Remove EB to SB on-ramp, add dual EB left turn-lanes, convert southbound through/left to an exclusive left turn-lane (creating dual lefts), convert the exclusive southbound right turn-lane to a shared through right turn-lane.
	Y2	I-5 NB Ramps/ Mission Ave	Remove NB to EB free right turn-lane, add a second EB left turn lane (creating dual lefts), add SB dual left turn lanes.
SR-76	Z3	I-5 NB Ramps / SR-76	Addition of a second NB left-turn lane (creating dual lefts)
Harbor Dr	AA1	I-5 SB Ramps / Harbor Dr	Convert outside westbound through lane into an exclusive right-turn lane
			Convert inside westbound through lane into a shared through/right-turn lane
	AA2	I-5 NB On-Ramps/ Harbor Dr	Re-alignment of NB to WB off-ramp to align with San Rafael intersection (EB right turn will be controlled by signal and will no longer be a free right turn)
			Convert northbound shared through/right-turn lane into an exclusive through lane, eliminating the northbound right turn movement.

Source: Caltrans, August 2007

3.2 Year 2015/2030 Traffic Forecast Data

The operations analysis results for each scenario are based upon the corridor traffic forecasts documented in *Technical Report No. 5 – Traffic Demand Forecasting Report, (Wilson & Company, August 2007).*

Figures 3-3 to **3-7** (**Appendices C through G)** display the Average Daily Traffic (ADT) and peak hour volumes on all project study area freeway mainlines, HOV lanes and freeway on/off ramps, as well as the AM and PM peak hour turning movement volumes at the ramp interchange intersections and adjacent arterial intersections for the various project traffic scenarios as listed below:

Figure 3-3. Year 2030 No-Build Scenario – Traffic Forecast Data.....Appendix C

Figure 3-4. Year 2030 10+4 without DAR Scenario – Traffic Forecast Data ..... Appendix D
Figure 3-5. Year 2030 10+4 with DAR Scenario – Traffic Forecast Data ..... Appendix E
Figure 3-6. Year 2030 8+4 with DAR Scenario – Traffic Forecast Data ..... Appendix F
Figure 3-7. Year 2015 10+4 with DAR Scenario – Traffic Forecast Data ..... Appendix G

As noted previously, the numbering convention in for the I-5 North Coast Corridor Project was established to include additional arterial intersections for the purpose of evaluating intersections within the DAR areas of influence[7]. As a result, the intersection numbering convention in the figures for this report may appear to "skip" some intersections. The "skipped" intersections are within the DAR areas of influence, but outside of the I-5 corridor. The intersections within the DAR areas of influence are not reviewed in this report, but are discussed in *Technical Report No. 7 – Direct Access Ramp / Local Circulation System Operations Report (Wilson & Company, August 2007)*.

3.3 Peak Hour Interchange Ramp Intersection Capacity Analysis (ILV)

Consistent with Caltrans' requirements, the signalized ramp intersections along the I-5 North Coast Corridor were analyzed using the ILV procedures as described in Section 2.1. The ILV analysis results for each project traffic scenario are displayed in **Tables 3.2** and **3.3** for the AM and PM peak hours, respectively.

Each signalized ramp intersection was evaluated and identified as either *under*, *at*, or *over* capacity. The differences (**Δ**) in the ILV value between the Year 2030 No-Build and the Year 2030 Build scenarios are also shown in the tables. A **green highlight** indicates that the ramp intersection level of operation improves from *over capacity* under the Year 2030 No-Build scenario to *at* or *under capacity* under the highlighted Year 2030 Build scenario. A **red highlight** in the table indicates a project impact at locations where the ramp intersection level of operation changes from *under* or *at* capacity under the Year 2030 No-Build scenario to *over* capacity in the highlighted Year 2030 Build condition.

[7] The methodology utilized to identify the DAR areas of influence is discussed in more detail in *Technical Report No.1 – Area of Influence Analysis (Wilson & Company, 2004)*.

Table 3.2 ILV Ramp Intersection Capacity Analysis – AM Peak Hour																	
Interchange	ID	Location	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ
La Jolla Village Dr	A5	La Jolla Village Dr / I-5 SB Ramps	1,063	Under	1,013	Under	1,217	At	1,297	At	80	1,183	Under	-34	1,083	Under	-134
	A6	La Jolla Village Dr / I-5 NB Ramps	**1,843**	**Over**	913	Under	1,048	Under	1,205	At	157	1,050	Under	2	975	Under	-73
Genesee Ave	B1	Genesee Ave / I-5 SB Ramps	1,496	At	1,383	At	1,377	At	1,373	At	**-4**	1,352	At	**-25**	1,102	Under	-275
	B2	Genesee Ave / I-5 NB Ramps	**1,782**	**Over**	1,912	Over	1,403	At	**1,733**	**Over**	**330**	**1,557**	**Over**	**154**	**1,508**	**Over**	105
Carmel Mtn Rd	D1	Carmel Mtn Rd / I-5 SB Ramps Bypass	N/A	N/A	1,440	At	**1,705**	**Over**	**1,705**	**Over**	**0**	**1,705**	**Over**	**0**	1,090	Under	-615
	D2	Carmel Mtn Rd / I-5 NB Ramps Bypass	N/A	N/A	1,240	At	1,455	At	1,455	At	**0**	1,455	At	**0**	1,065	Under	-390
Carmel Valley Rd	E1	Carmel Valley Rd / I-5 SB Ramps	1,142	Under	1,160	Under	1,220	At	1,180	Under	**-40**	1,180	Under	**-40**	885	Under	-335
	E2	Carmel Valley Rd / I-5 NB Ramps	1,413	At	725	Under	922	Under	913	Under	**-9**	913	Under	**-9**	795	Under	-127
Del Mar Heights Rd	F1	Del Mar Heights Rd / I-5 SB Ramps	883	Under	980	Under	1,070	Under	1,047	Under	**-23**	1,047	Under	**-23**	948	Under	-122
	F2	Del Mar Heights Rd / I-5 NB Ramps	1,111	Under	1,490	At	**1,610**	**Over**	**1,650**	**Over**	**40**	**1,650**	**Over**	**40**	1,488	At	-122
Via De La Valle	G2	Via De La Valle / I-5 SB Ramps	896	Under	953	Under	1,010	Under	1,017	Under	**7**	1,017	Under	**7**	1,005	Under	-5
	G3	Via De La Valle / I-5 NB Ramps	1,058	Under	1,320	At	1,370	At	1,385	At	**15**	1,385	At	**15**	1,370	At	0
Lomas Santa Fe Dr	H2	Lomas Santa Fe / I-5 SB Ramps	1,402	At	1,035	Under	1,030	Under	1,100	Under	**70**	1,100	Under	**70**	1,045	Under	15
	H3	Lomas Santa Fe / I-5 NB Ramps	1,236	At	1,258	At	1,393	At	1,415	At	**22**	1,415	At	**22**	1,500	At	107
Manchester Ave	I1	Manchester Blvd / I-5 SB Ramps	N/A	N/A	870	Under	N/A	N/A	816	Under	**N/A**	1,103	Under	**N/A**	1,005	Under	N/A
	I2	Manchester Blvd / I-5 NB Ramps	991	Under	924	Under	1,380	At	1,098	Under	**-282**	1,060	Under	**-320**	1,029	Under	-351
Santa Fe Dr	K2	Santa Fe Dr / I-5 NB Ramps	1,017	Under	813	Under	843	Under	1,063	Under	220	953	Under	110	877	Under	34
Encinitas Blvd	L2	Encinitas Blvd / I-5 SB Ramps	1,409	At	1,250	At	**1,635**	**Over**	1,460	At	**-175**	1,415	At	**-220**	1,375	At	-260
	L3	Encinitas Blvd / I-5 NB Ramps	1,174	Under	1,120	Under	1,380	At	1,330	At	**-50**	1,300	At	**-80**	1,270	At	-110
Leucadia Blvd	M2	Leucadia Blvd / I-5 SB Ramps	809	Under	940	Under	750	Under	1,010	Under	**260**	1,000	Under	**250**	875	Under	125
	M3	Leucadia Blvd / I-5 NB Ramps	770	Under	1,053	Under	123	Under	1,159	Under	**1036**	1,270	At	**1147**	1,055	Under	932
La Costa Ave	N1	La Costa Ave / I-5 SB Ramps	1,030	Under	1,255	At	1,270	At	1,345	At	**75**	1,345	At	**75**	1,375	At	105
	N2	La Costa Ave / I-5 NB Ramps	939	Under	1,110	Under	940	Under	1,210	At	**270**	1,210	At	**270**	1,150	Under	210
Poinsettia Ln	O2	Poinsettia Ln / I-5 SB Ramps	675	Under	660	Under	690	Under	750	Under	**60**	750	Under	**60**	700	Under	10
	O3	Poinsettia Ln / I-5 NB Ramps	764	Under	1,100	Under	1,030	Under	1,275	At	**245**	1,275	At	**245**	1,170	Under	140
Palomar Airport Rd	P2	Palomar Airport Road / I-5 SB Ramps	1,181	Under	1,180	Under	1,185	Under	1,370	At	**185**	1,250	At	**65**	1,210	At	25

Table 3.2 ILV Ramp Intersection Capacity Analysis – AM Peak Hour

Interchange	ID	Location	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ
Palomar Airport Rd	**P3**	Palomar Airport Road / I-5 NB Ramps	**1,568**	**Over**	2,003	Over	**2,118**	**Over**	**2,405**	**Over**	**287**	**2,233**	**Over**	**115**	**2,227**	**Over**	109
Cannon Rd	**Q3**	Cannon Rd / I-5 SB Ramps	837	Under	995	Under	1,160	Under	1,285	At	**125**	1,150	Under	**-10**	1,090	Under	-70
	Q4	Cannon Rd / I-5 NB Ramps	838	Under	1,045	Under	1,230	At	1,285	At	**55**	1,200	Under	**-30**	1,115	Under	-115
Tamarack Ave	**R3**	Tamarack Ave / I-5 SB Ramps	1,052	Under	910	Under	1,075	Under	960	Under	**-115**	960	Under	**-115**	930	Under	-145
	R4	Tamarack Ave / I-5 NB Ramps	1,137	Under	975	Under	1,240	At	1,060	Under	**-180**	1,060	Under	**-180**	1,050	Under	-190
Carlsbad Village Dr	**S1**	Carlsbad Blvd / I-5 SB Ramps	909	Under	960	Under	1,195	Under	1,105	Under	**-90**	1,105	Under	**-90**	1,025	Under	-170
	S2	Carlsbad Blvd / I-5 NB Ramps	1,136	Under	1,165	Under	1,300	At	1,315	At	**15**	1,315	At	**15**	1,275	At	-25
Oceanside Blvd	**X2**	Oceanside Blvd / I-5 SB Ramps	1,349	At	1,290	At	1,490	At	**1,630**	**Over**	**140**	1,480	At	**-10**	1,410	At	-80
	X3	Oceanside Blvd / I-5 NB Ramps	911	Under	930	Under	1,035	Under	1,075	Under	**40**	1,015	Under	**-20**	1,005	Under	-30
Mission Ave	**Y1**	Mission Ave / I-5 SB Ramps	653	Under	1,110	Under	830	Under	1,310	At	**480**	1,310	At	**480**	1,210	At	380
	Y2	Mission Ave / I-5 NB Ramps	1,356	At	1,114	Under	995	Under	1,317	At	**322**	1,296	At	**301**	1,277	At	282
SR-76	**Z2**	SR 76 / I-5 SB Ramps	842	Under	1,430	At	1,350	At	**1,645**	**Over**	**295**	**1,645**	**Over**	**295**	**1,585**	**Over**	235
SR-76	**Z3**	SR 76 / I-5 NB Ramps	930	Under	1,405	At	**1,630**	**Over**	**1,555**	**Over**	**-75**	**1,555**	**Over**	**-75**	**1,520**	**Over**	-110
Harbor Dr	**AA1**	Harbor/ I-5 SB Ramps	1,186	Under	1,130	Under	1,340	At	1,285	At	**-55**	1,285	At	**-55**	1,385	At	45
	AA2	Harbor/ I-5 NB Ramps	907	Under	1,492	At	1,345	At	**1,620**	**Over**	**275**	**1,620**	**Over**	**275**	**1,560**	**Over**	215

Source: Wilson & Company, August 2007

Notes:

Bold Letters: *Indicate intersections operating Over capacity*

Δ: Indicates the change in ILV/Hour from the Year 2030 Build scenario to the Year 2030 No-Build Scenario

Green Cells: Indicate that the ramp intersection level of operation improves from over capacity under the Year 2030 No-Build scenario to at or under capacity under the highlighted Year 2030 Build scenario

Red Cells: Indicate that the signalized ramp intersection level of operation changes from under or at capacity under the Year 2030 No-Build scenario to over capacity in the highlighted Year 2030 Build condition

N/A: Intersection does not exist

Table 3.3 ILV Ramp Intersection Capacity Analysis – PM Peak Hour

Interchange	ID	Location	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ
La Jolla Village Dr	**A5**	La Jolla Village Dr / I-5 SB Ramps	808	Under	630	Under	937	Under	872	Under	-65	792	Under	-145	720	Under	-217
	A6	La Jolla Village Dr / I-5 NB Ramps	1,293	At	670	Under	872	Under	1,058	Under	186	947	Under	75	768	Under	-104
Genesee Ave	**B1**	Genesee Ave / I-5 SB Ramps	1,416	At	**2,095**	**Over**	**1,815**	**Over**	**2,070**	**Over**	**255**	**1,815**	**Over**	**0**	**2,375**	**Over**	560

Table 3.3 ILV Ramp Intersection Capacity Analysis – PM Peak Hour

Interchange	ID	Location	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ
Genesee Ave	B2	Genesee Ave / I-5 NB Ramps	1,603	Over	2,232	Over	1,460	At	2,133	Over	673	1,753	Over	293	2,030	Over	570
Carmel Mtn Rd	D1	Carmel Mtn Rd / I-5 SB Ramps Bypass	N/A	N/A	1,413	At	1,625	Over	1,630	Over	5	1,630	Over	5	1,630	Over	5
	D2	Carmel Mtn Rd / I-5 NB Ramps Bypass	N/A	N/A	1,725	Over	1,955	Over	2,005	Over	50	2,005	Over	50	2,005	Over	50
Carmel Valley Rd	E1	Carmel Valley Rd / I-5 SB Ramps	1,123	Under	890	Under	955	Under	950	Under	-5	950	Under	-5	948	Under	-7
	E2	Carmel Valley Rd / I-5 NB Ramps	1,388	At	838	Under	838	Under	903	Under	65	903	Under	65	868	Under	30
Del Mar Heights Rd	F1	Del Mar Heights Rd / I-5 SB Ramps	947	Under	1,015	Under	1,075	Under	1,095	Under	20	1,095	Under	20	1,115	Under	40
	F2	Del Mar Heights Rd / I-5 NB Ramps	1,371	At	1,310	At	1,528	Over	1,495	At	-33	1,495	At	-33	1,445	At	-83
Via De La Valle	G2	Via De La Valle / I-5 SB Ramps	882	Under	958	Under	1,060	Under	1,107	Under	47	1,107	Under	47	1,070	Under	10
	G3	Via De La Valle / I-5 NB Ramps	968	Under	1,225	At	1,293	At	1,367	At	74	1,367	At	74	1,335	At	42
Lomas Santa Fe Dr	H2	Lomas Santa Fe / I-5 SB Ramps	1,515	Over	1,310	At	1,295	At	1,405	At	110	1,405	At	110	1,315	At	20
	H3	Lomas Santa Fe / I-5 NB Ramps	1,343	At	1,355	At	1,438	At	1,433	At	-5	1,433	At	-5	1,470	At	32
Manchester Ave	I1	Manchester Blvd / I-5 SB Ramps	N/A	N/A	475	Under	N/A	N/A	728	Under	N/A	708	Under	N/A	653	Under	N/A
	I2	Manchester Blvd / I-5 NB Ramps	1,232	At	1,137	Under	1,495	At	1,287	At	-208	1,232	At	-263	1,182	Under	-313
Santa Fe Dr	K2	Santa Fe Dr / I-5 NB Ramps	617	Under	823	Under	912	Under	1,143	Under	231	960	Under	48	860	Under	-52
Encinitas Blvd	L2	Encinitas Blvd / I-5 SB Ramps	1,565	Over	1,525	Over	1,635	Over	1,765	Over	130	1,730	Over	95	1,635	Over	0
	L3	Encinitas Blvd / I-5 NB Ramps	1,413	At	1,350	At	1,500	At	1,540	Over	40	1,500	At	0	1,440	At	-60
Leucadia Blvd	M2	Leucadia Blvd / I-5 SB Ramps	825	Under	1,140	Under	1,038	Under	1,218	At	180	1,210	At	172	875	Under	-163
	M3	Leucadia Blvd / I-5 NB Ramps	1,066	Under	1,120	Under	1,215	At	1,160	Under	-55	1,250	At	35	1,205	At	-10
La Costa Ave	N1	La Costa Ave / I-5 SB Ramps	814	Under	960	Under	1,075	Under	1,080	Under	5	1,080	Under	5	1,045	Under	-30
	N2	La Costa Ave / I-5 NB Ramps	1,018	Under	1,275	At	1,025	Under	1,390	At	365	1,390	At	365	1,315	At	290
Poinsettia Ln	O2	Poinsettia Ln / I-5 SB Ramps	868	Under	992	Under	1,070	Under	1,160	Under	90	1,160	Under	90	1,090	Under	20
	O3	Poinsettia Ln / I-5 NB Ramps	823	Under	1,102	Under	1,193	Under	1,290	At	97	1,290	At	97	1,185	Under	-8
Palomar Airport Rd	P2	Palomar Airport Road / I-5 SB Ramps	857	Under	1,083	Under	1,190	Under	1,325	At	135	1,210	At	20	1,175	Under	-15
	P3	Palomar Airport Road / I-5 NB Ramps	1,780	Over	2,207	Over	2,343	Over	2,662	Over	319	2,443	Over	100	2,373	Over	30
Cannon Rd	Q3	Cannon Rd / I-5 SB Ramps	223	Under	990	Under	1,010	Under	1,290	At	280	1,115	Under	105	1,020	Under	10
	Q4	Cannon Rd / I-5 NB Ramps	1,002	Under	1,148	Under	1,240	At	1,425	At	185	1,257	At	17	1,230	At	-10

Table 3.3 ILV Ramp Intersection Capacity Analysis – PM Peak Hour

Interchange	ID	Location	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ	ILV/Hour	Capacity	Δ
Tamarack Ave	R3	Tamarack Ave / I-5 SB Ramps	903	Under	915	Under	1,175	Under	1,035	Under	**-140**	1,035	Under	**-140**	1,015	Under	-160
	R4	Tamarack Ave / I-5 NB Ramps	1,044	Under	1,025	Under	1,390	At	1,140	Under	**-250**	1,140	Under	**-250**	1,100	Under	-290
Carlsbad Village Dr	S1	Carlsbad Blvd / I-5 SB Ramps	1,185	Under	1,230	At	**1,620**	**Over**	**1,665**	**Over**	**45**	1,390	At	**-230**	1,380	At	-240
	S2	Carlsbad Blvd / I-5 NB Ramps	1,178	Under	1,300	At	1,395	At	1,465	At	**70**	1,465	At	**70**	1,425	At	30
Oceanside Blvd	X2	Oceanside Blvd / I-5 SB Ramps	1,150	Under	1,255	At	1,290	At	1,350	At	**60**	1,375	At	**85**	1,275	At	-15
	X3	Oceanside Blvd / I-5 NB Ramps	1,171	Under	1,340	At	1,285	At	**1,523**	**Over**	**238**	1,465	At	**180**	1,375	At	90
Mission Ave	Y1	Mission Ave / I-5 SB Ramps	818	Under	1,095	Under	1,150	Under	1,275	At	**125**	1,225	At	**75**	1,195	Under	45
	Y2	Mission Ave / I-5 NB Ramps	1,419	At	**1,700**	**Over**	750	Under	**2,152**	**Over**	**1402**	**1,837**	**Over**	**1087**	**1,817**	**Over**	1067
SR-76	Z2	SR 76 / I-5 SB Ramps	667	Under	1,290	At	1,325	At	1,450	At	**125**	1,450	At	**125**	1,375	At	50
	Z3	SR 76 / I-5 NB Ramps	860	Under	**1,580**	**Over**	**1,895**	**Over**	**1,755**	**Over**	**-140**	**1,755**	**Over**	**-140**	**1,660**	**Over**	-235
Harbor Dr	AA1	Harbor/ I-5 SB Ramps	**1,935**	**Over**	**1,650**	**Over**	**2,390**	**Over**	**1,845**	**Over**	**-545**	**1,845**	**Over**	**-545**	**1,845**	**Over**	-545
	AA2	Harbor/ I-5 NB Ramps	620	Under	940	Under	1,040	Under	1,145	Under	**105**	1,145	Under	**105**	1,070	Under	30

Source: Wilson & Company, August 2007

Notes:

Bold Letters: *Indicate intersections operating Over capacity*

Δ: Indicates the change in ILV/Hour from the Year 2030 Build scenario to the Year 2030 No-Build Scenario

Green Cells: Indicate that the ramp intersection level of operation improves from over capacity under the Year 2030 No-Build scenario to at or under capacity under the highlighted Year 2030 Build scenario

Red Cells: Indicate that the signalized ramp intersection level of operation changes from under or at capacity under the Year 2030 No-Build scenario to over capacity in the highlighted Year 2030 Build condition

N/A: Intersection does not exist

3.4 Peak Hour Intersection Operations Analysis (HCM)

Tables 3.4 and **3.5** display the results of the peak hour intersection operations analysis for the AM and PM peak hours, respectively, including overall intersection delay[8] and Level of Service[9] (LOS). The differences (**Δ**) in intersection delay between the Year 2030 No-Build and the various Year 2030 Build scenarios are also shown. A **green highlight** indicates that an intersection operating at LOS D, E or F under the Year 2030 No-Build scenario would operationally *improve* by a 15% or greater reduction in delay under the respective Year 2030 Build scenario. A **red highlight** indicates a project impact location where an intersection forecast to operate at LOS E or F under the Year 2030 No-Build scenario, would have added delay of greater than two (2) seconds under the highlighted Year 2030 Build scenario.

Table 3.4 Intersection Peak Hour Delay and Level of Service – AM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
La Jolla Village Dr	A4	La Jolla Village Dr / Villa La Jolla	69.9	E	170.1	F	187.8	F	192.9	F	5.1	170.3	F	-17.5	165.4	F	-22.4
	A5	La Jolla Village Dr / I-5 SB Ramps	17.5	B	22.0	C	24.1	C	33.5	C	9.4	22.7	C	-1.4	22.7	C	-1.4
	A6	La Jolla Village Dr / I-5 NB Ramps	26.9	C	12.2	B	17.1	B	83.0	F	65.9	28.9	C	11.8	16.2	B	-0.9
Genesee Ave	B1	Genesee Ave / I-5 SB Ramps	81.9	F	47.0	D	105.9	F	99.7	F	-6.2	86.1	F	-19.8	80.7	F	-25.2
	B2	Genesee Ave / I-5 NB Ramps	135.5	F	44.2	D	43.4	D	70.2	E	26.8	60.0	E	16.6	41.1	D	-2.3
Roselle St	C1	Roselle St / I-5 SB On Ramp **	-	F	-	F	-	F	-	F	-	-	F	-	-	F	-
	C2	Roselle St / I-5 NB Off Ramp*	162.2	F	155.8	F	-	F	-	F	-	-	F	-	-	F	-
	C3	Roselle St / Sorrento Valley Blvd	100.9	F	5.4	A	20.5	C	23.7	C	3.2	23.7	C	3.2	24.7	C	4.2
	C4	Sorrento Valley Rd / Sorrento Valley Blvd	285.0	F	206.9	F	393.3	F	416.3	F	23.0	416.0	F	22.7	326.0	F	-67.3
Carmel Mtn Rd	D1	Carmel Mtn Rd I-5 / Bypass SB Ramps	N/A	N/A	50.6	D	89.5	F	89.5	F	0.0	89.5	F	0.0	89.5	F	0.0
	D2	Carmel Mtn Rd I-5 / Bypass NB Ramps	N/A	N/A	25.6	C	26.8	C	26.8	C	0.0	26.8	C	0.0	26.8	C	0.0
Carmel Valley Rd	E1	Carmel Valley Rd / I-5 SB Ramps	34.9	C	18.8	B	17.1	B	20.7	C	3.6	18.9	B	1.8	16.6	B	-0.5
	E2	Carmel Valley Rd / I-5 NB Ramps	23.5	C	13.9	B	16.1	B	19.5	B	3.4	17.3	B	1.2	19.1	B	3.0
Del Mar Heights Rd	F1	Del Mar Heights Rd / I-5 SB Ramps	10.9	B	16.8	B	13.5	B	12.3	B	-1.2	13.0	B	-0.5	17.4	B	3.9
	F2	Del Mar Heights Rd / I-5NB Ramps	31.3	C	46.3	D	117.7	F	129.2	F	11.5	129.2	F	11.5	116.2	F	-1.5

[8] Overall intersection delay and level of service does not include the effect of queue blocking from a downstream ramp meter.

[9] Some jurisdictions may use different LOS calculation methods (e.g. Traffix, ICU vs HCM) which may produce results different from those presented here.

Table 3.4 Intersection Peak Hour Delay and Level of Service – AM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
Via De La Valle	G1	Via De La Valle / I-5 SB Ramps	14.8	B	11.5	B	33.8	C	14.4	B	-19.4	14.4	B	-19.4	8.4	A	-25.4
	G2	Via De La Valle / I-5 NB Ramps	21.3	C	24.6	C	27.1	C	28.4	C	1.3	28.4	C	1.3	24.3	C	-2.8
	G3	Via De La Valle / Jimmy Durante Blvd	**72.3**	**E**	47.8	D	**66.2**	**E**	52.8	D	-13.4	52.8	D	-13.4	54.8	D	-11.4
Lomas Santa Fe Dr	H1	Lomas Santa Fe / Dr Solana Hills	16.4	B	25.5	C	21.9	C	22.6	C	0.7	22.6	C	0.7	21.8	C	-0.1
	H2	Lomas Santa Fe Dr / I-5 SB Ramps	35.4	D	16.9	B	14.4	B	17.5	B	3.1	17.5	B	3.1	14.3	B	-0.1
	H3	Lomas Santa Fe Dr / I-5 NB Ramps	29.4	C	33.1	C	34.4	C	37.2	D	2.8	37.2	D	2.8	31.4	C	-3.0
Manchester Ave	I1	Manchester Ave / I-5 NB Ramps	23.0	C	18.2	B	24.9	C	30.7	C	5.8	24.0	C	-0.9	16.4	B	-8.5
	I2	Manchester Ave * / I-5 SB Ramps	24.2	C	23.1	C	15.8	B	24.0	C	8.2	22.7	C	6.9	18.9	B	3.1
Birmingham Dr	J1	Birmingham Dr ** / I-5 SB Ramps	-	F	-	F	-	F	-	F	-	-	F	-	-	F	-
	J2	Birmingham Dr * / I-5 NB Ramps	-	F	-	F	-	F	-	F	-	-	F	-	-	F	-
Santa Fe Dr	K1	Santa Fe Dr ** / I-5 SB Ramps	-	F	-	F	-	F	-	F	-	-	F	-	-	F	-
	K2	Santa Fe Dr / I-5 NB On Ramp	8.1	A	9.8	A	9.7	A	6.0	A	-3.7	5.9	A	-3.8	5.8	A	-3.9
	K3	Santa Fe Dr / I-5 NB Ramps	47.6	D	52.1	D	44.0	D	53.6	D	9.6	53.1	D	9.1	50.6	D	6.6
Encinitas Blvd	L1	Encinitas Blvd / Driveway	43.2	D	17.8	B	21.5	C	18.6	B	-2.9	21.5	C	0.0	23.8	C	2.3
	L2	Encinitas Blvd / I-5 SB Ramps	**64.3**	**E**	33.7	C	30.9	C	39.7	D	8.8	39.0	D	8.1	34.4	C	3.5
	L3	Encinitas Blvd / I-5 NB Ramps	32.1	C	21.5	C	24.7	C	24.8	C	0.1	20.3	C	-4.4	20.2	C	-4.5
	L4	Encinitas Blvd / Saxony Rd	15.3	B	13.9	B	22.9	C	19.8	B	-3.1	19.1	B	-3.8	19.2	B	-3.7
	L5	Encinitas Blvd / Calle Magdallena	10.1	B	7.8	A	7.5	A	8.9	A	1.4	8.0	A	0.5	8.4	A	0.9
Leucadia Blvd	M1	Leucadia Blvd / Orpheus Ave	14.4	B	20.5	C	13.8	B	11.0	B	-2.8	11.0	B	-2.8	12.1	B	-1.7
	M2	Leucadia Blvd / I-5 SB Ramps	24.4	C	24.1	C	20.1	C	26.4	C	6.3	26.4	C	6.3	19.6	B	-0.5
	M3	Leucadia Blvd/Piraeus St / I-5 NB Ramps	17.7	B	33.9	C	32.9	C	33.7	C	0.8	33.7	C	0.8	24.6	C	-8.3
La Costa Ave	N1	La Costa Ave / I-5 SB Ramps	26.4	C	36.3	D	34.1	C	42.5	D	8.4	42.5	D	8.4	45.1	D	11.0
	N2	La Costa Ave / I-5 NB Ramps	14.3	B	32.2	C	16.6	B	28.2	C	11.6	28.2	C	11.6	23.8	C	7.2
	N3	La Costa Ave / Park and Ride	2.8	A	6.6	A	11.2	B	6.9	A	-4.3	6.9	A	-4.3	7.3	A	-3.9
	N4	La Costa Ave / Piraeus	8.4	A	23.9	C	33.3	C	29.0	C	-4.3	29.0	C	-4.3	30.1	C	-3.2

Table 3.4 Intersection Peak Hour Delay and Level of Service – AM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
Poinsettia Ln	O1	Poinsettia Ln / Avenida Encinas	43.1	D	34.1	C	51.8	D	28.1	C	-23.7	28.1	C	-23.7	32.3	C	-19.5
	O2	Poinsettia Ln / I-5 SB Ramps	13.4	B	15.6	B	17.3	B	15.0	B	-2.3	15.0	B	-2.3	18.3	B	1.0
	O3	Poinsettia Ln / I-5 NB Ramps	10.3	B	18.8	B	14.4	B	15.4	B	1.0	15.8	B	1.4	19.1	B	4.7
	O4	Poinsettia Ln / Paseo Del Norte	33.4	C	34.6	C	**56.5**	**E**	47.6	D	-8.9	47.6	D	-8.9	41.5	D	-15.0
Palomar Airport Rd	P1	Palomar Airport Rd / Avenida Encinas	52.5	D	49.1	D	**117.2**	**F**	**136.5**	**F**	19.3	**104.7**	**F**	-12.5	**93.4**	**F**	-23.8
	P2	Palomar Airport Rd / I-5 SB Ramps	27.3	C	19.0	B	**88.5**	**F**	**248.0**	**F**	159.5	23.7	C	-64.8	15.6	B	-72.9
	P3	Palomar Airport Rd / I-5 NB Ramps	**68.2**	**E**	76.2	**E**	**98.9**	**F**	**148.8**	**F**	49.9	**99.9**	**F**	1.0	**102.6**	**F**	3.7
	P4	Palomar Airport Rd / Paseo del Norte	**58.4**	**E**	80.3	**F**	**137.1**	**F**	**187.8**	**F**	50.7	**133.3**	**F**	-3.8	**104.9**	**F**	-32.2
Cannon Rd	Q2	Cannon Rd / Avenida Encinas	35.7	D	35.1	D	39.1	D	43.3	D	4.2	37.7	D	-1.4	42.5	D	3.4
	Q3	Cannon Rd / I-5 SB Ramps	27.1	C	39.7	D	45.0	D	**77.8**	**E**	32.8	48.4	D	3.4	34.6	C	-10.4
	Q4	Cannon Rd / I-5 NB Ramps	25.2	C	22.4	C	34.6	C	37.0	D	2.4	37.5	D	2.9	44.7	D	10.1
Cannon Rd	Q5	Cannon Rd / Paseo Del Norte	13.5	B	66.9	**E**	**76.8**	**E**	**85.1**	**F**	8.3	**176.0**	**F**	99.2	**175.3**	**F**	98.5
Tamarack Ave	R2	Tamarack Ave / Jefferson St	30.9	C	38.1	D	53.3	D	41.6	D	-11.7	41.6	D	-11.7	44.0	D	-9.3
	R3	Tamarack Ave / I-5 SB Ramps	14.0	B	18.9	B	17.8	B	14.1	B	-3.7	14.1	B	-3.7	19.1	B	1.3
	R4	Tamarack Ave / I-5 NB Ramps	10.5	B	20.2	C	22.5	C	14.6	B	-7.9	14.6	B	-7.9	17.1	B	-5.4
	R5	Tamarack Ave / Pio Pico Dr	9.2	A	16.2	B	14.1	B	11.1	B	-3.0	11.1	B	-3.0	13.7	B	-0.4
Carlsbad Village Dr	S1	Carlsbad Village Dr / I-5 SB Ramps	16.8	B	22.1	C	13.7	B	20.7	C	7.0	20.7	C	7.0	16.8	B	3.1
	S2	Carlsbad Village Dr / I-5 NB Ramps	46.0	D	33.9	C	30.2	C	33.0	C	2.8	33.0	C	2.8	35.6	D	5.4
	S3	Carlsbad Village Dr / Pio Pico Dr	47.8	D	27.4	C	32.1	C	24.7	C	-7.4	24.7	C	-7.4	23.8	C	-8.3
Las Flores Dr	T1	Las Flores Dr * / *I-5 SB Ramps	4.3	A	12.9	B	9.4	A	11.1	B	1.7	11.1	B	1.7	9.2	A	-0.2
	T2	Las Flores Dr ** / I-5 NB Ramps	23.9	C	29.4	C	19.3	B	37.1	D	17.8	37.1	D	17.8	20.8	C	1.5
SR-78	U1	SR-78 / I-5 SB On-Ramps	24.4	C	34.5	C	13.2	B	12.3	B	-0.9	13.9	B	0.7	14.0	B	0.8
Cassidy St	V1	Cassidy St ** / I-5 SB Ramps	-	A	5.6	A	-	**F**	7.9	A	-	7.9	A	-	-	A	-
California	W1	California St * / I-5 NB Ramps	8.3	A	8.5	A	8.9	A	9.1	A	0.2	8.9	A	0.0	8.9	A	0.0
Oceanside Blvd	X1	Oceanside Blvd / Vine St	16.3	B	20.0	B	14.5	B	17.3	B	2.8	17.7	B	3.2	20.1	C	5.6

Table 3.4 Intersection Peak Hour Delay and Level of Service – AM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
Oceanside Blvd	X2	Oceanside Blvd / I-5 SB Ramps	40.4	D	37.0	D	47.7	D	**76.1**	**E**	28.4	51.8	D	4.1	52.2	D	4.5
	X3	Oceanside Blvd / I-5 NB Ramps	22.3	C	30.8	C	33.4	C	30.0	C	-3.4	26.4	C	-7.0	25.0	C	-8.4
	X4	Oceanside Blvd / State Tree Dr	8.3	A	16.4	B	9.2	A	11.8	B	2.6	19.2	B	10.0	25.7	C	16.5
Mission Ave	Y1	Mission Ave / I-5 SB Ramps	16.4	B	25.5	C	19.6	B	36.1	D	16.5	27.7	C	8.1	25.9	C	6.3
	Y2	Mission Ave / I-5 NB Ramps	-	A	19.7	B	-	**F**	26.5	C	-	25.4	C	-	23.5	C	-
SR-76	Z1	Hill St / North Coast Highway	13.0	B	22.7	C	18.6	B	19.9	B	1.3	19.9	B	1.3	25.1	C	6.5
	Z2	SR-76 / I-5 SB Ramps	6.2	A	6.7	A	7.8	A	9.5	A	1.7	9.5	A	1.7	10.9	B	3.1
	Z3	SR-76 / I-5 NB Ramps	10.2	B	32.6	C	51.2	D	45.7	D	-5.5	44.3	D	-6.9	40.4	D	-10.8
Harbor Dr	AA1	Harbor Dr / I-5 SB Ramps	17.8	B	37.4	D	25.2	C	42.2	D	17.0	42.2	D	17.0	48.9	D	23.7
	AA2	Harbor Dr / I-5 NB On-Ramps	12.6	B	16.7	B	43.8	D	18.9	B	-24.9	18.9	B	-24.9	23.5	C	-20.3

Source: Wilson & Company, August 2007

Notes:

Bold Letters: *Indicate an intersection operating at E or F*

N/A: Intersection does not exist

** Four-way Stop Control*

*** Two-way Stop Control*

- Intersections in which a delay could not be computed due to HCM constraints

Δ: Indicates change in average intersection delay from the Year 2030 Build scenario to the Year 2030 No-Build scenario

Green Cells: indicate that an intersection operating at LOS D, E or F under the Year 2030 No-Build scenario would operationally improve by 15% or greater reduction in delay under the respective Year 2030 Build scenario

Red Cells: Indicate an intersection which operates at a LOS E or F under the highlighted scenario and have an increase in total delay greater than two seconds over the Year 2030 No-Build scenario.

Table 3.5 Intersection Peak Hour Delay and Level of Service – PM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
La Jolla Village Dr	A4	La Jolla Village Dr / Villa La Jolla	**58.3**	**E**	64.6	**E**	**102.2**	**F**	**94.2**	**F**	-8.0	**95.6**	**F**	-6.6	**71.9**	**E**	-30.3
	A5	La Jolla Village Dr / I-5 SB Ramps	13.9	B	15.7	B	11.3	B	12.3	B	1.0	11.9	B	0.6	16.9	B	5.6
	A6	La Jolla Village Dr / I-5 NB Ramps	14.8	B	9.7	A	18.6	B	30.8	C	12.2	11.8	B	-6.8	14.7	B	-3.9
Genesee Ave	B1	Genesee Ave / I-5 SB Ramps	**58.4**	**E**	77.3	**E**	**103.1**	**F**	**138.2**	**F**	35.1	**101.4**	**F**	-1.7	**107.8**	**F**	4.7
	B2	Genesee Ave / I-5 NB Ramps	**65.0**	**E**	92.2	**F**	**121.0**	**F**	**176.5**	**F**	55.5	**121.0**	**F**	0.0	**123.0**	**F**	2.0

Table 3.5 Intersection Peak Hour Delay and Level of Service – PM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
Roselle St	C1	Roselle St / I-5 SB On Ramp **	-	F	-	F	-	F	-	F	-	-	F	-	-	F	-
Roselle St	C2	Roselle St / I-5 NB Off Ramp*	111.2	F	104.8	F	-	F	-	F	-	-	F	-	-	F	-
	C3	Roselle St / Sorrento Valley Blvd	63.8	E	5.8	A	75.8	E	78.6	E	2.8	78.6	E	2.8	61.7	E	-14.1
	C4	Sorrento Valley Rd / Sorrento Valley Blvd	298.4	F	159.5	F	613.9	F	635.3	F	21.4	635.3	F	21.4	539.6	F	-74.3
Carmel Mtn Rd	D1	Carmel Mtn Rd / I-5 Bypass SB Ramps	N/A	N/A	45.1	D	73.4	E	96.2	F	22.8	96.2	F	22.8	96.2	F	22.8
	D2	Carmel Mtn Rd / I-5 Bypass NB Ramps	N/A	N/A	55.7	E	76.1	E	78.1	E	2.0	78.1	E	2.0	78.1	E	2.0
Carmel Valley Rd	E1	Carmel Valley Rd / I-5 SB Ramps	30.3	C	24.9	C	17.2	B	17.6	B	0.4	16.1	B	-1.1	20.6	C	3.4
	E2	Carmel Valley Rd / I-5 NB Ramps	20.6	C	16.4	B	16.2	B	16.9	B	0.7	15.8	B	-0.4	16.9	B	0.7
Del Mar Heights Rd	F1	Del Mar Heights Rd / I-5 SB Ramps	15.4	B	11.3	B	13.9	B	12.5	B	-1.4	12.4	B	-1.5	14.8	B	0.9
	F2	Del Mar Heights Rd / I-5 NB Ramps	41.8	D	44.2	D	85.6	F	80.5	F	-5.1	80.5	F	-5.1	78.4	E	-7.2
Via De La Valle	G1	Via De La Valle / I-5 SB Ramps	31.0	C	13.5	B	19.5	B	15.2	B	-4.3	15.2	B	-4.3	21.7	C	2.2
	G2	Via De La Valle / I-5 NB Ramps	11.1	B	25.2	C	33.0	C	37.1	D	4.1	37.1	D	4.1	36.9	D	3.9
Via De La Valle	G3	Via De La Valle / Jimmy Durante Blvd	32.6	C	37.9	D	50.1	D	46.3	D	-3.8	46.3	D	-3.8	47.2	D	-2.9
Lomas Santa Fe Dr	H1	Lomas Santa Fe Dr / Solana Hills	17.3	B	26.1	C	21.7	C	20.4	C	-1.3	20.4	C	-1.3	21.3	C	-0.4
	H2	Lomas Santa Fe Dr / I-5 SB Ramps	46.3	D	24.0	C	21.5	C	32.5	C	11.0	32.5	C	11.0	23.7	C	2.2
	H3	Lomas Santa Fe Dr / I-5 NB Ramps	35.6	D	31.7	C	31.8	C	31.1	C	-0.7	31.1	C	-0.7	28.7	C	-3.1
Manchester Ave	I1	Manchester Ave / I-5 NB Ramps	20.5	C	138.5	F	38.3	D	35.5	D	-2.8	28.6	C	-9.7	10.3	B	-28.0
	I2	Manchester Ave * / I-5 SB Ramps	30.2	C	33.9	C	44.3	D	34.8	C	-9.5	28.4	C	-15.9	25.7	C	-18.6
Birmingham Dr	J1	Birmingham Dr ** / I-5 SB Ramps	103.6	F	-	F	-	F	-	F	-	-	F	-	-	F	-
	J2	Birmingham Dr * / I-5 NB Ramps	97.4	F	-	F	-	F	-	F	-	-	F	-	-	F	-
Santa Fe Dr	K1	Santa Fe Dr ** / I-5 SB Ramps	-	F	-	F	-	F	-	F	-	-	F	-	-	F	-
	K2	Santa Fe Dr / I-5 NB On Ramp	10.5	B	6.4	A	9.9	A	9.3	A	-0.6	9.4	A	-0.5	5.4	A	-4.5
	K3	Santa Fe Dr I-5 / NB Ramps	23.0	C	62.0	E	26.4	C	22.8	C	-3.6	22.6	C	-3.8	19.9	B	-6.5
Encinitas Blvd	L1	Encinitas Blvd / Driveway	49.2	D	23.2	C	27.5	C	30.3	C	2.8	34.2	C	6.7	29.2	C	1.7
	L2	Encinitas Blvd / I-5 SB Ramps	143.3	F	52.1	D	53.5	D	93.4	F	39.9	97.5	F	44.0	76.8	E	23.3

Table 3.5 Intersection Peak Hour Delay and Level of Service – PM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
Encinitas Blvd	L3	Encinitas Blvd / I-5 NB Ramps	43.4	D	20.6	C	24.7	C	32.4	C	7.7	22.8	C	-1.9	20.3	C	-4.4
	L4	Encinitas Blvd / Saxony Rd	23.3	C	18.2	B	17.1	B	25.0	C	7.9	17.3	B	0.2	17.5	B	0.4
	L5	Encinitas Blvd / Calle Magdalena	17.1	B	11.8	B	14.3	B	16.2	B	1.9	12.6	B	-1.7	12.9	B	-1.4
Leucadia Blvd	M1	Leucadia Blvd / Orpheus Ave	15.2	B	29.0	C	24.9	C	20.1	C	-4.8	20.2	C	-4.7	14.3	B	-10.6
	M2	Leucadia Blvd / I-5 SB Ramps	21.1	C	24.8	C	17.8	B	24.4	C	6.6	24.0	C	6.2	15.0	B	-2.8
	M3	Leucadia Blvd/Piraeus / St I-5 NB Ramps	20.7	C	25.4	C	21.9	C	20.7	C	-1.2	20.7	C	-1.2	18.7	B	-3.2
La Costa Ave	N1	La Costa Ave / I-5 SB Ramps	27.2	C	34.8	C	28.8	C	29.5	C	0.7	29.5	C	0.7	31.2	C	2.4
	N2	La Costa Ave / I-5 NB Ramps	16.3	B	50.6	D	35.6	D	49.1	D	13.5	49.1	D	13.5	40.8	D	5.2
	N3	La Costa Ave / Park and Ride	2.8	A	6.6	A	9.3	A	5.9	A	-3.4	5.9	A	-3.4	5.3	A	-4.0
	N4	La Costa Ave / Piraeus	9.1	A	12.6	B	**70.5**	**E**	25.7	C	-44.8	25.7	C	-44.8	45.3	D	-25.2
Poinsettia Ln	O1	Poinsettia Ln / Avenida Encinas	37.0	D	35.0	C	48.5	D	**63.2**	**E**	14.7	**63.2**	**E**	14.7	51.7	D	3.2
	O2	Poinsettia Ln / I-5 SB Ramps	15.7	B	22.3	C	20.9	C	27.0	C	6.1	27.0	C	6.1	25.3	C	4.4
	O3	Poinsettia Ln / I-5 NB Ramps	14.7	B	23.9	C	27.3	C	29.7	C	2.4	29.7	C	2.4	26.5	C	-0.8
Poinsettia Ln	O4	Poinsettia Ln / Paseo Del Norte	51.9	D	55.8	**E**	**59.1**	**E**	**68.2**	**E**	9.1	**68.2**	**E**	9.1	**56.0**	**E**	-3.1
Palomar Airport Rd	P1	Palomar Airport Rd / Avenida Encinas	**88.7**	**F**	73.0	**E**	**71.1**	**E**	**94.6**	**F**	23.5	**93.0**	**F**	21.9	**76.7**	**E**	5.6
	P2	Palomar Airport Rd / I-5 SB Ramps	10.9	B	16.1	B	**95.8**	**F**	**223.6**	**F**	127.8	17.6	B	-78.2	17.6	B	-78.2
	P3	Palomar Airport Rd / I-5 NB Ramps	50.3	D	111.5	**F**	**127.3**	**F**	**183.5**	**F**	56.2	**145.4**	**F**	18.1	**121.6**	**F**	-5.7
	P4	Palomar Airport Rd / Paseo del Norte	**116.8**	**F**	255.7	**F**	**243.3**	**F**	**287.6**	**F**	44.3	**269.6**	**F**	26.3	**225.7**	**F**	-17.6
Cannon Rd	Q2	Cannon Rd / Avenida Encinas	**112.2**	**F**	28.1	C	38.8	D	38.2	D	-0.6	33.3	C	-5.5	43.3	D	4.5
	Q3	Cannon Rd / I-5 SB Ramps	17.0	B	22.2	C	33.3	C	45.7	D	12.4	31.8	C	-1.5	36.4	D	3.1
	Q4	Cannon Rd / I-5 NB Ramps	34.2	C	19.1	B	26.5	C	52.2	D	25.7	24.3	C	-2.2	29.4	C	2.9
	Q5	Cannon Rd / Paseo Del Norte	15.2	B	35.6	D	21.8	C	27.8	C	6.0	**94.4**	**F**	72.6	**100.3**	**F**	78.5
Tamarack Ave	R2	Tamarack Ave / Jefferson St	31.7	C	34.1	C	49.8	D	42.8	D	-7.0	42.8	D	-7.0	45.2	D	-4.6
	R3	Tamarack Ave / I-5 SB Ramps	14.2	B	23.6	C	20.1	C	17.0	B	-3.1	17.0	B	-3.1	20.2	C	0.1
	R4	Tamarack Ave / I-5 NB Ramps	15.8	B	22.5	C	29.5	C	19.2	B	-10.3	19.2	B	-10.3	19.7	B	-9.8

Table 3.5 Intersection Peak Hour Delay and Level of Service – PM Peak Hour

Interchange	ID	Key Intersection	Existing		Year 2015 10+4 with DAR		Year 2030 No-Build		Year 2030 10+4 without DAR			Year 2030 10+4 with DAR			Year 2030 8+4 with DAR		
			Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ	Delay (Sec)	LOS	Δ
Tamarack Ave	**R5**	Pio Pico Dr / Tamarack Ave	9.6	A	15.6	B	15.2	B	10.1	B	-5.1	10.1	B	-5.1	15.2	B	0.0
Carlsbad Village Dr	**S1**	Carlsbad Village Dr / I-5 SB Ramps	20.6	C	24.1	C	40.3	D	31.1	C	-9.2	31.1	C	-9.2	28.9	C	-11.4
	S2	Carlsbad Village Dr / I-5 NB Ramps	49.2	D	33.4	C	32.5	C	45.8	D	13.3	45.8	D	13.3	39.3	D	6.8
	S3	Pio Pico Dr / Carlsbad Village	30.7	C	33.2	C	**56.2**	**E**	38.9	D	-17.3	38.9	D	-17.3	39.5	D	-16.7
Las Flores Dr	**T1**	Las Flores Dr ** / I-5 SB Ramps	12.5	B	102.2	**F**	44.7	D	**64.3**	**E**	19.6	**-**	**F**	-	**60.0**	**E**	15.3
	T2	Las Flores Dr ** / I-5 NB Ramps	**-**	**F**	-	**F**	**-**	**F**	**-**	**F**	-	**-**	**F**	-	**-**	**F**	-
SR-78	**U1**	SR-78 / I-5 SB On-Ramps	48.9	D	70.3	**E**	12.6	B	11.9	B	-0.7	13.2	B	0.6	12.6	B	0.0
Cassidy St	**V1**	Cassidy St ** / I-5 SB Ramps	**-**	A	6.4	A	**-**	**F**	13.6	B	-	13.6	B	-	**-**	A	-
California	**W1**	California St * / I-5 NB Ramps	8.3	A	8.9	A	9.0	A	9.4	A	0.4	9.3	A	0.3	9.2	A	0.2
Oceanside Blvd	**X1**	Oceanside Blvd / Vine St	36.5	D	10.8	B	9.6	A	14.5	B	4.9	12.0	B	2.4	12.4	B	2.8
	X2	Oceanside Blvd / I-5 SB Ramps	41.8	D	50.2	D	37.5	D	51.9	D	14.4	48.7	D	11.2	42.7	D	5.2
	X3	Oceanside Blvd / I-5 NB Ramps	36.1	D	46.0	D	40.7	D	**72.7**	**E**	32.0	43.1	D	2.4	42.3	D	1.6
	X4	Oceanside Blvd / State Tree	16.7	B	28.2	C	19.9	B	26.8	C	6.9	42.6	D	22.7	41.1	D	21.2
Mission Ave	**Y1**	Mission Ave / I-5 SB Ramps	29.7	C	30.5	C	**77.9**	**E**	**61.2**	**E**	-16.7	**55.9**	**E**	-22.0	53.8	D	-24.1
	Y2	Mission Ave / I-5 NB Ramps	**-**	A	30.8	C	**-**	**F**	33.4	C	-	32.2	C	-	31.3	C	-
SR-76	**Z1**	Hill St / North Coast Highway	22.6	C	39.1	D	50.6	D	51.2	D	0.6	51.2	D	0.6	50.3	D	-0.3
	Z2	SR-76 / I-5 SB Ramps	5.1	A	7.5	A	39.5	D	8.4	A	-31.1	8.4	A	-31.1	7.4	A	-32.1
	Z3	SR-76 / I-5 NB Ramps	8.3	A	74.3	**E**	**79.8**	**E**	**110.8**	**F**	31.0	**105.8**	**F**	26.0	**90.5**	**F**	10.7
Harbor Dr	**AA1**	Harbor Dr / I-5 SB Ramps	49.2	D	58.0	**E**	**150.1**	**F**	43.2	D	-106.9	43.2	D	-106.9	48.9	D	-101.2
	AA2	Harbor Dr / I-5 NB On-Ramps	7.5	A	15.8	B	12.4	B	18.9	B	6.5	18.9	B	6.5	23.5	C	11.1

Source: Wilson & Company, August 2007

Notes:

Bold Letters: *Indicate an intersection operating at E or F*

N/A: Intersection does not exist

** Four-way Stop Control*

*** Two-way Stop Control*

- Intersections in which a delay could not be computed due to HCM constraints

Δ: Indicates change in average intersection delay from the Year 2030 Build scenario to the Year 2030 No-Build scenario

Green Cells: indicate that an intersection operating at LOS D, E or F under the Year 2030 No-Build scenario would operationally improve by 15% or greater reduction in delay under the respective Year 2030 Build scenario

Red Cells: Indicate an intersection which operates at a LOS E or F under the highlighted scenario and have an increase in total delay greater than two seconds over the Year 2030 No-Build scenario.

3.5 Peak Hour Ramp Metering Analysis

Table 3.6 displays the future Year 2015/2030 metering rates utilized in this analysis. Under future Year 2015 and 2030 conditions, all freeway interchange on-ramps within the project study area will be metered. The future year meter rates assumed for this analysis were derived by Caltrans based upon projected future year freeway operations. The rates displayed in the No-Build and 8+4 columns were utilized in analyzing the year 2030 No Build and Year 2030 8+4 scenarios respectively. The rates displayed in the 10+4 column were used to analyze the Year 2030 10+4 With and Without DAR scenarios, as well as the Year 2015 10+4 With DAR scenario.

