DIRECT ACCESS RAMPS/ LOCAL CIRCULATION SYSTEM IMPACT STUDY

I-5 NORTH COAST HOV/ MANAGED LANES PROJECT

TECHNICAL REPORT NO. 1

AREA OF INFLUENCE ANALYSIS

Draft For Review and Comment

August 2, 2004

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1.0 Introduction

Technical Report No. 1 summarizes preliminary transportation model assessments utilized to identify potential traffic impacts within the vicinity of proposed direct access ramps (DARs) along the North I-5 Corridor. The area defined by the impacted arterial roadways near the DARs is referred to as the "Area of Influence".

The proposed DARs would connect adjacent arterials to proposed high occupancy vehicle (HOV) lanes along the I-5 at the following locations:

- Oceanside Boulevard (City of Oceanside)
- Cannon Road (City of Carlsbad)
- Avenida Encinas (City of Carlsbad)
- Manchester Avenue (City of Encinitas)
- Lusk Boulevard (City of San Diego)
- Voigt Drive (City of San Diego)

The two DARs locations within the City of Carlsbad are alternatives and the preferred location will be determined on the basis of subsequent analysis and review.

Two future Year 2030 scenarios were modeled utilizing SANDAG's Series 10 Transportation Model and provided the basis for identifying the Area of Influence. The modeling scenarios were as follows:

- Year 2030 Baseline without DARs (No Build) – established long-range baseline traffic conditions for the Year 2030 without the proposed DARs.

- Year 2030 Baseline with DARs (Build) – established long-range baseline traffic conditions for the Year 2030 with construction of the proposed DARs.

Figure 1-1 through **Figure 1-5** display proposed configurations for the six DARs as represented in the SANDAG Series 10 Transportation Model roadway network. As shown, the access to the HOV lanes provided by the DARs would be fully directional, with access provided in both the southbound and northbound directions.

Following this Introduction, this technical report describes the methodology utilized to identify potentially impacted roadways near the proposed North I-5 Corridor DARs. Technical Report No. 2 summarizes the existing conditions data collection for Area of Influence roadways and intersections, including existing traffic volumes and geometrics.

