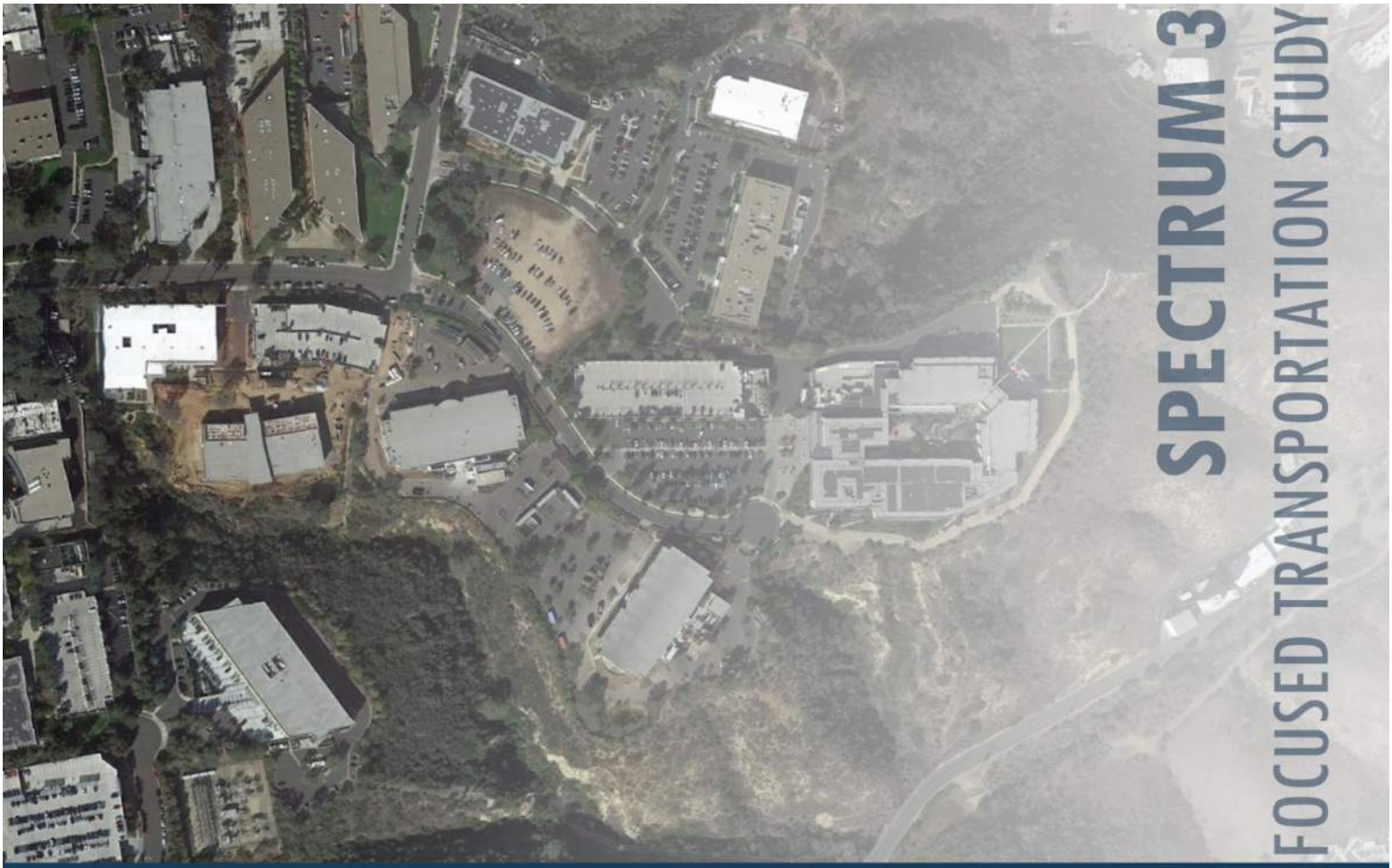

SPECTRUM 3
FOCUSED TRANSPORTATION STUDY

Prepared For: Alexandria Real Estate Equities, Inc. and the City of San Diego

Project Number: 003117
Date: February 26, 2018

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L Summer 2017 Photos of I-5/ Genesee Interchange

M Conceptual Striping Plan of Science Park Road

N City of San Diego's Climate Action Plan Consistency Checklist

1.0 EXECUTIVE SUMMARY

Urban Systems Associates, Inc. (USAI) was retained by Alexandria Real Estate Equities, Inc. to determine potential transportation impacts and appropriate mitigation measures for further development of the Spectrum 3 site.

1.1 Project Background – 2016 Entitlement

From the previously approved Spectrum 3 & 4 Transportation Access Analysis (05/2016), the two previously existing buildings at the Spectrum 3 & 4 site consisted of Building "A" (located at 3115 Merryfield Row) with 79,759 square feet of trip generating scientific research and development space and Building "B" (located at 3215 Merryfield Row) with 76,894 square feet of trip generating scientific research and development space. The most recent entitlement of the Spectrum 3 & 4 site, approved by the City of San Diego on October 17, 2016, allowed the demolition of both buildings on the site and their replacement with two new buildings (Buildings "A" and "B") totaling approximately 182,058 trip generating square feet of scientific research and development space, for an increase of 25,405 square feet of trip generating scientific research space. Building "B" on the Spectrum 4 site, is currently under construction within the previous entitled trip generating 127,015 square feet with a scientific research and development use. From the previous entitlement, there remain 55,043 square feet of trip generating space (182,058 total trip generating square feet minus 127,015 square feet Building "B" that is not yet constructed). The current project proposes to supplement the entitled 55,043 square feet of trip

generating space with 49,290 square feet from 3050 Callan Road (Transfer Site #1) and 12,269 square feet from 3013-3033 Science Park Road (Transfer Site #2) via a Transfer of Development Rights (TDR) as discussed in the University Community Plan. The total trip generating square footage of Building "A" (Spectrum 3) would subsequently total 116,602 square feet (55,043 SF + 49,290 SF + 12,269 SF). **This is an increase of 61,559 square feet of trip generating space compared to previous entitlements.**

1.2 Proposed Project

This study is a focused transportation study, similar to the analysis recently completed for Spectrum 3 & 4. A discussion of Transportation Demand Management (TDM) for this project is also included in this report. Please refer to Chapter 12.0 for further details.

Building "B" (Spectrum 4) is currently under construction and Building "A" (Spectrum 3) is expected to be complete and occupied in late 2018, or early 2019.

Figure 1-1 shows a vicinity map of the proposed project.

The previous entitlements require off-street parking to be provided at a ratio between 2.5 parking spaces per 1,000 SF and 4.0 parking spaces per 1,000 SF. A total of 747 parking stalls will be provided for Buildings A and B, as well as 77 carpool/electric vehicle stalls and 14 motorcycle stalls. In addition, 35 short-term bicycle racks as wells as 44 long-term bicycle storage lockers will

be provided for a total of 79 (35+44=79) bicycle stalls. Please refer to Chapter 11.0 for additional discussion on parking.

The previously existing 156,653 SF of scientific research and development generated 1,253 ADT with 200 AM (180 in / 20 out) peak hour trips and 175 PM (18 in / 158 out) peak hour trips. The previous entitlement consisting of 182,058 SF of scientific research and development generated 1,456 ADT with 233 AM (210 in / 23 out) peak hour trips and 204 PM (20 in / 184 out) peak hour trips. From the previous entitlement, 127,015 square feet is currently under construction (Building "B"). The current project proposes to supplement the remaining 55,043 square feet of trip generating space with 49,290 square feet from 3050 Callan Road (Transfer Site #1) and 12,269 square feet from 3013-3033 Science Park Road (Transfer Site #2) via a Transfer of Development Rights (TDR) as discussed in the University Community Plan. The total trip generating square footage of Building A (Spectrum 3) would subsequently total 116,602 square feet. **This is an increase of 61,559 square feet of trip generating space compared to the previous entitlement.** The proposed transfer of 61,559 SF of scientific research is expected to generate a total of **492 additional average daily trips (ADT)** with **79 additional AM (71 in / 8 out)** peak hour trips and **69 additional PM (7 in / 62 out) peak hour trips**.

Based on the most recent entitlement for the Spectrum 3 and 4 sites, after the demolition of the previously existing Spectrum 3 and 4 buildings and with the construction of the proposed Building

"B", and the transfer and permanent loss of trips from 3050 Callan Road and 3013-3033 Science Park Road, no net new trips are expected in the area.

The I-5/Genesee Avenue interchange project is fully funded, currently under construction, and anticipated to be completed in Spring 2018.

1.3 Methodology

Urban Systems Associates used the City of San Diego's *Traffic Impact Study Manual* guidelines to determine the study area consisting of eight (8) roadway segments, eight (8) intersections, and two (2) ramp meters.

The project traffic generation was estimated based on trip generation rates from the City of San Diego's Trip Generation Manual (2003). The addition of project traffic was evaluated in Existing, and Near-Term scenarios, and an impact analysis was completed in four scenarios. The following scenarios were included in the report: Existing, Existing With Project, Near Term Without Project, Near Term With Project. The term "Near-Term" is meant to discuss a condition occurring at the project's estimated opening day (late 2018/early 2019 for Building "A") where traffic from other known development projects in the area is added onto existing traffic levels. This reflects the best information available for determining what traffic would be in the next several years.

1.4 Study Results

Results for this study can be found in the proceeding summary tables:

Table 1-1 shows a summary of street segments for Existing & Existing + Project.

Table 1-2 shows a summary of street segments for Near-Term & Near-Term + Project.

Table 1-3 shows a summary of intersections for Existing & Existing + Project.

Table 1-4 shows a summary of intersections for Near-Term & Near-Term + Project.

Table 1-5 shows a summary of ramp meters for Near-Term and Near-Term + Project

1.5 Mitigation

The project impacts discovered were the following direct significant street segment impacts:

- Science Park Road (from North Torrey Pines Road to Torreyana Road)
    - Existing + Project
    - Near-Term + Project

These direct significant impacts will be handled through mitigation measures. In order to mitigate the project's direct significant impacts to the street segment of Science Park Road (from North Torrey Pines Road to Torreyana Road), the street segment of Science Park Road, which is a two-lane collector with industrial fronting and parking on both sides of the street, will be modified. Condition No. 26 in CDP/HRP/PID 89-0269 is referenced, as the item is a condition of approval for the original entitlement and carried over from previous reviews. Condition No. 26 of CDP/HRP/PID 89-0269 describes the following:

> *Prior to the expansion of the project beyond 189,000 square feet, for the portion of Science Park Road east of the intersection widening, four lanes shall be provided. One*

eastbound lane shall be dropped approaching Torreyana Road. Parking shall be prohibited along the street via "red curb". The developer shall be responsible for notifying the adjacent property owners and removing parking.

Therefore, the proposed mitigation is to provide two (2) lanes in each direction for Science Park Road to become a four-lane collector and to eliminate on-street parking to achieve this. Doing so will provide adequate capacity for vehicles along the roadway segment the project. Refer to **Appendix M** for a conceptual striping plan of Science Park Road.

Table 1-1

Existing & Existing + Project Street Segment Summary

Road	Segment	# of Lanes	LOS "E" Capacity	Class.	Existing			Existing + Project			ΔV/C	Is this impact Significant?
					LOS	Volume	V/C	LOS	Volume	V/C		
Merryfield Row	East of Torreyana Rd.	2	8,000	2-Cc	B	3,241	0.41	C	3,733	0.47	0.062	***NO***
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	2	8,000	2-Cc	E	6,792	0.85	E	7,260	0.91	0.058	***YES***
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
	John J. Hopkins Dr. to Genesee Ave.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	6	60,000	PA	B	29,852	0.50	B	30,132	0.50	0.005	***NO***
	John J. Hopkins Dr. to Science Center Dr.	6	60,000	PA	B	34,312	0.57	B	34,592	0.58	0.005	***NO***
	Science Center Dr. to I-5 SB Ramps	6	60,000	PA	C	40,346	0.67	C	40,626	0.68	0.005	***NO***
	I-5 SB Ramps to I-5 NB Ramps	4	40,000	4-M	F	49,517	1.24	F	49,674	1.24	0.004	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Cc = 2 Lane Collector (w/ commercial-industrial property

4-M = 4 Lane Major Arterial

PA = 6 Lane Prime Arterial

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

Table 1-2

Near-Term & Near-Term + Project Street Segment Summary

Road	Segment	# of Lanes	LOS "E" Capacity	Class.	Near-Term			Near-Term + Project			ΔV/C	Is this impact Significant?
					LOS	Volume	V/C	LOS	Volume	V/C		
Merryfield Row	East of Torreyana Rd.	2	8,000	2-Cc	B	3,241	0.41	C	3,733	0.47	0.062	***NO***
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	2	8,000	2-Cc	E	6,792	0.85	E	7,260	0.91	0.058	***YES***
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
	John J. Hopkins Dr. to Genesee Ave.	6	60,000	PA	B	30,504	0.51	B	30,833	0.51	0.005	***NO***
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,915	0.52	B	31,195	0.52	0.005	***NO***
	John J. Hopkins Dr. to Science Center Dr.	6	60,000	PA	C	36,062	0.60	C	36,342	0.61	0.005	***NO***
	Science Center Dr. to I-5 SB Ramps	6	60,000	PA	C	43,229	0.72	C	43,509	0.73	0.005	***NO***
	I-5 SB Ramps to I-5 NB Ramps	6	60,000	PA	E	55,502	0.93	E	55,659	0.93	0.003	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Cc = 2 Lane Collector (w/ commercial-industrial property

PA = 6 Lane Prime Arterial

4-C = 4 Lane Collector

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

Table 1-3

Existing & Existing + Project Intersection Summary

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	N. Torrey Pines Rd. / Science Park Rd.	21.1	C	19.7	B	24.4	C	3.3	No	20.1	C	0.4	No
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	17	C	9.6	A	22.6	C	5.6	No	10.5	B	0.9	No
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	24	C	19.7	B	24.3	C	0.3	No	19.8	B	0.1	No
4	N. Torrey Pines Rd. / Genesee Ave.	22.5	C	59	E	22.8	C	0.3	No	59.8	E	0.8	No
5	Genesee Ave. / John J. Hopkins Dr.	35.2	D	37.5	D	35.4	D	0.2	No	37.6	D	0.1	No
6	Genesee Ave. / Science Center Dr.	13.6	B	11.3	B	14.0	B	0.4	No	11.4	B	0.1	No
7	Genesee Ave. / I-5 SB Ramps	53.4	D	54.1	D	54.4	D	1.0	No	54.4	D	0.3	No
8	Genesee Ave. / I-5 NB Ramps	33.6	C	125.5	F	34.3	C	0.7	No	126.0	F	0.5	No

Notes:

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

Table 1-4

Near-Term & Near-Term + Project Intersection Summary

#	Intersection	Near-Term				Near-Term + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	N. Torrey Pines Rd. / Science Park Rd.	21.1	C	20.0	B	24.4	C	3.3	No	20.9	C	0.9	No
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	17.0	C	10.5	B	22.6	C	5.6	No	11.8	B	1.3	No
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	25.0	C	19.9	B	25.3	C	0.3	No	20.0	B	0.1	No
4	N. Torrey Pines Rd. / Genesee Ave.	23.0	C	74.1	E	23.0	C	0.0	No	74.8	E	0.7	No
5	Genesee Ave. / John J. Hopkins Dr.	37.1	D	47.4	D	37.3	D	0.2	No	47.4	D	0.0	No
6	Genesee Ave. / Science Center Dr.	16.3	B	12.0	B	17.0	B	0.7	No	12.2	B	0.2	No
7	Genesee Ave. / I-5 SB Ramps	42.9	D	42.8	D	43.2	D	0.3	No	42.9	D	0.1	No
8	Genesee Ave. / I-5 NB Ramps	49.5	D	45.2	D	49.7	D	0.2	No	46.4	D	1.2	No

Notes:

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

Table 1-5

Near-Term & Near-Term + Project Ramp Meter Summary

Location	Lanes	Peak	Near-Term Without Project		Near-Term With Project		Freeway LOS	Δ	S
			Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)			
Genesee Ave. / I-5 SB Ramps	SOV	AM	0	0	0	0	C	0.00	NO
		PM	0	0	0	0	C	0.00	NO
Genesee Ave. / I-5 SB Ramps	HOV	AM	0	0	0	0	C	0.00	NO
		PM	0	0	0	0	C	0.00	NO
Genesee Ave. / I-5 NB Ramps	SOV	AM	139	6,969	140	6,982	B	0.26	NO
		PM	40	12,463	40	12,541	B	0.25	NO
Genesee Ave. / I-5 NB Ramps	HOV	AM	139	1,549	140	1,552	B	0.26	NO
		PM	40	2,770	40	2,787	B	0.25	NO

NOTE:
Δ = Change in Delay (minutes)
SOV = Single Occupancy Vehicle assumed at 90%
HOV = High Occupancy Vehicle assumed at 10%
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

*Ramp Meter Rates sourced from the Interstate 5/Genesee Avenue Interchange Reconstruction Project, June 2011 (NB Ramps - 230 vph AM / 1,450 vph PM) and (SB Ramps - 490 vph AM / 2,000 vph PM) provided in **Appendix B**.

Veh/Hr= Vehicles per hour
Veh/Hr/Ln= Vehicles per hour per lane

Refer to **Appendix B** for freeway analysis for Near Term without Project Conditions and near Term With Project Conditions showing projected freeway LOS.

Figure 1-1

Project Vicinity Map

2.0 INTRODUCTION

Urban Systems Associates, Inc. (USAI) was retained by Alexandria Real Estate Equities, Inc. to determine potential transportation impacts and appropriate mitigation measures for the development of the Spectrum 3 site. The purpose of this report is to determine whether transportation impacts may result due to the transfer of density from other areas of University City and intensification of the Spectrum 3 site. This transfer and intensification results in the addition of 61,559 square feet of trip generating space to the Spectrum 3 site. **Figure 2-3** shows the off-site locations where the transfer is sourced. The study is a Focused Transportation Study, similar to the analysis for Spectrum 3 & 4. A Transportation Demand Management (TDM) Plan is a separate document to the Focused Transportation Study but has also been included as Chapter 12.0 of this report.

2.1 Project Location and Description

The project is located off North Torrey Pines Road on the west side of I-5 in the community of University City. The site is bound by Merryfield Row to the north. The address is 3115 Merryfield Row. **Figure 2-1** shows the project location. **Figure 2-2** displays the proposed site plan.

The project includes the construction of two new scientific research and development buildings located in 3115 (Spectrum 3) and 3215 (Spectrum 4) Merryfield Row. The site previously held two scientific research and development buildings. The two previously existing buildings at the Spectrum 3 & 4 site consisted of Building A (located on 3115 Merryfield Row) with 79,759 square

feet of trip generating scientific research and development space, Building "B" (located on 3215 Merryfield Row) with 76,894 square feet of trip generating scientific research and development space. The entitlement of the Spectrum 3 & 4 site, approved by the City of San Diego on October 17, 2016, allowed the demolition of buildings on the site and replacement with two new buildings (Building "A" and "B") totaling approximately 182,058 trip generating square feet of scientific research and development space. Building "B", on the Spectrum 4 site is currently under construction within the previous entitled trip generating square footage of 127,015 with a scientific research and development use. From the previous entitlement, there remain 55,043 square feet of trip generating space (182,058 total trip generating square feet minus 127,015 square feet Building "B"). The current project proposes to supplement these 55,043 square feet of trip generating space with 49,290 square feet from 3050 Callan Road (Transfer Site #1) and 12,269 square feet from 3013-3033 Science Park Road (Transfer Site #2) via a Transfer of Development Rights (TDR) as discussed in the University Community Plan. The total trip generating square footage of Building "A" (Spectrum 3) would subsequently total 116,602 square feet (55,043 SF + 49,290 SF + 12,269 SF). This is a net increase of 61,559 square feet of trip generating space compared to previous entitlements. For more information, refer to the architectural plans in **Appendix A**.

For study area purposes, USAI used the City of San Diego Traffic Impact Study Manual recommendation and regional guidelines of fifty trips in one direction during a peak hour as a

basis for determining the studied intersections and street segments, and twenty peak hour trips for studying metered freeway ramps. **Figure 2-4** shows the study area which includes eight (8) roadway segments, eight (8) intersections, and two (2) ramp meters. **Table 2-1** lists the study area street segments and intersections.

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

1.0 Executive Summary

2.0 Introduction

3.0 Proposed Project

4.0 Methodology

5.0 Existing Conditions

6.0 Existing With Project Conditions

7.0 Cumulative Projects

8.0 Near-Term Without Project Conditions

9.0 Near-Term With Project (Late 2018 or early 2019) Conditions

10.0 Transit and Other Transportation Modes

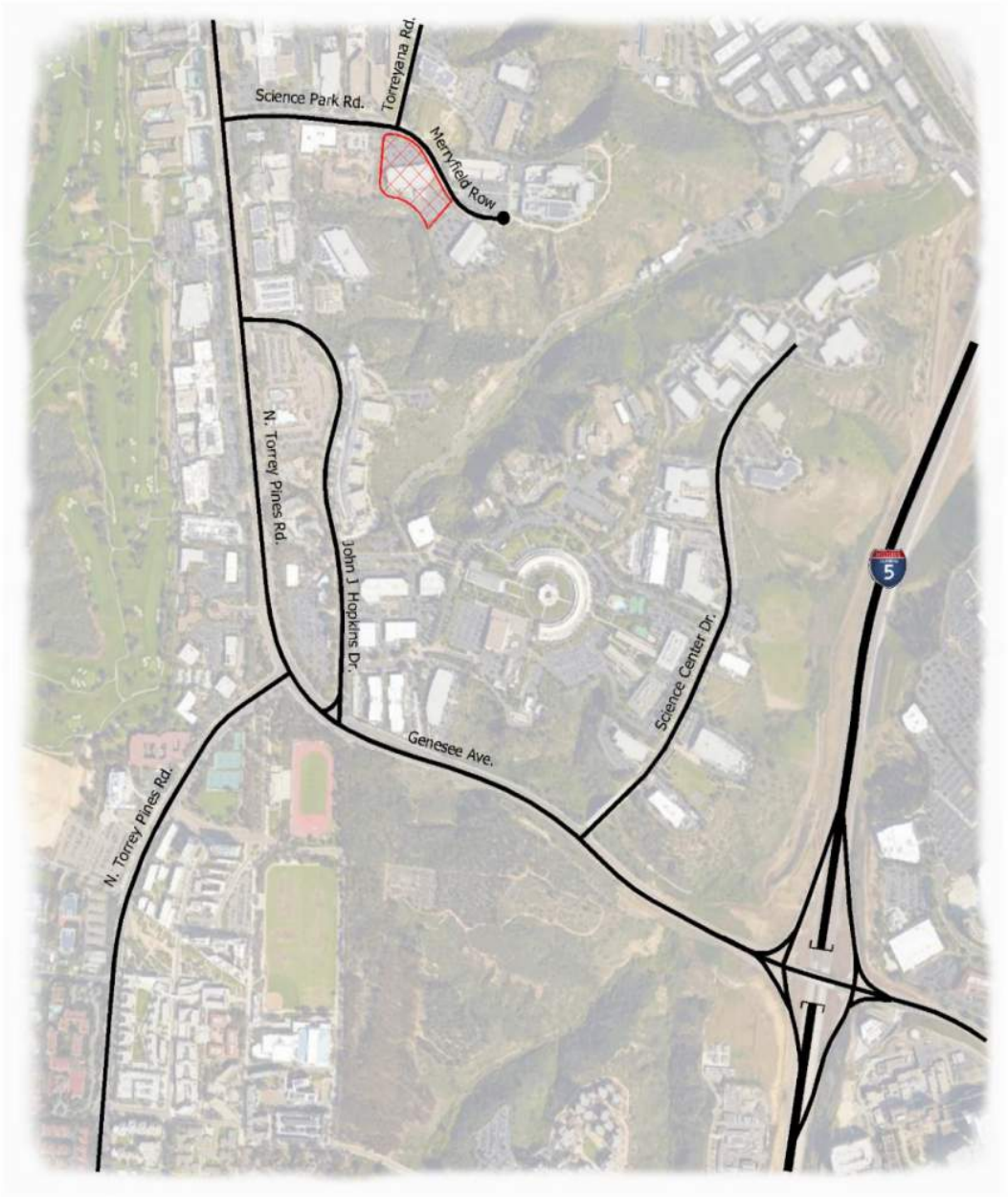
11.0 Parking

12.0 Transportation Demand Management

13.0 Conclusions and Recommendations

14.0 References

15.0 Urban Systems Associates, Inc., Preparers



Legend

= Project Location

NO SCALE

Figure 2-1

Project Location Map

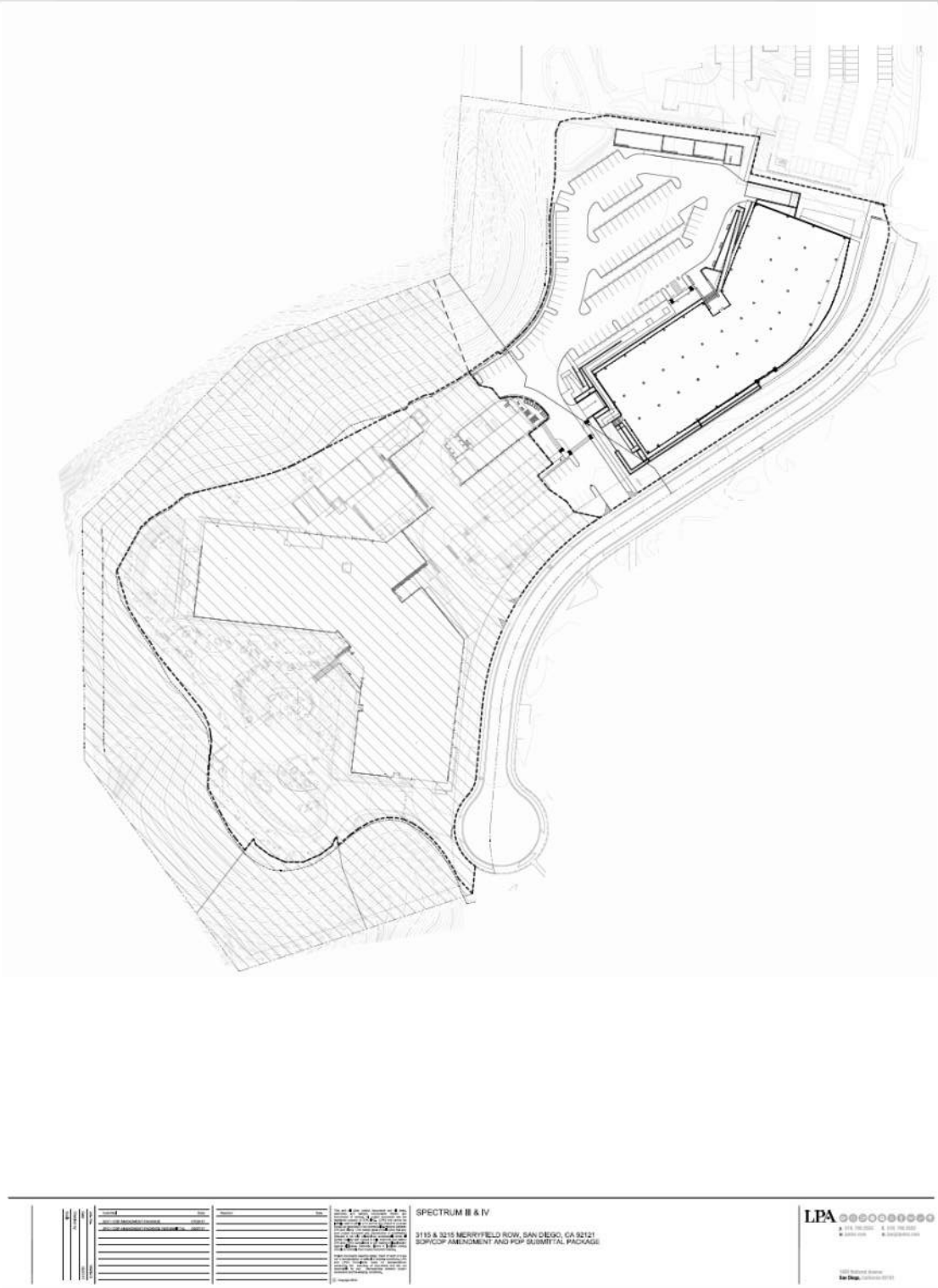


Figure 2-2

Proposed Project Site Plan

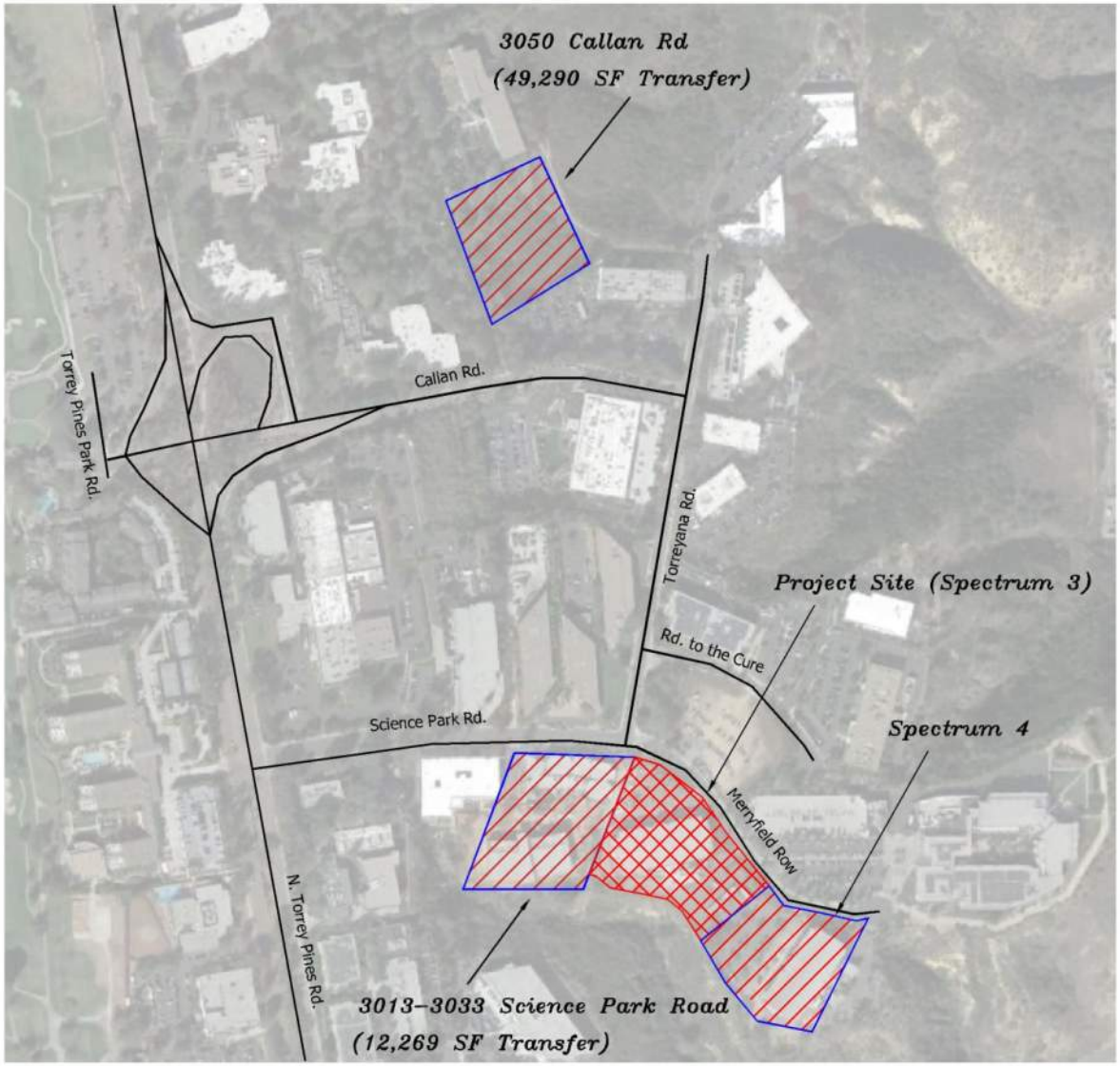


Figure 2-3

ADT Transfer Map

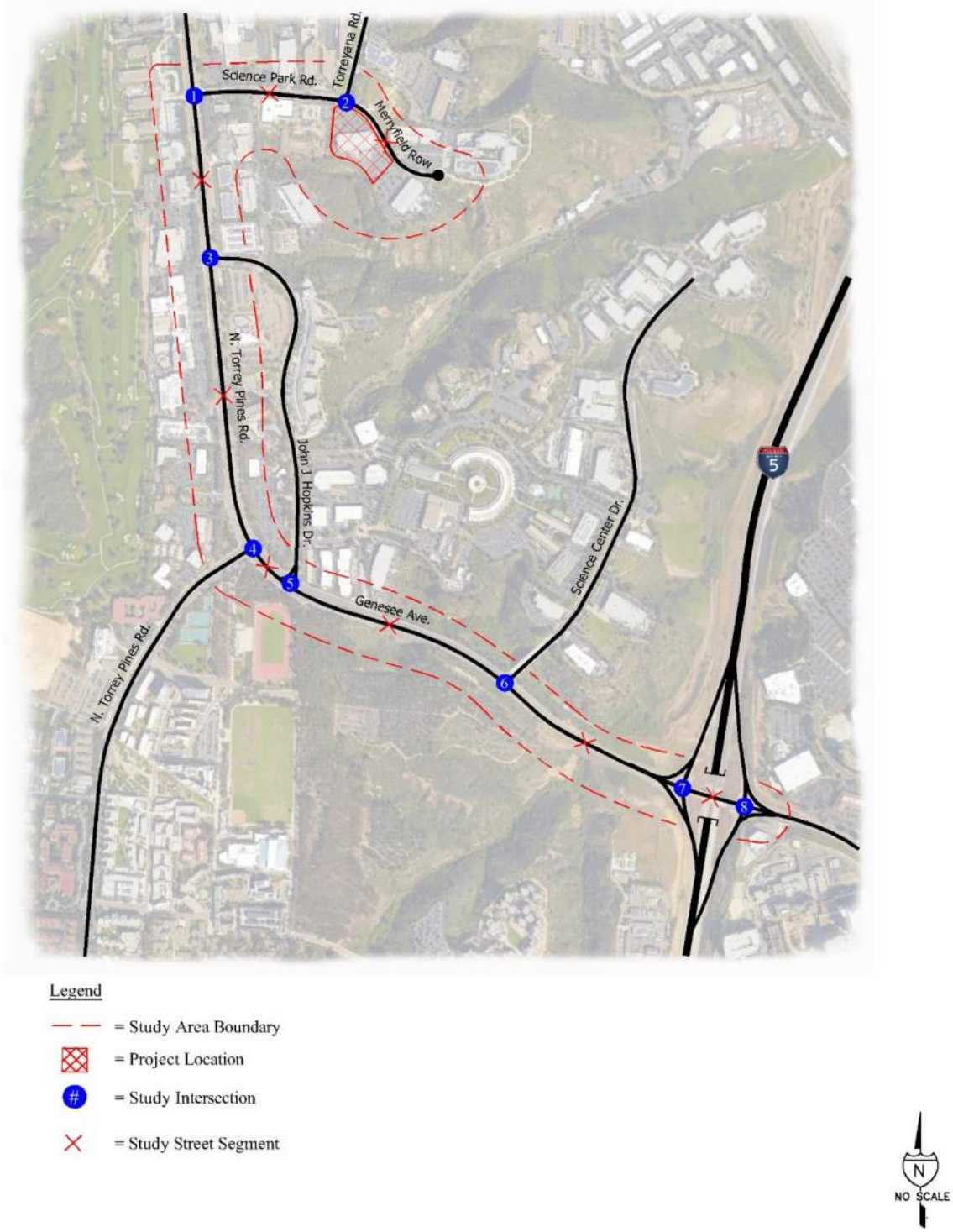


Figure 2-4

Study Area Boundary

Table 2-1

Study Area Street Segments and Intersections

Street Segments	
Road	**Segment**
Merryfield Row	East of Torreyana Rd.
Science Park Rd.	N. Torrey Pines Rd. to Torreyana Rd.
N. Torrey Pines Rd.	Science Park Rd. to John J. Hopkins Dr. John J. Hopkins Dr. to Genesee Av.
Genesee Av.	N. Torrey Pines Rd. to John J. Hopkins Dr. John J. Hopkins Dr. to Science Center Dr. Science Center Dr. to I-5 SB Ramps I-5 SB Ramps to I-5 NB Ramps

Intersections	
Number	**Intersection**
1	N. Torrey Pines Rd. / Science Park Rd.
2	Torreyana Rd. / Science Park Rd. / Merryfield Row
3	N. Torrey Pines Rd. / John J. Hopkins Dr.
4	N. Torrey Pines Rd. / Genesee Ave.
5	Genesee Ave. / John J. Hopkins Dr.
6	Genesee Ave. / Science Center Dr.
7	Genesee Ave. / I-5 SB Ramps
8	Genesee Ave. / I-5 NB Ramps

3.0 PROPOSED PROJECT

The recently approved entitlement of the Spectrum 3 & 4 site allowed the demolition of buildings on the site and replacement with two new buildings (Building A and B) totaling approximately 182,058 trip generating square feet of scientific research and development space. Building B, on the Spectrum 4 site is currently under construction within the previous entitled trip generating square footage of 127,015 with a scientific research use. From the previous entitlement, there remain 55,043 square feet of trip generating space (182,058 total trip generating square feet minus 127,015 square feet Building B). The current project proposes to supplement these 55,043 square feet of trip generating space with 49,290 square feet from 3050 Callan Road (Transfer Site #1) and 12,269 square feet from 3013-3033 Science Park Road (Transfer Site #2) via a Transfer of Development Rights (TDR) as discussed in the University Community Plan. The total trip generating square footage of Building A (Spectrum 3) would subsequently total 116,602 square feet. **This is an increase of 61,559 square feet of trip generating space compared to the previous entitlement.**

3.1 TRIP GENERATION

The project includes the construction of two new scientific research and development buildings located in 3115 (Spectrum 3) and 3215 (Spectrum 4) Merryfield Row. The site previously held two scientific research and development buildings. The two previously existing buildings at the Spectrum 3 & 4 site consisted of Building A (located on 3115 Merryfield Row) with 79,759 square

feet of trip generating scientific research and development space, Building "B" (located on 3215 Merryfield Row) with 76,894 square feet of trip generating scientific research and development space. These previously existing buildings accounted for a total of 156,653 square feet of trip generating scientific research and development, which generated 1,253 ADT. The entitlement of the Spectrum 3 & 4 site, approved by the City of San Diego on October 17, 2016, allowed the demolition of buildings on the site and replacement with two new buildings (Building "A" and "B") totaling approximately 182,058 trip generating square feet of scientific research and development space. This space is equivalent to 1,456 ADT. Building "B", on the Spectrum 4 site is currently under construction within the previous entitled trip generating square footage of 127,015 with a scientific research and development use. From the previous entitlement, there remain 55,043 square feet of trip generating space (182,058 total trip generating square feet minus 127,015 square feet Building "B"). The current project proposes to supplement these 55,043 square feet of trip generating space with 49,290 square feet from 3050 Callan Road (Transfer Site #1) and 12,269 square feet from 3013-3033 Science Park Road (Transfer Site #2) via a Transfer of Development Rights (TDR) as discussed in the University Community Plan. The total trip generating square footage of Building "A" (Spectrum 3) would subsequently total 116,602 square feet (55,043 SF + 49,290 SF + 12,269 SF). This is a net increase of 61,559 square feet of trip generating space compared to previous entitlements.