Table 3.6 AM and PM Peak Hour Ramp Metering Rates

Interchange	Ramp	Meter Rates					
		AM			PM		
		No-Build	8+4	10+4	No-Build	8+4	10+4
La Jolla Village Dr	WB La Jolla Village Dr to SB I-5	330	490	490	1,640	750	750
	EB La Jolla Village Dr to SB I-5	560	660	670	470	950	950
	WB La Jolla Village Dr to NB I-5	500	640	640	460	500	500
	EB La Jolla Village Dr to NB I-5	640	660	670	820	1,000	1,000
Genesee Ave	Genesee Ave to SB I-5	1,200	430	490	2,200	2,000	2,000
	Genesee Ave to NB I-5	1,120	230	230	1,840	1,400	1,450
Roselle St	Roselle St to SB I-5	1,400	1,280	1,280	1,780	1,700	1,700
Carmel Mtn Rd	Carmel Mtn Rd to SB I-5 Bypass	1,120	1,045	1,045	880	830	830
	Carmel Mtn Rd to NB I-5 Bypass	720	680	670	960	910	910
Carmel Valley Rd	Carmel Valley Rd to SB I-5	1,710	1,300	1,300	1,590	1,000	1,000
	Carmel Valley Rd to NB I-5	350	310	340	840	450	470
Del Mar Heights Rd	WB Del Mar Heights Rd to SB I-5	740	740	740	740	530	550
	EB Del Mar Heights Rd to SB I-5	940	1,115	1,175	940	720	750
	Del Mar Heights Rd to NB I-5	940	975	1,225	1,590	1,250	1,290
Via De La Valle	WB Via De La Valle to SB I-5	350	740	750	910	690	700
	EB Via De La Valle to SB I-5	910	930	930	460	760	770
	WB Via De La Valle to NB I-5	770	400	460	740	470	480
	EB Via De La Valle to NB I-5	310	410	430	890	640	670
Lomas Santa Fe Dr	WB Lomas Santa Fe to SB I-5	360	320	340	350	320	340
	EB Lomas Santa Fe to SB I-5	340	380	380	500	360	360
	WB Lomas Santa Fe to NB I-5	360	460	470	350	410	420
	EB Lomas Santa Fe to NB I-5	340	480	490	500	480	500
Manchester Ave	Manchester Blvd to SB I-5	980	1,200	1,250	1,490	1,080	1,120
	Manchester Blvd to NB I-5	160	220	240	400	190	200
Birmingham Dr	Birmingham Dr to SB I-5	1,490	810	850	1,490	440	450
	Birmingham Dr to NB I-5	580	500	530	590	380	380
Santa Fe Dr	Santa Fe Dr to SB I-5	450	530	550	440	490	500
	Santa Fe Dr to NB I-5	480	560	590	880	620	650
Encinitas Blvd	Encinitas Blvd to SB I-5	740	710	750	740	800	850
	Encinitas Blvd to NB I-5	640	770	800	450	910	950

Table 3.6 AM and PM Peak Hour Ramp Metering Rates

Interchange	Ramp	Meter Rates					
		AM			PM		
		No-Build	8+4	10+4	No-Build	8+4	10+4
Leucadia Blvd	Leucadia Blvd to SB I-5	400	730	850	400	730	850
	Leucadia Blvd to NB I-5	560	780	850	450	820	850
La Costa Ave	La Costa Ave to SB I-5	910	975	1,075	910	780	850
	La Costa Ave to NB I-5	660	820	850	740	820	850
Poinsettia Ln	Poinsettia Ln to SB I-5	930	700	750	1,000	955	1,025
	Poinsettia Ln to NB I-5	500	820	900	790	700	770
Palomar Airport Rd	WB Palomar Airport Road to SB I-5	770	1,950	2,000	750	1,950	2,000
	EB Palomar Airport Road to SB I-5	460	340	350	1,090	440	450
	Palomar Airport Road to NB I-5	1,200	1,620	1,650	1,340	1,970	2,000
Cannon Rd	Cannon Rd to SB I-5	1,090	465	525	1,090	810	900
	Cannon Rd to NB I-5	700	870	880	830	1,250	1,270
Tamarack Ave	Tamarack Ave to SB I-5	760	795	825	620	780	800
	Tamarack Ave to NB I-5	520	530	540	550	590	600
Carlsbad Village Dr	Carlsbad Blvd to SB I-5	810	585	655	180	690	700
	Carlsbad Blvd to NB I-5	480	590	600	610	610	620
Las Flores Dr	Las Flores Dr to SB I-5	440	260	280	290	180	200
	Las Flores Dr to NB I-5	370	390	400	190	600	630
Cassidy St	Cassidy St to SB I-5	740	380	400	830	340	370
California	California St to NB I-5	200	250	250	440	280	300
Oceanside Blvd	Oceanside Blvd to SB I-5	840	1,170	1,250	530	900	950
	Oceanside Blvd to NB I-5	450	440	450	630	480	500
Mission Ave	WB Mission Ave to SB I-5	820	860	1,400	300	780	1,550
	EB Mission Ave to SB I-5	820	N/A	N/A	880	N/A	N/A
	Mission Ave toNB I-5	400	750	750	770	400	400
SR-76	SR 76 to SB I-5	1,200	2,100	2,200	1,620	1,680	1,800
	SR 76 to NB I-5	1,970	1,950	2,000	230	1,550	1,550
Vandegrift Dr	Harbor/Vandegrift to SB I-5	940	1,100	1,100	230	1,850	1,850
	Harbor/Vandegrift to NB I-5	200	300	400	230	300	400

Source: Wilson & Company, August 2007

Using the CMP method for estimating ramp meter delay, **Tables 3.7** and **3.8** show calculated ramp delays for the Existing, Year 2015/2030 Build, and Year 2030 No-Build scenarios under AM and PM peak hour conditions, respectively. Delay values are shown in the following four groups:

- < 5 minutes – indicates minimal queuing potential
- 5-15 minutes – indicates moderate queuing potential wherein a queue would begin to build on the ramp

- 15-25 minutes – indicates significant queuing potential wherein a queue would begin to exceed the ramp storage length
- >25 minutes – indicates very significant queuing potential with possible diversion of traffic

A red highlight in the table indicates a ramp delay that would increase from either less than 15 minutes under the Year 2030 No-Build scenario to over 15 minutes with the I-5 North Coast Corridor Project or from less than 25 minutes under the Year 2030 No-Build scenario to over 25 minutes with the I-5 North Coast Corridor Project.

In addition, theoretical ramp queue lengths were calculated and compared to available ramp storage. Tables 3.7 and 3.8 also display the ramp locations were the calculated ramp queue lengths were estimated to exceed available ramp storage under the various traffic scenarios.

The delay and queuing results displayed in Tables 3.7 and 3.8 were calculated based upon the projected future ramp meter rates provided in Table 3.6, other factors not utilized in the analysis such as ramp intersection delays and queuing on the freeway may add to the delays and ramp queuing at the ramp meters.

Table 3.7 Peak Hour Ramp Meter Delay – AM Peak Hour

Interchange	ID	Location	Delay* (min/veh)						Queue Length Exceeds Ramp Storage					
			2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR	2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR
La Jolla Village Dr	A5	WB La Jolla Village Dr to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
	A6	WB La Jolla Village Dr to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
	A5	EB La Jolla Village Dr to SB I-5	Not Metered	<5	15-25	5-15	<5	<5	Not Metered		X	X		
	A6	EB La Jolla Village Dr to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Genesee Ave	B1	Genesee Ave to SB I-5	Not Metered	<5	<5	15-25	<5	<5	Not Metered			X		
	B2	Genesee Ave to NB I-5	Not Metered	>25	5-15	>25	>25	>25	Not Metered	X	X	X	X	X
Roselle St	C1	Roselle St to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Carmel Mtn Rd	D1	Carmel Mtn Rd to SB I-5 Bypass	Not Metered	<5	<5	<5	<5	<5	Not Metered	X		X	X	X
	D2	Carmel Mtn Rd to NB I-5 Bypass	Not Metered	<5	<5	<5	<5	<5	Not Metered			X	X	
Carmel Valley Rd*	E1	Carmel Valley Rd to SB I-5	<5	<5	<5	<5	<5	<5				X	X	X
	E2	Carmel Valley Rd to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Del Mar Heights Rd	F1	EB Del Mar Heights Rd to SB I-5	<5	<5	<5	<5	<5	<5			X			
	F1	WB Del Mar Heights Rd to SB I-5	<5	<5	5-15	<5	<5	<5			X			
	F2	Del Mar Heights Rd to NB I-5	Not Metered	<5	15-25	<5	<5	<5	Not Metered		X			
Via De La Valle	G2	WB Via De La Valle to SB I-5	<5	<5	>25	<5	<5	<5			X	X	X	X
	G3	WB Via De La Valle to NB I-5	<5	<5	<5	<5	<5	<5						
	G2	EB Via De La Valle to SB I-5	Not Metered	<5	<5	<5	<5	<5						
	G3	EB Via De La Valle to NB I-5	Not Metered	<5	5-15	<5	<5	<5	Not Metered		X			
Lomas Santa Fe Dr	H2	WB Lomas Santa Fe to SB I-5	<5	<5	<5	5-15	5-15	5-15				X	X	X
	H3	WB Lomas Santa Fe to NB I-5	N/A	<5	<5	<5	<5	<5	N/A		X			
	H2	EB Lomas Santa Fe to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered		X			
	H3	EB Lomas Santa Fe to NB I-5	N/A	<5	5-15	<5	<5	<5	N/A		X			
Manchester Ave	I1	Manchester Blvd to SB I-5	15-25	<5	15-25	5-15	<5	<5	X		X	X	X	X
	I2	Manchester Blvd to NB I-5	Not Metered	<5	>25	5-15	<5	<5	Not Metered		X	X		
Birmingham Dr	J1	Birmingham Dr to SB I-5	<5	<5	<5	<5	<5	<5						
	J2	Birmingham Dr to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Santa Fe Dr	K1	Santa Fe Dr to SB I-5	<5	<5	<5	<5	<5	<5						
	K2	Santa Fe Dr to NB I-5	Not Metered	<5	5-15	<5	<5	<5	Not Metered		X			
Encinitas Blvd	L2	Encinitas Blvd to SB I-5	<5	<5	<5	<5	<5	<5						
	L3	Encinitas Blvd to NB I-5	Not Metered	<5	5-15	<5	<5	<5	Not Metered		X			
Leucadia Blvd	M2	Leucadia Blvd to SB I-5	5-15	<5	>25	<5	<5	<5	X		X			
	M3	Leucadia Blvd to NB I-5	Not Metered	<5	5-15	<5	<5	<5	Not Metered		X			
La Costa Ave	N1	La Costa Ave to SB I-5	<5	<5	<5	<5	<5	<5						

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Table 3.7 Peak Hour Ramp Meter Delay – AM Peak Hour

Interchange	ID	Location	Delay* (min/veh)						Queue Length Exceeds Ramp Storage					
			2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR	2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR
La Costa Ave	**N2**	La Costa Ave to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered		X			
Poinsettia Ln	**O2**	Poinsettia Ln to SB I-5	<5	<5	<5	<5	<5	<5						
	O3	Poinsettia Ln to NB I-5	Not Metered	<5	15-25	<5	<5	<5	Not Metered		X			
Palomar Airport Rd	**P2**	WB Palomar Airport Road to SB I-5	<5	<5	<5	<5	<5	<5						
	P2	EB Palomar Airport Road to SB I-5	<5	>25	>25	>25	>25	>25		X	X	X	X	X
Palomar Airport Rd	**P3**	Palomar Airport Road to NB I-5	Not Metered	<5	15-25	<5	<5	<5	Not Metered		X	X		
Cannon Rd	**Q3**	Cannon Rd to SB I-5	<5	<5	<5	>25	<5	<5				X		
	Q4	Cannon Rd to NB I-5	Not Metered	<5	15-25	<5	<5	<5	Not Metered		X	X		
Tamarack Ave	**R3**	Tamarack Ave to SB I-5	<5	<5	<5	<5	<5	<5			X			
	R4	Tamarack Ave to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Carlsbad Village Dr	**S1**	Carlsbad Blvd to SB I-5	<5	<5	<5	5-15	5-15	5-15				X	X	X
	S2	Carlsbad Blvd to NB I-5	Not Metered	<5	5-15	<5	<5	<5	Not Metered		X			
Las Flores Dr	**T1**	Las Flores Dr to SB I-5	<5	<5	<5	5-15	5-15	5-15				X	X	X
	T2	Las Flores Dr to NB I-5	Not Metered	5-15	15-25	5-15	5-15	15-25	Not Metered	X	X	X	X	X
Cassidy St	**U2**	Cassidy St to SB I-5	<5	<5	<5	5-15	5-15	5-15				X	X	X
California	**W1**	California St to NB I-5	Not Metered	<5	5-15	<5	<5	<5	Not Metered		X			
Oceanside Blvd	**X2**	Oceanside Blvd to SB I-5	5-15	<5	>25	<5	<5	<5	X		X	X		
	X3	Oceanside Blvd to NB I-5	Not Metered	<5	<5	5-15	<5	<5	Not Metered			X		
Mission Ave	**Y1**	EB Mission Ave to SB I-5	<5	<5	<5	<5	<5	<5						
	Y1	WB Mission Ave to SB I-5	<5	N/A	<5	N/A	N/A	N/A		N/A		N/A	N/A	N/A
	Y2	Mission Ave to NB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X	X	X	
SR-76	**Z2**	SR 76 to SB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X			X
	Z3	SR 76 to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered		X			
Harbor Dr	**AA1**	Harbor Dr to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered		X			
	AA2	Harbor Dr to NB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X			

Source: Wilson & Company, August 2007

Notes:

Not Metered:	*Ramp is not metered under scenario*
N/A:	*Ramp Does not exist in scenario*
X:	*Calculated queue length exceeds provided ramp storage.*
*	*Assumes 5/56 northbound connectors will be constructed under all future year conditions*
Red Cells:	*Indicate a ramp delay that would increase from either less than 15 minutes to over 15 minutes or from less than 25 minutes to over 25 minutes with the addition of the I-5 North Coast Corridor Project.*

Table 3.8 Peak Hour Ramp Meter Delay – PM Peak Hour

Interchange	ID	Location	Delay* (min/veh)						Queue Length Exceeds Ramp Storage					
			2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR	2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR
La Jolla Village Dr	A5	WB La Jolla Village Dr to SB I-5	< 5	5-15	<5	>25	<5	15-25		X		X		X
	A6	WB La Jolla Village Dr to NB I-5	5-15	<5	>25	<5	<5	<5	X		X			
	A5	EB La Jolla Village Dr to SB I-5	<5	<5	<5	>25	<5	<5			X	X		
	A6	EB La Jolla Village Dr to NB I-5	<5	<5	5-15	<5	<5	<5			X	X		
Genesee Ave	B1	Genesee Ave to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered			X		
	B2	Genesee Ave to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Roselle St	C1	Roselle St to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Carmel Mtn Rd	D1	Carmel Mtn Rd to SB I-5 Bypass	Not Metered	<5	<5	<5	<5	<5	Not Metered			X	X	X
	D2	Carmel Mtn Rd to NB I-5 Bypass	Not Metered	<5	<5	<5	<5	<5	Not Metered			X	X	X
Carmel Valley Rd*	E1	Carmel Valley Rd to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
	E2	Carmel Valley Rd to NB I-5	<5	<5	<5	<5	<5	<5	X					
Del Mar Heights Rd	F1	EB Del Mar Heights Rd to SB I-5	<5	<5	<5	<5	<5	<5						
	F1	WB Del Mar Heights Rd to SB I-5	<5	<5	<5	<5	<5	<5						
	F2	Del Mar Heights Rd to NB I-5	<5	<5	<5	<5	<5	<5						
Via De La Valle	G2	WB Via De La Valle to SB I-5	<5	<5	<5	<5	<5	<5				X	X	X
	G3	WB Via De La Valle to NB I-5	<5	<5	<5	<5	<5	<5						
	G2	EB Via De La Valle to SB I-5	<5	5-15	<5	15-25	15-25	15-25		X		X	X	X
	G3	EB Via De La Valle to NB I-5	<5	<5	<5	<5	<5	<5						
Lomas Santa Fe Dr	H2	WB Lomas Santa Fe to SB I-5	<5	5-15	<5	5-15	5-15	5-15		X		X	X	X
	H3	WB Lomas Santa Fe to NB I-5	N/A	<5	<5	<5	<5	<5	N/A					
	H2	EB Lomas Santa Fe to SB I-5	<5	<5	5-15	<5	<5	<5	X		X			
	H3	EB Lomas Santa Fe to NB I-5	N/A	<5	<5	5-15	5-15	5-15	N/A			X	X	X
Manchester Ave	I1	Manchester Blvd to SB I-5	< 5	<5	<5	5-15	<5	<5				X	X	X
	I2	Manchester Blvd to NB I-5	<5	<5	<5	5-15	<5	<5						
Birmingham Dr	J1	Birmingham Dr to SB I-5	<5	<5	<5	<5	<5	<5						
	J2	Birmingham Dr to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Santa Fe Dr	K1	Santa Fe Dr to SB I-5	<5	<5	<5	<5	<5	<5						
	K2	Santa Fe Dr to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Encinitas Blvd	L2	Encinitas Blvd to SB I-5	<5	<5	<5	<5	<5	<5						
	L3	Encinitas Blvd to NB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X			
Leucadia Blvd	M2	Leucadia Blvd to SB I-5	5-15	<5	>25	<5	<5	<5	X		X			
	M3	Leucadia Blvd to NB I-5	5-15	<5	>25	<5	<5	<5	X		X			

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Table 3.8 Peak Hour Ramp Meter Delay – PM Peak Hour

Interchange	ID	Location	Delay* (min/veh)						Queue Length Exceeds Ramp Storage					
			2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR	2005 Existing	Year 2015 10+4 With DAR	Year 2030 No-Build	Year 2030 10+4 without DAR	Year 2030 10+4 With DAR	Year 2030 8+4 With DAR
La Costa Ave	N1	La Costa Ave to SB I-5	<5	<5	<5	<5	<5	<5						
	N2	La Costa Ave to NB I-5	<5	<5	<5	<5	<5	<5						
Poinsettia Ln	O2	Poinsettia Ln to SB I-5	<5	<5	<5	<5	<5	<5						
	O3	Poinsettia Ln to NB I-5	<5	<5	<5	<5	<5	<5						
Palomar Airport Rd	P2	WB Palomar Airport Road to SB I-5	15-25	<5	<5	<5	<5	<5	X					
Palomar Airport Rd	P2	EB Palomar Airport Road to SB I-5	Not Metered	>25	>25	>25	>25	>25	Not Metered	X	X	X	X	X
	P3	Palomar Airport Road to NB I-5	5-15	<5	>25	5-15	<5	<5	X		X	X		
Cannon Rd	Q3	Cannon Rd to SB I-5	<5	<5	<5	5-15	<5	<5				X		
	Q4	Cannon Rd to NB I-5	<5	<5	>25	5-15	<5	<5	X		X	X		
Tamarack Ave	R3	Tamarack Ave to SB I-5	Not Metered	<5	5-15	<5	<5	<5	Not Metered		X			
	R4	Tamarack Ave to NB I-5	Not Metered	<5	5-15	<5	<5	5-15	Not Metered		X	X	X	X
Carlsbad Village Dr	S1	Carlsbad Blvd to SB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X	X	X	X
	S2	Carlsbad Blvd to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered		X	X	X	X
Las Flores Dr	T1	Las Flores Dr to SB I-5	Not Metered	<5	<5	5-15	5-15	15-25	Not Metered			X	X	X
	T2	Las Flores Dr to NB I-5	Not Metered	5-15	>25	5-15	5-15	5-15	Not Metered	X	X	X	X	X
Cassidy St	U2	Cassidy St to SB I-5	Not Metered	<5	<5	5-15	5-15	5-15	Not Metered	X		X	X	X
California	W1	California St to NB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
Oceanside Blvd	X2	Oceanside Blvd to SB I-5	Not Metered	<5	>25	5-15	<5	<5	Not Metered		X	X		
	X3	Oceanside Blvd to NB I-5	Not Metered	<5	<5	5-15	<5	5-15	Not Metered			X	X	X
Mission Ave	Y1	EB Mission Ave to SB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X			
	Y1	WB Mission Ave to SB I-5	Not Metered	N/A	<5	N/A	N/A	N/A	Not Metered	N/A		N/A	N/A	N/A
	Y2	Mission Ave to NB I-5	Not Metered	<5	<5	5-15	5-15	5-15	Not Metered			X	X	X
SR-76	Z2	SR 76 to SB I-5	Not Metered	<5	<5	<5	<5	<5	Not Metered					
	Z3	SR 76 to NB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X			
Harbor Dr	AA1	Harbor Dr to SB I-5	Not Metered	<5	>25	<5	<5	<5	Not Metered		X			
	AA2	Harbor Dr to NB I-5	Not Metered	<5	15-25	<5	<5	15-25	Not Metered		X			X

Source: Wilson & Company, August 2007

Notes:

Not Metered:	*Ramp is not metered under scenario*
N/A:	*Ramp Does not exist in scenario*
X:	*Calculated queue length exceeds provided ramp storage.*
*	*Assumes 5/56 northbound connectors will be constructed under all future year conditions*
Red Cells:	*Indicate a ramp delay that would increase from either less than 15 minutes to over 15 minutes or from less than 25 minutes to over 25 minutes with the addition of the I-5 North Coast Corridor Project.*

3.6 Roadway Segment Analysis

Year 2015/2030 ADT forecasts for the corridor arterial system were developed for each project traffic scenario. The corridor arterial system generally encompasses the east-west and north-south arterials from the Coast Highway on the west, El Camino Real on the east, Mission Avenue on the north, and La Jolla Village Drive on the south. A total of 125 individual roadway segments (94 east-west and 31 north-south) were included in the analysis. **Table 3.9** displays arterial roadway capacities and the Year 2015/2030 forecast daily traffic volumes for the study roadway segments for each project traffic scenario. Utilizing the respective roadway capacities and the forecast ADT, roadway segments were identified as being *over* or *under* capacity.

For each of the Year 2030 Build scenarios, a **green highlight** indicates an improvement (from *over* to *under* capacity) in roadway segment operations when compared with the Year 2030 No-Build scenario. A **red highlight** indicates a project related impact (from *under* to over *capacity*) on roadway segment operations compared with the Year 2030 No-Build scenario.

Table 3.9 Arterial Roadway Segment Capacity Analysis

Street	From	To	Year 2030			Average Daily Volume						Over/Under Capacity					
			Lanes	Arterial Class	Threshold	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
East/West Network Facilities																	
Nobel Dr	Villa La Jolla Dr	I-5	4	Major	35,000	18,000	20,500	21,000	21,100	21,000	21,000	Under	Under	Under	Under	Under	Under
	I-5	Regents Rd	6	Prime	55,000	23,000	28,800	21,000	29,800	29,900	30,000	Under	Under	Under	Under	Under	Under
	Regents Rd	Genesee Ave	6	Prime	55,000	21,000	23,500	24,000	23,900	24,000	24,100	Under	Under	Under	Under	Under	Under
La Jolla Village Dr	Torrey Pines Rd	La Jolla Scenic Dr	4	Major	35,000	30,000	40,800	43,000	42,800	42,800	43,000	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	La Jolla Scenic Dr	Gilman Dr.	6	Prime	55,000	20,000	32,500	35,000	34,800	34,800	35,000	Under	Under	Under	Under	Under	Under
	Gilman Dr	Villa La Jolla Dr	6	Prime	55,000	40,000	46,800	48,000	48,000	48,000	48,100	**Over**	Under	Under	Under	Under	Under
	Villa La Jolla Dr	I-5	6	Prime	55,000	57,000	58,200	60,000	60,600	58,500	59,500	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	Genesee Ave	6	Prime	55,000	42,000	41,500	44,000	43,500	41,500	43,500	Under	Under	Under	Under	Under	Under
Genesee Ave	N. Torrey Pines Rd	I-5	6	Prime	55,000	37,000	39,800	49,000	41,100	40,400	40,800	**Over**	Under	Under	Under	Under	Under
	I-5	Campus Point	6	Prime	55,000	37,000	40,400	44,000	42,000	41,000	32,400	**Over**	Under	Under	Under	Under	Under
	Campus Point	Eastgate Mall	6	Prime	55,000	30,000	35,700	37,000	36,900	36,800	37,200	Under	Under	Under	Under	Under	Under
	Eastgate Mall	La Jolla Village	6	Prime	55,000	23,000	26,200	27,000	26,700	26,800	27,100	Under	Under	Under	Under	Under	Under
Roselle St	Vista Sorrento Pk	Mira Mesa Blvd.	4	Second	25,000	13,000	16,100	17,000	16,800	16,700	16,800	**Over**	Under	Under	Under	Under	Under
Sorrento Valley Blvd	Sorrento Valley Rd	I-805	4	Major	35,000	40,000	43,900	42,000	44,600	44,600	44,700	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	I-805	Camino Santa Fe	4	Major	35,000	15,000	34,400	38,000	37,900	37,900	38,000	Under	Under	**Over**	**Over**	**Over**	**Over**
	Camino Santa Fe	Camino Ruiz	4	Major	35,000	25,000	33,100	35,000	34,600	34,600	35,000	Under	Under	**Over**	Under	Under	**Over**
Carmel Mountain Rd	Sorrento Valley Rd	I-5	4	Major	35,000	9,300	18,200	18,000	20,700	19,800	19,400	Under	Under	Under	Under	Under	Under
	I-5	El Camino Real	6	Prime	55,000	20,600	32,500	35,000	34,900	34,700	35,600	Under	Under	Under	Under	Under	Under
Carmel Valley Rd (SR 56)	N Coast HWY	I-5	4	Second	25,000	11,100	19,400	21,000	20,900	20,900	22,300	Under	Under	Under	Under	Under	Under
	I-5	El Camino Real	6	Major	45,000	35,000	29,300	30,000	28,400	28,300	29,000	Under	Under	Under	Under	Under	Under
Del Mar Heights Rd	N Coast HWY	I-5	4	Major	35,000	30,000	38,100	41,000	39,800	39,600	40,600	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	El Camino Real	6	Prime	55,000	48,200	51,400	51,000	51,700	52,000	51,900	**Over**	Under	Under	Under	Under	Under
	El Camino Real	Carmel Country Rd	6	Prime	55,000	22,000	31,000	30,000	32,900	32,700	32,700	Under	Under	Under	Under	Under	Under
Via De La Valle	Camino Del Mar	Jimmy Durante Blvd	4	Major	35,000	17,900	22,900	27,000	23,600	23,800	29,300	**Over**	Under	Under	Under	Under	Under

Table 3.9 Arterial Roadway Segment Capacity Analysis

Street	From	To	Year 2030			Average Daily Volume						Over/Under Capacity					
			Lanes	Arterial Class	Threshold	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
Via De La Valle	Jimmy Durante Blvd	I-5	4	Major	35,000	41,900	43,100	44,000	43,400	43,400	45,100	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	San Andres Dr	4	Major	35,000	31,700	34,400	33,000	34,700	34,900	35,500	**Over**	Under	Under	Under	Under	**Over**
	San Andres Dr	El Camino Real	4	Major	35,000	18,000	25,800	27,000	27,200	27,200	28,500	**Over**	Under	Under	Under	Under	Under
Lomas Santa Fe Dr	N Coast HWY	I-5	4	Second	25,000	18,000	26,400	27,000	27,900	27,900	26,900	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	Highland Dr	4	Second	25,000	15,000	22,100	22,600	23,400	23,400	22,500	Under	Under	Under	Under	Under	Under
	Highland DR	El Camino Real	2	Second	12,000	8,000	12,700	13,000	13,800	13,600	12,900	Under	**Over**	**Over**	**Over**	**Over**	**Over**
Manchester Ave	Birmingham	I-5	2	Second	12,000	7,712	9,990	11,000	9,200	10,400	10,000	Under	Under	Under	Under	Under	Under
	I-5	El Camino Real	6	Major	45,000	26,096	37,500	36,000	36,400	39,600	32,000	**Over**	Under	Under	Under	Under	Under
	El Camino Real	Rancho Santa Fe	2	Second	12,000	9,030	9,170	13,000	9,200	9,200	11,100	Under	Under	**Over**	Under	Under	Under
Birmingham Dr	San Elijo	I-5	2	Second	12,000	15,000	19,000	17,000	20,700	19,800	18,500	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
Birmingham Dr	I-5	Lake Dr	2	Second	12,000	6,500	6,800	7,100	7,300	7,100	6,900	Under	Under	**Over**	**Over**	**Over**	**Over**
Santa Fe Dr	San Elijo	I-5	2	Second	12,000	20,662	21,500	22,300	22,300	22,300	22,000	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	Lake Dr	2	Second	12,000	18,024	18,800	19,000	20,300	19,000	19,400	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	Lake Dr	S El Camino Real	2	Second	12,000	14,000	14,300	15,000	14,800	14,500	14,700	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
Encinitas Blvd	S Coast HWY	I-5	4	Major	35,000	23,774	32,500	31,000	34,400	34,100	35,200	Under	Under	Under	Under	Under	**Over**
	I-5	Quail Gardens Dr	6	Prime	55,000	34,145	34,200	36,000	35,600	34,300	35,500	Under	Under	Under	Under	Under	Under
	Quail Gardens Dr	Balour Dr	6	Prime	55,000	34,000	31,500	31,000	33,000	31,900	33,300	Under	Under	Under	Under	Under	Under
	Balour Dr	El Camino Real	6	Prime	55,000	29,000	24,100	31,000	25,300	24,400	27,200	Under	Under	Under	Under	Under	Under
	El Camino Real	Santa Fe Dr	6	Prime	55,000	29,678	31,400	31,000	31,800	31,800	34,800	Under	Under	Under	Under	Under	Under
Leucadia Blvd	S Coast HWY	I-5	2	Second	12,000	17,000	18,500	18,000	19,200	19,200	18,800	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	Saxony Rd	4	Major	35,000	29,541	36,300	31,000	40,300	40,300	38,100	Under	**Over**	Under	**Over**	**Over**	**Over**
	Saxony Rd	Garden View Rd	4	Major	35,000	34,000	39,200	36,000	44,600	43,600	41,000	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	Garden View Rd	El Camino Real	4	Major	35,000	23,000	34,200	24,500	27,900	26,900	25,300	Under	Under	Under	Under	Under	Under
	El Camino Real	Rancho Santa Fe	6	Prime	55,000	33,000	34,600	35,000	34,900	34,900	36,100	Under	Under	Under	Under	Under	Under
La Costa Ave	S Coast HWY	I-5	4	Second	25,000	13,000	15,900	18,000	16,400	16,500	16,200	**Over**	Under	Under	Under	Under	Under

Table 3.9 Arterial Roadway Segment Capacity Analysis

Street	From	To	Year 2030			Average Daily Volume						Over/Under Capacity					
			Lanes	Arterial Class	Threshold	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
La Costa Ave	I-5	Saxony Rd	4	Major	35,000	33,100	46,700	45,000	49,300	49,100	48,200	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	Saxony Rd	El Camino Real	4	Major	35,000	28,000	37,400	37,000	39,200	39,100	38,700	Under	**Over**	**Over**	**Over**	**Over**	**Over**
Poinsettia Ln	N Coast HWY	I-5	4	Major	35,000	21,000	24,600	25,000	25,500	25,300	26,500	**Over**	Under	Under	Under	Under	Under
	I-5	Paseo Del Norte	6	Major	55,000	30,000	41,700	38,000	44,000	43,800	42,500	Under	Under	Under	Under	Under	Under
	Paseo Del Norte	College Blvd	4	Major	35,000	24,300	31,600	29,000	33,400	33,100	32,000	Under	Under	Under	Under	Under	Under
	College Blvd	Black Rail Rd	4	Major	35,000	13,000	14,300	15,000	15,500	15,500	15,000	Under	Under	Under	Under	Under	Under
	Black Rail Rd	El Camino Real	4	Major	35,000	9,000	12,200	12,000	12,800	12,800	12,700	Under	Under	Under	Under	Under	Under
Palomar Airport Rd	N Coast HWY	I-5	6	Prime	55,000	26,200	26,700	28,000	27,500	26,900	27,600	**Over**	Under	Under	Under	Under	Under
	I-5	Paseo Del Norte	6	Prime	55,000	57,200	60,800	60,000	66,500	61,500	65,600	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	Paseo Del Norte	College Blvd	6	Prime	55,000	53,200	56,700	56,000	59,900	57,400	58,300	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	College Blvd	S El Camino Real	6	Prime	55,000	40,000	42,200	42,000	42,900	42,700	42,900	Under	Under	Under	Under	Under	Under
Cannon Rd	N Coast HWY	I-5	4	Major	35,000	12,900	13,800	14,000	14,000	14,300	16,400	Under	Under	Under	Under	Under	Under
	I-5	Paseo Del Norte	4	Major	35,000	27,000	32,600	31,000	33,000	33,600	34,400	Under	Under	Under	Under	Under	Under
	Paseo Del Norte	Legoland Dr	4	Major	35,000	27,700	35,200	32,000	35,900	36,600	37,000	Under	**Over**	Under	**Over**	**Over**	**Over**
	El Camino Real	College Blvd	4	Major	35,000	14,700	18,200	18,000	18,700	18,900	18,900	Under	Under	Under	Under	Under	Under
Tamarack Ave	N Coast HWY	I-5	2	Second	12,000	18,000	20,900	20,000	21,500	21,500	24,300	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	Las Flores	4	Second	25,000	22,500	25,000	26,000	28,400	28,200	26,600	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	Las Flores	S El Camino Real	4	Second	25,000	9,500	10,000	11,000	12,200	11,900	11,300	Under	Under	Under	Under	Under	Under
Carlsbad Village Dr	N Coast HWY	I-5	4	Major	35,000	32,900	38,000	38,000	39,000	39,000	38,500	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	Las Flores	4	Major	35,000	26,500	30,400	31,000	31,400	31,100	30,600	Under	Under	Under	Under	Under	Under
	Las Flores	S El Camino Real	4	Major	35,000	19,100	22,300	22,000	23,100	22,900	22,500	Under	Under	Under	Under	Under	Under
	S El Camino Real	Tamarack Ave	4	Major	35,000	13,900	15,700	16,000	16,300	16,100	16,300	Under	Under	Under	Under	Under	Under
Las Flores	Jefferson ST	I-5	2	Second	12,000	9,800	15,200	15,000	16,100	16,200	15,500	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	I-5	Village Dr	2	Second	12,000	5,700	9,100	11,000	9,800	9,700	10,100	Under	Under	Under	Under	Under	Under
	Village Dr	Tamarack Dr	2	Second	12,000	4,000	8,250	10,000	9,000	9,000	9,200	Under	Under	Under	Under	Under	Under

Table 3.9 Arterial Roadway Segment Capacity Analysis

Street	From	To	Year 2030			Average Daily Volume						Over/Under Capacity					
			Lanes	Arterial Class	Threshold	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
California St	Alvarado	Stewart St	2	Second	12,000	2,200	2,790	3,000	2,900	2,900	2,900	Under	Under	Under	Under	Under	Under
	Stewart St	I-5	2	Second	12,000	3,100	3,860	4,000	4,000	4,000	4,000	Under	Under	Under	Under	Under	Under
	I-5	Avocado Rd	2	Second	12,000	4,000	4,930	5,000	5,100	5,100	5,100	Under	Under	Under	Under	Under	Under
Oceanside Blvd	N Coast HWY	I-5	4	Second	25,000	12,600	16,800	17,000	17,300	17,600	17,300	Under	Under	Under	Under	Under	Under
	I-5	N Canyon Dr	6	Prime	55,000	34,800	48,700	41,000	47,200	51,200	50,300	Under	Under	Under	Under	Under	Under
	N Canyon Dr	S El Camino Real	6	Prime	55,000	29,000	38,100	38,000	39,600	41,600	40,200	Under	Under	Under	Under	Under	Under
	S El Camino Real	Rancho Del Oro	6	Prime	55,000	22,600	29,400	30,000	30,600	30,600	31,300	Under	Under	Under	Under	Under	Under
	Rancho Del Oro	College Blvd	6	Prime	55,000	27,300	35,200	36,000	36,700	36,700	36,600	Under	Under	Under	Under	Under	Under
	College Blvd	Melrose Dr	4	Major	35,000	26,500	34,000	35,000	35,400	35,400	35,700	Under	Under	**Over**	**Over**	**Over**	**Over**
	Melrose Dr	Santa Fe Ave	4	Major	35,000	17,000	21,900	22,000	22,800	22,800	23,200	Under	Under	Under	Under	Under	Under
Mission Ave	N Coast HWY	I-5	4	Major	35,000	21,000	29,000	32,000	30,500	30,500	30,600	Under	Under	Under	Under	Under	Under
	I-5	N Canyon Dr	4	Major	35,000	47,000	50,000	50,000	51,800	50,600	50,600	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	N Canyon Dr	Mesa Drive	4	Major	35,000	43,000	46,100	45,000	47,600	46,700	46,600	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	Mesa Drive	Foussat St	4	Major	35,000	43,000	45,300	45,000	46,000	46,000	45,700	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	Foussat St	El Camino Real	4	Major	35,000	43,000	45,800	45,000	46,400	46,400	46,400	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	El Camino Real	Douglas Dr	4	Major	35,000	38,000	39,800	40,000	40,200	40,200	40,500	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	Douglas Dr	Rancho Del Oro Dr	4	Major	35,000	27,000	28,100	29,000	28,400	28,400	28,700	Under	Under	Under	Under	Under	Under
	Rancho Del Oro	Craven Rd	4	Major	35,000	27,500	29,000	29,000	29,300	29,300	29,300	Under	Under	Under	Under	Under	Under
North/South Network Facilities																	
El Camino Real	Mission Ave	Mesa Dr	4	Major	35,000	32,000	35,000	36,000	35,800	35,600	35,800	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	Mesa Dr	Oceanside Blvd	4	Major	35,000	36,500	41,000	42,000	42,000	41,900	42,000	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**
	Oceanside Blvd	Ronald Packard Pk	6	Prime	55,000	32,000	40,500	42,000	42,000	42,000	43,000	Under	Under	Under	Under	Under	Under
	Ronald Parkard Pk	Carlsbad Village Dr	6	Prime	55,000	56,100	54,700	59,000	54,900	54,500	56,700	**Over**	Under	**Over**	Under	Under	**Over**
	Carlsbad Village Dr	Chestnut Ave	6	Prime	55,000	29,100	33,000	37,000	34,000	33,800	35,500	Under	Under	Under	Under	Under	Under
	Chestnut Ave	Tamarack Ave	6	Prime	55,000	30,000	35,800	40,000	37,100	36,900	38,600	Under	Under	Under	Under	Under	Under

Table 3.9 Arterial Roadway Segment Capacity Analysis

Street	From	To	Year 2030			Average Daily Volume						Over/Under Capacity					
			Lanes	Arterial Class	Threshold	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
El Camino Real	Tamarack Ave	Cannon Rd	6	Prime	55,000	33,200	35,200	38,000	35,900	35,600	37,100	Under	Under	Under	Under	Under	Under
	Cannon Rd	College Blvd	6	Prime	55,000	32,500	36,100	39,000	36,900	36,800	38,100	Under	Under	Under	Under	Under	Under
	College Blvd	Faraday Ave	6	Prime	55,000	35,700	43,800	48,000	45,300	45,300	46,700	Under	Under	Under	Under	Under	Under
	Faraday Ave	Palomar Airport Rd	6	Prime	55,000	31,000	42,300	48,000	44,400	44,400	45,900	Under	Under	Under	Under	Under	Under
	Palomar Airport	Alga Rd	6	Prime	55,000	32,500	34,700	44,000	35,200	35,100	37,500	Under	Under	Under	Under	Under	Under
	Alga Rd	La Costa Ave	6	Prime	55,000	48,400	56,400	65,000	58,100	57,900	59,800	Under	**Over**	**Over**	**Over**	**Over**	**Over**
	La Costa Ave	Olivenhain Rd	6	Prime	55,000	37,900	40,300	45,500	40,700	40,500	44,000	Under	Under	Under	Under	Under	Under
El Camino Real	Olivenhain Rd	Mountain Vista Rd	6	Prime	55,000	42,865	42,800	55,000	43,000	42,900	48,100	Under	Under	**Over**	Under	Under	Under
	Mountain Vista Rd	Encinitas Blvd	6	Prime	55,000	39,644	47,500	60,000	49,000	48,900	53,900	Under	Under	**Over**	Under	Under	Under
	Encinitas Blvd	Santa Fe Rd	6	Prime	55,000	29,996	28,500	40,000	29,100	29,000	32,600	Under	Under	Under	Under	Under	Under
	Santa Fe Rd	Manchester Ave	6	Prime	55,000	21,216	24,900	36,000	25,700	25,600	29,600	Under	Under	Under	Under	Under	Under
N. Canyon Dr.	San Luis Rey Mission	Mission Ave	4	Second	25,000	8,600	9,450	10,000	10,000	9,600	9,600	Under	Under	Under	Under	Under	Under
	Mission Ave.	Oceanside Blvd	4	Second	25,000	8,600	9,360	10,000	9,600	9,500	9,500	Under	Under	Under	Under	Under	Under
Coast Highway	Mission Expy	Mission Ave	4	Major	35,000	19,100	20,300	22,000	20,600	20,600	20,700	Under	Under	Under	Under	Under	Under
	Mission Ave	Oceanside Blvd	4	Major	35,000	25,000	25,200	29,000	25,400	25,300	25,800	Under	Under	Under	Under	Under	Under
	Oceanside Blvd	Ronald Packard Pkwy	4	Major	35,000	23,500	24,800	29,000	25,000	26,000	26,500	Under	Under	Under	Under	Under	Under
	Ronald Parkard Pkwy	Carlsbad Village Dr	4	Major	35,000	20,000	21,700	24,000	22,300	22,200	23,600	Under	Under	Under	Under	Under	Under
	Carlsbad Village Dr	Tamarack Ave	4	Major	35,000	21,600	23,900	30,000	24,500	24,400	26,100	Under	Under	Under	Under	Under	Under
	Tamarack Ave	Cannon Rd	4	Major	35,000	22,700	23,200	29,000	23,700	23,500	24,400	**Over**	Under	Under	Under	Under	Under
	Cannon Rd	Palomar Airport Rd	4	Major	35,000	20,300	20,800	26,000	21,200	21,000	23,600	Under	Under	Under	Under	Under	Under
	Palomar Airport Rd	Poinsettia Ln	4	Major	35,000	18,700	19,500	25,000	19,900	19,700	23,500	Under	Under	Under	Under	Under	Under
	Poinsettia Ln	La Costa Ave	4	Major	35,000	20,000	22,100	27,000	22,900	22,500	26,400	Under	Under	Under	Under	Under	Under
	La Costa Ave	Leucadia Blvd	4	Major	35,000	27,000	27,200	34,000	27,600	27,300	30,800	Under	Under	Under	Under	Under	Under
	Leucadia Blvd	Encinitas Blvd	4	Major	35,000	24,000	28,800	35,000	30,000	29,700	32,700	Under	Under	**Over**	Under	Under	Under
	Encinitas Blvd	Santa Fe Dr	4	Major	35,000	22,000	24,600	31,000	25,500	25,100	26,800	Under	Under	Under	Under	Under	Under

Table 3.9 Arterial Roadway Segment Capacity Analysis

Street	From	To	Year 2030			Average Daily Volume						Over/Under Capacity					
			Lanes	Arterial Class	Threshold	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR	2005 Existing	Year 2015 10+4 w/ DAR	Year 2030 No-Build	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
Coast Highway	Santa Fe Dr	Lomas Santa Fe Dr	4	Major	35,000	26,000	26,600	35,000	28,000	27,000	33,600	Under	Under	**Over**	Under	Under	Under
	Lomas Santa Fe Dr	Via De La Valle	4	Major	35,000	21,000	22,700	25,500	24,100	23,000	24,000	**Over**	Under	Under	Under	Under	Under
	Via De La Valle	Jimmy Durante Blvd	4	Major	35,000	22,000	23,900	27,000	25,500	24,300	25,100	Under	Under	Under	Under	Under	Under
	Jimmy Durante Blvd	Del Mar Heights Rd	4	Major	35,000	29,000	31,300	35,000	32,900	31,800	36,600	Under	Under	**Over**	Under	Under	**Over**
	Del Mar Heights Rd	Callan Rd	4	Major	35,000	24,000	26,800	29,000	29,400	27,300	28,800	Under	Under	Under	Under	Under	Under
	Callan Rd	Genesee Ave	4	Major	35,000	40,000	45,800	48,000	48,200	46,900	47,700	**Over**	**Over**	**Over**	**Over**	**Over**	**Over**

Source: Wilson & Company, August 2007

Notes:

Green Cells: *Indicate segments which operate over capacity for the Year 2030 No-Build scenario and under capacity for the Year 2030 Build scenario*

Red Cells: *Indicate segments which operate under capacity for the Year 2030 No-Build Scenario and over capacity under the Year 2030 Year 2030 Build scenario*

4.0 Operations Analysis Summary

This section presents a summary of the various traffic operational analyses conducted for the I-5 North Coast Corridor Project and as documented in Chapter 3.0 of this report. The analysis results are summarized to highlight the benefits, as well as the potential impacts on corridor-wide traffic operations, as a result of the I-5 North Coast Corridor Project.

4.1 Summary of Project-Related Benefits

The primary benefit associated with the I-5 North Coast Corridor Project will be the additional freeway capacity, along with enhanced interchanges, HOV/managed lanes, and Direct Access Ramps (DARs). With the ability to better serve forecast travel demands, this additional freeway capacity in turn will provide a number of corresponding benefits when compared with the Year 2030 No-Build scenario, including:

- Improved interchange ramp intersection operations;
- Improved traffic operations at intersections nearby and adjacent to the freeway ramps;
- Additional interchange ramp storage; and
- Improved traffic operations on parallel and intersecting arterial roadways.

Intersection and Ramp Capacity Improvements

Table 4.1 summarizes the proposed interchange modifications included within the scope of the I-5 North Coast Corridor Project improvements.

Table 4.1 Summary of I-5 North Coast Corridor Proposed Interchange Improvements

Interchange	ID	Location	Assumed Lane Geometry Modifications
Del Mar Heights Rd	F1	I-5 SB Ramps / Del Mar Heights Rd	Ramp adjustments to remove free right turn capabilities
	F2	I-5 NB Ramps / Del Mar Heights Rd	Convert NB left/through/right lane to a shared through right turn lane, add a second left turn lane (creating dual right and dual lefts)
Via De La Valle	G2	I-5 SB Ramps / Via De La Valle	Ramp adjustments to remove free right turn capabilities
	G3	I-5 NB Ramps / Via De La Valle	Ramp adjustments to remove free right turn capabilities
Encinitas Blvd	L2	I-5 SB Ramps / Encinitas Blvd	Addition of an exclusive SB left turn-lane (creating dual left turn-lanes)
			Addition of an exclusive SB right turn-lane (creating dual right turn-lanes)
Palomar Airport Rd	P2	I-5 SB Ramps / Palomar Airport Rd	Ramp adjustments to remove free right turn capabilities, addition of a WB right turn-lane (creating dual right turn-lanes)
Tamarack Dr	R3	I-5 SB Ramps / Tamarack Ave	Addition of a WB left turn-lane (creating dual lefts)
	R4	I-5 NB Ramps/ Tamarack Ave	Addition of a NB right turn-lane (creating dual right turn-lanes)
Carlsbad Village Dr	S1	I-5 SB Ramps / Carlsbad Village Dr	Convert the SB shared left/through/right lane to a shared right/though lane, add an exclusive SB left turn lane (creating a single left-turn lane and dual right-turn lanes).
Carlsbad Village Dr	S2	I-5 NB Ramps/ Carlsbad Village Dr	NB left turn-lane separated, right turn-lane converted to a shared left/through/right lane
Oceanside Blvd	X1	I-5 SB Ramps / Oceanside Blvd	Convert SB through/right turn-lane into two separate lanes

Table 4.1 Summary of I-5 North Coast Corridor Proposed Interchange Improvements

Interchange	ID	Location	Assumed Lane Geometry Modifications
Mission Ave	Y1	I-5 SB Ramps / Mission Ave	Remove EB to SB on-ramp, add dual EB left turn-lanes, convert southbound through/left to an exclusive left turn-lane (creating dual lefts), convert the exclusive southbound right turn-lane to a shared through right turn-lane.
	Y2	I-5 NB Ramps/ Mission Ave	Remove NB to EB free right turn-lane, add a second EB left turn lane (creating dual lefts), add SB dual left turn lanes.
SR-76	Z3	I-5 NB Ramps / SR-76	Ramp adjustments to remove free right turn capabilities, addition of a second NB left-turn lane (creating dual lefts)
Harbor Dr	AA1	I-5 SB Ramps / Harbor Dr	Ramp adjustments to remove free right turn capabilities
			Convert outside westbound through lane into an exclusive right-turn lane
			Convert inside westbound through lane into a shared through/right-turn lane
	AA2	I-5 NB On-Ramps / Harbor Dr	Re-alignment of NB to WB off-ramp to align with San Rafael intersection (EB right turn will be controlled by signal and will no longer be a free right turn)
			Convert northbound shared through/right-turn lane into an exclusive through lane, eliminating the northbound right turn movement.

Source: Caltrans, August 2007

In addition, the I-5 North Coast Corridor Project will widen key freeway interchange on-ramps to provide additional storage capabilities. **Table 4.2** displays the interchange locations where additional on-ramp lanes will be included in the I-5 North Coast Corridor Project.

Table 4.2 Summary of I-5 North Coast Corridor Ramp Storage Improvements

Interchange	ID	Location	Existing Number of Lanes			I-5 North Coast Corridor Project Number of Lanes		
			SOV Lanes	HOV Lanes	Total Lanes	SOV Lanes	HOV Lanes	Total Lanes
Genesee Ave	B1	Genesee Ave to SB I-5	1	0	1	2	1	3
	B2	Genesee Ave to NB I-5	1	0	1	2	1	3
Roselle St	C1	Roselle St to SB I-5	1	0	1	2	1	3
Del Mar Heights Rd	F1	EB Del Mar Heights Rd to SB I-5	1	1	2	2	1	3
	F1	WB Del Mar Heights Rd to SB I-5	1	0	1	2	1	3
	F2	Del Mar Heights Rd to NB I-5	2	0	2	2	1	3
Via De La Valle	G2	WB Via De La Valle to SB I-5	1	0	1	2	0	2
	G2	EB Via De La Valle to SB I-5	1	1	2	2	1	3
	G3	EB Via De La Valle to NB I-5	1	0	1	2	0	2
Birmingham Dr	J1	Birmingham Dr to SB I-5	2	0	2	2	1	3
	J2	Birmingham Dr to NB I-5	1	0	1	2	1	3
Santa Fe Dr	K1	Santa Fe Dr to SB I-5	1	1	2	2	1	3
	K2	Santa Fe Dr to NB I-5	1	0	1	2	1	3
Encinitas Blvd	L2	Encinitas Blvd to SB I-5	1	1	2	2	1	3
	L3	Encinitas Blvd to NB I-5	1	0	1	2	1	3

Table 4.2 Summary of I-5 North Coast Corridor Ramp Storage Improvements								
Interchange	ID	Location	Existing Number of Lanes			I-5 North Coast Corridor Project Number of Lanes		
			SOV Lanes	HOV Lanes	Total Lanes	SOV Lanes	HOV Lanes	Total Lanes
Leucadia Blvd	M3	Leucadia Blvd to NB I-5	1	1	2	2	1	3
La Costa Ave	N2	La Costa Ave to NB I-5	1	1	2	2	1	3
Palomar Airport Rd	P2	EB Palomar Airport Road to SB I-5	1	1	2	2	1	3
Tamarack Ave	R4	Tamarack Ave to NB I-5	1	0	1	2	0	2
Carlsbad Village Dr	S1	Carlsbad Blvd to SB I-5	1	0	1	2	0	2
	S2	Carlsbad Blvd to NB I-5	1	0	1	2	0	2
Oceanside Blvd	X2	Oceanside Blvd to SB I-5	2	0	2	2	1	3
Mission Ave	Y1	EB Mission Ave to SB I-5	1	1	2	2	1	3
	Y2	Mission Ave toNB I-5	1	0	1	2	0	2
SR-76	Z2	SR 76 to SB I-5	2	0	2	2	1	3
	Z3	SR 76 to NB I-5	2	0	2	2	1	3
Harbor Dr	AA1	Harbor Dr to SB I-5	1	0	1	2	1	3
	AA2	Harbor Dr to NB I-5	1	0	1	2	0	2

Source: Caltrans, August 2007

In addition to the improvements summarized in the above tables, the I-5 North Coast Corridor Project will also include improvements to local arterials and intersections impacted by the addition of the DARs as outlined in Section 4.0 of *Technical Report No. 7 – Direct Access Ramps / Local Circulation System Operations Report (Wilson & Company, August 2007)*.

Interchange Ramp Intersection Operations (ILV Methodology)

The I-5 North Coast Corridor Project will improve traffic operations at a number of interchange ramp intersection operations at a number of locations. **Table 4.3** summarizes the signalized ramp interchange intersections at which the interchange operations would improve from *over capacity* under the Year 2030 No-Build scenario to *at* or *under capacity* under the various Year 2030 Build scenarios.

Table 4.3 Summary of Ramp Interchange Intersections Improving to "At" or "Under" Capacity Operations With the I-5 North Coast Corridor Project								
			AM			PM		
Interchange	ID	Location	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR
Carmel Mtn Rd	D1	Carmel Mtn Rd / I-5 SB Ramps Bypass			X			
Del Mar Heights Rd	F2	Del Mar Heights Rd / I-5 NB Ramps			X	X	X	X
Encinitas Blvd	L2	Encinitas Blvd / I-5 SB Ramps	X	X	X			
Carlsbad Village Dr	S1	Carlsbad Village Dr / I-5 SB Ramps					X	X

Source: Wilson & Company, August 2007

Ramp and Adjacent Intersection Operations (HCM Methodology)

The I-5 North Coast Corridor Project will improve LOS and reduce delays at numerous ramp and adjacent intersection locations. **Table 4.4** summarizes the ramp and adjacent intersections operating at LOS D, E or F under Year 2030 No Build conditions, that would *improve* in operation as indicated by a 15% or greater reduction in overall intersection delay under the various Year 2030 Build scenarios, when compared to the Year 2030 No-Build scenario.

Table 4.4 Summary of Intersections with Reduced Delay of 15% or Greater With the I-5 North Coast Corridor Project								
			AM			PM		
Interchange	ID	Location	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR
La Jolla Village Dr	A4	Villa La Jolla / La Jolla Village Dr						X
	A6	I-5 NB Ramps / La Jolla Village Dr						
Genesee Ave	B1	I-5 SB Ramps / Genesee Ave		X	X			
Roselle St	C3	Roselle St / Sorrento Valley Blvd						X
	C4	Sorrento Valley Rd / Sorrento Valley Blvd			X			
Via De La Valle	G3	Jimmy Durante Blvd / Via De La Valle	X	X	X			
Manchester Ave	I1	I-5 SB Ramps / Manchester Ave					X	X
	I2	I-5 NB Ramps / Manchester Ave				X	X	X
La Costa Ave	N4	La Costa Ave / Piraeus				X	X	X
Poinsettia Ln	O1	Avenida Encinas / Poinsettia Ln	X	X	X			
	O4	Paseo Del Norte / Poinsettia Ln	X	X	X			
Palomar Airport Rd	P1	Palomar Airport Rd / Avenida Encinas			X			
	P2	I-5 SB Ramps / Palomar Airport Rd		X	X		X	X
	P4	Palomar Airport Rd / Paseo Del Norte			X			
Cannon Rd	Q3	I-5 SB Ramps / Cannon Rd			X			
Tamarack Ave	R2	Tamarack Ave / Jefferson						
Carlsbad Village Dr	S1	I-5 SB Ramps / Carlsbad Village Dr				X	X	X
	S3	Carlsbad Vilalge Dr / Pio Pico Dr				X	X	X
Oceanside Blvd	X2	I-5 SB Ramps / Oceanside Blvd						
Mission Ave	Y1	I-5 SB Ramps / Mission Ave				X	X	X
SR-76	Z2	I-5 SB Ramps / SR-76				X	X	X
	Z3	I-5 NB Ramps / SR-76			X			
Harbor Drive	AA1	I-5 SB Ramps / Harbor / Vandegrift				X	X	X
	AA2	I-5 NB Ramps / Harbor / Vandegrift	X	X	X			

Source: Wilson & Company, August 2007

Arterial Roadway Segment Operations

The I-5 North Coast Corridor Project will improve traffic operations on a number of parallel and intersecting roadways. **Table 4.5** summarizes the roadway segments that would exhibit improved operations (from *over* to *under* capacity) under the respective Year 2030 Build scenarios, when compared to the Year 2030 No-Build scenario.