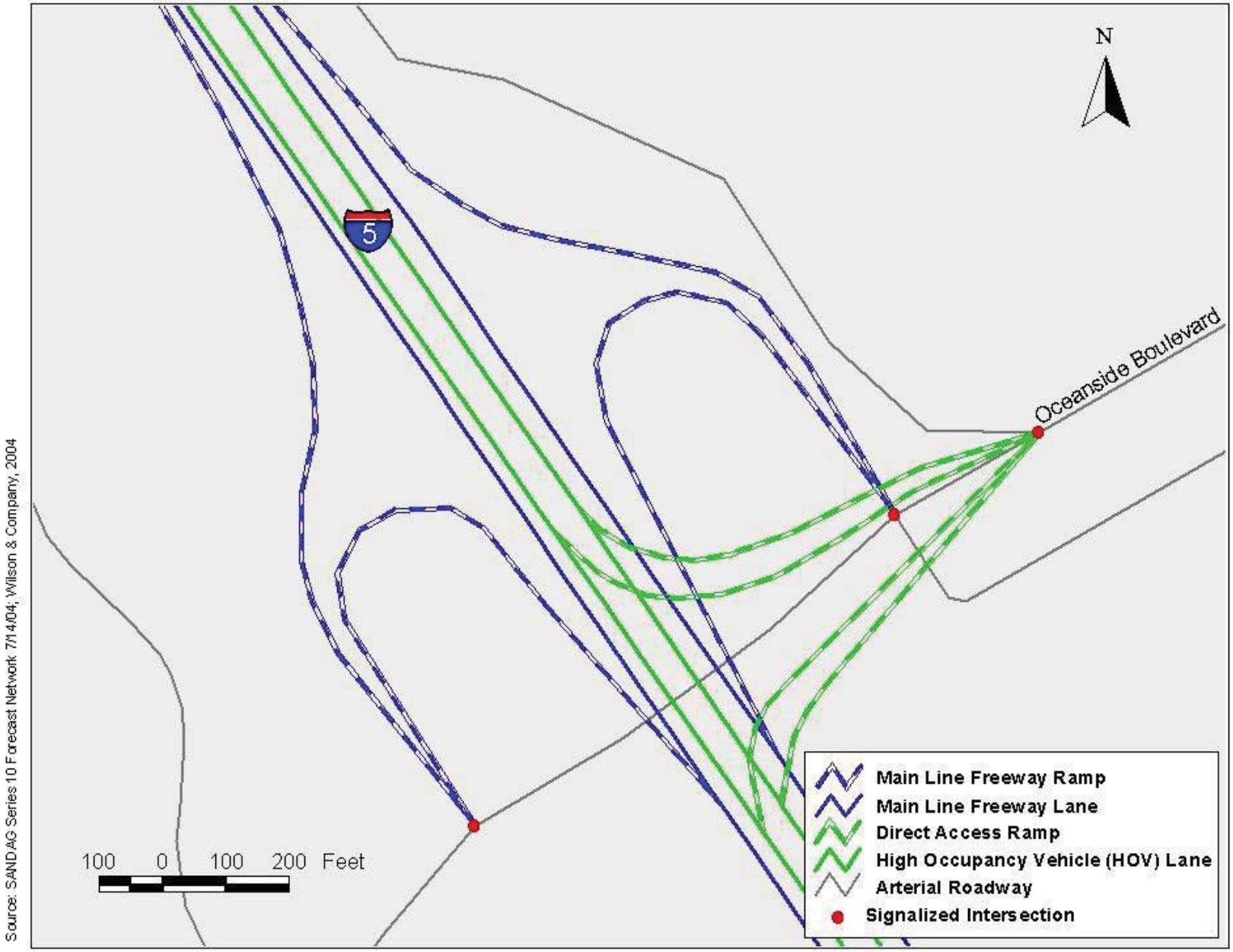


Figure 1-1: Oceanside Direct Access Ramp (DAR) Configuration

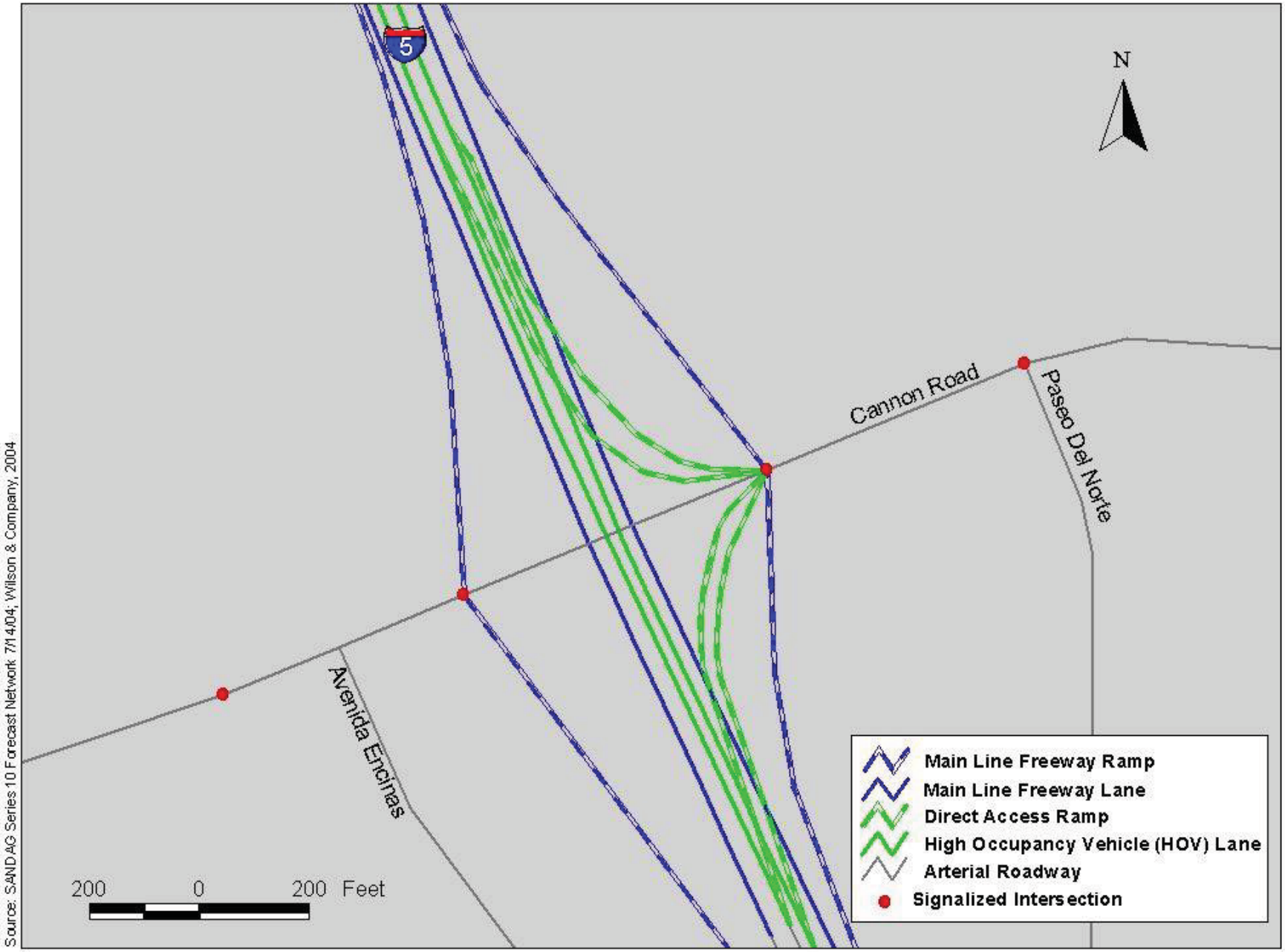


Figure 1-2a: Cannon Direct Access Ramp (DAR) Configuration

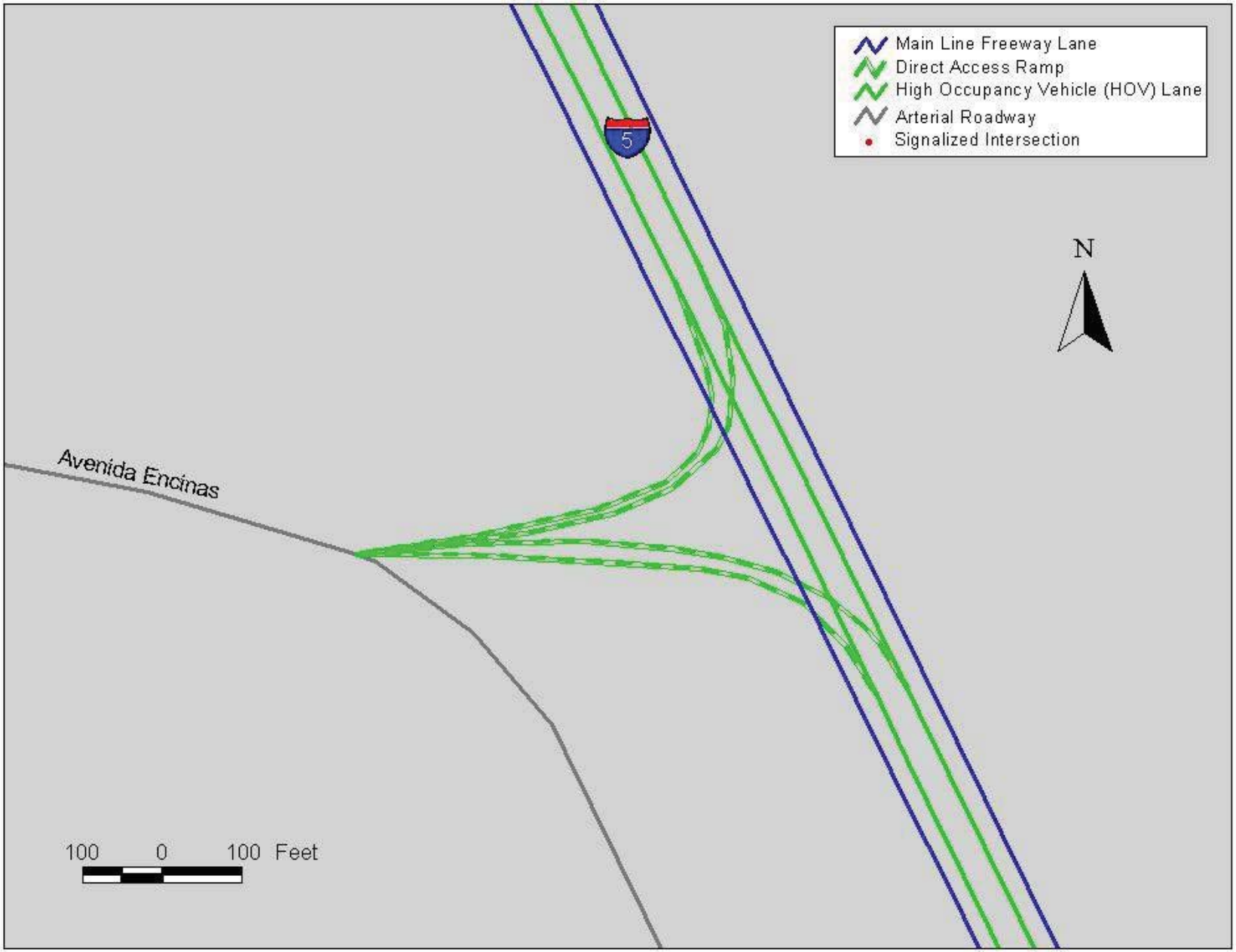
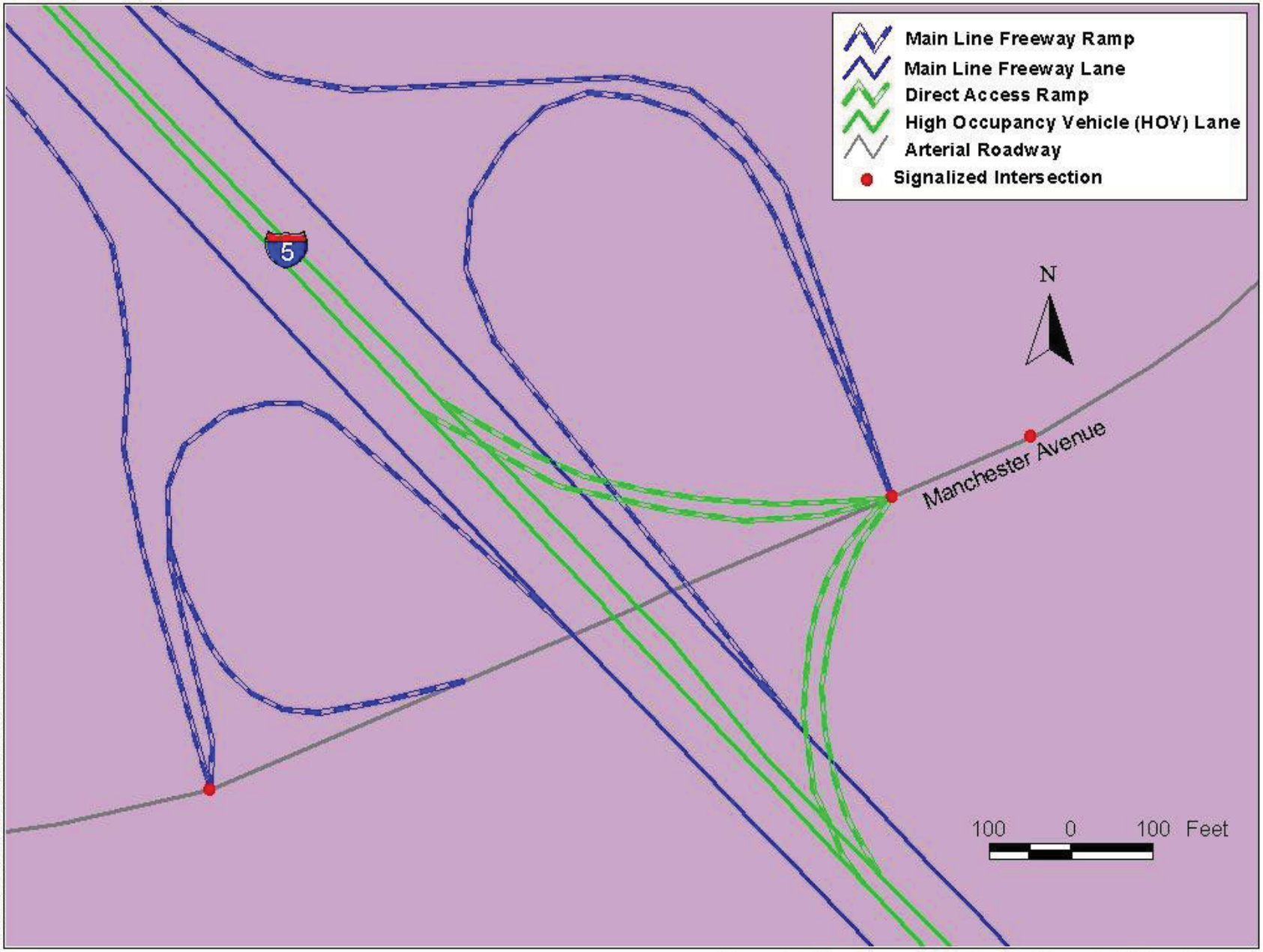
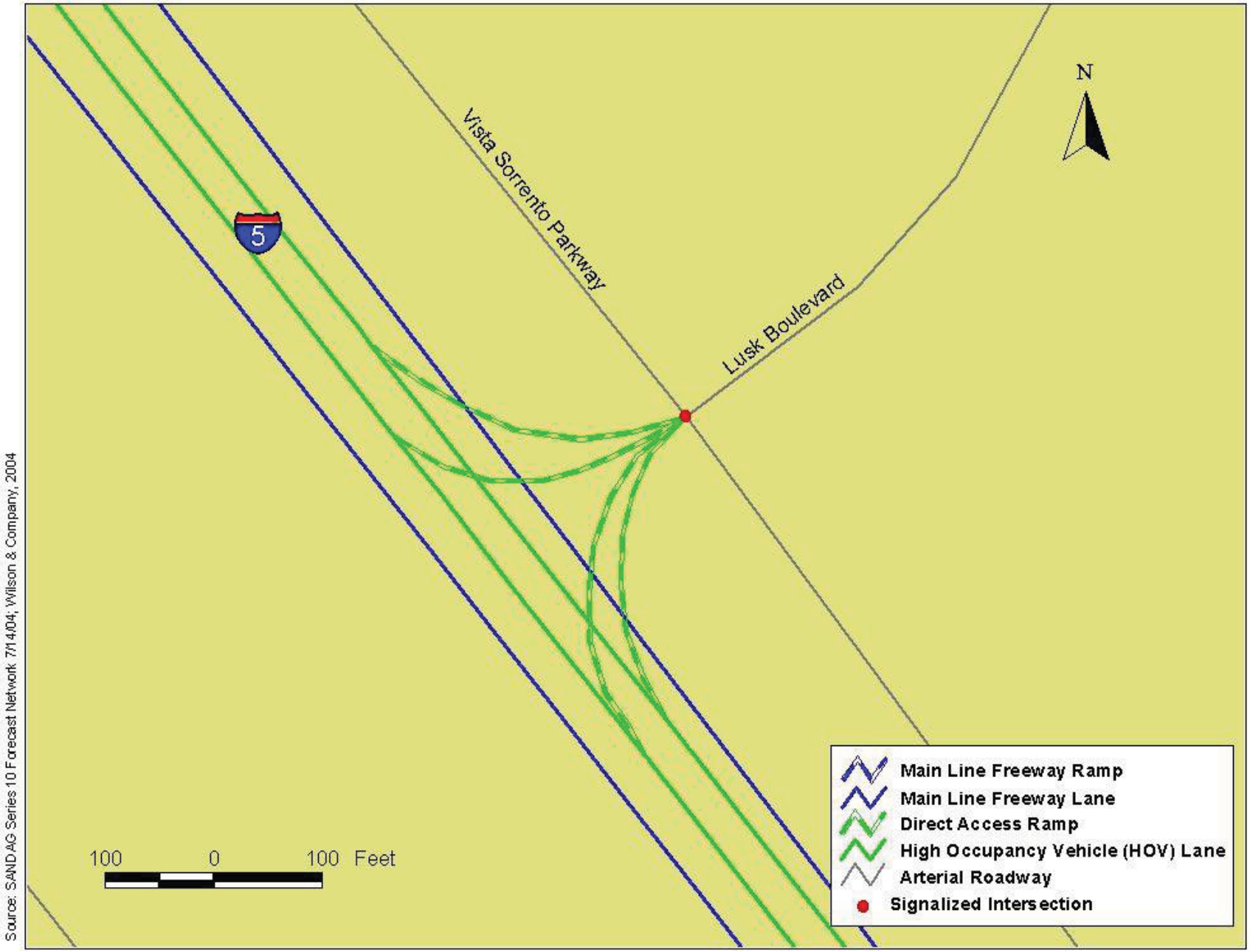