Therefore, the net increase of 61,559 square feet of trip generating scientific research and development is expected to generate a total of **492 additional average daily trips (ADT)** with **79**

additional AM (71 in / 8 out) peak hour trips and **69 additional PM (7 in / 62 out)** peak hour trips.

A trip generation rate of 8-weekday trips per 1000 square feet of scientific research was used, which is consistent with the *City of San Diego Trip Generation Manual, 2003.* **Table 3-1** shows a trip generation estimate for the proposed project and includes additional information regarding the previously existing buildings and the 2016 entitlement of the Spectrum 3 & 4 site. The trip generation estimate is intended to show the net differential of ADT between the 2016 entitlement and the proposed transfer for the Spectrum 3 site.

3.2 TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution percentages are based on knowledge of the existing communities surrounding the project area, the project's proximity to interstate highways and arterials, and the examination of existing traffic patterns. **Figure 3-1** shows the project's distribution. As shown, 28% of project traffic would be expected to travel on northbound on North Torrey Pines Road and 67% of project traffic would be expected to travel southbound. It is expected approximately 10% would travel south on North Torrey Pines Road while the remaining 57% would travel via Genesee Avenue towards the I-5 freeway.

Figure 3-2 shows the Project Only average daily traffic volumes

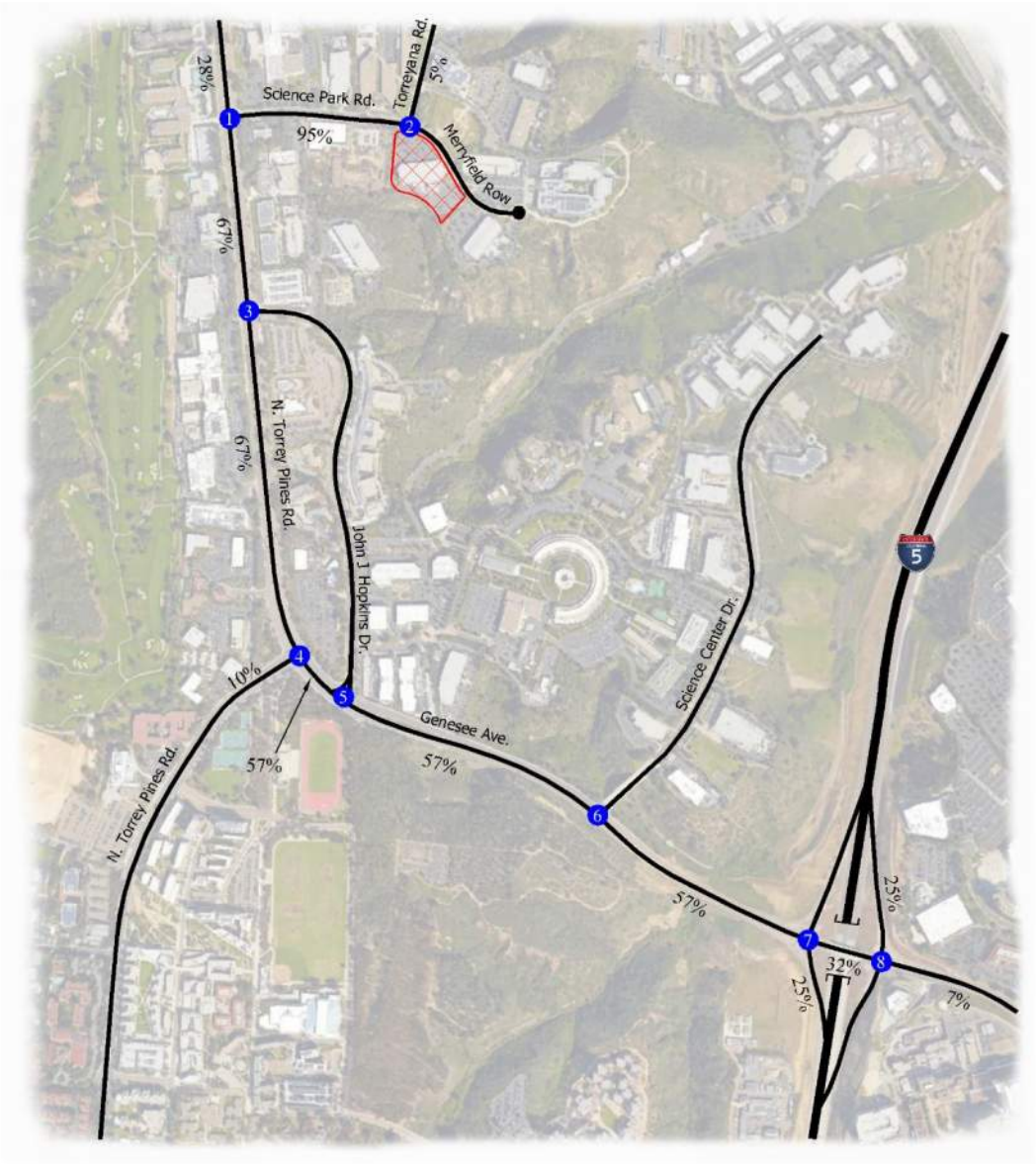
Figure 3-3 shows the Project Only AM/PM peak hour intersection volumes.

Table 3-1

Spectrum 3 Project Trip Generation

Use	Intensity		Rate	ADT	AM						PM					
					Peak %	Vol.	In %	Out%	In	Out	Peak %	Vol.	In %	Out%	In	Out
Previous Entitlement																
3115 Merryfield Row	55,043	SF	8 / KSF	**440**	16%	**70**	90%	10%	**63**	**7**	14%	**62**	10%	90%	**6**	**55**
3215 Merryfield Row	127,015	SF	8 / KSF	**1,016**	16%	**163**	90%	10%	**146**	**16**	14%	**142**	10%	90%	**14**	**128**
TOTAL				**1,456**		**233**			**210**	**23**		**204**			**20**	**184**
Transfer from 3050 Callan Rd. (Site #1) and 3013-3033 Science Park Rd. (Site #2)																
Site #1	49,290	SF	8 / KSF	**394**	16%	**63**	90%	10%	**57**	**6**	14%	**55**	10%	90%	**6**	**50**
Site #2	12,269	SF	8 / KSF	**98**	16%	**16**	90%	10%	**14**	**2**	14%	**14**	10%	90%	**1**	**12**
TOTAL				**492**		**79**			**71**	**8**		**69**			**7**	**62**
TOTAL INCREASE	**61,559**	**SF**		**492**		**79**			**71**	**8**		**69**			**7**	**62**

Source:
Rates taken from the *City of San Diego, Trip Generation Manual (May 2003)*
Note:
KSF = 1,000 Square Feet



Legend

= Project Location

= Study Intersection

XX% = Distribution Percentage

N
NO SCALE

Figure 3-1

Project Distribution Percentages

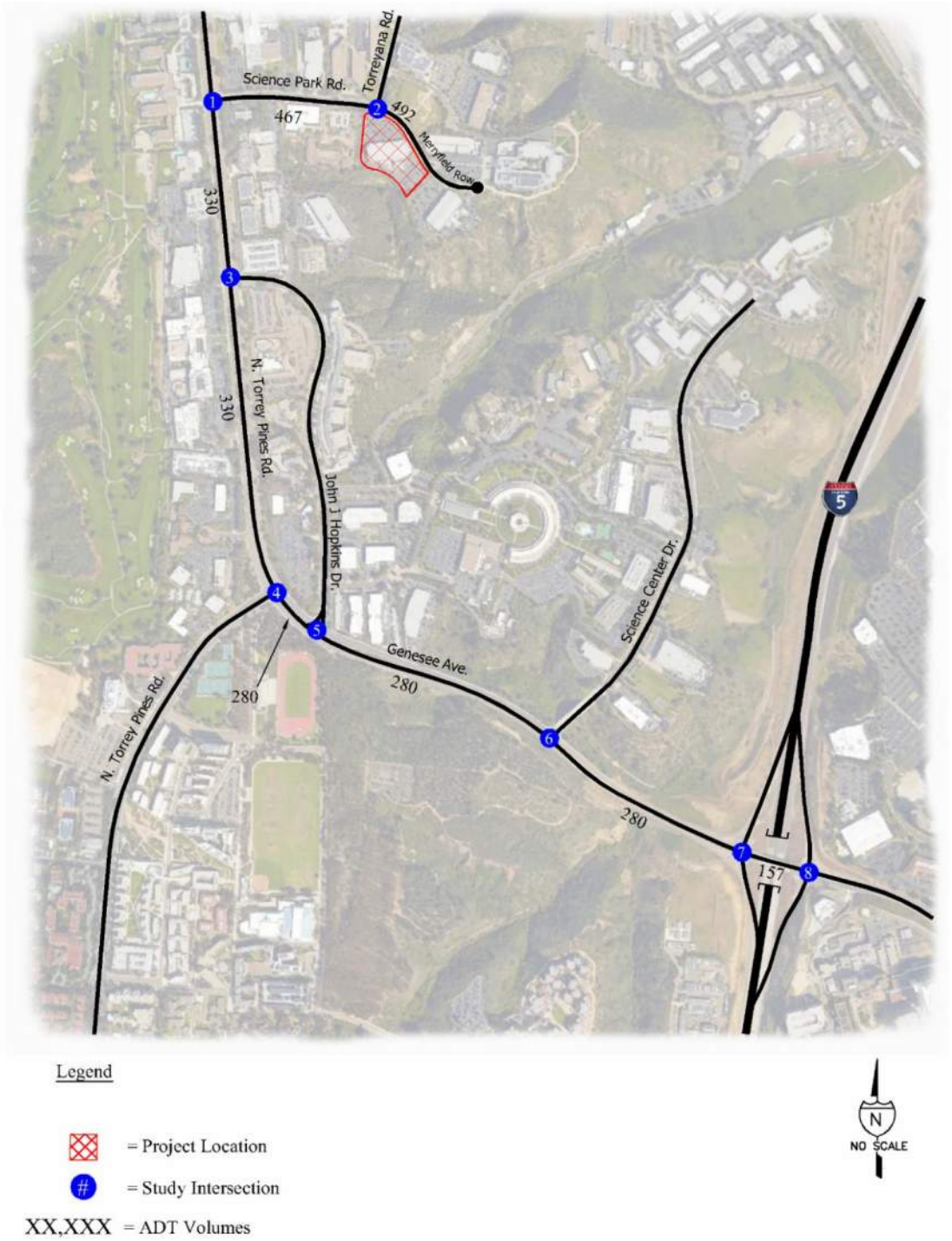
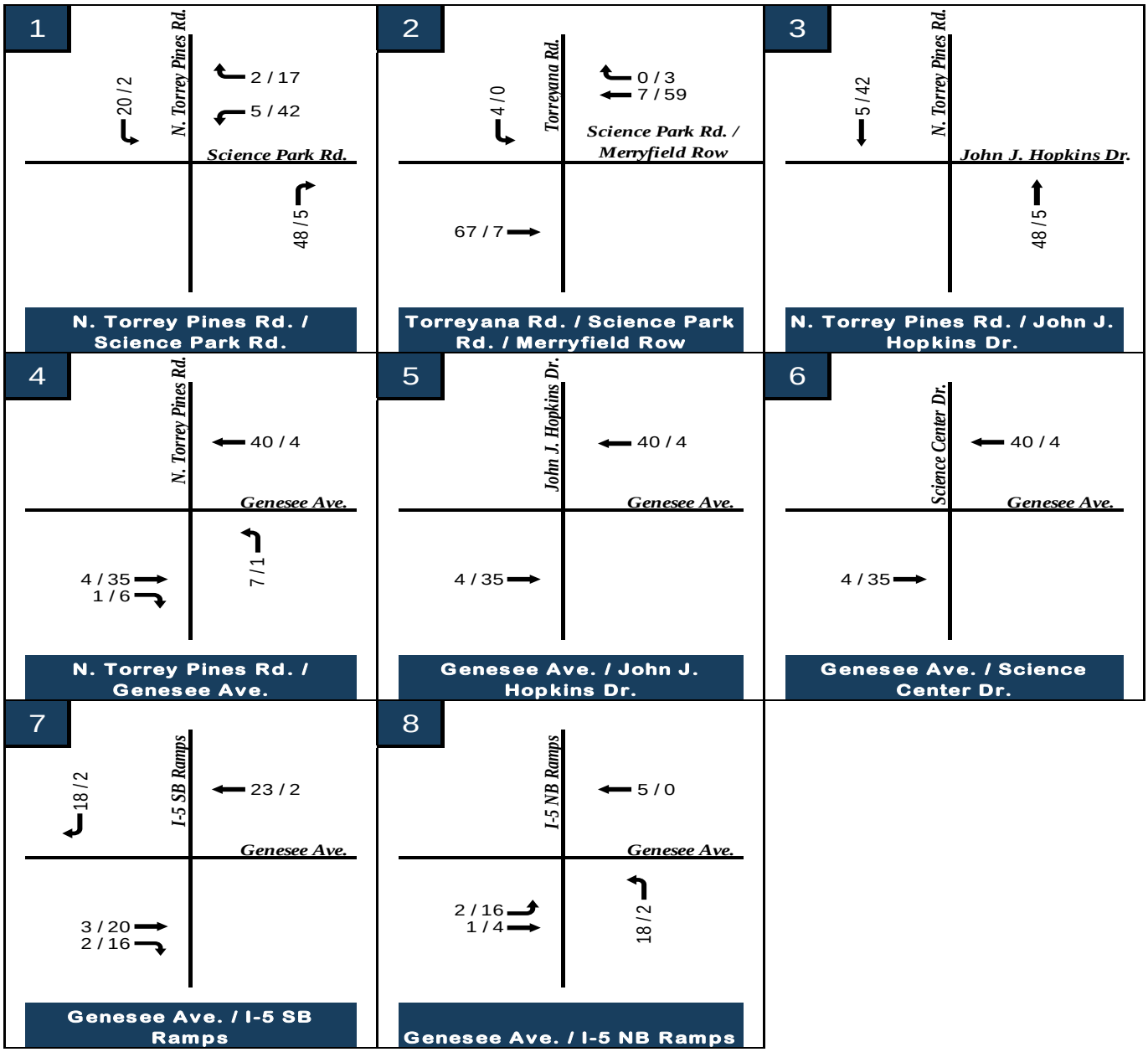


Figure 3-2

Project Only ADT



XX / XX = AM / PM Peak hour volumes

Figure 3-3

Project AM / PM Peak Hour Traffic

4.0 METHODOLOGY

This section of the report describes various analysis procedures and criteria that are used to determine if the proposed project has a significant impact and if mitigation is required. The City's *Significance Determination Thresholds*, July 2016 are used in this analysis to determine whether the proposed project may have a significant effect on the environment.

Mitigation may be either specific improvements by the project for a direct or cumulative impact or a financial contribution toward an improvement by others if a cumulative impact occurs. Two criteria must be met before project mitigation is required. First, the intersection or street segment must be projected to operate at an unacceptable LOS after project trips are added (i.e., "E" or "F" as discussed below). Second, the amount of project traffic must be significant based on the application of criteria also discussed below.

For an intersection, if the change in delay anticipated due to the project is greater than 2 seconds at a LOS is "E" or greater than 1 second at a LOS "F", then the project's intersection impacts would be considered significant. For a street segment, if the change in volume to capacity ratio (V/C ratio) anticipated due to the project exceeds 0.02 at a LOS is "E" or 0.01 at a LOS "F", then the project's street segment impact would be considered significant. If project traffic causes an intersection, roadway segment, or freeway segment to degrade from LOS "D"

to LOS “E” or LOS “F”, the project impact would be significant and project mitigation is required. Ramp meters must be included in the study area if 20 peak hour trips of project traffic are anticipated on any metered freeway on-ramps. A project ramp meter impact would be significant if the ramp meter calculations show 15 minutes of delay or greater and the change in delay due to the project is greater than 2 minutes if the freeway mainline segments are expected to operate at a LOS “E” or greater than 1 minute if the freeway mainline segments are expected to operate at a LOS “F” using the most restrictive meter rate method. For freeway segment impacts to be considered significant, the segment would need to operate at an unacceptable LOS and exceed a change in V/C ratio of 0.01 at a LOS “E” or 0.005 at a LOS “F”. For this study, the freeway criteria was not applicable because the project would not be expected to contribute 50 directional peak hour trips to I-5.

4.1 CITY OF SAN DIEGO GUIDELINES

The City of San Diego has developed a Traffic Impact Study Manual (7/98). The stated purpose of the Traffic Impact Study Manual is “....to ensure consistency with all applicable City and State regulations.” The Traffic Impact Study Manual provides guidance regarding preparation of traffic impact reports in the City of San Diego. Since the proposed project is located within the City of San Diego’s jurisdiction, this traffic impact report follows the procedures outlined in the City’s traffic manual.

The manual includes guidelines for forecasting, trip generation and assignment, and analysis procedures. The manual also establishes the criteria for measuring project impacts at intersections. The City Traffic Impact Study Manual specifies the use of the most current Highway Capacity Manual (HCM) operational method for studying intersections. The most current HCM is HCM 6th edition. For this analysis HCM 6th edition methodology was used where applicable, and where not, HCM 2000 methodology was used instead. This software package is a direct and faithful application of the HCM methodology.

4.2 STREET SEGMENT LOS THRESHOLD

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

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

4.3 INTERSECTION LOS PROCEDURES

The City and SANTEC/ITE guidelines, as adopted by SANDAG (2006), determine the procedures to be used for intersection peak hour analysis. To determine an intersection peak hour LOS, the SANTEC/ITE guidelines require the use of the most recent procedure from the HCM (Transportation Research Board 2010). The procedure in Chapter 18, which is used to analyze signalized intersections, is the "operational method." This method determines LOS based on average control delay expressed in seconds. **Table 4-1** shows the LOS based upon the delay. The procedure in Chapter 19 (Two Way Stop Control) and Chapter 20 (All-Way Stop Control) were used to analyze unsignalized intersections. The measure of effectiveness for unsignalized intersections is determined by the computed control delay and is defined for each minor movement. A computer program called Synchro supports this methodology and is used to complete the analysis for signalized and unsignalized intersections. As discussed above, the City and SANTEC/ITE guidelines have established LOS "D" or better as the objective for intersections and street segments.

Table 4-1

Level of Service Criteria for Signalized Intersections

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

Source: Transportation Research Board 2010, Table 18-4

Level of Service Criteria for Un-signalized Intersections

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

Source: Transportation Research Board 2010, Table 19-1

4.4 FREEWAY SEGMENT LOS PROCEDURES

To determine the LOS of main-lane freeway segments, a V/C analysis would be conducted consistent with California Department of Transportation (Caltrans) District 11 Procedures for Estimating Freeway Level of Service. This analysis study area does not include any freeway analysis so these procedures have not been utilized. However, as a supplement to the ramp meter analysis element for this study, freeway analysis for Near Term Without Project and Near Term With Project Conditions has been included to estimate the LOS that the freeway segments north and south of Genesee Avenue will be projected to experience at project buildout. Refer to **Appendix B** for further details.

4.5 SIGNIFICANCE THRESHOLDS

The City's *Significance Determination Thresholds*, July 2016 are used in this analysis to determine whether the proposed project may have a significant effect on the environment. The purpose of these thresholds is "to assist City of San Diego staff, project proponents, and the public in determining whether, based on substantial evidence, a project may have a significant effect on the environment under Section 21082.2 of the California Environmental Quality Act (CEQA), and therefore the environmental impact requires mitigation".

The City has significance thresholds which are summarized in **Table 4-2**. These thresholds are used in this analysis along with levels of service to determine if project mitigation is required. **Table 4-3** shows the roadway classifications for the City of San Diego. Two criteria must be met

before project mitigation is required. First, the intersection or street segment must have an unacceptable level of service (LOS), i.e. “E” or “F” as discussed below. Second, the amount of project traffic must be significant based on the application of criteria also discussed below.

For an intersection, if the change in delay anticipated due to the project is greater than 2 seconds at a LOS is “E” or greater than 1 second at a LOS “F”, then the project’s intersection impacts would be considered significant. For a street segment, if the change in volume to capacity ratio (V/C ratio) anticipated due to the project exceeds 0.02 at a LOS is “E” or 0.01 at a LOS “F”, then the project’s street segment impact would be considered significant. If project traffic causes an intersection, roadway segment, or freeway segment to degrade from LOS “D” to LOS “E” or LOS “F”, the project impact would be significant and project mitigation is required. Ramp meters must be included in the study area if 20 peak hour trips of project traffic are anticipated on any metered freeway on-ramps. A project ramp meter impact would be significant if the ramp meter calculations show 15 minutes of delay or greater and the change in delay due to the project is greater than 2 minutes if the freeway mainline segments are expected to operate at a LOS “E” or greater than 1 minute if the freeway mainline segments are expected to operate at a LOS “F” using the most restrictive meter rate method.

Table 4-2

Significance Thresholds

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

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

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

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

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

Key:

1. V/C =Volume to Capacity Ratio
2. Speed = Arterial speed measured in miles per hour
3. Delay = Average stopped delay per vehicle measured in seconds for intersections, or minutes for ramp meters
4. LOS = Level of Service

Table 4-3

Roadway Classifications

		Level of Service W/ADT				
Street Classification	**Lanes**	**A**	**B**	**C**	**D**	**E**
Expressway	6 Lanes	30,000	42,000	60,000	70,000	80,000
Prime Arterial	6 Lanes	25,000	35,000	50,000	55,000	60,000
Major Arterial	6 Lanes	20,000	28,000	40,000	45,000	50,000
Major Arterial	4 Lanes	15,000	21,000	30,000	35,000	40,000
Secondary Arterial/ Collector	4 Lanes	10,000	14,000	20,000	25,000	30,000
Collector (no center lane) (continuous left-turn lane)	4 Lanes 2 Lanes	5,000	7,000	10,000	13,000	15,000
Collector (no fronting property)	2 Lanes	4,000	5,500	7,500	9,000	10,000
Collector (commercial-industrial fronting)	2 Lanes	2,500	3,500	5,000	6,500	8,000
Collector (multi-family)	2 Lanes	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2 Lanes	---	---	2,200	---	---

Notes:

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

5.0 EXISTING CONDITIONS

The proposed project is located off Science Park Road, east of North Torrey Pines Road and west of I-5 in the community of University City. See **Figure 1-1** for a vicinity map and **Figure 2-1** for a project location map. The University Community Plan can be found in **Appendix I**.

5.1 EXISTING ROADWAY FACILITIES

Genesee Avenue- is oriented in a north-south direction and is currently built as a six-lane Prime Arterial with a raised median from North Torrey Pines Road to the I-5 southbound ramps and a four-lane major arterial between the I-5 southbound and I-5 northbound lanes. As discussed previously, the widening of Genesee Ave. over I-5 from four lanes to six lanes (3 through lanes and 2 left-turn lanes in each direction) is expected to be completed in Spring 2018. It should also be noted that "through" movements are not permitted for the I-5 off ramps in the northbound and southbound (for Summer 2017 photos please refer to **Appendix L**). The posted speed limit is 45 miles per hour on this segment. Class II bike lanes are provided on both sides of the roadway and on-street parking is not permitted.

North Torrey Pines Road- is oriented in a north-south direction and is functionally classified as a six-lane Prime Arterial and a five-lane major north of Callan Road with a raised median. The median is 30 feet wide from Genesee Ave. to Science Park Road North, 20 feet wide to approximately 1,100 feet north of Science Park Road North where it tapers to 3 feet. The posted

speed limit is 45 miles per hour in this segment. Class II bike lanes are provided on both sides of the roadway and on-street parking is not permitted. According to the University Community Plan, North Torrey Pines' ultimate classification is that of a six-lane primary arterial; however, it also states that "it is recommended to retain the existing five-lane North Torrey Pine Road north of the Callan Road bridge where development intensities are lower".

John J. Hopkins Drive- is oriented in a north-south direction and functions as a four-lane collector with a raised median between Genesee Ave. and John Hopkins Court as well as between General Atomics Court and North Torrey Pines Road. Approximately 660 feet north of General Atomics Court, John J. Hopkins Drive becomes a two-lane collector with a raised median (except for a 260-foot segment south of Cray Court that consists of a striped media. The posted speed limit is 40 miles per hour in this segment. Class II bike lanes are provided on both sides of the roadway and on-street parking is not permitted.

Science Park Road- is oriented in an east-west direction and is functionally classified as a two-lane collector. On-street parking is available approximately 450 feet east of North Torrey Pines Road with existing sidewalks on the north and south side of the street. Science Park Road is not classified in the University Community Plan.

Torreyana Road- is oriented in a north-south direction and is considered to operate as a two-lane collector. On-street parking is available with existing sidewalks on both sides of the street.

Merryfield Row- is a private driveway that provides access from Science Park Road and is analyzed as a two-lane collector. There are existing sidewalks on both sides of the street and parking is not permitted.

5.2 EXISTING TRAFFIC VOLUMES

Figure 5-1 shows the Existing average weekday 24-hour traffic volumes for street segments in the project study area. Existing street segment functional classifications were used for purposes of this analysis. Existing traffic volume counts were obtained for the studied street segments and intersections as shown in **Table 2-1**. All traffic volume counts were obtained while UCSD was in session. The following listed street segment volumes were obtained on the listed dates:

- Merryfield Row (east of Torreyana), October 2015
- Science Park Road (between North Torrey Pines Road and Torreyana Road), October 2014
- North Torrey Pines Road (between Science Park Road and John J. Hopkins Drive), May 2015
- North Torrey Pines Road (between John J. Hopkins Drive and Genesee Avenue), May 2015
- Genesee Ave. (between North Torrey Pines Road and John J Hopkins Drive), September 2015
- Genesee Avenue (between John J. Hopkins Drive and Science Center Drive), September 2015
- Genesee Avenue (between Science Center Drive and I-5 SB Ramps), September 2015

- Genesee Avenue (between I-5 SB Ramps and I-5 NB Ramps), May 2015

Due to construction on the I-5/Genesee Avenue interchange, which began in February 2015, existing traffic counts from the *University Community Plan Amendment Existing Conditions Summary (12/2015)* were used to show more recent traffic volumes in the roadway segments under study. Existing signal timing sheets were also used to analyze the Existing conditions. Traffic volume counts and signal timing sheets can be found in **Appendix B**.

5.3 MODIFICATION TO EXISTING COUNTS

As described in the previous section, traffic volume counts recorded on October 2014, May 2015, September 2015, and October 2015 (found in **Appendix B**) are used as the baseline for the analysis of this report. These street segment and intersection volume counts had been previously used for the analysis of the 2016 entitlement of Spectrum 3 and 4 with some exceptions. Listed below are the segments and intersections where more recent count data (compared to the count data used for the analysis of the previous entitlement) from the *University Community Plan Amendment Existing Conditions Summary (12/2015)* are used in the analysis (included in **Appendix B**).

Street Segments

- North Torrey Pines Road between Science Park Road and John J. Hopkins Drive
- North Torrey Pines Road between John J. Hopkins Drive and Genesee Avenue
- Genesee Avenue between I-5 NB Ramps and I-5 SB Ramps

Intersections

- Genesee Avenue at North Torrey Pines Road
- Genesee Avenue at I-5 SB Ramps
- Genesee Avenue at I-5 NB Ramps

The 2016 entitlement generated 1,456 net proposed ADT, of which 1,016 ADT is associated with the Spectrum 4 building currently under construction. This proposed project includes the transfer of a total of 492 ADT generated from two transfer sites to what has been entitled in 2016 for the Spectrum 3 and 4 sites. Provided that the traffic volume counts used for the analysis of the 2016 entitlement are being used as the main reference of this proposed project, and that the volume of traffic generated by the development associated with the 2016 entitlement is being assumed to be accounted for in existing conditions, a modification to increase the existing counts provided in **Appendix B** has been computed.

Using as a baseline the same set of traffic volume counts and the previously approved project trip distribution percentages from the previous entitlement, an adjustment to the traffic volume counts found in **Appendix B** has been made to distribute the additional 1,456 ADT from the 2016 entitlement into the street segments and intersections under study. This modification of the existing counts found in **Appendix B** has been used as the updated baseline for the Existing Without Project scenario, which is the baseline for the analysis of the remainder scenarios under

the analysis of this report, which includes Existing With Project, Near Term Without Project, and Near-Term With Project.

The adjustment of the traffic volume counts included the distribution of 1,456 ADT generated from the 2016 entitlement using the project distribution percentages found in **Figure 3-1**. For street segments, the distribution of 1,456 ADT has been computed by adding the recorded ADT of each roadway segment under study found on **Appendix B** and the distributed percentage of 1,456 ADT for each individual roadway segment. For intersections, the distribution of 1,456 ADT has been computed using the same methodology; the addition of the turning movement counts found on **Appendix B** and the distribution of 1,456 ADT throughout the studied intersections by referring to the project distribution percentages generated a modified condition of the existing counts. Both street segments and intersection volumes have been modified using the previously described methodology to generate an updated baseline for the Existing Without Project scenario.

5.4 STREET SEGMENT ANALYSIS

Table 5-1 shows the street segment levels of service (LOS) using roadway classifications and capacities from the City of San Diego Traffic Impact Study Manual. As shown, all study streets currently operate at a LOS D or better except for the segments listed below:

- Science Park Road between North Torrey Pines Road and Torreyana Road
    - Operates at a LOS E

- Genesee Avenue between the I-5 SB Ramps and the I-5 NB Ramps
    - Operates at a LOS F

5.5 EXISTING LANE CONFIGURATION OF STUDY INTERSECTIONS

Figure 5-2 shows the existing lane configurations for the intersections in the study area.

5.6 EXISTING INTERSECTION PEAK HOUR VOLUMES AND LOS

Figure 5-3 shows Existing AM/PM peak hour intersection volumes.

Table 5-2 shows the average delay and levels of service (LOS) that was determined for all study intersections in the Existing condition based on the methodology developed in the Highway Capacity Manual (HCM) using the computer software program Synchro version 10, HCM 2000, and HCM 6th edition.

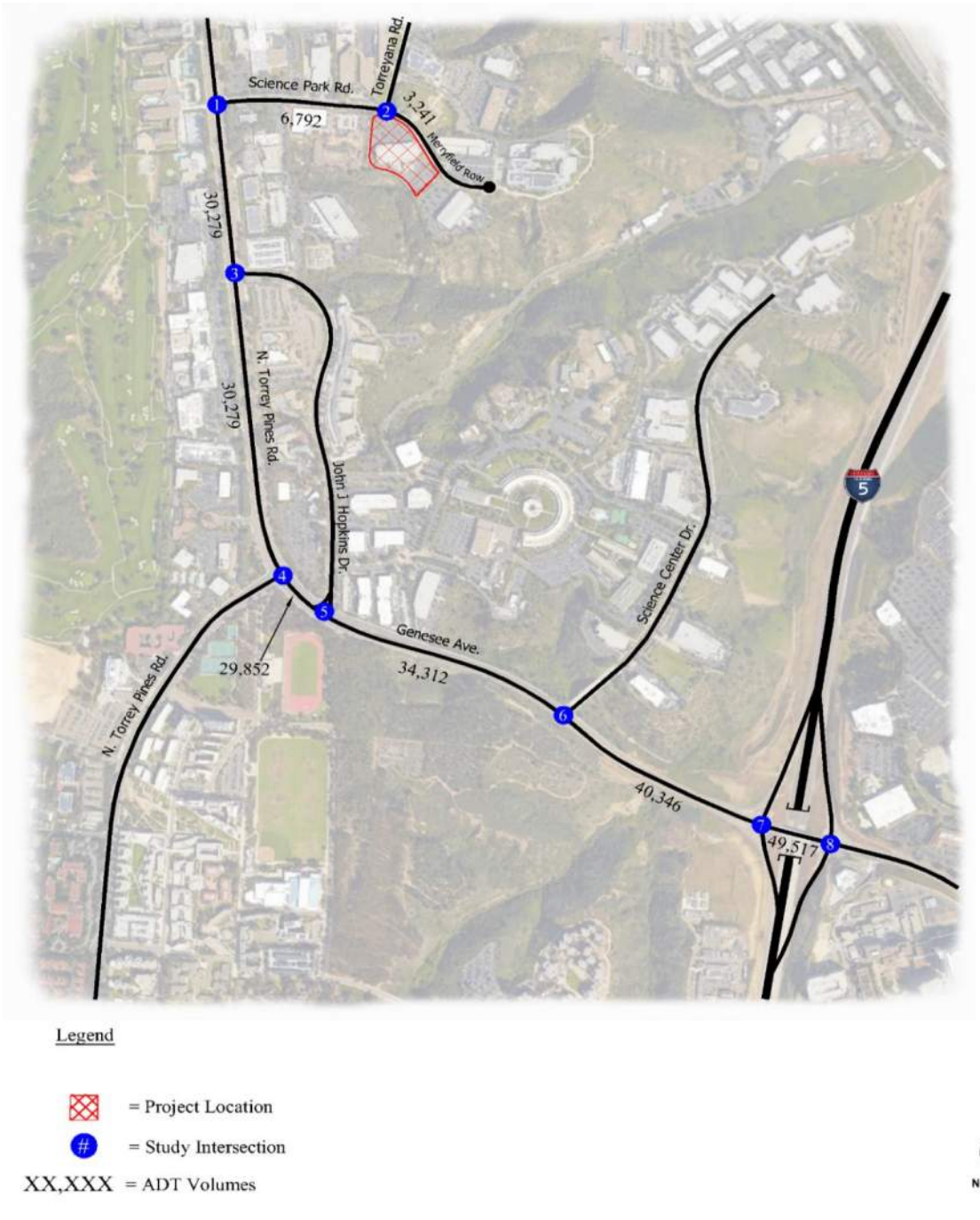
As shown, all study intersections operate at a LOS D or better with the following exceptions:

- North Torrey Pines Road at Genesee Avenue in the PM peak hour
    - Operates at a LOS E
- Genesee Ave. at I-5 NB Ramps in the PM peak hour
    - Operates at a LOS F

Synchro worksheets for Existing conditions can be found in **Appendix C**.

5.7 EXISTING RAMP METERS

A ramp meter analysis was not conducted in the existing condition since ramp meters do not currently exist at the Interstate 5 / Genesee Avenue interchange. Ramp meters will be implemented with the completion of the Interstate 5 / Genesee Avenue Reconstruction Project scheduled for completion in Spring 2018. Ramp meters were analyzed in the Near Term Without Project and Near-Term With Project conditions.



Legend

= Project Location

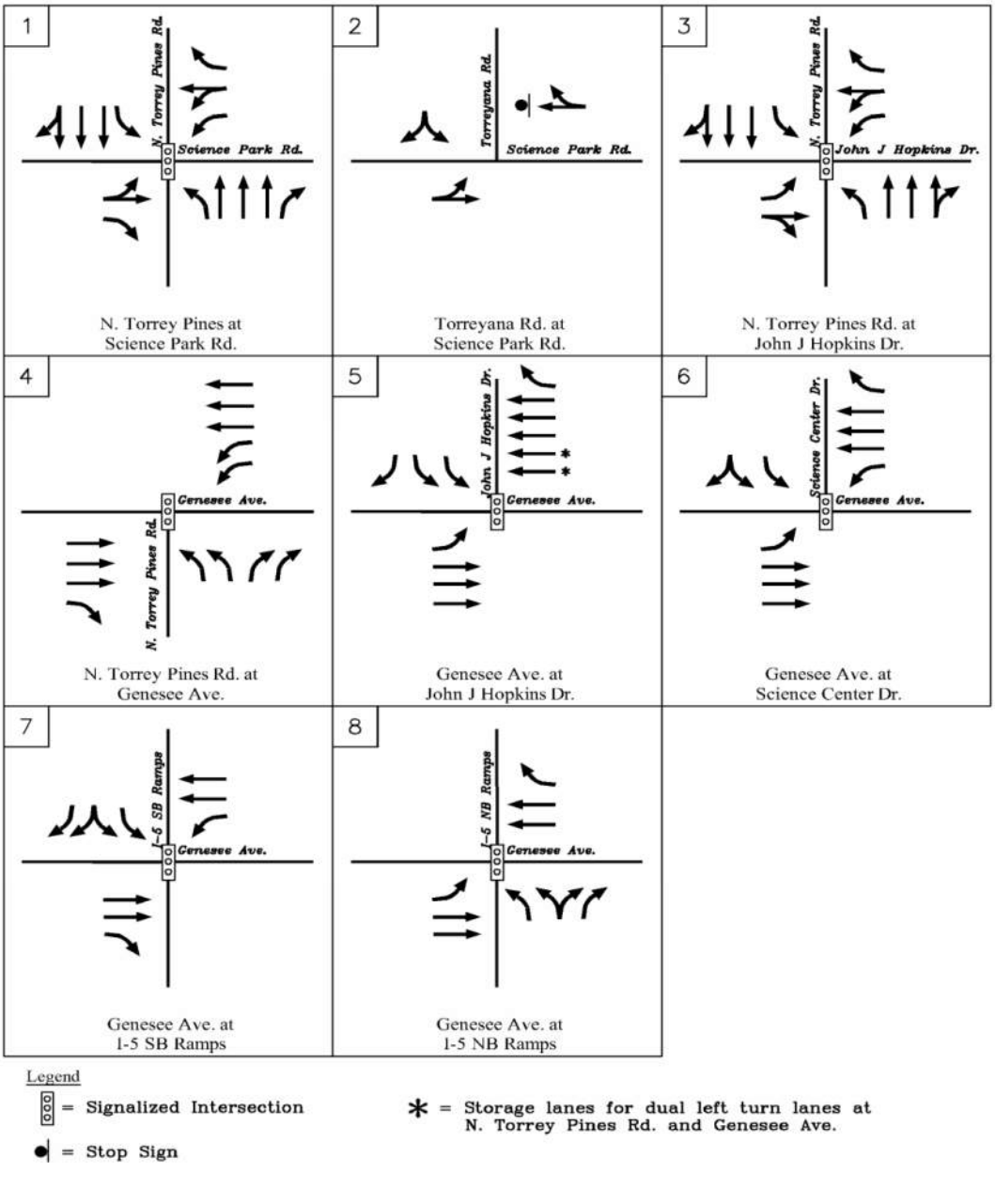
= Study Intersection

XX,XXX = ADT Volumes

N
NO SCALE

Figure 5-1

Existing Conditions ADT



Legend

= Signalized Intersection

= Stop Sign

* = Storage lanes for dual left turn lanes at N. Torrey Pines Rd. and Genesee Ave.