Table 4.5 Summary of Roadway Segment Operations Improved by the I-5 North Coast Corridor Project

Street	From	To	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
East/West Network Facilities					
Sorrento Valley Blvd	Camino Santa Fe	Camino Ruiz	X	X	
Manchester Ave	El Camino Real	Rancho Santa Fe	X	X	X
North/South Network Facilities					
El Camino Real	Ronald Parkard Pk	Carlsbad Village Dr	X	X	
	Olivenhain Rd	Mountain Vista Rd	X	X	X
	Mountain Vista Rd	Encinitas Blvd	X	X	X
Coast Highway	Leucadia Blvd	Encinitas Blvd	X	X	X
	Santa Fe Dr	Lomas Santa Fe Dr	X	X	X
	Jimmy Durante Blvd	Del Mar Heights Rd	X	X	

Source: Wilson & Company, August 2007

4.2 Summary of Project-Related Impacts

The additional capacity provided by the I-5 North Coast Corridor Project and resulting increase in travel demands will also result in a number of project-related impacts. Impacts are primarily associated with heavy forecast travel demands and practical limitations on the capacity that can be provided. When compared with the Year 2030 No-Build scenario, project-related impacts include:

- Impacted interchange ramp intersection operations;
- Impacted traffic operations at intersections nearby and adjacent to the freeway ramps;
- Increased delays at ramp-meter locations, with potential for spill back onto adjacent arterials; and
- Impacted traffic operations on parallel and intersecting arterial roadways.

Interchange Ramp Intersection Operations (ILV Methodology)

The I-5 North Coast Corridor Project will result in traffic imparts at a number of ramp intersections, compared with the Year 2030 No-Build Scenario. **Table 4.6** summarizes the signalized ramp interchange intersections where traffic operations would change from *under* or *at* capacity under the Year 2030 No-Build scenario to *over* capacity under the various Year 2030 Build scenarios.

Table 4.6 Summary of Ramp Interchange Intersections Operating at Over Capacity With the I-5 North Coast Corridor Project

Interchange	ID	Location	AM			PM		
			Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR
Genesee Ave	**B2**	Genesee Ave / I-5 NB Ramps	X	X	X	X	X	X
Encinitas Blvd	**L3**	Encinitas Blvd / I-5 NB Ramps				X		
Oceanside Blvd	**X2**	Oceanside Blvd / I-5 SB Ramps	X					
	X3	Oceanside Blvd / I-5 NB Ramps				X		
Mission Ave	**Y2**	Mission Ave / I-5 NB Ramps				X	X	X
SR-76	**Z2**	SR-76 / I-5 SB Ramps	X	X	X			
Harbor Dr	**AA2**	Harbor / Vandegrift / I-5 NB Ramps	X	X	X			

Source: Wilson & Company, August 2007

Ramp and Adjacent Intersection Operations (HCM Methodologies)

Even with the additional ramp intersection improvements listed in Table 4.1, the I-5 North Coast Corridor Project would cause additional delays at a number of ramp and adjacent intersections, when compared to the Year 2030 No-Build scenario. **Table 4.7** summarizes the ramp and adjacent intersections that would operate at LOS E or F under the respective Year 2030 Build scenarios, and with an increase in total intersection delay greater than two seconds over the Year 2030 No-Build scenario.

Table 4.7 Summary of the Intersections Impacted by the I-5 North Coast Corridor Project

Interchange	ID	Location	AM			PM		
			Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR
La Jolla Village Dr	**A4**	Villa La Jolla / La Jolla Village Dr	X					
	A6	I-5 NB Ramps / La Jolla Village Dr	X					
Genesee Ave	**B1**	I-5 SB Ramps / Genesee Ave				X		X
	B2	I-5 NB Ramps / Genesee Ave	X	X		X		
Roselle St	**C1**	Roselle St / I-5 SB On Ramp **	X	X	X	X	X	X
	C2	Roselle St / I-5 NB Off Ramp*	X	X	X	X	X	X
	C3	Roselle St / Sorrento Valley Blvd				X	X	
	C4	Sorrento Valley Rd / Sorrento Valley Blvd	X	X		X	X	
Carmel Mtn Rd	**D1**	I-5 Bypass SB Ramps / Carmel Mtn Rd				X	X	X
Del Mar Heights Rd	**F2**	I-5 NB Ramps / Del Mar Heights Rd	X	X				
Birmingham Dr	**J1**	I-5 SB Ramps / Birmingham Dr **	X	X	X	X	X	X
	J2	I-5 NB Ramps/ Birmingham Dr *	X	X	X	X	X	X
Santa Fe Dr	**K1**	I-5 SB Ramps / Santa Fe Dr **	X	X	X	X	X	X
Encinitas Blvd		I-5 SB Ramps / Encinitas Blvd				X	X	X
Poinsettia Ln	**O1**	Avenida Encinas / Poinsettia Ln				X	X	

Table 4.7 Summary of the Intersections Impacted by the I-5 North Coast Corridor Project

Interchange	ID	Location	AM			PM		
			Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR
	O4	Paseo Del Norte / Poinsettia Ln				X	X	
Palomar Airport Rd	P1	Avenida Encinas / Palomar Airport Rd	X			X	X	X
	P2	I-5 SB Ramps / Palomar Airport Rd	X			X		
	P3	I-5 NB Ramps / Palomar Airport Rd	X		X	X	X	
	P4	Paseo del Norte / Palomar Airport Rd	X			X	X	
Cannon Rd	Q3	I-5 SB Ramps / Cannon Rd	X					
	Q5	Paseo Del Norte / Cannon Rd	X	X	X		X	X
Las Flores Dr	T1	I-5 SB Ramps / Las Flores Dr **				X	X	X
Las Flores Dr	T2	I-5 NB Ramps / Las Flores Dr **				X	X	X
Oceanside Blvd	X2	I-5 SB Ramps / Oceanside Blvd	X					
	X3	I-5 NB Ramps / Oceanside Blvd				X		
SR-76	Z3	I-5 NB Ramps / SR-76				X	X	X

Source: Wilson & Company, August 2007

Ramp Meter Delays

The I-5 North Coast Corridor Project would cause additional ramp meter delays at a number of interchange locations. **Table 4.8** summarizes the ramp meter locations where the ramp delay would increase from either less than 15 minutes under the Year 2030 No-Build scenario to over 15 minutes with the I-5 North Coast Corridor Project or from less than 25 minutes under the Year 2030 No-Build scenario to over 25 minutes with the I-5 North Coast Corridor Project.

Table 4.8 Summary of Ramp Meter Locations Impacted by the I-5 North Coast Corridor Project

Interchange	ID	Location	AM			PM		
			Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR
La Jolla Village Dr	A5	WB La Jolla Village Dr to SB I-5				X		X
	A5	EB La Jolla Village Dr to SB I-5				X		
Genesee Ave	B1	Genesee Ave to SB I-5	X					
	B2	Genesee Ave to NB I-5	X	X	X			
Via De La Valle	G2	EB Via De La Valle to SB I-5				X	X	X
Lomas Santa Fe	H2	WB Lomas Santa Fe to SB I-5				X	X	X
	H3	EB Lomas Santa Fe to NB I-5				X	X	X
Manchester Ave	I1	Manchester Ave to SB I-5				X		
	I2	Manchester Ave to NB I-5				X		
Cannon Rd	Q3	Santa Fe Dr to SB I-5	X			X		
Carlsbad Village Dr	S1	Carlsbad Blvd to SB I-5	X	X	X			

Table 4.8 Summary of Ramp Meter Locations Impacted by the I-5 North Coast Corridor Project

Interchange	ID	Location	AM			PM		
			Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR	Year 2030 10+4 without DAR	Year 2030 10+4 with DAR	Year 2030 8+4 with DAR
Las Flores Dr	T1	Las Flores Dr to SB I-5	X	X	X	X	X	X
Cassidy St	U2	Cassidy St to SB I-5	X	X	X	X	X	X
Oceanside Blvd	X2	Oceanside Blvd to SB I-5				X		X
Mission Ave	Y2	Mission Ave to NB I-5				X	X	X

Source: Wilson & Company, August 2007

Arterial Roadway Operations

The I-5 North Coast Corridor Project also would increase forecast traffic volumes and impact operations on a number of intersecting arterial roadway segments. **Table 4.9** summarizes the arterial roadway segments that would operate *under capacity* under the Year 2030 No-Build scenario and *over capacity* under the various Year 2030 Build scenarios.

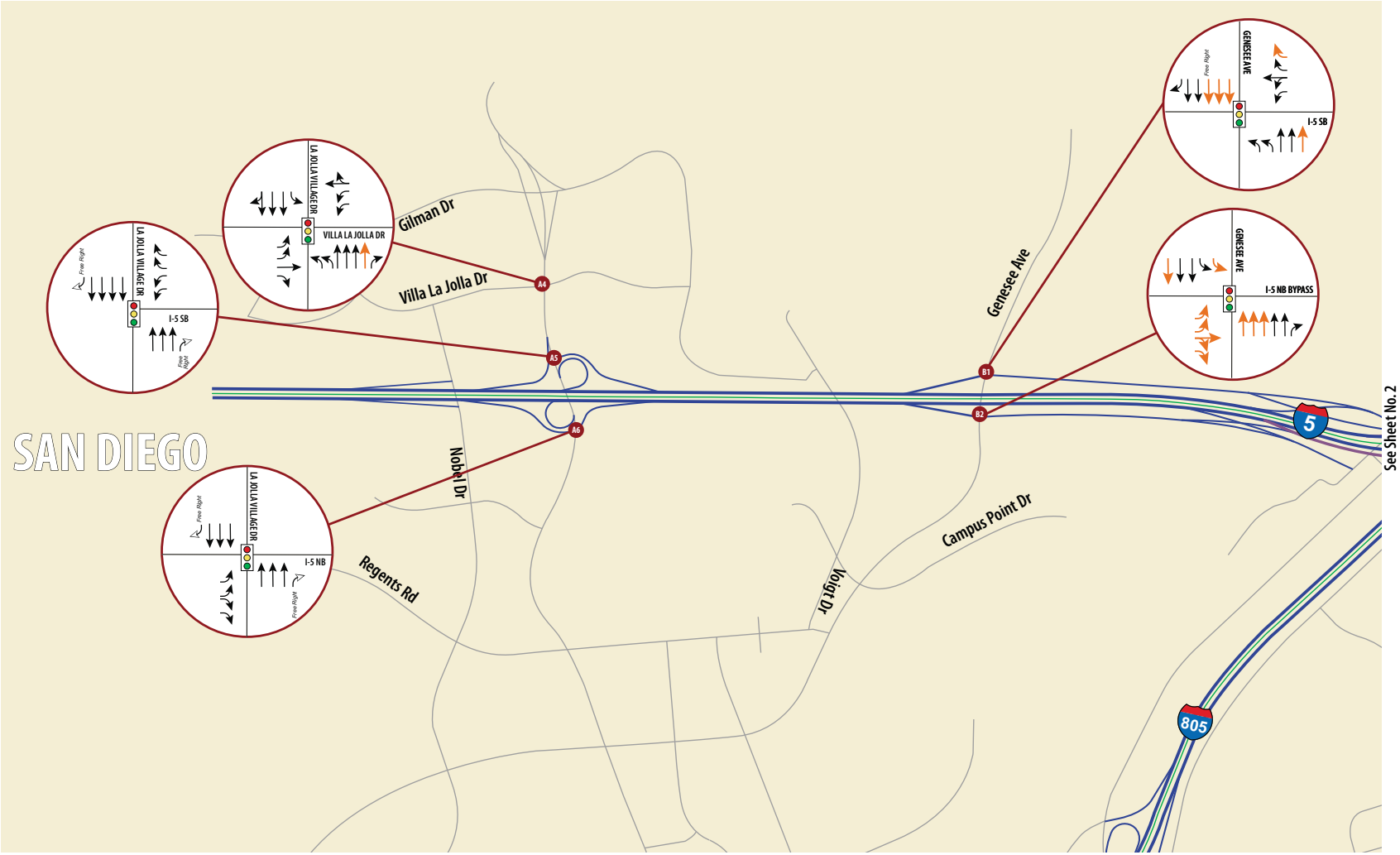
Table 4.9 Summary of Roadway Segments Impacted by the I-5 North Coast Corridor Project

Street	From	To	Year 2030 10+4 w/o DAR	Year 2030 10+4 w/ DAR	Year 2030 8+4 w/ DAR
Via De La Valle	I-5	San Andres Dr			X
Leucadia Blvd	I-5	Saxony Rd	X	X	X
Cannon Rd	Paseo Del Norte	Legoland Dr		X	

Source: Wilson & Company, August 2007

Appendix A

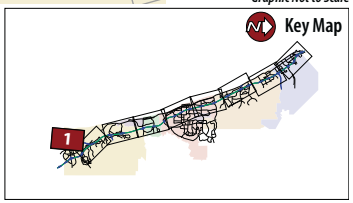
Figure 3-1. Year 2030 No-Build – Intersection Lane Configuration



LEGEND

- Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale



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NORTH COAST INTERSTATE 5 CORRIDOR

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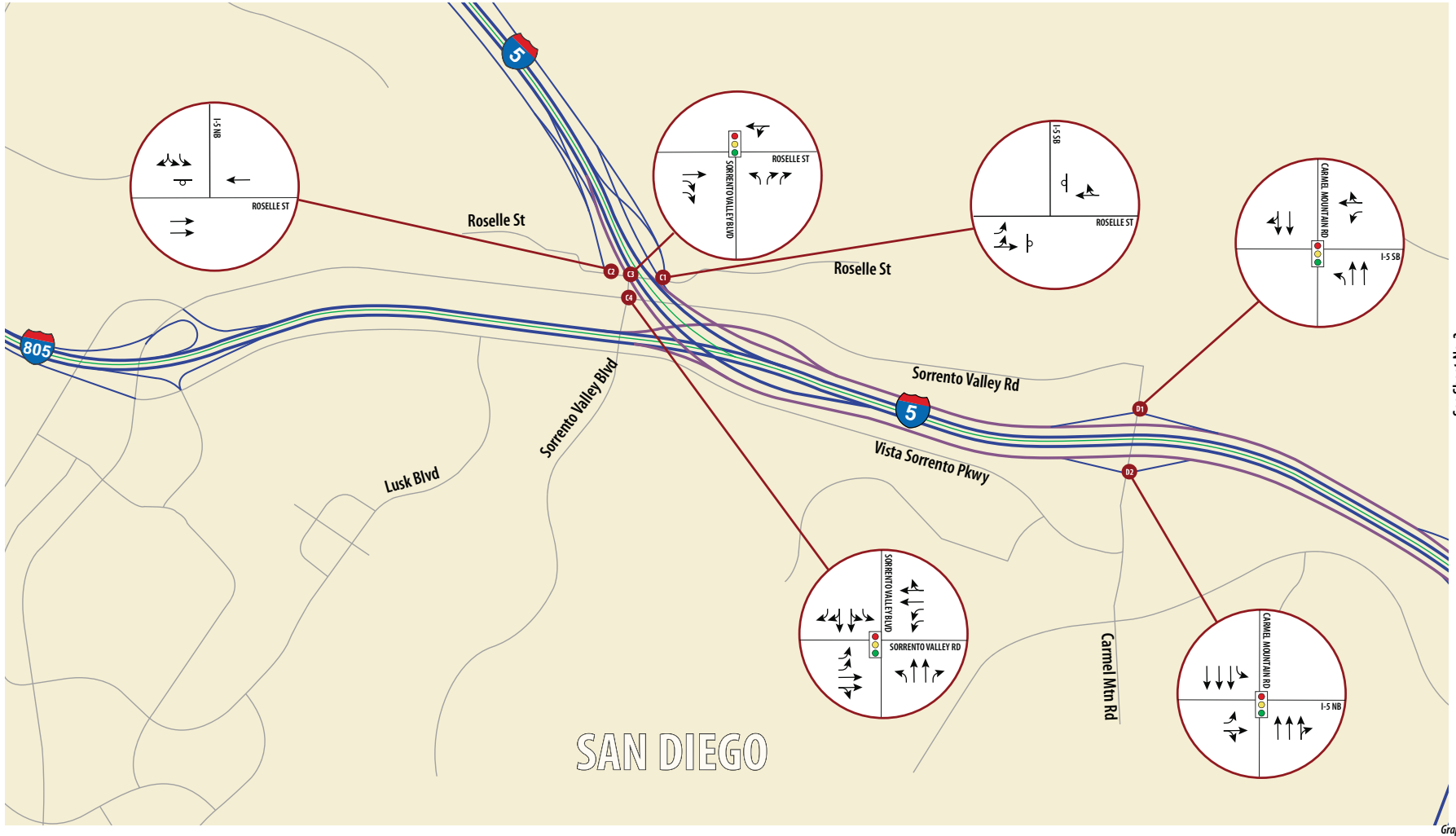
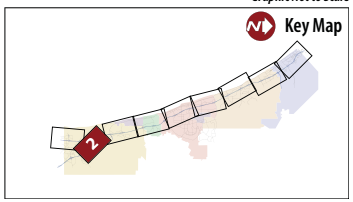
FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION

See Sheet No. 1



See Sheet No. 3

Graphic Not to Scale



LEGEND

- Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

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NORTH COAST INTERSTATE 5 CORRIDOR

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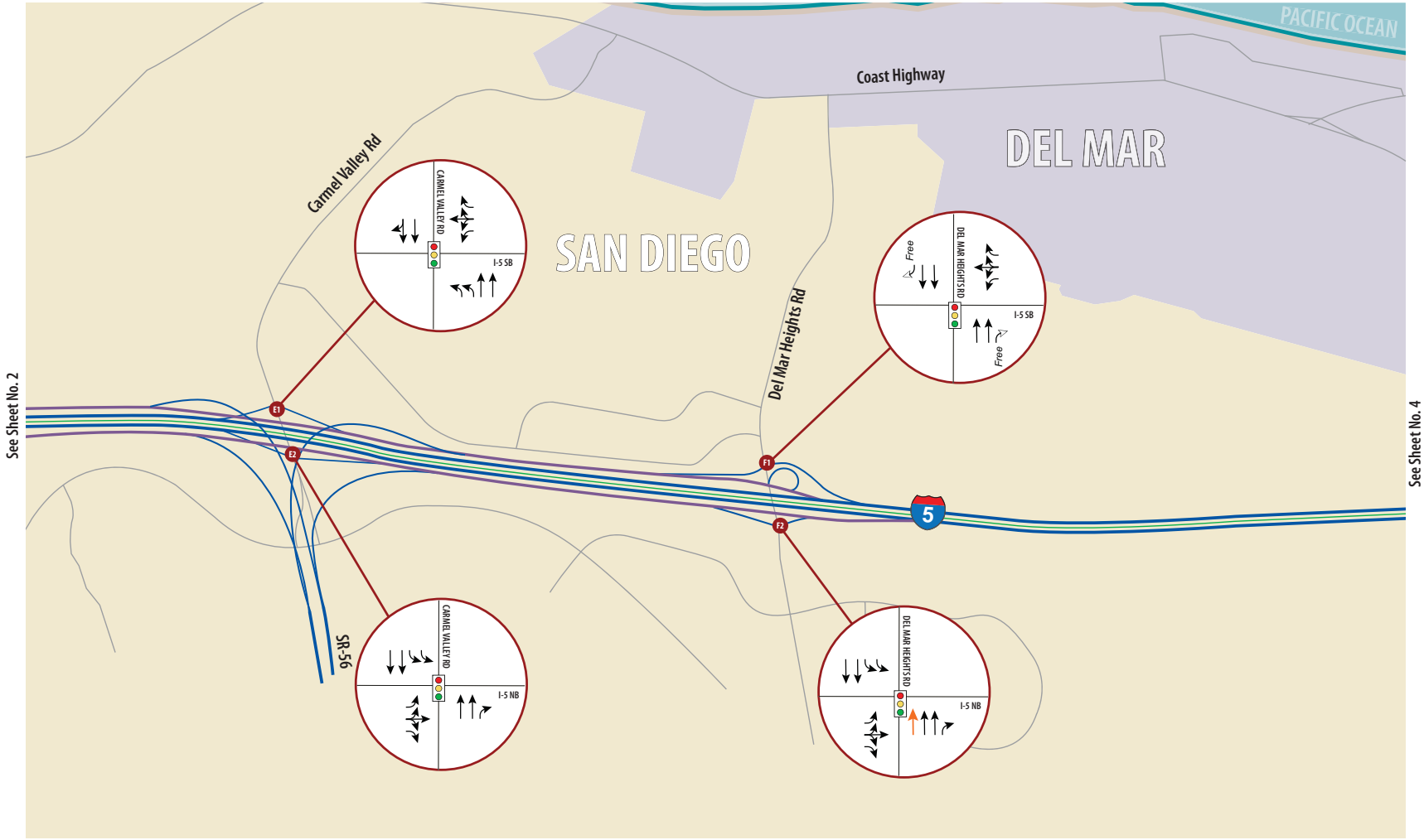
FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION



LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale

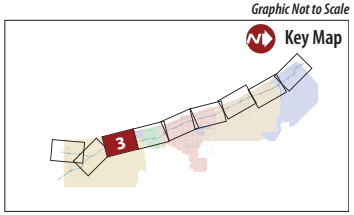
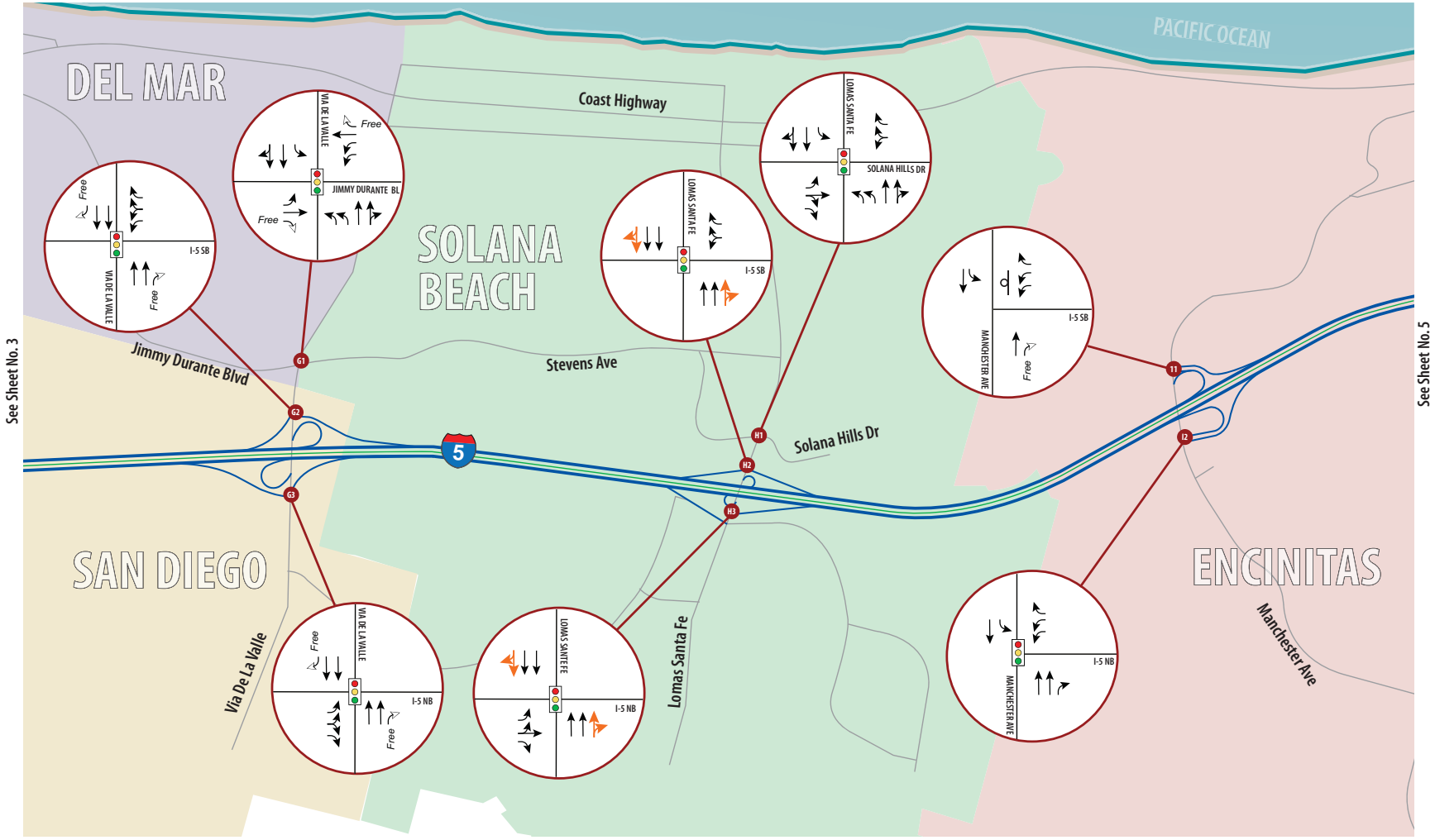


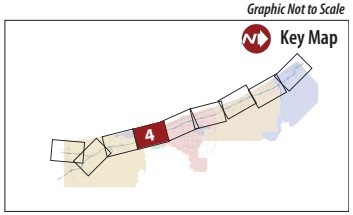
FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION



LEGEND

- Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale



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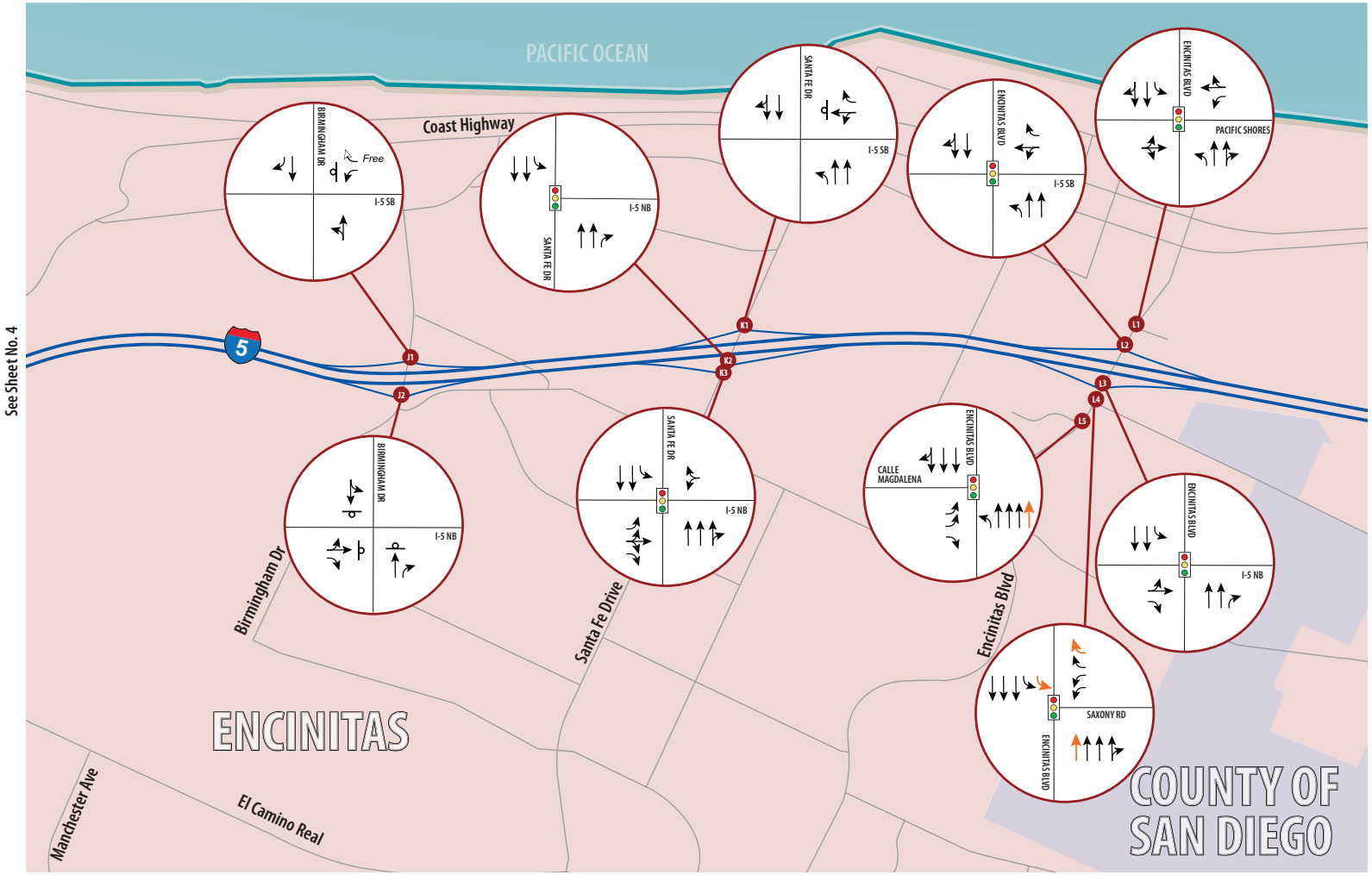
NORTH COAST INTERSTATE 5 CORRIDOR

WILSON & COMPANY ENGINEERS & ARCHITECTS

FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION



LEGEND

- Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale

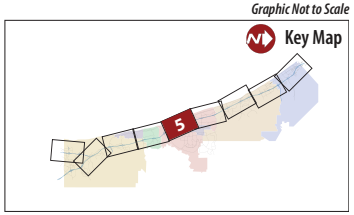
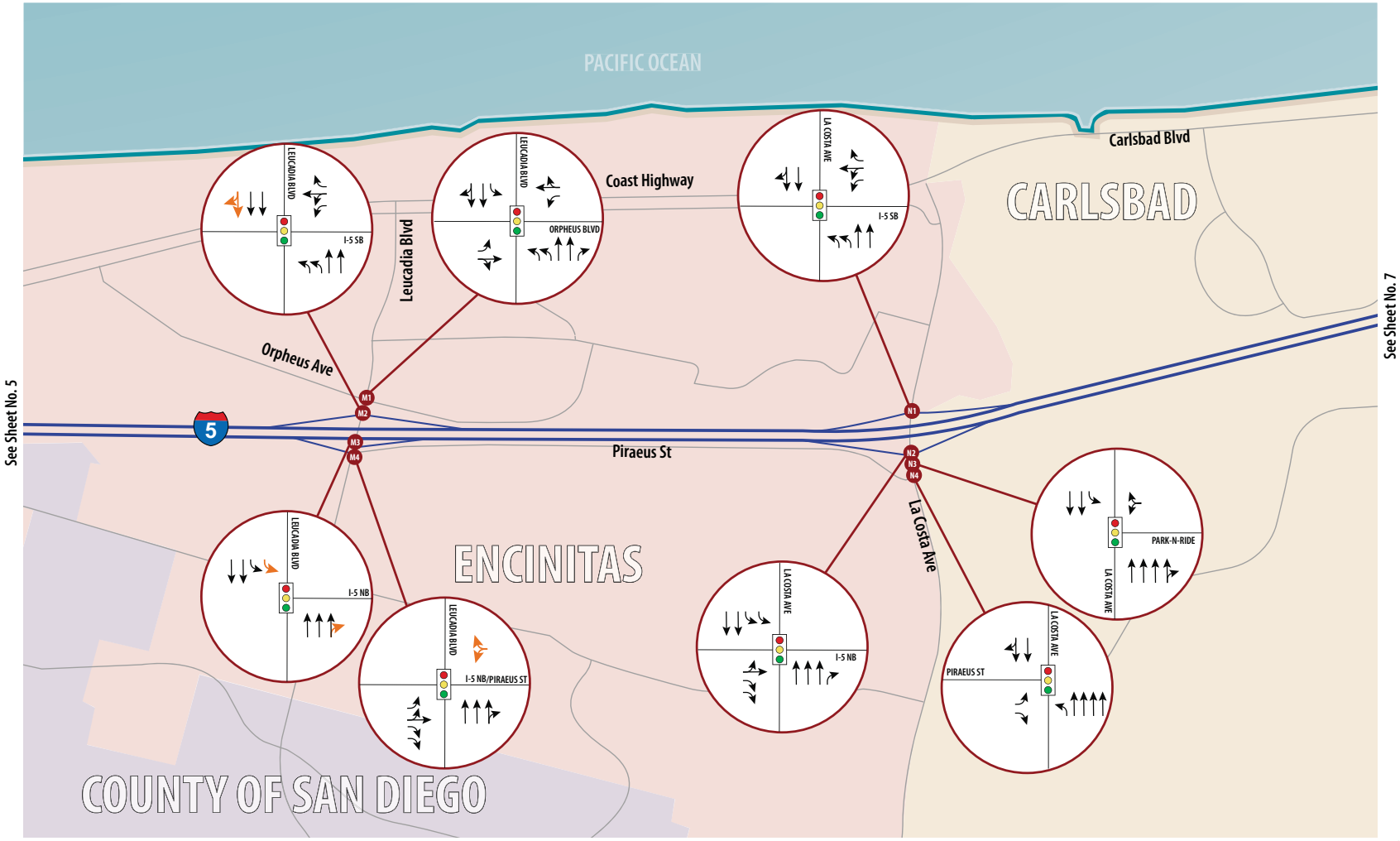


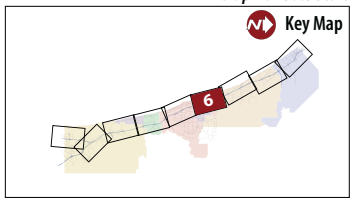
FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION



LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale



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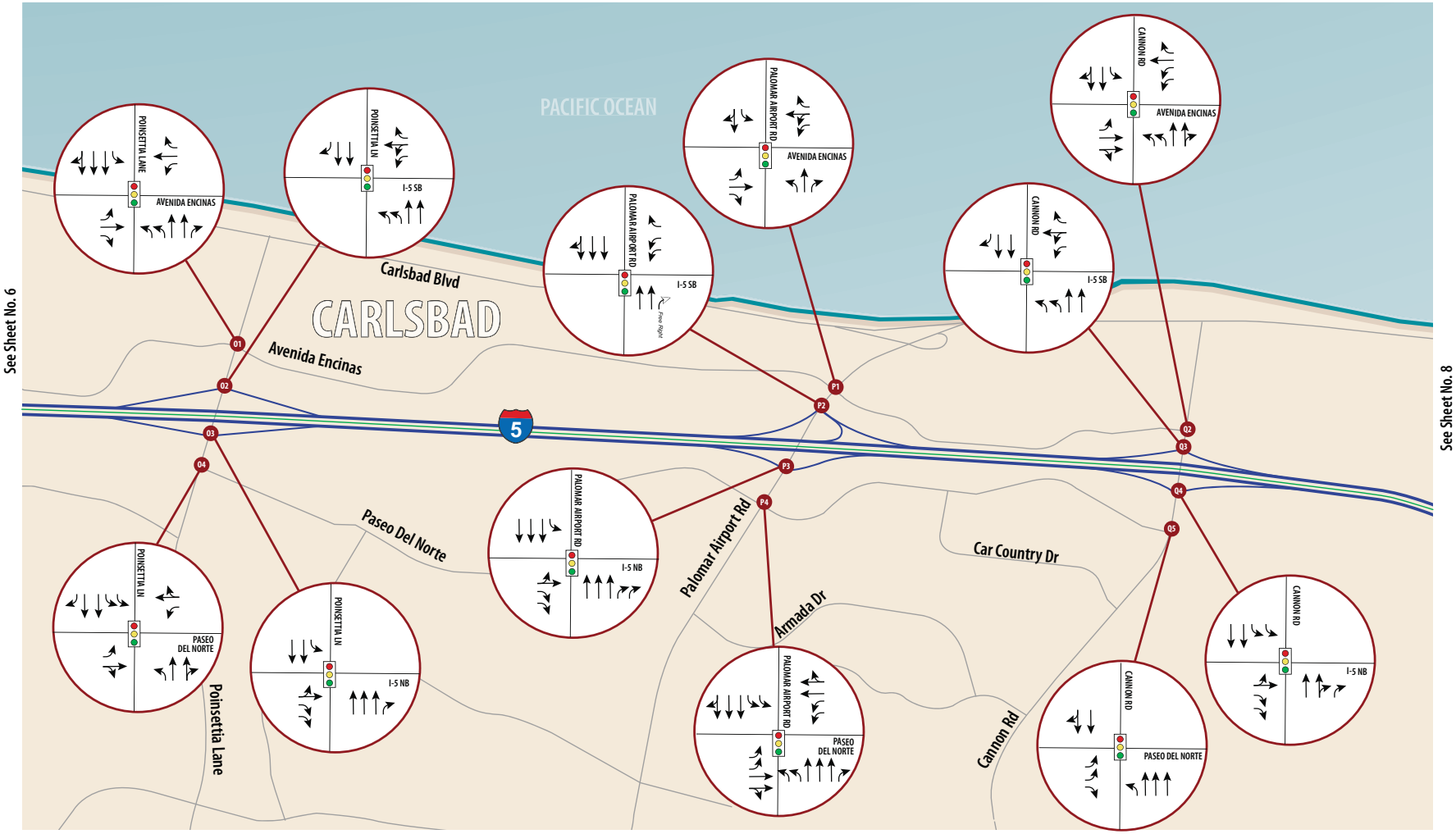
NORTH COAST INTERSTATE 5 CORRIDOR

WILSON & COMPANY ENGINEERS & ARCHITECTS

FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION



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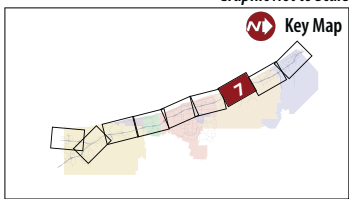
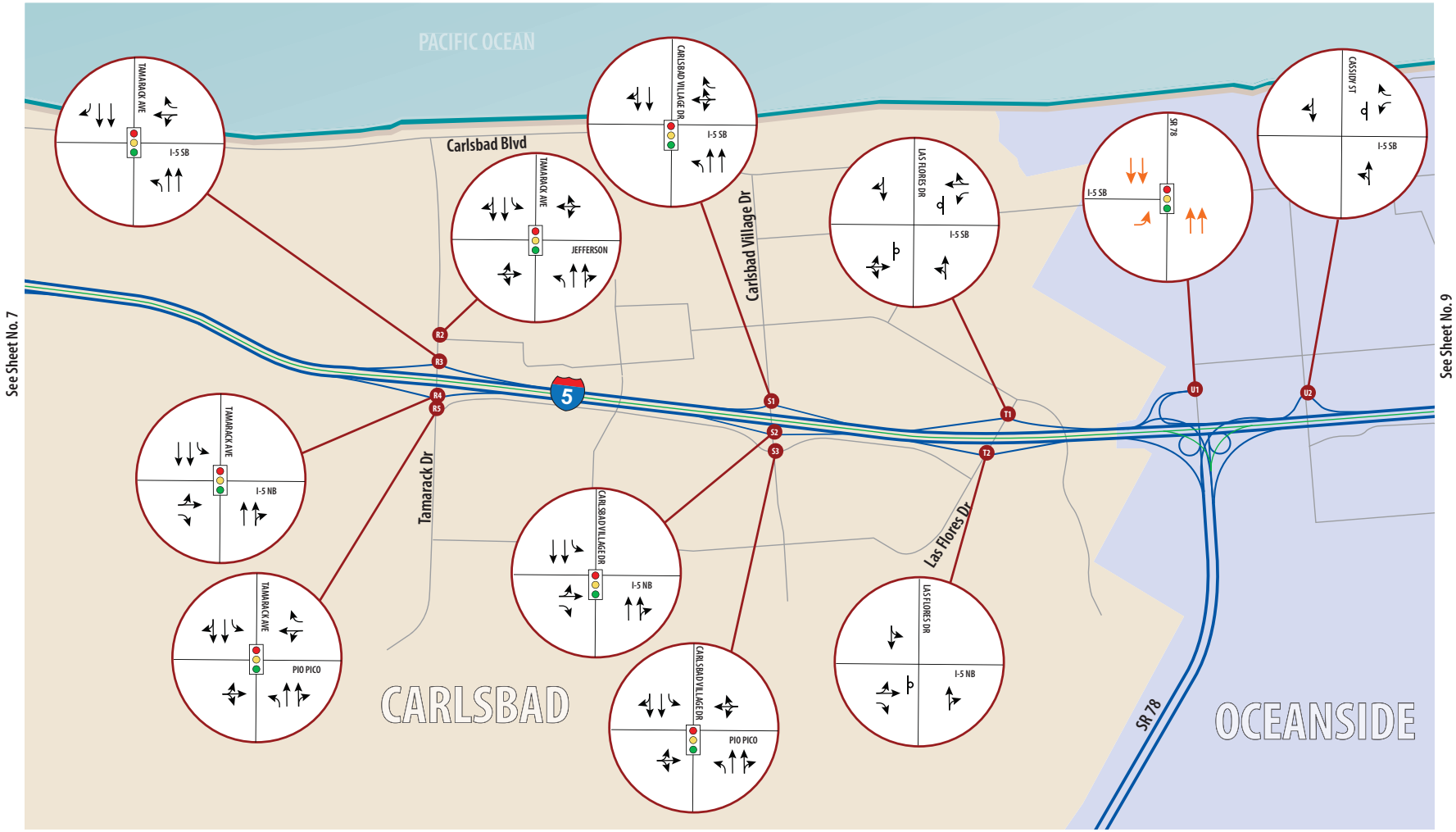


LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION



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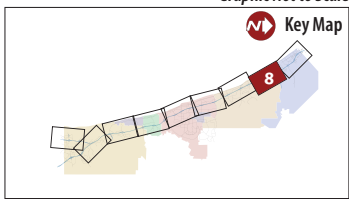
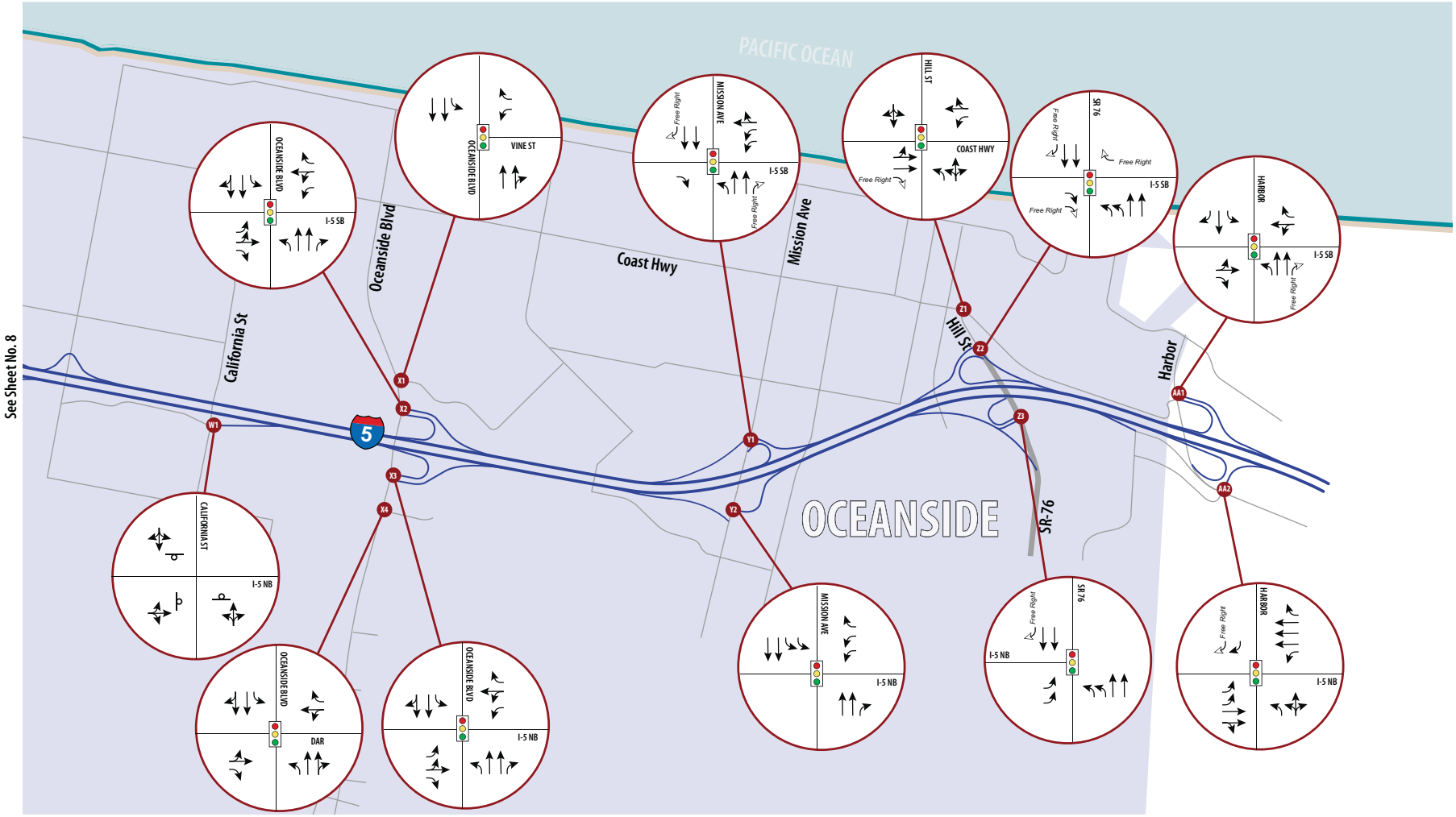


LEGEND

- XX Intersection ID Number
- Lane Configuration
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION



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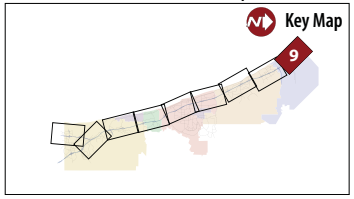

LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- Local Network Improvement (Local CE/Master Plan)

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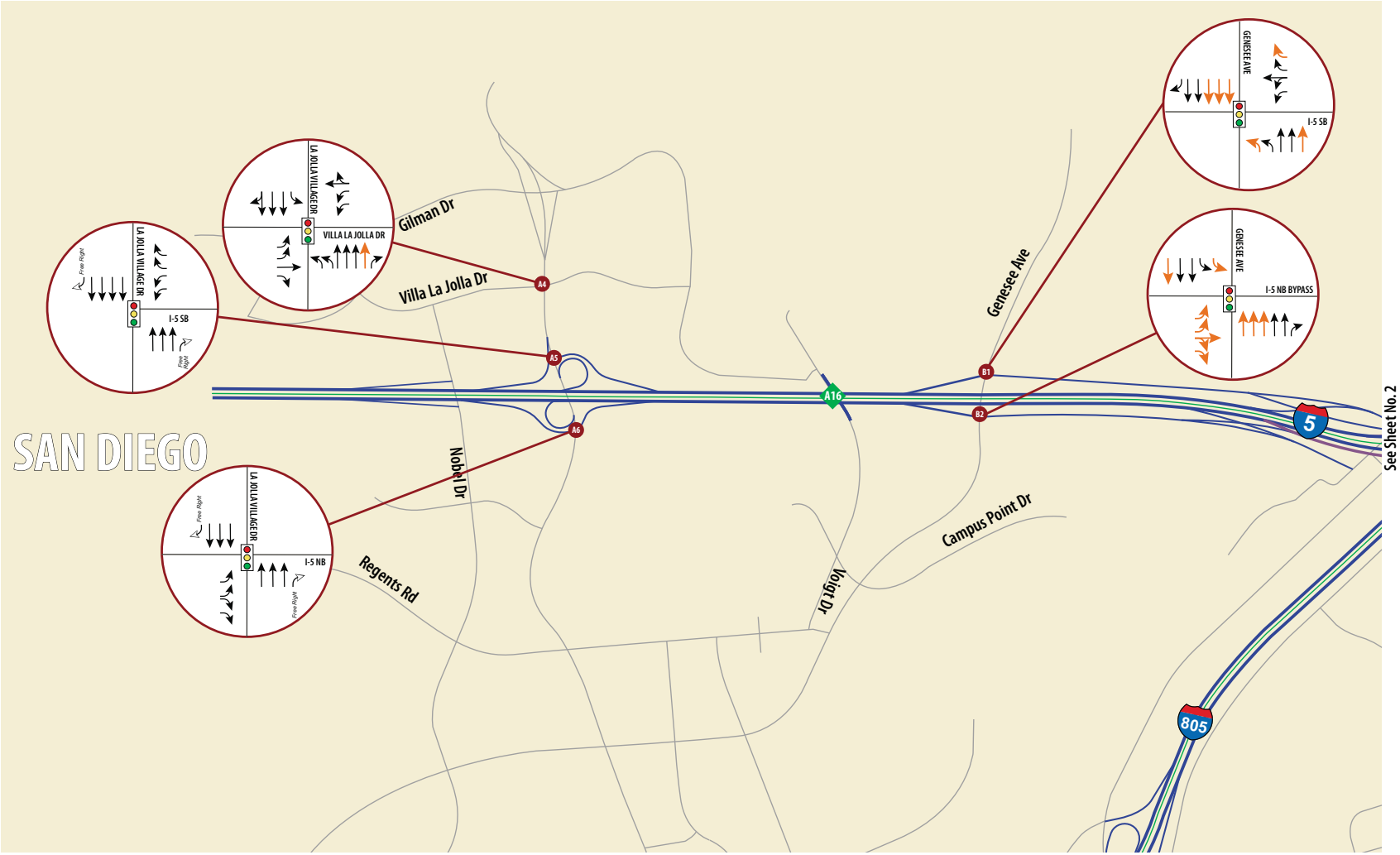
FIGURE 3-1. YEAR 2030 NO BUILD - INTERSECTION LANE CONFIGURATION

Appendix B

Figure 3-2. Year 2015/2030 Build Scenarios – Intersection Lane Configuration



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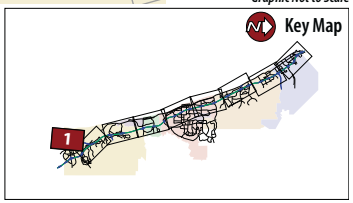

LEGEND

- Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

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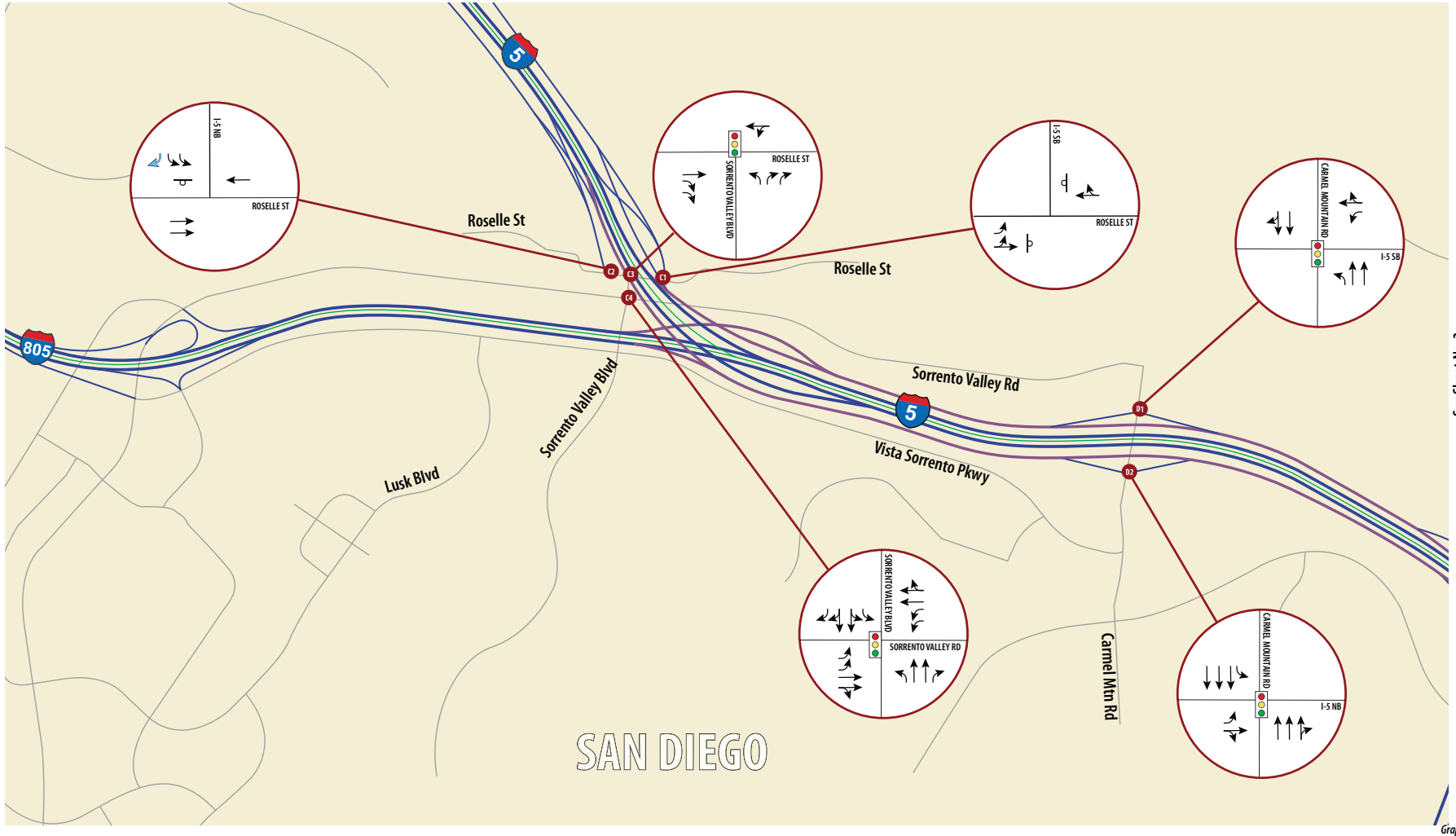
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION

See Sheet No. 1



See Sheet No. 3

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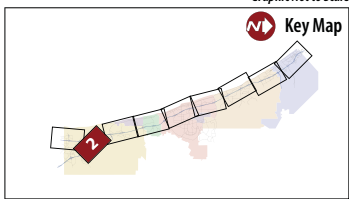

LEGEND

- Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

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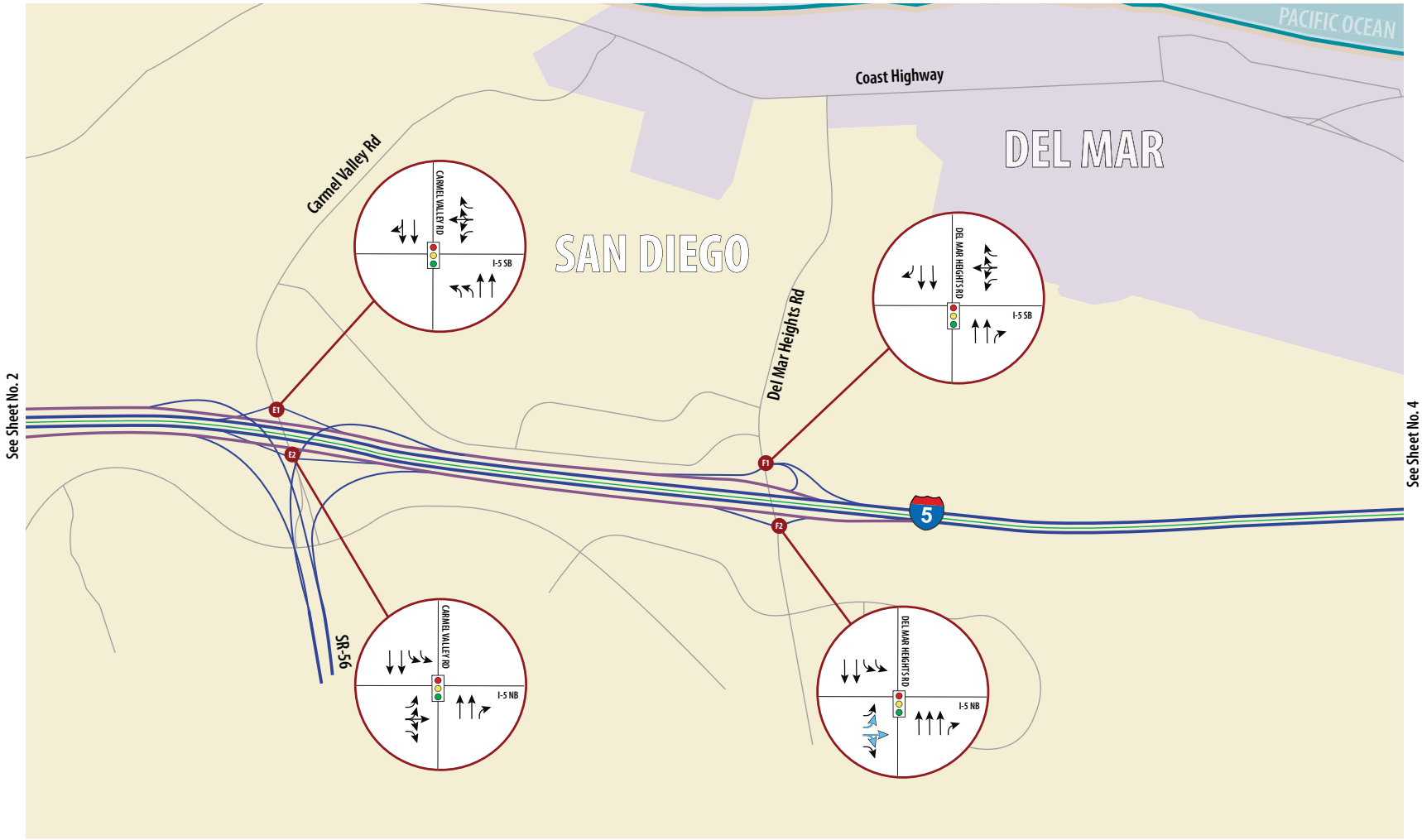
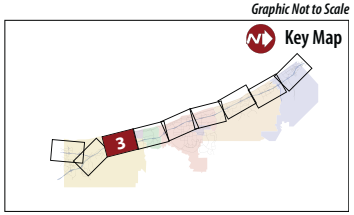
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION



LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale



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NORTH COAST INTERSTATE 5 CORRIDOR

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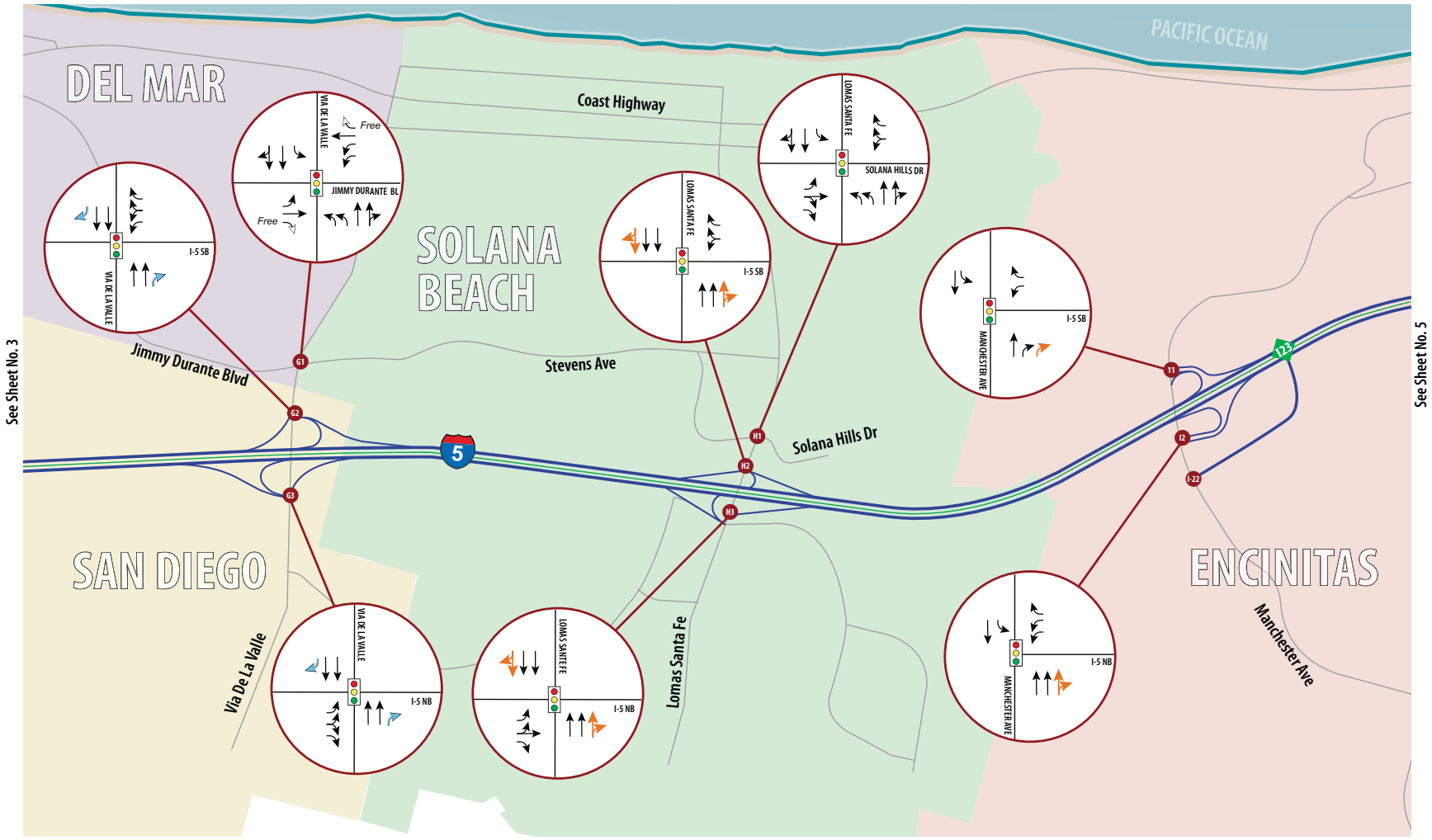
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION



LEGEND

- Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale

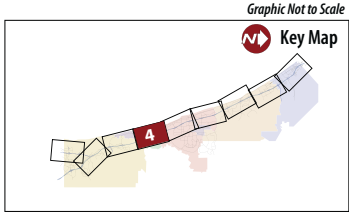


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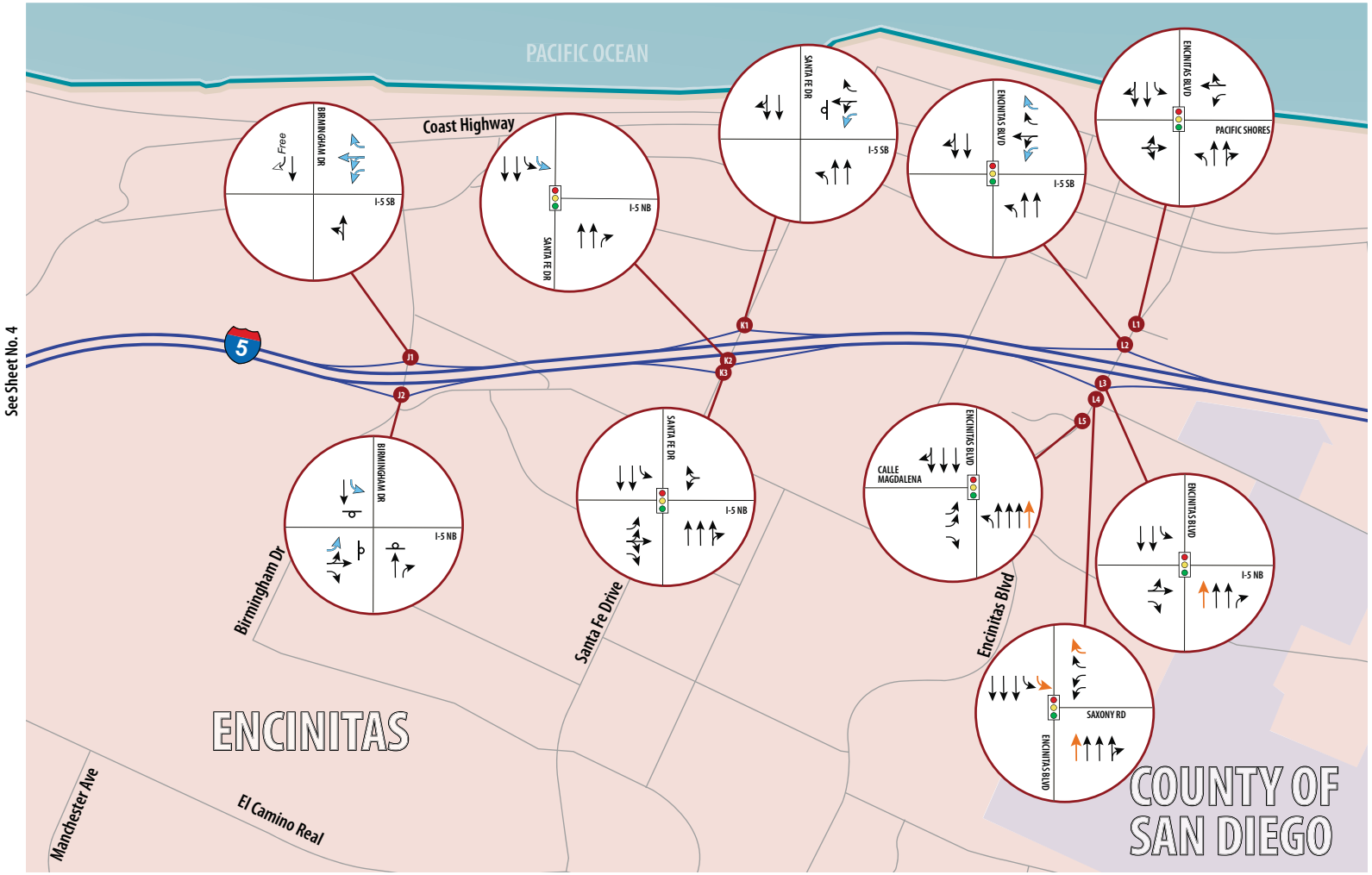
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION



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NORTH COAST INTERSTATE 5 CORRIDOR

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LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale

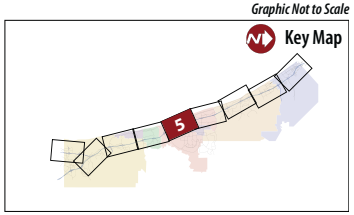
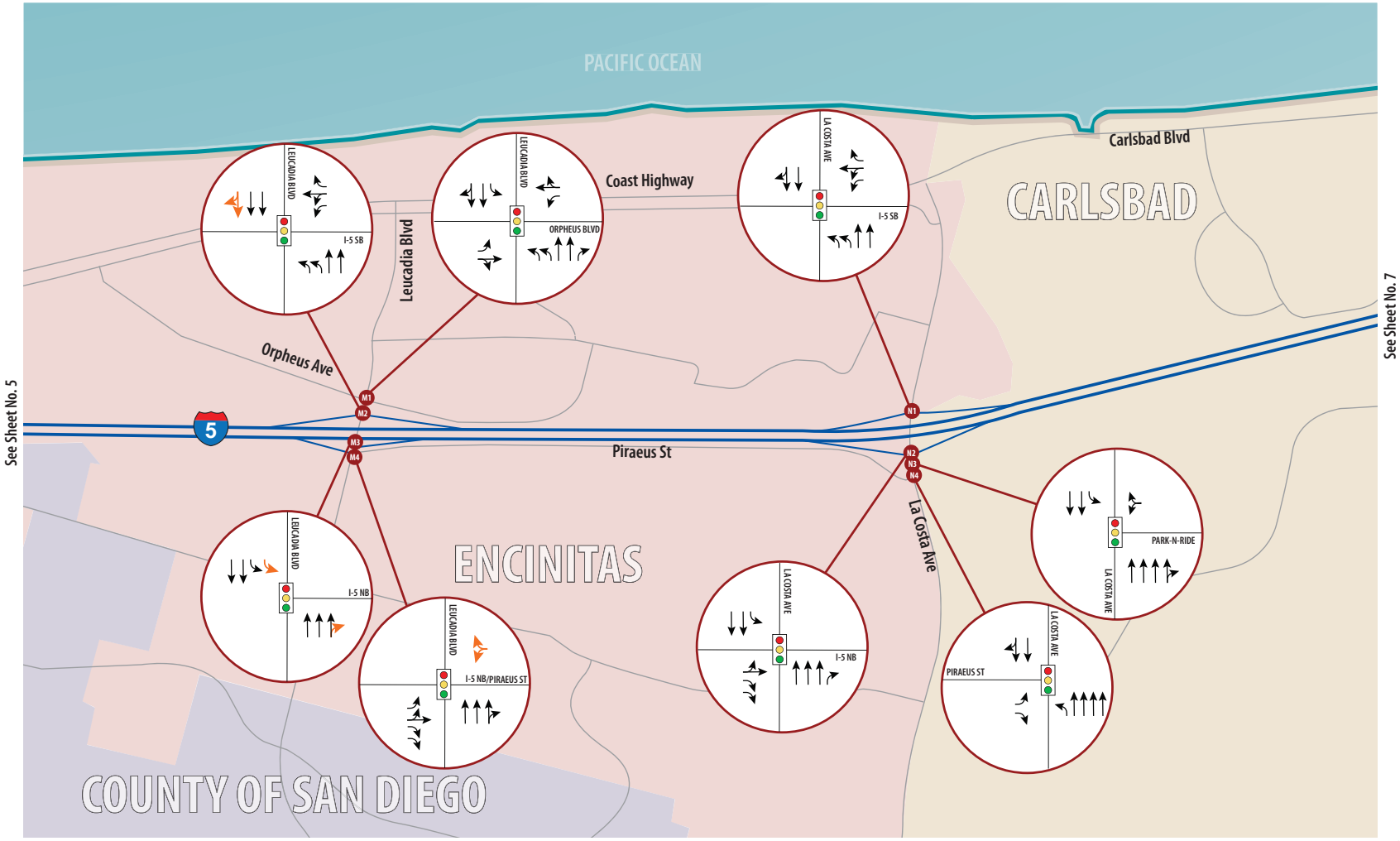


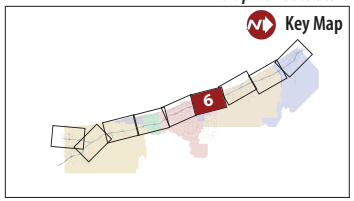
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION



LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale



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NORTH COAST INTERSTATE 5 CORRIDOR

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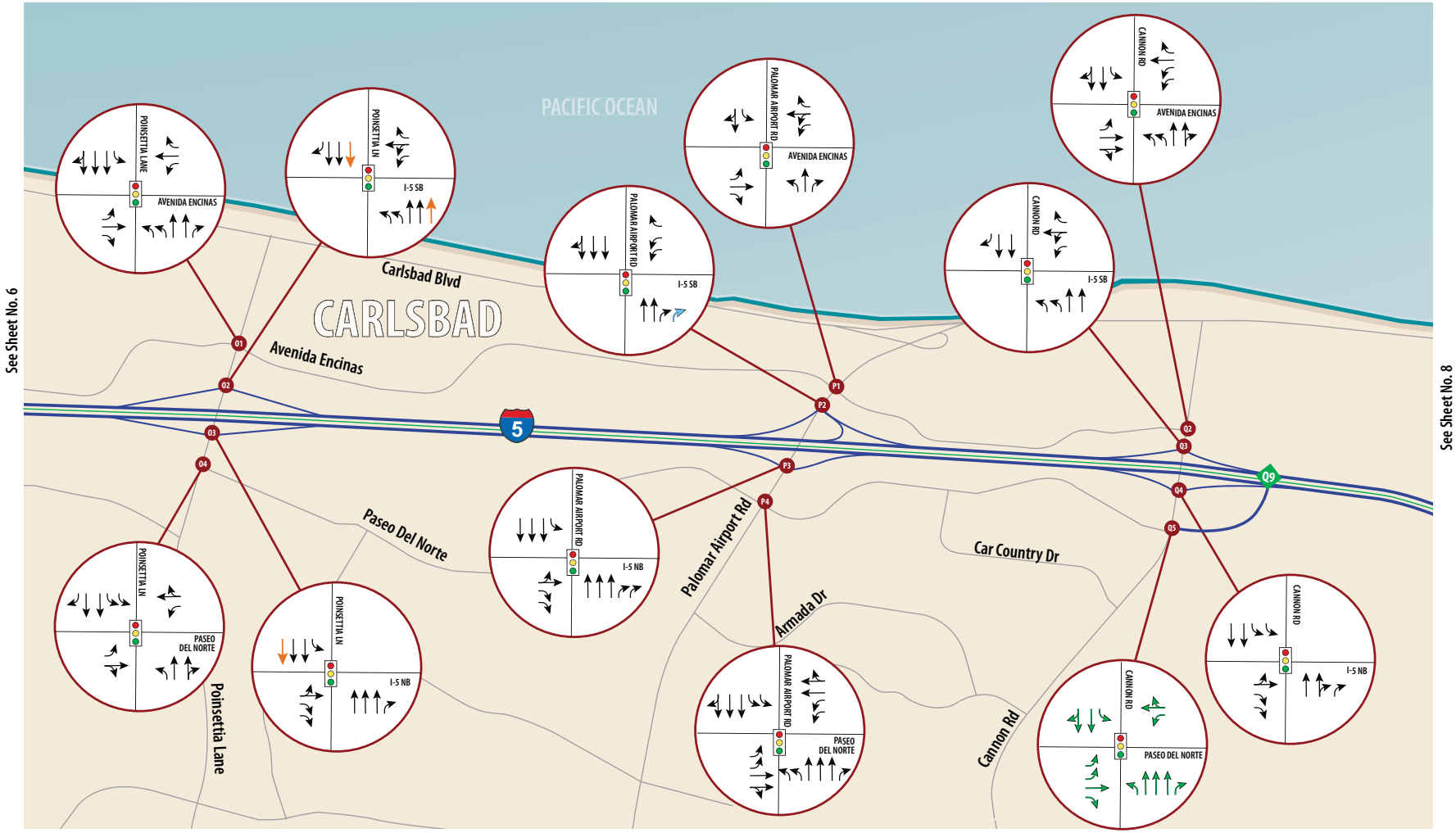
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION



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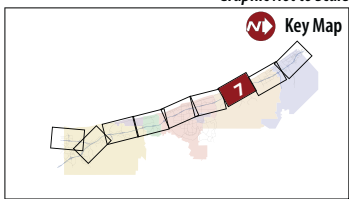

LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

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NORTH COAST INTERSTATE 5 CORRIDOR

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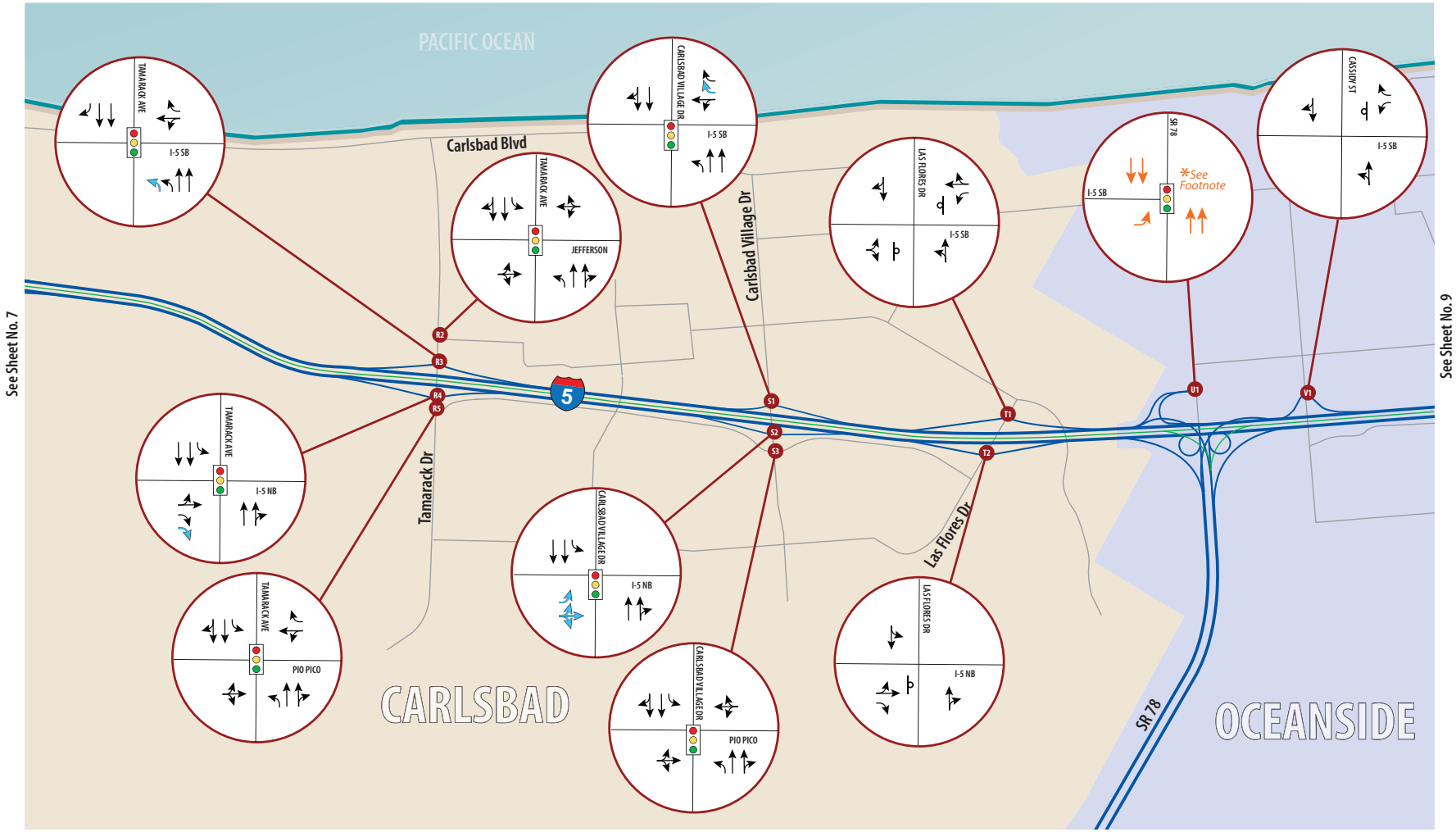
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION



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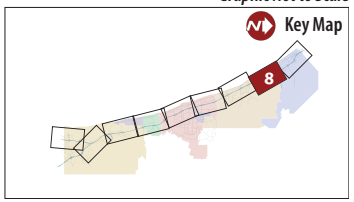

LEGEND

- XX Intersection ID Number
- Lane Configuration
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- I-5 North Coast Corridor Project Improvement
- In WITH DAR Scenario Only
- Assumed Future Network Laneage
- * Movements Removed from Existing Conditions Due to Construction of New Interchange Ramps

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NORTH COAST INTERSTATE 5 CORRIDOR

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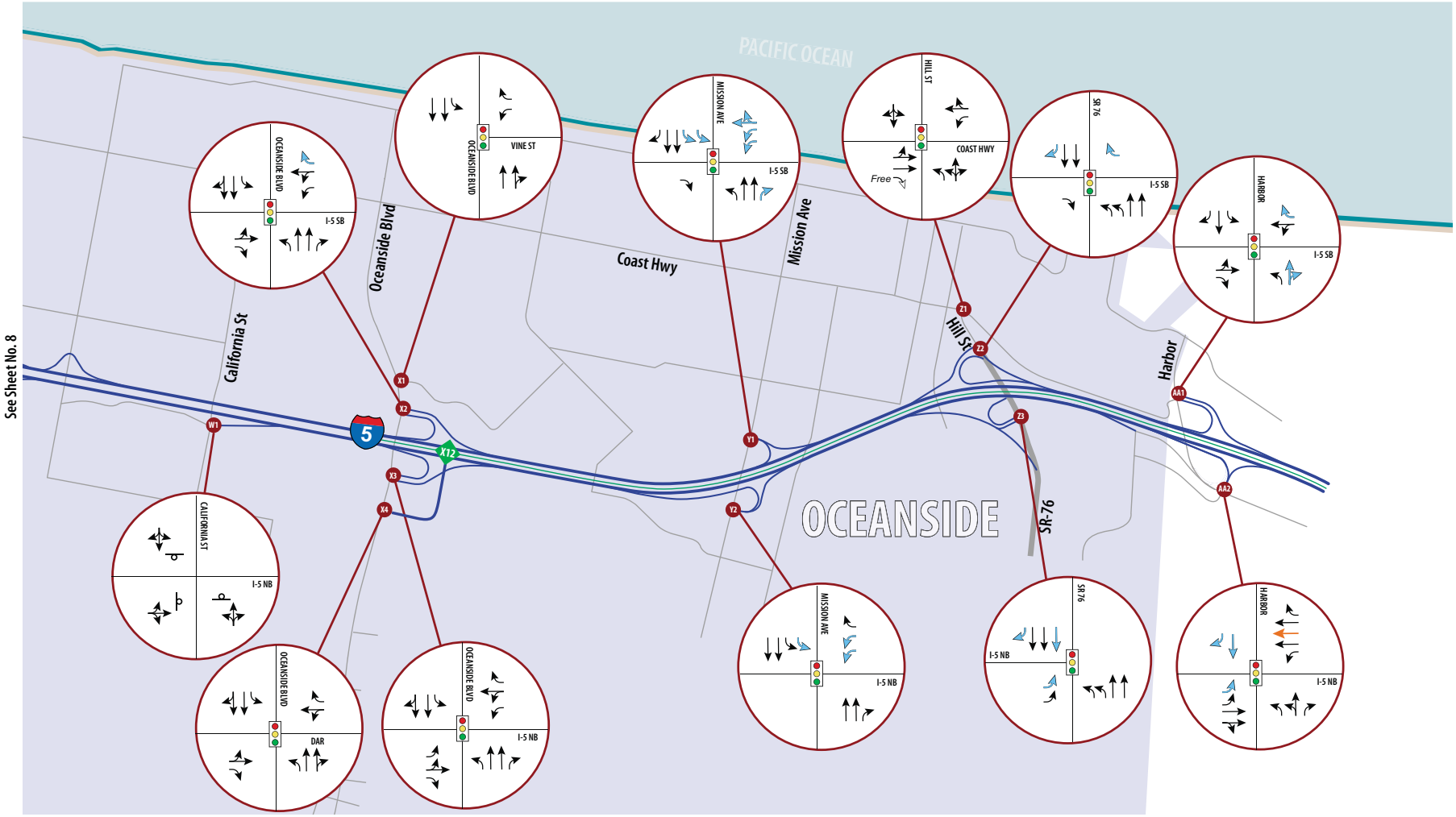
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION



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N·O·R·T·H C·O·A·S·T INTERSTATE 5 CORRIDOR

WILSON & COMPANY ENGINEERS & ARCHITECTS

LEGEND

- XX Intersection ID Number
- Traffic Signal
- Stop Sign
- Free Right Turn
- U-Turn
- Existing Lane Configuration
- I-5 North Coast Corridor Proposed Improvement
- DAR Associated Improvement
- Local Network Improvement (Local CE/Master Plan)

Graphic Not to Scale

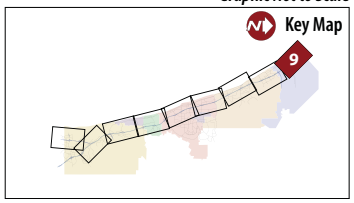
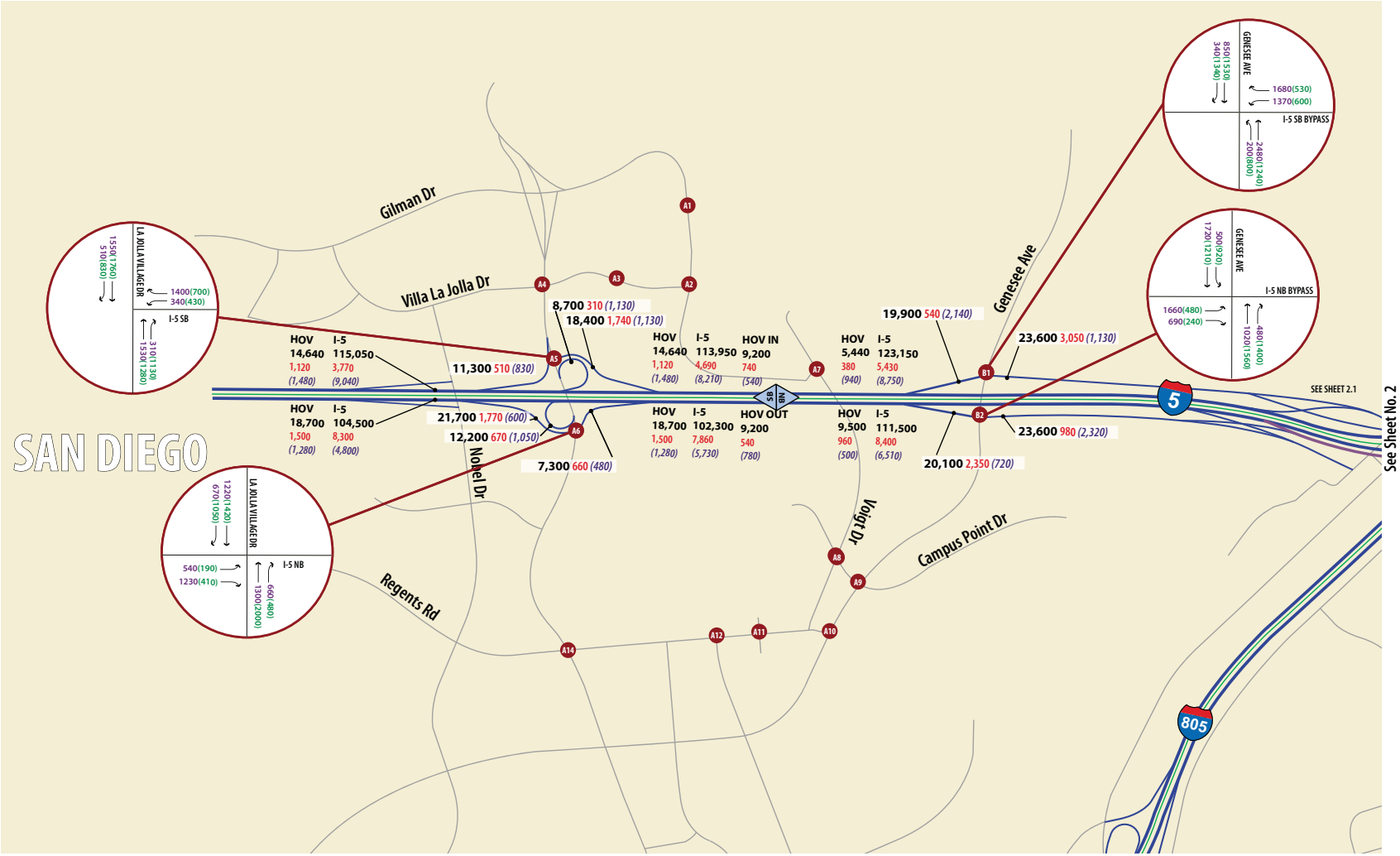


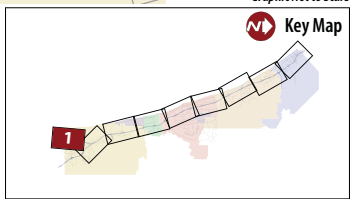
FIGURE 3-2. YEAR 2030/2015 BUILD SCENARIOS - INTERSECTION LANE CONFIGURATION

Appendix C

Figure 3-3. Year 2030 No-Build – Traffic Forecast Data



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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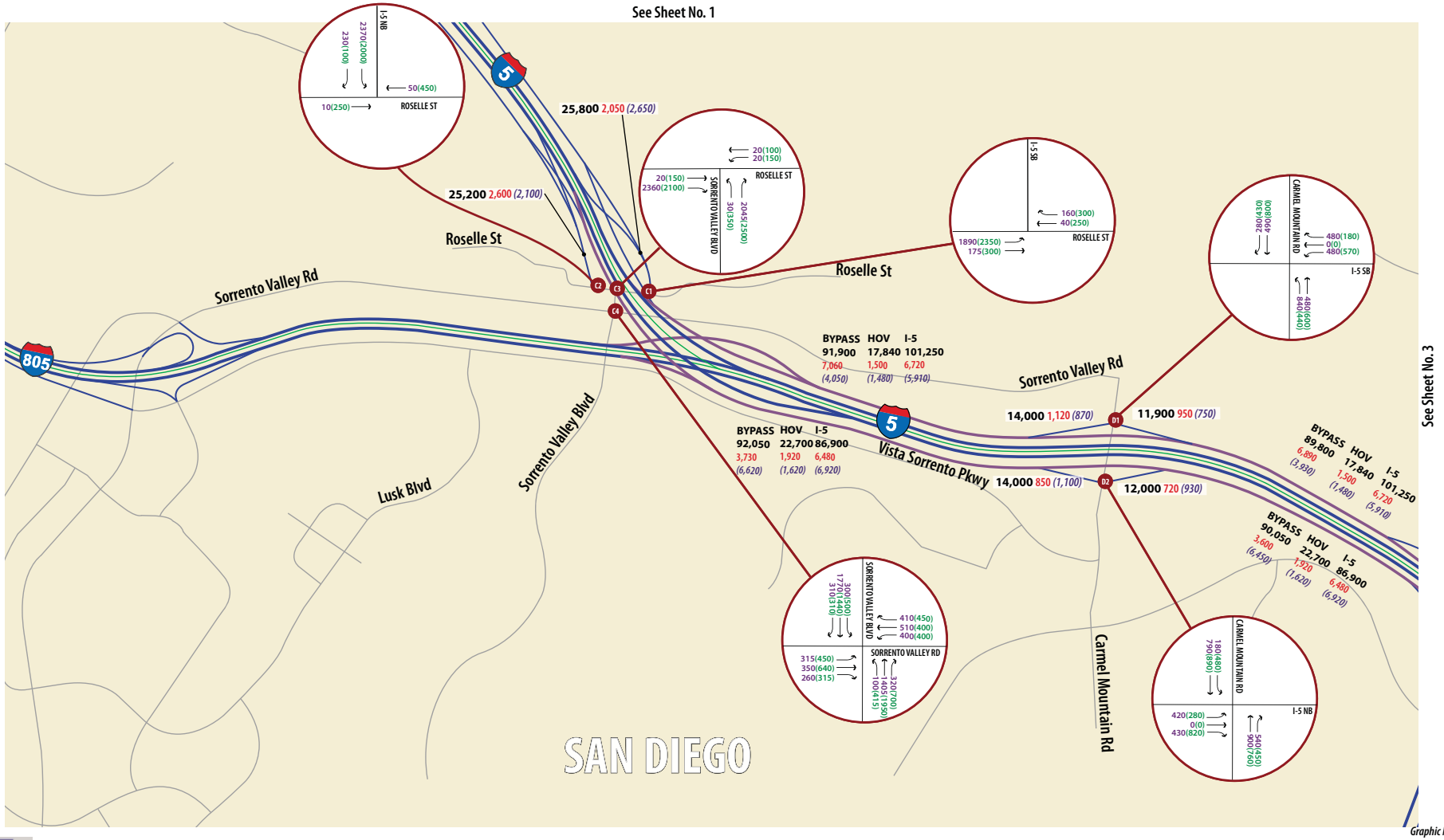
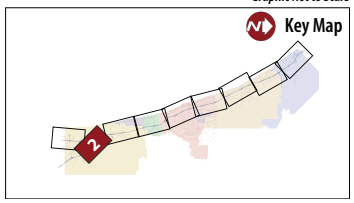
FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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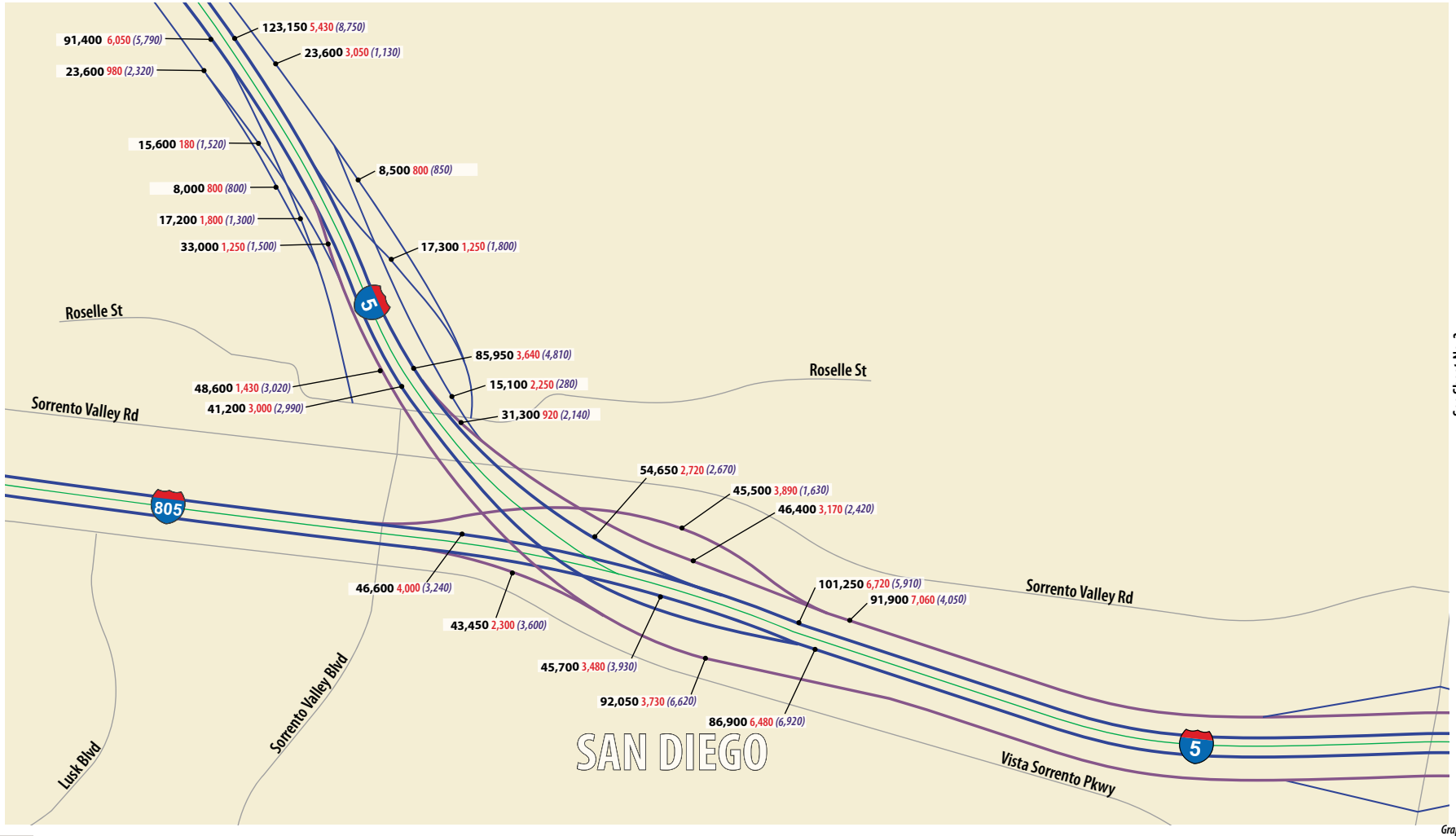
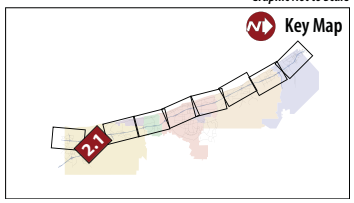
FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA

See Sheet No. 1



See Sheet No. 3

Graphic Not to Scale



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
S E	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

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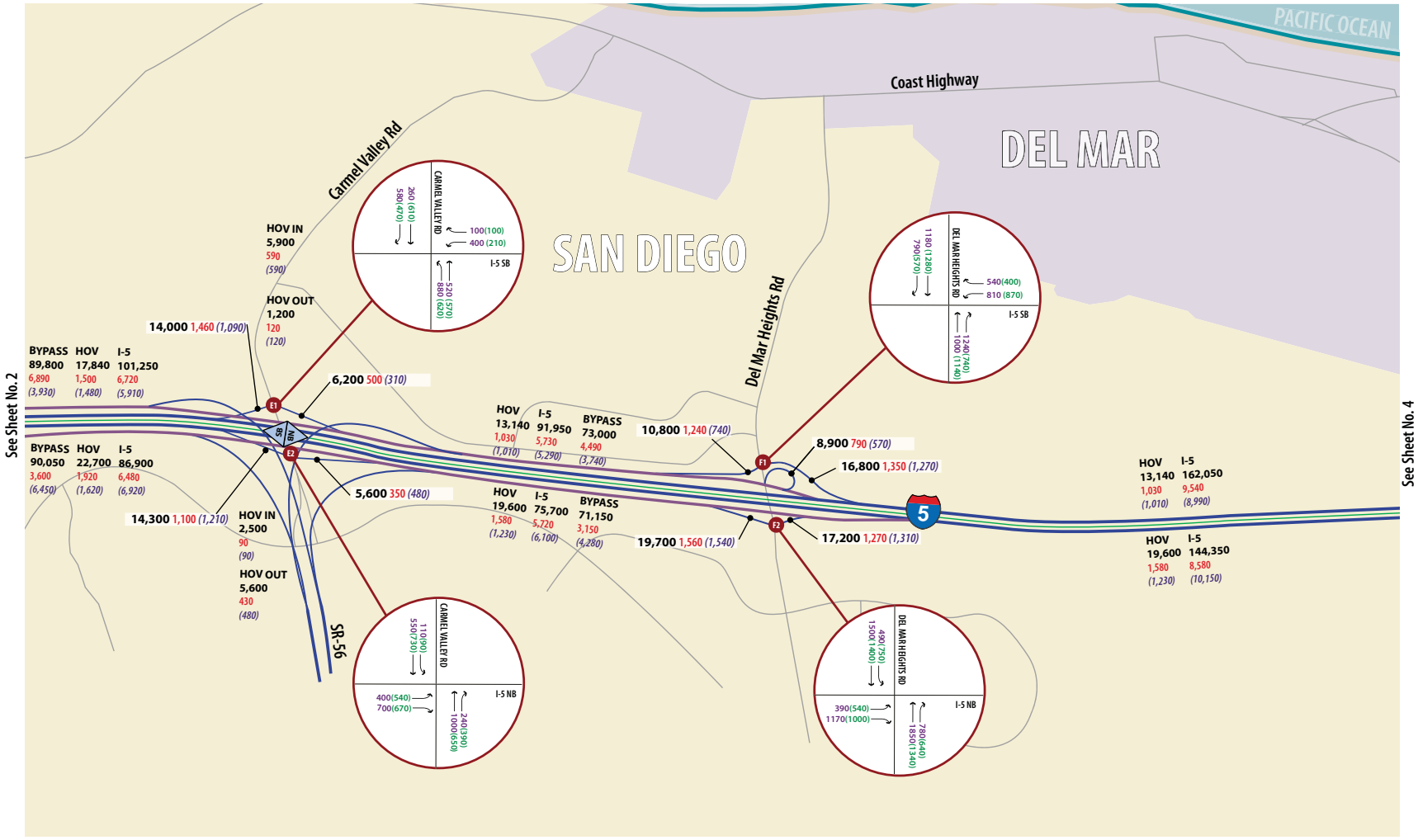
FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
HOV	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

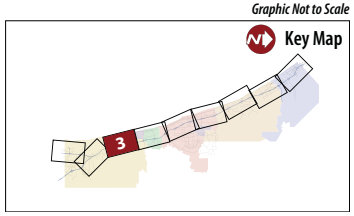
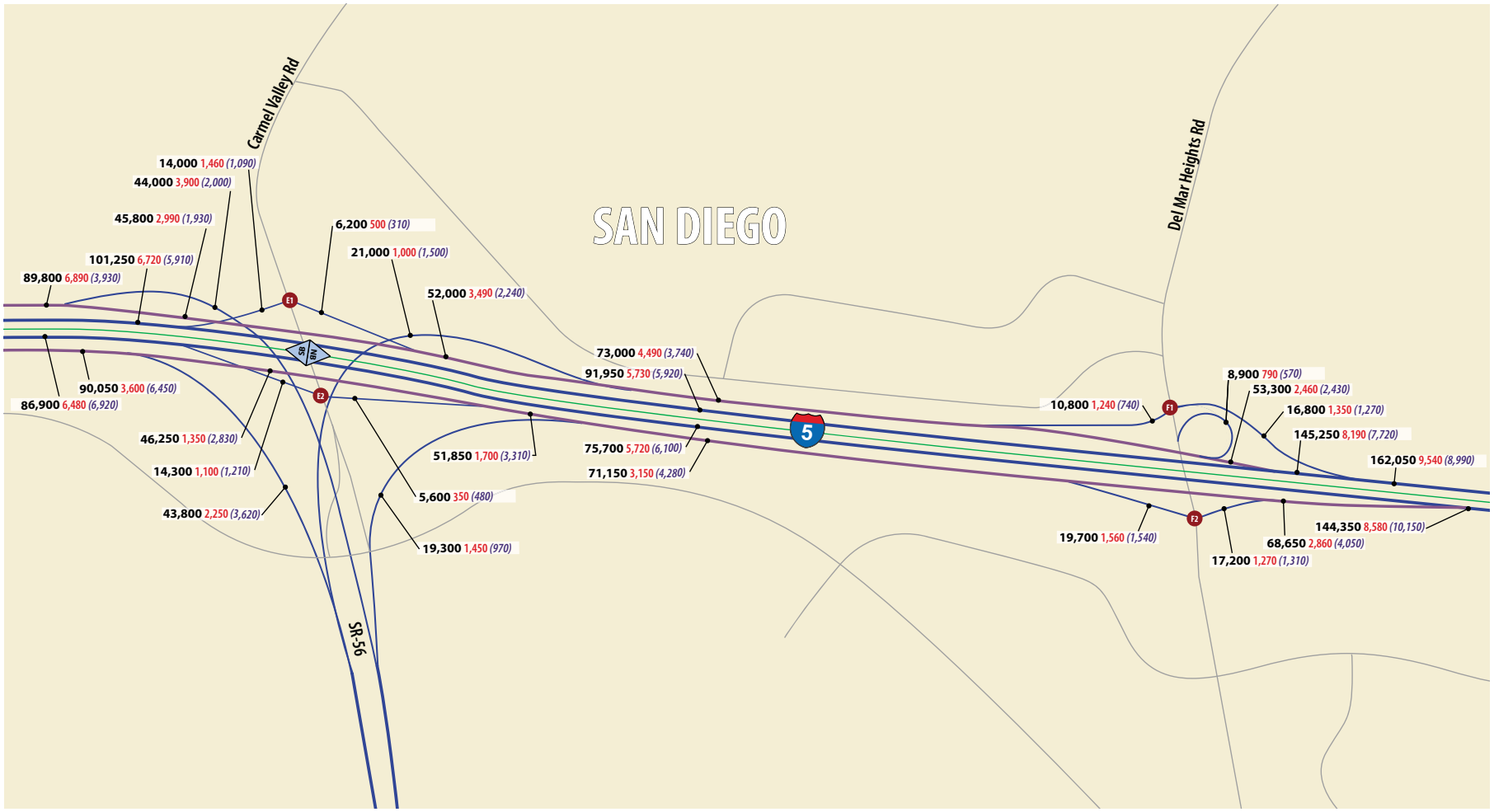


FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale

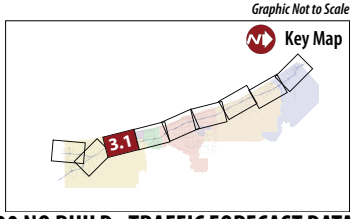


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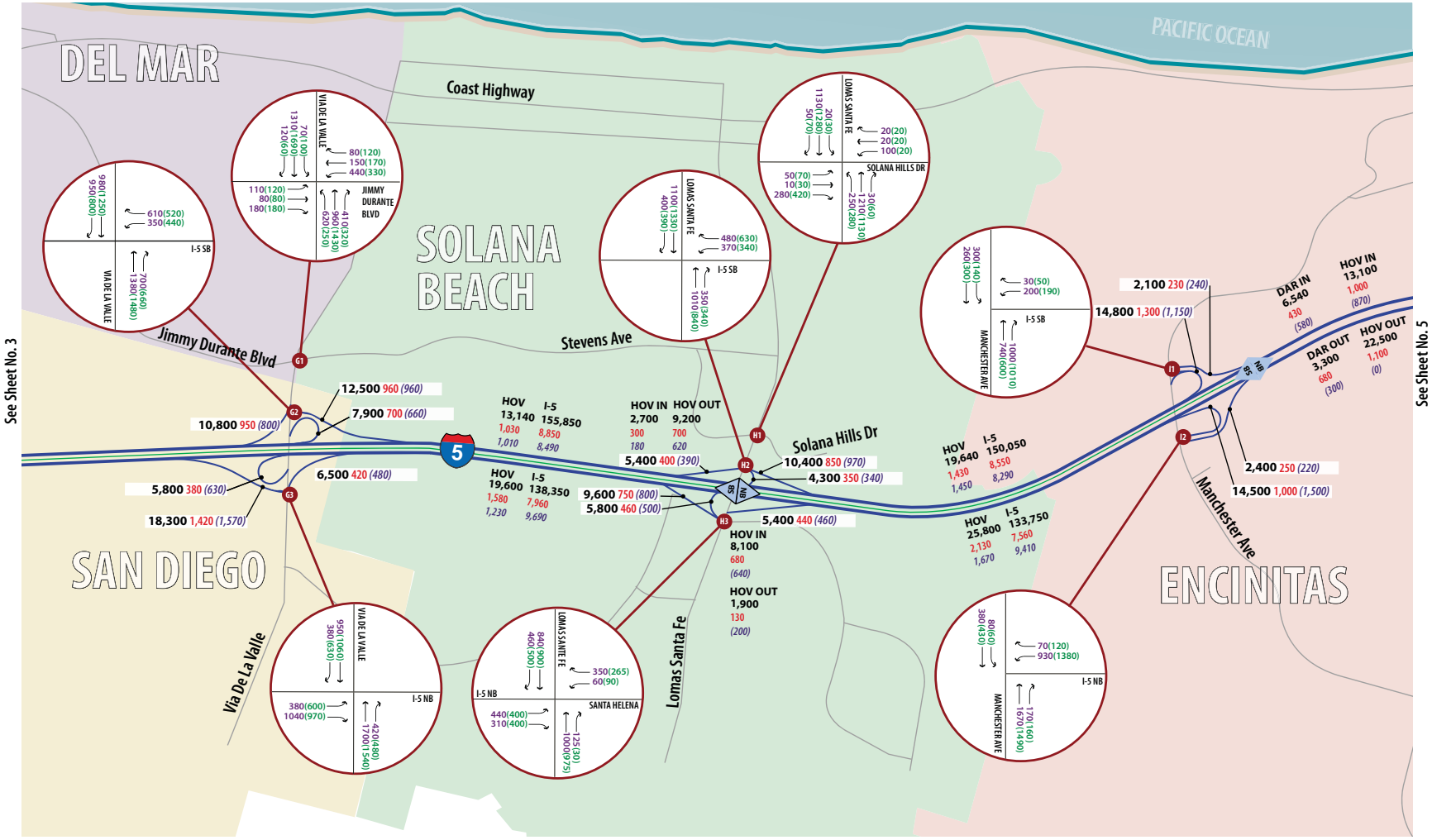
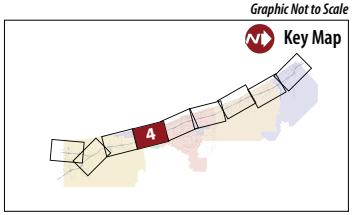
FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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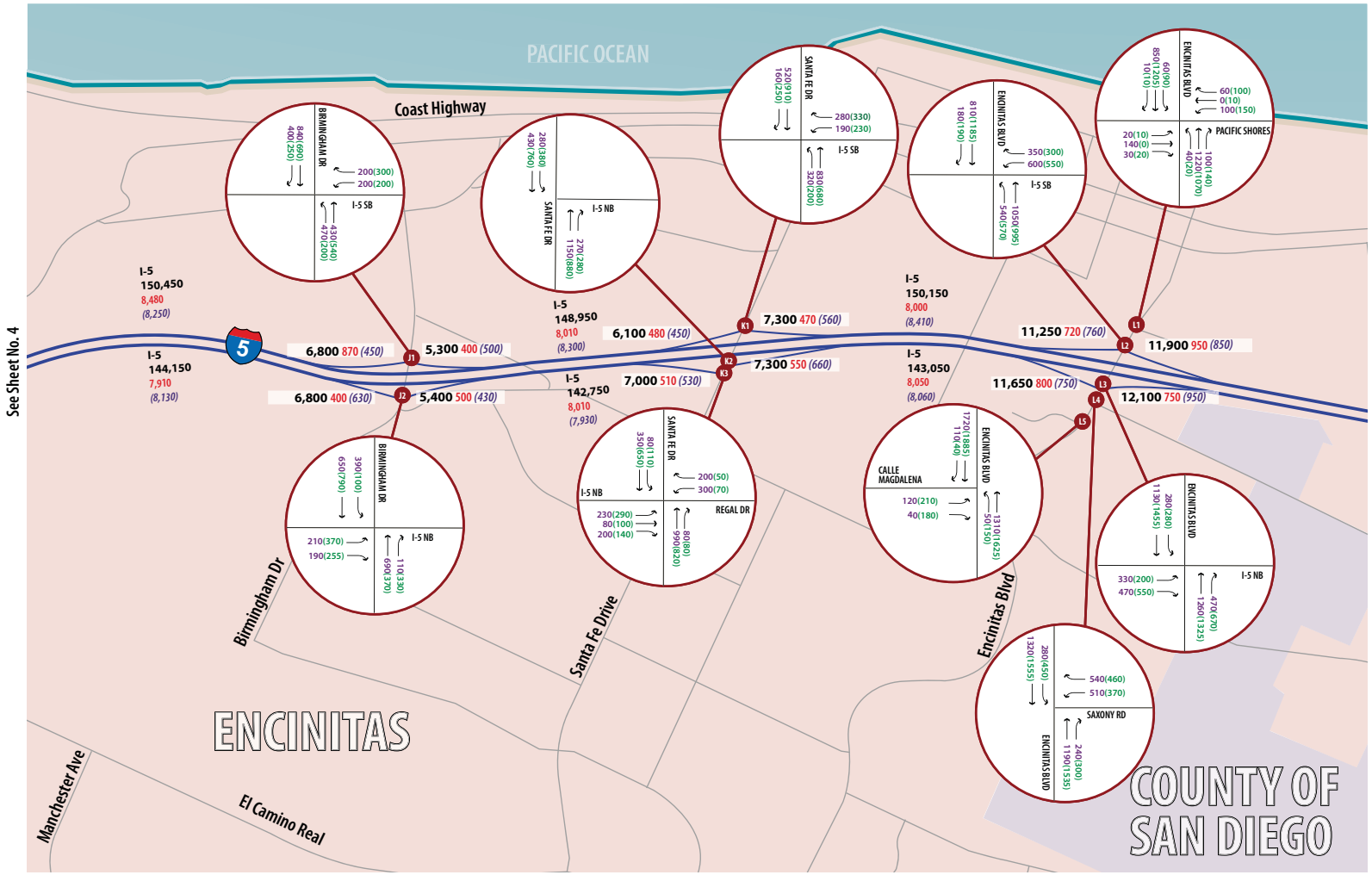
FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