Figure 1-2b: Avenida Encinas Direct Access Ramp (DAR) Configuration



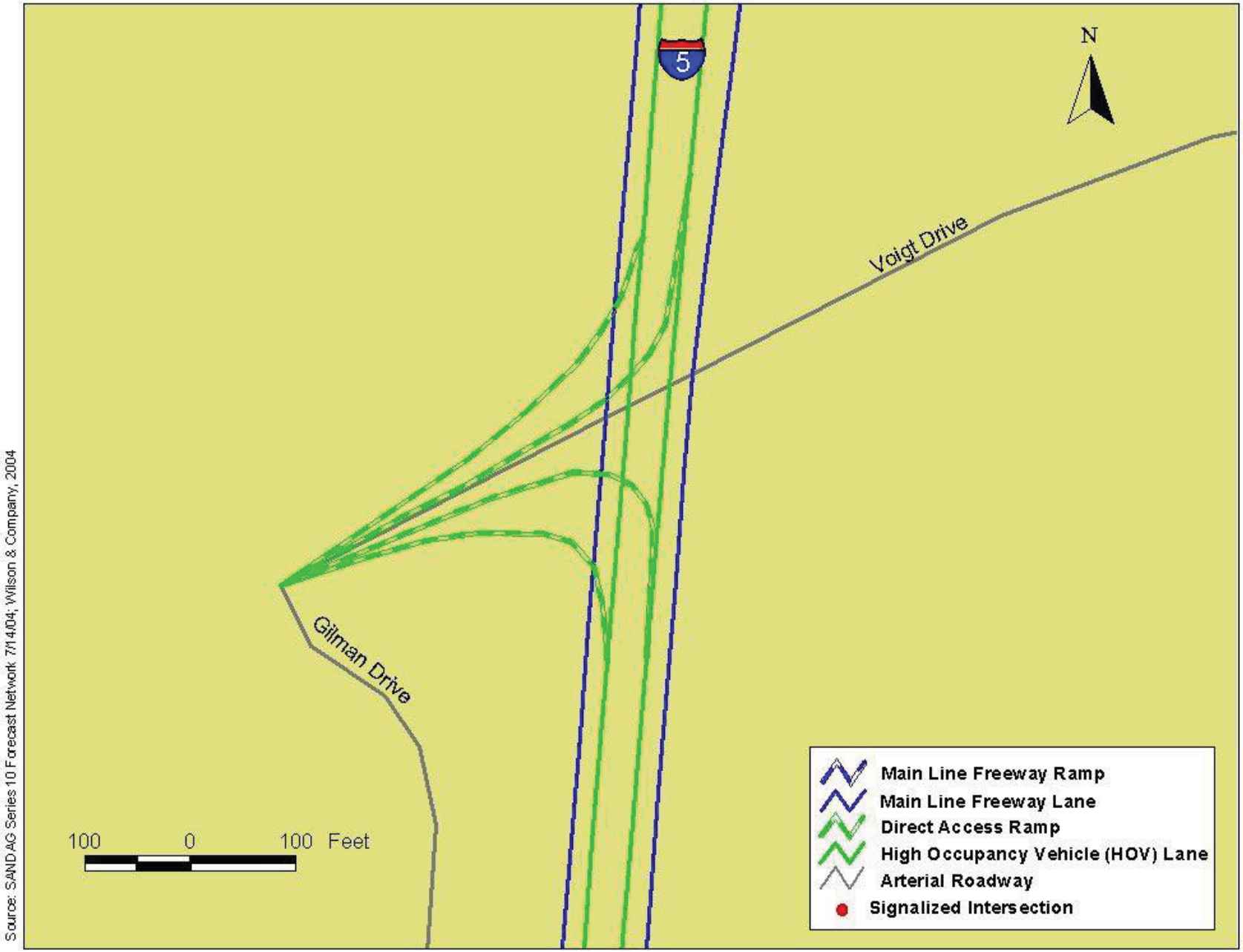
Source: SANDAG Series 10 Forecast Network 7/14/04; Wilson & Company, 2004

Figure 1-3: Manchester Direct Access Ramp (DAR) Configuration



Source: SANDAG Series 10 Forecast Network 7/14/04; Wilson & Company, 2004

Figure 1-4: Lusk Direct Access Ramp (DAR) Configuration



Source: SANDAG Series 10 Forecast Network 7/14/04; Wilson & Company, 2004

Figure 1-5: Voigt Direct Access Ramp (DAR) Configuration

2.0 Area of Influence Analysis

The Area of Influence analysis was undertaken to establish the extent of potentially affected roadway segments and intersections in the vicinity of each of the proposed DARs locations. These roadway segments and intersections will then become the focus of the subsequent local area traffic impact assessment. The methodology utilized included the following steps:

1. Application of the SANDAG Series 10 Transportation Model for the Year 2030 Build and No Build scenarios. At this initial stage of the study, and for purposes of defining the Area of Influence of the DARs, the SANDAG Series 10 Transportation Model was utilized in its current version, without refinement or further calibration to corridor conditions. Subsequent tasks of this study as well as the overall I-5 North Coast Project will review the model in detail and ensure a calibrated set of traffic forecasts as the basis for the various analyses.

2. Utilization of ArcView, a geographic information system (GIS) software, to map the change in traffic volumes between the Year 2030 Build and No Build scenarios for each DARs.

3. Identification of roadway segments with a projected daily traffic volume increase of 500 or more, and tabulation of the affected roadway segments and signalized intersections adjacent to these segments. A preliminary threshold of 500 or more was established based upon the SANDAG Congestion Management Program (CMP) which states that the generation of 50 or more peak hour trips by a land development or transportation project triggers the need for assessment of potentially significant traffic impacts. Fifty (50) peak hour trips translates into 500 daily trips, with the assumption that peak hour traffic is approximately 10% of total daily traffic.

4. Refinement of the Area of Influence based upon review and input from local jurisdiction stakeholders. In some instances, additional roadway segments and intersections were identified for study.

Direct Access Ramp Traffic Volumes

Table 2.1 displays the forecast Year 2030 daily traffic volumes on the various DARs.

Table 2.1: Year 2030 Daily Traffic Volumes on Proposed Direct Access Ramps

DARs	Northbound On Ramp	Northbound Off Ramp	Southbound On Ramp	Southbound Off Ramp
Oceanside Blvd	915	1,910	2,870	1,370
Cannon Rd	2,560	820	1,500	1,720
Avenida Encinas	1,060	345	830	600
Manchester Ave	395	4,075	4,975	280
Lusk Blvd	1,840	955	2,505	1,300
Voigt Dr	2,540	530	940	1,845

Source: SANDAG Series 10 Transportation Model, Model Run 7/28/04; Wilson & Company, July 2004

At this point in the study, the forecast traffic volumes on the DARs as presented in Table 2.1 reflect HOV travel only and do not include any single occupancy vehicle (SOV) travel that may use the HOV facilities under a managed lane concept. SANDAG's transportation model will be refined for subsequent analyses to include both HOV and SOV travel on the DARs, consistent with the Managed Lanes/Value Pricing Study currently underway.

Build vs. No Build Local Roadway Traffic Volumes

Figures 2-1 through **2-4** display the change (both increases and decreases) in projected traffic volumes based upon a comparison of the Year 2030 Build (with DARs) and No-Build (without DARs) scenarios.

Table 2.2 summarizes impacted roadway segments in the vicinity of each of the proposed DARs where increases in future daily traffic volumes were found to exceed the established threshold of 500 trips. The change in traffic volumes along each roadway segment is displayed along with the basis for inclusion as an Area of Influence roadway segment. In some instances, roadways not projected to experience a 500 increase in traffic volumes due to the DARs were included based upon recommendations from local jurisdiction and/or Caltrans staff.

Figures 2-5 through **2-9** display the key signalized intersections along the potentially impacted roadway segments. Identification numbers are provided for the signalized intersections which also correspond to the listing in **Table 2.3**, which provides the Area of Influence signalized intersections for each of the respective DARs locations.