Figure 5-2

Existing Lane Configurations

Table 5-1

Existing Street Segment LOS

Road	Segment	Standard	# of Ln.	Class.	Cap.	Volume	V/C	LOS
Merryfield Row	East of Torreyana Rd.	SD	2	2-Cc	8,000	3,241	0.41	B
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	SD	2	2-Cc	8,000	6,792	0.85	E
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	30,279	0.50	B
	John J. Hopkins Dr. to Genesee Ave.	SD	6	PA	60,000	30,279	0.50	B
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	29,852	0.50	B
	John J. Hopkins Dr. to Science Center Dr.	SD	6	PA	60,000	34,312	0.57	B
	Science Center Dr. to I-5 SB Ramps	SD	6	PA	60,000	40,346	0.67	C
	I-5 SB Ramps to I-5 NB Ramps	SD	4	4-M	40,000	49,517	1.24	F

Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Cc = 2 Lane Collector (w/ commercial-industrial property

4-M = 4 Lane Major Arterial

PA = 6 Lane Prime Arterial

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

*Volume is adjusted to account the entitled 1,456 ADT and distribute such value based on the project distribution percentages as aggregates to the original street segment volume counts

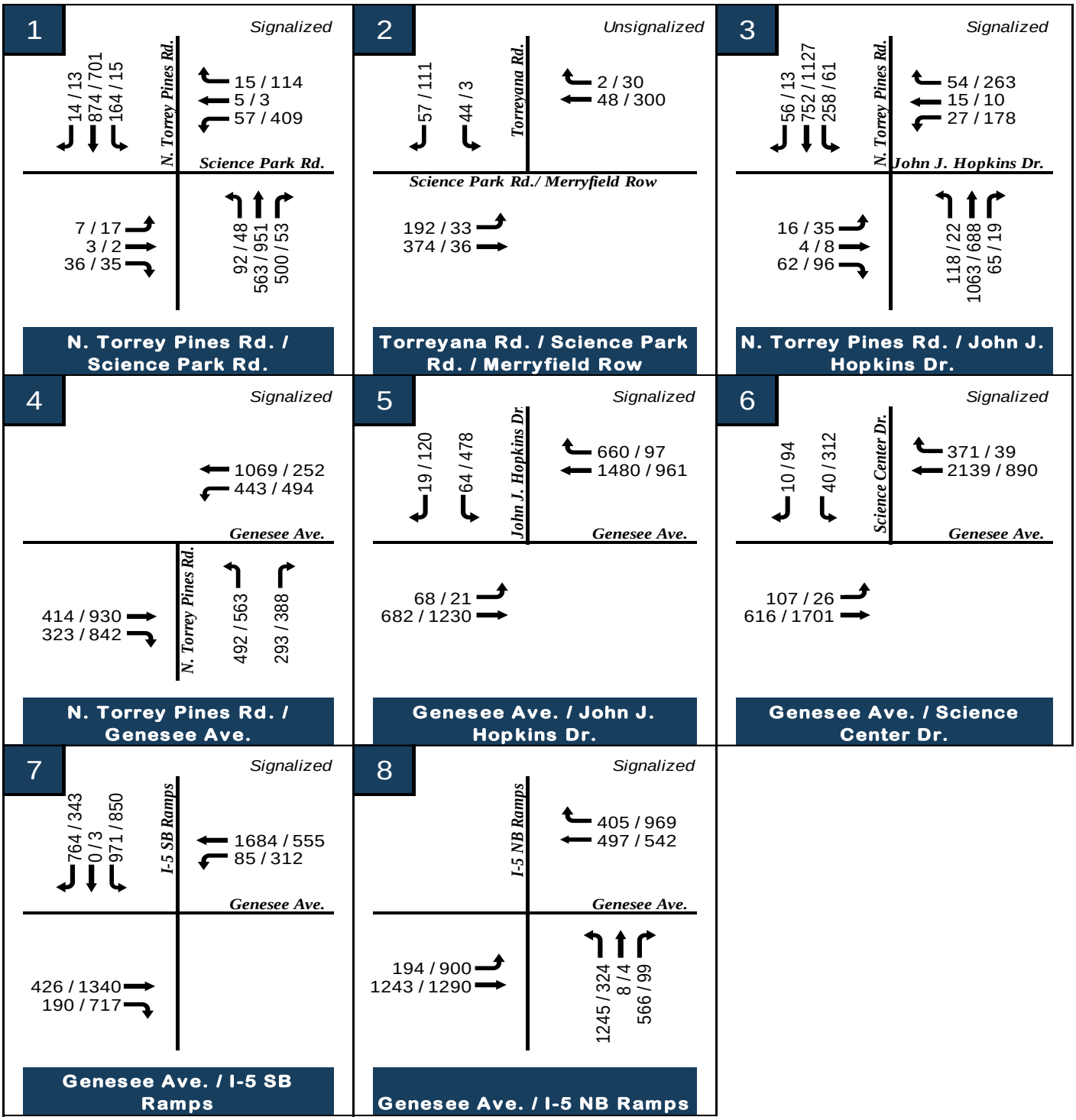


Figure 5-3

Existing Conditions AM / PM Peak Hour Traffic

Table 5-2

Existing Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	N. Torrey Pines Rd. / Science Park Rd.	Signalized	21.1	C	19.7	B
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	Unsignalized	17.0	C	9.6	A
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	Signalized	24.0	C	19.7	B
4	N. Torrey Pines Rd. / Genesee Ave.	Signalized	22.5	C	59.0	E
5	Genesee Ave. / John J. Hopkins Dr.	Signalized	35.2	D	37.5	D
6	Genesee Ave. / Science Center Dr.	Signalized	13.6	B	11.3	B
7	Genesee Ave. / I-5 SB Ramps	Signalized	53.4	D	54.1	D
8	Genesee Ave. / I-5 NB Ramps	Signalized	33.6	C	125.5	F

Notes:

Delay = seconds per vehicle

LOS = Level of Service

6.0 EXISTING WITH PROJECT CONDITIONS

Spectrum 3 project traffic was added to the existing traffic to determine if any significant direct impacts would occur. As mentioned previously, Spectrum 3 will consist of the construction of Building "A" which will replace the existing building at 3115 Merryfield Row. Spectrum 3 is expected to be complete and occupied in late 2018, or early 2019. Spectrum 3 is expected to generate a net increase in trips of 492 ADT over what was previously entitled.

The summary of the results for street segments and intersections for Existing With Project conditions are described below.

6.1 STREET SEGMENTS

Figure 6-1 shows the average daily traffic volumes in the Existing With Project condition. **Table 6-1** shows that all study segments are projected to operate at a LOS D or better when project traffic is added with the following exceptions:

- Science Park Road between North Torrey Pines Road and Torreyana Road
- Genesee Avenue between the I-5 SB Ramps and the I-5 NB Ramps

Table 6-2 shows an Existing and Existing With Project street segment comparison with a significant impact in the following roadway segment:

- Science Park Road between North Torrey Pines Road and Torreyana Road

This direct significant impact will be handled through mitigation measures. In order to mitigate the project's direct significant impact to the street segment of Science Park Road (from North Torrey Pines Road to Torreyana Road), the street segment of Science Park Road, which is a two-lane collector with industrial fronting and parking on both sides of the street, will be modified. Condition No. 26 in CDP/HRP/PID 89-0269 is referenced, as the item is a condition of approval for the original entitlement and carried over from previous reviews. Item No. 26 in CDP/HRP/PID 89-0269 describes the following:

> *Prior to the expansion of the project beyond 189,000 square feet, for the portion of Science Park Road east of the intersection widening, four lanes shall be provided. One eastbound lane shall be dropped approaching Torreyana Road. Parking shall be prohibited along the street via "red curb". The developer shall be responsible for notifying the adjacent property owners and removing parking.*

Therefore, the proposed mitigation is to provide two (2) lanes in each direction for Science Park Road to become a four-lane collector and to eliminate on-street parking. Doing so will provide adequate capacity for vehicles along the roadway segment the project. Refer to **Appendix M** for a conceptual striping plan of Science Park Road.

6.2 INTERSECTIONS

Figure 6-2 shows Existing With Project AM/PM peak hour intersection volumes. **Table 6-3** shows that all study intersections are projected to operate at a LOS D or better when project traffic is added with the exception of the following intersections:

- North Torrey Pines Road at Genesee Avenue in the PM peak hour
- Genesee Avenue at I-5 NB Ramps in the PM peak hour

Table 6-4 shows Existing and Existing With Project intersection LOS comparison with no significant impacts.

Synchro worksheets for Existing With Project conditions can be found in **Appendix D**.

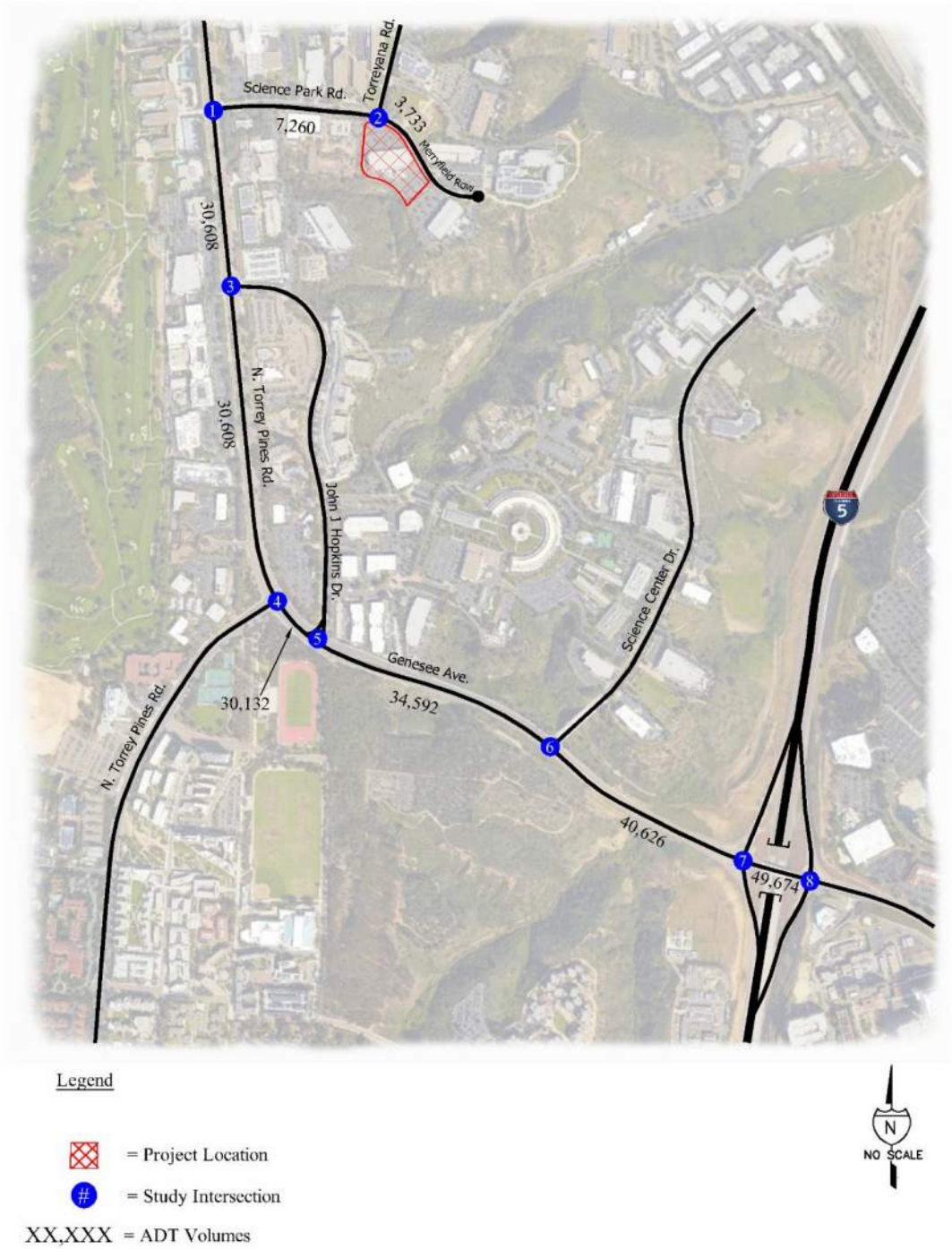


Figure 6-1

Existing With Project Conditions ADT

Table 6-1

Existing With Project Street Segment Levels of Service

Road	Segment	Standard	# of Ln.	Class.	Cap.	Volume	V/C	LOS
Merryfield Row	East of Torreyana Rd.	SD	2	2-Cc	8,000	3,733	0.47	C
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	SD	2	2-Cc	8,000	7,260	0.91	E
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	30,608	0.51	B
	John J. Hopkins Dr. to Genesee Ave.	SD	6	PA	60,000	30,608	0.51	B
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	30,132	0.50	B
	John J. Hopkins Dr. to Science Center Dr.	SD	6	PA	60,000	34,592	0.58	B
	Science Center Dr. to I-5 SB Ramps	SD	6	PA	60,000	40,626	0.68	C
	I-5 SB Ramps to I-5 NB Ramps	SD	4	4-M	40,000	49,674	1.24	F

Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Cc = 2 Lane Collector (w/ commercial-industrial property

4-M = 4 Lane Major Arterial

PA = 6 Lane Prime Arterial

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

Table 6-2

Existing & Existing With Project Street Segment Comparison

Road	Segment	# of Lanes	LOS "E" Capacity	Class.	Existing			Existing + Project			ΔV/C	Is this impact Significant?
					LOS	Volume	V/C	LOS	Volume	V/C		
Merryfield Row	East of Torreyana Rd.	2	8,000	2-Cc	B	3,241	0.41	C	3,733	0.47	0.062	***NO***
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	2	8,000	2-Cc	E	6,792	0.85	E	7,260	0.91	0.058	***YES***
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
	John J. Hopkins Dr. to Genesee Ave.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	6	60,000	PA	B	29,852	0.50	B	30,132	0.50	0.005	***NO***
	John J. Hopkins Dr. to Science Center Dr.	6	60,000	PA	B	34,312	0.57	B	34,592	0.58	0.005	***NO***
	Science Center Dr. to I-5 SB Ramps	6	60,000	PA	C	40,346	0.67	C	40,626	0.68	0.005	***NO***
	I-5 SB Ramps to I-5 NB Ramps	4	40,000	4-M	F	49,517	1.24	F	49,674	1.24	0.004	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

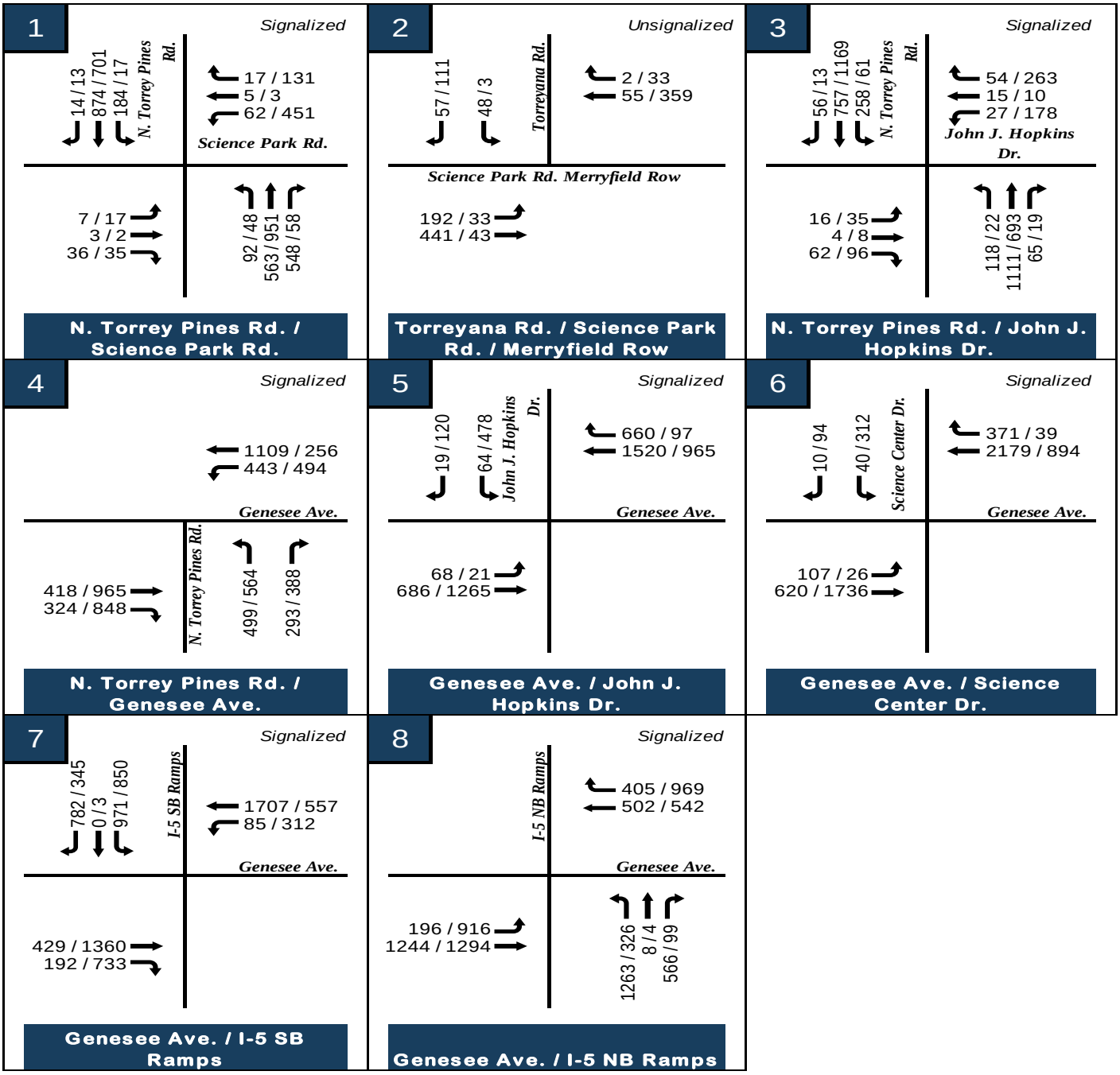
2-Cc = 2 Lane Collector (w/ commercial-industrial property

4-M = 4 Lane Major Arterial

PA = 6 Lane Prime Arterial

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector



XX / XX = AM / PM Peak hour volumes

Figure 6-2

Existing With Project Conditions AM / PM Peak Hour Traffic

Table 6-3

Existing With Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	N. Torrey Pines Rd. / Science Park Rd.	Signalized	24.4	C	20.1	C
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	Unsignalized	22.6	C	10.5	B
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	Signalized	24.3	C	19.8	B
4	N. Torrey Pines Rd. / Genesee Ave.	Signalized	22.8	C	59.8	E
5	Genesee Ave. / John J. Hopkins Dr.	Signalized	35.4	D	37.6	D
6	Genesee Ave. / Science Center Dr.	Signalized	14	B	11.4	B
7	Genesee Ave. / I-5 SB Ramps	Signalized	54.4	D	54.4	D
8	Genesee Ave. / I-5 NB Ramps	Signalized	34.3	C	126	F

Notes:

Delay = seconds per vehicle

LOS = Level of Service

Table 6-4

Existing Without & Existing With Project Intersection Comparison

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	N. Torrey Pines Rd. / Science Park Rd.	21.1	C	19.7	B	24.4	C	3.3	No	20.1	C	0.4	No
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	17	C	9.6	A	22.6	C	5.6	No	10.5	B	0.9	No
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	24	C	19.7	B	24.3	C	0.3	No	19.8	B	0.1	No
4	N. Torrey Pines Rd. / Genesee Ave.	22.5	C	59	E	22.8	C	0.3	No	59.8	E	0.8	No
5	Genesee Ave. / John J. Hopkins Dr.	35.2	D	37.5	D	35.4	D	0.2	No	37.6	D	0.1	No
6	Genesee Ave. / Science Center Dr.	13.6	B	11.3	B	14.0	B	0.4	No	11.4	B	0.1	No
7	Genesee Ave. / I-5 SB Ramps	53.4	D	54.1	D	54.4	D	1.0	No	54.4	D	0.3	No
8	Genesee Ave. / I-5 NB Ramps	33.6	C	125.5	F	34.3	C	0.7	No	126.0	F	0.5	No

Notes:

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

7.0 CUMULATIVE PROJECTS

Cumulative projects surrounding Spectrum 3 were reviewed to determine if traffic from reasonably foreseeable projects would affect the intersections and segments under study**.** Project only volumes from the approved Cumulative Projects were extracted from their respective traffic studies, and manually added to existing traffic volumes to calculate Near Term "cumulative project" volumes. **Table 7-1** includes a list of cumulative projects considered and included in the traffic analysis. **Figure 7-1** shows a vicinity map of cumulative projects in relation to Spectrum 3. **Figure 7-2** shows the average daily traffic volumes that are expected due to cumulative projects.

Cumulative Projects information can be found in **Appendix E**.

	Project	Location	Size	Initial Status[1]	Current Status[2]	Study
1	The Scripps Research Institute	Located off John J. Hopkins Dr. north of Genesee Ave.	1,145 ADT	In Review	In Review	Included
2	Scripps Memorial Hospital	Located at the southeast corner of the I-5/ Genesee Avenue Interchange.	10,995 ADT	Under Construction	Built[3]	Included
3	UCSD Research Institute (CTRI)	Bounded by Genesee Ave. and Eastgate Mall to the north, La Jolla Village Dr. to the south, the I-5 freeway to the west, and Towne Center Dr. to the east	2,880 ADT	Approved	Built	Included
4	UCSD Mesa Housing	Bounded by Genesee Ave. to the north, La Jolla Village Dr. to the south, the I-5 freeway to the west, and Regents Rd. to the east.	2,786 ADT	Approved	Built	Included
5	UCSD East Campus Bed Tower	Bounded by Genesee Ave. and Eastgate Mall to the north, La Jolla Village Dr. to the south, Villa La Jolla Dr. to the west, and Towne Center Dr. to the east	4,900 ADT	Approved	Built	Included
6	UCSD Center for Novel Therapeutics (CNT)	Bounded by Genesee Ave. to the north, La Jolla Village Dr. to the south, the I-5 freeway to the west, and Regents Rd. to the east.	968 ADT	Approved	Under Construction	Included
7	La Jolla Centre 3	Bounded by Genesee Ave. and Eastgate Mall to the north, Governor Dr. to the south, I-5 to the west, and I-805 to the east	3,124 ADT	Under Construction	Under Construction	Included
8	UTC Revitalization Project	Bounded by Genesee Ave., Eastgate Mall, and La Jolla Village Dr. to the north, Highway 52 to the south, I-5 to the west, and I-805 to the east	21,900 ADT	Approved	Under Construction	Included
9	9514 Town Centre Drive	Bounded by Towne Centre Dr. to the north and east, Eastgate Mall to the south, and Genesee Ave. to the west.	1,366 ADT	Approved	Approved	Included
10	Genesee Executive Plaza	Bounded by Eastgate Mall to the north, Executive Dr. to the south, and Genesee Ave. to the west. (Eastern boundary not shown on map)	971 ADT	Approved	Built	Included
11	Campus Pointe Master Plan	Bounded by Campus Point Ct. to the south, I-5 to the north and west, and Campus point Dr. to the east.	2,555 ADT	In Review	Under Construction	Included
12	Salk Institute	Located between Torrey Pines Scenic drive and Salk Institute Road.	1,682 ADT	Approved	Approved	Included

Note:

1 Status of Other Projects at the time of existing counts were obtained for this project.

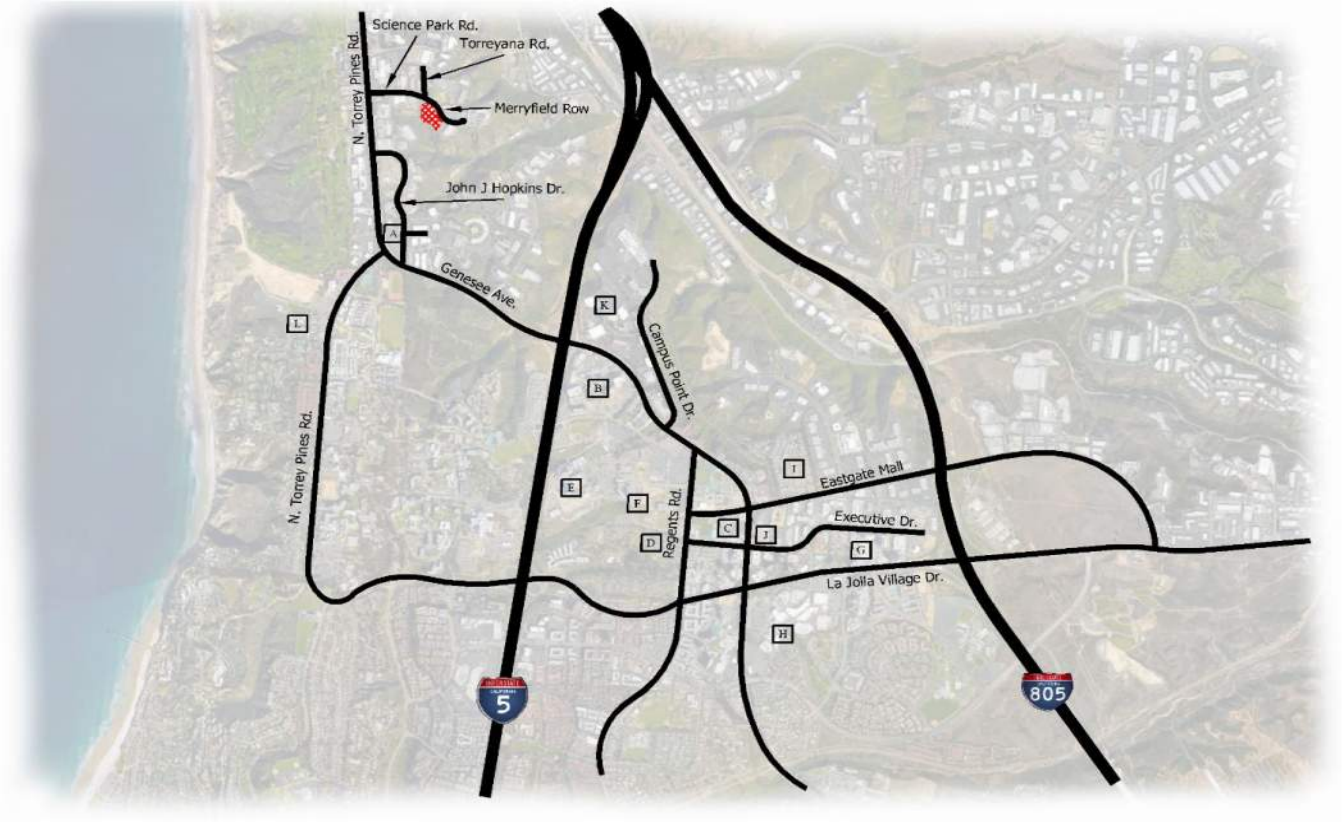
2 Status of Other Projects at the time of report submittal.

3 Analysis based on Phase 1 (with a 2015 buildout that contributes 3,097 ADT) out of a multi-phase project (Phase 2 BO in 2025 and Phase 3 BO in 2035) comprising 10,995 ADT at the end of the multiphase project.

4 Projects which current status is described as Built are included since the existing counts were obtained prior to buildout

Table 7-1

Cumulative Projects List



Legend

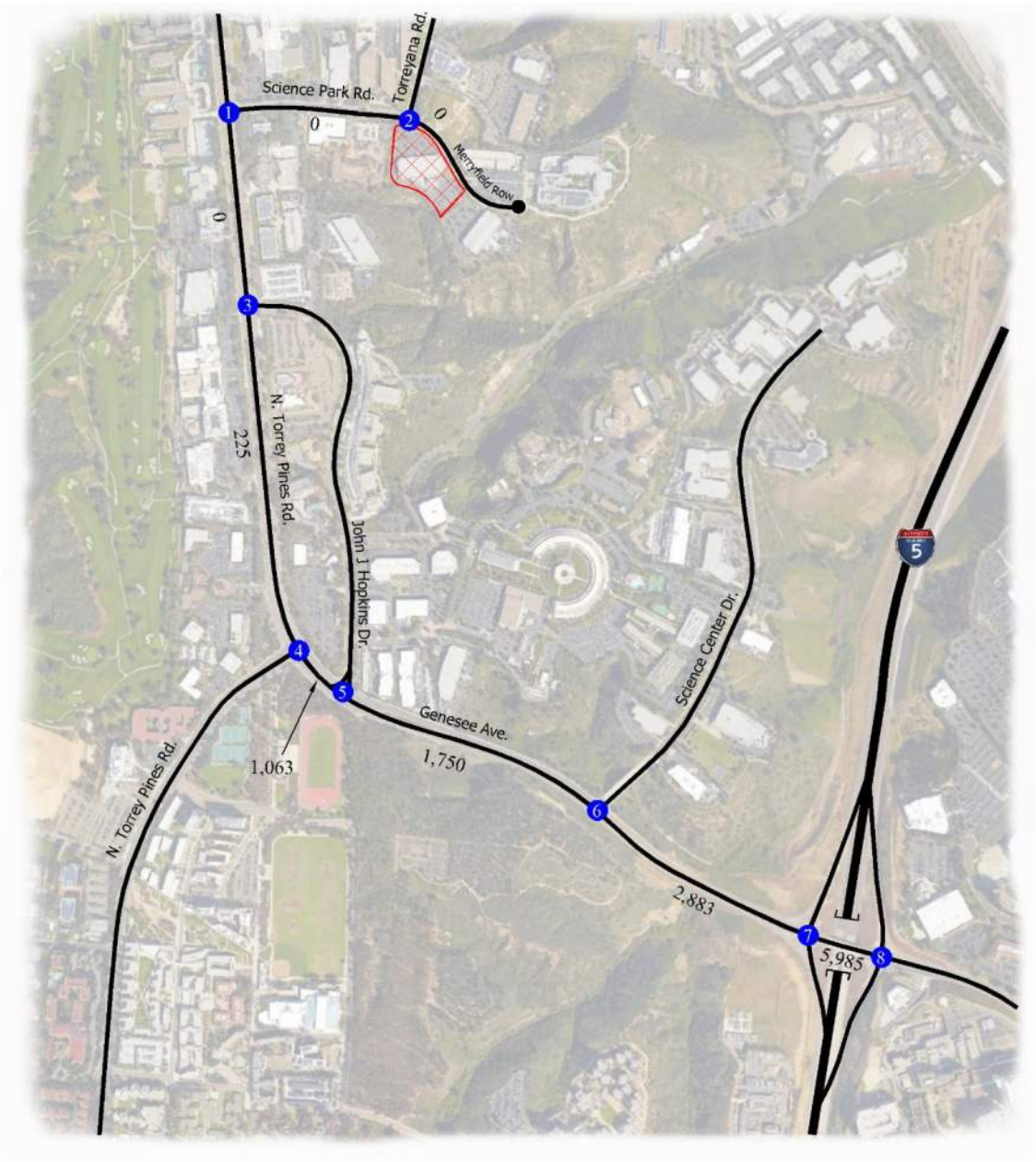
A = The Scripps Research Institute
B = Scripps Memorial Hospital
C = USCD Research Institute
D = UCSD Mesa Housing
E = UCSD Bed Tower
F = UCSD Therapeutic Center
G = La Jolla Centre 3
H = UTC Revitalization Project
I = 9514 Town Centre Drive
J = Genesee Executive Plaza
K = Campus Pointe Master Plan
L = Salk Institute

= Proposed Project

N
NO SCALE

Figure 7-1

Cumulative Projects Vicinity Map



Legend

= Project Location

= Study Intersection

XX,XXX = ADT Volumes

N

NO SCALE

Figure 7-2

Cumulative Projects ADT

8.0 NEAR TERM WITHOUT PROJECT CONDITIONS

An examination of the immediate area surrounding the proposed project to include the Cumulative Projects that were approved, pending approval, or planned in the area and assumed to be constructed and occupied at the project's opening day (late 2018/early 2019) was evaluated. The Project Only traffic for these "Cumulative Projects" was added to the Existing traffic to reflect an "Existing plus Cumulative Project" or Near Term scenario. The results for the street segments, intersections, ramp meters is listed below.

8.1 STREET SEGMENTS

Figure 8-1 shows the average daily traffic volumes in the Near Term Without Project condition.

For the purposes of this analysis, it is assumed that the Interstate 5 / Genesee Avenue interchange project will be fully constructed prior to the project opening day in Spring 2018.

Table 8-1 shows that all study segments are projected to operate at a LOS D or better with the following exception:

- Science Park Road between North Torrey Pines Road and Torreyana Road
- Genesee Avenue between I-5 SB Ramps and I-5 NB Ramps

8.2 INTERSECTIONS

Figure 8-2 shows Near Term Without Project AM/PM peak hour intersection volumes.

For the purposes of this analysis, it is assumed that the I-5/Genesee Avenue interchange project will be fully constructed prior to the project opening day in Spring 2018.

Table 8-2 shows all intersections are projected to operate at a LOS D or better with the following exceptions:

- Genesee Avenue at North Torrey Pines Road in the PM peak hour

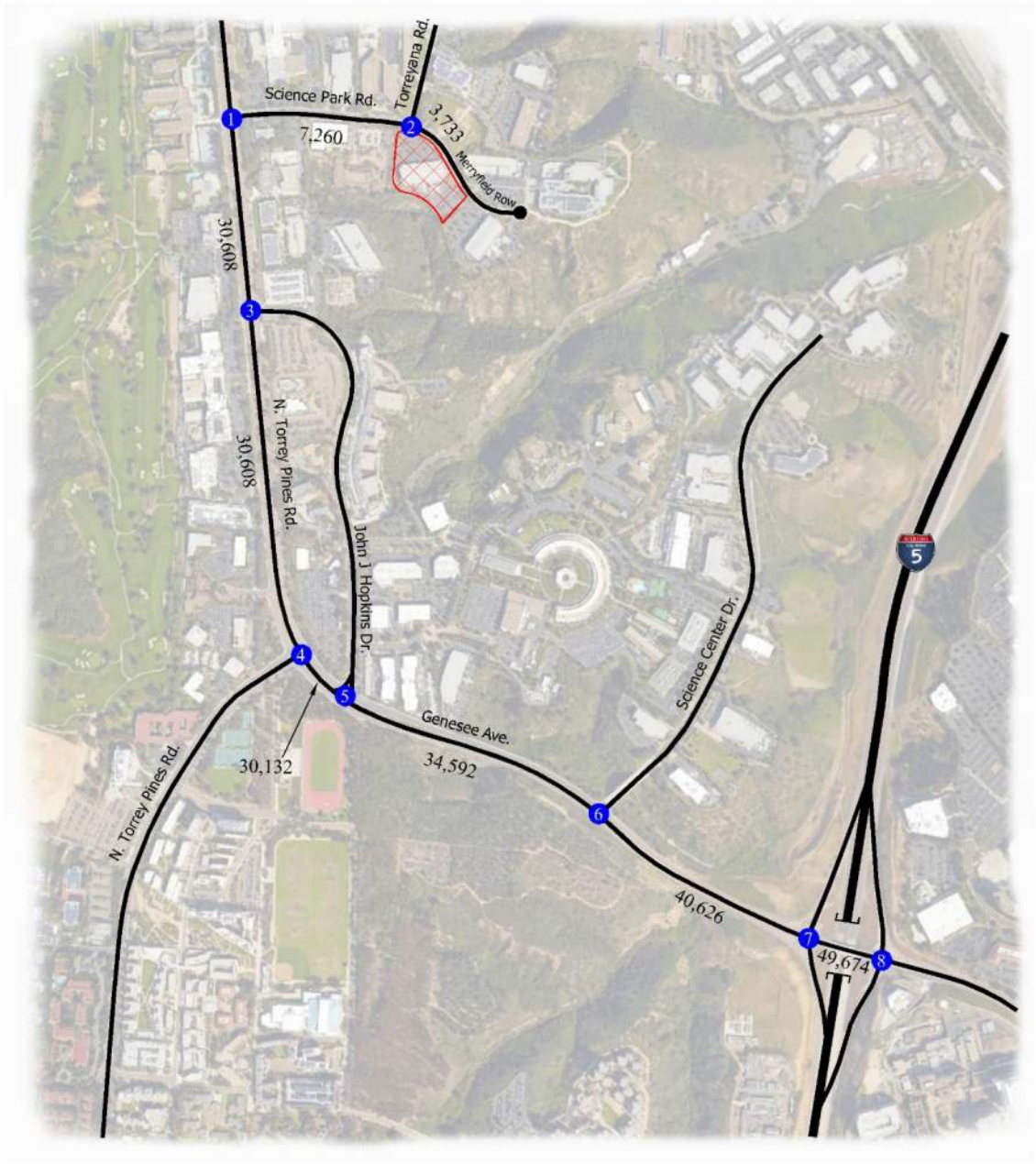
Synchro worksheets for Near-Term Without Project conditions can be found in **Appendix F**.

8.3 RAMP METERS

Table 8-3 shows the future ramp meter analysis of the I-5 southbound and I-5 northbound ramp meters. As shown, the demand on the southbound ramps is not expected to exceed the ramp meter rates. The future ramp meter rates were taken from the Caltrans *Interstate 5 / Genesee Avenue Interchange Reconstruction Project Initial Study with Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact* (June 2011). The ramp meter demand is based on the sum of all movements onto the ramp using traffic volumes shown in **Figure 8-2.** The southbound ramp meter demand in the AM peak hour is projected at 162 vehicles per hour per lane (vphpl) for SOV lanes and 36 vphpl in the HOV lane. The southbound ramp meter demand in the PM peak hour is projected at 599 vphpl for SOV lanes and 133 vphpl in the

HOV lane. The northbound ramp meter demand in the AM peak hour is projected at 344 vphpl for SOV lanes and 76 vphpl in the HOV lane. The northbound ramp meter demand in the PM peak hour is projected at 1,082 vphpl for SOV lanes and 241 vphpl in the HOV lane.

It should be noted that these rates will likely be adjusted upon completion of the interchange to handle the demand discussed above. Additional ramp meter information is provided in **Appendix B**.