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Graphic Not to Scale

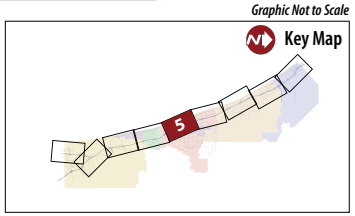
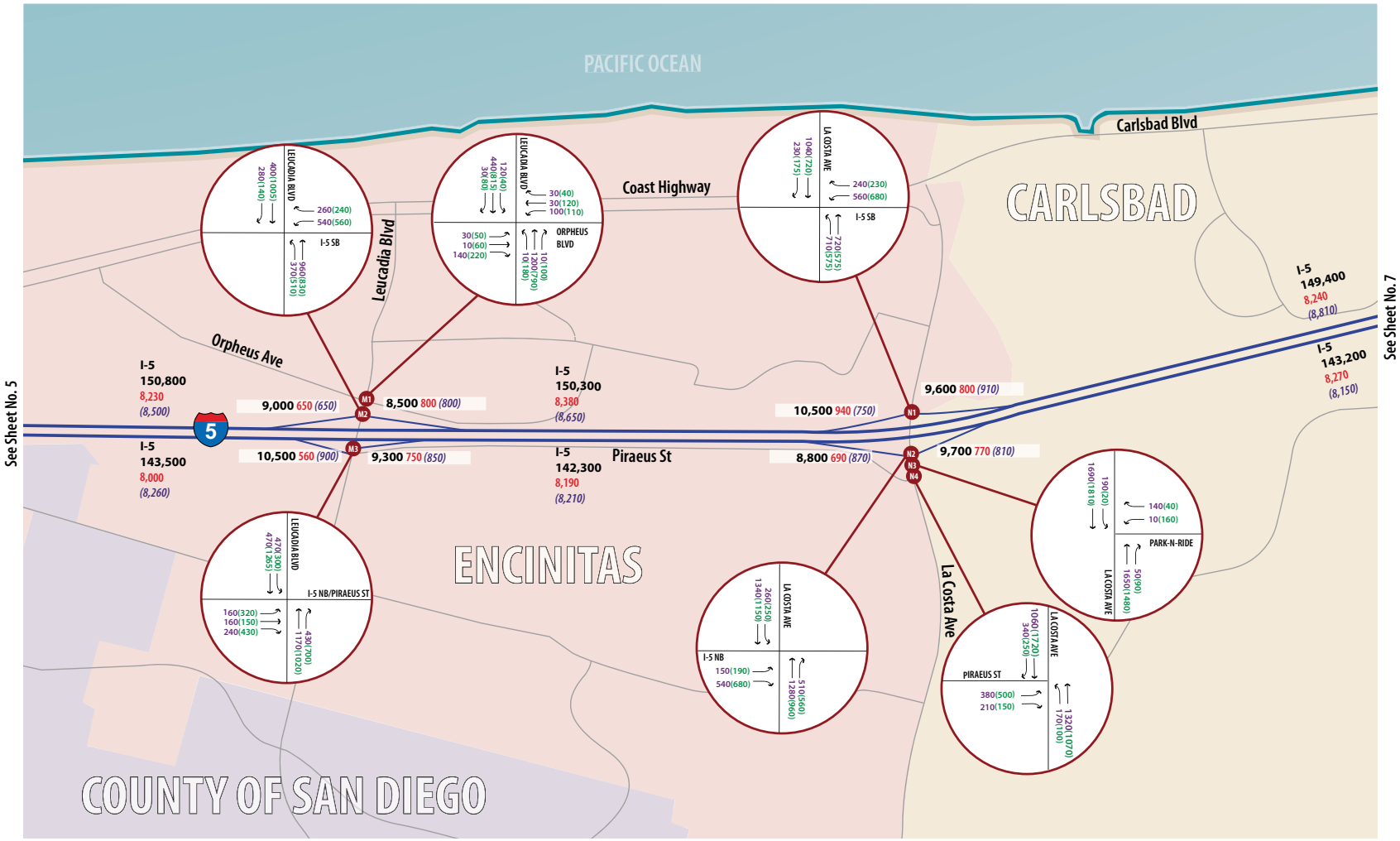


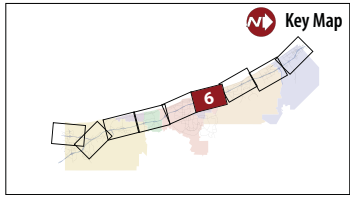
FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



LEGEND

XX = Intersection ID Number	XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX = DAR Intersection ID Number	XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
= HOV Ingress / Egress	XX,XXX = Average Daily Traffic
= I-5 Mainline	X,XXX = AM Peak Hour
= I-5 HOV	(X,XXX) = (PM Peak Hour)
	= Bypass Lane

Graphic Not to Scale



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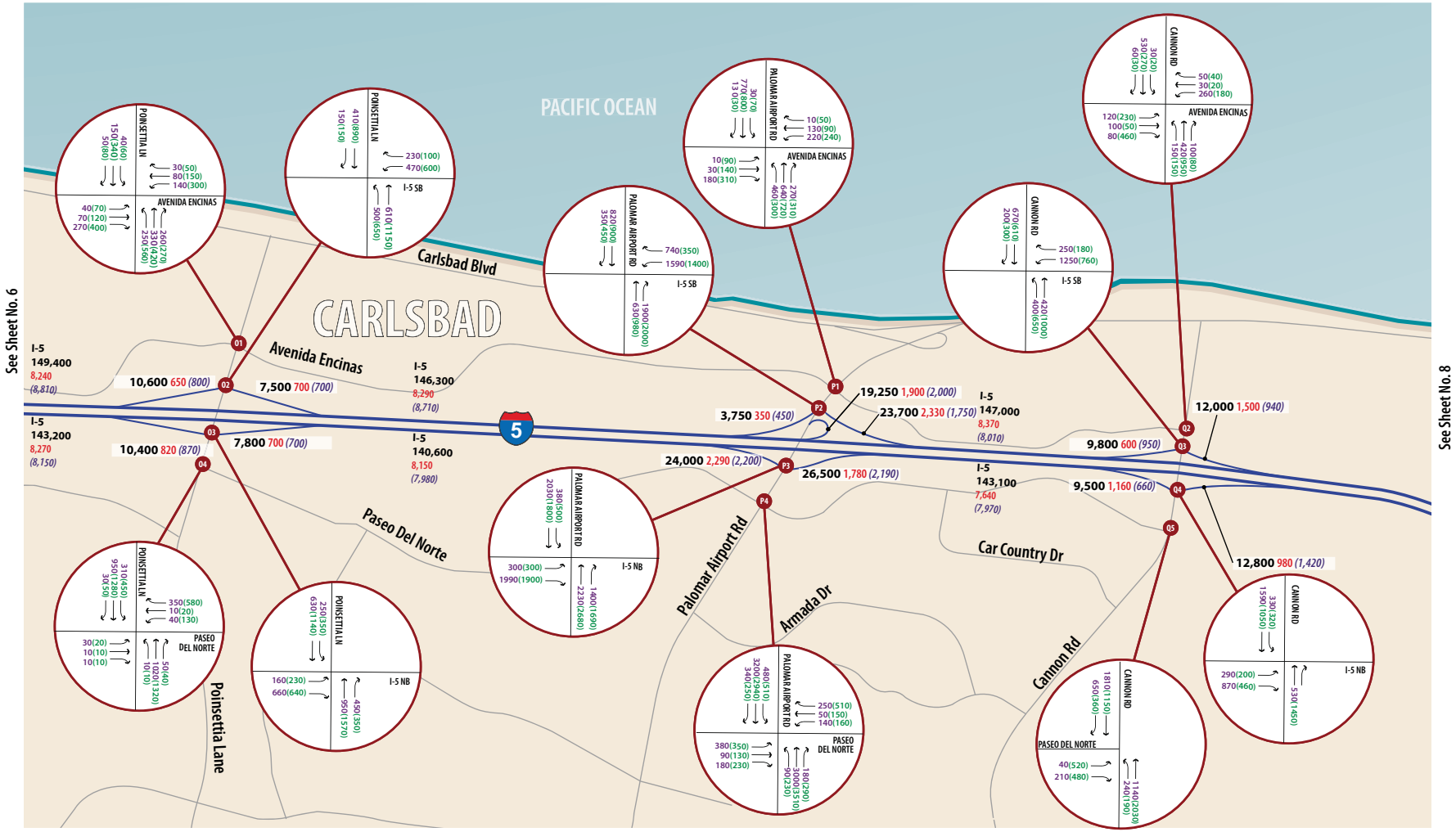
NORTH COAST INTERSTATE 5 CORRIDOR

WILSON & COMPANY ENGINEERS & ARCHITECTS

FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

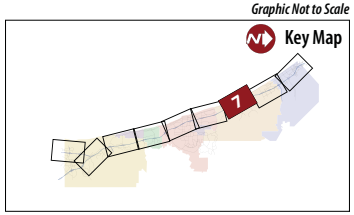
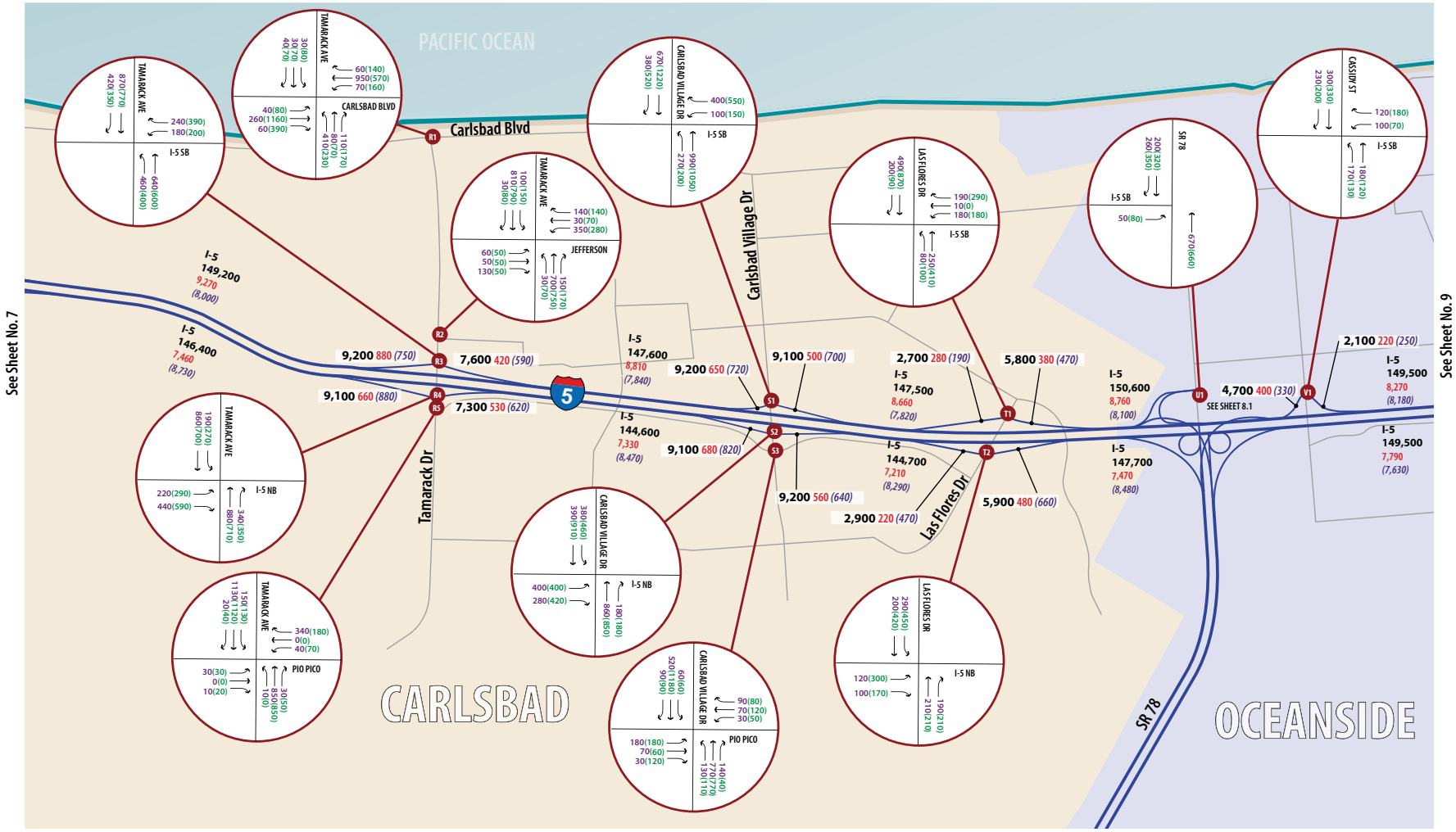
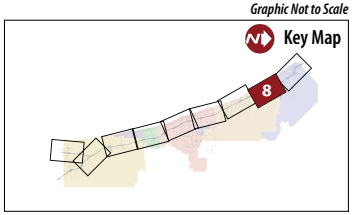


FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



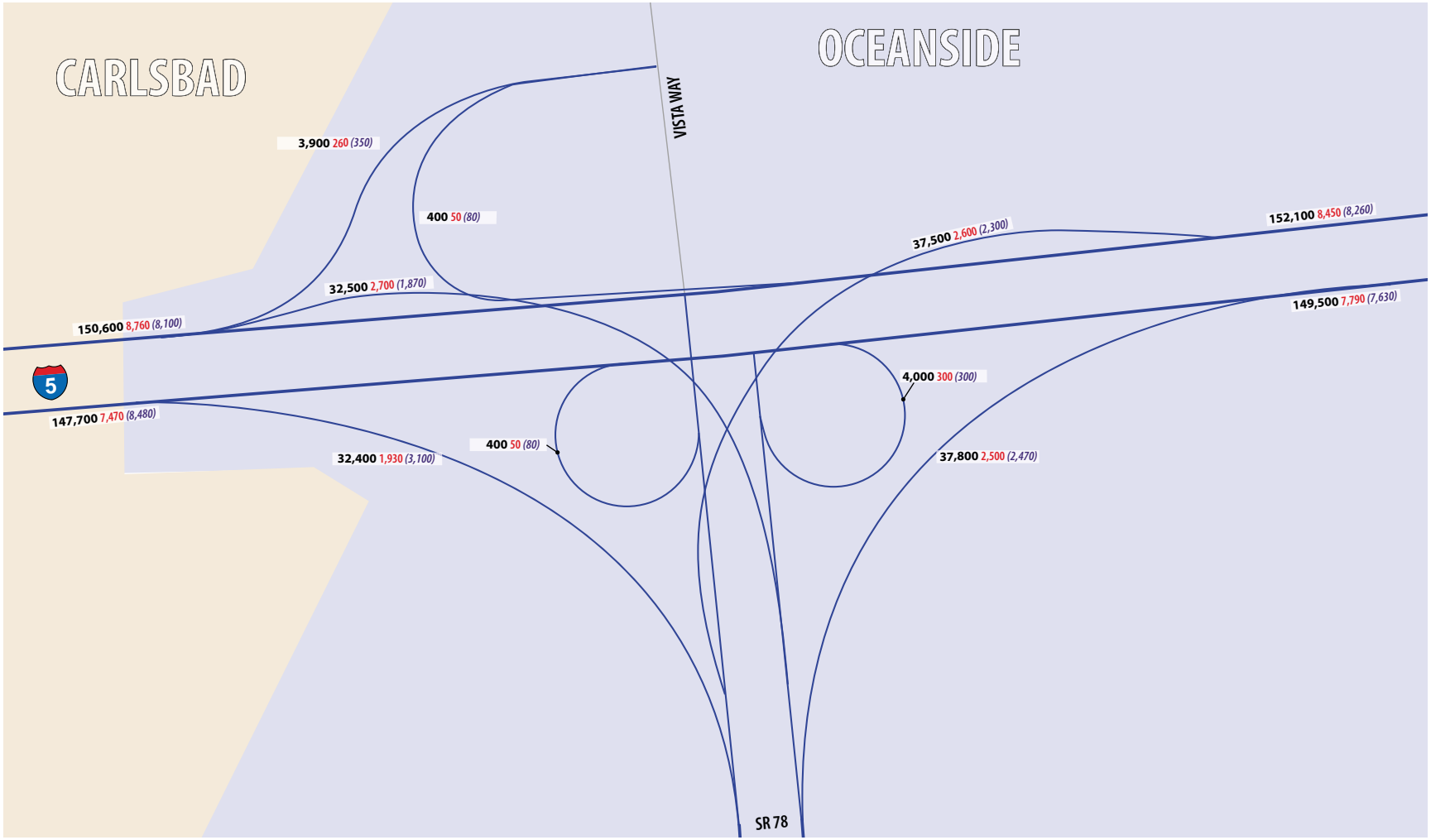
Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = FWY to FWY HOV Access
- = I-5 Mainline
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = I-5 HOV

FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale

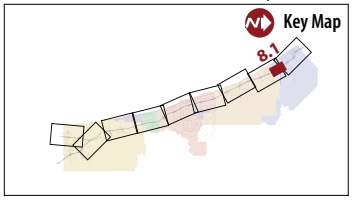
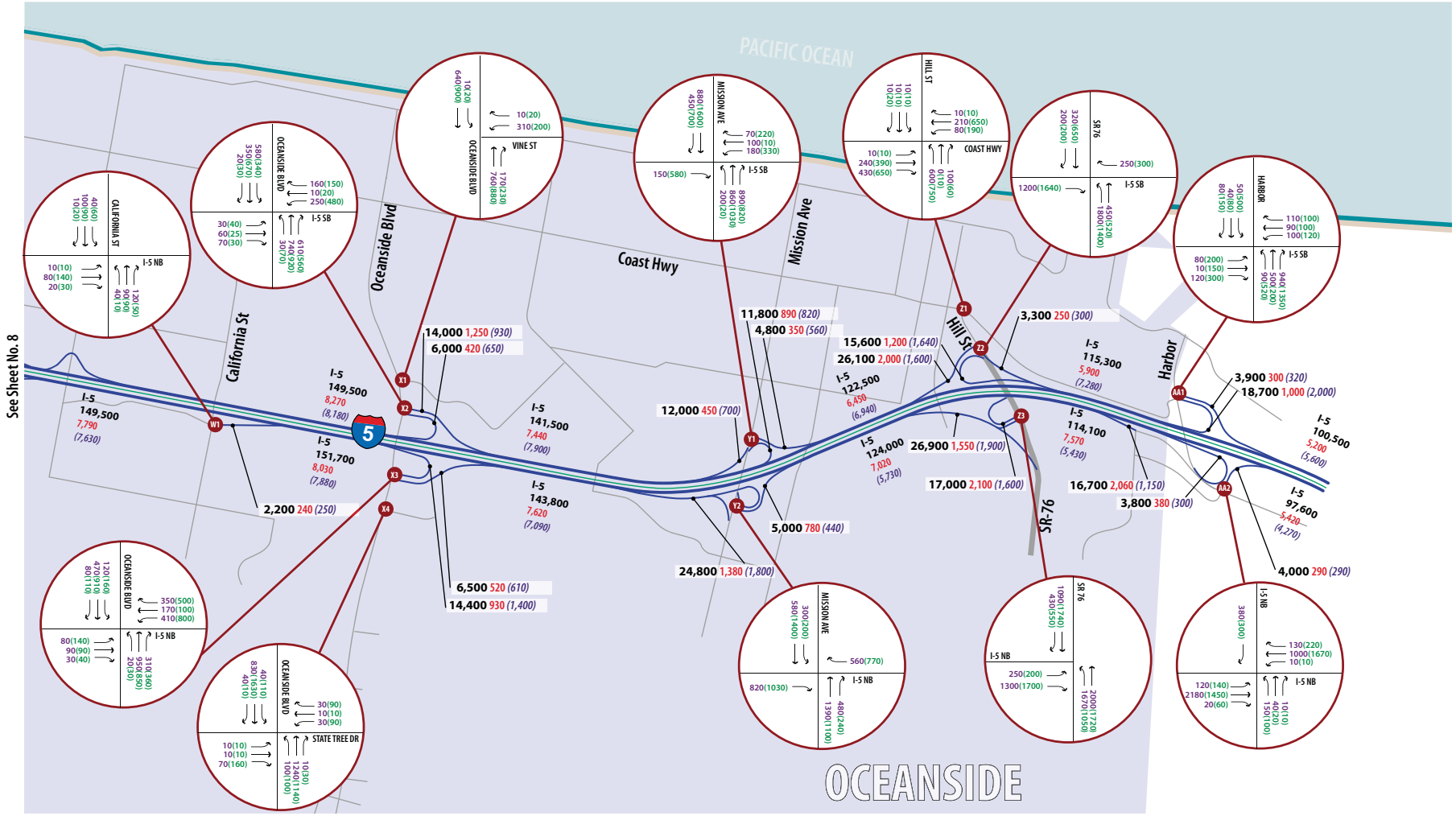


FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

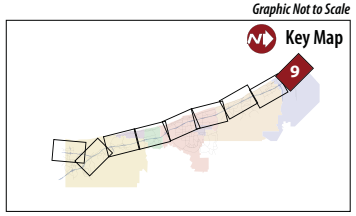


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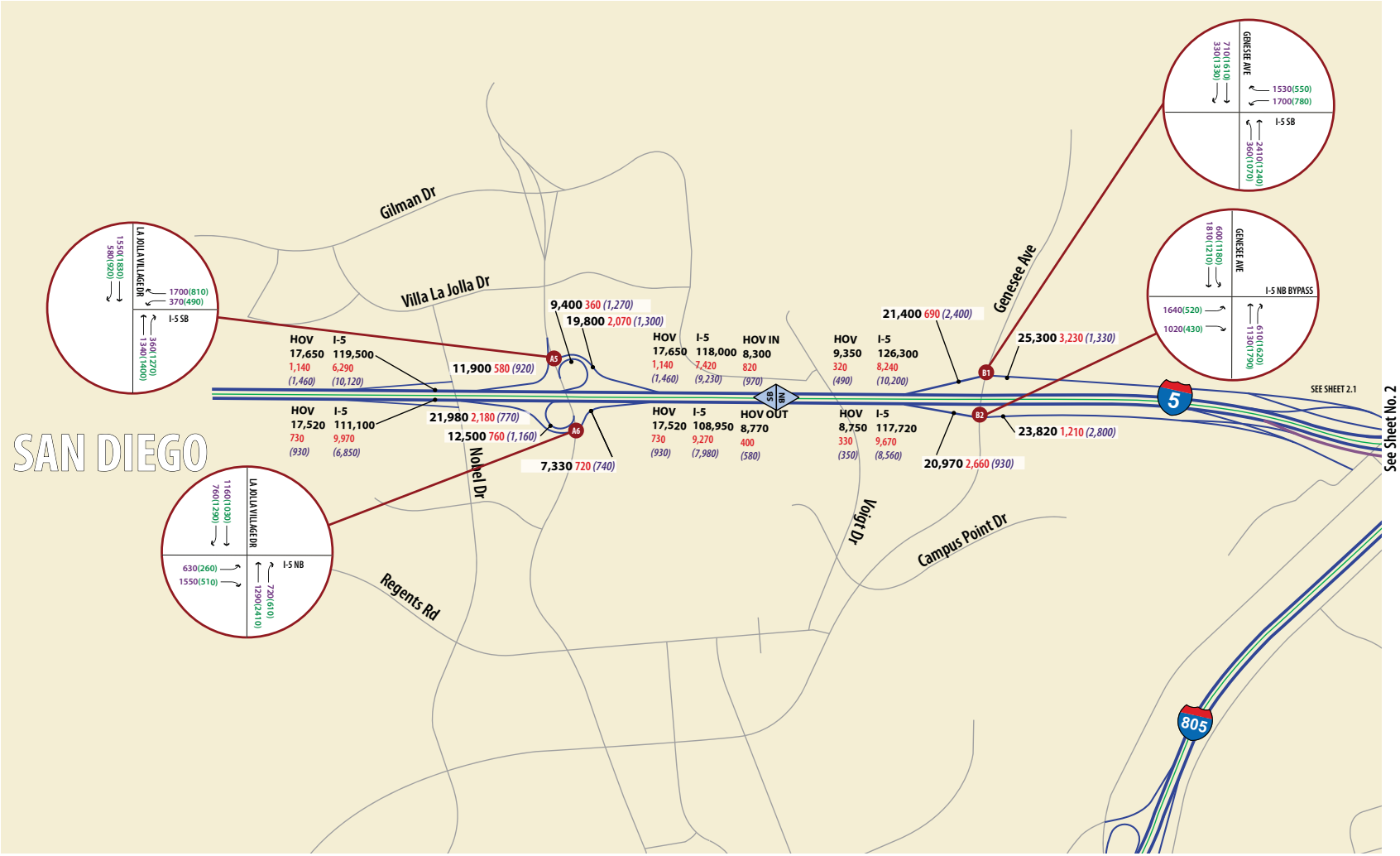
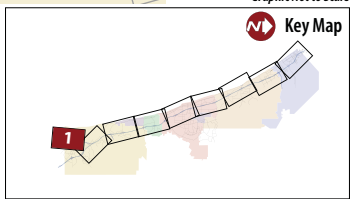
FIGURE 3-3. YEAR 2030 NO BUILD - TRAFFIC FORECAST DATA

Appendix D

Year 2030 10+4 without Direct Access Ramps – Traffic Forecast Data



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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NORTH COAST INTERSTATE 5 CORRIDOR

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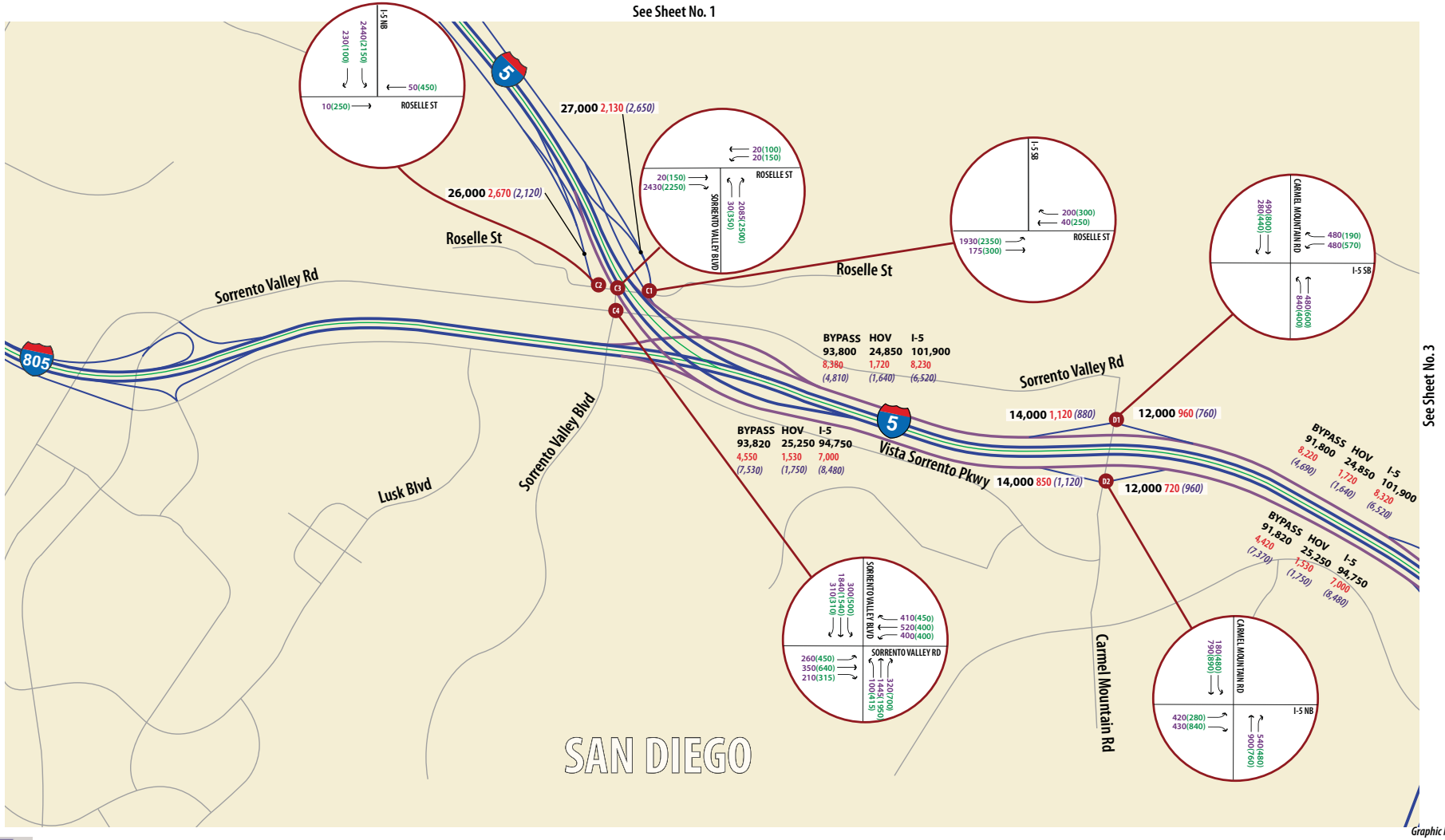
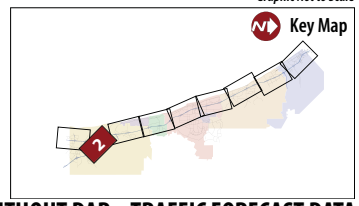
FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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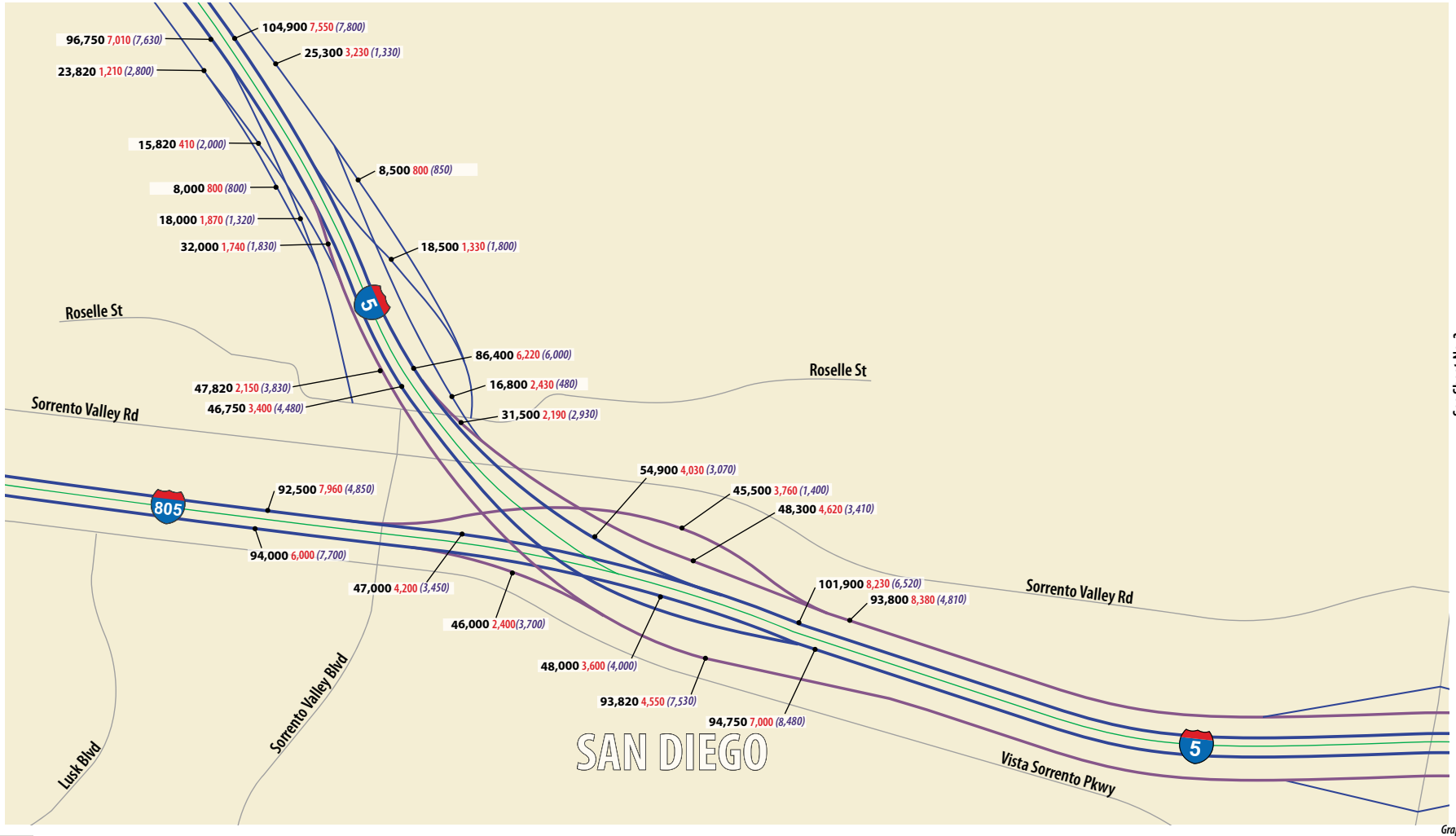
FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA

See Sheet No. 1



See Sheet No. 3

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LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
S E	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

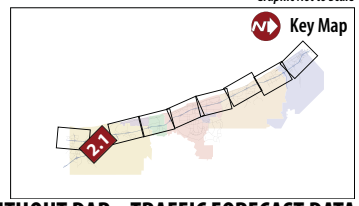
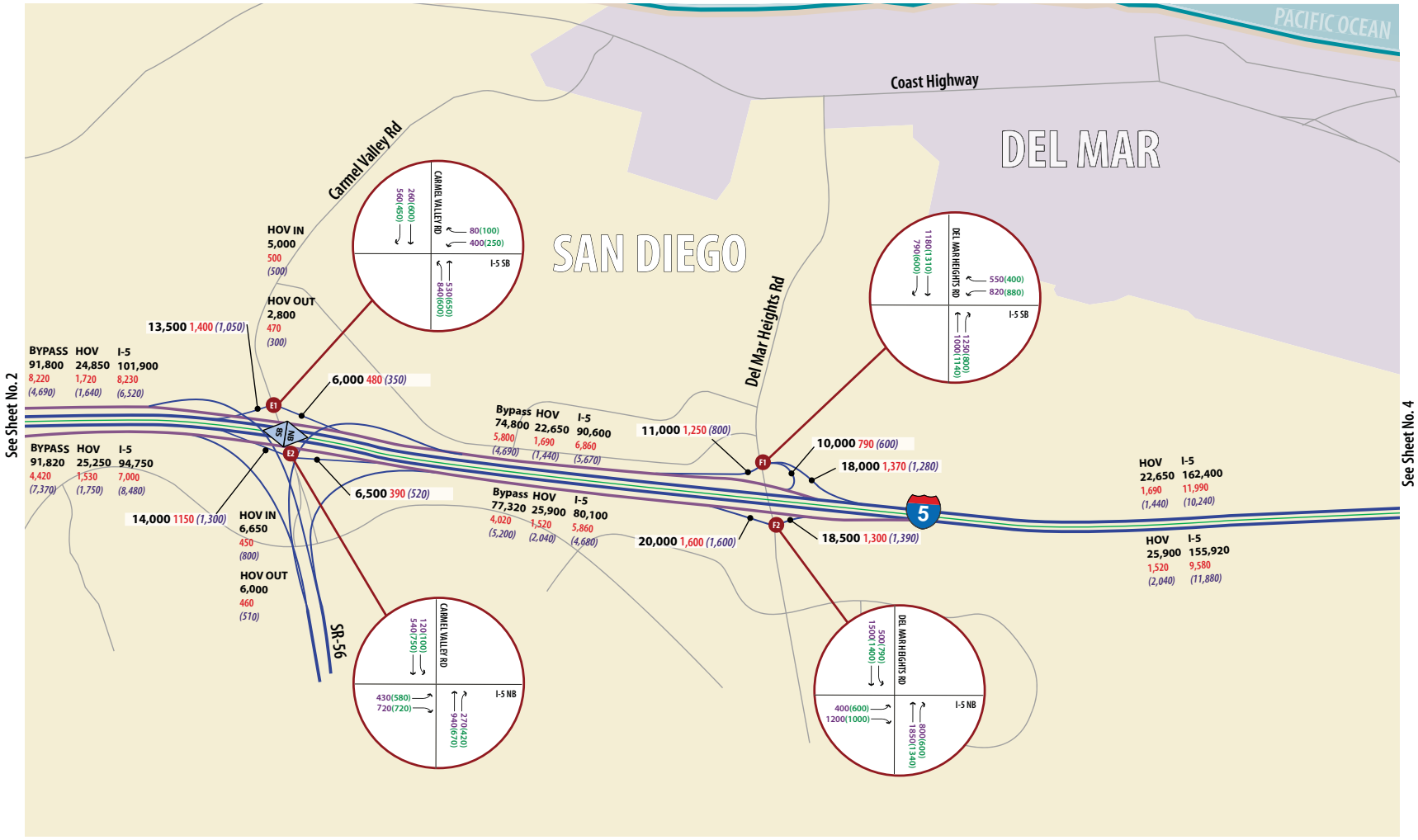
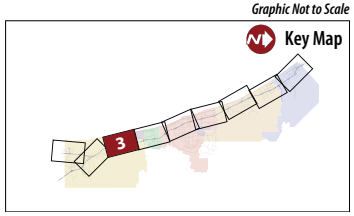


FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- HOV = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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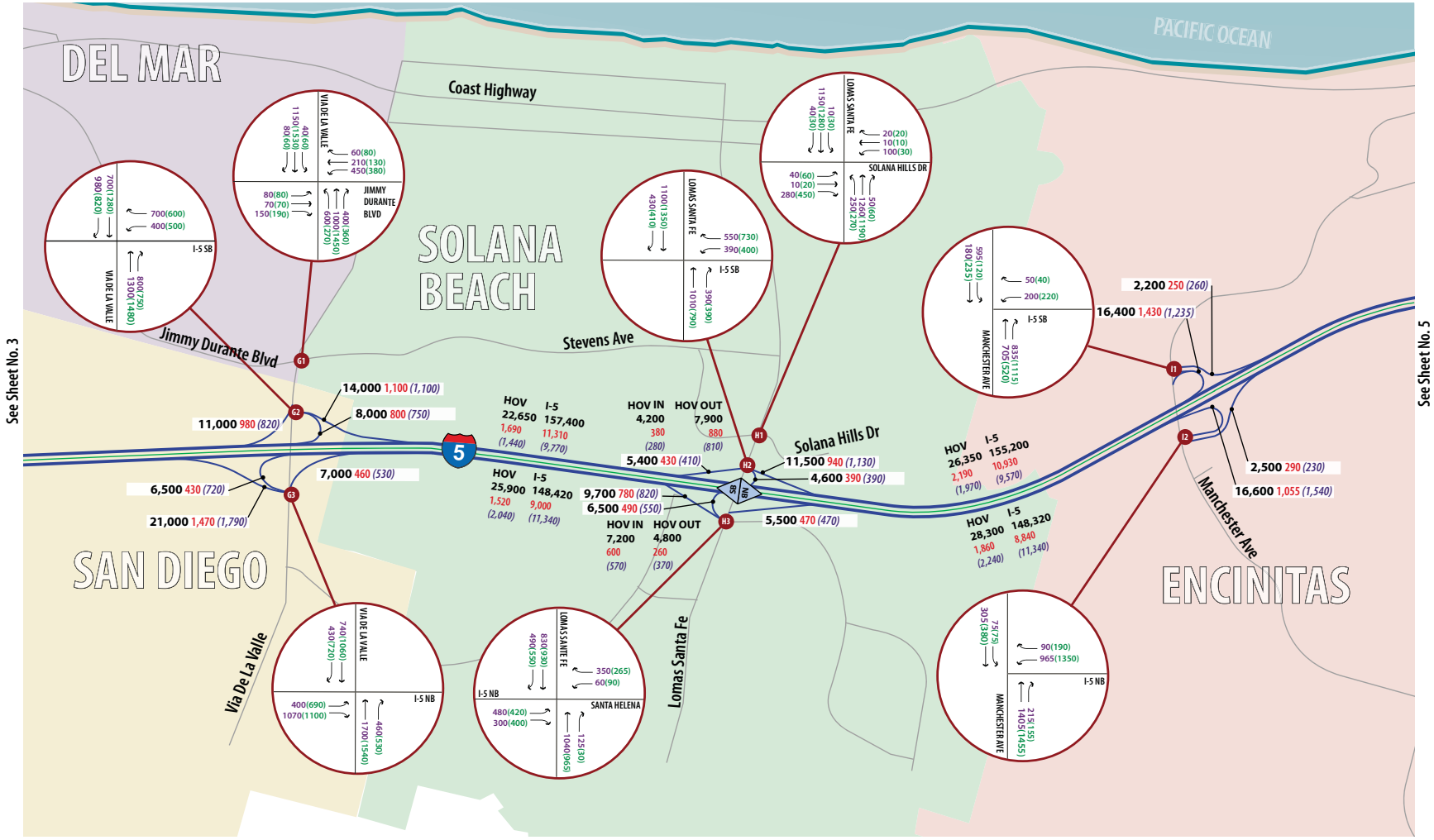
FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
SB NB	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

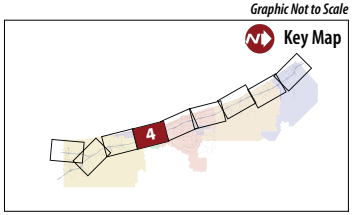
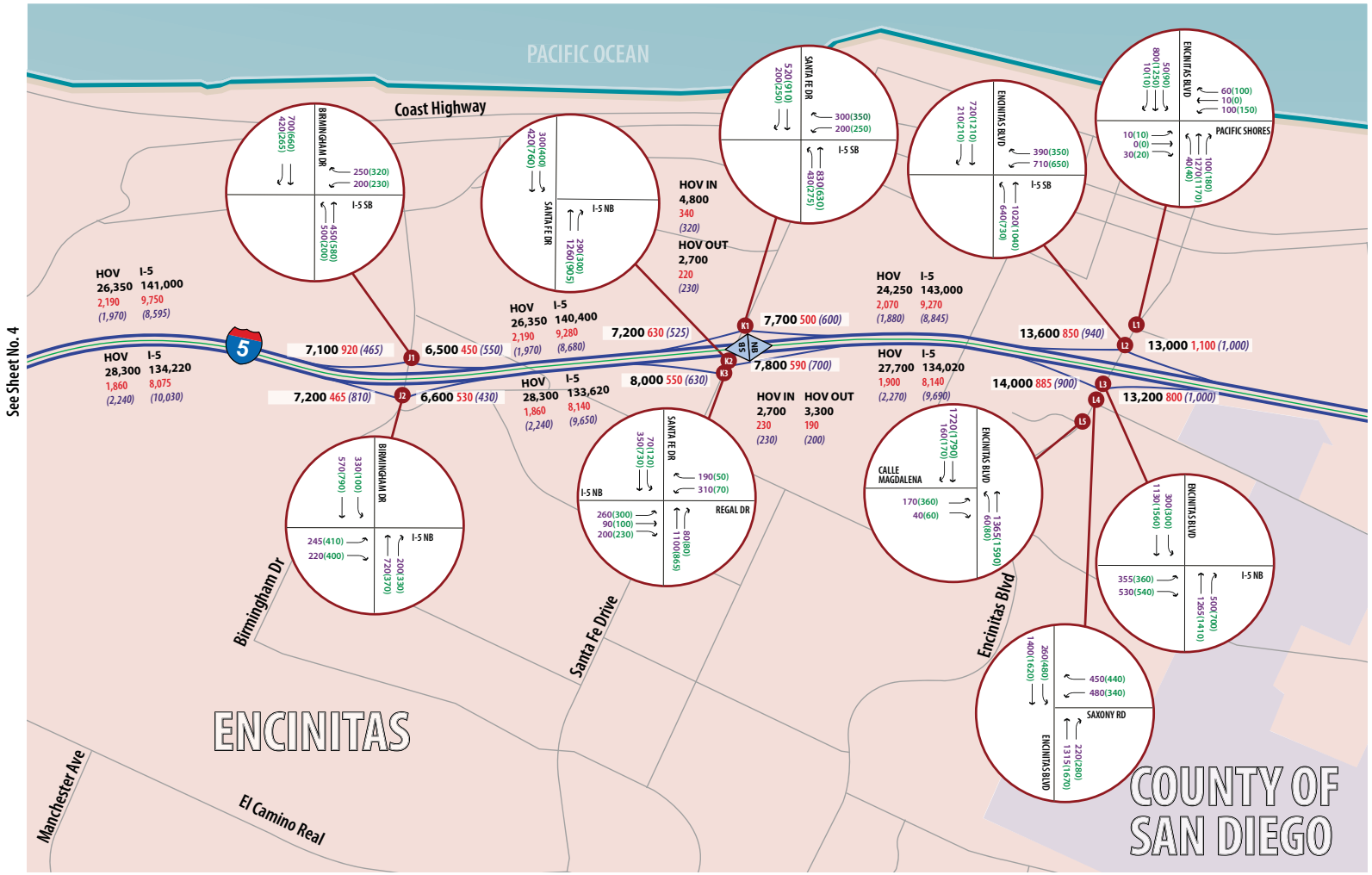


FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

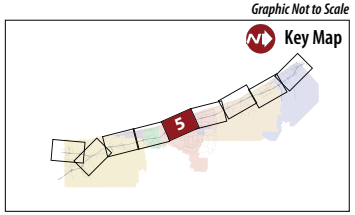
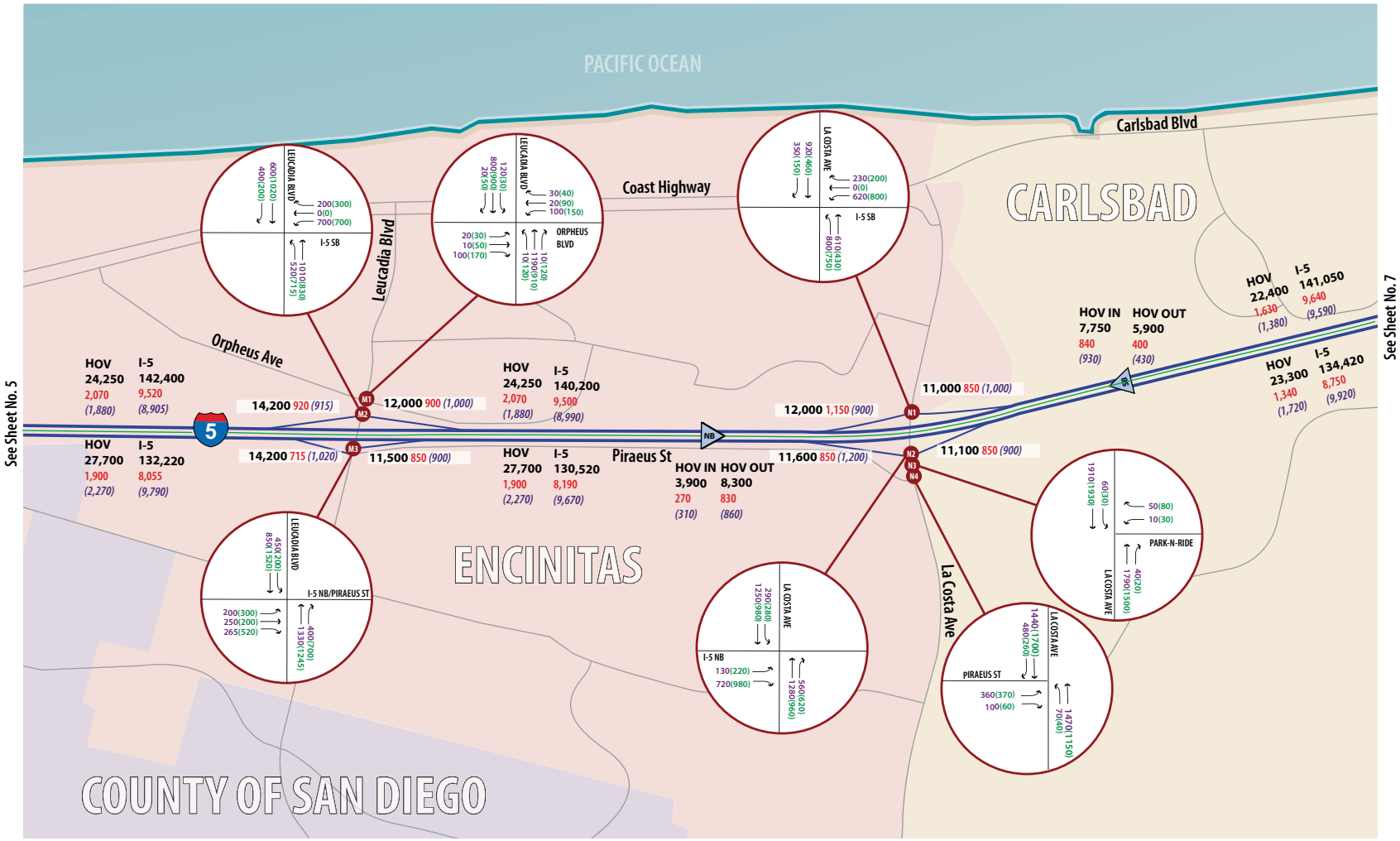


FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

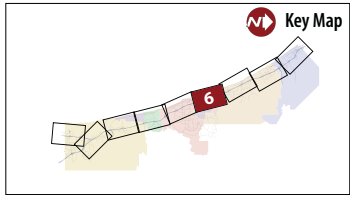


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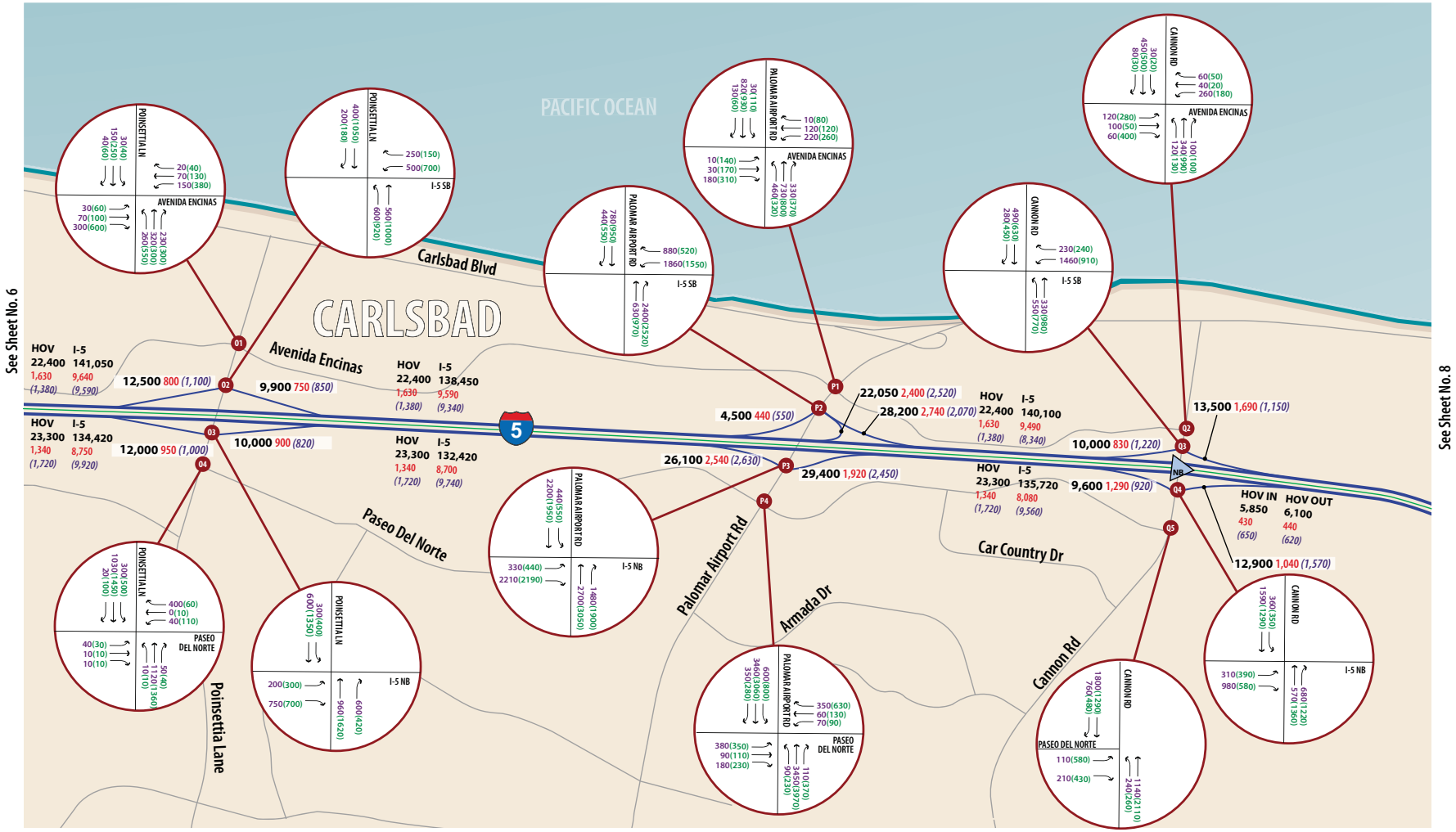
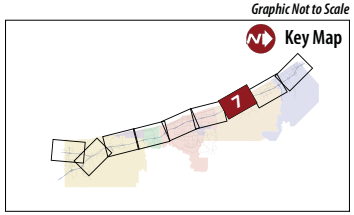
FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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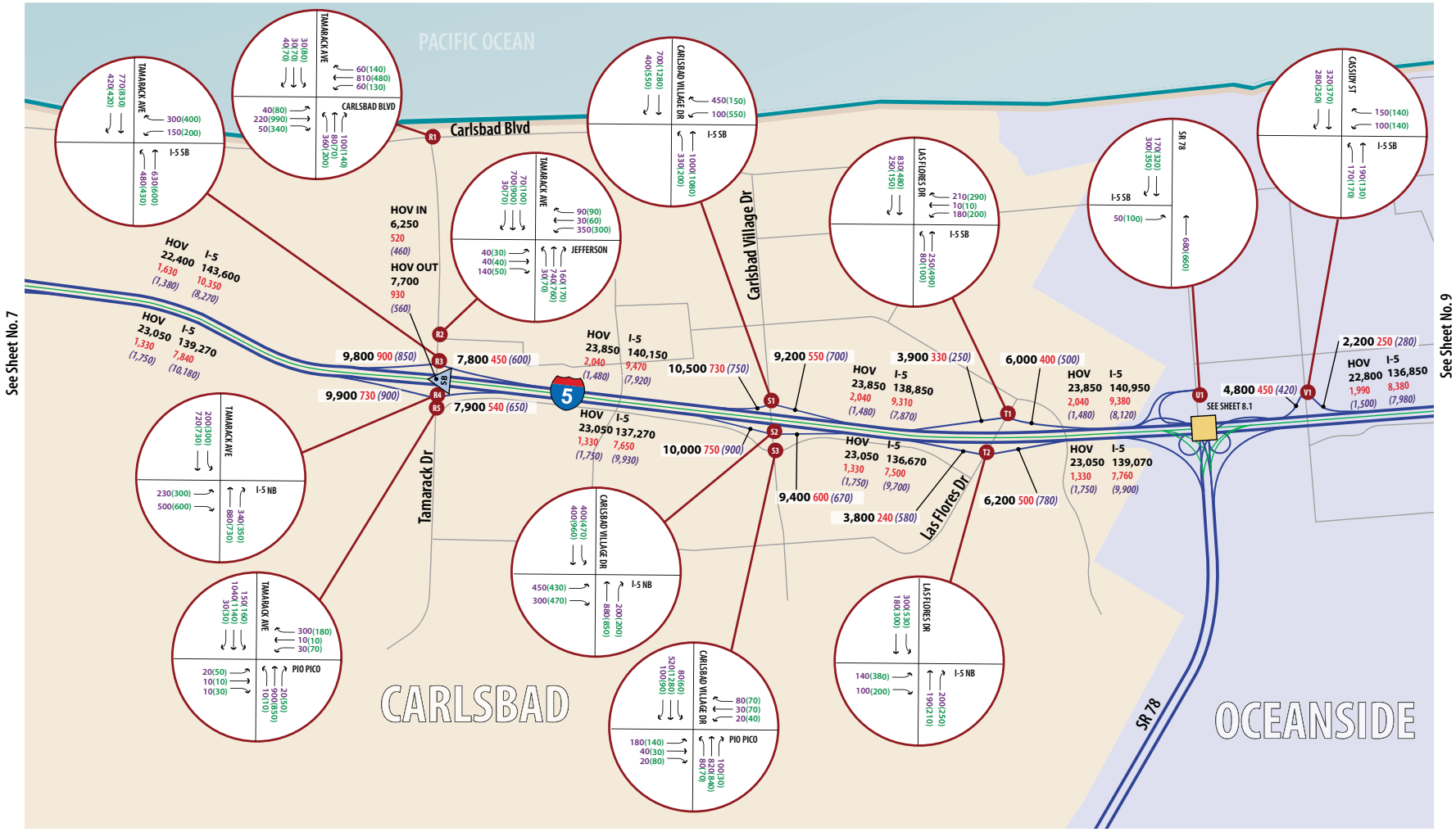
FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = FWY to FWY HOV Access
- = I-5 Mainline
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = I-5 HOV

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Graphic Not to Scale

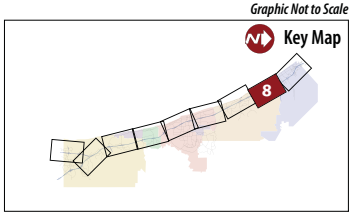
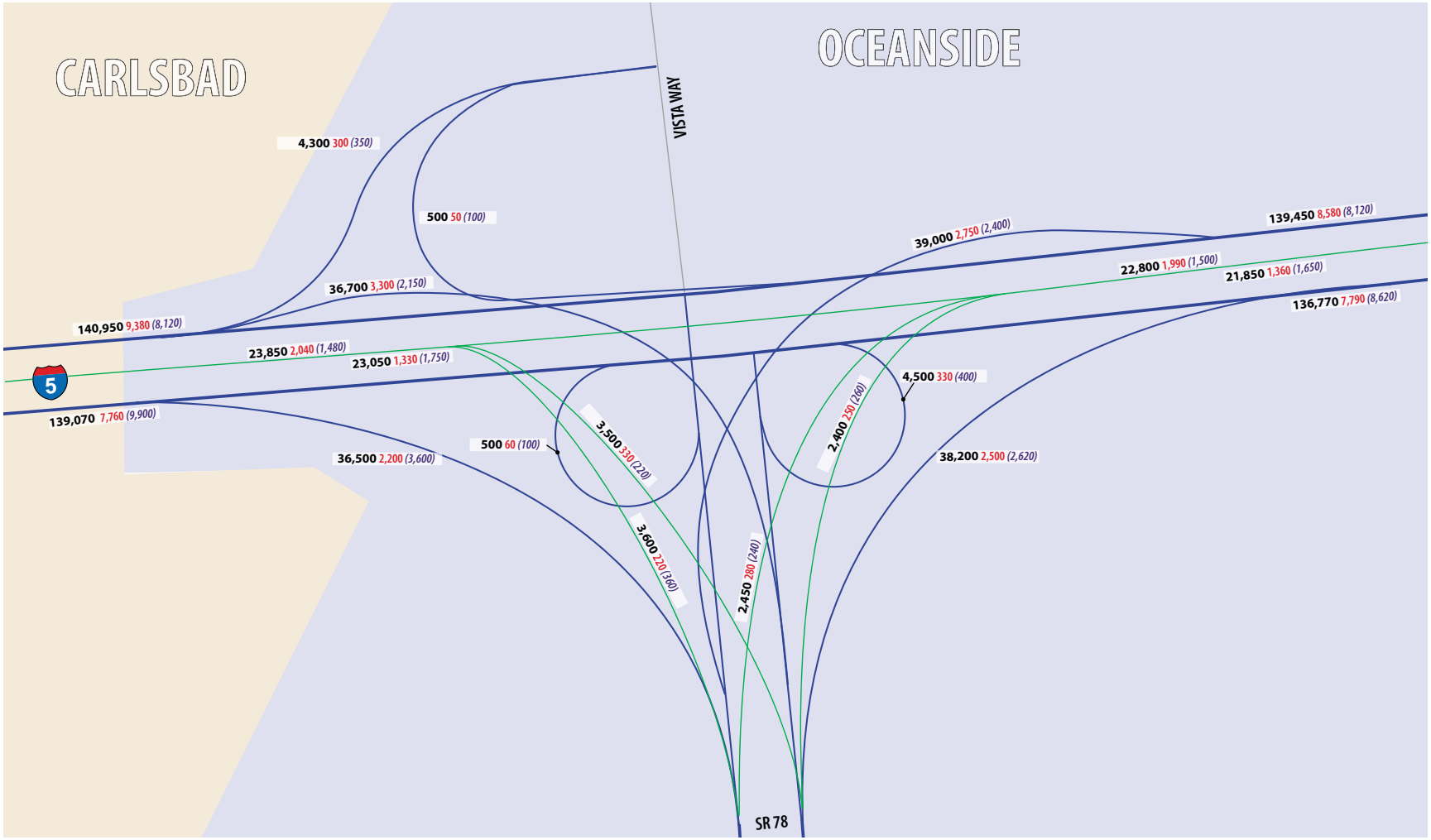


FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale

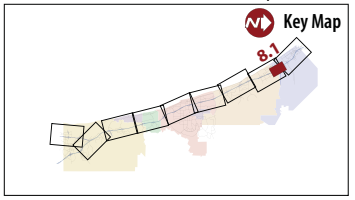


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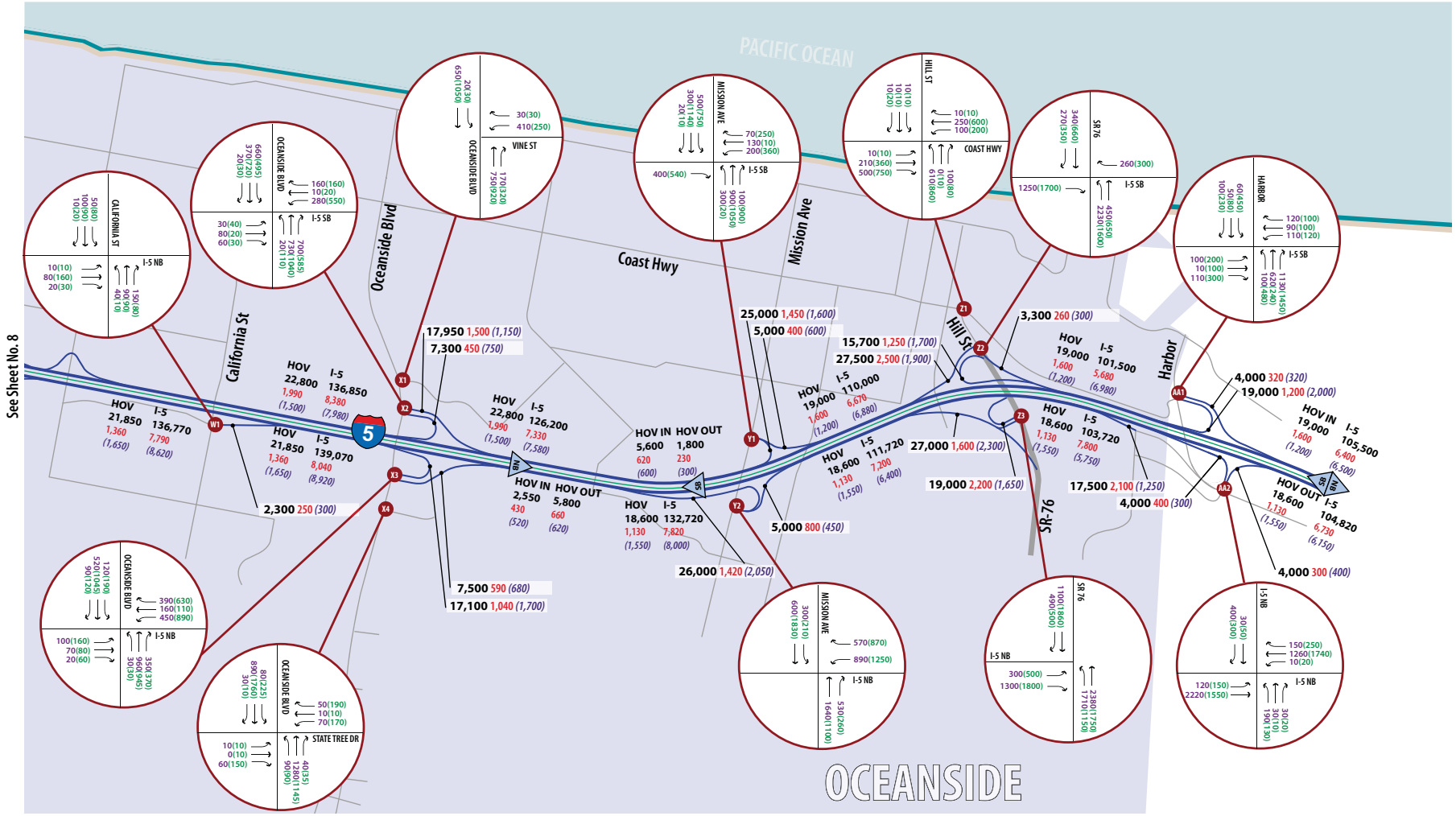
FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
SB NB	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

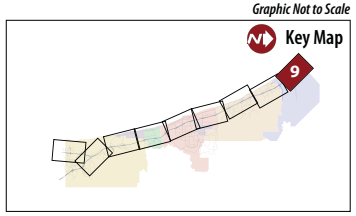


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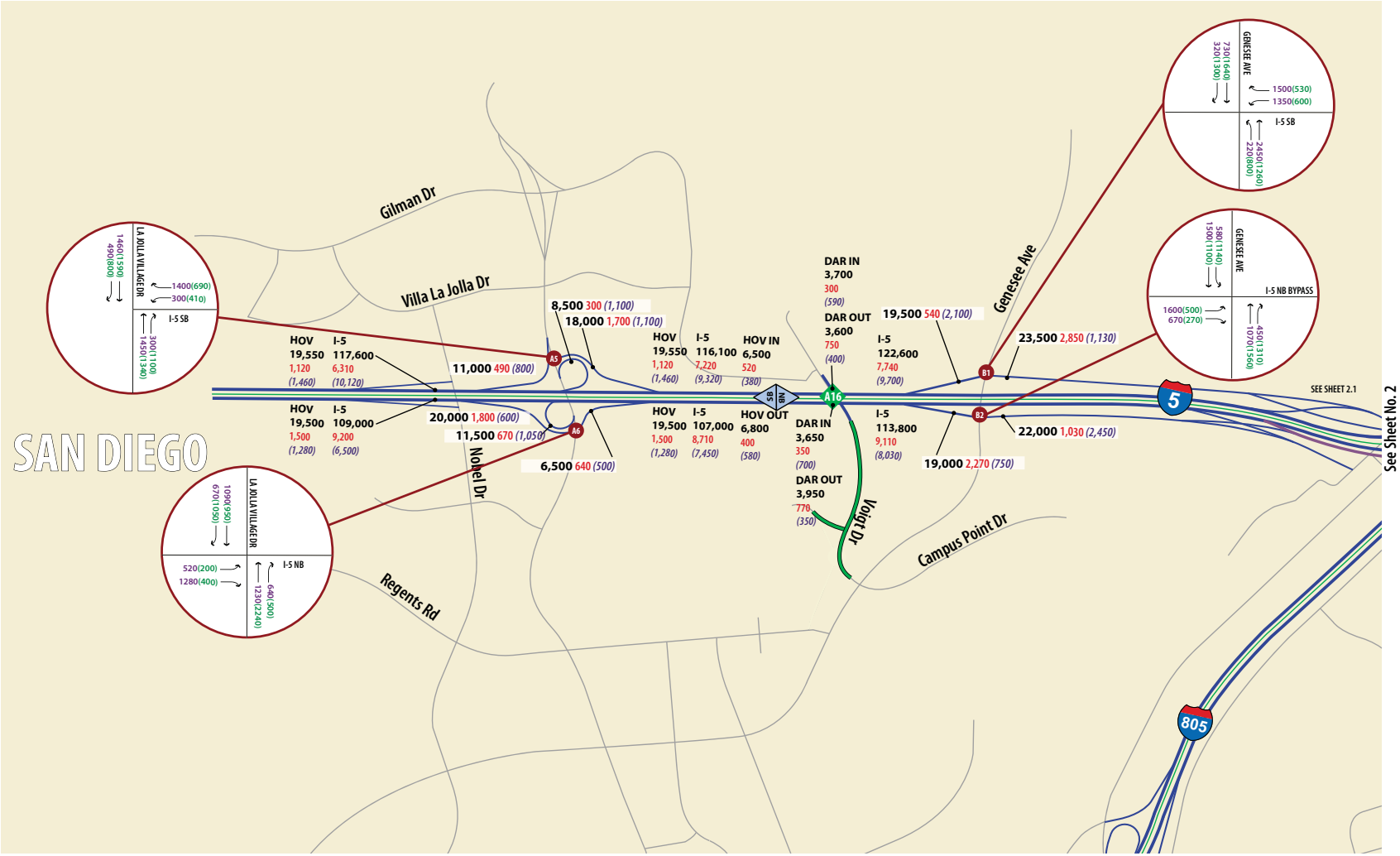
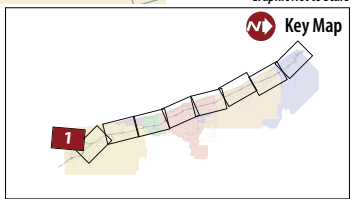
FIGURE 3-4. YEAR 2030 10+4 WITHOUT DAR - TRAFFIC FORECAST DATA

Appendix E

Year 2030 10+4 with Direct Access Ramps – Traffic Forecast Data



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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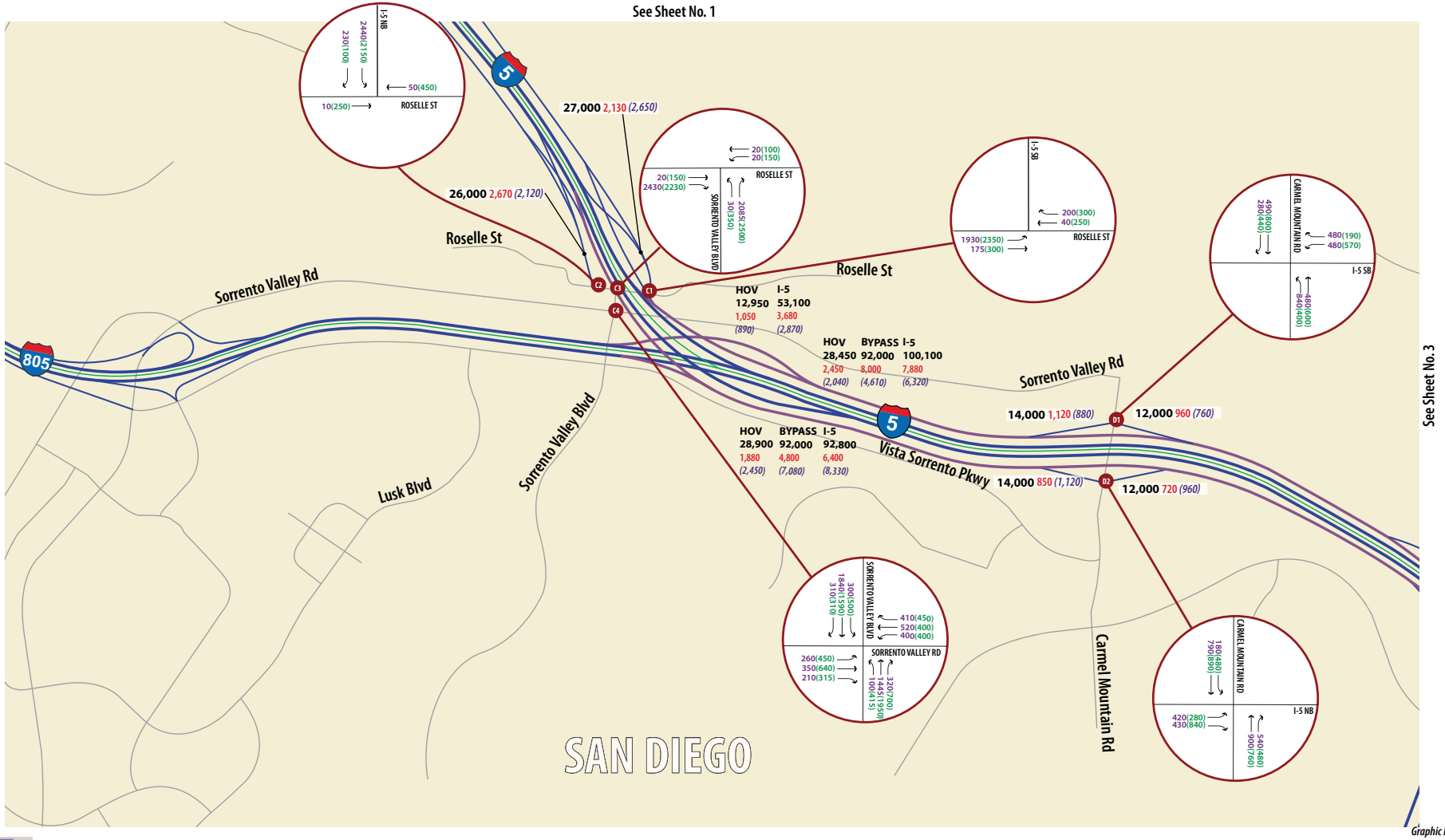
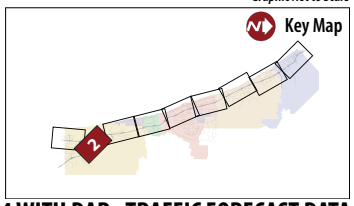
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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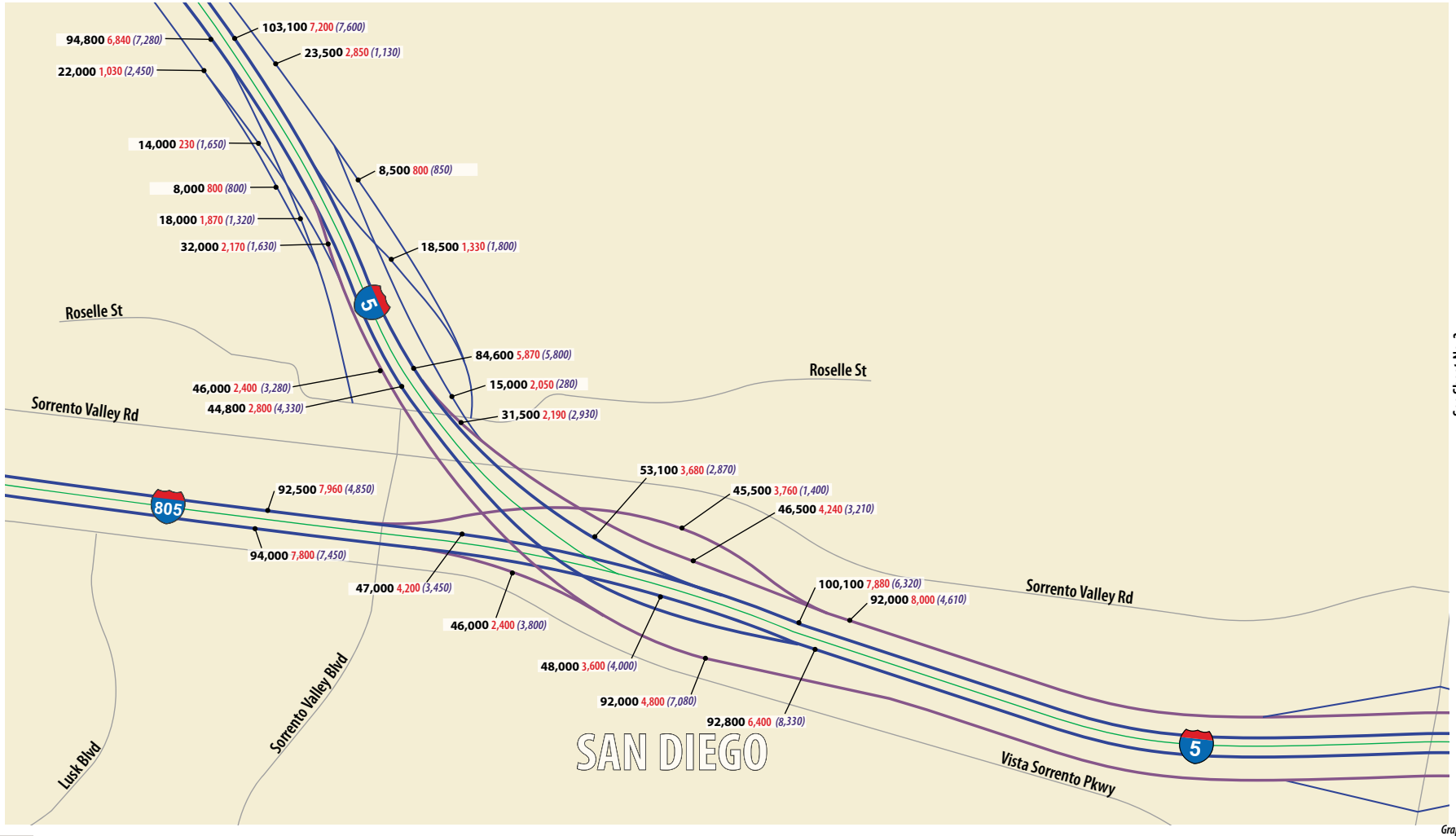
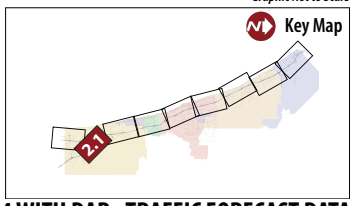
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA

See Sheet No. 1



See Sheet No. 3

Graphic Not to Scale



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

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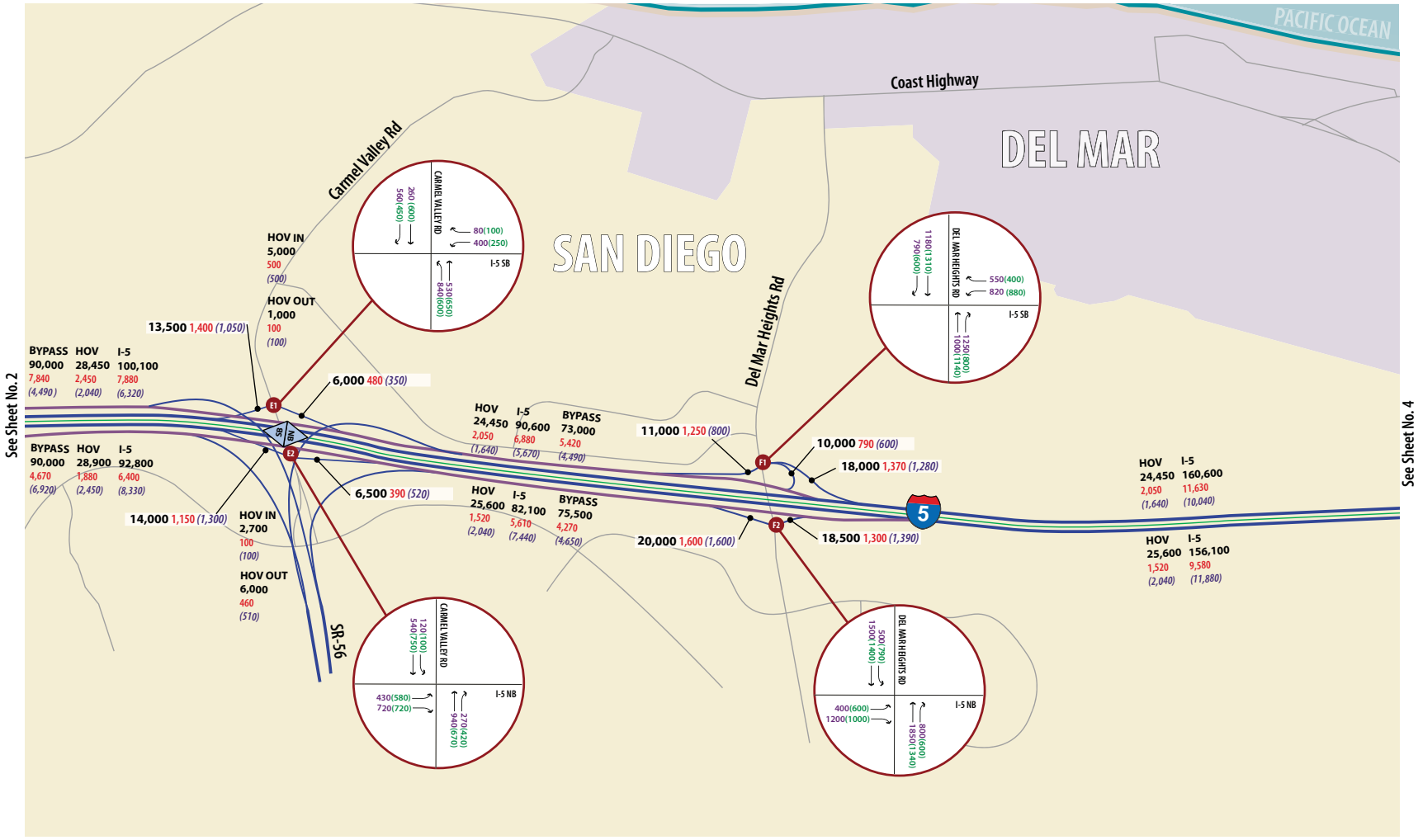
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



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LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

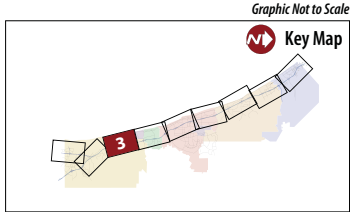
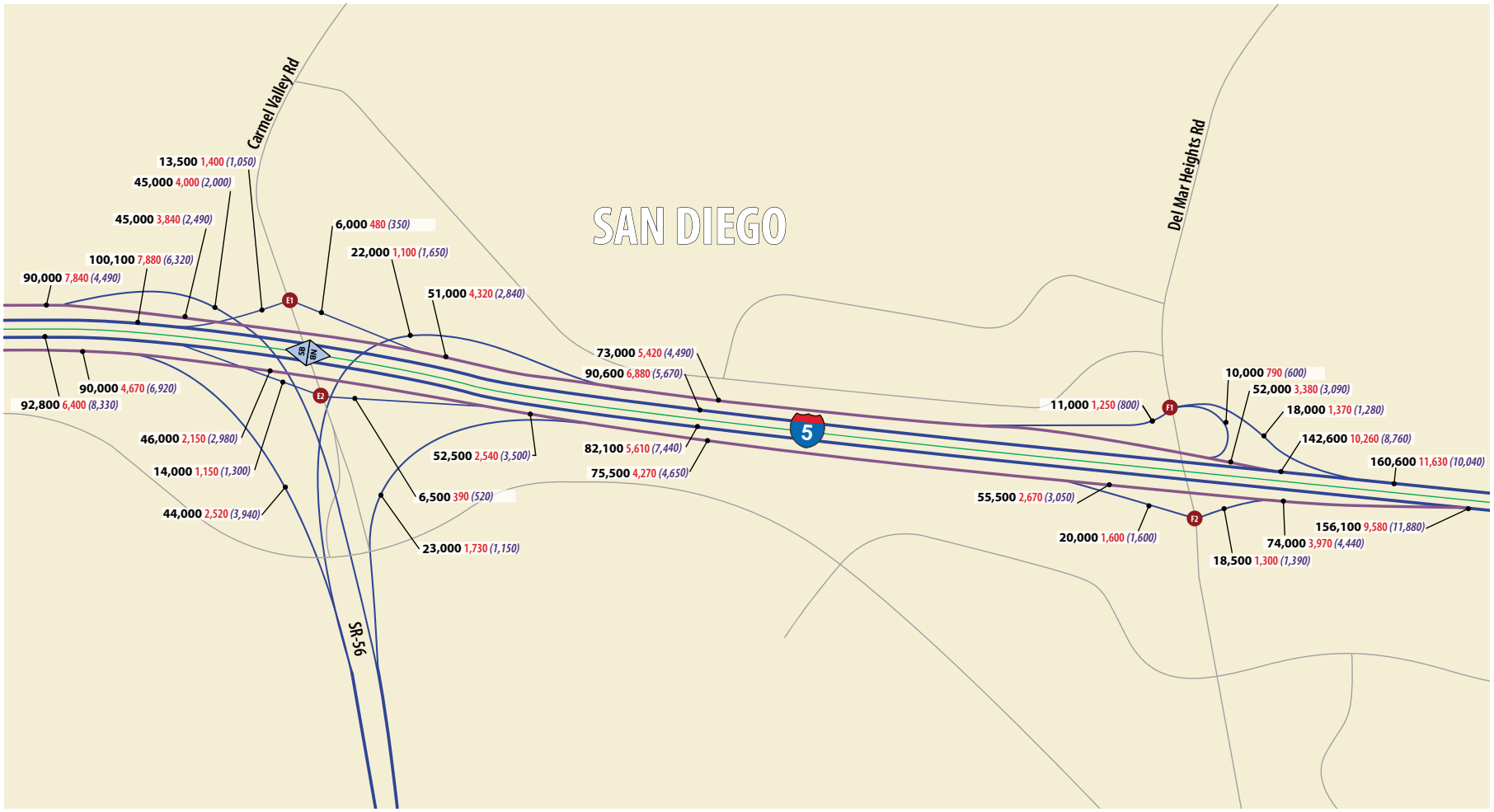


FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale

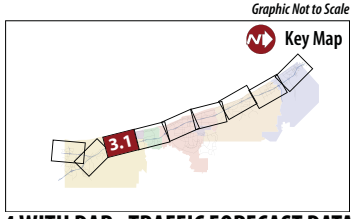


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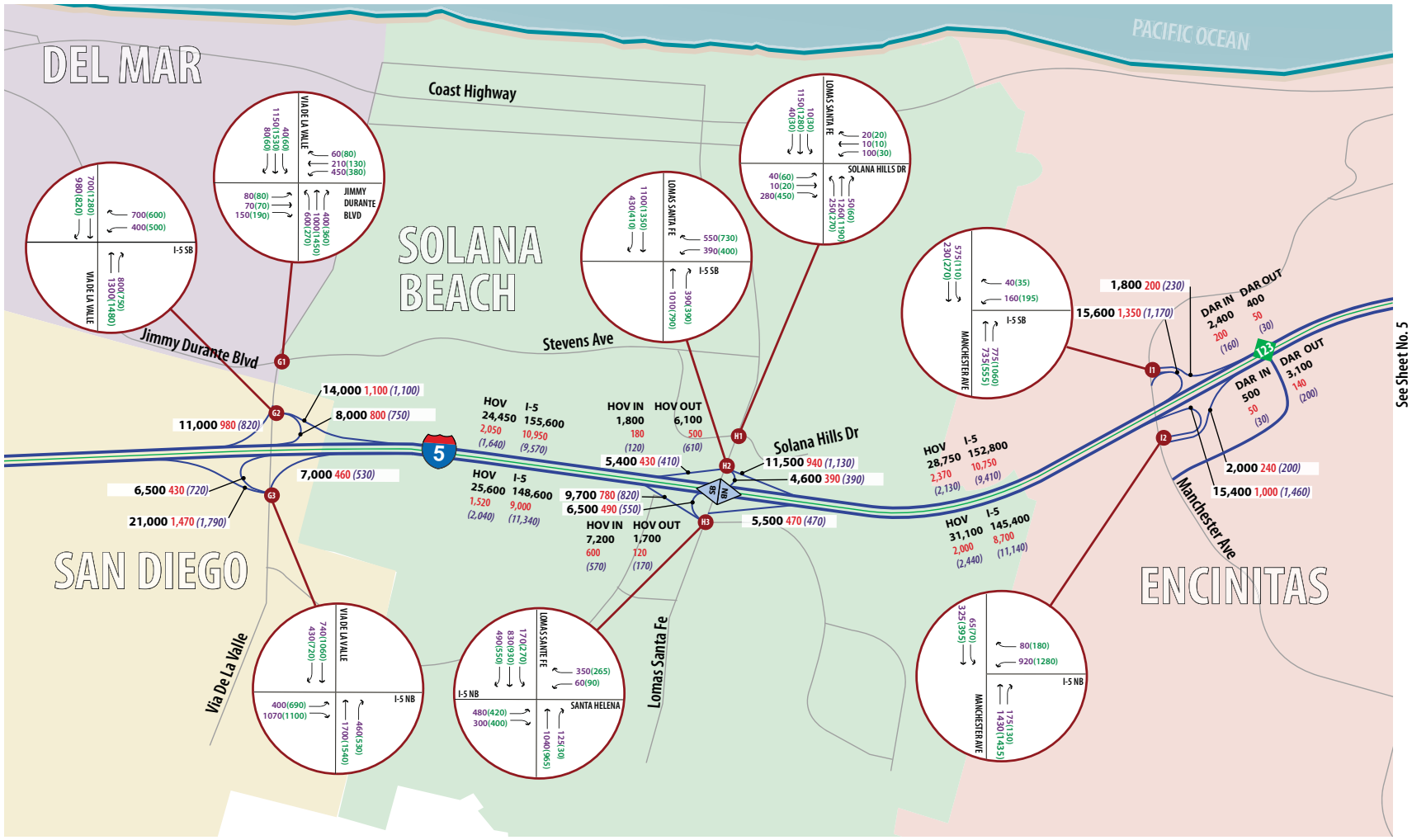
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



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NORTH COAST INTERSTATE 5 CORRIDOR

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LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

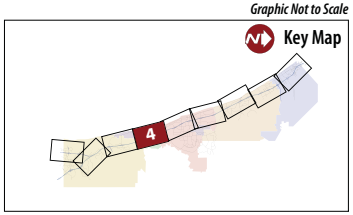
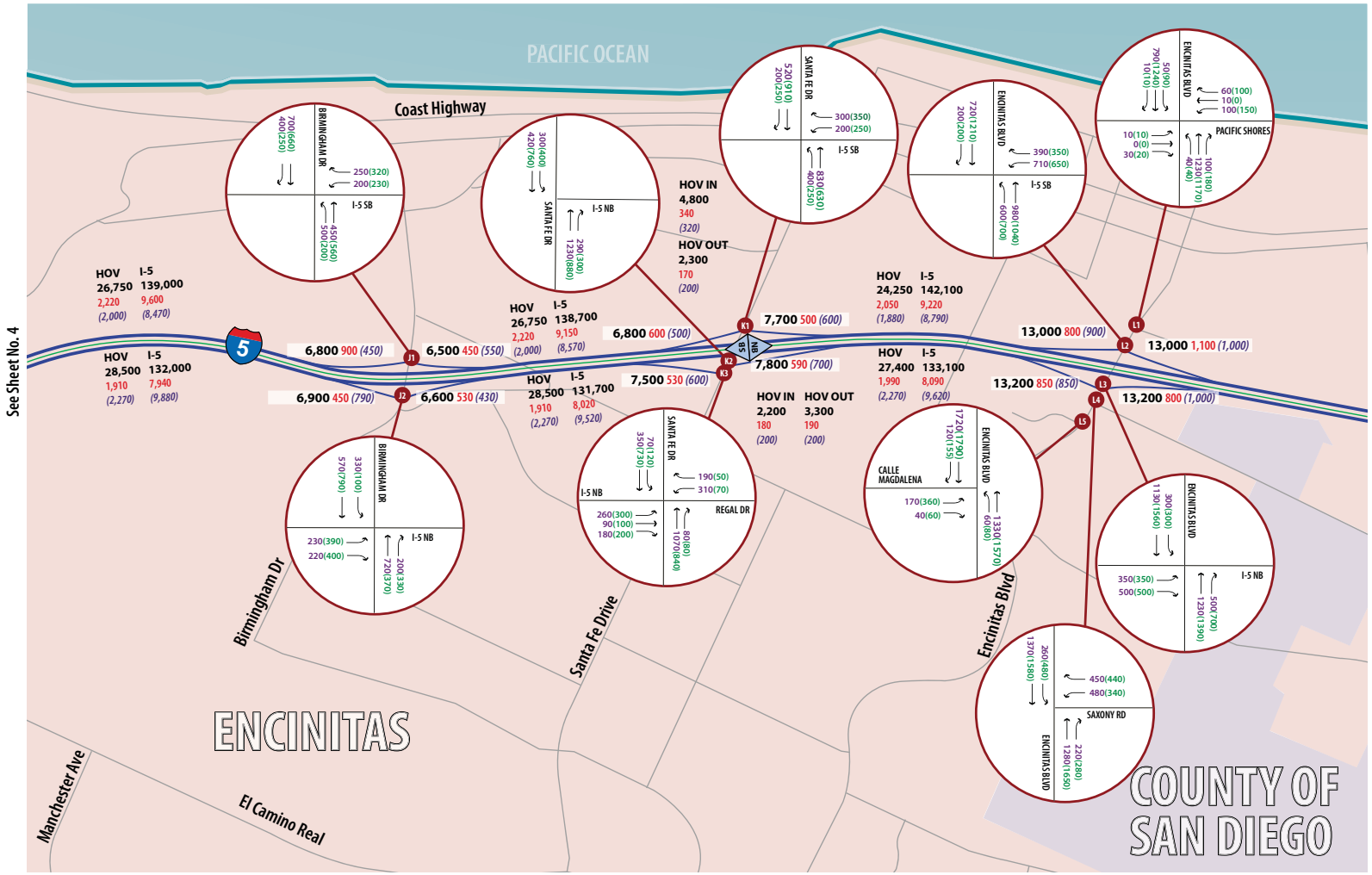


FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

XX = Intersection ID Number		XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX = DAR Intersection ID Number		XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
= HOV Ingress / Egress		XX,XXX	= Average Daily Traffic
= I-5 Mainline		X,XXX	= AM Peak Hour
= I-5 HOV		(X,XXX)	= (PM Peak Hour)
		= Bypass Lane	

Graphic Not to Scale

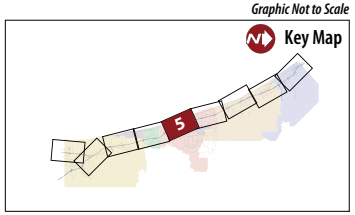
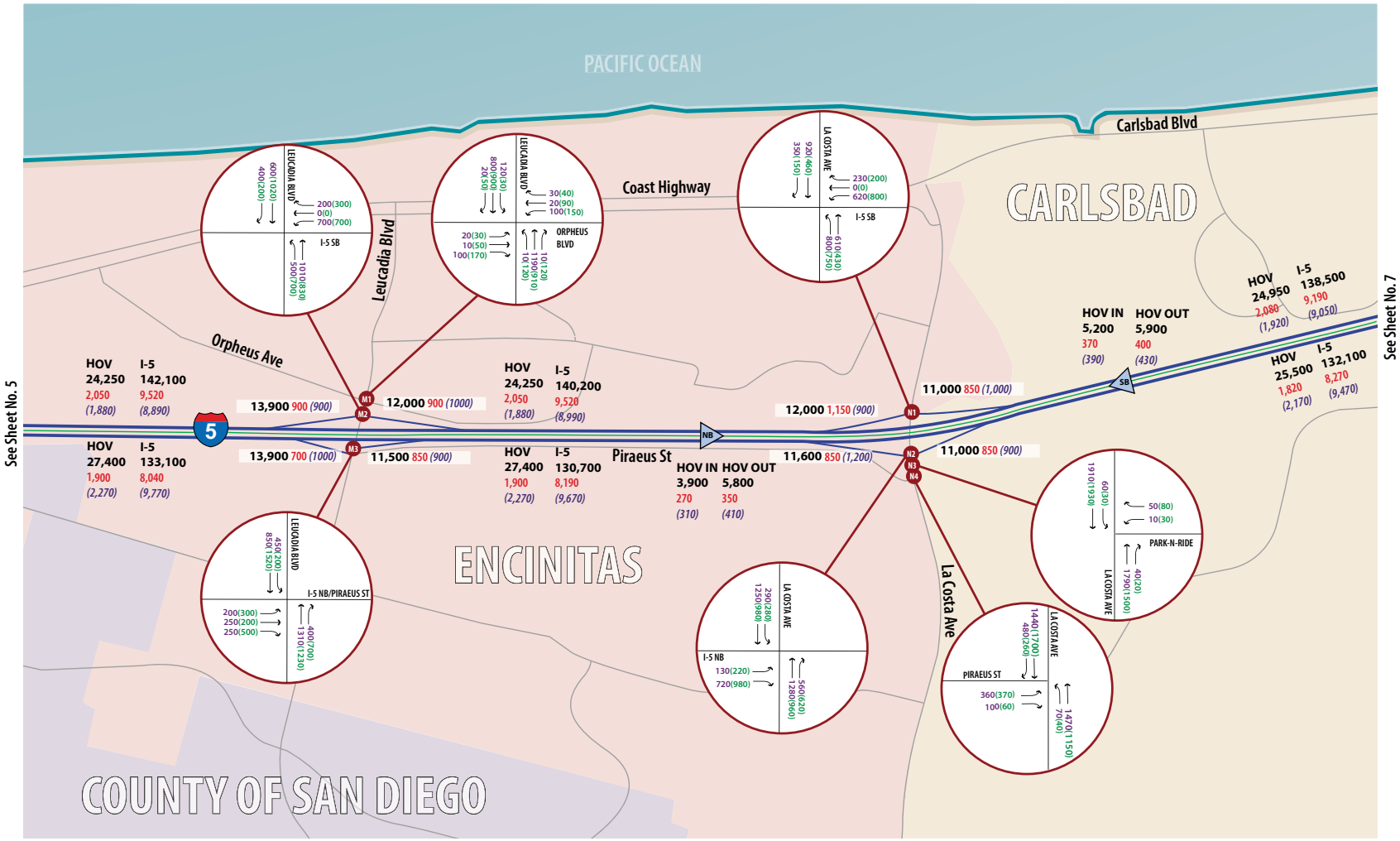


FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



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LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

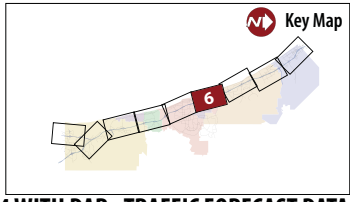
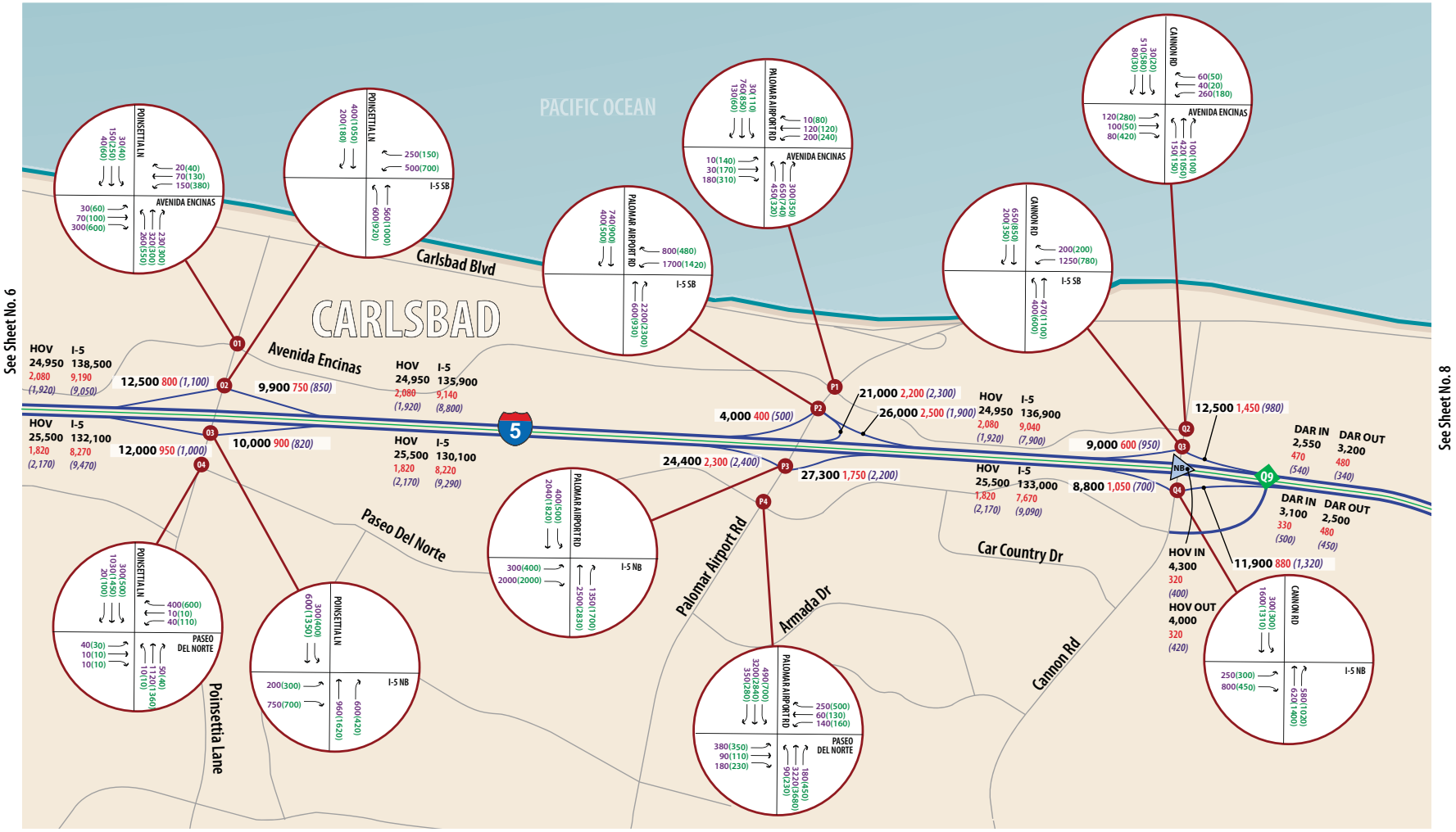
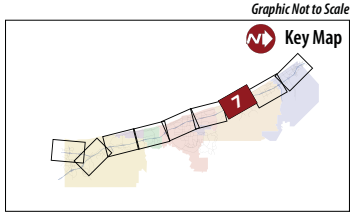


FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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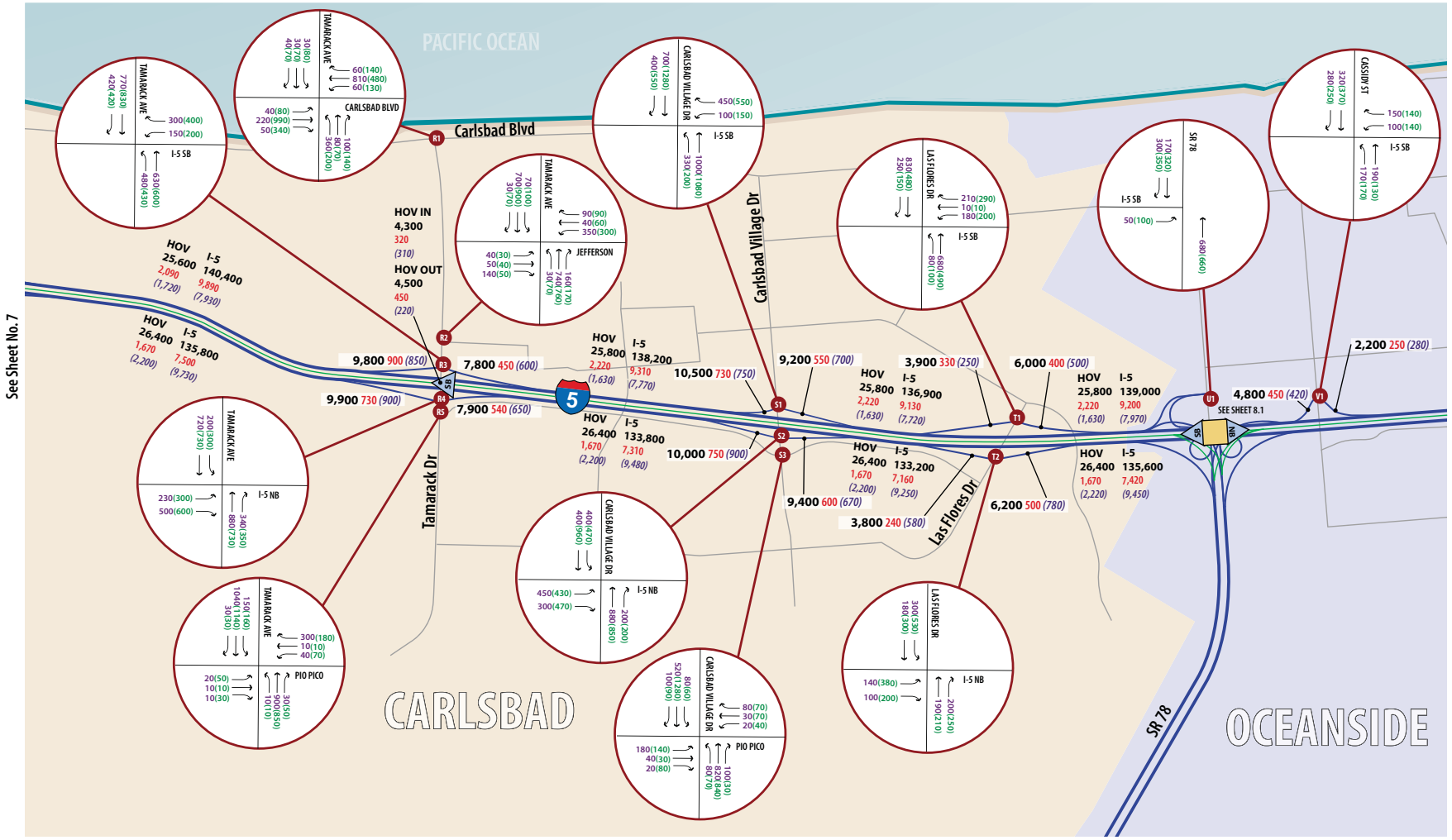
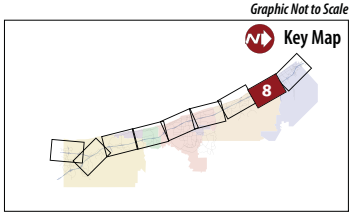
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = FWY to FWY HOV Access
- = I-5 Mainline
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = I-5 HOV