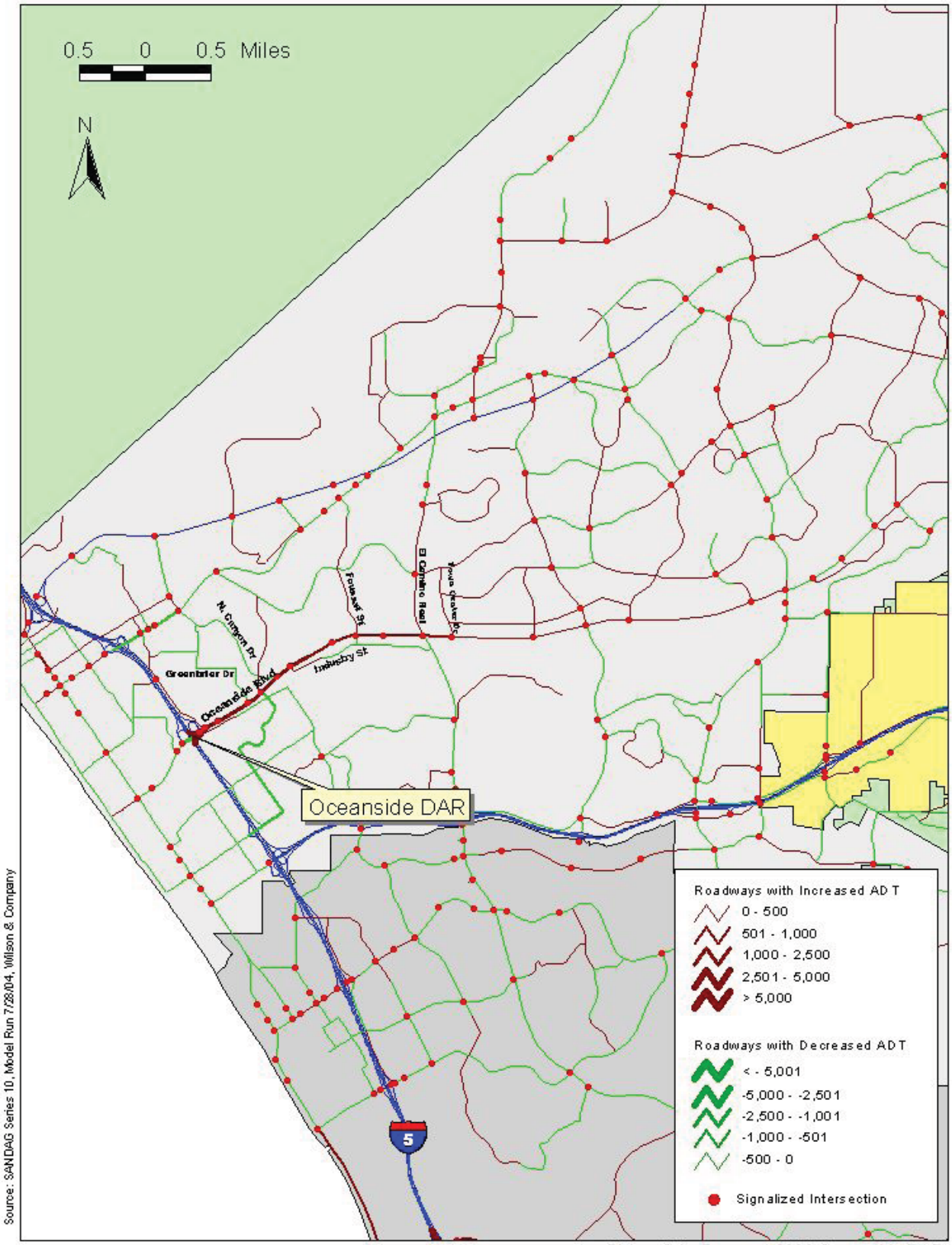


Figure 2-1 : Forecast 2030 Oceanside DAR
Change in Roadway Segment ADT (Build versus No Build)

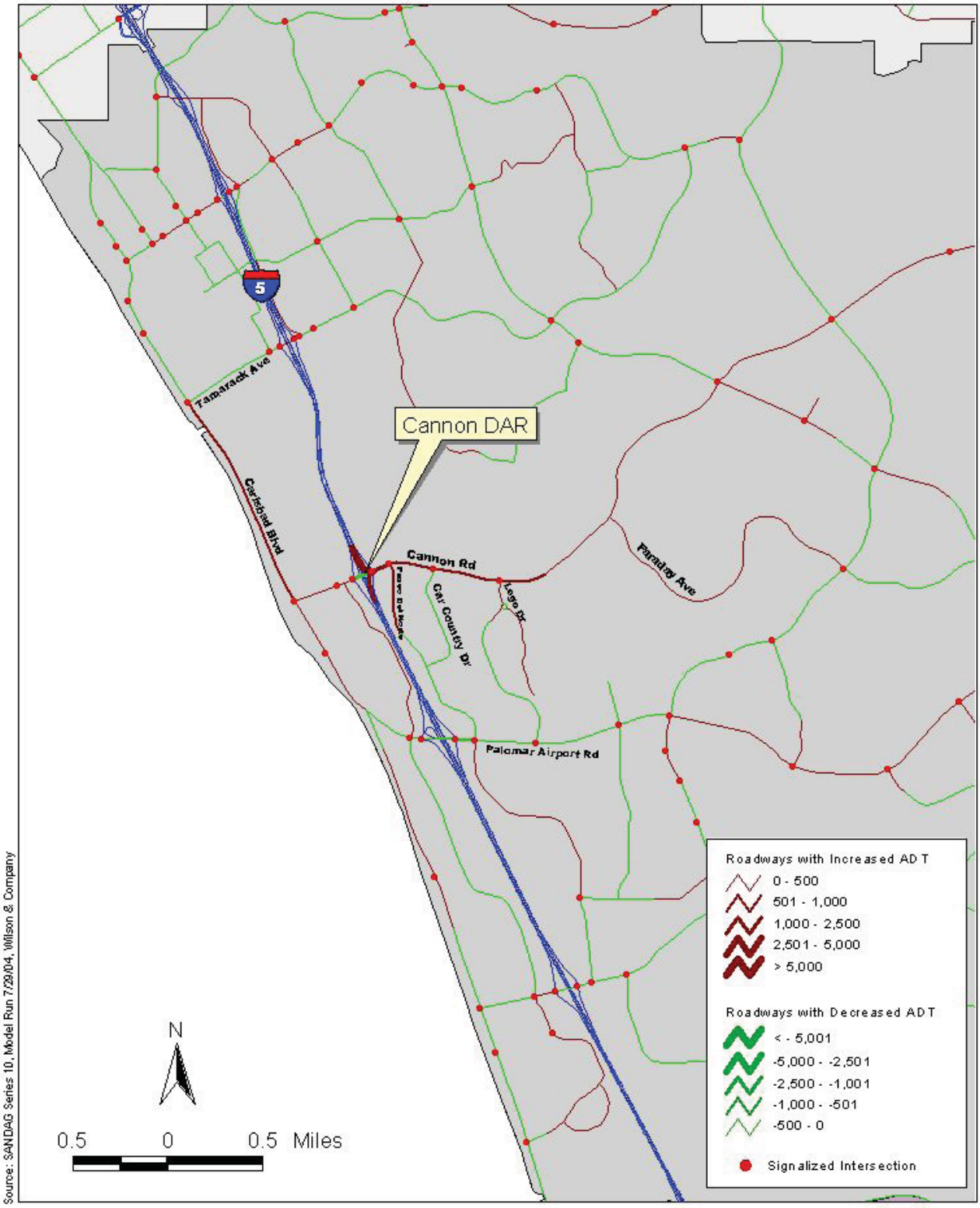


Figure 2-2a : Forecast 2030 Cannon DAR
Change in Roadway Segment ADT (Build versus No Build)

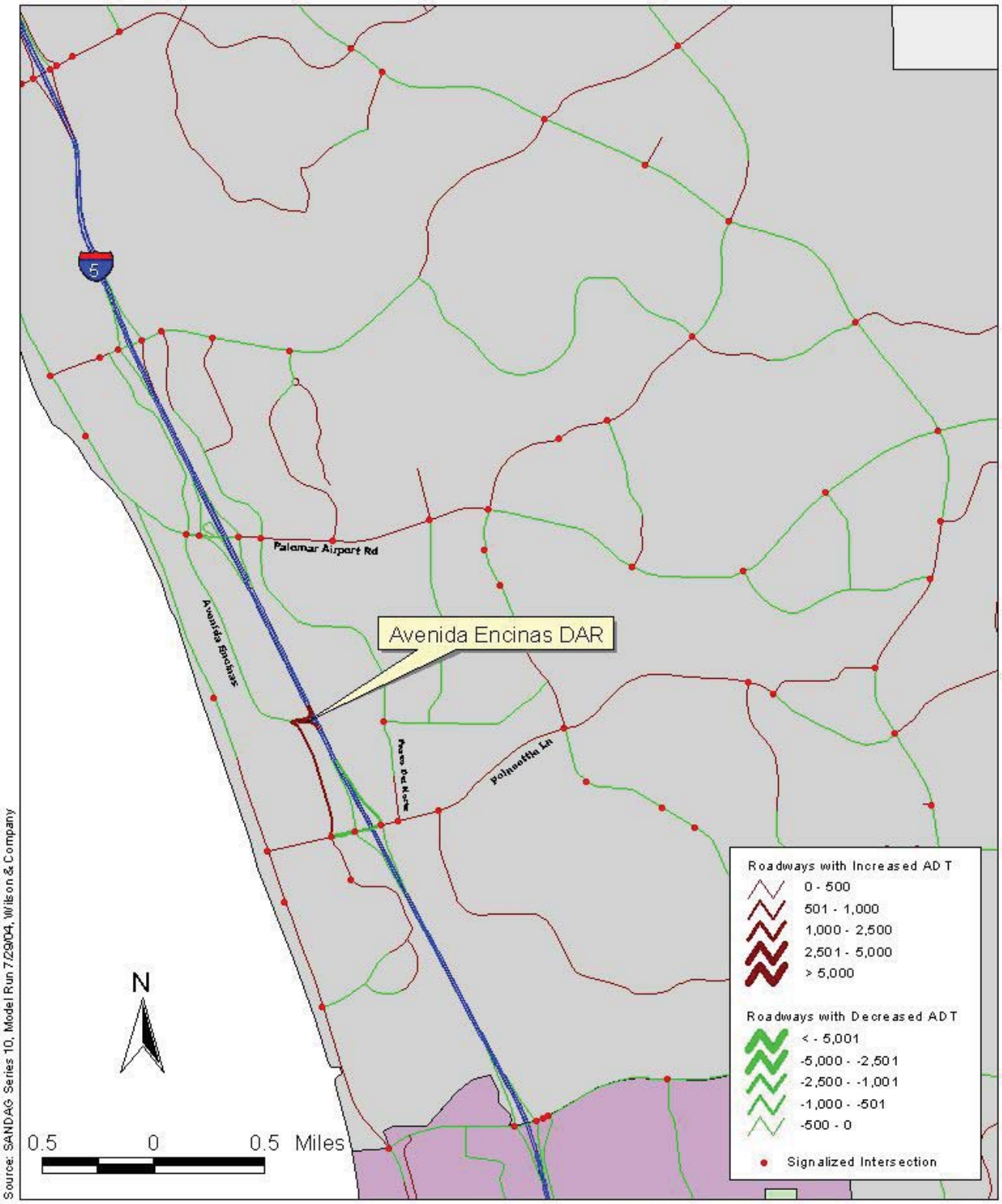


Figure 2-2b : Forecast 2030 Avenida Encinas DAR
Change in Roadway Segment ADT (Build versus No Build)