Legend

= Project Location

= Study Intersection

XX,XXX = ADT Volumes

N
NO SCALE

Figure 8-1

Near-Term Without Project Conditions ADT

Table 8-1

Near-Term Without Project Street Segment Levels of Service

Road	Segment	Standard	# of Ln.	Class.	Cap.	Volume	V/C	LOS
Merryfield Row	East of Torreyana Rd.	SD	2	2-Cc	8,000	3,241	0.41	B
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	SD	2	2-Cc	8,000	6,792	0.85	E
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	30,279	0.50	B
	John J. Hopkins Dr. to Genesee Ave.	SD	6	PA	60,000	30,504	0.51	B
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	30,915	0.52	B
	John J. Hopkins Dr. to Science Center Dr.	SD	6	PA	60,000	36,062	0.60	C
	Science Center Dr. to I-5 SB Ramps	SD	6	PA	60,000	43,229	0.72	C
	I-5 SB Ramps to I-5 NB Ramps	SD	6	PA	60,000	55,502	0.93	E

Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Cc = 2 Lane Collector (w/ commercial-industrial property

6-M = 6 Lane Major Arterial

PA = 6 Lane Prime Arterial

4-C = 4 Lane Collector

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

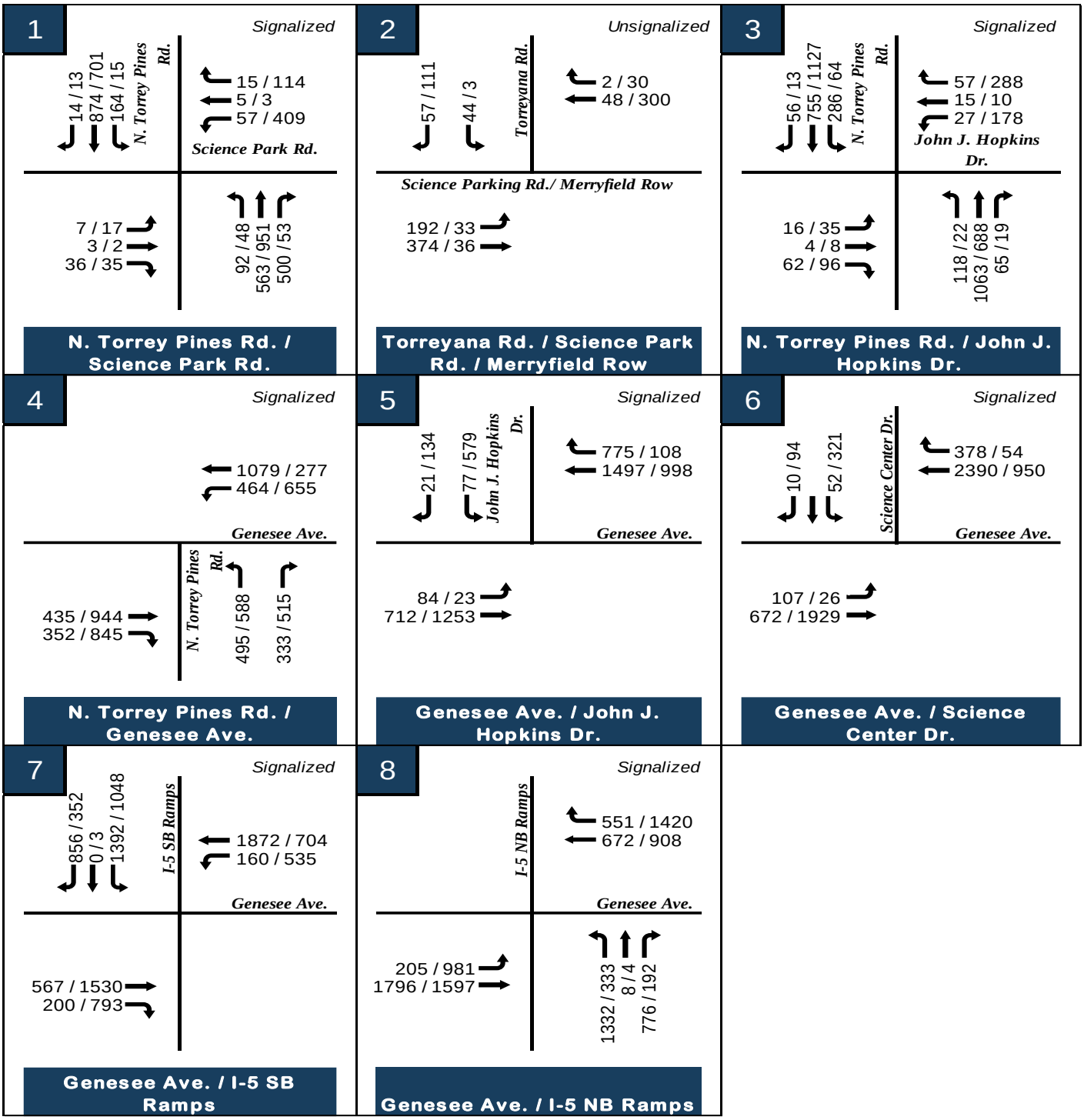


Figure 8-2

Near-Term Without Project Conditions AM / PM Peak Hour Traffic

Table 8-2

Near-Term Without Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	N. Torrey Pines Rd. / Science Park Rd.	Signalized	21.1	C	20.0	B
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	Unsignalized	17.0	C	10.5	B
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	Signalized	25.0	C	19.9	B
4	N. Torrey Pines Rd. / Genesee Ave.	Signalized	23.0	C	74.1	E
5	Genesee Ave. / John J. Hopkins Dr.	Signalized	37.1	D	47.4	D
6	Genesee Ave. / Science Center Dr.	Signalized	16.3	B	12.0	B
7	Genesee Ave. / I-5 SB Ramps	Signalized	42.9	D	42.8	D
8	Genesee Ave. / I-5 NB Ramps	Signalized	49.5	D	45.2	D

Notes:

Delay = seconds per vehicle

LOS = Level of Service

Table 8-3

Near-Term Without Project Ramp Meter Analysis

Location		Lanes	Demand ** (Veh/Hr)	Demand per lane (Veh/Hr/Ln)	Meter Rate* (Veh/Hr/Ln)	Excess Demand (Veh/Hr/Ln)	Delay (Min)	Queue (Feet)
Genesee Ave. / I-5 SB Ramps	AM	2 SOV	360	162	221	0	0	0
	PM	2 SOV	1331	599	900	0	0	0
Genesee Ave. / I-5 SB Ramps	AM	1 HOV	360	36	49	0	0	0
	PM	1 HOV	1331	133	200	0	0	0
Genesee Ave. / I-5 NB Ramps	AM	2 SOV	764	344	104	240	139	6,969
	PM	2 SOV	2405	1082	653	430	40	12,463
Genesee Ave. / I-5 NB Ramps	AM	1 HOV	764	76	23	53	139	1,549
	PM	1 HOV	2405	241	145	96	40	2,770

NOTE:
SOV = Single Occupancy Vehicle assumed at 90%
HOV = High Occupancy Vehicle assumed at 10%
** = Demand based on the sum of all turn movements onto ramps
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle
*Ramp Meter Rates provided by Interstate 5/Genesee Avenue Interchange Reconstruction Project, June 2011 (NB Ramps - 230 vph AM / 1,450 vph PM) and (SB Ramps - 490 vph AM / 2,000 vph PM) provided in **Appendix B**.
Veh/Hr= Vehicles per hour
Veh/Hr/Ln= Vehicles per hour per lane

9.0 NEAR TERM WITH PROJECT (LATE 2018/EARLY 2019) CONDITIONS

The proposed project traffic volumes were added to Near-Term traffic to determine if any significant direct impacts would occur. The summary of the analysis results for street segments, intersections, and ramp meters are listed below. Spectrum 3 is expected to be complete and occupied in late 2018, or early 2019. The summary of the results for street segments and intersections for Near-Term With Project are listed below.

9.1 STREET SEGMENTS

Figure 9.1 shows the average daily traffic volumes in the Near Term With Project condition.

For the purposes of this analysis, it is assumed that the I-5/Genesee Avenue interchange project will be fully constructed prior to the project opening day in Spring 2018.

Table 9-1 shows that all study segments are projected to operate at a LOS D or better with the following exception:

- Science Park Road between North Torrey Pines Road and Torreyana Road
- Genesee Avenue between I-5 SB Ramps and I-5 NB Ramps

Table 9-2 shows a Near-Term and Near-Term With Project street segment comparison with a significant impact in the following roadway segment:

- Science Park Road between North Torrey Pines Road and Torreyana Road

This direct significant impact will be handled through mitigation measures. In order to mitigate the project's direct significant impact to the street segment of Science Park Road (from North Torrey Pines Road to Torreyana Road), the street segment of Science Park Road, which is a two-lane collector with industrial fronting and parking on both sides of the street, will be modified. Condition No. 26 in CDP/HRP/PID 89-0269 is referenced, as the item is a condition of approval for the original entitlement and carried over from previous reviews. Item No. 26 in C DP/HRP/PID 89-0269 describes the following:

> *Prior to the expansion of the project beyond 189,000 square feet, for the portion of Science Park Road east of the intersection widening, four lanes shall be provided. One eastbound lane shall be dropped approaching Torreyana Road. Parking shall be prohibited along the street via "red curb". The developer shall be responsible for notifying the adjacent property owners and removing parking.*

Therefore, the proposed mitigation is to provide two (2) lanes in each direction for Science Park Road to become a four-lane collector and to eliminate on-street parking. Doing so will provide adequate capacity for vehicles along the roadway segment the project. Refer to **Appendix M** for a conceptual striping plan of Science Park Road.

9.2 INTERSECTIONS

Figure 9-2 shows Near Term With Project AM/PM peak hour intersection volumes. For the purposes of this analysis, it is assumed that the Interstate 5 / Genesee Avenue interchange project will be fully constructed prior to the project opening day in Spring 2018. **Table 9-2** shows all intersections are projected to operate at a LOS D or better with the following exception:

- Genesee Avenue at North Torrey Pines Road in the PM peak hour

Table 9-4 shows the Near-Term and Near-Term With Project LOS Comparisons with no significant impacts.

Synchro worksheets for Near-Term With Project conditions can be found in **Appendix G**.

9.3 RAMP METERS

Table 9-5 shows the future ramp meter analysis of the I-5 southbound and I-5 northbound ramp meters and **Table 9-6** shows ramp meter analysis for Near-Term and Near-Term with Project comparisons. As shown, the demand on the southbound ramps is not expected to exceed the ramp meter rates. The future ramp meter rates were taken from the Caltrans *Interstate 5 / Genesee Avenue Interchange Reconstruction Project Initial Study with Mitigated Negative Declaration/ Environmental Assessment with Finding of No Significant Impact* (June 2011). The ramp meter demand is based on the sum of all movements onto the ramp using traffic volumes shown in **Figure 9-2.** The southbound ramp meter demand in the AM peak hour is projected at 162 vehicles per hour per lane (vphpl) for SOV lanes and 36 vphpl in the HOV lane. The

southbound ramp meter demand in the PM peak hour is projected at 604 vphpl for SOV lanes and 134 vphpl in the HOV lane. The northbound ramp meter demand in the AM peak hour is projected at 344 vphpl for SOV lanes and 77 vphpl in the HOV lane. The northbound ramp meter demand in the PM peak hour is projected at 1,085 vphpl for SOV lanes and 241 vphpl in the HOV lane. It should be noted that these rates will likely be adjusted upon completion of the interchange to handle the demand discussed above. Additional ramp meter information is provided in **Appendix B**.

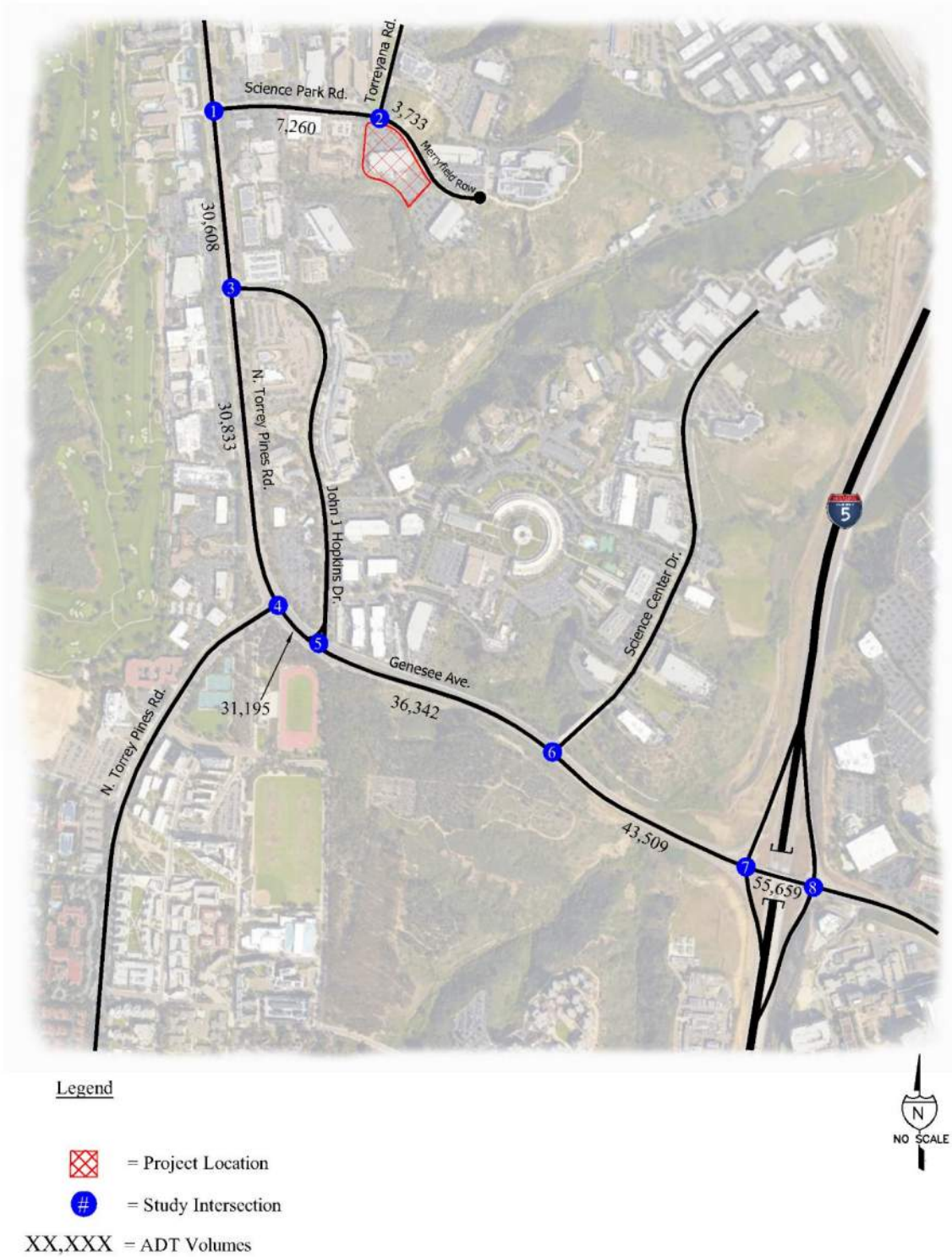


Figure 9-1

Near-Term With Project Conditions ADT

Table 9-1

Near-Term With Project Street Segment Levels of Service

Road	Segment	Standard	# of Ln.	Class.	Cap.	Volume	V/C	LOS
Merryfield Row	East of Torreyana Rd.	SD	2	2-Cc	8,000	3,733	0.47	C
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	SD	2	2-Cc	8,000	7,260	0.91	E
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	30,608	0.51	B
	John J. Hopkins Dr. to Genesee Ave.	SD	6	PA	60,000	30,833	0.51	B
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	SD	6	PA	60,000	31,195	0.52	B
	John J. Hopkins Dr. to Science Center Dr.	SD	6	PA	60,000	36,342	0.61	C
	Science Center Dr. to I-5 SB Ramps	SD	6	PA	60,000	43,509	0.73	C
	I-5 SB Ramps to I-5 NB Ramps	SD	6	PA	60,000	55,659	0.93	E

Legend:

Class. = Functional Class

Cap. = Capacity

LOS = Level of Service

2-Cc = 2 Lane Collector (w/ commercial-industrial property

PA = 6 Lane Prime Arterial

4-C = 4 Lane Collector

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

Table 9-2

Near-Term & Near-Term With Project Street Segment Comparison

Road	Segment	# of Lanes	LOS "E" Capacity	Class.	Near-Term			Near-Term + Project			ΔV/C	Is this impact Significant?
					LOS	Volume	V/C	LOS	Volume	V/C		
Merryfield Row	East of Torreyana Rd.	2	8,000	2-Cc	B	3,241	0.41	C	3,733	0.47	0.062	***NO***
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	2	8,000	2-Cc	E	6,792	0.85	E	7,260	0.91	0.058	***YES***
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
	John J. Hopkins Dr. to Genesee Ave.	6	60,000	PA	B	30,504	0.51	B	30,833	0.51	0.005	***NO***
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,915	0.52	B	31,195	0.52	0.005	***NO***
	John J. Hopkins Dr. to Science Center Dr.	6	60,000	PA	C	36,062	0.60	C	36,342	0.61	0.005	***NO***
	Science Center Dr. to I-5 SB Ramps	6	60,000	PA	C	43,229	0.72	C	43,509	0.73	0.005	***NO***
	I-5 SB Ramps to I-5 NB Ramps	6	60,000	PA	E	55,502	0.93	E	55,659	0.93	0.003	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Cc = 2 Lane Collector (w/ commercial-industrial property

PA = 6 Lane Prime Arterial

4-C = 4 Lane Collector

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

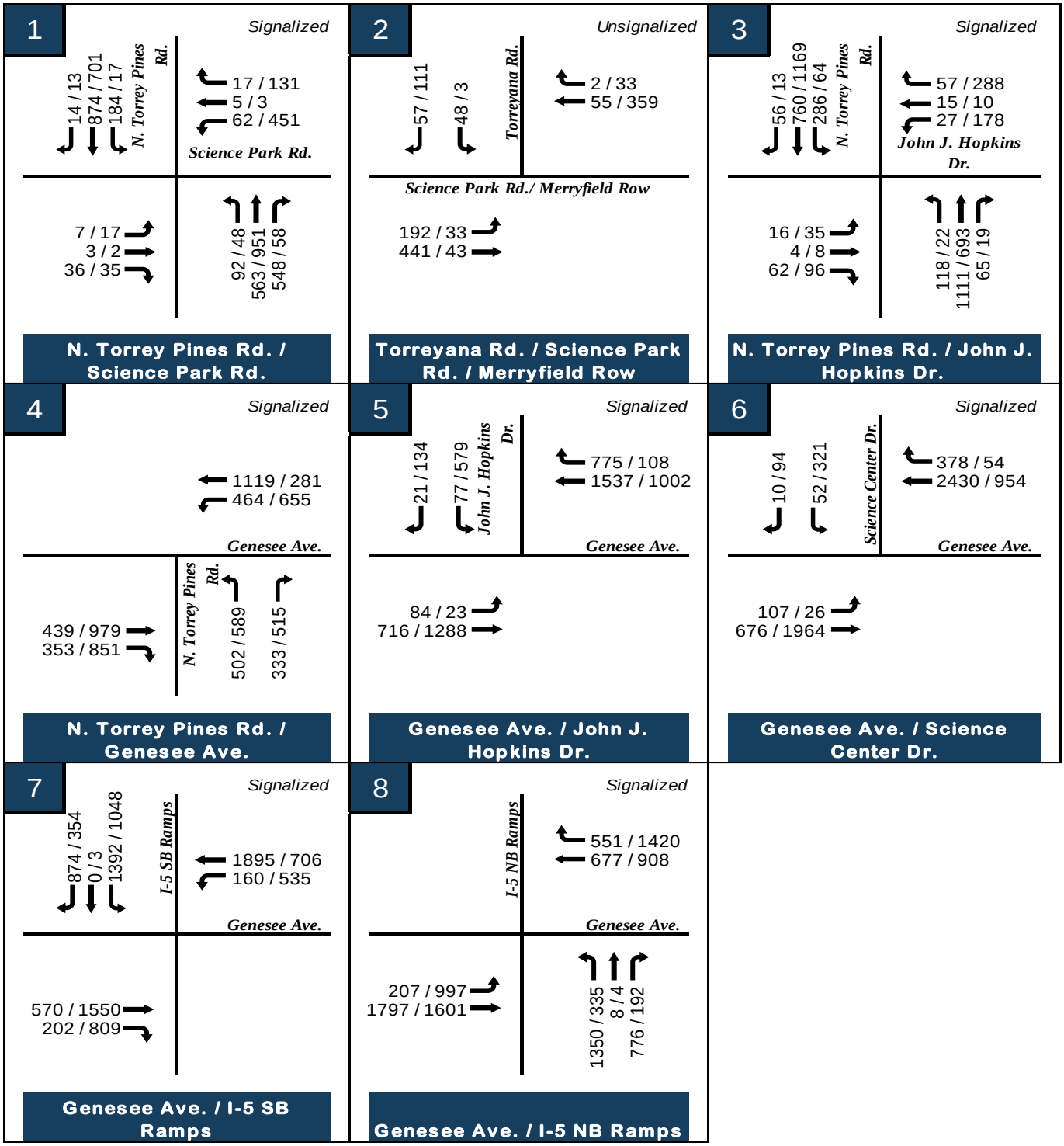


Figure 9-2

Near-Term With Project Conditions AM / PM Peak Hour Traffic

Table 9-3

Near-Term With Project Intersection Levels of Service

Number	Intersection	Control	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1	N. Torrey Pines Rd. / Science Park Rd.	Signalized	24.4	C	20.9	C
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	Unsignalized	22.6	C	11.8	B
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	Signalized	25.3	C	20	B
4	N. Torrey Pines Rd. / Genesee Ave.	Signalized	23	C	74.8	E
5	Genesee Ave. / John J. Hopkins Dr.	Signalized	37.3	D	47.4	D
6	Genesee Ave. / Science Center Dr.	Signalized	17	B	12.2	B
7	Genesee Ave. / I-5 SB Ramps	Signalized	43.2	D	42.9	D
8	Genesee Ave. / I-5 NB Ramps	Signalized	49.7	D	46.4	D

Notes:

LOS = Level of Service

Table 9-4

Near-Term Without and Near-Term With Project Intersection Comparison

#	Intersection	Near-Term				Near-Term + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	N. Torrey Pines Rd. / Science Park Rd.	21.1	C	20.0	B	24.4	C	3.3	No	20.9	C	0.9	No
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	17.0	C	10.5	B	22.6	C	5.6	No	11.8	B	1.3	No
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	25.0	C	19.9	B	25.3	C	0.3	No	20.0	B	0.1	No
4	N. Torrey Pines Rd. / Genesee Ave.	23.0	C	74.1	E	23.0	C	0.0	No	74.8	E	0.7	No
5	Genesee Ave. / John J. Hopkins Dr.	37.1	D	47.4	D	37.3	D	0.2	No	47.4	D	0.0	No
6	Genesee Ave. / Science Center Dr.	16.3	B	12.0	B	17.0	B	0.7	No	12.2	B	0.2	No
7	Genesee Ave. / I-5 SB Ramps	42.9	D	42.8	D	43.2	D	0.3	No	42.9	D	0.1	No
8	Genesee Ave. / I-5 NB Ramps	49.5	D	45.2	D	49.7	D	0.2	No	46.4	D	1.2	No

Notes:

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

Table 9-5

Near-Term With Project Ramp Meters Analysis

Location		Lanes	Demand ** (Veh/Hr)	Demand per lane (Veh/Hr/Ln)	Meter Rate * (Veh/Hr/Ln)	Excess Demand (Veh/Hr/Ln)	Delay (Min)	Queue (Feet)
Genesee Ave. / I-5 SB Ramps	AM	2 SOV	361	162	221	0	0	0
	PM	2 SOV	1343	604	900	0	0	0
Genesee Ave. / I-5 SB Ramps	AM	1 HOV	361	36	49	0	0	0
	PM	1 HOV	1343	134	200	0	0	0
Genesee Ave. / I-5 NB Ramps	AM	2 SOV	765	344	104	241	140	6,982
	PM	2 SOV	2411	1085	653	432	40	12,541
Genesee Ave. / I-5 NB Ramps	AM	1 HOV	765	77	23	54	140	1,552
	PM	1 HOV	2411	241	145	96	40	2,787

NOTE:
SOV = Single Occupancy Vehicle assumed at 90%
HOV = High Occupancy Vehicle assumed at 10%
** = Demand based on the sum of all turn movements onto ramps
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle
*Ramp Meter Rates provided by Interstate 5/Genesee Avenue Interchange Reconstruction Project, June 2011 (NB Ramps - 230 vph AM / 1,450 vph PM) and (SB Ramps - 490 vph AM / 2,000 vph PM) provided in **Appendix B**.
Veh/Hr= Vehicles per hour
Veh/Hr/Ln= Vehicles per hour per lane

Table 9-6

Near-Term Without and Near-Term With Project Ramp Meter Comparison

Location	Lanes	Peak	Near-Term Without Project		Near-Term With Project		Freeway LOS	Δ	S
			Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)			
Genesee Ave. / I-5 SB Ramps	SOV	AM	0	0	0	0	C	0.00	NO
		PM	0	0	0	0	C	0.00	NO
Genesee Ave. / I-5 SB Ramps	HOV	AM	0	0	0	0	C	0.00	NO
		PM	0	0	0	0	C	0.00	NO
Genesee Ave. / I-5 NB Ramps	SOV	AM	139	6,969	140	6,982	B	0.26	NO
		PM	40	12,463	40	12,541	B	0.25	NO
Genesee Ave. / I-5 NB Ramps	HOV	AM	139	1,549	140	1,552	B	0.26	NO
		PM	40	2,770	40	2,787	B	0.25	NO

NOTE:
Δ = Change in Delay (minutes)
SOV = Single Occupancy Vehicle assumed at 90%
HOV = High Occupancy Vehicle assumed at 10%
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

*Ramp Meter Rates sourced from the Interstate 5/Genesee Avenue Interchange Reconstruction Project, June 2011 (NB Ramps - 230 vph AM / 1,450 vph PM) and (SB Ramps - 490 vph AM / 2,000 vph PM) provided in **Appendix B**.

Veh/Hr= Vehicles per hour
Veh/Hr/Ln= Vehicles per hour per lane

Refer to **Appendix B** for freeway analysis for Near Term without Project Conditions and near Term With Project Conditions showing projected freeway LOS.

10.0 TRANSIT AND OTHER TRANSPORTATION MODES

10.1 PEDESTRIANS

The Spectrum 3 project site is accessible via existing sidewalk from Science Park Road. Sidewalks are existing on both sides of Merryfield Row, Torreyana Road, Science Park Road, and North Torrey Pines Road. Marked pedestrian crosswalks are available at all signalized intersections along North Torrey Pines Road and the intersections of Genesee Avenue with Science Center Drive and John J. Hopkins Drive.

10.2 BICYCLE

Based on the University Community Plan and the City of San Diego Bicycle Master Plan, the segments under study along North Torrey Pines Road and Genesee Avenue are identified as Class II bike lane facilities. With the exception of the segment along Genesee Avenue between I-5 SB Ramps and Science Center Drive (displaying "shared lane marking" pavement markers on the rightmost roadway lane in both directions of travel) and the Genesee Avenue / I-5 overcrossing (prior to the proposed improvements under the *Interstate 5 / Genesee Avenue Interchange Reconstruction Project*), the remainder segments of Genesee Avenue and North Torrey Pines Road currently hold class II bike lanes in both directions of travel. Refer to **Appendix I** (University Community Plan) and **Appendix K** (City of San Diego Bicycle Master Plan) for further details on the bike facility classifications of the roadway segments under study.

The proposed project will provide bicycle storage as follows:

- 14 short-term bicycle parking with permanently anchored racks
- 14 long-term bicycle parking with lockers or covered lockable room with racks

10.3 PUBLIC TRANSIT

The Spectrum 3 site is serviced by the San Diego Metropolitan Transit System (MTS). The nearest bus stops are located on Torreyana Road approximately 100 feet north of Science Park Road, as well as on Science Park Road approximately 600 feet east of North Torrey Pines Road. These stops are serviced by Coaster Connection Route 978 as shown in **Figure 10-1**. Route 978 operates four round trips between 6:30 AM and 8:30 AM as well as 3:30 PM and 6:30 PM every Monday through Friday and provides service between the Torrey Pines business park area and the Sorrento Valley Coaster Station. The northbound Coaster operates Monday through Friday and arrives at Sorrento Valley Station at 6:45 AM, 8:10 AM, 8:50 AM, 10:09 AM, 11:10 AM, 1:19 PM, 2:26 PM, 4:06 PM, 4:51 PM, 5:24 PM, 6:08 PM, 6:54 PM, and 7:43 PM. The southbound Coaster operates Monday through Friday and arrives at Sorrento Valley Station at 5:35 AM, 6:40 AM, 7:08 AM, 7:49 AM, 8:12 AM, 10:11 AM, 11:42 AM, 3:14 PM, 4:03 PM, 5:44 PM, and 6:11 PM. Bus Route 101 also has bus stops along North Torrey Pines Road approximately 100 feet north of Science Park Road. Please refer to **Appendix H** for transit information.

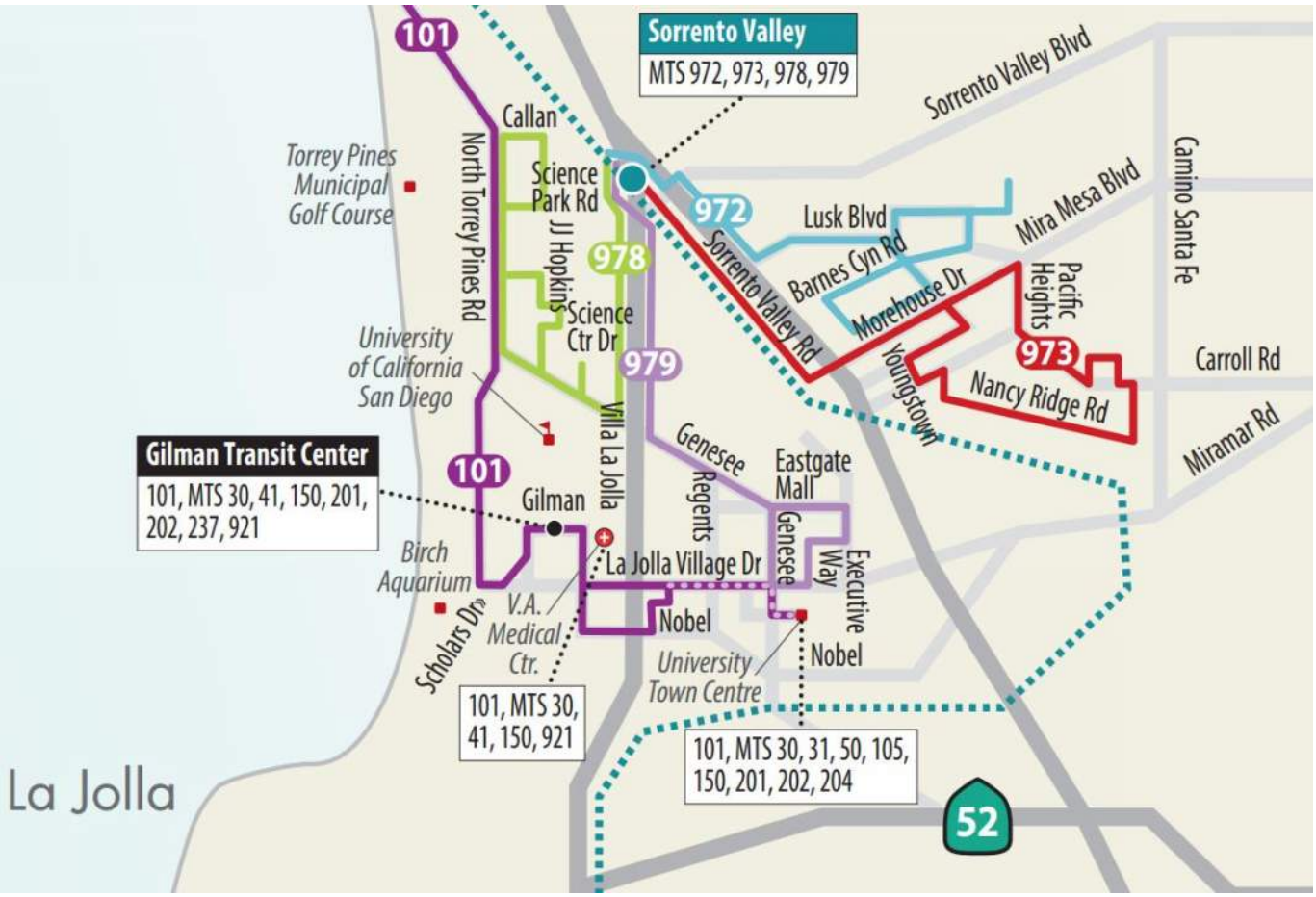


Figure 10-1

Bus Route Map

11.0 PARKING

The previous entitlements require off-street parking to be provided at a ratio between 2.5 parking spaces per 1,000 SF and 4.0 parking spaces per 1,000 SF. This equates to a minimum of 600 spaces and a maximum of 959 spaces.

The proposed project will provide 335 total stalls (40 surface and 295 sub-grade) for which 6 accessible stalls (1 surface and 5 sub-grade), and 3 van stalls (1 surface and 2 sub-grade) are proposed for the proposed Building "A". Building "B", currently under construction, will provide 412 total stalls (122 surface and 290 sub-grade) for which 12 accessible stalls (5 surface and 7 sub-grade) and 3 van stalls (1 surface and 3 sub-grade).

A total of 747 parking stalls (335 for Building "A" and 412 for Building "B") will be provided between both Buildings "A" and "B", as well as 77 carpool/electric vehicle stalls (27 for Building "A" and 50 for Building "B") and 14 motorcycle stalls (6 for Building "A" and 8 for Building "B"). Additionally, 35 short-term bicycle racks (14 for Building "A" and 21 for Building "B"), as well as 44 long-term bicycle storage lockers (14 for Building "A" and 30 for Building "B") will be provided for a total of 79 (35+44=79) bicycle stalls. Please refer to **Appendix J** for parking tabulations.

12.0 TRANSPORTATION DEMAND MANAGEMENT (TDM)

Transportation Demand Management, called "TDM' for short, is a strategy designed to reduce single occupant vehicle trips during AM and PM peak weekday hours. Since most commuting and congestion occurs during weekday peak periods, TDM seeks to shift commuters to transportation modes other than cars as well as reduce peak hour trips by encouraging commuting in non-peak periods and other strategies. A TDM plan was required in the original 89-0269 permit for the site. From the previous entitlement (05/2016), a TDM Plan was developed for the facilities located at 3115 and 3215 Merryfield Row (Spectrum 3 & 4 respectively). This new TDM Plan is meant to supersede and supplement the previous TDM Plan. The proposed TDM strategies included in this TDM Plan are outlined below in Section 12.2 TDM Plan.

12.1 TDM Concept:

The TDM program includes several strategies and techniques that aid in reducing vehicular trips and associated air quality impacts and greenhouse gas emissions. The intent of this TDM program is to reduce peak period vehicle trips by creating series of incentives that maximizes use of pedestrian and bicycle travel, transit, and carpools.

12.2 TDM Plan:

As stated on the City of San Diego's Climate Action Plan Consistency Checklist (Step 2: CAP Strategies Consistency, Strategy 3: Bicycling, Walking, Transit & Land Use, Section 8:

Transportation Demand Management), there exist TDM strategies to be implemented and considered. If the project is expected to accommodate over 50 tenants-occupants (employees), the TDM program applicable to the existing and future tenants has to include the following TDM Program Plan strategies:

- **At least one** of the following components:
  - Parking cash-out program
  - Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools
  - Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development

Parking cash-out has been established as one of the TDM strategies for this TDM Plan to be implemented for this project to satisfy the above CAP Consistency Checklist requirement.

- **At least three** of the following components:
  - Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees
  - On-site car-sharing vehicle(s) or bike-sharing
  - Flexible or alternative work hours
  - Telework program
  - Transit, carpool, and vanpool subsidies

- Pre-tax deduction for transit or vanpool fares and bicycle commute costs
- Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use?

Participation in SANDAG's iCommute, flexible work schedules, and telecommuting have been established as TDM strategies for this TDM Plan and the previous entitlement TDM Plan to be implemented for this project to satisfy the above CAP Consistency Checklist requirement.

Refer to **Appendix N** for the City of San Diego's Climate Action Plan Consistency Check List.

Additional TDM strategies will be included as a supplement to reinforce this TDM Plan. These TDM strategies, and CAP Consistency Checklist TDM strategies are listed and outlined below:

- Parking Cash-Out: Provide an incentive for employees who regularly utilize alternative modes of transportation and do not utilize a parking space. This program will incentive non SOV travel and provide monetary incentives to offset the cost of utilizing alternative modes of transportation. The applicant will work with tenants of Spectrum 3 and 4 to implement a parking cash-out program with a benefit of up to $25 per month or $300 per year for qualified employees. An employee participating in the transit subsidy program or incentive program mentioned below will be considered to have participated in the

parking cash-out and will not be eligible for an additional benefit unless otherwise agreed by the building tenant.

- Transit Subsidies: Provide subsidized transit passes, vanpool vehicles or fares to reduce the cost of these high-capacity modes of transportation. This will create cost-competitive alternatives that make SOV commutes seem more expensive by comparison. The applicant will work with tenants of Spectrum 3 and 4 to provide a Transit Benefit Account or similar program to all eligible employees. The benefit is limited to $25 per month or $300 per year unless otherwise agreed by the building tenant.
- Bike and Walk Facilities: Implement secure workplace parking for bikes, as well as shower and locker facilities that can also be made available for those who walk to work.
- Preferred Parking for Carpoolers: Provide preferred spaces for carpool and vanpool vehicles consistent with the Municipal Code.
- Guaranteed-Ride-Home: This employer will participate in the iCommute program (or equivalent) which provides benefits to allow for up to three free taxi rides or rental cars for unplanned trips home that cannot be accommodated by the employee's normal commute mode (e.g., working late past last scheduled bus, carpool passenger with sick child at school).
- Telecommuting: Allow employees to work from home or a non-office location one or more days a week. As IT systems continue to evolve, Spectrum 3 and 4 expects participation in the Telecommuting program to increase as convenience increases. The

program has a target participation rate of 5% of employees telecommuting at least one day per week.

- Compressed Workweek: Enable employees to compress regularly scheduled hours into fewer work days per week
- Flexible Schedule: Allow employees to offset work hours from the typical 9-5 standard and shift commute travel to off-peak hours.
- User Information: The employer will provide information on available alternatives to driving alone, through a designated Employee Transportation Coordinator; use of print marketing; information kiosks/screens; websites; ride-matching services; and/or participating in employee-oriented informational/educational sessions on available transportation options. The Transportation Coordinator will be responsible for providing information to employees regarding all TDM programs as well as assisting employees in signing up for applicable programs. The Coordinator will also conduct appropriate orientations and/or regular employee engagement sessions which will orient and remind employees of alternative transportation options as well as providing additional information.
- Participate in Sandag's iCommute Rideshare Challenge!
- Provide a bikeshare program with up to five bicycles available to employees for short trips.
- Provide a bicycle repair station

- Rideshare Alternatives/ Last Mile Transportation: Coordinate with Uber/Lyft, or comparable services, to provide reduced cost rideshare, if feasible.
- Incentive Program: The applicant will work with tenants to provide an incentive program equivalent to $25 per month for carpool.

12.3 Monitoring and Reporting Program

In order to ensure the proposed TDM strategies are adequately implemented and maintained, a TDM Monitoring and Reporting Program will be conducted. The TDM Monitoring Program will analyze the TDM program and its effectiveness for a five-year period, including, to the extent feasible, quantifying the effectiveness of the individual components of the program. The Monitoring efforts will include conducting average daily vehicle (counts) and peak hour counts at the project site. Data relating to transit usage, carpool/vanpool usage, transit and other subsidies will also be collected that will be supplemented by on-site surveys. This information will be broken down into estimated percentages of number of employees participating in each TDM strategy. A TDM Monitoring Report will be prepared and submitted to the City Engineer on the first anniversary of the issuance of a certificate of occupancy for the project and on such date each year thereafter during the five-year monitoring period.

13.0 CONCLUSIONS AND RECOMMENDATIONS

Urban Systems Associates, Inc. (USAI) was retained by Alexandria Real Estate Equities, Inc. to determine potential transportation impacts and appropriate mitigation measures for the development of the Spectrum 3 site. The purpose of this report is to determine whether transportation impacts may result due to the transfer of density from other areas of University City and intensification of the Spectrum 3 site. This transfer and intensification results in the addition of 61,559 square feet of trip generating space to the Spectrum 3 site.

13.1 PROJECT TRIP GENERATION

A trip generation rate of 8-weekday trips per 1000 square feet of scientific research was used consistent with the *City of San Diego Trip Generation Manual, 2003.* The proposed project for Building A is expected to generate **492 ADT** with **79 AM (71 in / 8 out**) peak hour trips and **69 PM (7 in/ 62 out)** peak hour trips with the net increase in area of 61,559 SF. **Table 3-1** shows a vehicle trip generation table for the proposed project.

13.2 EXISTING CONDITIONS

Street Segments:

According to the analysis, all study streets currently operate at a LOS D or better in the Existing Condition with the exception of the segments listed below:

- Genesee Avenue (between the I-5 SB Ramps and the I-5 NB Ramps)
- Science Park Road (between North Torrey Pines Road – Torreyana Road)

Intersections:

According to the analysis, all study intersections currently operate at a LOS D or better in the Existing Condition with the exception of the intersections listed below:

- North Torrey Pines Road at Genesee Avenue in the PM peak hour.
- Genesee Avenue at I-5 NB Ramps in the PM peak hour.