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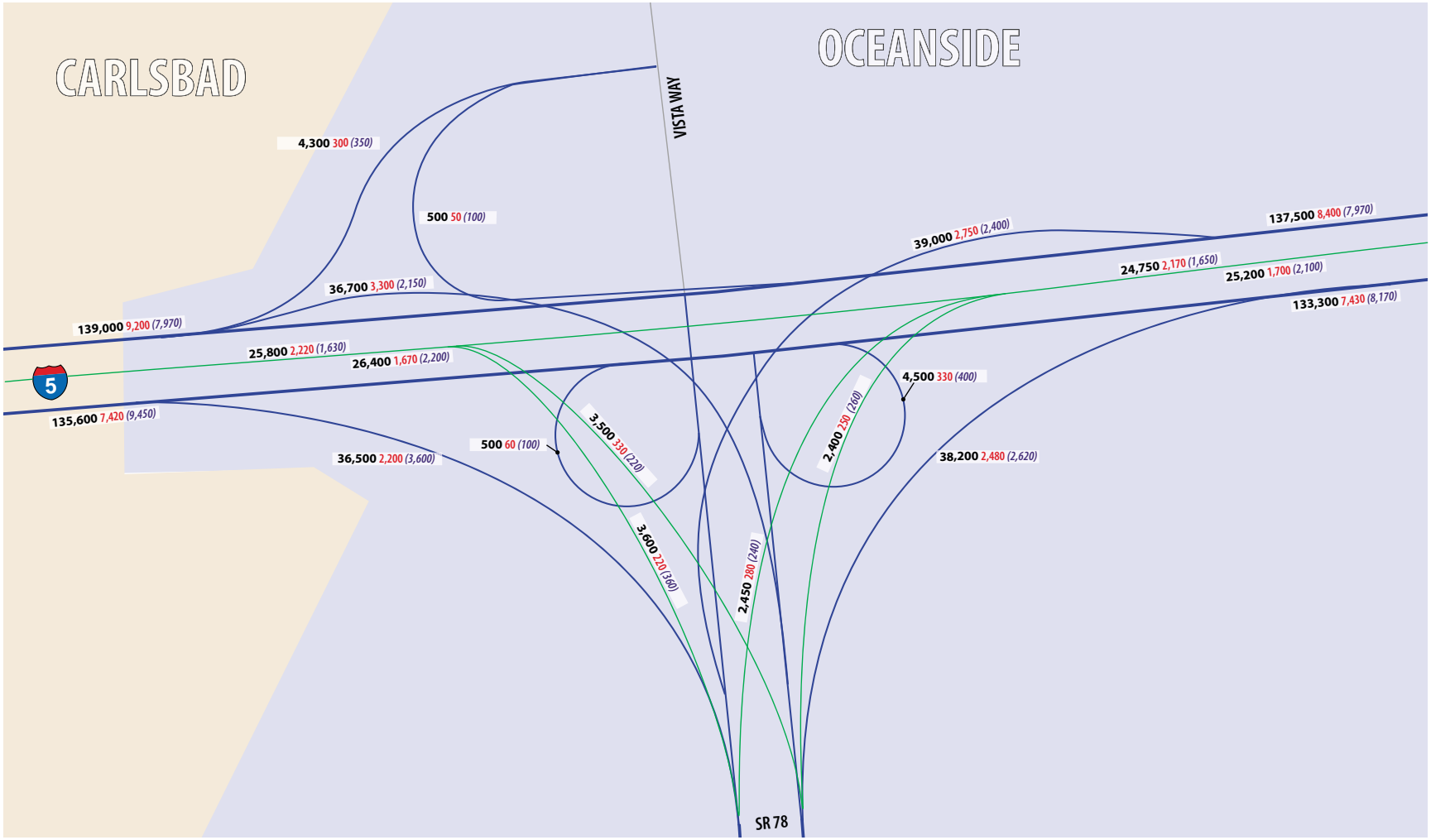
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- S E = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale

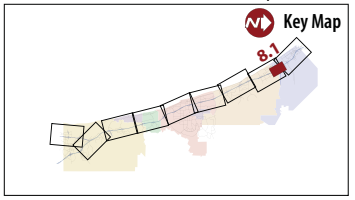


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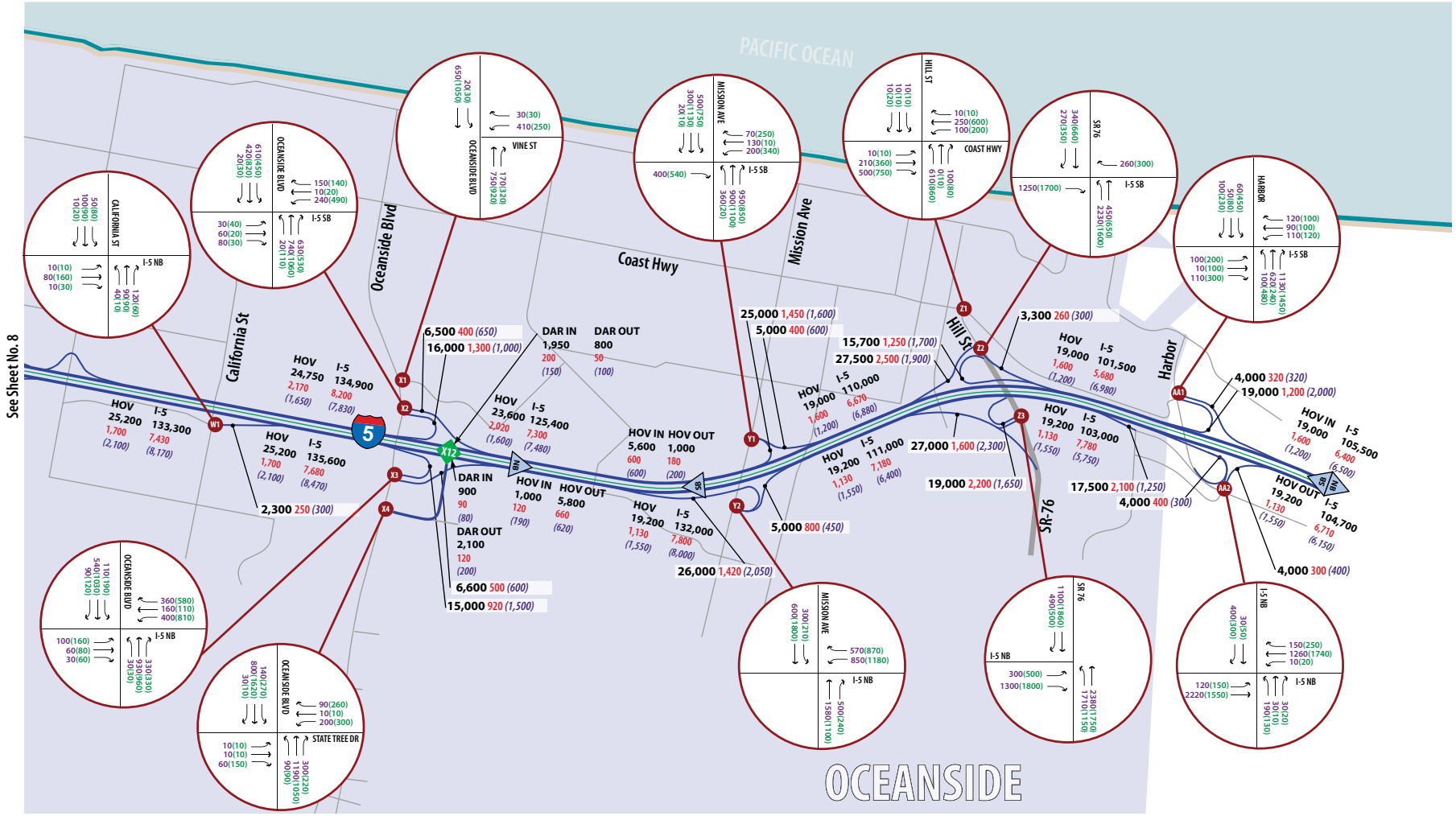
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
SB NB	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

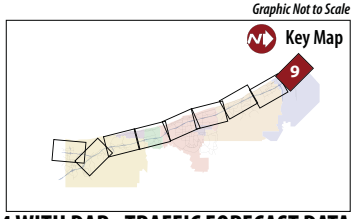


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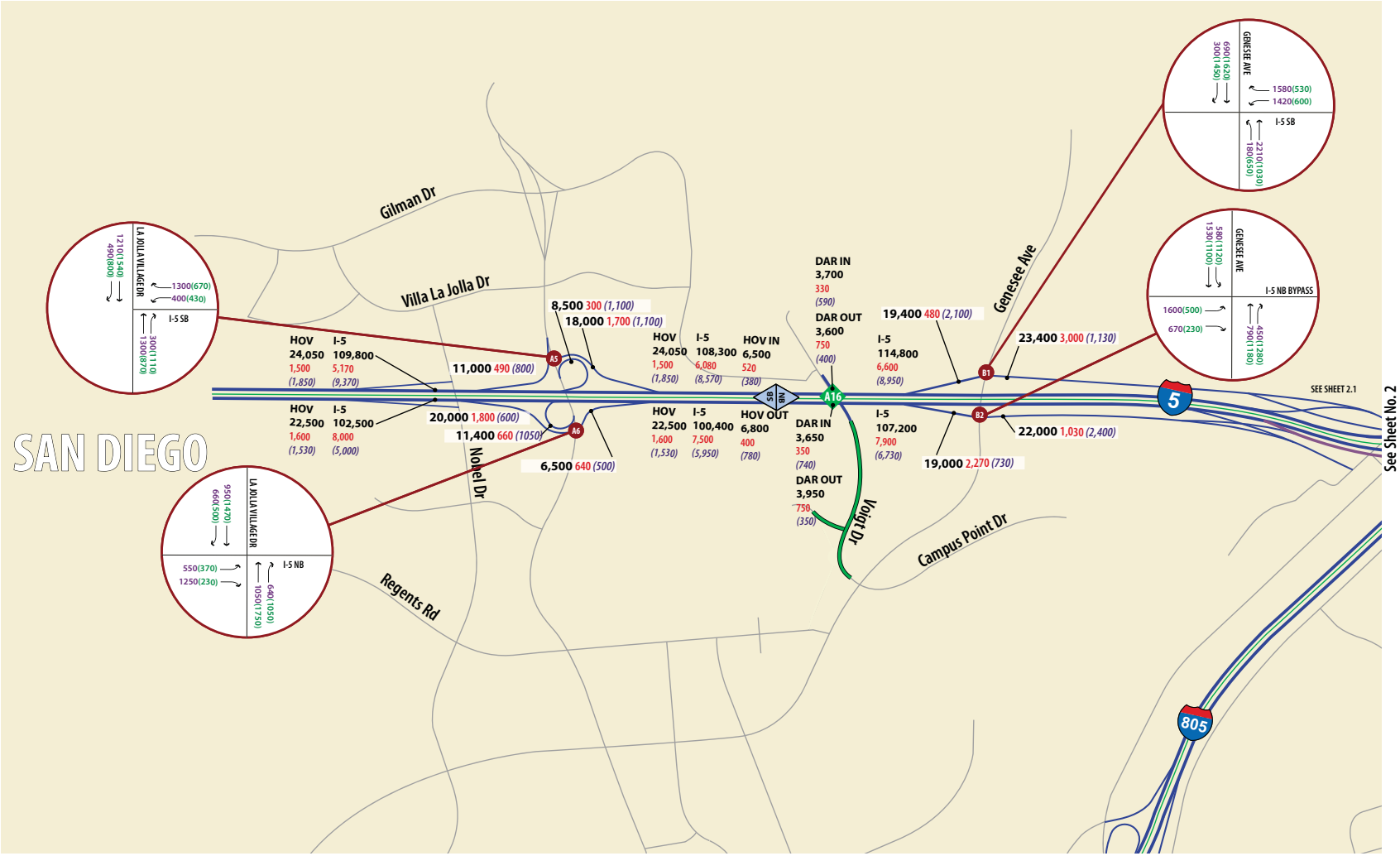
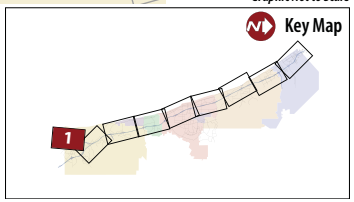
FIGURE 3-5. YEAR 2030 10+4 WITH DAR - TRAFFIC FORECAST DATA

Appendix F

Year 2030 8+4 with Direct Access Ramps – Traffic Forecast Data



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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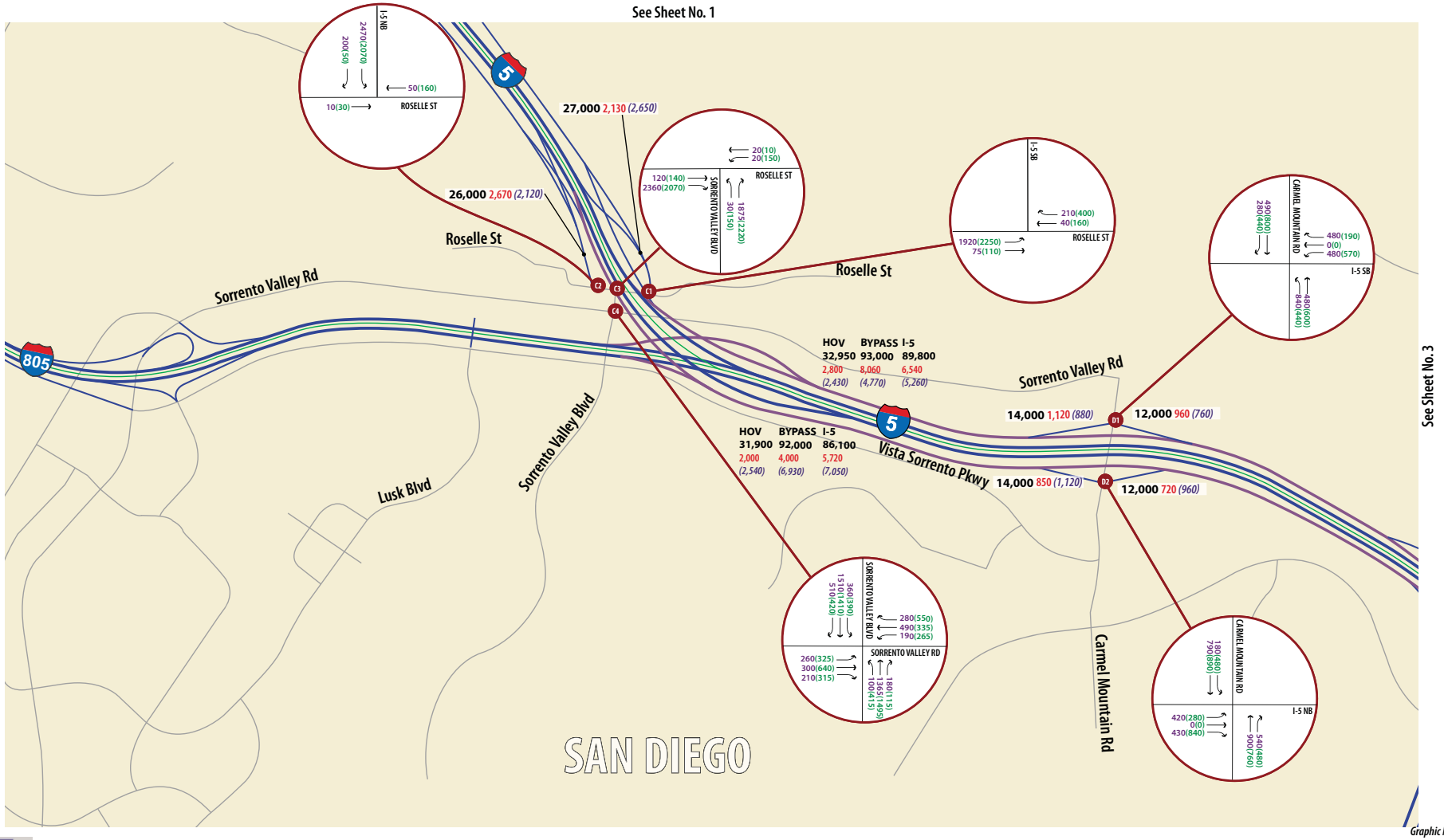
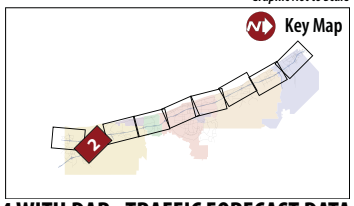
NORTH COAST INTERSTATE 5 CORRIDOR

WILSON & COMPANY ENGINEERS & ARCHITECTS

FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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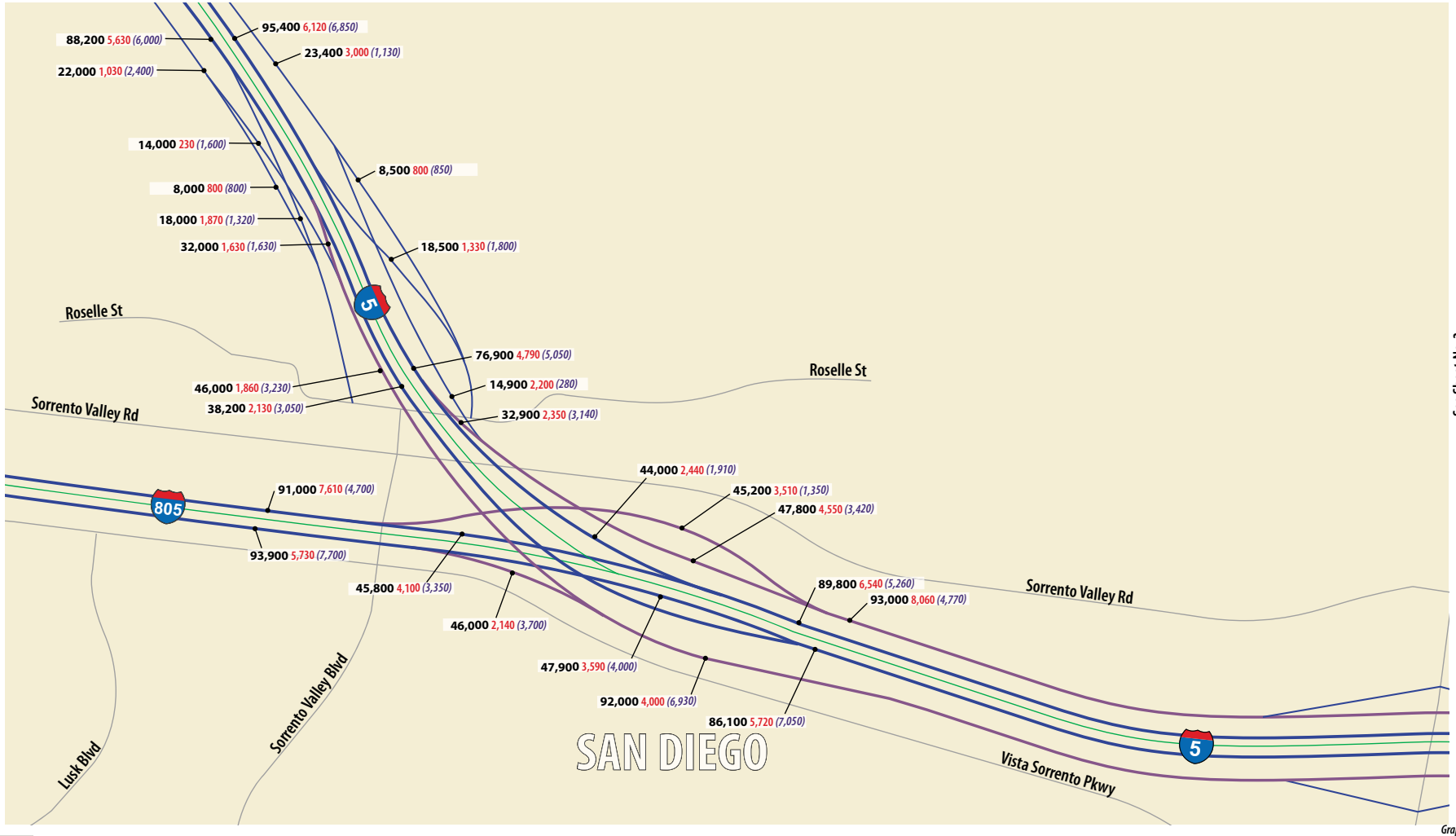
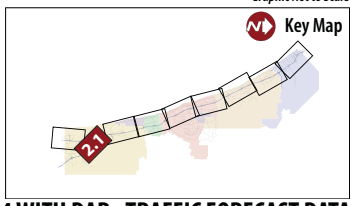
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA

See Sheet No. 1



See Sheet No. 3

Graphic Not to Scale



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

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NORTH COAST INTERSTATE 5 CORRIDOR

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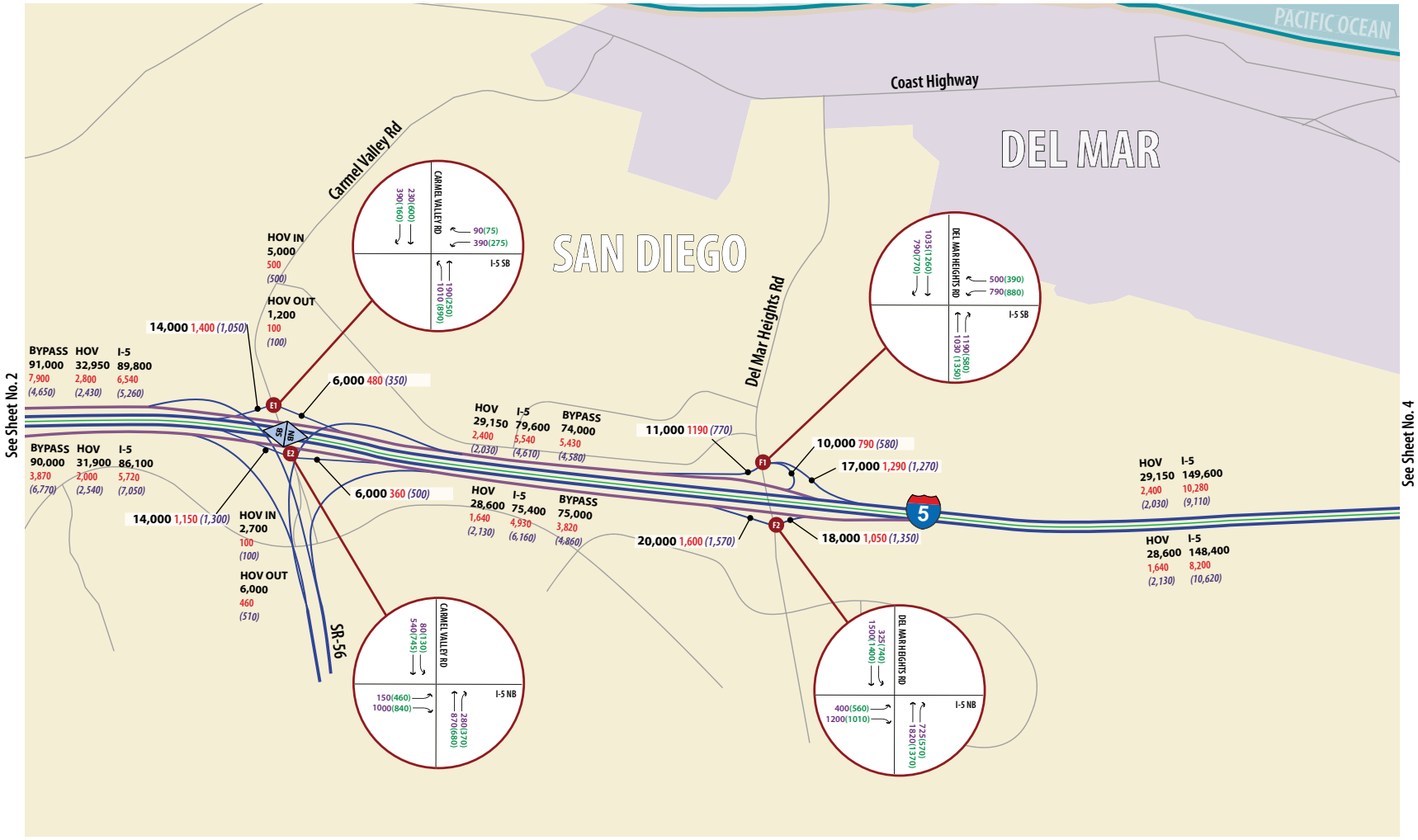
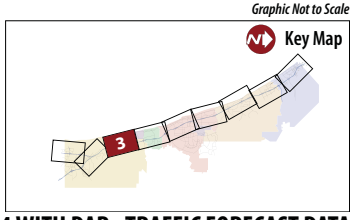
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale



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NORTH COAST INTERSTATE 5 CORRIDOR

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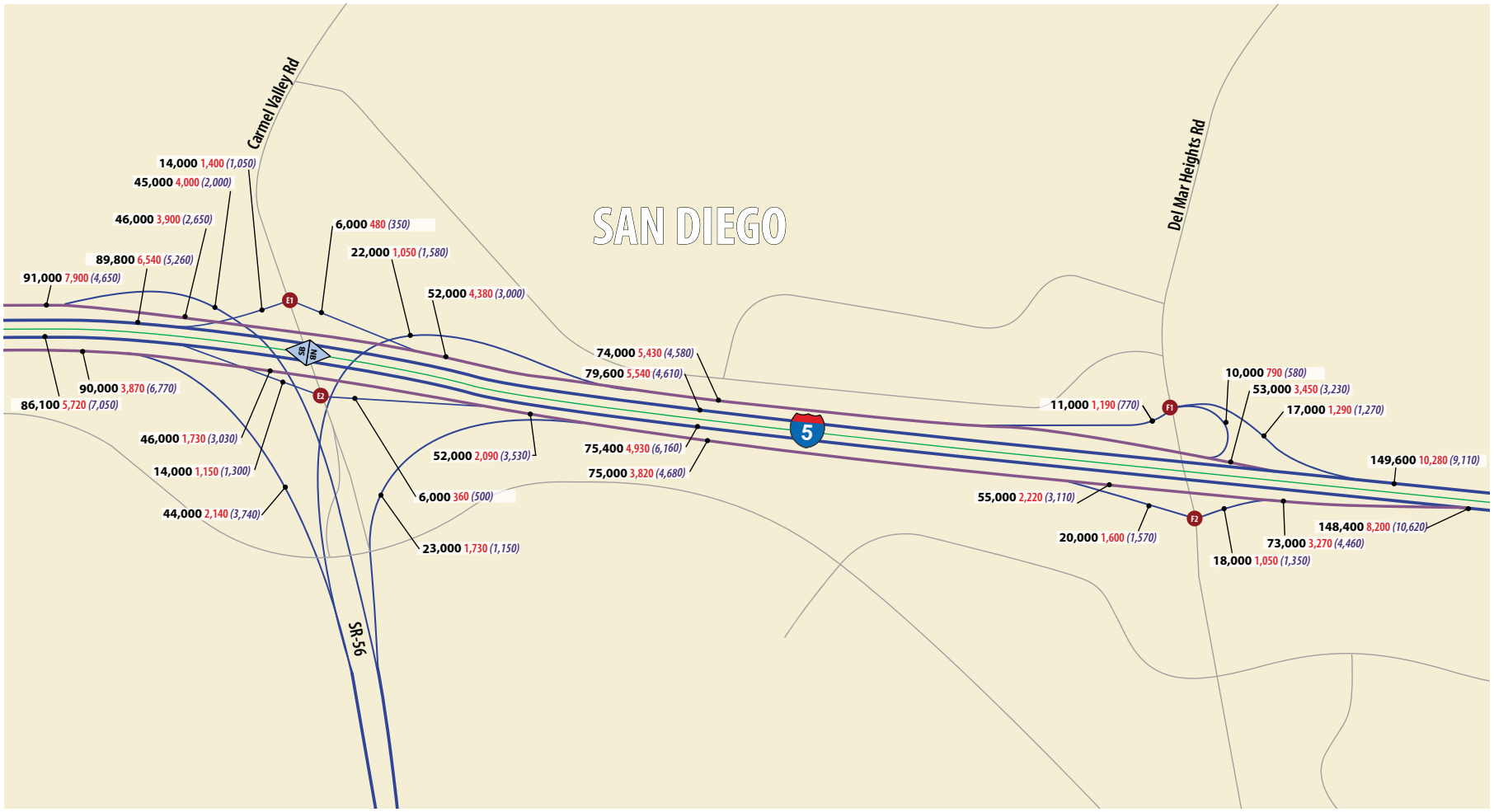
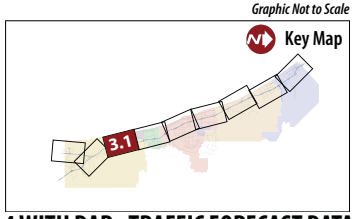
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale



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NORTH COAST INTERSTATE 5 CORRIDOR

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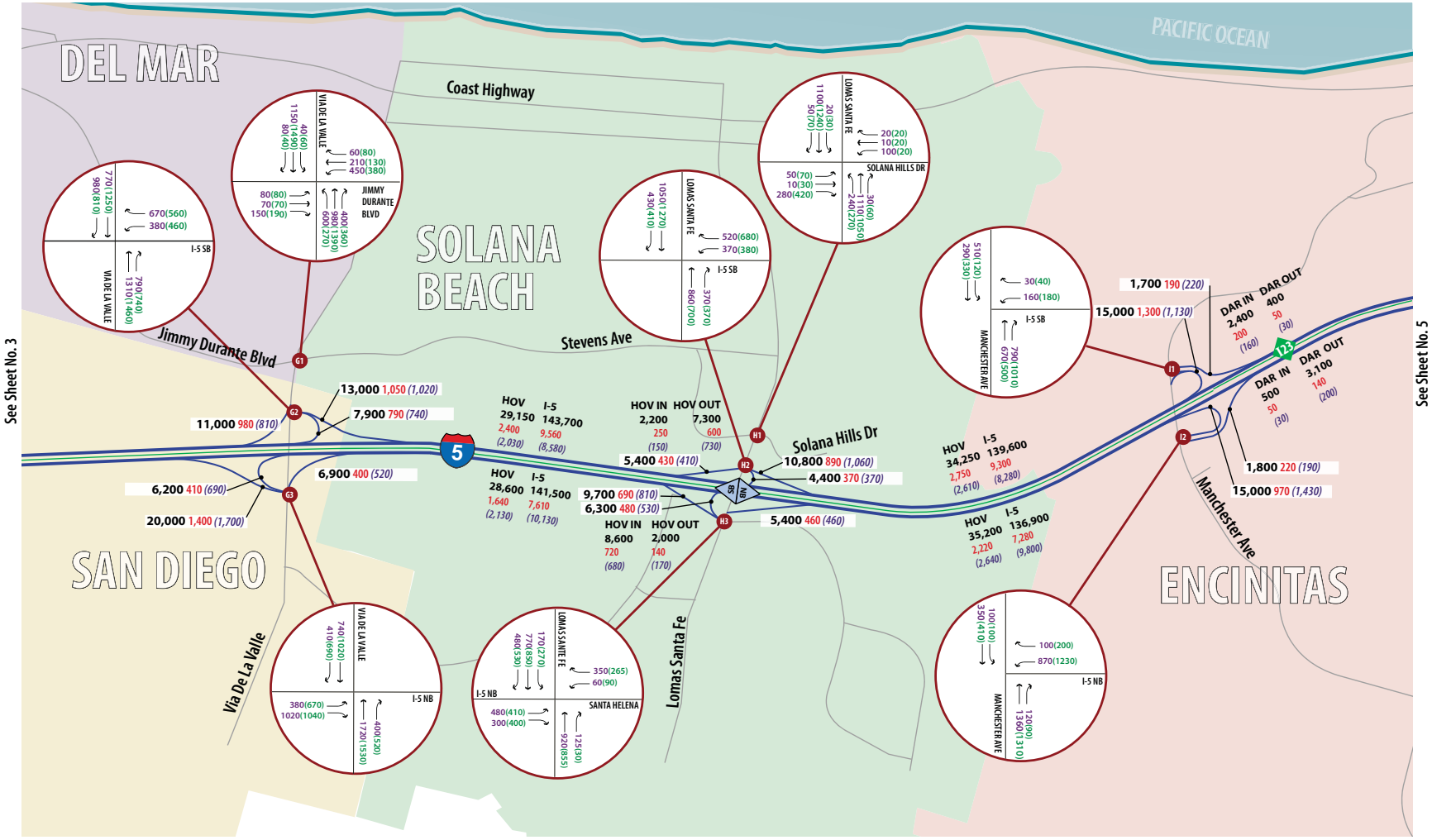
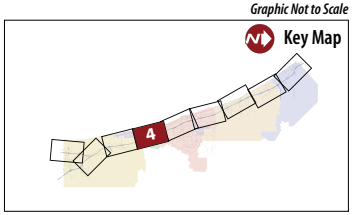
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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NORTH COAST INTERSTATE 5 CORRIDOR

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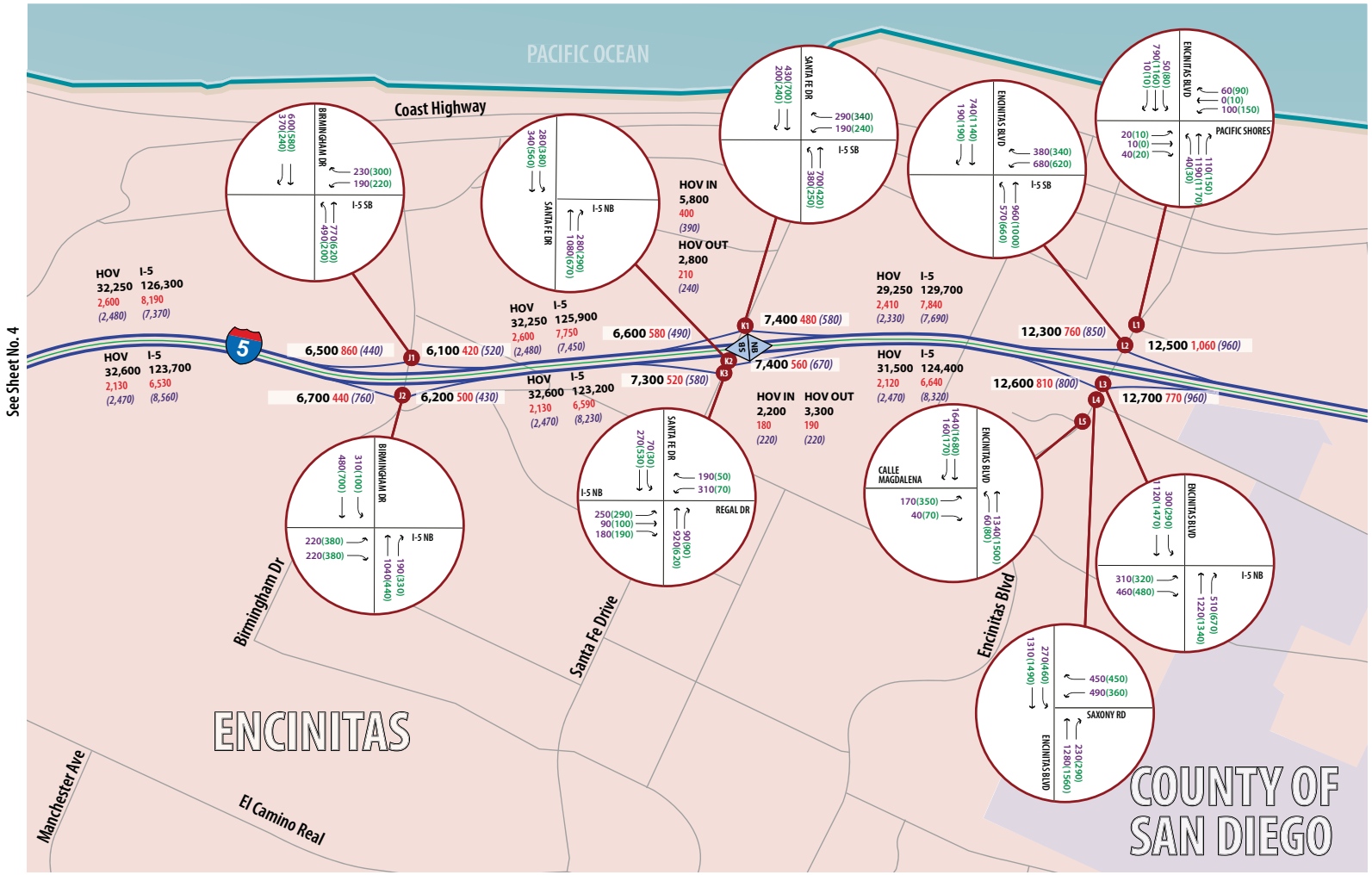
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

XX = Intersection ID Number		XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX = DAR Intersection ID Number		XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
= HOV Ingress / Egress		XX,XXX	= Average Daily Traffic
= I-5 Mainline		X,XXX	= AM Peak Hour
= I-5 HOV		(X,XXX)	= (PM Peak Hour)
		= Bypass Lane	

Graphic Not to Scale

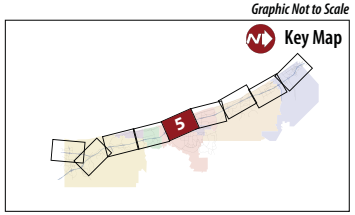
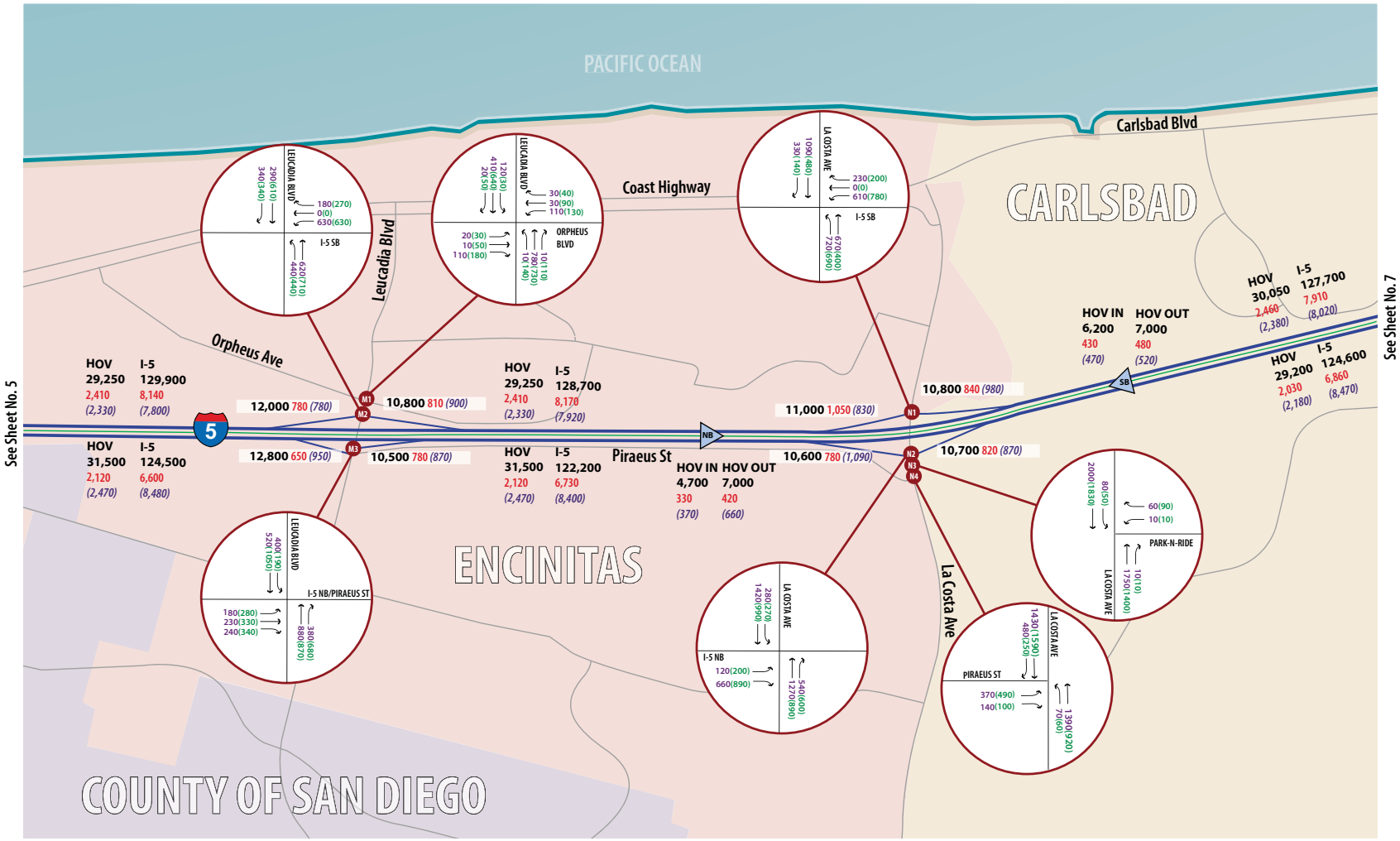


FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

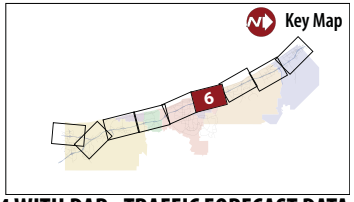


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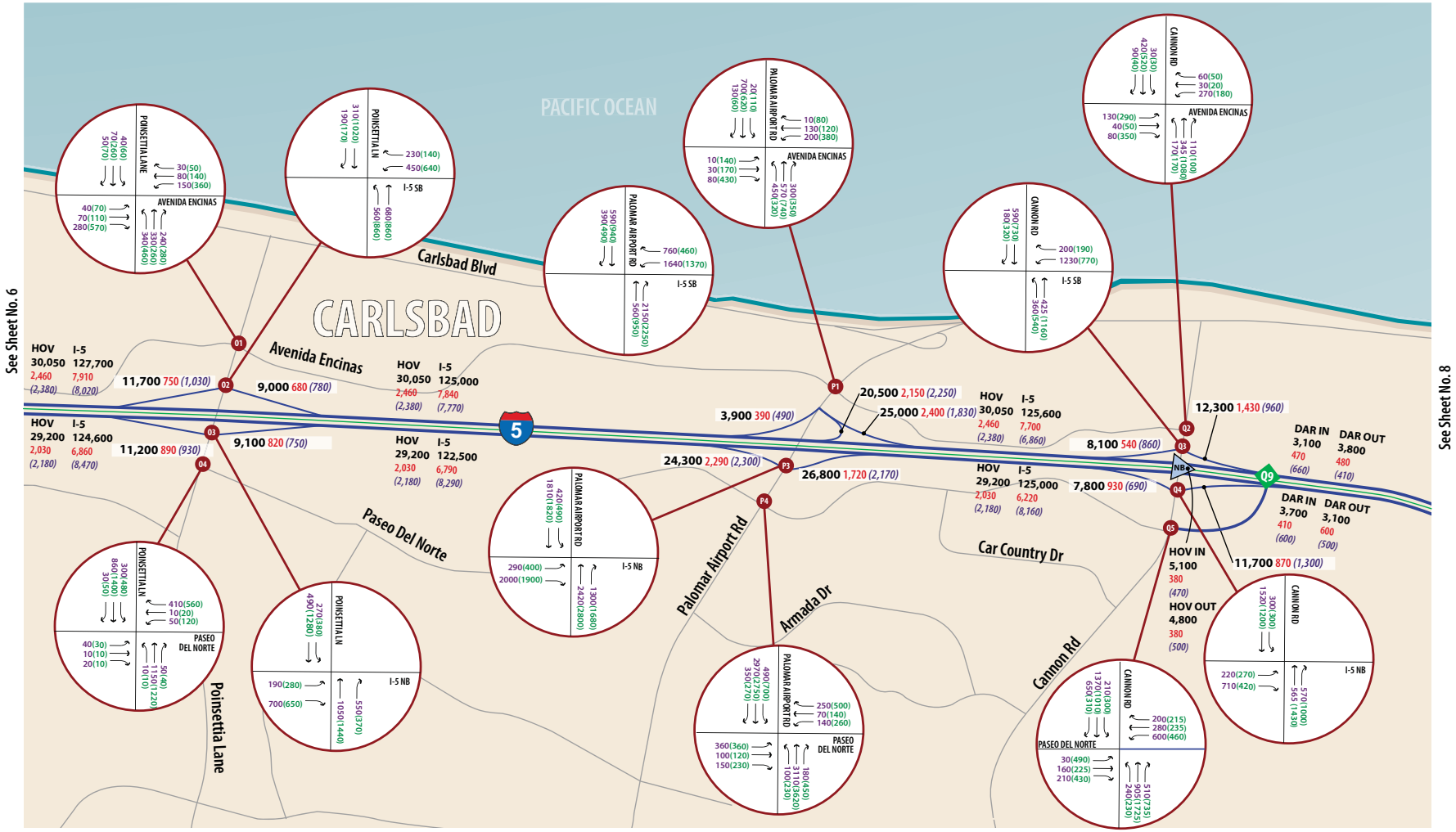
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

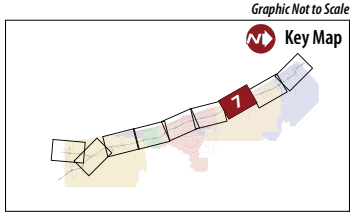
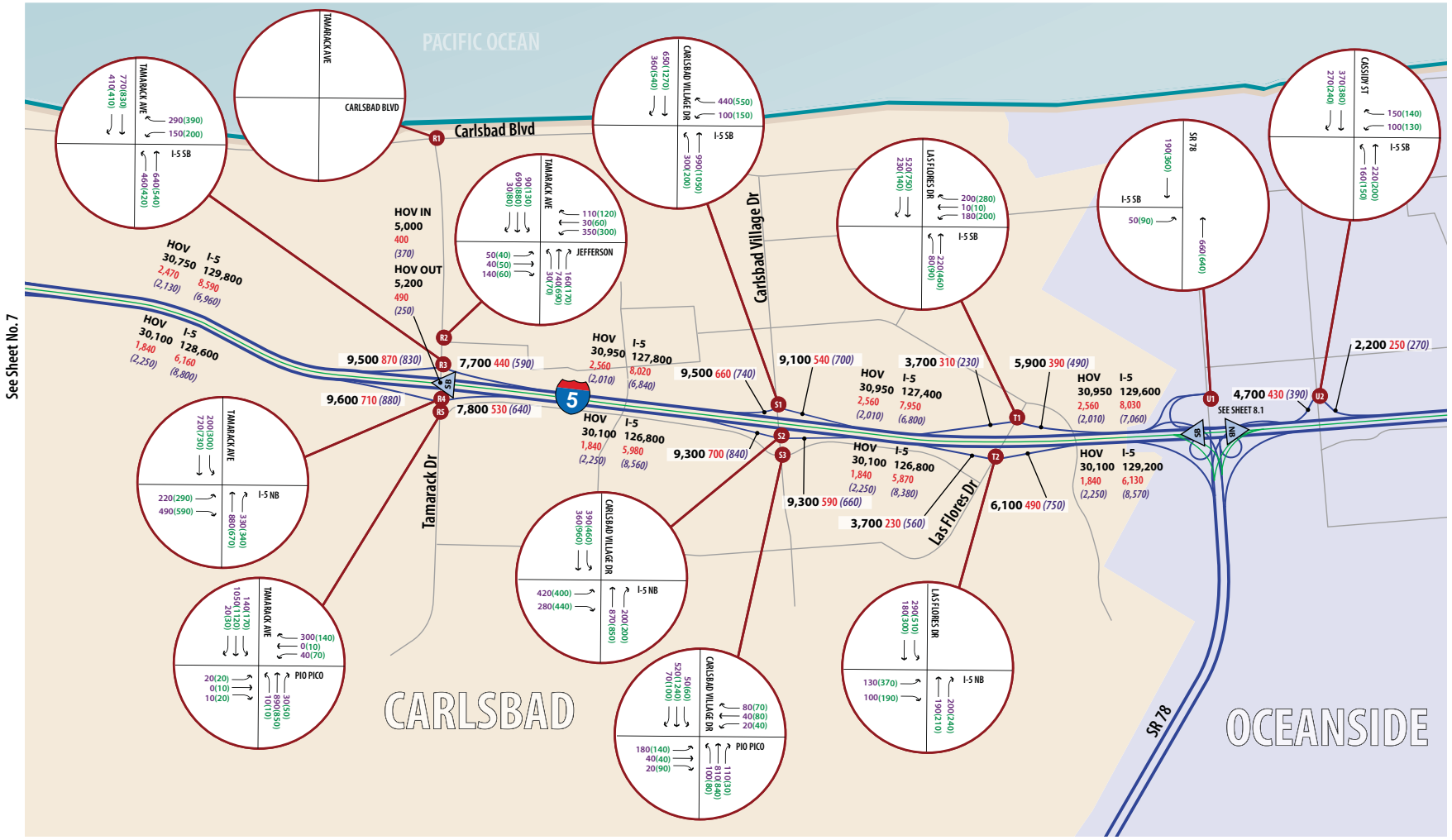


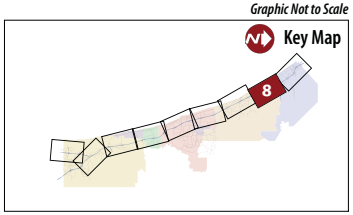
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = FWY to FWY HOV Access
- = I-5 Mainline
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = I-5 HOV

Graphic Not to Scale



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NORTH COAST INTERSTATE 5 CORRIDOR

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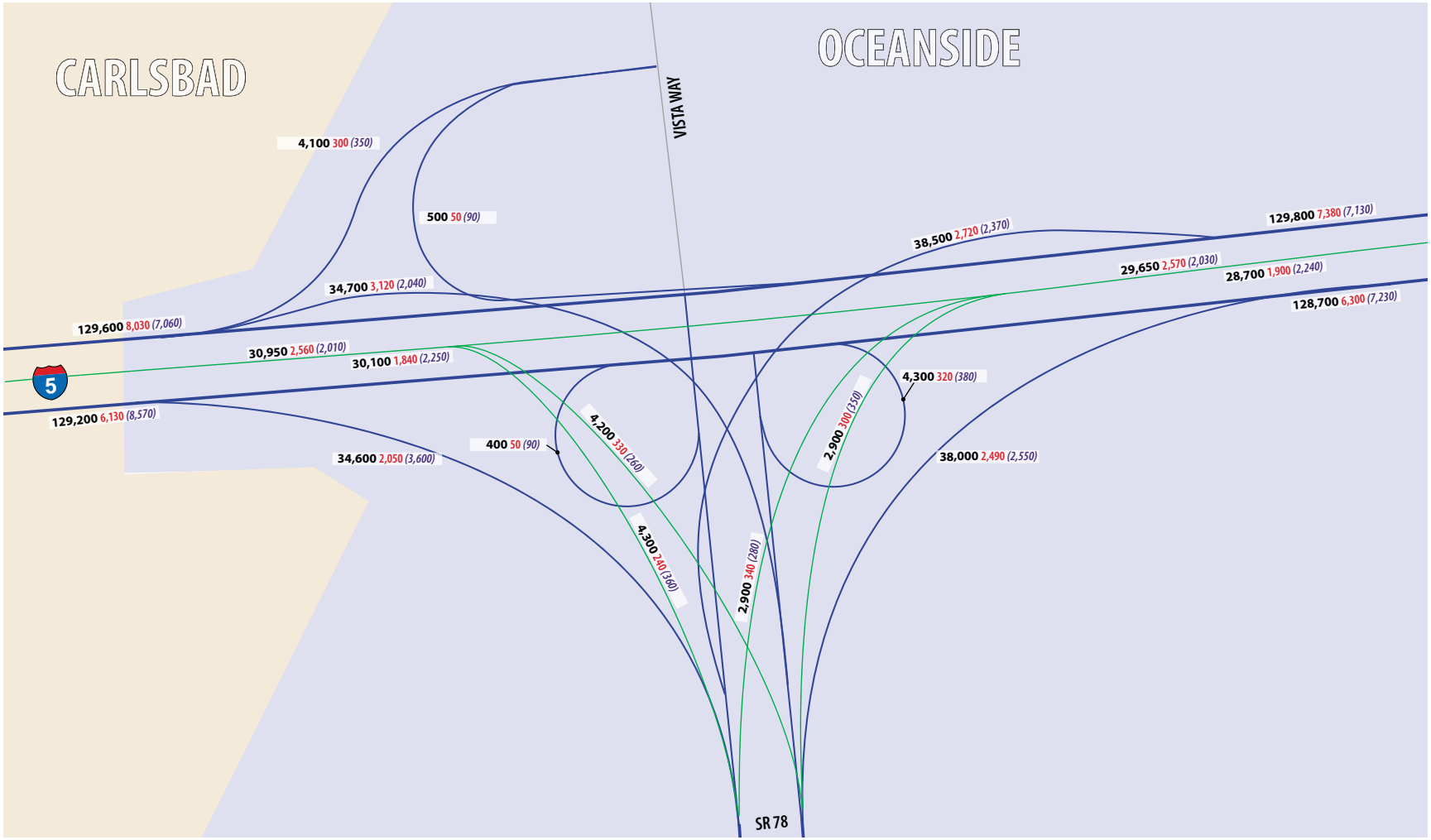
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