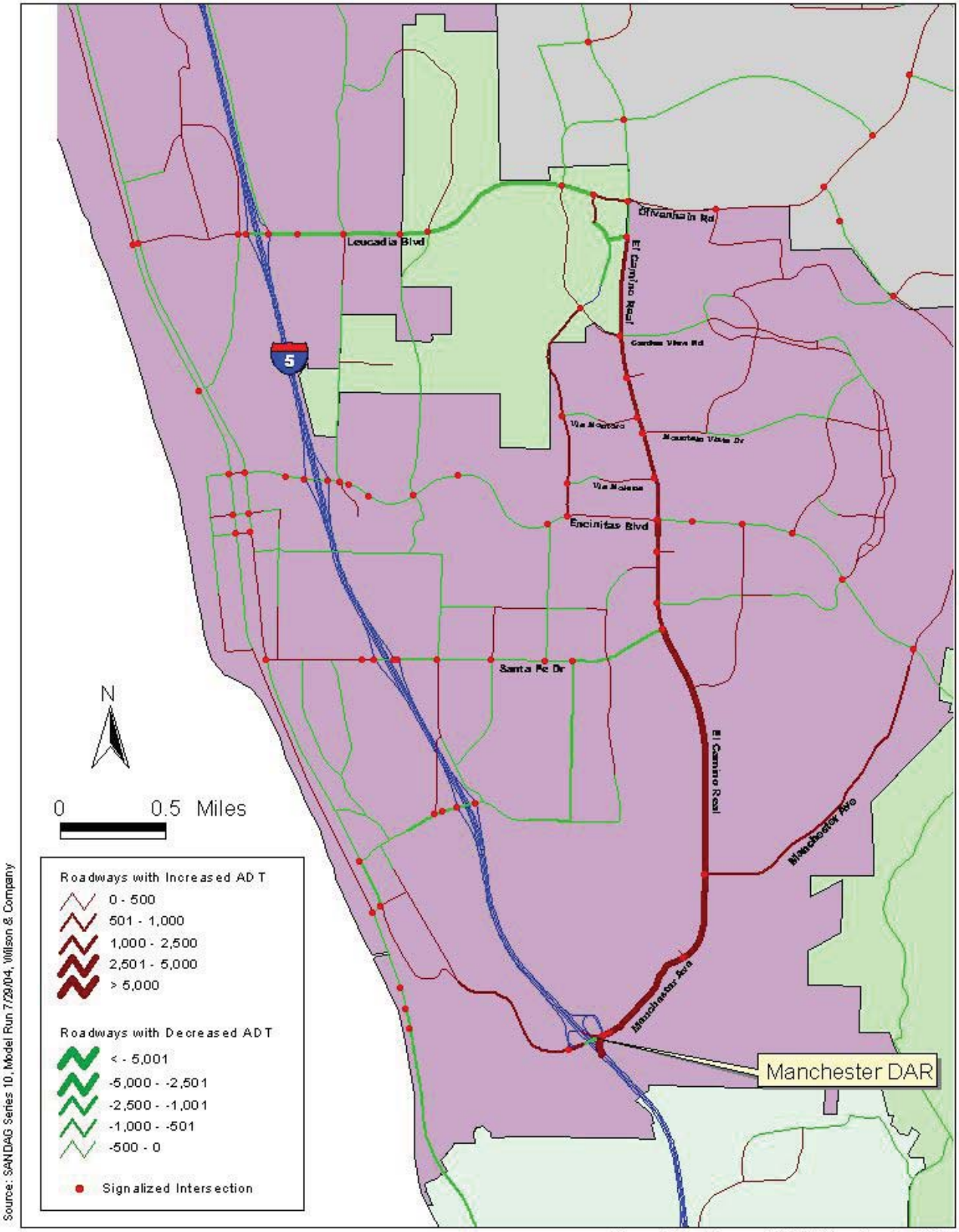
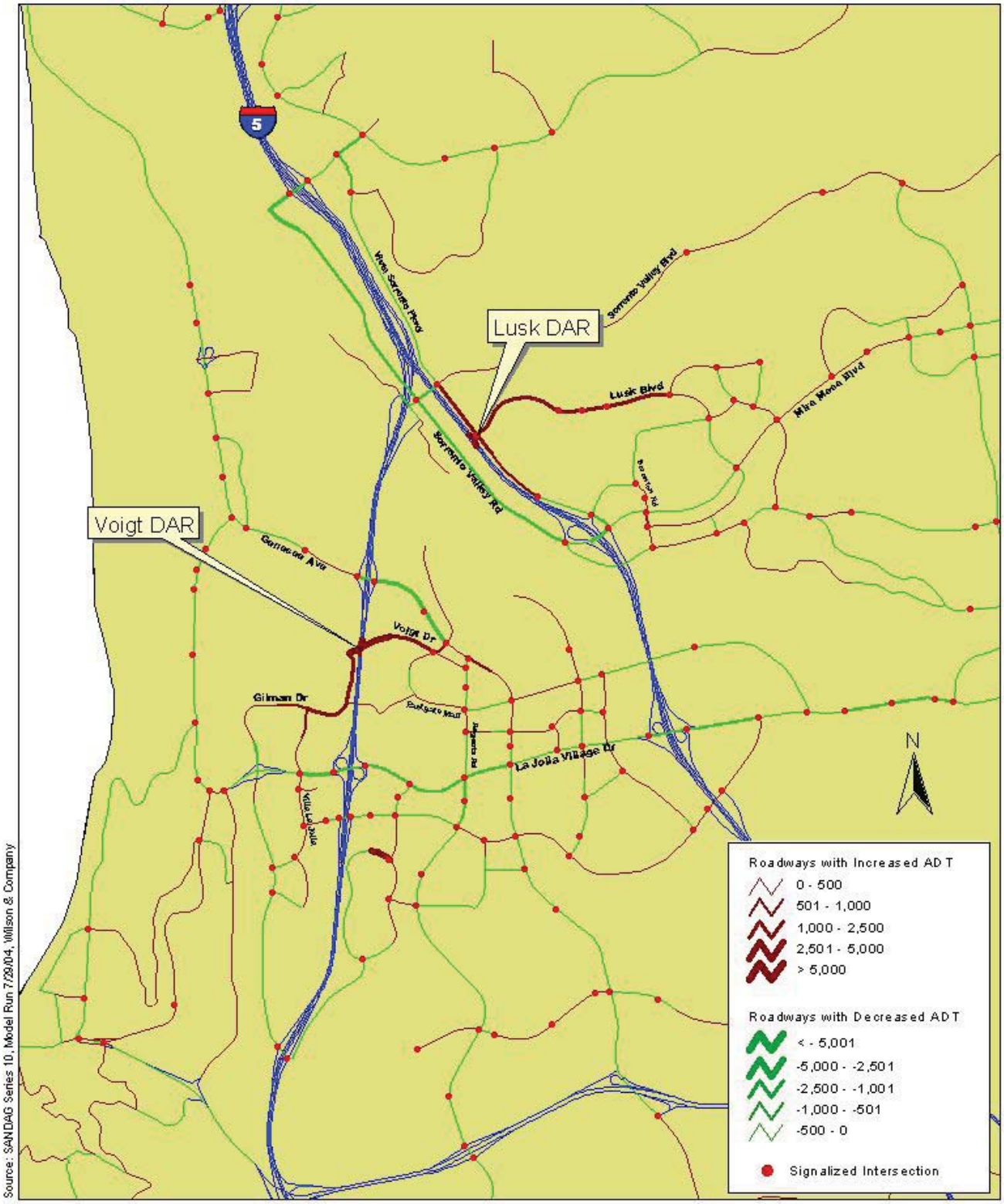


Figure 2-3 : Forecast 2030 Manchester DAR
Change in Roadway Segment ADT (Build versus No Build)



Source: SANDAG Series 10, Model Run 7/29/04, Wilson & Company

Figure 2-4 : Forecast 2030 Lusk & Voigt DARs
Change in Roadway Segment ADT (Build versus No Build)