13.3 EXISTING WITH PROJECT CONDITIONS

Street Segments:

According to the analysis, all study streets currently operate at a LOS D or better in the Existing With Project Condition with the exception of the segments listed below:

- Genesee Avenue (between the I-5 SB Ramps and the I-5 NB Ramps)
- Science Park Road (between North Torrey Pines Road – Torreyana Road)

Intersections: According to the analysis, all study intersections currently operate at a LOS D or better in the Existing With Project Condition with the exception of the intersections listed below:

- North Torrey Pines Road at Genesee Avenue in the PM peak hour.
- Genesee Avenue at I-5 NB Ramps in the PM peak hour.

13.4 NEAR-TERM WITHOUT PROJECT CONDITIONS

Street Segments:

According to the analysis, all study streets are projected to operate at a LOS D or better in the Near Term Without Project Condition with the exception of the segments listed below:

- Genesee Avenue (between the I-5 SB Ramps and the I-5 NB Ramps)
- Science Park Road (between North Torrey Pines Road – Torreyana Road)

Intersections:

According to the analysis, all study intersections currently operate at a LOS D or better in the Near Term Without Project Condition with the exception of the intersection listed below:

- North Torrey Pines Road at Genesee Avenue in the PM peak hour

Ramp Meters:

The future ramp meter rates were taken from the Caltrans *Interstate 5 / Genesee Avenue Interchange Reconstruction Project* (June 2011). The ramp meter rates were 490 and 2,000 vph for the AM and PM peak hours respectively for the southbound ramp. The ramp meter rates for the northbound ramps were 230 and 1,450 vph for the AM and PM peak hour respectively. The southbound ramp meter demand is projected at 360 vehicles per hour (vph) in the AM peak hour and 1,331 vph in the PM peak hour in the Near Term Without Project condition. The northbound

ramp meter demand is projected at 764 vph in the AM peak hour and 2,405 vph in the PM peak hour in the Near Term Without Project condition.

13.5 NEAR-TERM WITH PROJECT CONDITIONS

Street Segments:

According to the analysis, all study streets currently operate at a LOS D or better in the Near Term With Project Condition with the exception of the segments listed below:

- Genesee Avenue (between the I-5 SB Ramps and the I-5 NB Ramps)
- Science Park Road (between North Torrey Pines Road – Torreyana Road)

Intersections:

According to the analysis, all study intersections currently operate at a LOS D or better in the Near Term With Project Condition with the exception of the intersection listed below:

- North Torrey Pines Road at Genesee Avenue in the PM peak hour

Ramp Meters:

The future ramp meter rates were taken from the Caltrans *Interstate 5 / Genesee Avenue Interchange Reconstruction Project* (June 2011). The ramp meter rates were 490 and 2,000 vph for the AM and PM peak hours respectively for the southbound ramp. The ramp meter rates for the northbound ramps were 230 and 1,450 vph for the AM and PM peak hour respectively. The

southbound ramp meter demand is projected at 361 vehicles per hour (vph) in the AM peak hour and 1,343 vph in the PM peak hour in the Near Term With Project condition. The northbound ramp meter demand is projected at 765 vph in the AM peak hour and 2,411 vph in the PM peak hour in the Near Term With Project condition.

13.6 DIRECT IMPACTS

Street Segments:

As shown in **Table 13-1**, although the segment of Genesee Avenue between the I-5 SB Ramps and the I- 5 NB Ramps currently operates at a LOS F, because the change in volume to capacity ratio (ΔV/C) is less than .01 between the Existing and Existing with Project condition, it is not considered a direct significant project impact.

As shown in **Table 13-1**, a direct significant impact is anticipated to occur along the segment of Science Park Road between North Torrey Pines Road and Torreyana Road because the change in volume to capacity ratio (ΔV/C) is higher than .02 between the Existing and Existing with Project conditions. Further discussion with respect to this impact can be found in Section 13.7 of this report.

Intersections:

As shown in **Table 13-3**, the analysis shows that no direct significant impacts are expected at the studied intersections.

Ramps:

As shown in **Table 13-5**, there are no direct significant impacts at any of the I-5/Genesee Ave. interchange ramp meters due to the proposed project.

13.7 MITIGATION

The proposed Spectrum 3 project is expected to be completed in late 2018 or early 2019 and is estimated to generate a net increase of 492 ADT. The I-5/Genesee Avenue interchange project is currently under construction and expected to be completed in Spring 2018. Spectrum 3 is anticipated to be completed after the interchange is constructed (late 2018/early 2019), therefore the impact to the Genesee Ave. and I-5 SB Ramp intersection would be mitigated prior to opening day of the completed project.

Additionally, **Table 13-1** shows an Existing and Existing With Project street segment comparison with a significant impact in the following roadway segment:

- Science Park Road between North Torrey Pines Road and Torreyana Road

This direct significant impact will be handled through mitigation measures. In order to mitigate the project's direct significant impact to the street segment of Science Park Road (from North Torrey Pines Road to Torreyana Road), the street segment of Science Park Road which is a two-lane collector with industrial fronting and parking on both sides of the street which will be modified. Condition No. 26 in CDP/HRP/PID 89-0269 is referenced, as the item is a condition of approval for the original entitlement and carried over from previous reviews. Condition No. 26 in C DP/HRP/PID 89-0269 describes the following:

> *Prior to the expansion of the project beyond 189,000 square feet, for the portion of Science Park Road east of the intersection widening, four lanes shall be provided. One eastbound lane shall be dropped approaching Torreyana Road. Parking shall be prohibited along the street via "red curb". The developer shall be responsible for notifying the adjacent property owners and removing parking.*

Therefore, the proposed mitigation is to provide two (2) lanes in each direction for Science Park Road to become a four-lane collector and to eliminate on-street parking. Doing so will provide adequate capacity for vehicles along the roadway segment the project as shown in **Table 13-2**.

Table 13-1

Existing Without and With Project Street Segment Comparison

Road	Segment	# of Lanes	LOS "E" Capacity	Class.	Existing			Existing + Project			ΔV/C	Is this impact Significant?
					LOS	Volume	V/C	LOS	Volume	V/C		
Merryfield Row	East of Torreyana Rd.	2	8,000	2-Cc	B	3,241	0.41	C	3,733	0.47	0.062	***NO***
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	2	8,000	2-Cc	E	6,792	0.85	E	7,260	0.91	0.058	***YES***
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
	John J. Hopkins Dr. to Genesee Ave.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	6	60,000	PA	B	29,852	0.50	B	30,132	0.50	0.005	***NO***
	John J. Hopkins Dr. to Science Center Dr.	6	60,000	PA	B	34,312	0.57	B	34,592	0.58	0.005	***NO***
	Science Center Dr. to I-5 SB Ramps	6	60,000	PA	C	40,346	0.67	C	40,626	0.68	0.005	***NO***
	I-5 SB Ramps to I-5 NB Ramps	4	40,000	4-M	F	49,517	1.24	F	49,674	1.24	0.004	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Cc = 2 Lane Collector (w/ commercial-industrial property

4-M = 4 Lane Major Arterial

PA = 6 Lane Prime Arterial

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

Table 13-2

Near-Term Without and Near-Term With Project Street Segment Comparison

Road	Segment	# of Lanes	LOS "E" Capacity	Class.	Near-Term			Near-Term + Project			ΔV/C	Is this impact Significant?
					LOS	Volume	V/C	LOS	Volume	V/C		
Merryfield Row	East of Torreyana Rd.	2	8,000	2-Cc	B	3,241	0.41	C	3,733	0.47	0.062	***NO***
Science Park Road	N. Torrey Pines Rd. to Torreyana Rd.	2	8,000	2-Cc	E	6,792	0.85	E	7,260	0.91	0.058	***YES***
N. Torrey Pines Road	Science Park Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,279	0.50	B	30,608	0.51	0.005	***NO***
	John J. Hopkins Dr. to Genesee Ave.	6	60,000	PA	B	30,504	0.51	B	30,833	0.51	0.005	***NO***
Genesee Avenue	N. Torrey Pines Rd. to John J. Hopkins Dr.	6	60,000	PA	B	30,915	0.52	B	31,195	0.52	0.005	***NO***
	John J. Hopkins Dr. to Science Center Dr.	6	60,000	PA	C	36,062	0.60	C	36,342	0.61	0.005	***NO***
	Science Center Dr. to I-5 SB Ramps	6	60,000	PA	C	43,229	0.72	C	43,509	0.73	0.005	***NO***
	I-5 SB Ramps to I-5 NB Ramps	6	60,000	PA	E	55,502	0.93	E	55,659	0.93	0.003	***NO***

Legend:

LOS= Level of Service

V/C= Volume to Capacity Ratio

ΔV/C= Change in V/C ratio

2-Cc = 2 Lane Collector (w/ commercial-industrial property

PA = 6 Lane Prime Arterial

4-C = 4 Lane Collector

Note:

Segment along Merryfield Row is a private drive; analyzed as a 2-lane collector

Table 13-3

Existing Without and Existing With Project Intersection Comparison

#	Intersection	Existing				Existing + Project (Buildout)							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	N. Torrey Pines Rd. / Science Park Rd.	21.1	C	19.7	B	24.4	C	3.3	No	20.1	C	0.4	No
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	17	C	9.6	A	22.6	C	5.6	No	10.5	B	0.9	No
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	24	C	19.7	B	24.3	C	0.3	No	19.8	B	0.1	No
4	N. Torrey Pines Rd. / Genesee Ave.	22.5	C	59	E	22.8	C	0.3	No	59.8	E	0.8	No
5	Genesee Ave. / John J. Hopkins Dr.	35.2	D	37.5	D	35.4	D	0.2	No	37.6	D	0.1	No
6	Genesee Ave. / Science Center Dr.	13.6	B	11.3	B	14.0	B	0.4	No	11.4	B	0.1	No
7	Genesee Ave. / I-5 SB Ramps	53.4	D	54.1	D	54.4	D	1.0	No	54.4	D	0.3	No
8	Genesee Ave. / I-5 NB Ramps	33.6	C	125.5	F	34.3	C	0.7	No	126.0	F	0.5	No

Notes:

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

Table 13-4

Near-Term Without and Near-Term With Project Intersection Comparison

#	Intersection	Near-Term				Near-Term + Project							
		AM Peak Hour		PM Peak Hour		AM Peak Hour		Δ	S ?	PM Peak Hour		Δ	S ?
		D	LOS	D	LOS	D	LOS			D	LOS		
1	N. Torrey Pines Rd. / Science Park Rd.	21.1	C	20.0	B	24.4	C	3.3	No	20.9	C	0.9	No
2	Torreyana Rd. / Science Park Rd. / Merryfield Row	17.0	C	10.5	B	22.6	C	5.6	No	11.8	B	1.3	No
3	N. Torrey Pines Rd. / John J. Hopkins Dr.	25.0	C	19.9	B	25.3	C	0.3	No	20.0	B	0.1	No
4	N. Torrey Pines Rd. / Genesee Ave.	23.0	C	74.1	E	23.0	C	0.0	No	74.8	E	0.7	No
5	Genesee Ave. / John J. Hopkins Dr.	37.1	D	47.4	D	37.3	D	0.2	No	47.4	D	0.0	No
6	Genesee Ave. / Science Center Dr.	16.3	B	12.0	B	17.0	B	0.7	No	12.2	B	0.2	No
7	Genesee Ave. / I-5 SB Ramps	42.9	D	42.8	D	43.2	D	0.3	No	42.9	D	0.1	No
8	Genesee Ave. / I-5 NB Ramps	49.5	D	45.2	D	49.7	D	0.2	No	46.4	D	1.2	No

Notes:

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

Table 13-5

Near-Term Without and Near-Term With Project Ramp Meter Analysis Comparison

Location	Lanes	Peak	Near-Term Without Project		Near-Term With Project		Freeway LOS	Δ	S
			Delay (Min)	Queue (Ft)	Delay (Min)	Queue (Ft)			
Genesee Ave. / I-5 SB Ramps	SOV	AM	0	0	0	0	C	0.00	NO
		PM	0	0	0	0	C	0.00	NO
Genesee Ave. / I-5 SB Ramps	HOV	AM	0	0	0	0	C	0.00	NO
		PM	0	0	0	0	C	0.00	NO
Genesee Ave. / I-5 NB Ramps	SOV	AM	139	6,969	140	6,982	B	0.26	NO
		PM	40	12,463	40	12,541	B	0.25	NO
Genesee Ave. / I-5 NB Ramps	HOV	AM	139	1,549	140	1,552	B	0.26	NO
		PM	40	2,770	40	2,787	B	0.25	NO

NOTE:
Δ = Change in Delay (minutes)
SOV = Single Occupancy Vehicle assumed at 90%
HOV = High Occupancy Vehicle assumed at 10%
Delay = (Demand - Meter Rate) / Meter Rate * 60 minutes/hour
Queue = Excess Demand * 29 feet/vehicle

*Ramp Meter Rates sourced from the Interstate 5/Genesee Avenue Interchange Reconstruction Project, June 2011 (NB Ramps - 230 vph AM / 1,450 vph PM) and (SB Ramps - 490 vph AM / 2,000 vph PM) provided in **Appendix B**.

Veh/Hr= Vehicles per hour
Veh/Hr/Ln= Vehicles per hour per lane

Refer to **Appendix B** for freeway analysis for Near Term without Project Conditions and near Term With Project Conditions showing projected freeway LOS.

14.0 REFERENCES

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Appendix A

Architectural Plans

MAP LEGEND

MISC LINE
GRID BORDER
RETAINING WALL
RETWALL/MASONRY
MASONRY WALL
FENCE GENERAL
ASPHALT EDGE
CONCRETE EDGE
DIRT ROAD
CURB
GUTTER EDGE
RAMP
LANE STRIPING
PARKING STALL
TANK
PIPE
MISC UTILITIES
UTILITY BOX
VAULT GENERAL
CONCRETE DITCH
BUILDING
STAIRS
BRUSH LINE
INDEX CONTOUR
INTERM CONTOUR
DASH INDEX CONT
DASH INTERM CONT
DEP INDEX CONT
DEP INTERM CONT
DASH DEP IND CON
DASH DEP INTERM
DASH TREE CON
BAR SCALE
NORTH ARROW

HORIZ/VERT CONTR
ORIOTICK
GUARD POST
STREET LIGHT
SIGN (10')
SIGN (5')
DROP INLET
STORM DRAIN
FIRE HYDRANT
UNDEF OBJ/OCT SQ
UNDEF OBJ/OCT RND
MANHOLE UNIDENT
WATER VALVE
SEWER MANHOLE
ELECT VAULT
PHONE PEDESTAL
PHONE MANHOLE
GAS VALVE
PULL BOX
TREE (10')
SPOT ELEVATION
POST
HANDICAP SYMBOL

0 20 40 80

EXISTING SITE PLAN 1"=40' 01

NOTE:

THE ILLUSTRATIONS, DRAWINGS AND NOTES DEPICTED IN THIS DOCUMENT ARE CONCEPTUAL. THE INTENT OF THIS DOCUMENT IS TO PROVIDE THE OUTLINE FOR DEVELOPMENT AND CONSTRUCTION OF FUTURE BUILDINGS AND PARKING ON THIS SITE IN ACCORDANCE WITH THE REQUIREMENTS DERIVED BY THE CITY OF SAN DIEGO MUNICIPAL CODE, COMMUNITY PLAN AND COASTAL DEVELOPMENT REGULATIONS, WHILE MAINTAINING THE FLEXIBILITY TO ADJUST WITHIN THE GUIDELINES DETERMINED BY THE PROGRAM WITHIN OF THE INTERNAL TRIAL.

LPA

SPECTRUM III & IV
3115 AND 3215 MERRYFIELD ROW
SAN DIEGO, CA 92121

Developed for

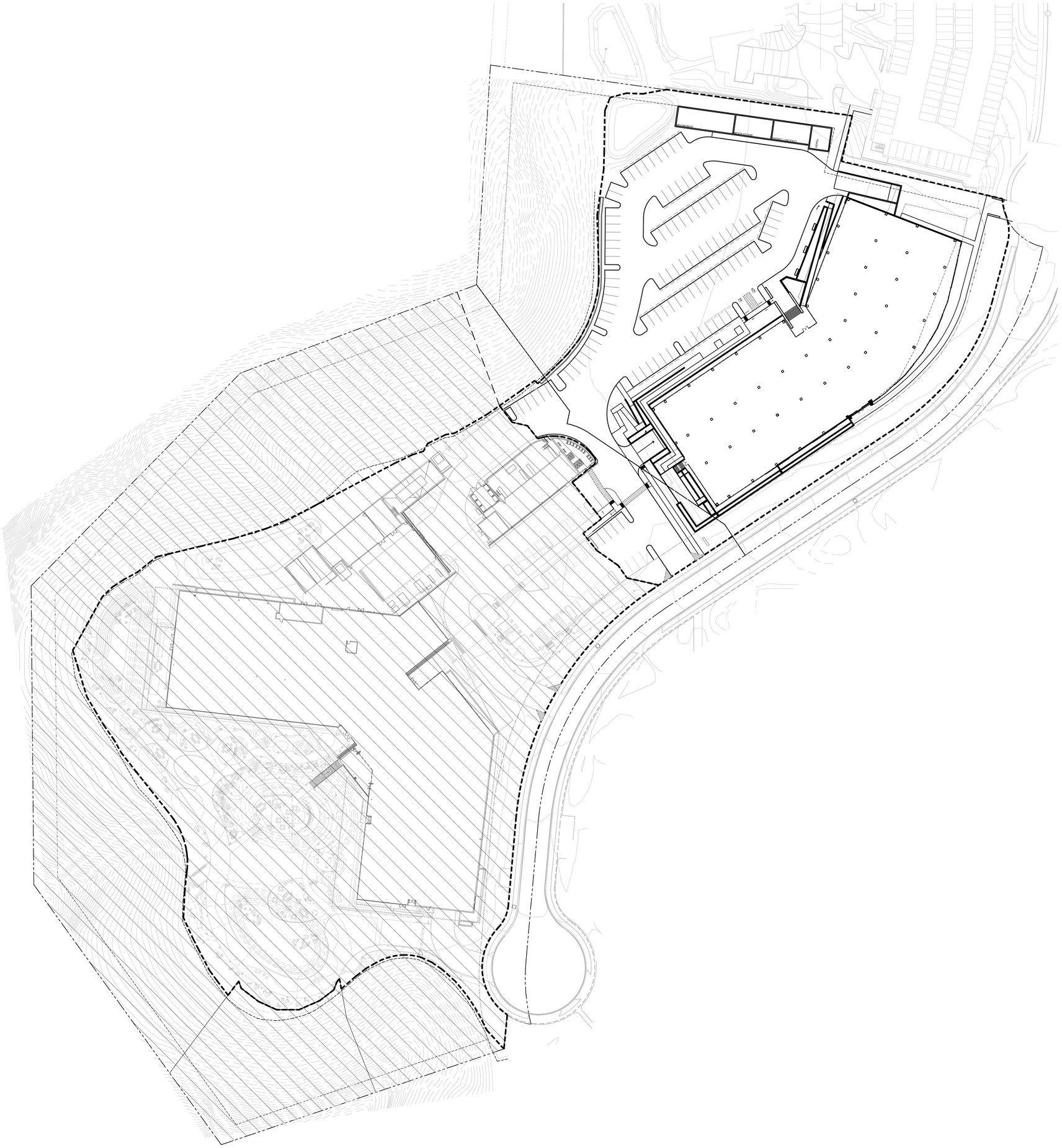
Date	Revision

Submitted	Date
SDP / CDP AMENDMENT & PLANCHECK	10/06/2011
SDP / CDP AMENDMENT PACKAGE REVISIONS, TRIAL	12/06/2011

JOB NO. 10006.00
Date 10/06/2011
DRAWN BY
Scale 1"=40'

EXISTING OVERALL SITE PLAN

A1.0
SHEET 18 OF 22



Submittal	Date
SDP / CDP AMENDMENT PACKAGE	07/28/17
SPD / CDP AMENDMENT PACKAGE RESUBMITTAL	09/27/17

Revision	Date

Job. No. 15022b.10
Date 09/27/17
Checked by
Scale

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SPECTRUM III & IV

3115 & 3215 MERRYFIELD ROW, SAN DIEGO, CA 92121
SDP/CDP AMENDMENT AND PDP SUBMITTAL PACKAGE

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1600 National Avenue
San Diego, California 92101

Appendix B

Traffic Counts, Signal Timing Sheets, Interstate 5/Genesee Avenue Interchange Reconstruction Project Excerpts, SANDAG TFIC Series 13 Forecast Year 2020 Freeway Volumes, Caltrans Traffic Volumes, and Freeway Segment LOS

Kimley»Horn

24 Hour Segment Count

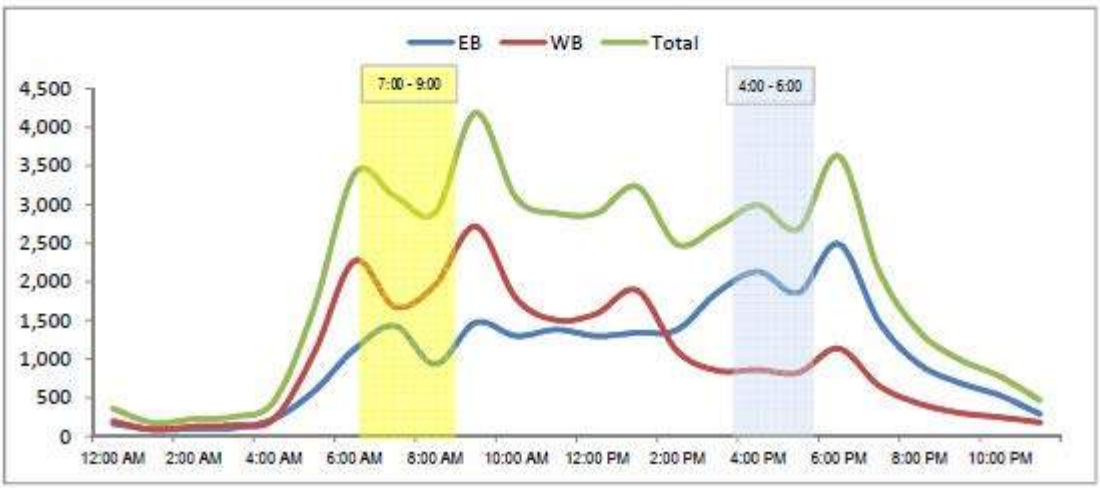
Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location:	59. Genesee Avenue Between I-5 NB & SB Ramps
Orientation:	*East-West*
Date of Count:	*Tuesday, May 12, 2015*
Analysts:	*DASH*
Weather:	*Sunny*
AVC Proj. No:	*15-0345*

24 Hour Segment Volume 49,051

Time	Hourly Volume EB	WB	Total	Time	Hourly Volume EB	WB	Total
12:00 AM - 1:00 AM	163	198	361	12:00 PM - 1:00 PM	1,299	1,588	2,887
1:00 AM - 2:00 AM	89	87	176	1:00 PM - 2:00 PM	1,342	1,890	3,232
2:00 AM - 3:00 AM	96	129	225	2:00 PM - 3:00 PM	1,381	1,102	2,483
3:00 AM - 4:00 AM	109	144	253	3:00 PM - 4:00 PM	1,865	850	2,715
4:00 AM - 5:00 AM	228	226	454	4:00 PM - 5:00 PM	2,131	860	2,991
5:00 AM - 6:00 AM	588	1,083	1,671	5:00 PM - 6:00 PM	1,858	825	2,683
6:00 AM - 7:00 AM	1,130	2,271	3,401	6:00 PM - 7:00 PM	2,490	1,137	3,627
7:00 AM - 8:00 AM	1,429	1,675	3,104	7:00 PM - 8:00 PM	1,484	655	2,139
8:00 AM - 9:00 AM	934	1,963	2,897	8:00 PM - 9:00 PM	932	424	1,356
9:00 AM - 10:00 AM	1,472	2,715	4,187	9:00 PM - 10:00 PM	691	304	995
10:00 AM - 11:00 AM	1,300	1,788	3,088	10:00 PM - 11:00 PM	529	246	775
11:00 AM - 12:00 PM	1,381	1,504	2885	11:00 PM - 12:00 AM	286	180	466
Total	**8,919**	**13,783**	**22,702**	**Total**	**16,288**	**10,061**	**26,349**

24-Hour	EB	Volume	25,207	24-Hour	WB	Volume	23,844



TUESDAY, SEPTEMBER 29, 2015 CITY: SAN DIEGO / LA JOLLA PROJECT: PTD15-1002-01

Genesee Ave between Science Center Dr. and I-5 interchange

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			50		12			12:00			374		276		
00:15			60		16			12:15			345		294		
00:30			33		8			12:30			323		318		
00:45			25	168	11	47	215	12:45			270	1312	323	1211	2523
01:00			20		6			13:00			294		314		
01:15			17		9			13:15			308		298		
01:30			27		9			13:30			338		298		
01:45			12	76	11	35	111	13:45			333	1273	291	1201	2474
02:00			15		6			14:00			433		239		
02:15			11		8			14:15			347		236		
02:30			33		3			14:30			517		245		
02:45			9	68	4	21	89	14:45			480	1777	272	992	2769
03:00			7		3			15:00			500		245		
03:15			6		6			15:15			482		219		
03:30			6		15			15:30			522		204		
03:45			5	24	19	43	67	15:45			440	1944	203	871	2815
04:00			8		11			16:00			545		197		
04:15			11		29			16:15			495		211		
04:30			8		48			16:30			491		220		
04:45			9	36	125	213	249	16:45			451	1982	235	863	2845
05:00			14		88			17:00			484		255		
05:15			20		162			17:15			445		253		
05:30			17		228			17:30			452		204		
05:45			21	72	362	840	912	17:45			344	1725	220	932	2657
06:00			32		332			18:00			415		180		
06:15			38		396			18:15			395		136		
06:30			60		461			18:30			379		124		
06:45			94	224	548	1737	1961	18:45			388	1577	102	542	2119
07:00			115		555			19:00			385		67		
07:15			121		576			19:15			374		72		
07:30			159		514			19:30			283		75		
07:45			168	563	589	2234	2797	19:45			231	1273	64	278	1551
08:00			179		551			20:00			222		54		
08:15			162		615			20:15			143		59		
08:30			169		605			20:30			147		56		
08:45			170	680	628	2399	3079	20:45			141	653	56	225	878
09:00			201		637			21:00			163		54		
09:15			203		575			21:15			145		42		
09:30			228		546			21:30			110		32		
09:45			181	813	478	2236	3049	21:45			103	521	51	179	700
10:00			200		406			22:00			84		39		
10:15			228		358			22:15			69		38		
10:30			246		350			22:30			84		25		
10:45			255	929	352	1466	2395	22:45			65	302	34	136	438
11:00			318		276			23:00			71		23		
11:15			295		268			23:15			68		28		
11:30			358		257			23:30			65		33		
11:45			367	1338	325	1126	2464	23:45			51	255	20	104	359
Total Vol.				4991		12397	**17388**					14594		7534	**22128**

Daily Totals

NB	SB	EB	WB	**Combined**
		19585	19931	**39516**

	AM			**PM**		
Split %	28.7%	71.3%	**44.0%**	66.0%	34.0%	**56.0%**
Peak Hour	11:30	08:15	**08:30**	15:30	12:30	**14:30**
Volume	1444	2485	**3188**	2002	1253	**2960**
P.H.F.	0.97	0.98	**0.95**	0.92	0.97	**0.97**

TUESDAY, SEPTEMBER 29, 2015 CITY: SAN DIEGO / LA JOLLA PROJECT: PTD15-1002-01

Genesee Ave between John J Hopkins Ct. and Science Center Dr.

AM Period	NB	SB	EB	WB		PM Period	NB	SB	EB	WB	
00:00			26	14		12:00			210	270	
00:15			26	16		12:15			212	292	
00:30			19	6		12:30			222	305	
00:45			12 83	11 47	130	12:45			219 863	307 1174	2037
01:00			15	7		13:00			242	279	
01:15			13	9		13:15			242	281	
01:30			15	6		13:30			235	289	
01:45			5 48	12 34	82	13:45			226 945	275 1124	2069
02:00			8	7		14:00			284	233	
02:15			6	8		14:15			305	227	
02:30			15	3		14:30			315	244	
02:45			5 34	4 22	56	14:45			355 1259	269 973	2232
03:00			4	2		15:00			362	230	
03:15			4	7		15:15			345	203	
03:30			6	12		15:30			319	205	
03:45			2 16	15 36	52	15:45			398 1424	211 849	2273
04:00			6	10		16:00			468	221	
04:15			8	29		16:15			419	210	
04:30			6	44		16:30			422	256	
04:45			6 26	104 187	213	16:45			384 1693	268 955	2648
05:00			6	83		17:00			459	268	
05:15			6	166		17:15			388	277	
05:30			7	206		17:30			342	218	
05:45			11 30	318 773	803	17:45			329 1518	232 995	2513
06:00			20	333		18:00			318	209	
06:15			28	366		18:15			305	150	
06:30			36	396		18:30			333	142	
06:45			52 136	384 1479	1615	18:45			284 1240	113 614	1854
07:00			105	409		19:00			275	76	
07:15			145	515		19:15			265	76	
07:30			181	455		19:30			222	78	
07:45			166 597	495 1874	2471	19:45			181 943	66 296	1239
08:00			184	465		20:00			111	61	
08:15			189	515		20:15			121	58	
08:30			177	505		20:30			106	56	
08:45			191 741	549 2034	2775	20:45			98 436	61 236	672
09:00			184	574		21:00			106	58	
09:15			184	539		21:15			93	46	
09:30			195	514		21:30			65	34	
09:45			165 728	459 2086	2814	21:45			62 326	45 183	509
10:00			141	392		22:00			48	43	
10:15			144	338		22:15			39	36	
10:30			151	339		22:30			45	30	
10:45			168 604	348 1417	2021	22:45			30 162	39 148	310
11:00			177	263		23:00			32	24	
11:15			184	253		23:15			25	21	
11:30			222	251		23:30			45	29	
11:45			216 799	316 1083	1882	23:45			19 121	17 91	212
Total Vol.			3842	11072	**14914**				10930	7638	**18568**

Daily Totals

NB	SB	EB	WB	**Combined**
		14772	18710	**33482**

	AM			PM		
Split %	25.8%	74.2%	**44.5%**	58.9%	41.1%	**55.5%**
Peak Hour	11:30	08:45	**08:45**	15:45	12:15	**16:30**
Volume	860	2176	**2930**	1707	1183	**2722**
P.H.F.	0.97	0.95	**0.97**	0.91	0.96	**0.94**

TUESDAY, SEPTEMBER 29, 2015 CITY: SAN DIEGO / LA JOLLA PROJECT: PTD15-1002-01

Genesee Ave between N. Torrey Pines Road and John J Hopkins Dr

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			35		4			12:00			246		184		
00:15			55		9			12:15			242		191		
00:30			23		3			12:30			262		166		
00:45			20	133	5	21	154	12:45			223	973	174	715	1688
01:00			18		1			13:00			234		184		
01:15			15		5			13:15			244		165		
01:30			11		3			13:30			265		177		
01:45			10	54	6	15	69	13:45			277	1020	184	710	1730
02:00			11		2			14:00			336		195		
02:15			7		2			14:15			262		166		
02:30			24		2			14:30			344		174		
02:45			8	50	2	8	58	14:45			288	1230	184	719	1949
03:00			7		0			15:00			296		184		
03:15			5		3			15:15			320		145		
03:30			6		5			15:30			378		161		
03:45			5	23	11	19	42	15:45			292	1286	184	674	1960
04:00			8		2			16:00			313		195		
04:15			12		12			16:15			289		215		
04:30			8		24			16:30			294		255		
04:45			8	36	47	85	121	16:45			283	1179	268	933	2112
05:00			16		58			17:00			308		277		
05:15			18		105			17:15			271		284		
05:30			13		184			17:30			242		205		
05:45			21	68	218	565	633	17:45			235	1056	232	998	2054
06:00			24		226			18:00			228		222		
06:15			40		252			18:15			235		216		
06:30			58		242			18:30			263		205		
06:45			84	206	265	985	1191	18:45			258	984	181	824	1808
07:00			105		315			19:00			271		195		
07:15			135		351			19:15			273		165		
07:30			174		288			19:30			197		142		
07:45			164	578	319	1273	1851	19:45			176	917	135	637	1554
08:00			193		305			20:00			182		141		
08:15			187		352			20:15			113		128		
08:30			165		342			20:30			116		151		
08:45			189	734	388	1387	2121	20:45			133	544	111	531	1075
09:00			214		333			21:00			140		106		
09:15			183		318			21:15			127		121		
09:30			217		255			21:30			101		106		
09:45			161	775	262	1168	1943	21:45			95	463	88	421	884
10:00			187		218			22:00			63		95		
10:15			178		205			22:15			66		70		
10:30			207		181			22:30			62		54		
10:45			198	770	165	769	1539	22:45			49	240	65	284	524
11:00			228		166			23:00			59		44		
11:15			240		151			23:15			44		54		
11:30			252		145			23:30			60		40		
11:45			257	977	161	623	1600	23:45			26	189	35	173	362
Total Vol.				4404		6918	**11322**					10081		7619	**17700**

Daily Totals

NB	SB	EB	WB	Combined
		14485	14537	**29022**

	AM			PM		
Split %	38.9%	61.1%	**39.0%**	57.0%	43.0%	**61.0%**
Peak Hour	11:45	08:15	**08:15**	15:15	16:30	**16:30**
Volume	1007	1415	**2170**	1303	1084	**2240**
P.H.F.	0.96	0.91	**0.94**	0.86	0.95	**0.96**

Kimley»Horn

24 Hour Segment Count

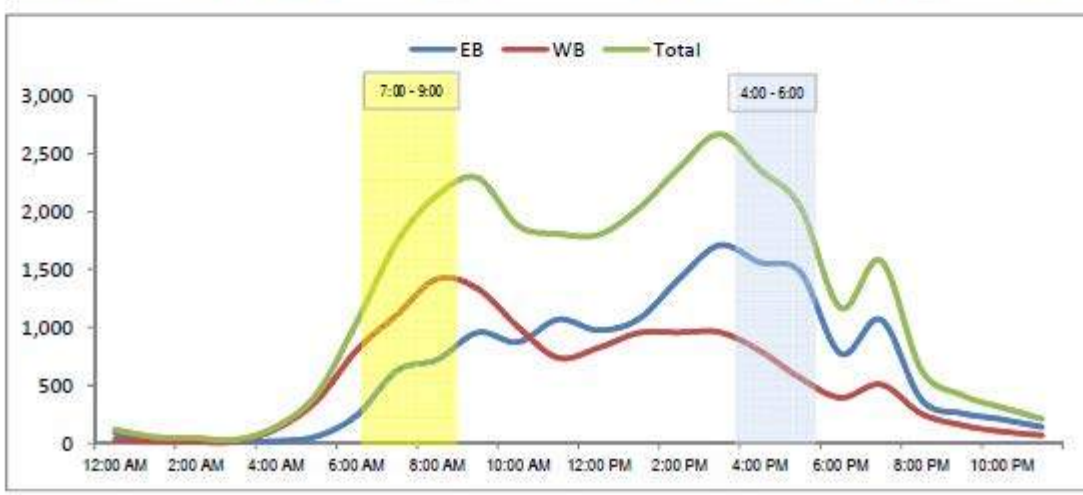
Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location:	21. North Torrey Pines Road North of Genesee Avenue
Orientation:	*East-West*
Date of Count:	*Tuesday, May 12, 2015*
Analysts:	*DASH*
Weather:	*Sunny*
AVC Proj. No:	*15-0345*

24 Hour Segment Volume 29,303

Time	Hourly Volume EB	WB	Total	Time	Hourly Volume EB	WB	Total
12:00 AM - 1:00 AM	89	31	120	12:00 PM - 1:00 PM	975	825	1,800
1:00 AM - 2:00 AM	36	20	56	1:00 PM - 2:00 PM	1,074	953	2,027
2:00 AM - 3:00 AM	34	13	47	2:00 PM - 3:00 PM	1,420	957	2,377
3:00 AM - 4:00 AM	17	16	33	3:00 PM - 4:00 PM	1,709	958	2,667
4:00 AM - 5:00 AM	20	124	144	4:00 PM - 5:00 PM	1,561	798	2,359
5:00 AM - 6:00 AM	59	363	422	5:00 PM - 6:00 PM	1,476	563	2,039
6:00 AM - 7:00 AM	241	804	1,045	6:00 PM - 7:00 PM	774	394	1,168
7:00 AM - 8:00 AM	628	1,110	1,738	7:00 PM - 8:00 PM	1,066	508	1,574
8:00 AM - 9:00 AM	722	1,420	2,142	8:00 PM - 9:00 PM	378	256	634
9:00 AM - 10:00 AM	956	1,334	2,290	9:00 PM - 10:00 PM	260	157	417
10:00 AM - 11:00 AM	873	1,005	1,878	10:00 PM - 11:00 PM	207	102	309
11:00 AM - 12:00 PM	1,069	738	1807	11:00 PM - 12:00 AM	140	70	210
Total	**4,744**	**6,978**	**11,722**	**Total**	**11,040**	**6,541**	**17,581**

24-Hour EB Volume 15,784 24-Hour WB Volume 13,519



Transportation Studies, Inc.