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Graphic Not to Scale

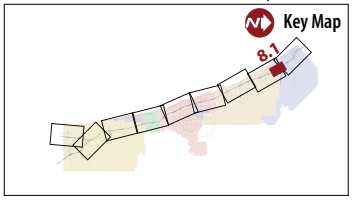
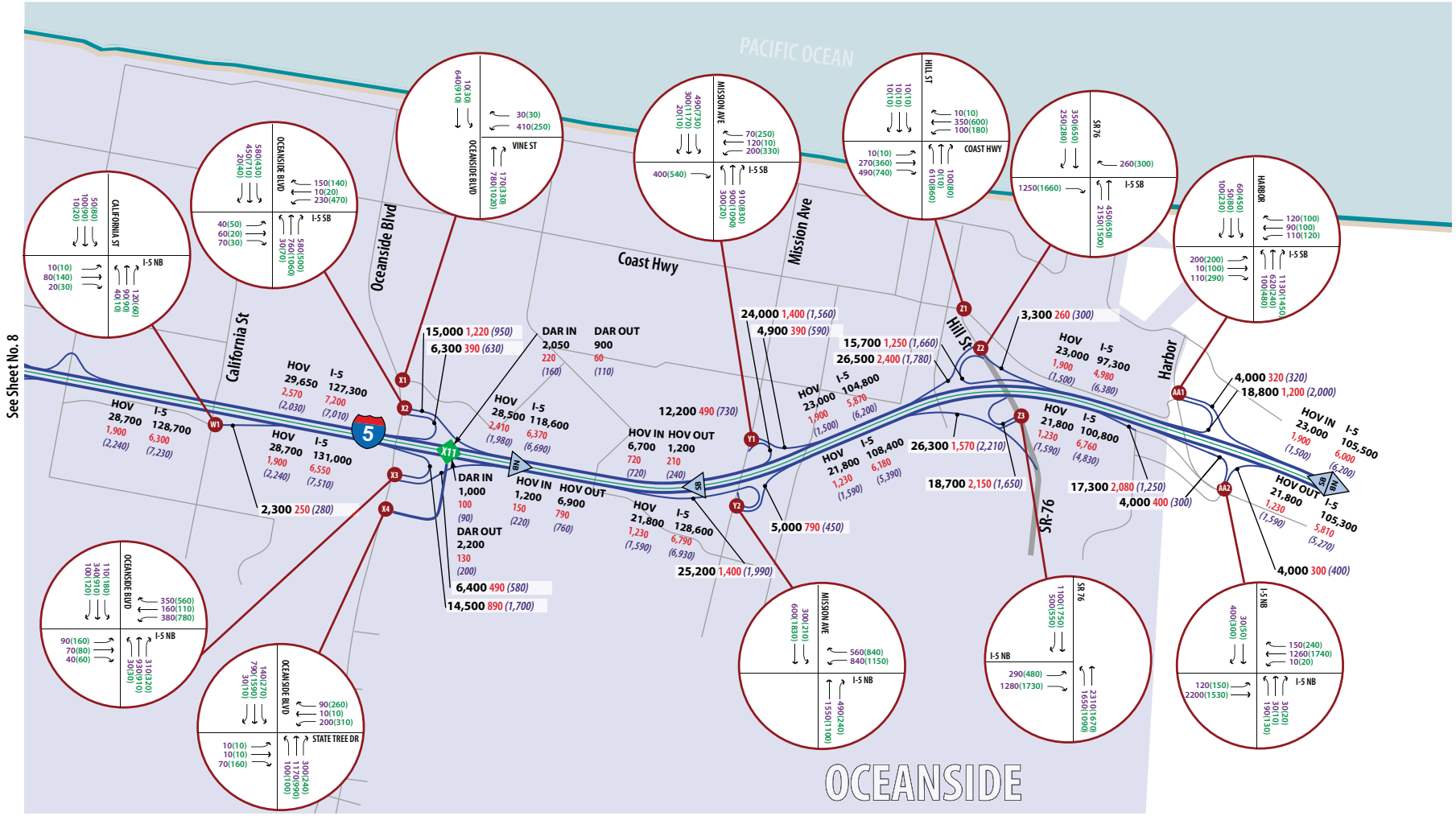
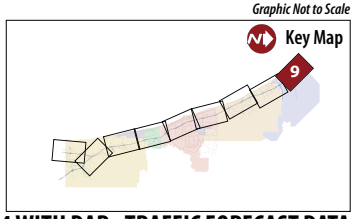


FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

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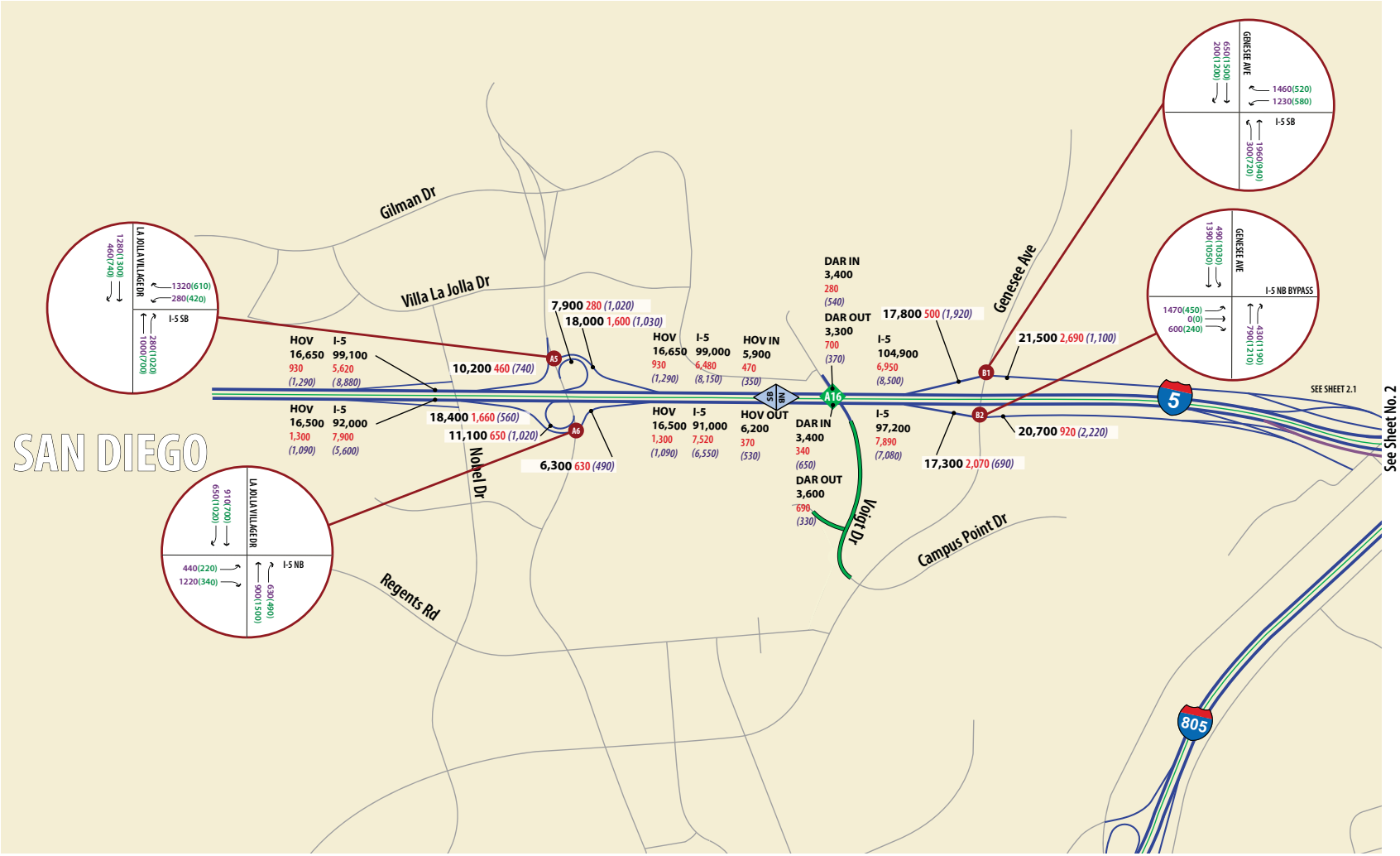
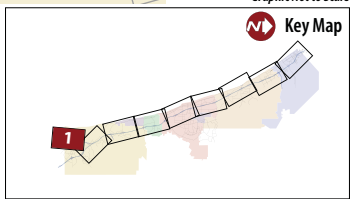
FIGURE 3-6. YEAR 2030 8+4 WITH DAR - TRAFFIC FORECAST DATA

Appendix G

Year 2015 10+4 with Direct Access Ramps – Traffic Forecast Data



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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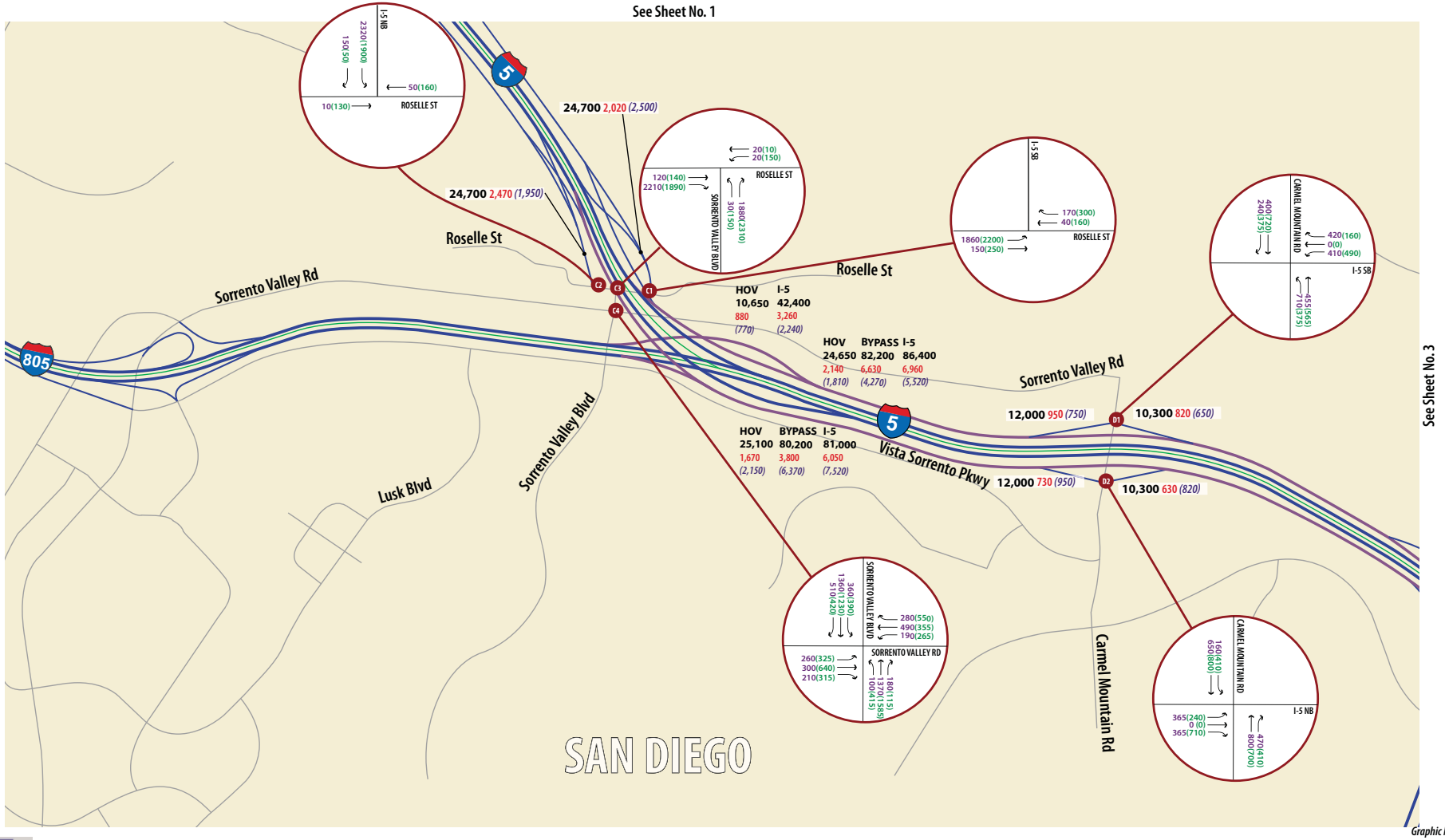
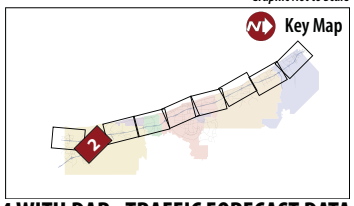
FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

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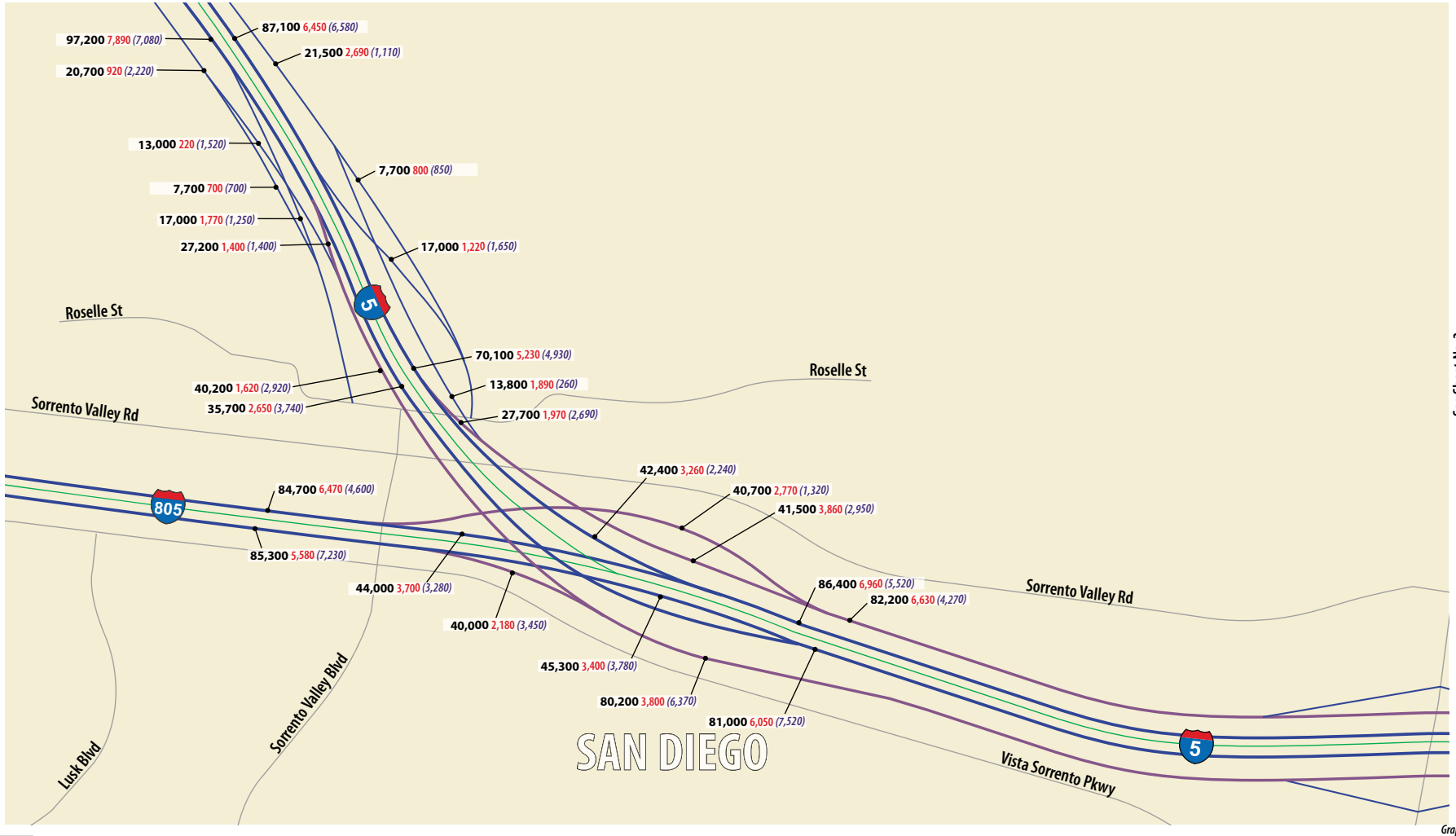
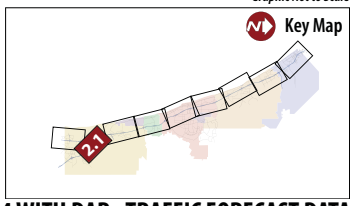
FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA

See Sheet No. 1



See Sheet No. 3

Graphic Not to Scale



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

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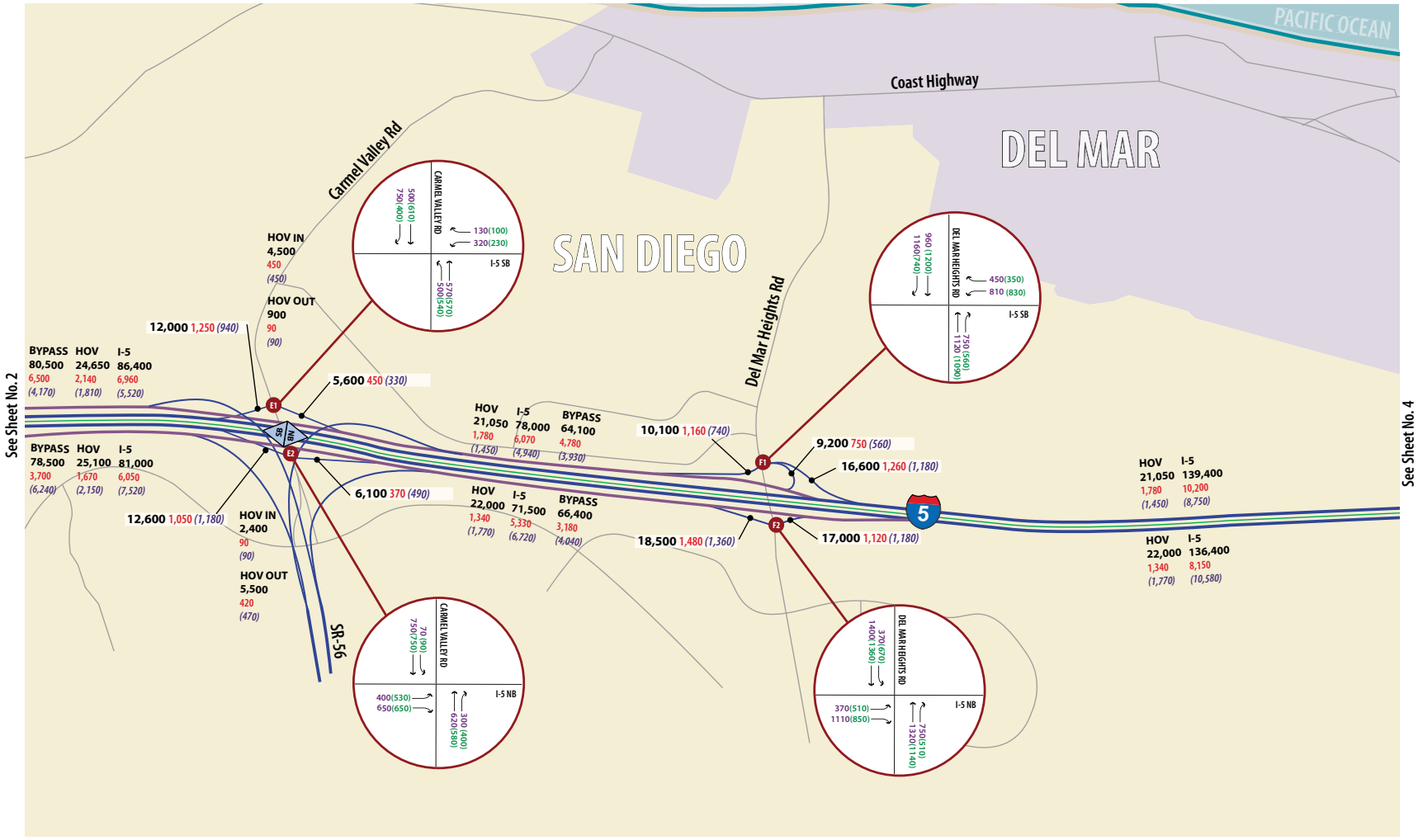
FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

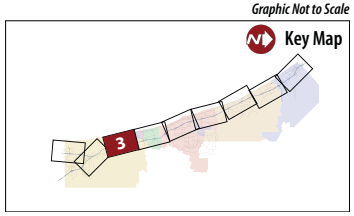
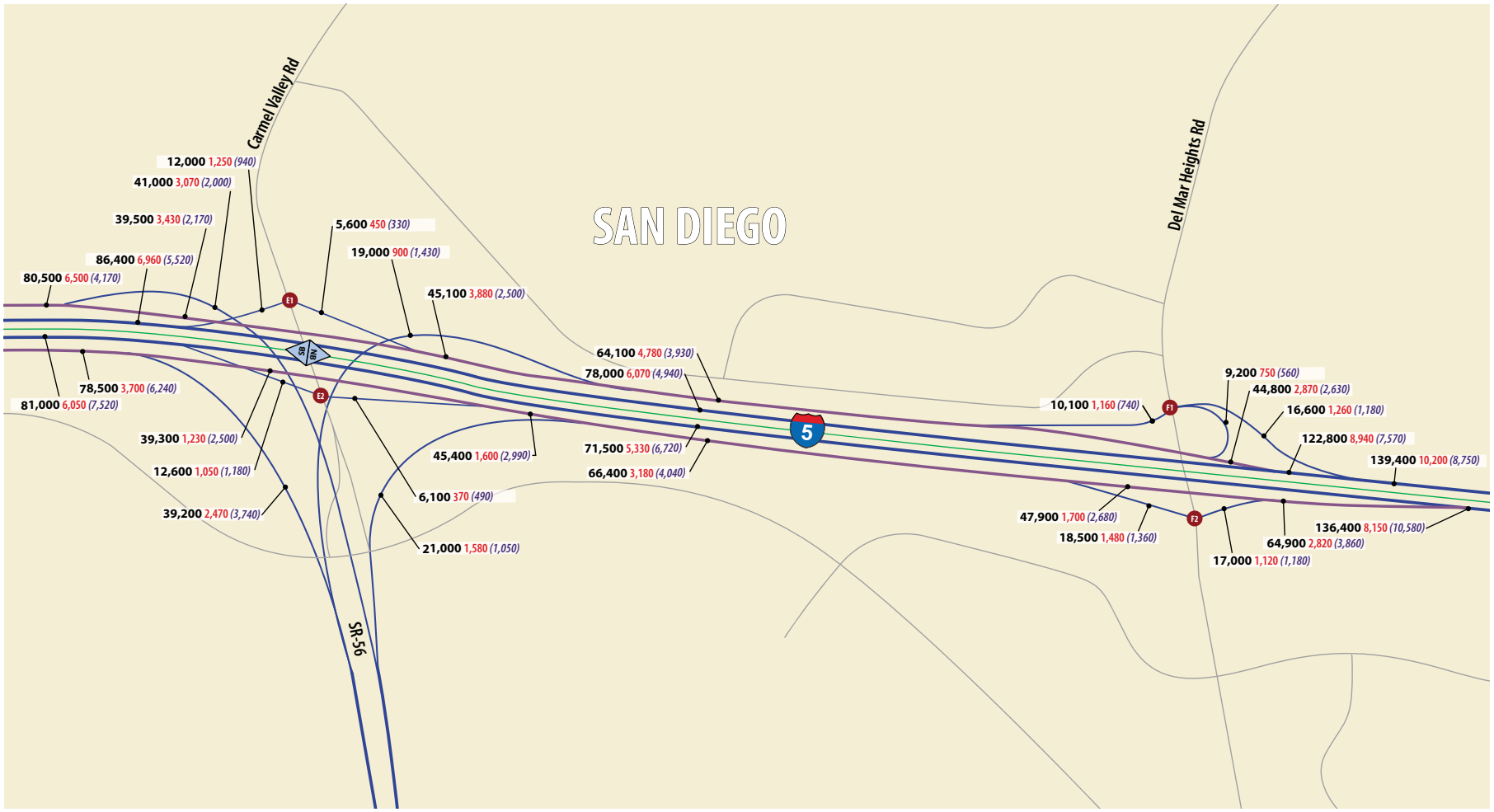


FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- SB NB = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale

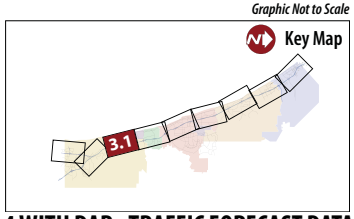
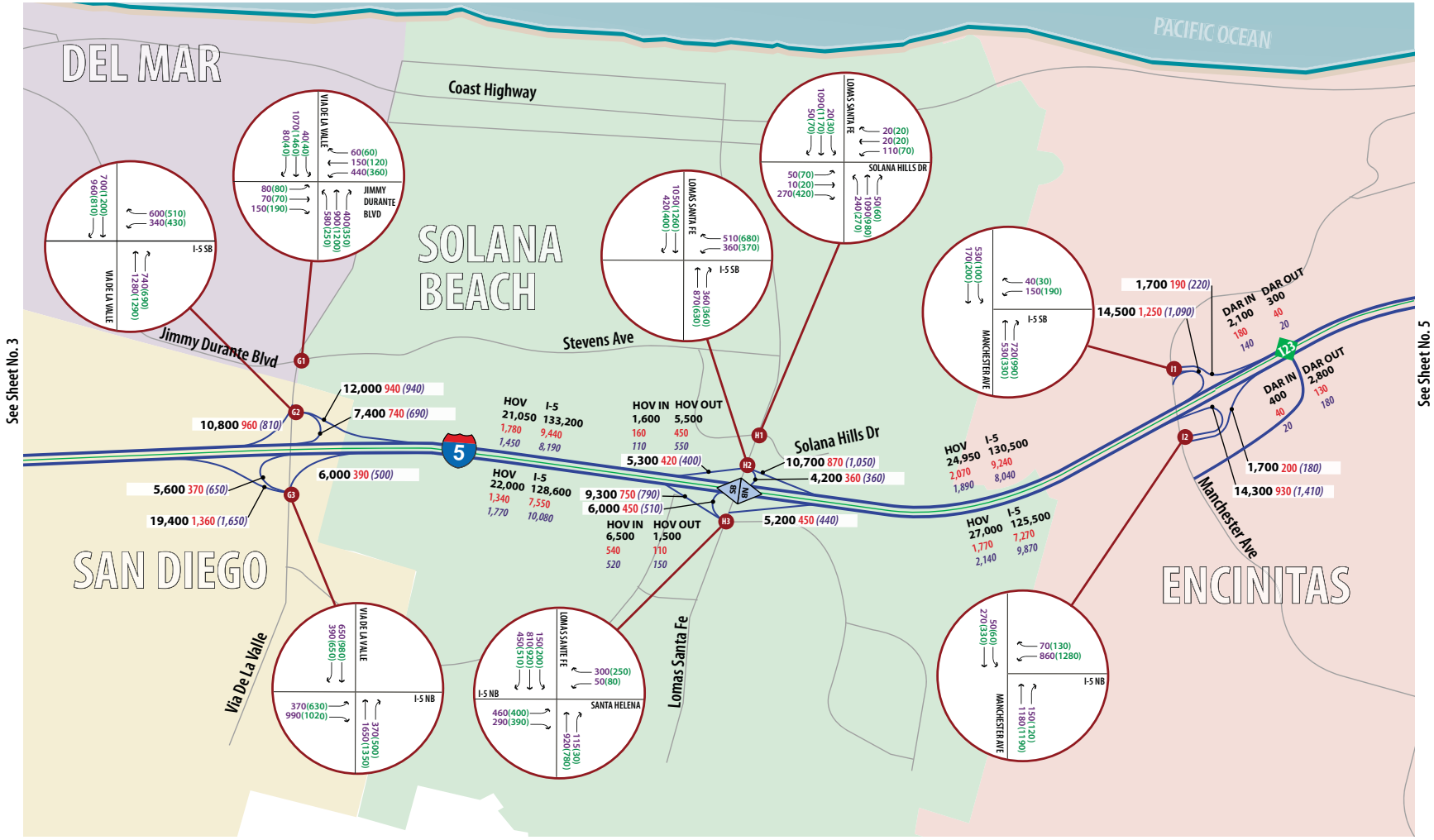


FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
SB NB	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

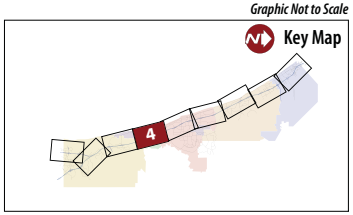
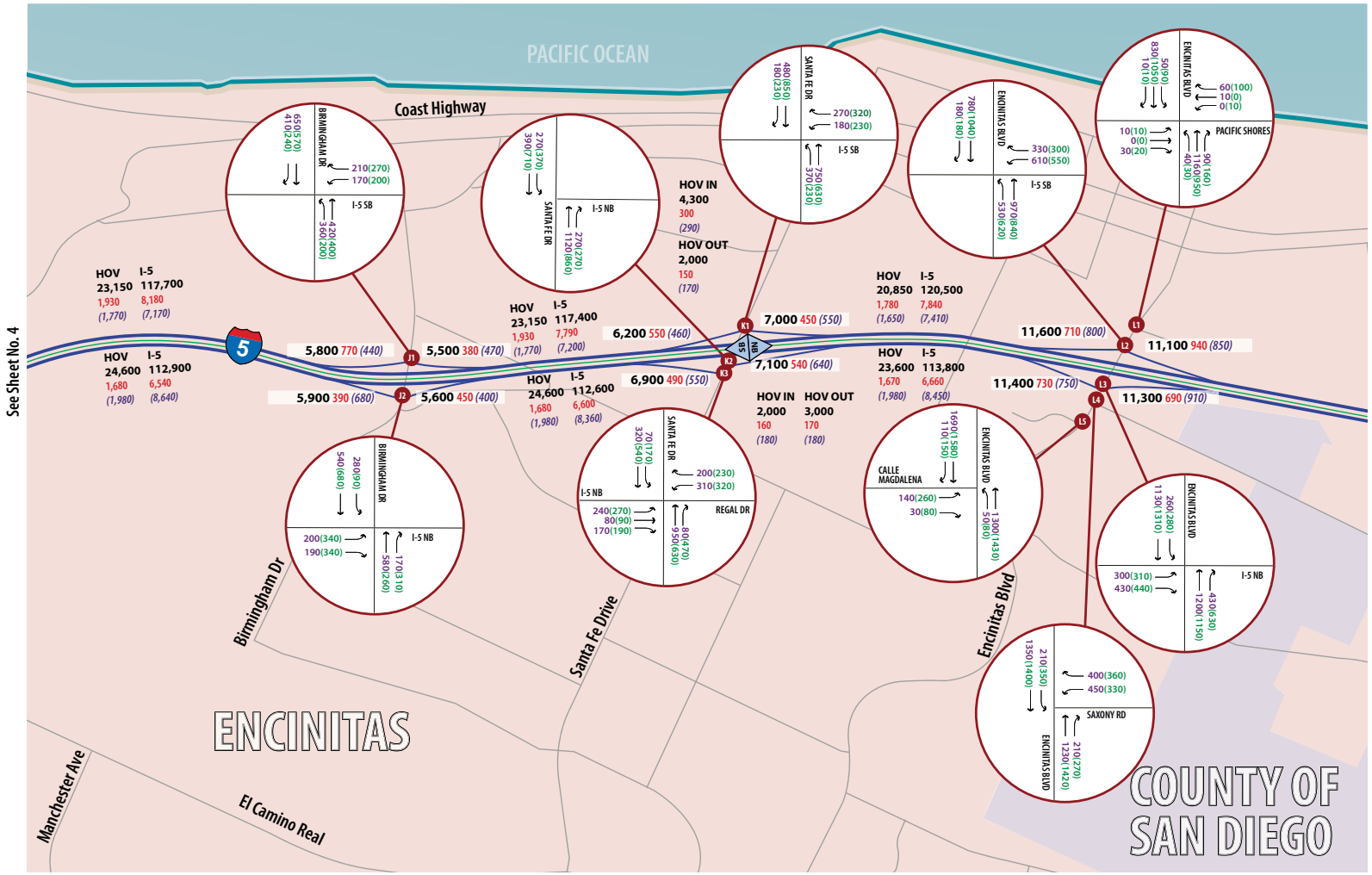


FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

XX	= Intersection ID Number	XX (XX)	= AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
XX	= DAR Intersection ID Number	XX,XXX X,XXX (X,XXX)	= HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
	= HOV Ingress / Egress	XX,XXX	= Average Daily Traffic
	= I-5 Mainline	X,XXX	= AM Peak Hour
	= I-5 HOV	(X,XXX)	= (PM Peak Hour)
			= Bypass Lane

Graphic Not to Scale

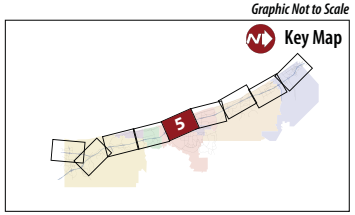
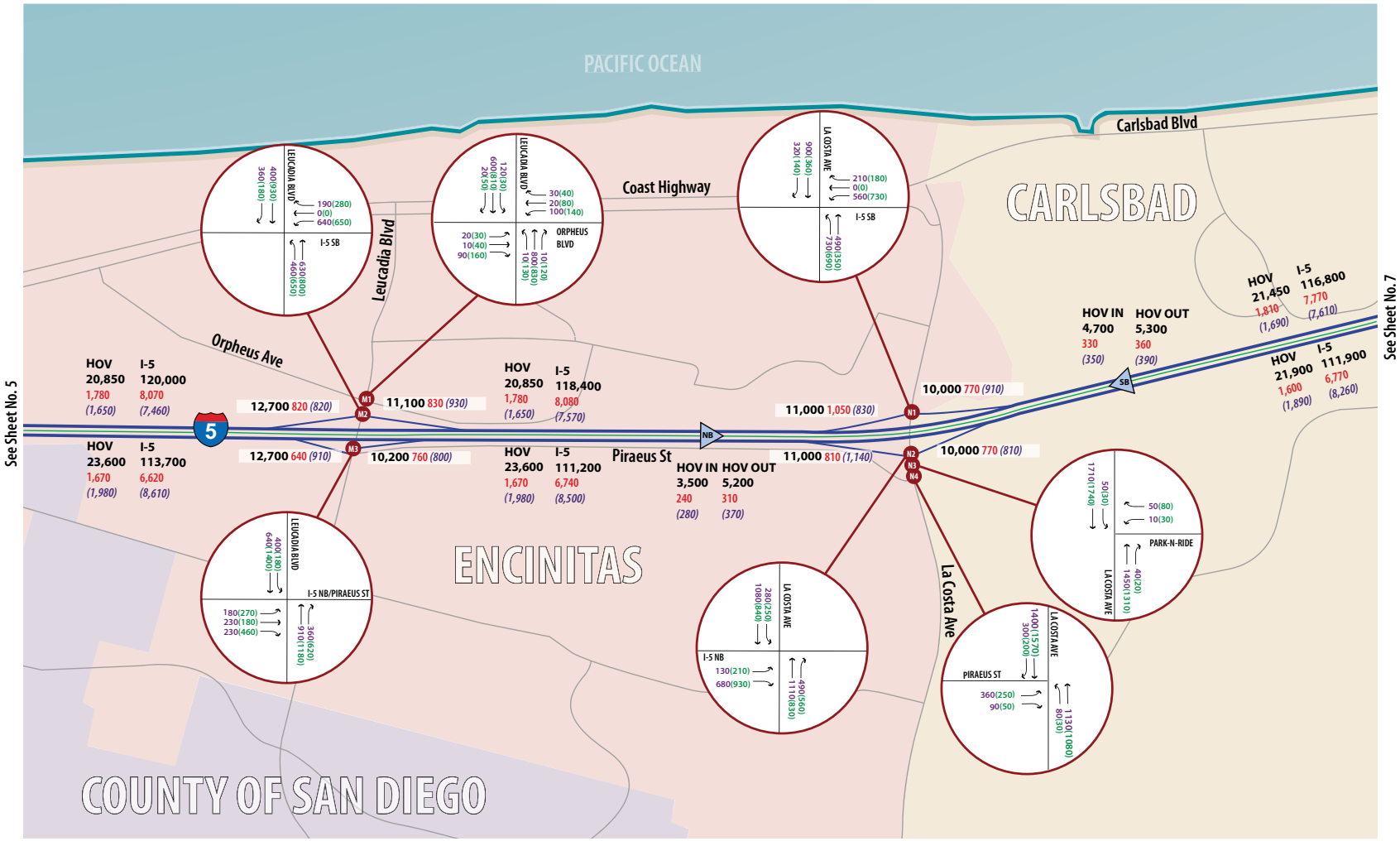
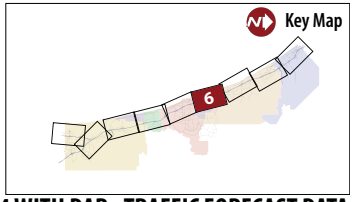


FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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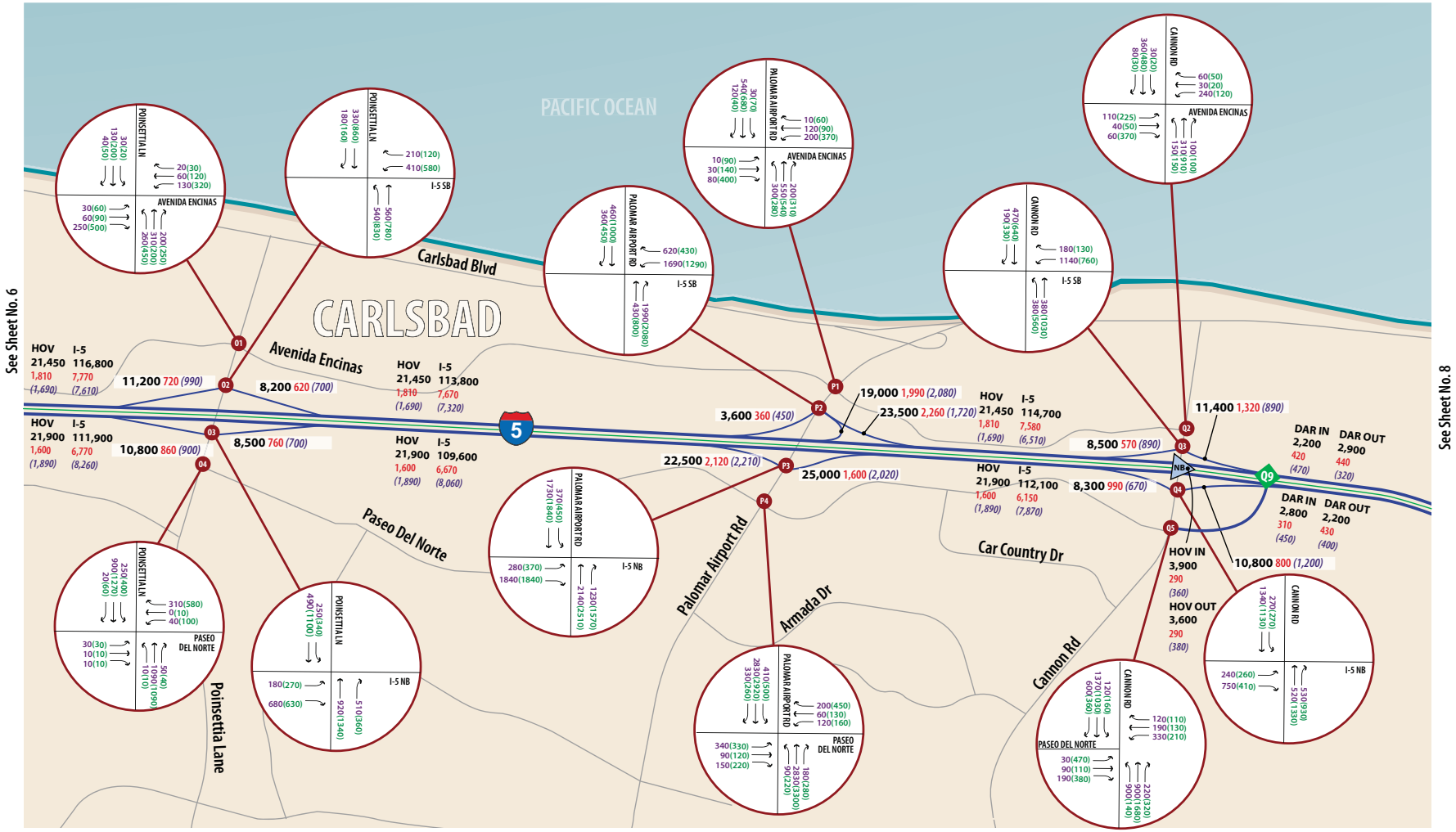
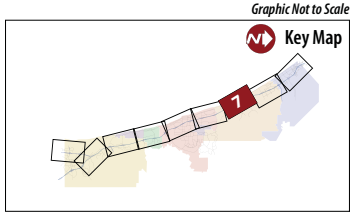
FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

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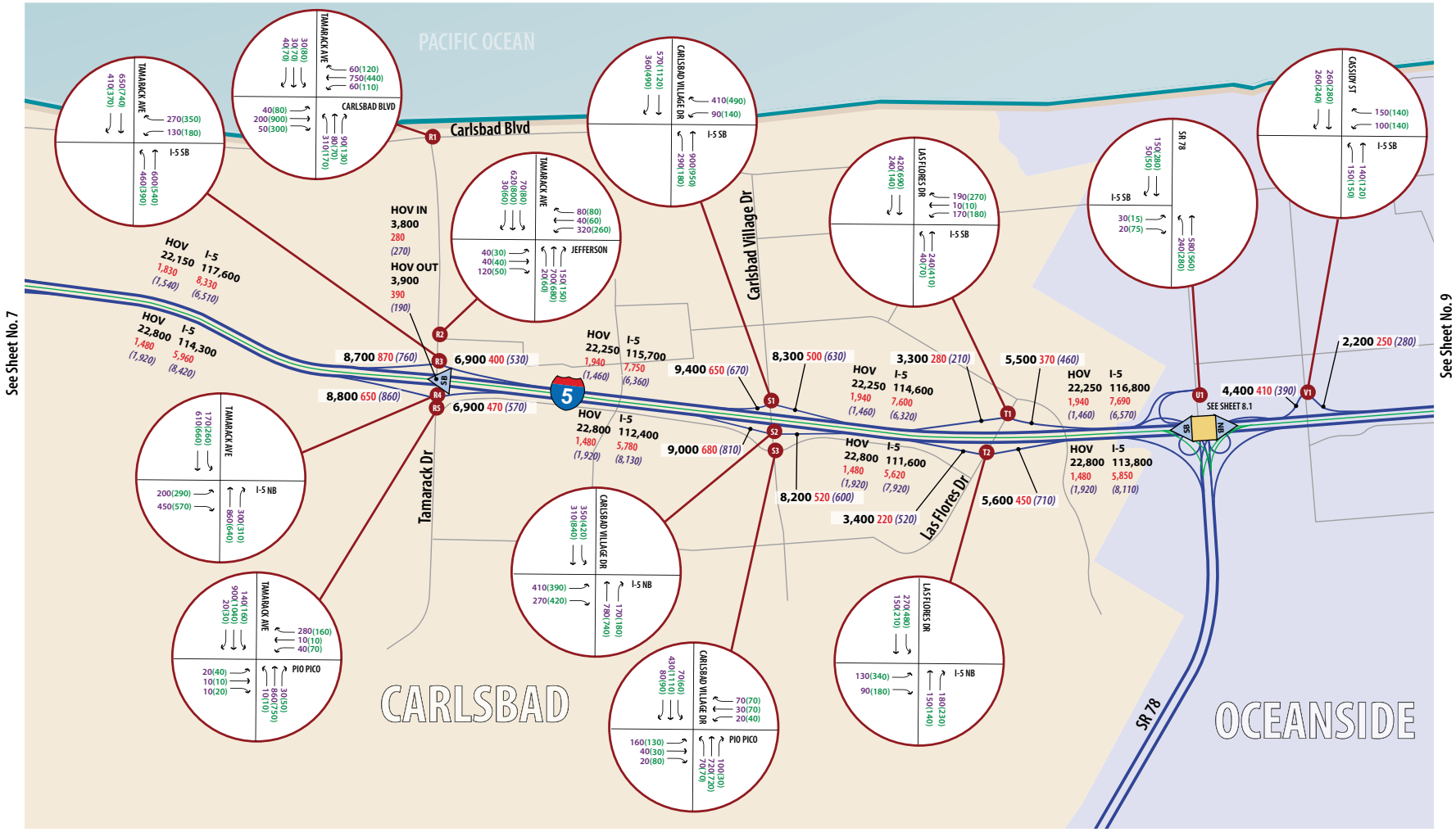
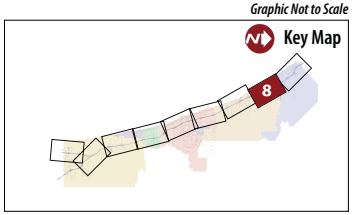
FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



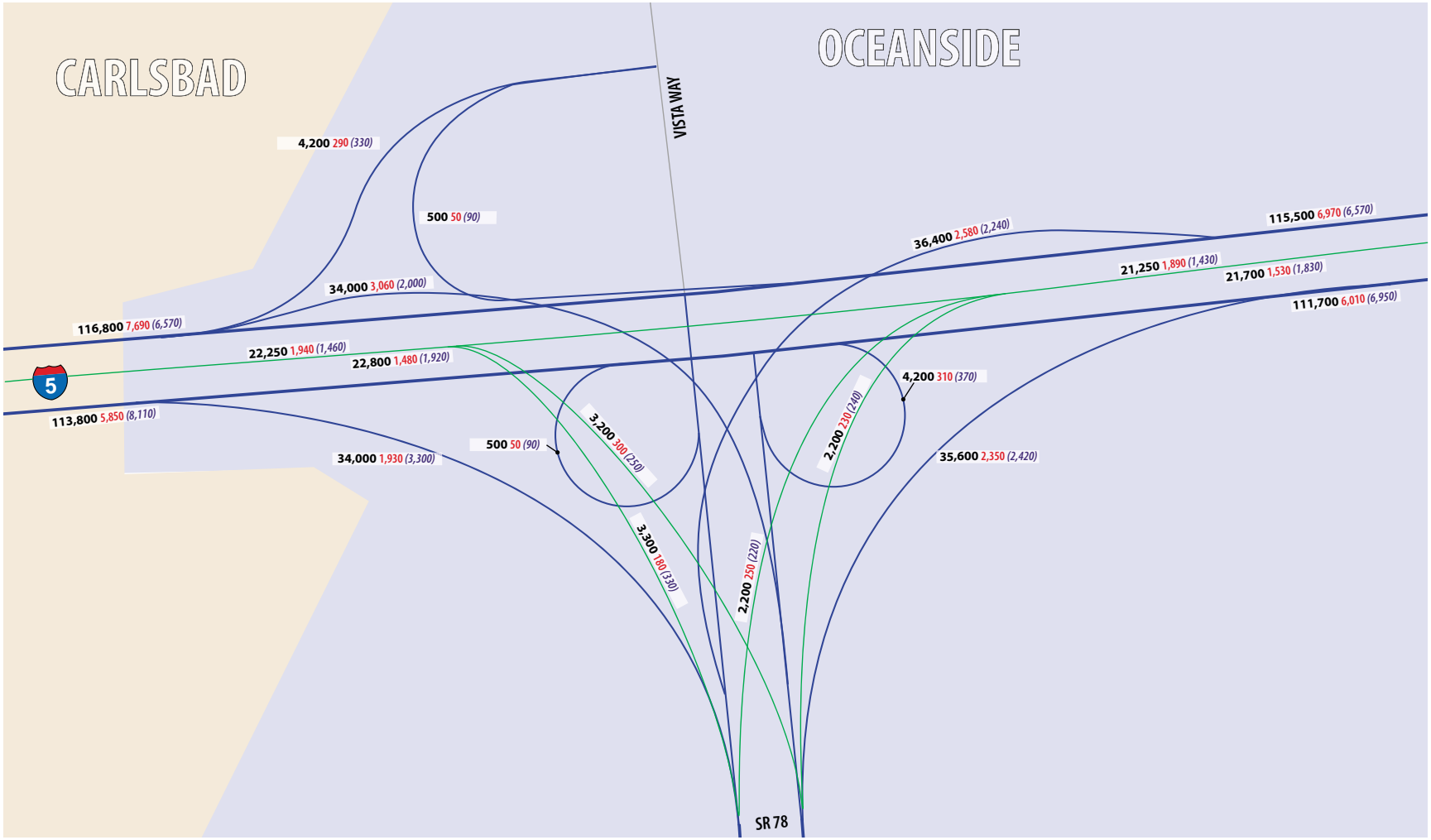
Graphic Not to Scale



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = FWY to FWY HOV Access
- = I-5 Mainline
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = I-5 HOV

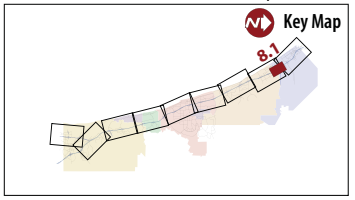
FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = Bypass Lane
- = I-5 Mainline
- = I-5 HOV
- XX,XXX X,XXX (X,XXX) = Average Daily Traffic AM Peak Hour (PM Peak Hour)

Graphic Not to Scale



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NORTH COAST INTERSTATE 5 CORRIDOR

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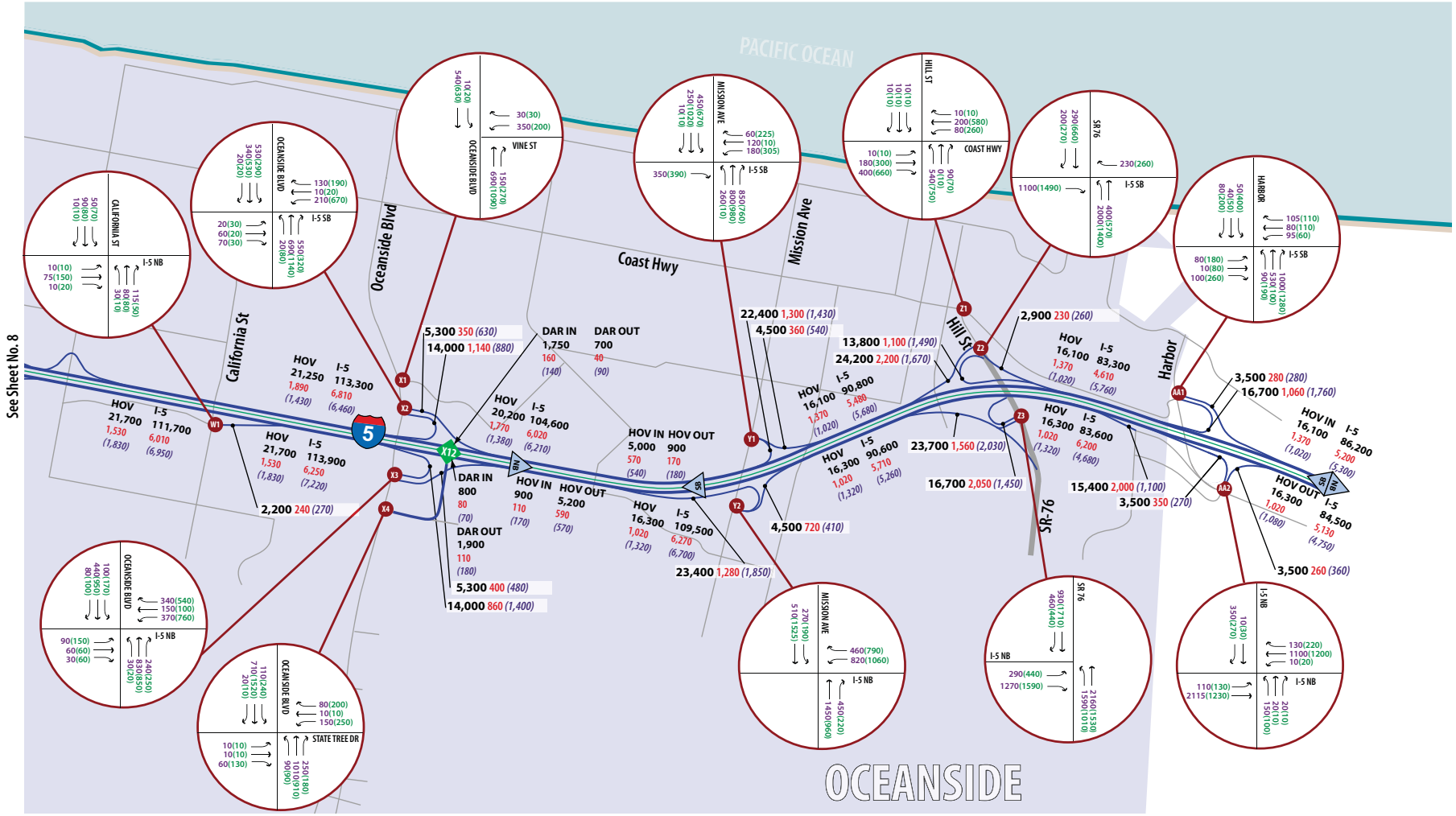
FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA



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NORTH COAST INTERSTATE 5 CORRIDOR

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LEGEND

- XX = Intersection ID Number
- XX = DAR Intersection ID Number
- = HOV Ingress / Egress
- = I-5 Mainline
- = I-5 HOV
- XX (XX) = AM Peak Hour Turning Volume (PM Peak Hour Turning Volume)
- XX,XXX X,XXX (X,XXX) = HOV/Ramp Average Daily Traffic AM Peak Hour (PM Peak Hour)
- XX,XXX = Average Daily Traffic
- X,XXX = AM Peak Hour
- (X,XXX) = (PM Peak Hour)
- = Bypass Lane

Graphic Not to Scale

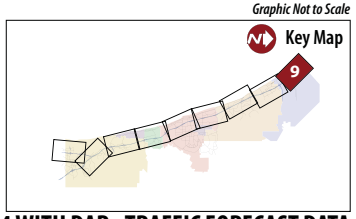

FIGURE 3-7. YEAR 2015 10+4 WITH DAR - TRAFFIC FORECAST DATA