Table 2.2: Area of Influence Roadway Segments

Direct Access Ramp (DARs)	Roadway	Segment	Increase in ADT Build versus No Build	Source
Oceanside Blvd DARs	Oceanside Blvd	I-5 SB Ramps to I-5 NB Ramps	-1,850	2
		I-5 NB Ramps to Greenbrier Dr	1,700 – 1,900	1
		Greenbrier Dr to Crouch St	1,600	1
		Crouch St to N. Canyon Dr	1,150	1
		N. Canyon Dr to Industry St	1,025	1
		Industry St to Foussat St	900 – 1,000	1
		Foussat St to El Camino Real	620 – 780	1
		El Camino Real to Town Center Dr	620	1
Cannon Rd DARs	Cannon Rd	I-5 SB Ramps to I-5 NB Ramps	-1,750	2
		I-5 NB Ramps to Car Country Dr	950 – 1,450	1
		Car Country Dr to Lego Dr	840	1
		Lego Dr to Faraday Ave	540	1
	Palomar Airport Rd	I-5 SB Ramps to I-5 NB Ramps	-750	2
		I-5 NB Ramps to Paseo Del Norte	-750	2
		Paseo Del Norte to Armada Dr	-250	2
		Armada Dr to Hidden Valley Rd	-250	2
	Carlsbad Blvd	Tamarack Ave to Cannon Rd	600 – 675	1
	Paseo Del Norte	Cannon Rd to Car Country Rd	750 – 820	1
Avenida Encinas DARs	Poinsettia Ln	I-5 SB Ramps to I-5 NB Ramps	-760	2
	Palomar Airport Rd	I-5 SB Ramps to I-5 NB Ramps	-250	2
		I-5 NB Ramps to Paseo Del Norte	250	2
		Paseo Del Norte to Armada Dr	250	2
		Armada Dr to Hidden Valley Rd	250	2
	Avenida Encinas	Avenida Encinas DARs Ramps to Poinsettia Ln	580	1
Manchester Ave DARs	Leucadia Blvd	Town Center Dr to El Camino Real	620	1
	Olivenhain Rd	El Camino Real to Rancho Santa Fe Rd	250	2
	El Camino Real	Town Center Dr to Garden View Rd	1,790	1
		Garden View Rd to Via Montoro	1,510	1
		Via Montoro to Mountain Vista Dr	1,610	1
		Mountain Vista Dr to Via Molena	1,560	1
		Via Molena to Encinitas Blvd	1,650	1
		Encinitas Blvd to Crest Dr	2,270	1
		Crest Dr to Willowspring Dr	2,300	1
		Willowspring Dr to Santa Fe Dr	2,200	1
		Santa Fe Dr to Calle Ryan	2,870 – 3,190	1
		Calle Ryan to Manchester Ave	3,250	1
	Town Center Dr	Leucadia Blvd to El Camino Real	910	1
	Via Cantebria	Garden View Rd to Encinitas Blvd	520 - 570	1
	Manchester Avenue	Rancho Sante Fe Rd to El Camino Real	530 - 570	1
		El Camino Real to I-5 NB Ramps	3,840 – 3,910	1
		I-5 NB Ramps to I-5 SB Ramps	-620	2
		I-5 NB Ramps to San Elijo Ave	710 - 830	1

Source: SANDAG Series 10, Model Run 7/28/04; Wilson & Company, 2004

Note:
1 – Greater than 500 increase in daily traffic volumes on the roadway segment (Build versus No Build).
2 – Local jurisdiction staff recommendation.

Table 2.2: Area of Influence Roadway Segments (continued)

Direct Access Ramp (DARs)	Roadway	Segment	Change in ADT Build versus No Build	Source
Lusk Blvd DARs	Lusk Blvd	Vista Sorrento Parkway to Pacific Center Blvd	1,300 – 1,490	1
	Vista Sorrento Parkway	Sorrento Valley Blvd to Lusk Blvd	1,100	1
		Lusk Blvd to Director's Place	660 – 1,300	1
		Director's Place to I-805 NB Ramps	-200	2
		I-805 NB Ramps to Mira Mesa Blvd	-920	2
	Scranton Rd	Mira Sorrento Pl to Mira Mesa Blvd	190 – 300	2
		Mira Mesa Blvd to Carroll Canyon Rd	820	1
	Sorrento Valley Blvd	Roselle St to Vista Sorrento Pkwy	-470	2
		Vista Sorrento Pkwy to Sea Mist Way	190	2
	Roselle St	I-5 SB On Ramp to I-5 NB Off Ramp	-540 – (-10)	2
Voigt Dr DARs	Genessee Ave	Campus Pointe Dr to Regents Rd	200	2
		Regents Rd to Eastgate Mall	530	1
		Eastgate Mall to Executive Dr	70	2
		Executive Dr to La Jolla Village Dr	-300 - 60	2
		I-5 SB Ramps to I-5 NB Ramps	-740	2
	Campus Point Dr	Genessee Ave to Voigt Dr	550	1
	Voigt Dr	Gilman Dr to Campus Point Dr	3,180	1
	Gilman Dr	Meyers Dr to Voigt Dr	530 – 2,170	1
	Villa La Jolla	La Jolla Village Dr to Gilman Dr	680	1
	Regents Rd	Genesee Ave to Executive Dr	-150	2
	La Jolla Village Dr	I-5 SB Ramps to I-5 NB Ramps	-700 – (-70)	2

Source: SANDAG Series 10, Model Run 7/28/04; Wilson & Company, 2004

Notes:
1 – Greater than 500 increase in daily traffic volumes on the roadway segment (Build versus No Build).
2 – Local jurisdiction staff recommendation.

Table 2.3: Area of Influence Signalized Intersections

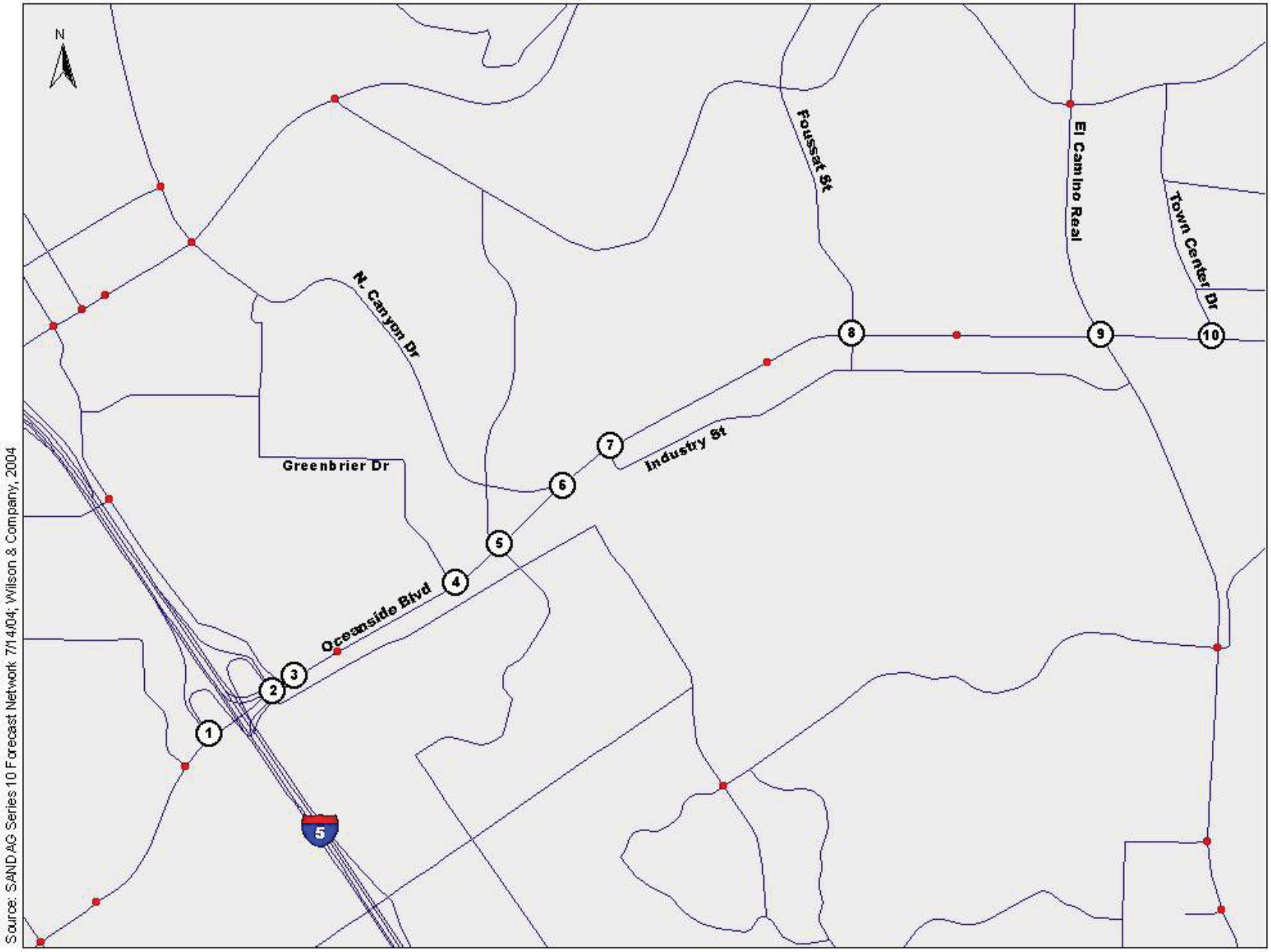
Direct Access Ramp (DARs)	Intersection Identification (ID)	Signalized Intersection
Oceanside Blvd DARs	1	I-5 SB Ramps / Oceanside Blvd
	2	I-5 NB Ramps/ Oceanside Blvd
	3	State Tree Dr / Oceanside Blvd
	4	Greenbrier Dr / Oceanside Blvd
	5	Crouch St / Oceanside Blvd
	6	N. Canyon Dr / Oceanside Blvd
	7	Industy St / Oceanside Blvd
	8	Foussat St / Oceanside Blvd
	9	El Camino Real / Oceanside Blvd
	10	Town Center Dr / Oceanside Blvd
Cannon Rd DARs	1	Carlsbad Blvd / Tamarack Ave
	2	Carlsbad Blvd / Cannon Rd
	3	I-5 SB Ramps / Cannon Rd
	4	I-5 NB Ramps / Cannon Rd
	5	Paseo Del Norte / Cannon Rd
	6	Car Country Dr / Cannon Rd
	7	Lego Dr / Cannon Rd
	8	I-5 SB Ramps / Palomar Airport Rd
	9	I-5 NB Ramps / Palomar Airport Rd
	10	Paseo Del Norte / Palomar Airport Rd
	11	Armada Dr / Palomar Airport Rd
	12	Hidden Valley Rd / Palomar Airport Rd
Avenida Encinas DARs	1	Avenida Encinas / Poinsettia Ln
	2	I-5 SB Ramps / Poinsettia Ln
	3	I-5 NB Ramps / Poinsettia Ln
	4	I-5 SB Ramps / Palomar Airport Rd
	5	I-5 NB Ramps / Palomar Airport Rd
Manchester Ave DARs	1	Leucadia Blvd / Town Center Dr
	2	Olivenhain Rd / El Camino Real
	3	Amaragosa Dr / Olivenhain Rd
	4	Rancho Santa Fe Rd / Olivenhain Rd
	5	Town Center Dr / El Camino Real
	6	El Camino Real / Garden View Rd
	7	El Camino Real / Shopping Center Drwy
	8	El Camino Real / Via Montoro
	9	El Camino Real / Mountain Vista Dr
	10	El Camino Real / Via Molena
	11	El Camino Real / Encinitas Blvd
	12	El Camino Real / De La Plaza Drwy
	13	El Camino Real / Willowspring Dr
	14	El Camino Real / Santa Fe Dr
	15	El Camino Real / Manchester Ave
	16	I-5 SB Ramps @ Manchester Ave
	17	I-5 NB Ramps @ Manchester Ave
	18	Via Cantebria / Garden View Rd
	19	Via Cantebria / Via Montoro
	20	Via Cantebria / Via Molena
	21	Via Cantebria / Encinitas Blvd