2640 Walnut Avenue, Suite H

Tustin,CA. 92780

Location: : SCIENCE PARK ROAD

Segment: : E/O TORREY PINES ROAD

Client: : URBAN SYSTEMS

Site: SAN DIEGO

Date: 10/29/14

Day: Wednesday

Interval Begin	EB AM		EB PM		WB AM		WB PM		Combined AM		Combined PM	
12:00	0	4	38	188	4	14	40	163	4	18	78	351
12:15	0		70		2		48		2		118	
12:30	2		34		8		39		10		73	
12:45	2		46		0		36		2		82	
01:00	0	5	53	172	0	15	74	212	0	20	127	384
01:15	1		43		6		54		7		97	
01:30	2		38		4		44		6		82	
01:45	2		38		5		40		7		78	
02:00	0	1	27	128	1	7	44	267	1	8	71	395
02:15	0		32		5		58		5		90	
02:30	1		34		1		89		2		123	
02:45	0		35		0		76		0		111	
03:00	1	3	25	99	0	2	140	358	1	5	165	457
03:15	1		32		0		70		1		102	
03:30	0		18		1		80		1		98	
03:45	1		24		1		68		2		92	
04:00	0	13	18	71	0	3	84	322	0	16	102	393
04:15	3		18		2		70		5		88	
04:30	4		17		0		90		4		107	
04:45	6		18		1		78		7		96	
05:00	6	147	15	51	0	10	100	326	6	157	115	377
05:15	28		10		2		88		30		98	
05:30	36		14		2		74		38		88	
05:45	77		12		6		64		83		76	
06:00	97	269	17	35	9	53	70	208	106	322	87	243
06:15	72		6		16		58		88		64	
06:30	52		12		12		46		64		58	
06:45	48		0		16		34		64		34	
07:00	52	266	1	14	13	51	26	90	65	317	27	104
07:15	58		2		11		29		69		31	
07:30	78		7		16		16		94		23	
07:45	78		4		11		19		89		23	
08:00	97	433	4	18	25	74	11	36	122	507	15	54
08:15	90		4		12		6		102		10	
08:30	116		6		13		13		129		19	
08:45	130		4		24		6		154		10	
09:00	125	419	4	14	26	88	6	31	151	507	10	45
09:15	118		4		20		6		138		10	
09:30	92		2		20		12		112		14	
09:45	84		4		22		7		106		11	
10:00	64	215	3	12	32	105	6	20	96	320	9	32
10:15	63		2		23		4		86		6	
10:30	42		3		28		6		70		9	
10:45	46		4		22		4		68		8	
11:00	38	160	2	8	32	191	5	18	70	351	7	26
11:15	43		2		48		3		91		5	
11:30	41		2		58		4		99		6	
11:45	38		2		53		6		91		8	
Totals	1,935		810		613		2,051		2,548		2,861	
Split%	75.9		28.3		24.1		71.7					

Day Totals	2,745		2,664		5,409	
Day Splits	50.7		49.3			

Peak Hour	08:30	12:15	11:00	02:30	08:30	02:30
Volume	489	203	191	375	572	501
Factor	0.94	0.73	0.82	0.67	0.93	0.76

TUESDAY, OCTOBER 6, 2015 CITY: SAN DIEGO / LA JOLLA PROJECT: PTD15-1002-01

SCIENCE PARK - 175FT E/O TORREYANA

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			0		0			12:00			6		18		
00:15			0		0			12:15			5		22		
00:30			0		0			12:30			4		12		
00:45			0	0	0	0		12:45			18	33	18	70	103
01:00			1		0			13:00			22		4		
01:15			0		0			13:15			22		4		
01:30			1		1			13:30			35		11		
01:45			0	2	1	2	4	13:45			26	105	11	30	135
02:00			0		0			14:00			15		12		
02:15			0		1			14:15			18		24		
02:30			0		2			14:30			11		20		
02:45			0	0	0	3	3	14:45			5	49	16	72	121
03:00			0		0			15:00			8		22		
03:15			0		0			15:15			9		20		
03:30			0		0			15:30			12		25		
03:45			1	1	0	0	1	15:45			11	40	32	99	139
04:00			0		0			16:00			6		31		
04:15			3		1			16:15			4		33		
04:30			1		2			16:30			6		45		
04:45			2	6	1	4	10	16:45			6	22	36	145	167
05:00			3		0			17:00			5		31		
05:15			2		0			17:15			4		28		
05:30			7		1			17:30			7		25		
05:45			15	27	3	4	31	17:45			3	19	21	105	124
06:00			10		5			18:00			0		22		
06:15			6		4			18:15			5		28		
06:30			5		1			18:30			2		26		
06:45			25	46	1	11	57	18:45			1	8	21	97	105
07:00			26		5			19:00			0		20		
07:15			33		0			19:15			1		15		
07:30			28		4			19:30			0		11		
07:45			31	118	1	10	128	19:45			3	4	16	62	66
08:00			71		6			20:00			1		9		
08:15			55		5			20:15			0		5		
08:30			42		10			20:30			2		4		
08:45			41	209	6	27	236	20:45			0	3	1	19	22
09:00			44		4			21:00			0		4		
09:15			35		3			21:15			3		0		
09:30			21		4			21:30			0		1		
09:45			20	120	2	13	133	21:45			0	3	0	5	8
10:00			15		3			22:00			1		0		
10:15			11		5			22:15			0		2		
10:30			9		11			22:30			1		0		
10:45			11	46	15	34	80	22:45			1	3	0	2	5
11:00			8		18			23:00			0		1		
11:15			9		19			23:15			2		1		
11:30			5		22			23:30			0		0		
11:45			5	27	16	75	102	23:45			0	2	1	3	5
Total Vol.				602		183	**785**					291		709	**1000**

	NB	SB	Daily Totals EB	WB	Combined
			893	892	**1785**

	AM			PM		
Split %	76.7%	23.3%	**44.0%**	29.1%	70.9%	**56.0%**
Peak Hour	08:00	11:30	**08:00**	13:00	16:00	**15:45**
Volume	209	78	**236**	105	145	**168**
P.H.F.	0.74	0.89	**0.77**	0.75	0.81	**0.82**

Kimley»Horn

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Genesee Avenue @ I-5 NB Ramps

Date of Count: *Tuesday, May 12, 2015*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *15-0345*

Kimley»Horn

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Genesee Avenue @ I-5 SB Ramps

AM Period (7:00 AM - 9:00 AM)

	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
7:00 AM	152	0	171	0	407	24	0	0	0	42	84	0	880
7:15 AM	178	0	252	0	392	15	0	0	0	43	108	0	988
7:30 AM	179	0	316	0	390	28	0	0	0	54	99	0	1,066
7:45 AM	181	0	296	0	392	27	0	0	0	44	103	0	1,043
8:00 AM	174	0	107	0	443	15	0	0	0	43	109	0	891
8:15 AM	143	0	136	0	411	40	0	0	0	57	128	0	915
8:30 AM	174	0	116	0	475	27	0	0	0	41	95	0	928
8:45 AM	125	0	120	0	512	40	0	0	0	52	123	0	972
Total	1,306	0	1,514	0	3,422	216	0	0	0	376	849	0	7,683

AM Intersection Peak Hour : **7:15 AM - 8:15 AM** Intersection PHF : **0.94**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	712	0	971	0	1,617	85	0	0	0	184	419	0	3,988
PHF	0.98	#####	0.77	#####	0.91	0.76	#####	#####	#####	0.85	0.96	#####	0.94
Movement PHF	0.85			0.93			#DIV/0!			0.99			0.94

PM Period (4:00 PM - 6:00 PM)

	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
4:00 PM	82	0	193	0	141	84	0	0	0	184	323	0	1,007
4:15 PM	79	0	211	0	127	84	0	0	0	182	331	0	1,014
4:30 PM	99	3	193	0	182	60	0	0	0	128	320	0	985
4:45 PM	78	0	253	0	98	84	0	0	0	177	307	0	997
5:00 PM	96	3	65	0	181	58	0	0	0	135	349	0	887
5:15 PM	134	0	284	0	100	81	0	0	0	138	174	0	911
5:30 PM	110	0	278	0	152	69	0	0	0	140	253	0	1,002
5:45 PM	97	3	137	0	124	60	0	0	0	126	318	0	865
Total	775	9	1614	0	1,105	580	0	0	0	1,210	2,375	0	7,668

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.99**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	338	3	850	0	548	312	0	0	0	671	1281	0	4003
PHF	0.85	0.25	0.84	#####	0.753	0.929	#####	#####	#####	0.912	0.968	#####	0.99
Movement PHF	0.90			0.89			#DIV/0!			0.95			0.99

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Kimley»Horn

Location:	Genesee Avenue	@	I-5 SB Ramps
Date of Count:	*Tuesday, May 12, 2015*		
Analysts:	*LV/CD*		
Weather:	*Sunny*		
AVC Proj No:	*15-0345*		

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

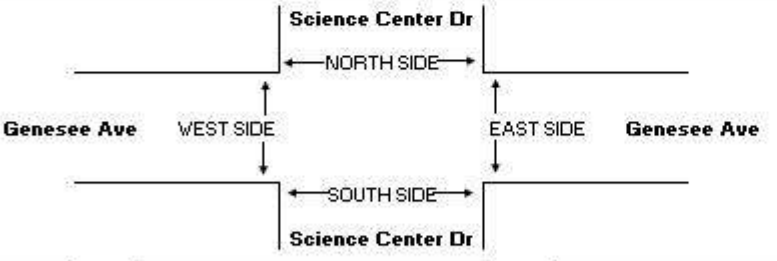
DATE:	LOCATION:	LA JOLLA	PROJECT #:	PDT15-1002-01
9/29/15	NORTH & SOUTH:	Science Center Dr	LOCATION #:	6
TUESDAY	EAST & WEST:	Genesee Ave	CONTROL:	SIGNAL

NOTES:

AM PM MID OTHER OTHER

N ▲ ◄ W E ► S ▼

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		Scripps Center Dr			Scripps Center Dr			Genesee Ave			Genesee Ave								
	LANES:	NL X	NT X	NR X	SL 2	ST X	SR 1	EL 1	ET 3	ER X	WL X	WT 3	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM				7		2	10	109			475	73	676					0
	7:15 AM				7		6	9	108			518	71	719					0
	7:30 AM				7		4	23	145			442	83	704					0
	7:45 AM				7		1	13	155			485	102	763					0
	8:00 AM				6		1	28	159			444	91	729					0
	8:15 AM				8		1	19	144			508	100	780			1		1
	8:30 AM				16		4	33	145			519	94	811					0
	8:45 AM				10		4	27	155			548	86	830			1		1
	VOLUMES	0	0	0	68	0	23	162	1,120	0	0	3,939	700	6,012	0	0	2	0	2
	APPROACH %	0%	0%	0%	75%	0%	25%	13%	87%	0%	0%	85%	15%						
	APP/DEPART	0	/	862	91	/	0	1,282	/	1,188	4,639	/	3,962	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	0	0	40	0	10	107	603	0	0	2,019	371	3,150					
	APPROACH %	0%	0%	0%	80%	0%	20%	15%	85%	0%	0%	84%	16%						
	PEAK HR FACTOR		0.000			0.625			0.949			0.942		0.949					
	APP/DEPART	0	/	478	50	/	0	710	/	643	2,390	/	2,029	0					
PM	4:00 PM				100		15	6	426			177	14	738					0
	4:15 PM				75		18	6	413			192	11	715					0
	4:30 PM				79		22	9	401			223	10	744			1		1
	4:45 PM				88		28	5	364			230	9	724					0
	5:00 PM				70		26	6	418			233	9	762			1		1
	5:15 PM				58		16	3	366			242	13	698			2		2
	5:30 PM				73		12	1	372			205	3	666			1		1
	5:45 PM				39		19	2	298			214	8	580					0
	VOLUMES	0	0	0	582	0	156	38	3,058	0	0	1,716	77	5,627	0	0	5	0	5
	APPROACH %	0%	0%	0%	79%	0%	21%	1%	99%	0%	0%	96%	4%						
	APP/DEPART	0	/	115	738	/	0	3,096	/	3,640	1,793	/	1,872	0					
	BEGIN PEAK HR		4:15 PM																
	VOLUMES	0	0	0	312	0	94	26	1,596	0	0	878	39	2,945					
	APPROACH %	0%	0%	0%	77%	0%	23%	2%	98%	0%	0%	96%	4%						
	PEAK HR FACTOR		0.000			0.875			0.956			0.947		0.966					
	APP/DEPART	0	/	65	406	/	0	1,622	/	1,908	917	/	972	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

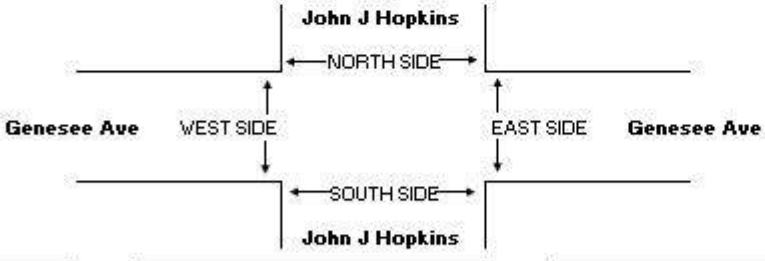
DATE:	LOCATION:	LA JOLLA	PROJECT #:	PDT15-1002-01
9/29/15	NORTH & SOUTH:	John J Hopkins	LOCATION #:	5
TUESDAY	EAST & WEST:	Genesee Ave	CONTROL:	SIGNAL

NOTES:

AM / PM / MD / OTHER / OTHER

N ▲ ◄ W E ► S ▼

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				U-TURNS				
		John J Hopkins			John J Hopkins			Genesee Ave			Genesee Ave								
	LANES:	NL X	NT X	NR X	SL 2	ST X	SR 1	EL 1	ET 4	ER X	WL X	WT 5	WR 1	TOTAL	NB X	SB X	EB X	WB X	TTL
AM	7:00 AM				9		5	10	93			320	164	601				1	1
	7:15 AM				8		1	11	135			342	162	659					0
	7:30 AM				14		2	12	167			285	152	632		1			1
	7:45 AM				10		6	18	147			303	181	665					0
	8:00 AM				13		5	15	167			299	164	663					0
	8:15 AM				14		4	20	168			358	147	711					0
	8:30 AM				16		5	16	159			326	164	686					0
	8:45 AM				21		5	17	175			377	185	780					0
	VOLUMES	0	0	0	105	0	33	119	1,211	0	0	2,610	1,319	5,397	0	1	0	1	2
	APPROACH %	0%	0%	0%	76%	0%	24%	9%	91%	0%	0%	66%	34%						
	APP/DEPART	0	/	1,438	138	/	0	1,330	/	1,316	3,929	/	2,643	0					
	BEGIN PEAK HR		8:00 AM																
	VOLUMES	0	0	0	64	0	19	68	669	0	0	1,360	660	2,840					
	APPROACH %	0%	0%	0%	77%	0%	23%	9%	91%	0%	0%	67%	33%						
	PEAK HR FACTOR		0.000			0.798			0.960			0.899		0.910					
	APP/DEPART	0	/	728	83	/	0	737	/	733	2,020	/	1,379	0					
PM	4:00 PM				132		11	3	326			187	22	681					0
	4:15 PM				106		21	4	298			182	26	637	1				1
	4:30 PM				113		22	3	297			226	28	689					0
	4:45 PM				114		24	7	257			230	27	659					0
	5:00 PM				148		36	5	296			242	19	746					0
	5:15 PM				103		38	6	275			251	23	696					0
	5:30 PM				104		29	14	232			187	15	581				1	1
	5:45 PM				104		32	11	217			204	20	588					0
	VOLUMES	0	0	0	924	0	213	53	2,198	0	0	1,709	180	5,277	1	0	0	1	2
	APPROACH %	0%	0%	0%	81%	0%	19%	2%	98%	0%	0%	90%	10%						
	APP/DEPART	0	/	233	1,137	/	0	2,251	/	3,122	1,889	/	1,922	0					
	BEGIN PEAK HR		4:30 PM																
	VOLUMES	0	0	0	478	0	120	21	1,125	0	0	949	97	2,790					
	APPROACH %	0%	0%	0%	80%	0%	20%	2%	98%	0%	0%	91%	9%						
	PEAK HR FACTOR		0.000			0.813			0.952			0.954		0.935					
	APP/DEPART	0	/	118	598	/	0	1,146	/	1,603	1,046	/	1,069	0					



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Kimley»Horn

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Genesee Avenue @ N. Torrey Pines Road

AM Period (7:00 AM - 9:00 AM)

		Westbound		Northbound		Eastbound		
		Thru	Left	Right	Left	Right	Thru	TOTAL
7:00 AM		208	107	55	43	50	87	550
7:15 AM		153	130	47	69	65	106	570
7:30 AM		186	148	78	113	48	82	655
7:45 AM		221	95	47	117	87	103	670
8:00 AM		277	103	77	102	66	78	703
8:15 AM		177	113	61	99	78	135	663
8:30 AM		285	99	75	124	80	80	743
8:45 AM		210	128	80	146	97	108	769
Total		1,717	923	520	813	571	779	5,323

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.94**

		Westbound		Northbound		Eastbound		TOTAL
		Thru	Left	Right	Left	Right	Thru	
Volume		949	443	293	471	321	401	2,878
PHF		0.83	0.87	0.92	0.81	0.83	0.74	0.94
Movement PHF		0.91		0.85		0.85		0.94

PM Period (4:00 PM - 6:00 PM)

		Westbound		Northbound		Eastbound		
		Thru	Left	Right	Left	Right	Thru	TOTAL
4:00 PM		88	127	93	120	173	175	776
4:15 PM		37	87	92	120	175	239	750
4:30 PM		100	120	113	151	222	161	867
4:45 PM		40	100	99	142	190	226	797
5:00 PM		63	187	84	148	237	199	918
5:15 PM		18	145	72	99	186	109	629
5:30 PM		22	189	97	115	214	169	806
5:45 PM		24	211	75	74	164	198	746
Total		392	1,166	725	969	1,561	1,476	6,289

PM Intersection Peak Hour : **4:15 PM - 5:15 PM** Intersection PHF : **0.91**

		Westbound		Northbound		Eastbound		TOTAL
		Thru	Left	Right	Left	Right	Thru	
Volume		240	494	388	561	824	825	3332
PHF		0.6	0.66	0.858	0.929	0.869	0.863	0.91
Movement PHF		0.73		0.90		0.95		0.91

Turn Count Summary

Kimley»Horn

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location:	Genesee Avenue	@	N. Torrey Pines Road
Date of Count:	*Tuesday, May 12, 2015*		
Analysts:	*LV/CD*		
Weather:	*Sunny*		
AVC Proj No:	*15-0345*		

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	LA JOLLA	PROJECT #:	PDT15-1002-01
9/29/15	NORTH & SOUTH:	Torrey Pines Road	LOCATION #:	1
TUESDAY	EAST & WEST:	John J Hopkins	CONTROL:	SIGNAL

NOTES:

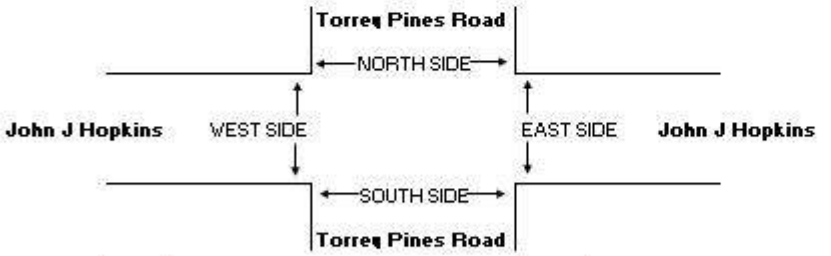
AM / PM / MD / OTHER / OTHER

N ▲ ◄ W E ► S ▼

		NORTHBOUND Torrey Pines Road			SOUTHBOUND Torrey Pines Road			EASTBOUND John J Hopkins			WESTBOUND John J Hopkins			
	LANES:	NL 1	NT 3	NR 0	SL 1	ST 3	SR 0	EL 0	ET 1	ER 0	WL 1.5	WT 0.5	WR 1	TOTAL
AM	7:00 AM	21	153	21	29	98	5	2	6	7	3	2	2	349
	7:15 AM	16	194	40	51	121	12	2	2	16	5	3	7	469
	7:30 AM	17	162	24	45	160	7	4	1	11	2	2	7	442
	7:45 AM	23	204	27	49	154	15	2	1	13	4	3	9	504
	8:00 AM	27	220	14	50	167	8	3	1	9	5	7	11	522
	8:15 AM	27	281	16	91	178	16	2	1	15	6	1	16	650
	8:30 AM	33	219	15	61	171	16	5	0	14	7	0	14	555
	8:45 AM	31	202	20	56	220	16	6	2	24	9	7	13	606
	VOLUMES	195	1,635	177	432	1,269	95	26	14	109	41	25	79	4,097
	APPROACH %	10%	81%	9%	24%	71%	5%	17%	9%	73%	28%	17%	54%	
	APP/DEPART	2,007	/	1,740	1,796	/	1,419	149	/	623	145	/	315	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	118	922	65	258	736	56	16	4	62	27	15	54	2,333
	APPROACH %	11%	83%	6%	25%	70%	5%	20%	5%	76%	28%	16%	56%	
	PEAK HR FACTOR		0.853			0.899			0.641			0.828		0.897
	APP/DEPART	1,105	/	992	1,050	/	825	82	/	327	96	/	189	0
PM	4:00 PM	16	164	2	17	233	5	13	3	40	51	3	54	601
	4:15 PM	11	130	5	25	234	3	11	4	33	27	5	50	538
	4:30 PM	4	196	3	14	263	1	10	1	33	53	5	67	650
	4:45 PM	10	164	1	11	231	4	9	2	18	29	0	76	555
	5:00 PM	5	148	5	14	270	1	11	2	26	63	4	58	607
	5:15 PM	3	166	10	22	240	7	5	3	19	33	1	62	571
	5:30 PM	12	146	6	19	256	6	6	2	21	31	4	43	552
	5:45 PM	7	126	1	13	257	5	5	1	15	20	3	32	485
	VOLUMES	68	1,240	33	135	1,984	32	70	18	205	307	25	442	4,559
	APPROACH %	5%	92%	2%	6%	92%	1%	24%	6%	70%	40%	3%	57%	
	APP/DEPART	1,341	/	1,752	2,151	/	2,496	293	/	186	774	/	125	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	22	674	19	61	1,004	13	35	8	96	178	10	263	2,383
	APPROACH %	3%	94%	3%	6%	93%	1%	25%	6%	69%	39%	2%	58%	
	PEAK HR FACTOR		0.881			0.946			0.790			0.902		0.917
	APP/DEPART	715	/	972	1,078	/	1,278	139	/	88	451	/	45	0

U-TURNS

	NB X	SB X	EB X	WB X	TTL
7:00 AM	2				2
7:15 AM		2			2
7:30 AM	2	1			3
7:45 AM	2				2
8:00 AM	1	3			4
8:15 AM	1	3			4
8:30 AM	1				1
8:45 AM		1			1
VOLUMES	9	10	0	0	19
4:00 PM	1	13			14
4:15 PM	1	23			24
4:30 PM		29			29
4:45 PM	1	8			9
5:00 PM	1	6			7
5:15 PM		14			14
5:30 PM	1	14			15
5:45 PM	4	9			13
VOLUMES	9	116	0	0	125



		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TECHNICAL DATA

DATE:	LOCATION:	LA JOLLA	PROJECT #:	PDT15-1002-01
10/6/15	NORTH & SOUTH:	TORREYANA	LOCATION #:	7
TUESDAY	EAST & WEST:	SCIENCE PARK	CONTROL:	NONE

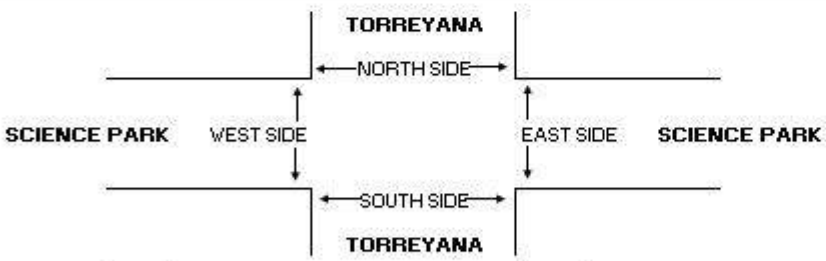
NOTES:

AM
PM
MD
OTHER
OTHER

N
W
E
S

		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
		TORREYANA			TORREYANA			SCIENCE PARK			SCIENCE PARK			
	LANES:	NL X	NT X	NR X	SL 0.5	ST X	SR 0.5	EL 0	ET 1	ER X	WL X	WT 1	WR 0	TOTAL
AM	7:00 AM				5		2	22	20			5	0	54
	7:15 AM				1		9	21	29			0	0	60
	7:30 AM				3		14	39	24			5	0	85
	7:45 AM				5		9	21	28			0	0	63
	8:00 AM				10		22	68	60			6	0	166
	8:15 AM				11		11	43	41			5	0	111
	8:30 AM				6		12	35	38			10	1	102
	8:45 AM				7		12	46	36			5	0	106
	VOLUMES	0	0	0	48	0	91	295	276	0	0	36	1	747
	APPROACH %	0%	0%	0%	35%	0%	65%	52%	48%	0%	0%	97%	3%	
	APP/DEPART	0	/	296	139	/	0	571	/	324	37	/	127	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	0	0	0	34	0	57	192	175	0	0	26	1	485
	APPROACH %	0%	0%	0%	37%	0%	63%	52%	48%	0%	0%	96%	4%	
	PEAK HR FACTOR		0.000			0.711			0.717			0.614		0.730
	APP/DEPART	0	/	193	91	/	0	367	/	209	27	/	83	0
PM	4:00 PM				1		29	14	4			33	4	85
	4:15 PM				0		25	3	3			27	5	63
	4:30 PM				0		34	9	5			37	7	92
	4:45 PM				1		23	7	5			29	5	70
	5:00 PM				0		28	6	6			29	4	73
	5:15 PM				0		20	12	3			24	4	63
	5:30 PM				1		20	8	7			21	3	60
	5:45 PM				0		23	4	2			22	1	52
	VOLUMES	0	0	0	3	0	202	63	35	0	0	222	33	558
	APPROACH %	0%	0%	0%	1%	0%	99%	64%	36%	0%	0%	87%	13%	
	APP/DEPART	0	/	96	205	/	0	98	/	38	255	/	424	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	0	0	0	2	0	111	33	17	0	0	126	21	310
	APPROACH %	0%	0%	0%	2%	0%	98%	66%	34%	0%	0%	86%	14%	
	PEAK HR FACTOR		0.000			0.831			0.694			0.835		0.842
	APP/DEPART	0	/	54	113	/	0	50	/	19	147	/	237	0

U-TURNS				
NB X	SB X	EB X	WB X	TTL
				0
				0
				0
				0
				0
				0
				0
				0
				0
0	0	0	0	0
	1			1
				0
				0
	1			1
				0
				0
	2			2
				0
0	4	0	0	4

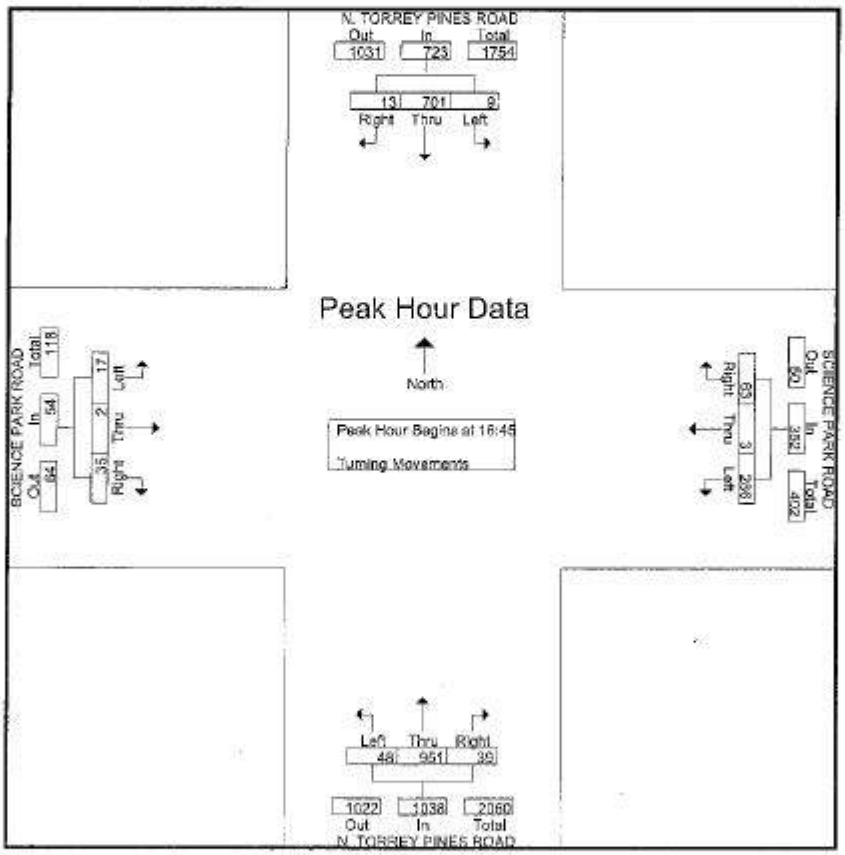


		PEDESTRIAN CROSSINGS					PEDESTRIAN ACTIVATIONS					BICYCLE CROSSINGS				
		N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	N SIDE	S SIDE	E SIDE	W SIDE	TOTAL	NS	SS	ES	WS	TOTAL
AM	7:00 AM					0					0					0
	7:15 AM					0					0					0
	7:30 AM					0					0					0
	7:45 AM					0					0					0
	8:00 AM					0					0					0
	8:15 AM					0					0					0
	8:30 AM					0					0					0
	8:45 AM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PM	4:00 PM					0					0					0
	4:15 PM					0					0					0
	4:30 PM					0					0					0
	4:45 PM					0					0					0
	5:00 PM					0					0					0
	5:15 PM					0					0					0
	5:30 PM					0					0					0
	5:45 PM					0					0					0
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : h1410040
Site Code : 00005062
Start Date : 10/29/2014
Page No : 3

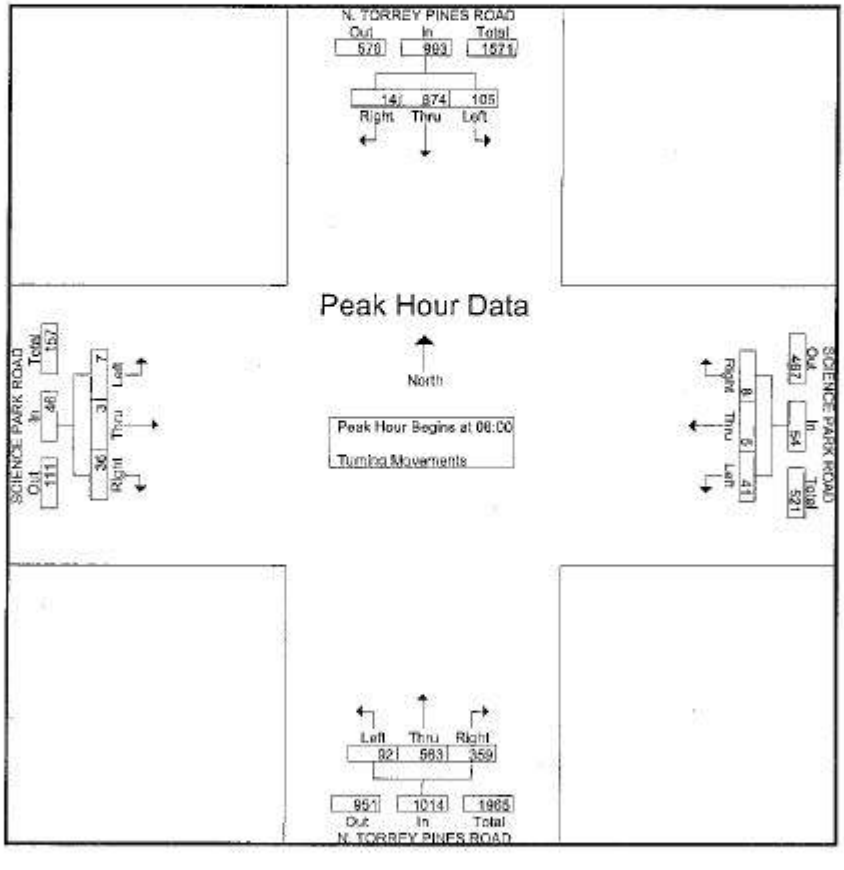
	N. TORREY PINES ROAD Southbound				SCIENCE PARK ROAD Westbound				N. TORREY PINES ROAD Northbound				SCIENCE PARK ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 16:00 to 17:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 16:45																	
16:45	3	143	3	149	11	0	76	87	7	245	12	264	9	1	4	14	514
17:00	1	208	4	213	17	1	71	89	11	246	13	270	6	1	4	11	583
17:15	7	181	1	189	21	1	74	96	8	240	10	258	9	0	5	14	557
17:30	2	169	1	172	14	1	65	80	13	220	13	246	11	0	4	15	513
Total Volume	13	701	9	723	63	3	286	352	39	951	48	1038	35	2	17	54	2167
% App. Total	1.8	97	1.2		17.9	0.9	81.2		3.8	91.6	4.6		64.8	3.7	31.5		
PHF	.464	.843	.563	.849	.750	.750	.941	.917	.750	.966	.923	.961	.795	.500	.850	.900	.929



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

File Name : h1410040
Site Code : 00005062
Start Date : 10/29/2014
Page No : 2

	N. TORREY PINES ROAD Southbound				SCIENCE PARK ROAD Westbound				N. TORREY PINES ROAD Northbound				SCIENCE PARK ROAD Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 to 08:45 - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00																	
08:00	5	210	19	234	5	3	13	21	79	133	24	236	11	1	2	14	505
08:15	3	229	26	258	2	0	12	14	88	130	29	247	7	0	3	10	529
08:30	1	216	26	243	1	1	7	9	90	134	20	244	11	1	0	12	508
08:45	5	219	34	258	0	1	9	10	102	166	19	287	7	1	2	10	565
Total Volume	14	874	105	993	8	5	41	54	359	563	92	1014	36	3	7	46	2107
% App. Total	1.4	88	10.6		14.8	9.3	75.9		35.4	55.5	9.1		78.3	6.5	15.2		
PHF	.700	.954	.772	.962	.400	.417	.788	.643	.880	.848	.793	.883	.818	.750	.583	.821	.932



Transportation Studies, Inc.
2640 Walnut Avenue, Suite H
Tustin, CA. 92780

City: SAN DIEGO
N-S- Direction: N. TORREY PINES ROAD
E-W Direction: SCIENCE PARK ROAD

File Name : h1410040
Site Code : 00005062
Start Date : 10/29/2014
Page No : 1

Groups Printed- Turning Movements

	N. TORREY PINES ROAD Southbound			SCIENCE PARK ROAD Westbound			N. TORREY PINES ROAD Northbound			SCIENCE PARK ROAD Eastbound			
Start Time	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Int. Total
07:00	0	189	8	0	0	8	55	91	25	6	0	3	305
07:15	6	137	7	0	0	6	54	74	36	4	0	1	325
07:30	6	159	12	5	1	5	58	82	23	7	1	0	359
07:45	10	209	19	1	3	12	57	86	36	14	0	1	448
Total	22	614	46	6	4	31	224	333	120	31	1	5	1437
08:00	5	210	19	5	3	13	79	133	24	11	1	2	505
08:15	3	229	26	2	0	12	88	130	29	7	0	3	529
08:30	1	216	26	1	1	7	90	134	20	11	1	0	508
08:45	5	219	34	0	1	9	102	166	19	7	1	2	565
Total	14	874	105	8	5	41	359	563	92	36	3	7	2107
16:00	1	173	3	16	1	71	5	163	20	5	0	2	460
16:15	1	142	2	11	1	75	13	231	14	5	1	3	499
16:30	3	132	1	16	1	73	11	207	10	9	0	5	468
16:45	3	143	3	11	0	76	7	245	12	9	1	4	514
Total	8	590	9	54	3	295	36	846	56	28	2	14	1941
17:00	1	208	4	17	1	71	11	246	13	6	1	4	583
17:15	7	181	1	21	1	74	8	240	10	9	0	5	557
17:30	2	169	1	14	1	65	13	220	13	11	0	4	513
17:45	2	164	5	15	0	51	8	170	12	5	0	3	435
Total	12	722	11	67	3	261	40	876	48	31	1	16	2088
Grand Total	56	2800	171	135	15	628	659	2618	316	126	7	42	7573
Apprch %	1.9	92.5	5.6	17.4	1.9	80.7	18.3	72.9	8.8	72	4	24	
Total %	0.7	37	2.3	1.8	0.2	8.3	8.7	34.6	4.2	1.7	0.1	0.6	

INTERSECTION: Genesee Ave @ Science Center 223 Proc[illegible]n

Coordination Timing By: KT
Implemented On: 5/8/2013

Row	Column # --->				Plan					
	Plan Name --->				AM	MID	PM			
0	Cycle Length				130	128	130			
1	Phase 1 - ForceOff				75	55	55			
2	Phase 2 - ForceOff				0	0	0			
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff									
5	Phase 5 - ForceOff				23	57	55			
6	Phase 6 - ForceOff				0	0	0			
7	Phase 7 - ForceOff				61	41	40			
8	Phase 8 - ForceOff									
9	Ring Offset									
A	Offset A				39	108	55			
B	Offset B									
C	Offset C									
D	Permissive				13	13	13			
E	Hold Release				255	255	255			
F	Ped Shift				0	0	0			

Coordination <C Page>
C + Plan + ROW

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

Row	Time	Plan	Offset	Day of Week
0	06 : 30	4	A	23456
1	10 : 00	5	A	23456
2	13 : 00	6	A	23456
3	18 : 30	E	A	1234567
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination
<9 Key with C+0+9=1>

	Sync Phases
Plan 1	
Plan 2	
Plan 3	
Plan 4	2 6
Plan 5	2 6
Plan 6	2 6
Plan 7	
Plan 8	
Plan 9	
Coord Ped*	
NEMA Hold	

Sync Phases
C + E + FUNCTION #

Row		Lag Phases
0	Free Lag	
1	Plan 1 - Lag	
2	Plan 2 - Lag	
3	Plan 3 - Lag	
4	Plan 4 - Lag	2 5 8
5	Plan 5 - Lag	2 6 8
6	Plan 6 - Lag	2 6 8
7	Plan 7 - Lag	
8	Plan 8 - Lag	
9	Plan 9 - Lag	
A	Coord Max *	
B	Coord Lag *	
C		
D		
E		
F		

Lag Phases <C Page>
C + F + FUNCTION #

Transition Type	0

TBC Transition
C + D + D

Transition Type
0 = Shortway
Non-zero = Lengthen

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

INTERSECTION: Genesee Ave @ Science Center Dr

223 Program

Row	1 Delay	3 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	1I1	14
	2I2U	1
	2I2L	5
	2I3U	21
	2I3L	25
	2I4	9
	3I5	16
	4I6U	3
	4I6L	7
	4I7U	23
	4I7L	27
	4I8	11
	1I9U	18
	3I9L	20
---	---	---
---	---	---

Row	2 Delay	4 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D	10.0	
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	5J1	13
	6J2U	2
	6J2L	6
	6J3U	22
	6J3L	26
	6J4	10
	7J5	15
	8J6U	4
	8J6L	8
	8J7U	24
	8J7L	28
	8J8	12
	5J9U	17
	7J9L	19
---	---	---
---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 – – – –	1234___
C	13 14 15 16 17 18 19 20	12345678
D	– – – – 21 22 23 24	___5678
E	– – – – – – – –	1234___
F	– 25 26 27 28 – – –	_2345___

Active Detectors <D Page>

Row		0 Detector #
0		
1	System Det. # 1	
2	System Det. # 2	
3	System Det. # 3	
4	System Det. # 4	
5	System Det. # 5	
6	System Det. # 6	
7	System Det. # 7	
8	System Det. # 8	

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	0	F+C+1
Time Before Yellow	0.0	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	0	F+D+1
Time Before Yellow	0.0	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

INTERSECTION: Genesee Ave @ Science Center

223 Program

Row	Time	Function	Day of Week	Phases/Bits
0	:			
1	:			
2	:			
3	:			
4	:			
5	:			
6	:			
7	:			
8	:			
9	:			
A	:			
B	:			
C	:			
D	:			
E	:			
F	:			

TOD Function

7 + ROW

<D Page>

D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	
6	Ped 6P	6
7	Ped 4P	7
8	Ped 8P	
9	Yellow Flash Phases	
A	Overlap A - Phases	67
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	1

Configuration

<E Page>

E + F + ROW

Day of Week

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Assign 5 Outputs
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	6
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	1 6
B	EV-B Phases	
C	EV-C Phases	2 5
D	EV-D Phases	
E	Extra 1 Config. Bits	1 345
F	IC Select (Interconnect)	2

Configuration

For access, set F + 9 + E = 1

E + E + ROW

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Prefimed Operation
8 = Split Ring Operation

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Time and Date
8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Program Information
C + C + 0 = program
C + C + F = version