Source: SANDAG Series 10; Wilson & Company, 2004

Table 2.3: Area of Influence Signalized Intersections (continued)

Direct Access Ramp (DARs)	Intersection Identification (ID)	Signalized Intersection
Lusk Blvd DARs	**1**	Roselle St / I-5 SB On Ramp
	2	Roselle St / I-5 NB Off Ramp
	3	Sorrento Valley Rd / Sorrento Valley Blvd
	4	Vista Sorrento Pkwy / Sorrento Valley Blvd
	5	Vista Sorrento Pkwy / Lusk Blvd
	6	Wateridge Circle (west) / Lusk Blvd
	7	Telesis Court / Lusk Blvd
	8	Wateridge Circle (east) / Lusk Blvd
	9	Pacific Center Blvd / Lusk Blvd
	10	Lusk Blvd / Barnes Canyon Rd
	11	Vista Sorrento Pkwy / Director's Pl
	12	Vista Sorrento Pkwy / I-805 NB Ramps
	13	Mira Sorrento Pl / Scranton Rd
	14	Sorrento Valley Rd / I-805 SB Off Ramp
	15	Vista Sorrento Pkwy / I-805 NB Off Ramp / Mira Mesa Blvd
	16	Scranton Rd / Mira Mesa Blvd
	17	Lusk Blvd / Mira Mesa Blvd
Voigt Dr DARs	**1**	I-5 SB Ramps / Genesee Ave
	2	I-5 NB Ramps / Genesee Ave
	3	Genesee Ave / Regents Rd
	4	Genesee Ave / La Jolla Village Dr
	5	Campus Point Dr / Voigt Dr
	6	Gilman Dr / Meyers Dr
	7	Villa La Jolla / Gilman Dr
	8	I-5 SB Ramps / La Jolla Village Dr
	9	I-5 NB Ramps / La Jolla Village Dr

Source: SANDAG Series 10; Wilson & Company, 2004

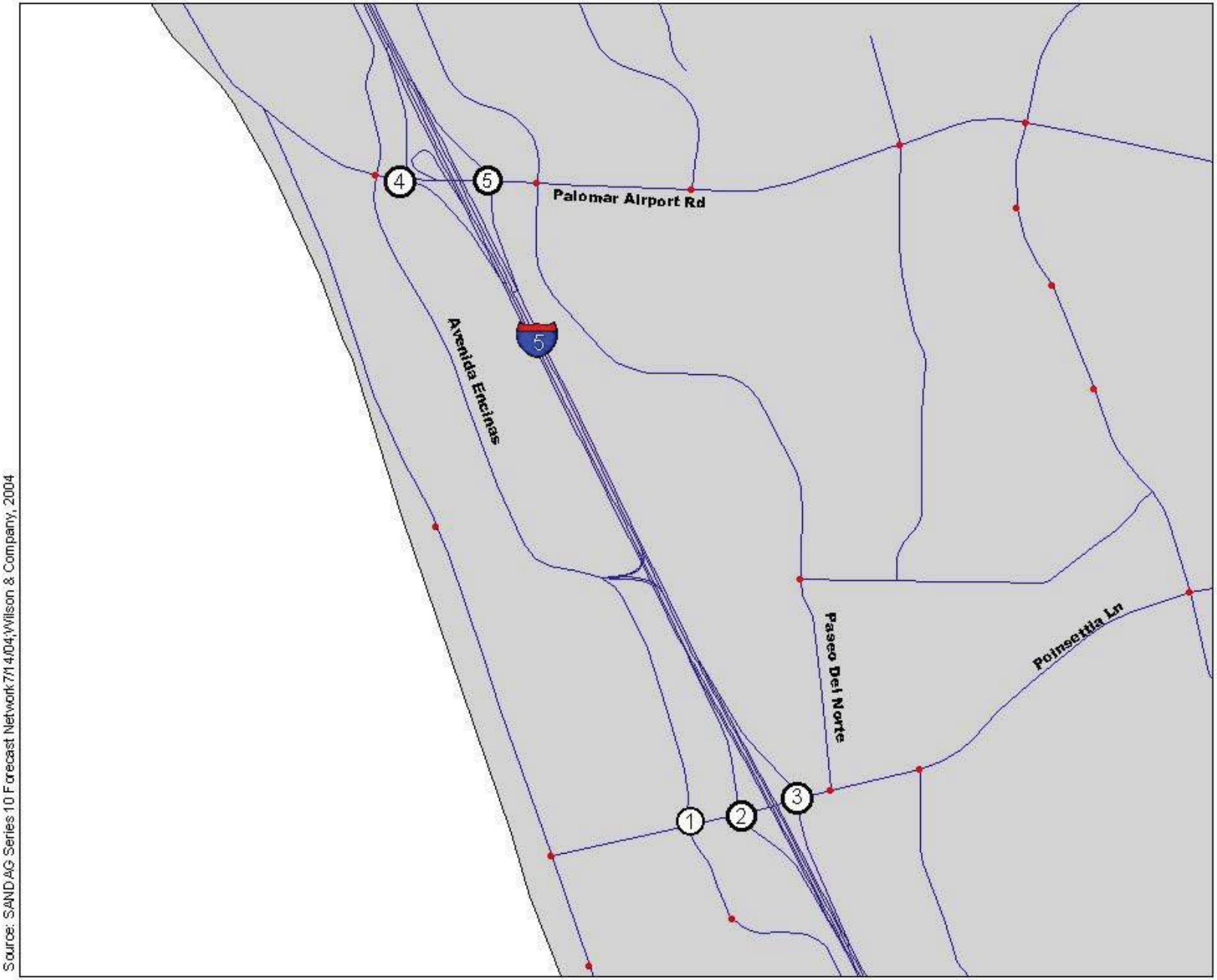


Source: SANDAG Series 10 Forecast Network 7/14/04; Wilson & Company, 2004

Figure 2-5: Oceanside Area of Influence Intersection ID's

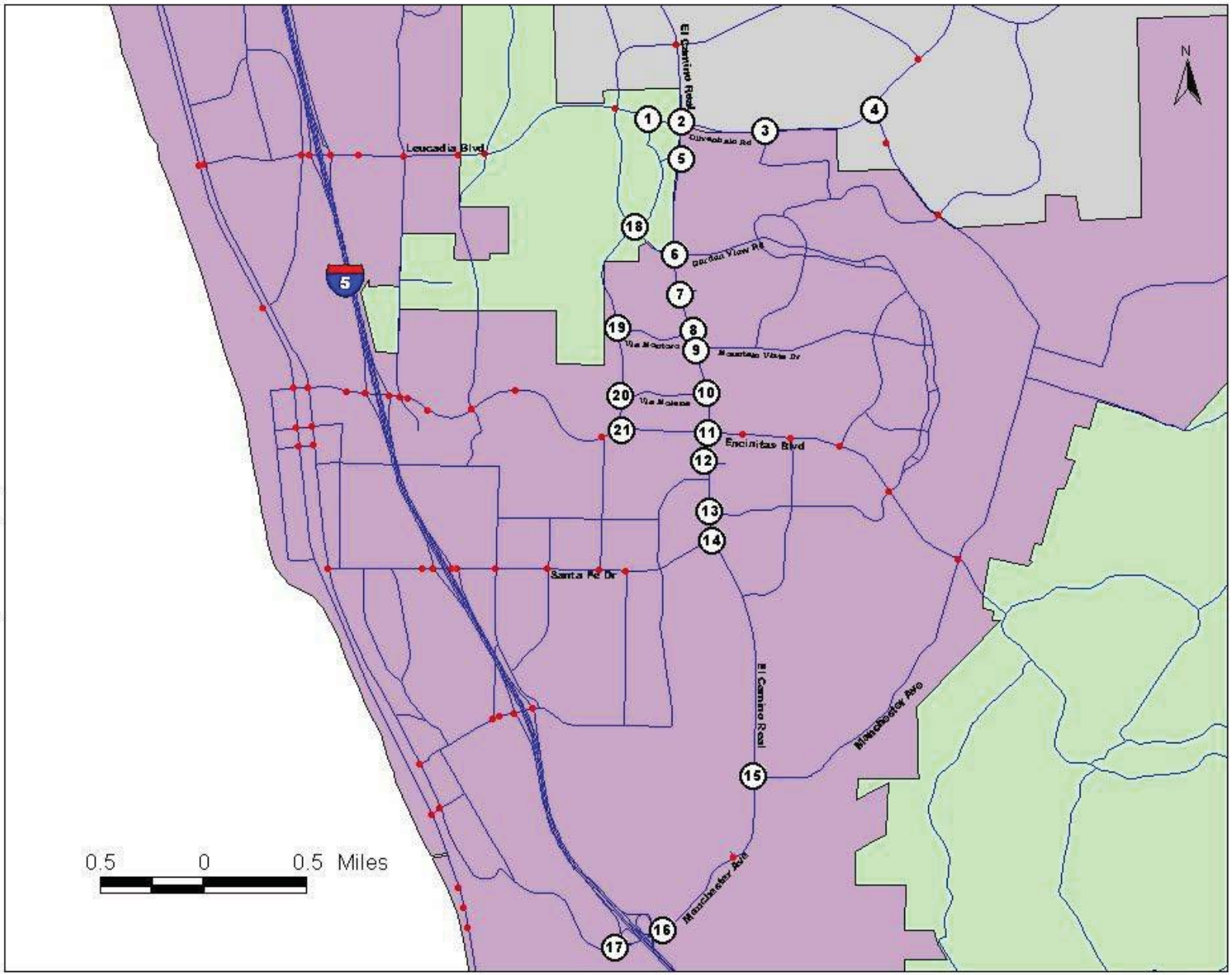
Source: SANDAG Series 10 Forecast Network 7/14/04; Willson & Company, 2004