Remote Download
C + 0 + 4 = 1 -255
w/ E + E + E bit 5 on

INTERSECTION: Genesee Ave @ Science Center Dr

223 Program

Group Assignment:
Field Master Assignment:

N/S Street Name: Science Center Dr
E/W Street Name: Genesee Ave

Last Database Change:
System Ref. Number:

N

Row	Column # —> / Phase # —>	1	2	3	4	5	6	7	8
		Genesee					Genesee	Science Center	
0	Ped Walk						7	7	
1	Ped FDW						22	23	
2	Min Green	4	10			4	10	4	
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn	2.0	5.4			2.0	5.3	2.0	
6	Max Gap	2.0	5.4			2.0	5.3	2.0	
7	Min Gap	2.0	0.2			2.0	0.2	2.0	
8	Max Limit	30	60			30	60	40	
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1				0.1		
D	Every		0.6				0.6		
E	Yellow	3.4	5.9			3.4	5.0	3.9	
F	Red Clear	1.0	1.0			1.0	1.0	1.0	

Phase Timing - Bank 1
F + Phase + Row

<F Page>

	E
RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	
EV-B Clear	
EV-C Delay	0
EV-C Clear	0
EV-D Delay	
EV-D Clear	
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing
F + E + Row

Row		F
0	Permit	12__567_
1	Red Lock	
2	Yellow Lock	
3	Min Recall	
4	Ped Recall	
5	Peds (View)	____67_
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	_2___6__
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	_2___6__
F	1st Phases	_____7_

Phase Functions <F Page>
F + F + Row

Max Initial	0	F + 0 + E
Red Revert	5.0	F + 0 + F
All Red Start	0.0	F + C + O

Start / Revert Times

Drop Number	12	C + 0 + 0
Zone Number	12	C + 0 + 1
Area Number	4	C + 0 + 2
Area Address	127	C + 0 + 3
QuicNet Channel	COM50	(QuicNet)

Communication Addresses

Overlap Timing

	Row	C Green Clear	D Yellow Change	E Red Clear	0 Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page>
F + COLOR +

<D Page>
D + 0 + OVERLAP

Manual Plan	0	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

		Row
C + F + O		
Free Lag	_2___6_8	0

Lag Phases <C Page>

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	_234_

Disable Communication Ports
D + D + 9

Timing Sheet By: KT
Approved By: FLG
Drawing Number: 25587-D-19
Timing Implemented On: 6/19/13

INTERSECTION: Genesee Ave @ John Jay Hopki[illegible]

223 Proc[illegible]n

Coordination Timing By: [illegible]
Implemented On: 5/8/2013

Row	Column # --> / Plan Name -->				AM	MID	PM			
0	Cycle Length				130	128	130			
1	Phase 1 - ForceOff									
2	Phase 2 - ForceOff				0	16	0			
3	Phase 3 - ForceOff				64	57	41			
4	Phase 4 - ForceOff				80	80	73			
5	Phase 5 - ForceOff				23	16	86			
6	Phase 6 - ForceOff				0	0	0			
7	Phase 7 - ForceOff									
8	Phase 8 - ForceOff									
9	Ring Offset									
A	Offset A				16	58	22			
B	Offset B									
C	Offset C									
D	Permissive				13	16	13			
E	Hold Release				255	255	255			
F	Ped Shift				0	0	0			

Coordination <C Page>
C + Plan + ROW

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

Row	Time	Plan	Offset	Day of Week
0	06 : 30	4	A	23456
1	10 : 00	5	A	23456
2	13 : 00	6	A	23456
3	18 : 30	E	A	1234567
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination
<9 Key with C+0+9=1>

		Row		
		0	Free Lag	
Plan 1		1	Plan 1 - Lag	
Plan 2		2	Plan 2 - Lag	
Plan 3		3	Plan 3 - Lag	
Plan 4	2 6	4	Plan 4 - Lag	2 45
Plan 5	2 6	5	Plan 5 - Lag	2 45
Plan 6	2 6	6	Plan 6 - Lag	2 4 6
Plan 7		7	Plan 7 - Lag	
Plan 8		8	Plan 8 - Lag	
Plan 9		9	Plan 9 - Lag	
Coord Ped*		A	Coord Max *	
NEMA Hold		B	Coord Lag *	
		C		
		D		
		E		
		F		

Sync Phases
C + E + FUNCTION #

Lag Phases <C Page>
C + F + FUNCTION #

Transition Type	0

TBC Transition
C + D + D

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Transition Type
0 = Shortway
Non-zero = Lengthen

INTERSECTION: Genesee Ave @ John Jay Hopkins

223 Program

Row	1 Delay	1 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		1.8
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	1I1	14
	2I2U	1
	2I2L	5
	2I3U	21
	2I3L	25
	2I4	9
	3I5	16
	4I6U	3
	4I6L	7
	4I7U	23
	4I7L	27
	4I8	11
	1I9U	18
	3I9L	20
---	---	---
---	---	---

Row	2 Delay	2 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	5J1	13
	6J2U	2
	6J2L	6
	6J3U	22
	6J3L	26
	6J4	10
	7J5	15
	8J6U	4
	8J6L	8
	8J7U	24
	8J7L	28
	8J8	12
	5J9U	17
	7J9L	19
---	---	---
---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 – – – –	1234___
C	13 14 15 16 17 18 19 20	12345678
D	– – – – 21 22 23 24	___5678
E	– – – – – – – –	1234___
F	– 25 26 27 28 – – –	_2345___

Active Detectors <D Page>

Row		0 Detector #
0		
1	System Det. # 1	
2	System Det. # 2	
3	System Det. # 3	
4	System Det. # 4	
5	System Det. # 5	
6	System Det. # 6	
7	System Det. # 7	
8	System Det. # 8	

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	0	F+C+1
Time Before Yellow	0.0	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	0	F+D+1
Time Before Yellow	0.0	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

INTERSECTION: Genesee Ave @ John Jay Hopkins

223 Program

Row	Time	Function	Day of Week	Phases/Bits
0	:			
1	:			
2	:			
3	:			
4	:			
5	:			
6	:			
7	:			
8	:			
9	:			
A	:			
B	:			
C	:			
D	:			
E	:			
F	:			

TOD Function

7 + ROW

<D Page>

D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	
6	Ped 6P	6
7	Ped 4P	
8	Ped 8P	3
9	Yellow Flash Phases	
A	Overlap A - Phases	345
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	1

Configuration

<E Page>

E + F + ROW

Day of Week

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Row		
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	4
C	EV-C Phases	1 6
D	EV-D Phases	
E	Extra 1 Config. Bits	1 345
F	IC Select (Interconnect)	2

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

Assign 5 Outputs
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Configuration

For access, set F + 9 + E = 1

E + E + ROW

Time and Date

8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Program Information

C + C + 0 = program
C + C + F = version

Remote Download

C + 0 + 4 = 1-255
w/ E + E + E bit 5 on

INTERSECTION: Genesee Ave @ John Jay Hopkins

223 Program

Group Assignment:
Field Master Assignment:

N/S Street Name: John Jay Hopkins
E/W Street Name: Genesee Ave

Last Database Change:
System Ref. Number:

N

Row	Column # --->	1	2	3	4	5	6	7	8
	Phase # --->		2	3	4	5	6	7	8
			Genesee	Ped	John J. Hopkins		Genesee		
0	Ped Walk			7			7		
1	Ped FDW			31			31		
2	Min Green		10	4	7	4	10		
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn		4.0	0.0	5.0	2.0	3.9		
6	Max Gap		4.0	0.0	5.0	2.0	3.9		
7	Min Gap		0.2	0.0	0.2	2.0	0.2		
8	Max Limit		60	0	40	30	60		
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs								
C	Reduce By		0.1		0.1		0.1		
D	Every		0.8		0.6		0.8		
E	Yellow		5.7	3.0	3.9	3.4	4.9		
F	Red Clear		1.0	0.0	1.0	1.0	1.0		

Phase Timing - Bank 1
F + Phase + Row

<F Page>

	E
RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	0
EV-B Clear	0
EV-C Delay	0
EV-C Clear	0
EV-D Delay	
EV-D Clear	
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing
F + E + Row

Row		F
0	Permit	23456
1	Red Lock	
2	Yellow Lock	
3	Min Recall	
4	Ped Recall	
5	Peds (View)	3 6
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	2 6
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	2 6
F	1st Phases	3

Phase Functions <F Page>
F + F + Row

Max Initial	0	F + 0 + E
Red Revert	5.0	F + 0 + F
All Red Start	0.0	F + C + O

Start / Revert Times

Drop Number	11	C + 0 + 0
Zone Number	11	C + 0 + 1
Area Number	4	C + 0 + 2
Area Address	126	C + 0 + 3
QuicNet Channel	COM50	(QuicNet)

Communication Addresses

C + F + O		Row
Free Lag	2 4 6	0

Lag Phases <C Page>

Overlap Timing

	Row	9 Green Clear	A Yellow Change	B Red Clear	D Load-Switch #
Overlap A					
Overlap B					
Overlap C					
Overlap D					

<F Page>
F + COLOR +

<D Page>
D + 0 + OVERLAP

Manual Plan	0	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	234

Disable Communication Ports
D + D + 9

Timing Sheet By: KT
Approved By: FLG
Drawing Number: 26845-13-D
Timing Implemented On: 6/19/13

INTERSECTION: Genesee Ave @ N Torrey Pines Rd

223 Program

Coordination Timing By: KT
Implemented On: 5/8/2013

Row	Plan Name —>				AM	MID	PM			
	Column # —>									
0	Cycle Length				130	128	130			
1	Phase 1 - ForceOff				86	81	30			
2	Phase 2 - ForceOff				0	0	0			
3	Phase 3 - ForceOff				50	50	84			
4	Phase 4 - ForceOff				46	46	80			
5	Phase 5 - ForceOff									
6	Phase 6 - ForceOff				0	0	0			
7	Phase 7 - ForceOff				10	10	40			
8	Phase 8 - ForceOff				46	46	80			
9	Ring Offset									
A	Offset A				30	70	7			
B	Offset B									
C	Offset C									
D	Permissive				13	13	13			
E	Hold Release				255	255	255			
F	Ped Shift				0	0	0			

Coordination <C Page>
C + Plan + ROW

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

Row	Time	Plan	Offset	Day of Week
0	06 : 30	4	A	23456
1	10 : 00	5	A	23456
2	13 : 00	6	A	23456
3	18 : 30	E	A	1234567
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination
<9 Key with C+0+9=1>

		Row		
		0	Free Lag	
Plan 1		1	Plan 1 - Lag	
Plan 2		2	Plan 2 - Lag	
Plan 3		3	Plan 3 - Lag	
Plan 4	2 6	4	Plan 4 - Lag	23 6 8
Plan 5	2 6	5	Plan 5 - Lag	23 6 8
Plan 6	2 6	6	Plan 6 - Lag	1 3 6 8
Plan 7		7	Plan 7 - Lag	
Plan 8		8	Plan 8 - Lag	
Plan 9		9	Plan 9 - Lag	
Coord Ped*		A	Coord Max *	
NEMA Hold		B	Coord Lag *	
		C		
		D		
		E		
		F		

Sync Phases
C + E + FUNCTION #

Lag Phases <C Page>
C + F + FUNCTION #

Transition Type	0

TBC Transition
C + D + D

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Transition Type
0 = Shortway
Non-zero = Lengthen

INTERSECTION: Genesee Ave @ N Torrey Pines Rd

223 Program

Row	1 Delay	3 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	1I1	14
	2I2U	1
	2I2L	5
	2I3U	21
	2I3L	25
	2I4	9
	3I5	16
	4I6U	3
	4I6L	7
	4I7U	23
	4I7L	27
	4I8	11
	1I9U	18
	3I9L	20
---	---	---
---	---	---

Row	2 Delay	4 Carry-over
0		
1		1.8
2		
3		
4		
5		
6		
7		1.8
8		
9		
A		
B		
C		
D		
E	---	---
F	---	---

Detector Name	332 Input File	Detector Number
	5J1	13
	6J2U	2
	6J2L	6
	6J3U	22
	6J3L	26
	6J4	10
	7J5	15
	8J6U	4
	8J6L	8
	8J7U	24
	8J7L	28
	8J8	12
	5J9U	17
	7J9L	19
---	---	---
---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 – – – –	1234
C	13 14 15 16 17 18 19 20	12345678
D	– – – – 21 22 23 24	5678
E	– – – – – – – –	1234
F	– 25 26 27 28 – – –	2345

Active Detectors <D Page>

Row		0 Detector #
0		
1	System Det. # 1	
2	System Det. # 2	
3	System Det. # 3	
4	System Det. # 4	
5	System Det. # 5	
6	System Det. # 6	
7	System Det. # 7	
8	System Det. # 8	

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	0	F+C+1
Time Before Yellow	0.0	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	0	F+D+1
Time Before Yellow	0.0	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

INTERSECTION: Genesee Ave @ N Torrey Pines Rd

223 Program

Row	Time	Function	Day of Week	Phases/Bits
0	:			
1	:			
2	:			
3	:			
4	:			
5	:			
6	:			
7	:			
8	:			
9	:			
A	:			
B	:			
C	:			
D	:			
E	:			
F	:			

TOD Function

7 + ROW

<D Page>

D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	2
6	Ped 6P	
7	Ped 4P	4
8	Ped 8P	
9	Yellow Flash Phases	
A	Overlap A - Phases	1 8
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	1

Configuration

<E Page>

E + F + ROW

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	8
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2
B	EV-B Phases	
C	EV-C Phases	1 6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 345
F	IC Select (Interconnect)	2

Configuration

E + E + ROW

For access, set F + 9 + E = 1

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Day of Week

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Assign 5 Outputs:
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Time and Date

8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications
(If set to a non-zero value, parity will be disabled)

Program Information
C + C + 0 = program
C + C + F = version

Remote Download
C + 0 + 4 = 1 -255
w/ E + E + E bit 5 on

INTERSECTION: Genesee Ave @ N Torrey Pines Rd

233 Program

Group Assignment:
Field Master Assignment:

N/S Street Name: N Torrey Pi
E/W Street Name: Genesee Av

Last Database Change:
System Ref. Number:

N

Row	Column # → / Phase # →	1 N. Torrey Pines	2 Ped Phase	3 Dummy	4	5	6 Genesee	7 Dummy	8 N. Torrey Pines
0	Ped Walk		7		7				
1	Ped FDW		30		33				
2	Min Green	7	10	1	4		10	7	10
3	Type 3 Limit								
4	Add/Veh								
5	Veh Extn	2.0	4.0	1.0	0.0		3.7	1.0	3.8
6	Max Gap	2.0	4.0	1.0	0.0		3.7	1.0	3.8
7	Min Gap	2.0	0.2	1.0	0.0		0.2	1.0	0.2
8	Max Limit	45	60	0	0		60	0	60
9	Max Limit 2								
A	Bus Adv								
B	Call to Phs				7				3
C	Reduce By		0.1				0.1		0.1
D	Every		0.8				0.9		0.8
E	Yellow	3.4	5.2	3.0	3.0		5.0	3.0	4.3
F	Red Clear	1.0	1.0	0.0	0.0		1.0	0.0	1.0

Phase Timing - Bank 1
F + Phase + Row

<F Page>

RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	
EV-B Clear	
EV-C Delay	0
EV-C Clear	0
EV-D Delay	0
EV-D Clear	0
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing
F + E + Row

Row		
D	Permit	1234_678
1	Red Lock	
2	Yellow Lock	
3	Min Recall	_2__6__
4	Ped Recall	
5	Peds (View)	_2_4___
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	_2__6__
F	1st Phases	___4_7_

Phase Functions <F Page>
F + F + Row

Max Initial	0	F + 0 + E
Red Revert	5.0	F + 0 + F
All Red Start	0.0	F + C + O

Start / Revert Times

Drop Number	5	C + 0 + 0
Zone Number	5	C + 0 + 1
Area Number	4	C + 0 + 2
Area Address	120	C + 0 + 3
QuicNet Channel	COM50	(QuicNet)

Communication Addresses

Overlap Timing

	Row	6 Green Clear	7 Yellow Change	8 Red Clear	9 Load-Switch #
Overlap A	A		4.3	1.0	
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page>
F + COLOR +

<D Page>
D + 0 + OVERLAP

Manual Plan	0	C + A + 1
Manual Offset	0	C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

Timing Sheet By: KT
Approved By: FLG
Drawing Number: 26645-12-D
Timing Implemented On:

C + F + O		Row
Free Lag	_23__6_8	0

Lag Phases <C Page>

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 + 8

Disable Ports	_234_

Disable Communication Ports
D + D + 9

Note: Phase 7 is Dummy for LPI

INTERSECTION: John Jay Hopkins @ N Torrey Pines Rd — 223 Program

Coordination Timing By: KT
Implemented On: 5/8/2013

Row	Plan Name --->	Plan			AM		PM			
	Column # --->									
0	Cycle Length				130		130			
1	Phase 1 - ForceOff				113		104			
2	Phase 2 - ForceOff				24		20			
3	Phase 3 - ForceOff									
4	Phase 4 - ForceOff									
5	Phase 5 - ForceOff				24		20			
6	Phase 6 - ForceOff				0		0			
7	Phase 7 - ForceOff				45		44			
8	Phase 8 - ForceOff				89		88			
9	Ring Offset									
A	Offset A				4		83			
B	Offset B									
C	Offset C									
D	Permissive				24		20			
E	Hold Release				255		255			
F	Ped Shift				0		0			

Coordination <C Page>

C + Plan + ROW

FOR OBSERVATION ONLY

Master Plan	C + A + 2
Current Plan	C + A + 3
Next Plan	C + A + 4
T.O.D. Plan	C + A + 5
Master Cycle	C + A + 0
Ring A Cycle	C + B + 0
Ring B Cycle	C + D + 0
Min Cycle	C + A + E
Max Cycle	C + B + E

Row	Time	Plan	Offset	Day of Week
0	06 : 30	4	A	_23456_
1	10 : 00	E	A	1234567
2	13 : 00	6	A	_23456_
3	18 : 30	E	A	1234567
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

TOD Coordination

<9 Key with C+0+9=1>

		Row		
		0	Free Lag	
Plan 1		1	Plan 1 - Lag	
Plan 2		2	Plan 2 - Lag	
Plan 3		3	Plan 3 - Lag	
Plan 4	2 6	4	Plan 4 - Lag	2 5 8
Plan 5		5	Plan 5 - Lag	
Plan 6	2 6	6	Plan 6 - Lag	2 5 8
Plan 7		7	Plan 7 - Lag	
Plan 8		8	Plan 8 - Lag	
Plan 9		9	Plan 9 - Lag	
Coord Ped*		A	Coord Max *	
NEMA Hold		B	Coord Lag *	
		C		
		D		
		E		
		F		

Sync Phases

C + E + FUNCTION #

Lag Phases <C Page>

C + F + FUNCTION #

Transition Type	0

TBC Transition
C + D + D

Plan Select
1 thru 9 = Coordination Plan 1 thru 9
14 or E = Free
15 or F = Flash

Transition Type
0 = Shortway
Non-zero = Lengthen

INTERSECTION: John Jay Hopkins @ N Torrey Pines F

223 Program

Row	1 Delay	1 Carry-over	Detector Name	332 Input File	Detector Number
0				1I1	14
1		1.8		2I2U	1
2		1.8		2I2L	5
3				2I3U	21
4				2I3L	25
5				2I4	9
6				3I5	16
7				4I6U	3
8				4I6L	7
9				4I7U	23
A				4I7L	27
B				4I8	11
C				1I9U	18
D				3I9L	20
E	---	---	---	---	---
F	---	---	---	---	---

Row	2 Delay	2 Carry-over	Detector Name	332 Input File	Detector Number
0				5J1	13
1		1.8		6J2U	2
2		1.8		6J2L	6
3				6J3U	22
4				6J3L	26
5				6J4	10
6				7J5	15
7		1.8		8J6U	4
8	10.0			8J6L	8
9				8J7U	24
A				8J7L	28
B				8J8	12
C				5J9U	17
D				7J9L	19
E	---	---	---	---	---
F	---	---	---	---	---

Detector Delay & Carryover <D Page>

D + X (across) + ROW

Row	Detector Numbers	E
A	1 2 3 4 5 6 7 8	12345678
B	9 10 11 12 – – – –	1234
C	13 14 15 16 17 18 19 20	12345678
D	– – – – 21 22 23 24	5678
E	– – – – – – – –	1234
F	– 25 26 27 28 – – –	2345

Active Detectors <D Page>

Row		0 Detector #
0		
1	System Det. # 1	
2	System Det. # 2	
3	System Det. # 3	
4	System Det. # 4	
5	System Det. # 5	
6	System Det. # 6	
7	System Det. # 7	
8	System Det. # 8	

System Detectors <D Page>

Max ON (min)	5	D+A+E
Max OFF (min)	60	D+A+F

Detector Failure Monitor

Phase Number	0	F+C+1
Time Before Yellow	0.0	F+C+3

Advance Warning Beacon - Sign 1

Phase Number	0	F+D+1
Time Before Yellow	0.0	F+D+3

Advance Warning Beacon - Sign 2

Long Failure	0.5	F+0+6
Short Failure	0.5	F+0+7

Power Cycle Correction (Default = 0.5)

INTERSECTION: John Jay Hopkins @ N Torrey P[illegible] Rd

223 P[illegible]ram

Row	Time	Function	Day of Week	Column F Phases/Bits
0	:			
1	:			
2	:			
3	:			
4	:			
5	:			
6	:			
7	:			
8	:			
9	:			
A	:			
B	:			
C	:			
D	:			
E	:			
F	:			

TOD Function

7 + ROW

<D Page>

D + F + ROW

T.O.D. Functions
0 = Permitted Phases
1 = Red Lock
2 = Yellow Lock
3 = Veh Min Recall
4 = Ped Recall
5 =
6 = Rest In Walk
7 = Red Rest
8 = Double Entry
9 = Veh Max Recall
A = Veh Soft Recall
B = Maximum 2
C = Conditional Service
D = Free Lag Phases
E = Bit 1 - Local Override
Bit 2 - Phase Bank 2
Bit 3 - Phase Bank 3
Bit 4 - Disable Detector OFF Monitor
Bit 7 - Detector Count Monitor
Bit 8 - Real Time Split Monitor
F = Output Bits 1 thru 4

Row		F
0		
1	RR Overlap A - Phases	
2	RR Overlap B - Phases	
3	RR Overlap C - Phases	
4	RR Overlap D - Phases	
5	Ped 2P	2
6	Ped 6P	6
7	Ped 4P	
8	Ped 8P	8
9	Yellow Flash Phases	
A	Overlap A - Phases	
B	Overlap B - Phases	
C	Overlap C - Phases	
D	Overlap D - Phases	
E	Restricted Phases	
F	Assign 5 Outputs	

Configuration

<E Page>

E + F + ROW

Day of Week

1 = Sunday
2 = Monday
3 = Tuesday
4 = Wednesday
5 = Thursday
6 = Friday
7 = Saturday

Row		E
0	Exclusive Phases	
1	RR-1 Clear Phases	
2	RR-2 Clear Phases	
3	RR-2 Limited Service	
4	Prot / Perm Phases	
5	Overlap A - Green Omit	
6	Overlap B - Green Omit	
7	Overlap C - Green Omit	
8	Overlap D - Green Omit	
9	Overlap Yellow Flash	
A	EV-A Phases	2 5
B	EV-B Phases	7
C	EV-C Phases	1 6
D	EV-D Phases	8
E	Extra 1 Config. Bits	1 345
F	IC Select (Interconnect)	2

Configuration

For access, set F + 9 + E = 1

E + E + ROW

Extra 1 Flags
1 = TBC Type 1
2 = NEMA Ext. Coord
3 = Auto Daylight Savings
4 = EV Advance
5 = Remote Download
6 = Special Event
7 = Pretimed Operation
8 = Split Ring Operation

IC Select Flags
1 =
2 = Modem
3 = 7-Wire Slave
4 = Flash / Free
5 =
6 = Simplex Master
7 = 7-Wire Master
8 = Offset Interrupter

Assign 5 Outputs
1 = Right Turn Overlap
2 = TOD Outputs
3 = EV Beacon - Steady
4 = EV Beacon - Flashing
5 = Special Event Outputs
6 = Phase 3 & 7 Ped
7 = Advanced Warning Sign
8 =

Time and Date

8-0 Hour, Minute, Day-of-Week
8-1 Day-of-Month, Year, Month
8-F Seconds

Disable Parity	0	D+B+0

Dial-Up Telephone Communications

(If set to a non-zero value, parity will be disabled)

Program Information

C + C + 0 = program
C + C + F = version

Remote Download

C + 0 + 4 = 1 -255
w/ E + E + E bit 5 on

INTERSECTION: John Jay Hopkins @ N Torrey Pines Rd

223 Program

Group Assignment:
Field Master Assignment:

N/S Street Name: N Torrey Pines Rd
E/W Street Name: John Jay Hopkins

Last Database Change:
System Ref. Number:

N

Row	Column # --->	1	2	3	4	5	6	7	8
		N Torrey Pines				N Torrey Pines		John J Hopkins	
	Phase # --->	Phase							
0		L	↑			↰	↓	↱	↰↱
1	Ped Walk		7				7		10
2	Ped FDW		14				7		29
3	Min Green	4	10			4	10	4	4
4	Type 3 Limit								
5	Add/Veh								
6	Veh Extn	2.0	6.0			2.0	5.6	2.0	3.2
7	Max Gap	2.0	6.0			2.0	5.6	2.0	3.2
8	Min Gap	2.0	0.2			2.0	0.2	2.0	0.2
9	Max Limit	30	60			30	40	40	40
A	Max Limit 2								
B	Bus Adv								
C	Call to Phs								
D	Reduce By		0.1				0.1		0.1
E	Every		0.5				0.6		1.0
F	Yellow	3.4	5.0			3.4	4.8	3.9	3.9
	Red Clear	1.0	1.0			1.0	1.0	1.0	1.0

Phase Timing - Bank 1
F + Phase + Row

<F Page>

	E
RR-1 Delay	
RR-1 Clear	
EV-A Delay	0
EV-A Clear	0
EV-B Delay	0
EV-B Clear	0
EV-C Delay	0
EV-C Clear	0
EV-D Delay	0
EV-D Clear	0
RR-2 Delay	
RR-2 Clear	
View EV Delay	---
View EV Clear	---
View RR Delay	---
View RR Clear	---

Preempt Timing
F + E + Row

Row		F
0	Permit	12__5678
1	Red Lock	
2	Yellow Lock	
3	Min Recall	
4	Ped Recall	
5	Peds (View)	_2__6_8
6	Rest In Walk	
7	Red Rest	
8	Dbl Entry	
9	Max Recall	
A	Soft Recall	_2__6__
B	Max 2	
C	Cond Serv	
D	Ped Lock	12345678
E	Yellow Start	_2__6__
F	1st Phases	_____7_

Phase Functions <F Page>
F + F + Row

Max Initial	0
Red Revert	5.0
All Red Start	0.0

Start / Revert Times

F + 0 + E
F + 0 + F
F + C + O

Drop Number	7	C + 0 + 0
Zone Number	7	C + 0 + 1
Area Number	4	C + 0 + 2
Area Address	122	C + 0 + 3
QuicNet Channel	COM50	(QuicNet)

Communication Addresses

Overlap Timing

	Row	C Green Clear	D Yellow Change	E Red Clear	G Load-Switch #
Overlap A	A				
Overlap B	B				
Overlap C	C				
Overlap D	D				

<F Page>
F + COLOR +

<D Page>
D + 0 + OVERLAP

Manual Plan	0
Manual Offset	0

C + A + 1
C + B + 1

Manual Selection

Manual Plan
0 = Automatic
1-9 = Plan 1-9
14 = Free
15 = Flash

Manual Offset
0 = Automatic
1 = Offset A
2 = Offset B
3 = Offset C

C + F + O	F	Row
Free Lag	_2__6_8	0

Lag Phases <C Page>

Downtime Flash	255	(minutes)

Downtime Before Auto Manual Flash
F + 0 +8

Disable Ports	_234_

Disable Communication Ports
D + D + 9

Timing Sheet By: KT
Approved By: FLG
Drawing Number: 34991-5-D
Timing Implemented On: 6/19/13

LOCATION: **RTE 5 SB / GENESSE**

CALTRANS C8 Version 3 DATE: 8/5/2016

E PAGE

F+C+F+1+2+3+E+B+ E+PHASES or TYPE+EVENT NO.										
		PHASES		TYPE			PHASES		TYPE	
		C		D			E		F	
0	I1	1		5,6		J1	5		5,6	
1	I2U	2		5,6		J2U	6		5,6	
2	I2L	2		5,6		J2L	6		5,6	
3	I3U	2		5,6		J3U	6		5,6	
4	I3L	2		5		J3L	6		5	
5	I4	2		7,8		J4	6		7,8	
6	I5	3		5,6		J5	7		5,6	
7	I6U	4		5,6		J6U	8		5,6	
8	I6L	4		5,6		J6L	8		5,6	
9	I7U	4		5,6		J7U	8		5,6	
A	I7L	4		5		J7L	8		5	
B	I8	4		7,8		J8	8		7,8	
C	I9U	1		5,6		J9U	5		5,6	
D	I9L	3		5,6		J9L	7		5,6	

DETECTOR TYPE

1 RED LOCK
2 YELLOW LOCK
5 EXTENSION
6 COUNT
7 CALLING
8 TYPE 3 DISCONNECT

D PAGE

DETECTOR SETTINGS									
I FILE					J FILE				
	DELAY		CARRYOVER			DELAY		CARRYOVER	
I1	D10		D30		J1	D2O		D4O	
I2U	D11		D31		J2U	D21		D41	
I2L	D12		D32		J2L	D22		D42	
I3U	D13		D33		J3U	D23		D43	
I3L	D14		D34		J3L	D24		D44	
I4	D15		D35		J4	D25		D45	
I5	D16		D36		J5	D26		D46	
I6U	D17		D37		J6U	D27		D47	
I6L	D18		D38		J6L	D28		D48	
I7U	D19	**10.0**	D39		J7U	D29		D49	
I7L	D1A		D3A		J7L	D2A		D4A	
I8	D1B		D3B		J8	D2B		D4B	
I9U	D1C		D3C		J9U	D2C		D4C	
I9L	D1D		D3D		J9L	D2D		D4D	

REASSIGNS DETECTORS TO VARIOUS PHASES / FUNCTIONS

F-C-F MUST EQUAL ZERO WHEN FINISHED

LOWER CASE NUMBERS ARE DEFAULT VALUES

BLANK SPACES CONTAIN DEFAULTS (DO NOT ZERO OUT)

LOCATION: **RTE 5 SB / GENESSE**

CALTRANS C8 Version 3 DATE: 8/5/2016

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
	HR	MIN	ACT	ON/ OFF	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

ACTIVITY CODE

1 TYPE OF MAX TERMINATION
2 MAX 2
3 MAX 3
4 COND SERV (1ST SELECT)
5 COND SERV (2ND SELECT)
6 ENERGIZE AUX OUTPUT-RED

7 ENERGIZE AUX OUTPUT-GREEN

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0	**06**	**45**	**4**	**A**		**2**	**3**	**4**	**5**	**6**	
1	**08**	**15**	**6**	**A**		**2**	**3**	**4**	**5**	**6**	
2	**10**	**00**	**3**	**A**		**2**	**3**	**4**	**5**	**6**	
3	**15**	**00**	**1**	**A**		**2**	**3**	**4**	**5**	**6**	
4	**18**	**30**	**E**			**2**	**3**	**4**	**5**	**6**	
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

8 ENERGIZE AUX OUTPUT-YELLOW

9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

9 PAGE CO9 = 2

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
	HR	MIN	CP	OS	S 1	M 2	T 3	W 4	T 5	F 6	S 7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

LOCATION: **RTE 5 SB / GENESSE**

CALTRANS C8 Version 3 DATE: 8/5/2016

D PAGE

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1	**1**								CP 1				**4**					CP 1								
2	CP 2									CP 2	**1**								CP 2								
3	CP 3									CP 3									CP 3								
4	CP 4									CP 4				**4**					CP 4								
5	CP 5									CP 5				**4**					CP 5								
6	CP 6									CP 6				**4**					CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8									CP 8								
9	CP 9									CP 9									CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8

E PAGE

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED		**2**							5
6										6 PED						**6**			6
7										4 PED				**4**					7
8										8 PED								**8**	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

LAST POWER FAILURE REGISTER

HOUR = D-A-E

MINUTE = D-B-E

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES

(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES

(CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

84 = BAD

85 = GOOD

LOCATION: **RTE 5 SB / GENESSE**

CALTRANS C8 Version 3 DATE: 7/26/2012

C PAGE

		CONTROL PLANS									Y-COORD			LAG PHASE		FLAGS									
		1	2	3	4	5	6	7	8	9		C	D	E		F	1	2	3	4	5	6	7	8	
0	CYCLE LENGTH	**90**	**90**	**100**	**90**	**100**	**90**									LAG FZ FREE		**2**		**4**		**6**		**8**	0
1	FZ1 GRN FCTR	**20**	**18**	**40**	**18**	**15**	**15**							GAPOUT CP1		LAG FZ CP 1		**2**		**4**		**6**		**8**	1
2														GAPOUT CP2		LAG FZ CP 2		**2**		**4**		**6**		**8**	2
3	FZ3 GRN FCTR	**0**	**0**	**0**	**0**	**0**	**0**							GAPOUT CP3		LAG FZ CP 3		**2**		**4**		**6**		**8**	3
4	FZ4 GRN FCTR	**18**	**25**	**18**	**40**	**28**	**50**				PERM TIME			GAPOUT CP4		LAG FZ CP 4		**2**		**4**		**6**		**8**	4
5	FZ5 GRN FCTR										LAG OFFSET			GAPOUT CP5		LAG FZ CP 5		**2**		**4**		**6**		**8**	5
6											FORCE OFF			GAPOUT CP6		LAG FZ CP 6		**2**		**4**		**6**		**8**	6
7	FZ7 GRN FCTR	**0**	**0**	**0**	**0**	**0**	**0**				LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	**0**	**0**	**0**	**0**	**0**	**0**				NO GREEN			GAPOUT CP8		LAG FZ CP 8									8
9	MULTI CYCLE	**0**	**0**	**0**	**0**	**0**	**0**							GAPOUT CP9		LAG FZ CP 9									9
A	OFFSET A	**0**	**0**	**0**	**0**	**0**	**0**				OFFSET					LAG C COORD									A
B	OFFSET B															LAG D COORD									B
C	OFFSET C															COORD FAZES		**2**				**6**			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 5 NB RAMP

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		**1**
2		
3		
4		
5		
6		
7		
8		

COO = **1**

CCB/CDB OFFSET TIMER
CCC/CDC LAG GREEN TIMER
CCD/CDD FORCE OFF TIMER
CCE/CDE LONG GREEN TIMER
CCF/CDF NO GREEN TIMER

LOCATION: **RTE 5 SB / GENESSE**

CALTRANS C8 Version 3 DATE: 8/5/2016

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9	PRE-EMPTION E		F FLAGS	1	2	3	4	5	6	7	8	
0	WALK	1	1	1	1	1	1	1	1	CLK RST	EV SEL	0	PERMIT	1	2	3	4	5	6	7	8	0
1	DONT WALK	1	1	1	1	1	1	1	1		RR1 CLR	5	RED LOCK									1
2	MIN GREEN	5	10	1	13	1	10	1	1		EVA DLY	0	YEL LOCK									2
3	TYPE 3 DET	0	0	0	0	0	0	0	0		EVA CLR	5	V RECALL	1	2				6			3
4	ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		EVB DLY	0	P RECALL									4
5	PASSAGE	2.0	2.0	0.9	2.0	0.9	2.0	0.9	0.9		EVB CLR	5	PED PHASES									5
6	MAX GAP	2.0	2.0	0.9	2.0	0.9	2.0	0.9	0.9		EVC DLY	0	RT OLA									6
7	MIN GAP	2.0	2.0	0.9	2.0	0.9	2.0	0.9	0.9		EVC CLR	5	RT OLB									7
8	MAX EXT	35	30	9	40	9	40	9	9		EVD DLY	0	DBL ENTRY									8
9	MAX 2									YR	EVD CLR	5	MAX 2 PHASES									9
A	MAX 3									MO	MAX EV	255	LAG PHASES	READ ONLY								A
B										DAY	RR2 CLR	5	RED REST									B
C	REDUCE BY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DOW			REST-IN-WALK									C
D	EVERY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	HR			MAX 3 PHASES									D
E	YELLOW	3.7	5.2	3.0	4.1	3.0	5.2	3.0	3.0	MIN			YEL START UP		2				6			E
F	RED	1.0	2.0	1.0	1.0	1.0	2.0	1.0	1.0	SEC			FIRST PHASE				4					F
	PED XING FT		28		72		21							1	2	3	4	5	6	7	8	
	PED XING FT		28		94		58															

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5
FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0
FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1
CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

ENTRIES IN THESE LOCATIONS ARE NOT TO BE CHANGED

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

LOCATION: **RTE 5 NB @ GENESEE**

CALTRANS C8 Version 3

DATE: 8/5/2016

E PAGE

F+C+F+1+2+3+E+B+ E+PHASES or TYPE+EVENT NO.										
		PHASES		TYPE			PHASES		TYPE	
		C		D			E		F	
0	I1	1		5,6		J1	5		5,6	
1	I2U	2		5,6		J2U	6		5,6	
2	I2L	2		5,6		J2L	6		5,6	
3	I3U	2		5,6		J3U	6		5,6	
4	I3L	2		5		J3L	6		5	**5,6**
5	I4	2		7,8		J4	6		7,8	**5,6**
6	I5	3		5,6		J5	7		5,6	
7	I6U	4		5,6		J6U	8		5,6	
8	I6L	4		5,6		J6L	8		5,6	
9	I7U	4	**5**	5,6		J7U	8		5,6	
A	I7L	4	**5**	5		J7L	8		5	**5,6**
B	I8	4		7,8		J8	8		7,8	**5,6**
C	I9U	1		5,6		J9U	5	**8**	5,6	
D	I9L	3		5,6		J9L	7	**8**	5,6	

DETECTOR TYPE

1 RED LOCK

2 YELLOW LOCK

5 EXTENSION

6 COUNT

7 CALLING

8 TYPE 3 DISCONNECT

D PAGE

DETECTOR SETTINGS									
I FILE					J FILE				
	DELAY		CARRYOVER			DELAY		CARRYOVER	
I1	D10		D30		J1	D20		D40	
I2U	D11		D31		J2U	D21		D41	
I2L	D12		D32		J2L	D22		D42	
I3U	D13		D33		J3U	D23		D43	
I3L	D14		D34		J3L	D24		D44	
I4	D15		D35		J4	D25		D45	
I5	D16		D36		J5	D26		D46	
I6U	D17		D37		J6U	D27		D47	
I6L	D18		D38		J6L	D28		D48	
I7U	D19		D39		J7U	D29		D49	
I7L	D1A		D3A		J7L	D2A		D4A	
I8	D1B		D3B		J8	D2B		D4B	
I9U	D1C		D3C		J9U	D2C		D4C	
I9L	D1D		D3D		J9L	D2D		D4D	

REASSIGNS DETECTORS TO VARIOUS PHASES / FUNCTIONS

F-C-F MUST EQUAL ZERO WHEN FINISHED

LOWER CASE NUMBERS ARE DEFAULT VALUES

BLANK SPACES CONTAIN DEFAULTS (DO NOT ZERO OUT)