Figure 2-6a: Cannon Area of Influence Intersection ID's



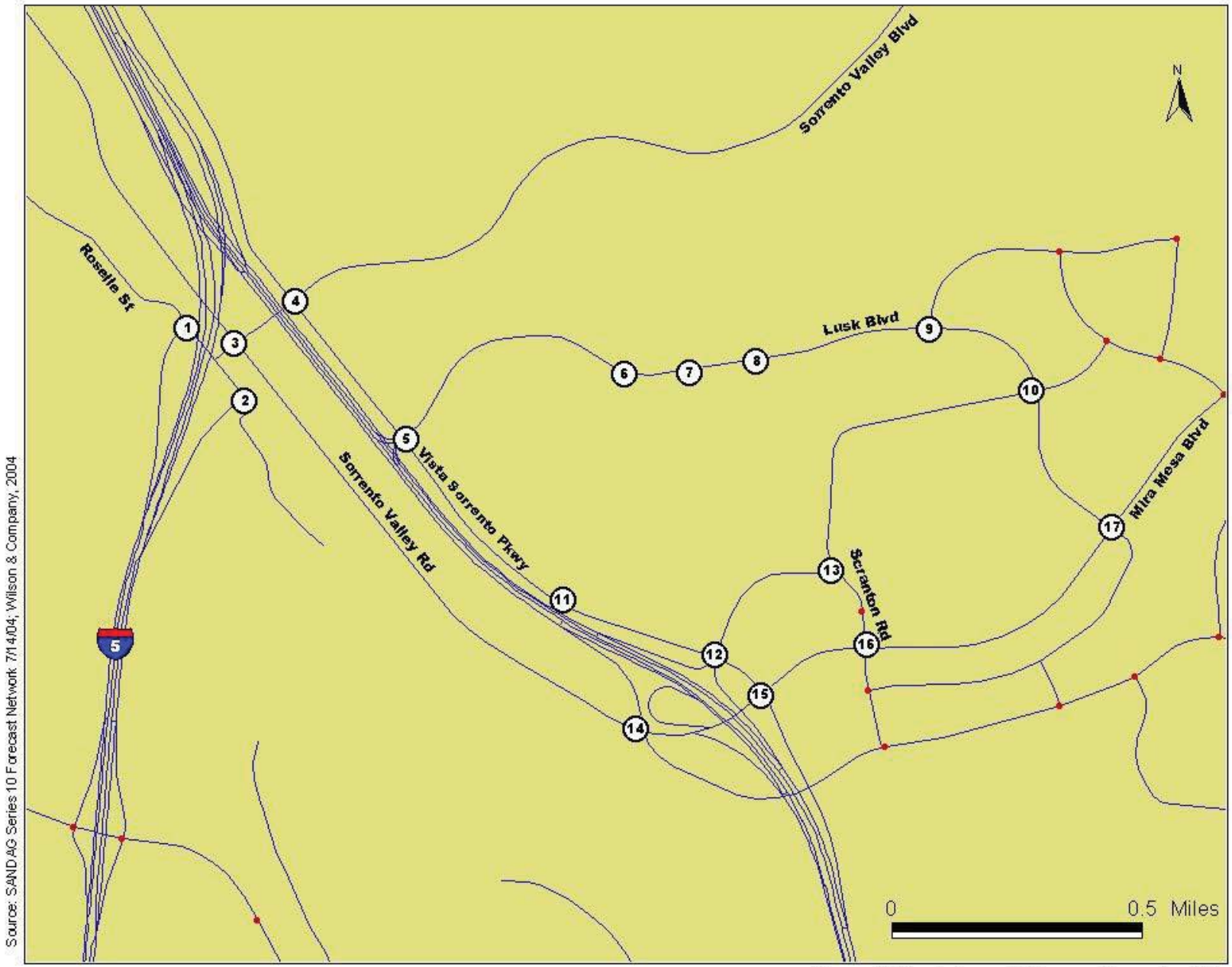
Source: SANDAG Series 10 Forecast Network 7/14/04;Wilson & Company, 2004

Figure 2-6b: Avenida Encinas Area of Influence Intersection ID's



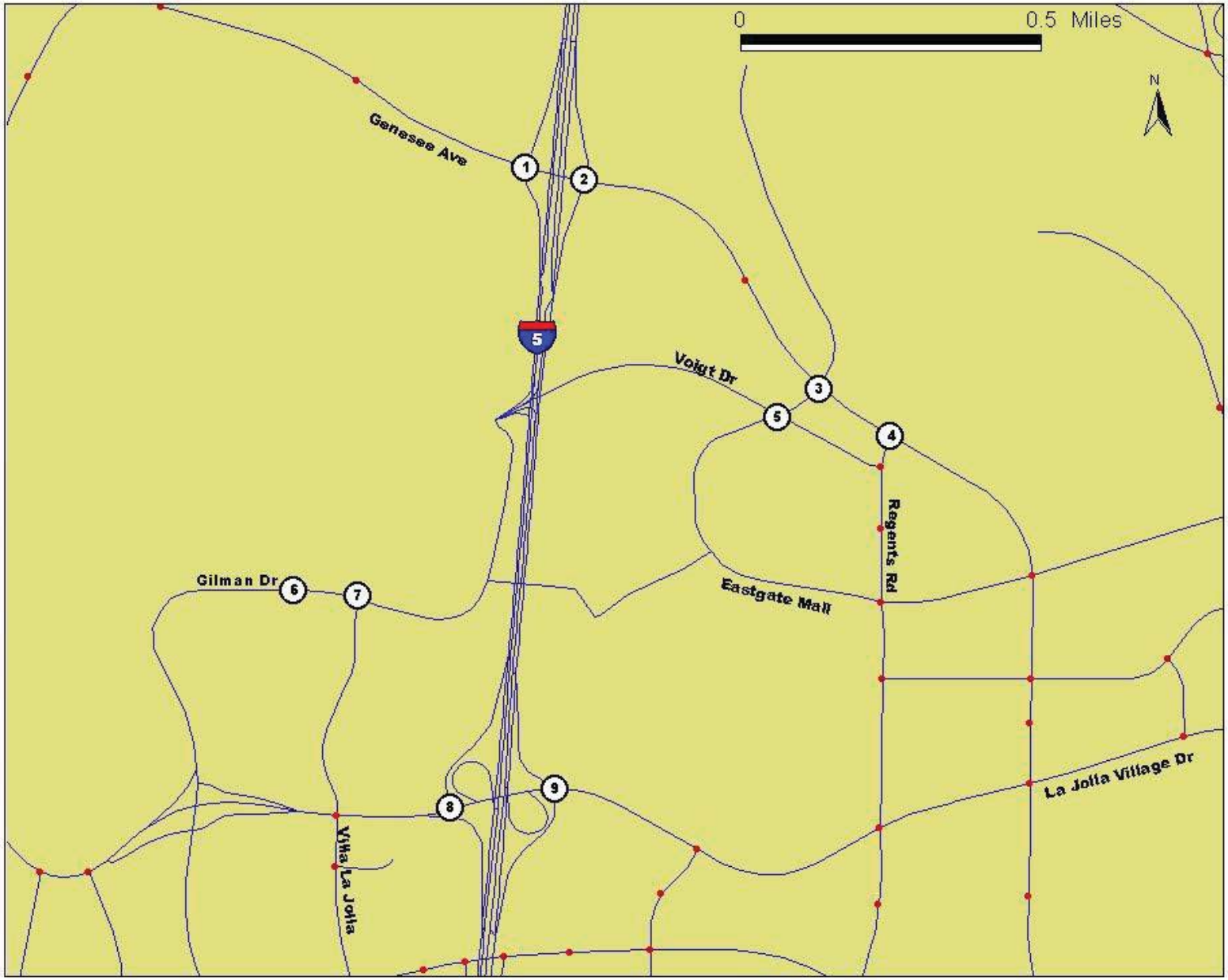
Source: SANDAG Series 10 Forecast Network 7/14/04; Willson & Company, 2004

Figure 2-7: Manchester Area of Influence Intersection ID's



Source: SANDAG Series 10 Forecast Network 7/14/04; Wilson & Company, 2004

Figure 2-8: Lusk Area of Influence Intersection ID's



Source: SANDAG Series 10 Forecast Network, 7/14/04; Wilson & Company, 2004

Figure 2-9: Voigt Area of Influence Intersection ID's

Table 2.4 summarizes the number of roadway segments and signalized intersections falling within each DARs Area of Influence.

Table 2.4 Summary of Area of Influence Facilities

Direct Access Ramp	Local Jurisdiction	Number of Roadway Segments	Number of Signalized Intersections
Oceanside Blvd	City of Oceanside	8	10
Cannon Rd	City of Carlsbad	8	12
Avenida Encinas		4	5
Manchester Ave	City of Encinitas	18	21
Lusk Blvd	City of San Diego	10	17
Voigt Dr		11	9
	Total	59	74

Source: Wilson & Company, 2004