LOCATION: **RTE 5 NB @ GENESEE**

CALTRANS C8 Version 3 DATE: 8/5/2016

7 PAGE

TIME OF DAY ACTIVITY TABLE											
7+EVENT+HR+MIN+ACT+"E"+ON/OFF+DOW LTS											
				ON/	S	M	T	W	T	F	S
	HR	MIN	ACT	OFF	1	2	3	4	5	6	7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

ACTIVITY CODE

1 TYPE OF MAX TERMINATION
2 MAX 2
3 MAX 3
4 COND SERV (1ST SELECT)
5 COND SERV (2ND SELECT)
6 ENERGIZE AUX OUTPUT-RED

7 ENERGIZE AUX OUTPUT-GREEN

9 PAGE C09 = 0 or 1

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
					S	M	T	W	T	F	S
	HR	MIN	CP	OS	1	2	3	4	5	6	7
0	**06**	**45**	**4**	**A**		**2**	**3**	**4**	**5**	**6**	
1	**08**	**15**	**6**	**A**		**2**	**3**	**4**	**5**	**6**	
2	**10**	**00**	**3**	**A**		**2**	**3**	**4**	**5**	**6**	
3	**15**	**00**	**1**	**A**		**2**	**3**	**4**	**5**	**6**	
4	**18**	**30**	**E**			**2**	**3**	**4**	**5**	**6**	
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

8 ENERGIZE AUX OUTPUT-YELLOW

9 TIME OF DAY MAX RECALL (1ST SELECT)
A TRAFFIC ACT. MAX 2 OPERATION
B TIME OF DAY MAX RECALL (2ND SELECT)
C YELLOW YIELD COORDINATION
D YELLOW YIELD COORDINATION
E TIME OF DAY FREE OPERATION
F FLASHING OPERATION

9 PAGE CO9 = 2

CONTROL PLAN TIME OF DAY											
9+EVENT+HR+MIN+CP+OS+E+DOW											
					S	M	T	W	T	F	S
	HR	MIN	CP	OS	1	2	3	4	5	6	7
0											
1											
2											
3											
4											
5											
6											
7											
8											
9											
A											
B											
C											
D											
E											
F											

LOCATION: **RTE 5 NB @ GENESEE**

CALTRANS C8 Version 3

DATE: 8/5/2016

D PAGE

	D	FLAGS								E	FLAGS								F	FLAGS							
	MAX	1	2	3	4	5	6	7	8	MIN	1	2	3	4	5	6	7	8	PED	1	2	3	4	5	6	7	8
0	RCL									RCL									RCL								
1	CP 1					5				CP 1								8	CP 1								
2	CP 2									CP 2					5				CP 2								
3	CP 3									CP 3									CP 3								
4	CP 4									CP 4					5			8	CP 4								
5	CP 5									CP 5					5			8	CP 5								
6	CP 6									CP 6					5			8	CP 6								
7	CP 7									CP 7									CP 7								
8	CP 8									CP 8									CP 8								
9	CP 9									CP 9									CP 9								
A																			RCL 1								
B																			RCL 2								
C																											
D																											
E																											
F																											
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8

E PAGE

	E	FLAGS								F	FLAGS								
	FUNCTION	1	2	3	4	5	6	7	8	FUNCTION	1	2	3	4	5	6	7	8	
0										CODE 4									0
1										CODE 5									1
2										C-RECALL									2
3										D-RECALL									3
4										EXCLUSIVE									4
5										2 PED		2							5
6										6 PED						6			6
7										4 PED				4					7
8										8 PED								8	8
9																			9
A	OLA NOT									OLA ON									A
B	OLB NOT									OLB ON									B
C	OLC NOT									OLC ON									C
D	OLD NOT									OLD ON									D
E																			E
F																			F
		1	2	3	4	5	6	7	8		1	2	3	4	5	6	7	8	

LAST POWER FAILURE REGISTER

HOUR = D-A-E

MINUTE = D-B-E

DAY = D-C-E

RCL 1 = TIME OF DAY MAX RECALL (1ST SELECT) PHASES

(CALL ACTIVE LIGHTS)

RCL 2 = TIME OF DAY MAX RECALL (2ND SELECT) PHASES

(CALL ACTIVE LIGHTS)

LAST FLASH TIME REGISTER

HOUR = D-A-F

MINUTE = D-B-F

DAY = D-C-F

D-E-E = C8 VERSION NUMBER

D-E-F = LITHIUM BATTERY CONDITION

84 = BAD

85 = GOOD

LOCATION: **RTE 5 NB @ GENESEE**

CALTRANS C8 Version 3 DATE: 7/26/2012

C PAGE

		CONTROL PLANS									Y-COORD			LAG PHASE		FLAGS									
		1	2	3	4	5	6	7	8	9		C	D	E		F	1	2	3	4	5	6	7	8	
0	CYCLE LENGTH	**90**	**90**	**100**	**90**	**100**	**90**									LAG FZ FREE		**2**		**4**		**6**		**8**	0
1	FZ1 GRN FCTR	**0**	**0**	**0**	**0**	**0**	**0**							GAPOUT CP1		LAG FZ CP 1		**2**		**4**		**6**		**8**	1
2														GAPOUT CP2		LAG FZ CP 2		**2**		**4**		**6**		**8**	2
3	FZ3 GRN FCTR	**0**	**0**	**0**	**0**	**0**	**0**							GAPOUT CP3		LAG FZ CP 3		**2**		**4**		**6**		**8**	3
4	FZ4 GRN FCTR	**0**	**0**	**0**	**0**	**0**	**0**				PERM TIME			GAPOUT CP4		LAG FZ CP 4		**2**		**4**		**6**		**8**	4
5	FZ5 GRN FCTR	**35**	**25**	**25**	**28**	**15**	**25**				LAG OFFSET			GAPOUT CP5		LAG FZ CP 5		**2**		**4**		**6**		**8**	5
6											FORCE OFF			GAPOUT CP6		LAG FZ CP 6		**2**		**4**		**6**		**8**	6
7	FZ7 GRN FCTR	**0**	**0**	**0**	**0**	**0**	**0**				LONG GRN			GAPOUT CP7		LAG FZ CP 7									7
8	FZ8 GRN FCTR	**15**	**40**	**25**	**35**	**35**	**35**				NO GREEN			GAPOUT CP8		LAG FZ CP 8									8
9	MULTI CYCLE	**0**	**0**	**0**	**0**	**0**	**0**							GAPOUT CP9		LAG FZ CP 9									9
A	OFFSET A	**43**	**45**	**50**	**55**	**50**	**45**				OFFSET					LAG C COORD									A
B	OFFSET B															LAG D COORD									B
C	OFFSET C															COORD FAZES		**2**				**6**			C
D	FZ 3 EXT																								D
E	FZ 7 EXT																								E
F	OFFSET INTRPT																								F
																	1	2	3	4	5	6	7	8	

CO1 MANUAL CP
CO2 MASTER CP
CO3 CURRENT CP
CO4 LAST CP
CO7 TRNSMT CP
COD MANUAL OFFSET
CAO LOCAL CYCLE TIMER
CBO MASTER CYCLE TIMER
CAA LOCAL OFFSET
CBA MASTER OFFSET

SYSTEM MASTER:
RTE 5 NB RAMP

FEATURE	OFF	ON
1		
2		
3		
4		
5		
6		
7		
8		

LOCATION	OFF	ON
1		
2		**1**
3		
4		
5		
6		
7		
8		

COO = **2**

CCB/CDB OFFSET TIMER
CCC/CDC LAG GREEN TIMER
CCD/CDD FORCE OFF TIMER
CCE/CDE LONG GREEN TIMER
CCF/CDF NO GREEN TIMER

LOCATION: **RTE 5 NB @ GENESEE**

CALTRANS C8 Version 3 DATE: 8/5/2016

F PAGE

	INTERVAL	PHASE TIMING 1	2	3	4	5	6	7	8	9
0	WALK	1	1	1	1	1	1	1	1	CLK RST
1	DONT WALK	1	1	1	1	1	1	1	1	
2	MIN GREEN	1	10	1	1	11	10	1	5	
3	TYPE 3 DET	0	0	0	0	0	0	0	0	
4	ADD/VEH	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
5	PASSAGE	0.9	2.0	0.9	0.9	2.0	2.0	0.9	2.0	
6	MAX GAP	0.9	2.0	0.9	0.9	2.0	2.0	0.9	2.0	
7	MIN GAP	0.9	2.0	0.9	0.9	2.0	2.0	0.9	2.0	
8	MAX EXT	9	40	9	9	35	30	9	45	
9	MAX 2									YR
A	MAX 3									MO
B										DAY
C	REDUCE BY	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	DOW
D	EVERY	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	HR
E	YELLOW	3.0	5.2	3.0	3.0	3.2	5.2	3.0	4.1	MIN
F	RED	1.0	2.0	1.0	1.0	1.0	2.0	1.0	1.0	SEC
	PED XING FT									
	BIKE XING FT		44			63	41			

PRE-EMPTION E	
EV SEL	0
RR1 CLR	5
EVA DLY	0
EVA CLR	5
EVB DLY	0
EVB CLR	5
EVC DLY	0
EVC CLR	5
EVD DLY	0
EVD CLR	5
MAX EV	255
RR2 CLR	5

F FLAGS	1	2	3	4	5	6	7	8	
PERMIT	1	2	3	4	5	6	7	8	0
RED LOCK									1
YEL LOCK									2
V RECALL		2			5	6			3
P RECALL									4
PED PHASES									5
RT OLA									6
RT OLB									7
DBL ENTRY									8
MAX 2 PHASES									9
LAG PHASES	READ ONLY								A
RED REST									B
REST-IN-WALK									C
MAX 3 PHASES									D
YEL START UP		2				6			E
FIRST PHASE				8					F
	1	2	3	4	5	6	7	8	

FOC LONG FAILURE	
FOD SHORT FAILURE	
FOE	0
FOF	5

FCO	3
FC1	3
FC2	10
FCA	0.0
FCB	0.0
FCC	0.0
FCD	0.0

FDO TB SELECT	1
FD3 PED SELECT	0
FD4 7 WIRE	0
FD5 PERMISSIVE	0
FD8 OS SEEKING	1

CO5 FLASH TYPE	1
CC2 DOWNLOAD	1

ENTRIES IN THESE LOCATIONS ARE NOT TO BE CHANGED

ENTRIES IN THESE LOCATIONS CAN BE CHANGED IN CC1 FLASH ONLY

Interstate 5/Genesee Avenue Interchange Reconstruction Project

SAN DIEGO COUNTY, CALIFORNIA
DISTRICT 11 – SD – 05, KP R46.1/R49.1 (PM R28.6/R30.5)
EA 022330; PI 1100000012; SCH No. 2010091064
Federal Project No. HPLU 5004(145)

Initial Study with Mitigated Negative Declaration / Environmental Assessment with Finding of No Significant Impact

Prepared by the
State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

June 2011

Significant Arterial by SANDAG and is part of the Regionally Significant Transportation Network, which consists of interstate freeways, state highways, arterial corridors, and regional transit services, as well as arterial streets that accommodate larger volumes of traffic. All of these multi-modal facilities and services are considered essential to meeting the mobility and accessibility goals of the region. The Project would include the appropriate length of roadway and freeway improvements considering the existing and anticipated future environmental and traffic conditions of the regional transportation network. Specifically, the Project would be of sufficient length to provide a connecting link to facilitate traffic circulation between the east and west sides of I-5. The length of the Genesee Avenue overcrossing would allow for anticipated future freeway widening.

In addition, the Project would allow for future planned improvements to the transportation system, and would not preclude the ultimate I-5 freeway condition. Project features have been designed to be compatible with and allow for such future planned improvements in the Project area. Proposed overcrossings, ramp improvements, auxiliary lanes, and road improvements would provide for the ultimate improved I-5 configuration, inclusive of High Occupancy Vehicle (HOV) lanes. Additionally, bicycle and pedestrian facilities are proposed that would be consistent with planned multi-modal transportation facilities and goals in the Project area.

S.4 PROJECT DESCRIPTION

Proposed Build Alternative (Project)

The Project would reconstruct the I-5/Genesee Avenue interchange to accommodate widening of Genesee Avenue and meet vertical clearance requirements for the overcrossing. Construction of the Project would not preclude the ultimate I-5 freeway condition. The Project would replace the existing Genesee Avenue four-lane overcrossing with a new six-lane overcrossing. The new overcrossing structure would be wider, longer, and higher than the existing structure, and would be shifted slightly to the north (the centerline would shift approximately 16.1 m [53 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. The four ramps at the Genesee Avenue interchange also would be widened and lengthened to accommodate increased (future year [2030]) traffic flows and the proposed overcrossing structure.

The Project includes the addition of auxiliary lanes in both directions between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. A ramp meter would be installed at the Sorrento Valley Road southbound on-ramp to control the volume of potential weaving traffic coming from Sorrento Valley Road during peak periods. Along with the ramp meter, two additional lanes would be added, including an HOV bypass. One additional lane would be added to the Sorrento Valley Road northbound off-ramp.

Implementation of the auxiliary lanes between Genesee Avenue and La Jolla Village Drive would require replacement of the Voigt Drive overcrossing. The Voigt Drive overcrossing structure would be designed such that it does not preclude implementation of other currently planned roadway and transit improvements at that location. The future projects that are currently being planned are the ultimate widening of I-5 and direct access ramps[3] under the proposed I-5 North Coast Corridor project and a Light Rail Transit (LRT) crossing of I-5 adjacent to Voigt Drive under the Mid-Coast Corridor project. To account for these future projects, the

[3] Direct access ramps provide direct access from roadways to high-occupancy vehicle lanes in the center of the freeway.

Traffic and Transportation/Pedestrian and Bicycle Facilities, for specific details on how the Project would be of appropriate length to address traffic and circulation issues.

1.3 PROJECT DESCRIPTION

The Project entails reconstruction of the I-5/Genesee Avenue interchange and related improvements to the freeway, on- and off-ramps, Voigt Drive overcrossing, and Gilman Drive within the City (Figures 1-3a and 1-3b). The Project area includes a portion of the I-5 corridor between the La Jolla Village Drive northbound on-ramp/southbound off-ramp to the south at KP R46.1 (PM R28.6) and the Sorrento Valley Road interchange to the north at KP R49.1 (PM 30.5), as well as segments of Genesee Avenue, Voigt Drive, and Gilman Drive. The purpose of the Project is to reduce congestion and improve the operational efficiency of the I-5/Genesee Avenue interchange.

1.4 PROJECT ALTERNATIVES

This subchapter describes the Project alternatives that were developed by a multi-disciplinary team to achieve the Project purpose and need while avoiding or minimizing environmental impacts. The alternatives described and evaluated in this Initial Study/Environmental Assessment (IS/EA) include the proposed build alternative (Project; i.e., Alternative G2) and the No Build Alternative.

1.4.1 Proposed Build Alternative (Project)

The Project would reconstruct the I-5/Genesee Avenue interchange to accommodate widening of Genesee Avenue and meet vertical clearance requirements for the overcrossing. Construction of the Project would not preclude the ultimate I-5 freeway condition. The Project would replace the existing Genesee Avenue four-lane overcrossing with a new six-lane overcrossing. The new overcrossing structure would be wider, longer, and higher than the existing structure, and would be shifted slightly to the north (the centerline would shift approximately 16.1 m [53 ft]) so that the existing overcrossing could continue to carry traffic during construction of the new overcrossing. Details of the proposed overcrossing are provided below under “Genesee Avenue Overcrossing.” The four ramps at the Genesee Avenue interchange also would be widened and lengthened to accommodate increased (future year [2030]) traffic flows and the proposed overcrossing structure. Details of the proposed ramp improvements are provided below under “Auxiliary Lanes and Ramp Improvements.”

Traffic volumes on the section of I-5 within the Project area in the year 2030 are expected to increase congestion on I-5 and increase queuing on Genesee Avenue. Auxiliary lanes on I-5 are proposed to the north and south of the interchange to improve traffic flow where vehicles are entering and exiting the freeway at Genesee Avenue. The Project includes the addition of auxiliary lanes in both directions between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. A ramp meter would be installed at the Sorrento Valley Road southbound on-ramp to control the volume of potential weaving traffic coming from Sorrento Valley Road during peak periods. Along with the ramp meter, two additional lanes would be added, including an HOV bypass. This improvement would help reduce congestion on I-5 and improve the operation of weaving maneuvers for traffic exiting at Genesee Avenue. One additional lane would be added to the Sorrento Valley Road northbound off-ramp, which, combined with the northbound auxiliary lane, would improve the operation of weaving maneuvers for traffic entering from Genesee Avenue and exiting at Sorrento Valley Road.

sides of I-5 and would be consistent with planned multi-modal transportation facilities and goals in the Project area.

Both the Genesee Avenue and Voigt Drive overcrossings would be improved for bicyclist and pedestrian access. The Genesee Avenue overcrossing would include a sidewalk that is 2 m (6.6 ft) wide, striped/signalized pedestrian crossings, and Americans with Disabilities Act-(ADA-) compliant pedestrian ramps at each intersection. The Voigt Drive overcrossing would include sidewalks and bicycle lanes. Existing free-right turns at the Genesee Avenue interchange would be removed to avoid conflicts with pedestrian and bicycle traffic.

Project components and proposed improvements of the Project are summarized below.

Genesee Avenue Overcrossing

- Remove and replace the existing four-span overcrossing with a new two-span, cast-in-place, pre-stressed reinforced concrete structure similar to the existing overcrossing. The Project proposes to widen the Genesee Avenue overcrossing structure to increase the roadway LOS to current City standards. The new overcrossing would provide for three lanes in each direction and provide two left-turn lanes in each direction. The left-turn lanes would be continuous across the overcrossing structure and extend westward and eastward onto Genesee Avenue to maximize queue storage. The existing Genesee Avenue overcrossing structure has a vertical clearance of 4.6 m (15.2 ft). This vertical clearance does not meet current Caltrans' standards. Current standards require a vertical clearance of 5.1 m (16.5 ft). Due to this existing vertical shortage, any widening of the existing structure also would not meet vertical clearance standards. Therefore, the Project proposes to replace the existing bridge with a wider structure that conforms to Caltrans' vertical clearance standards. The new overcrossing would be increased from 23.2 m (76.1 ft) to 47.2 m (154.9 ft) in width. Additionally, the existing overcrossing structure is not long enough to span the ultimate width of the planned I-5 widening improvements. Such freeway widening improvements would not occur as part of the Project, but are planned by Caltrans as a separate future project. Therefore, the proposed structure would be lengthened from 73.3 m (240.5 ft) to 91.8 m (301.2 ft), which would not preclude the ultimate I-5 freeway condition. The increased structure length would increase the depth of the structure. The increased structure depth and the current non-standard vertical clearance, combined with the need to maintain falsework clearance during construction and maintain current vertical clearance requirements in the future when I-5 is widened, require that the profile along Genesee Avenue be raised. The height of the bridge deck would be increased from 6.1 m (20.0 ft) to 10.3 m (33.8 ft) and the proposed vertical clearance would be 6.8 m (22.2 ft). The vertical clearance would be decreased once I-5 is widened in the future, but would continue to meet current vertical clearance requirements.
- Widen Genesee Avenue to six lanes (three lanes in each direction) east and west of the overcrossing to be consistent with the three lanes in each direction along Genesee Avenue. Construct two dedicated right-turn lanes for the westbound to northbound on-ramp and the eastbound to southbound on-ramp, and two left-turn lanes for the eastbound to northbound on-ramp and the westbound to southbound on-ramp.

Auxiliary Lanes and Ramp Improvements

- Reconstruct existing interchange ramp junctions, ramps, and ramp terminals at the I-5/Genesee Avenue interchange. Widen and lengthen all four ramps to accommodate

increased (future year; i.e., 2030) traffic flows and the increased overcrossing length and height. Widen the Genesee Avenue off-ramps to two lanes to improve traffic flow in the ramp junction areas at higher future year exiting volumes. Widen the off-ramps from two to four lanes (two left-turn and two right-turn lanes) at the ramp terminals allowing sufficient length to store expected queuing. Widen the Genesee Avenue on-ramps to three lanes (two general purpose and one HOV). The northbound on-ramp would taper down to two lanes, and the southbound on-ramp would taper down to one lane.

- Widen the Sorrento Valley Road on-ramp to three lanes (two general-purpose and one HOV) at the terminal intersections, add ramp metering, and then taper down to one lane at the ramp junction with I-5.
- Widen the Sorrento Valley Road off-ramp from one to two lanes at the ramp junction and from two to three lanes at the terminal intersection.
- Construct auxiliary lanes in both directions between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. The auxiliary lanes are being proposed to accommodate projected future year increases in traffic volumes entering and exiting the freeway at Genesee Avenue. Future year entering/exiting traffic volumes would exceed the capacity of the existing direct merge/diverge ramp junction configurations, which would cause increased congestion on I-5 and increased queuing on Genesee Avenue.

Voigt Drive Overcrossing and Gilman Drive Realignment

- Replace the Voigt Drive overcrossing due to implementation of the auxiliary lanes between Genesee Avenue and La Jolla Village Drive. The Voigt Drive overcrossing would be designed so as not to preclude future transportation network improvements. The Voigt Drive overcrossing structure must be designed so as not to preclude the ultimate widening of I-5, and direct access ramp connections being proposed by Caltrans in the proposed I-5 North Coast Corridor project and possible Bus Rapid Transit Superloop and LRT routes along Voigt Drive being proposed by SANDAG.
- To avoid precluding these future projects, the replacement Voigt Drive overcrossing must be longer, widened to five lanes (four through lanes with a center left-turn lane), and the profile lowered. The lower profile of Voigt Drive would assist in reducing the grade and length of the direct access ramps and allow for full grade separation from the proposed future LRT facility. The length of the new overcrossing would be increased from 90.0 m (295.3 ft) to 120.3 m (394.7 ft), and the width would be increased from 12.2 m (40.0 ft) to 29.7 m (97.5 ft). The height of the overcrossing would be lowered from 11.0 m (36.1 ft) to 8.6 m (28.2 ft). These changes to the overcrossing configuration and the ultimate widening proposed for I-5 also require some intersection and realignment modifications to Gilman Drive immediately west of the freeway.
- Realign Gilman Drive and modify the intersection with Voigt Drive, so as not to preclude the proposed and ultimate widening of I-5.

Other Design Components

- Sixteen retaining walls are proposed at various locations along the Project corridor. The walls are expected to be of various types including Type 1, Type 5, soil nail, tie-back, and soldier pile with lagging walls. The maximum heights of the walls range from approximately 1.0 m (3.3 ft) to 15.8 m (51.8 ft). The locations of the proposed retaining walls are shown in Figure 1-4.

increased (future year; i.e., 2030) traffic flows and the increased overcrossing length and height. Widen the Genesee Avenue off-ramps to two lanes to improve traffic flow in the ramp junction areas at higher future year exiting volumes. Widen the off-ramps from two to four lanes (two left-turn and two right-turn lanes) at the ramp terminals allowing sufficient length to store expected queuing. Widen the Genesee Avenue on-ramps to three lanes (two general purpose and one HOV). The northbound on-ramp would taper down to two lanes, and the southbound on-ramp would taper down to one lane.

- Widen the Sorrento Valley Road on-ramp to three lanes (two general-purpose and one HOV) at the terminal intersections, add ramp metering, and then taper down to one lane at the ramp junction with I-5.
- Widen the Sorrento Valley Road off-ramp from one to two lanes at the ramp junction and from two to three lanes at the terminal intersection.
- Construct auxiliary lanes in both directions between the Genesee Avenue ramps and the adjacent ramps for La Jolla Village Drive and Sorrento Valley Road. The auxiliary lanes are being proposed to accommodate projected future year increases in traffic volumes entering and exiting the freeway at Genesee Avenue. Future year entering/exiting traffic volumes would exceed the capacity of the existing direct merge/diverge ramp junction configurations, which would cause increased congestion on I-5 and increased queuing on Genesee Avenue.

Voigt Drive Overcrossing and Gilman Drive Realignment

- Replace the Voigt Drive overcrossing due to implementation of the auxiliary lanes between Genesee Avenue and La Jolla Village Drive. The Voigt Drive overcrossing would be designed so as not to preclude future transportation network improvements. The Voigt Drive overcrossing structure must be designed so as not to preclude the ultimate widening of I-5, and direct access ramp connections being proposed by Caltrans in the proposed I-5 North Coast Corridor project and possible Bus Rapid Transit Superloop and LRT routes along Voigt Drive being proposed by SANDAG.
- To avoid precluding these future projects, the replacement Voigt Drive overcrossing must be longer, widened to five lanes (four through lanes with a center left-turn lane), and the profile lowered. The lower profile of Voigt Drive would assist in reducing the grade and length of the direct access ramps and allow for full grade separation from the proposed future LRT facility. The length of the new overcrossing would be increased from 90.0 m (295.3 ft) to 120.3 m (394.7 ft), and the width would be increased from 12.2 m (40.0 ft) to 29.7 m (97.5 ft). The height of the overcrossing would be lowered from 11.0 m (36.1 ft) to 8.6 m (28.2 ft). These changes to the overcrossing configuration and the ultimate widening proposed for I-5 also require some intersection and realignment modifications to Gilman Drive immediately west of the freeway.
- Realign Gilman Drive and modify the intersection with Voigt Drive, so as not to preclude the proposed and ultimate widening of I-5.

Other Design Components

- Sixteen retaining walls are proposed at various locations along the Project corridor. The walls are expected to be of various types including Type 1, Type 5, soil nail, tie-back, and soldier pile with lagging walls. The maximum heights of the walls range from approximately 1.0 m (3.3 ft) to 15.8 m (51.8 ft). The locations of the proposed retaining walls are shown in Figure 1-4.

Table 2.5-20
YEAR 2030 CONDITIONS –RAMP METER OPERATION SUMMARY

On Ramp	Meter Rate	Peak Hour	Demand*	Excess Demand	Delay (min)
I-5/Genesee Ave (northbound)	230	AM	1,210	980	**>25**
	1,450	PM	2,800	1,350	**>25**
I-5/Genesee Ave (southbound)	490	AM	690	200	**15-25**
	2,000	PM	2,400	400	5-15
I-5/Sorrento Valley Rd (southbound)	1,280	AM	2,130	850	**>25**
	1,700	PM	2,650	950	**>25**

Bold indicates where a roadway segment operates below acceptable levels.
* Volumes of peak hour traffic moving onto ramp expressed in vehicles per hour

Under 2030 conditions, the on-ramps would experience long delays. Delays and queues as shown for this scenario would not likely occur, however, because some drivers would change their travel behavior rather than wait more than 25 minutes at the ramp meters. A probable occurrence would be an increase in the use of the HOV lanes provided at each ramp. With a shift from single-occupancy vehicles to HOV, the queue would be spread to another lane at the ramp.

Bike Path

With construction of the Project, the existing Class III bike route along I-5 would be replaced with a two-way Class I bike path along the southbound I-5 shoulder, with barrier separation. This would improve the facility for both vehicle drivers and bicycle riders.

No Build Alternative

Year 2012 Analysis

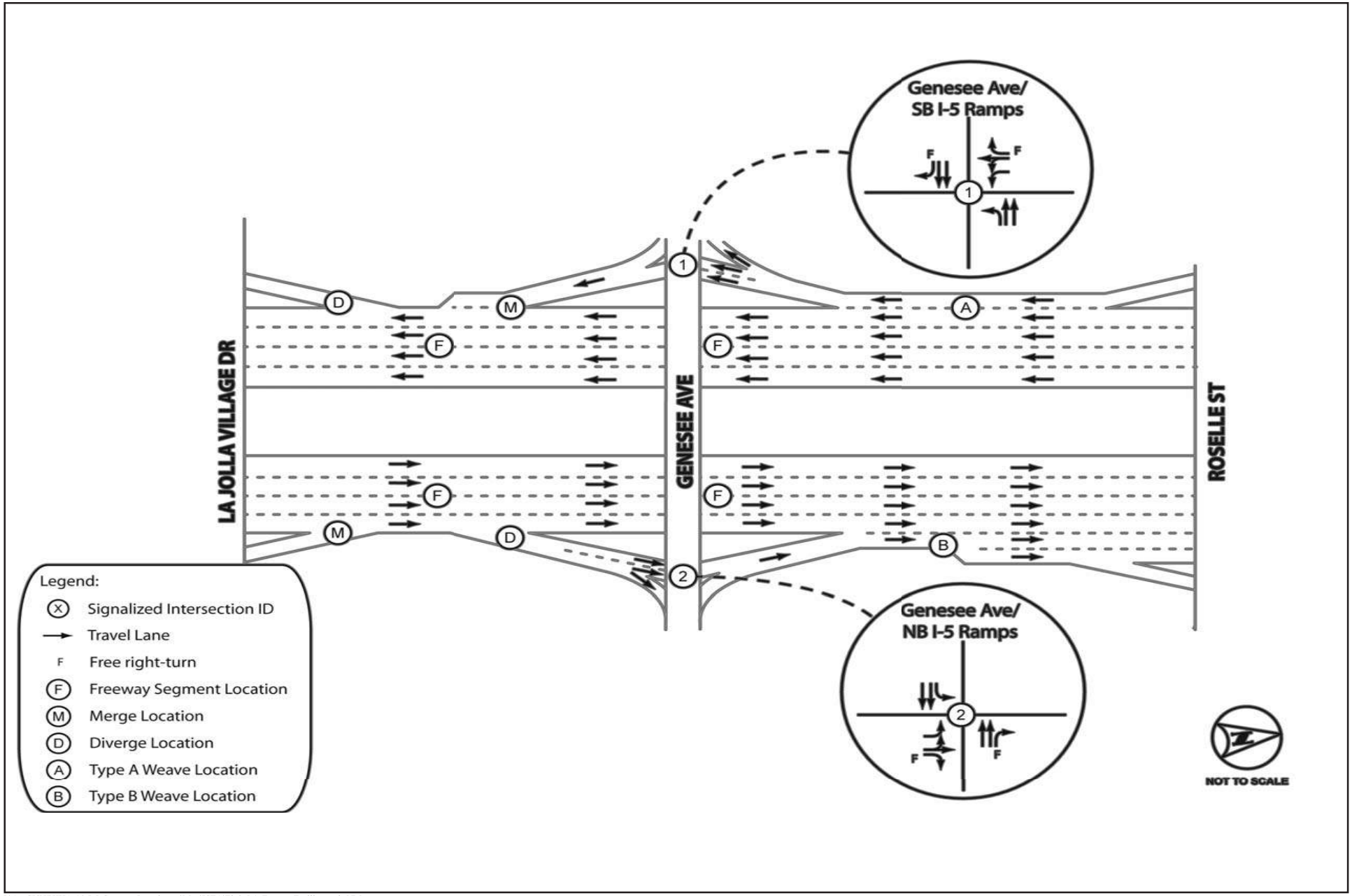
Under 2012 conditions, the No Build Alternative assumes no roadway improvements would be made to the I-5/Genesee Avenue interchange. Also, no freeway facilities improvements would be made. Traffic volumes, however, would continue to increase on local streets and I-5 ramps and mainlines. Previously referenced Tables 2.5-7 through 2.5-12 show projected impacts for the No Build Alternative, as described below.

Intersections

By 2012, Genesee Avenue/southbound I-5 ramps during the PM peak hour and Genesee Avenue/northbound I-5 ramps during the AM and PM peak hours would operate at LOS F (Table 2.5-7).

Roadway Segments

Table 2.5-8 illustrates the roadway segments under the No Build Alternative. As shown in the table, the Genesee Avenue segment between the southbound I-5 ramps and northbound I-5 ramps would operate below acceptable levels (LOS F) in 2012.

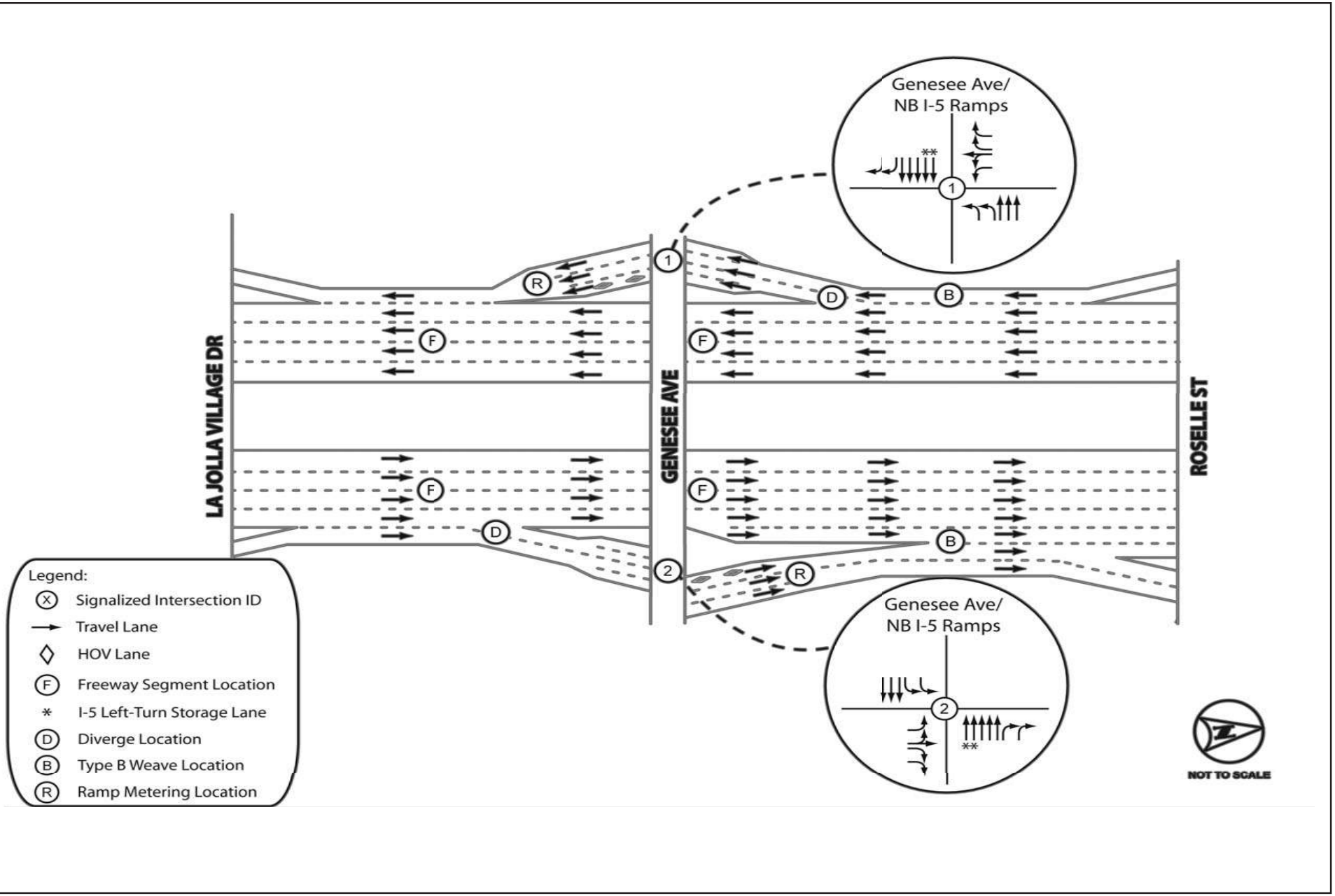


I:\ArcGIS\K\KHA-10 I-5 Genesee Interchange\Map\ISEA\Fig2-5-1_FreewayFacility.pmd -NM

Existing Intersection/Freeway Facility Geometrics

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-2

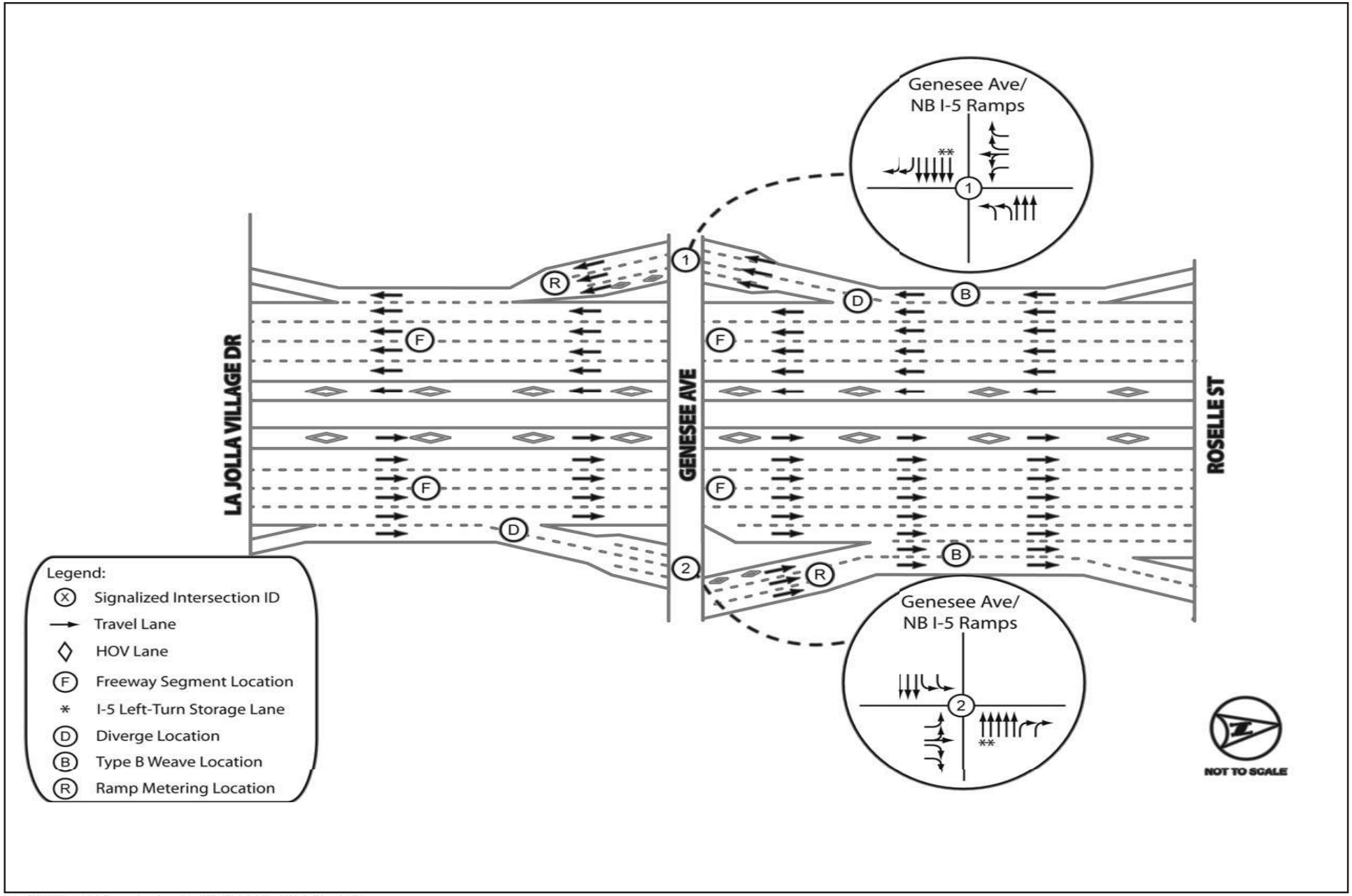


I:\ArcGIS\K\KHA-10 I-5 Genesee Interchange\Map\ISEA\Fig2-5-4_Year2012_Build.pmd -NM

Year 2012 Build Intersection/Freeway Facility Geometrics

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-5

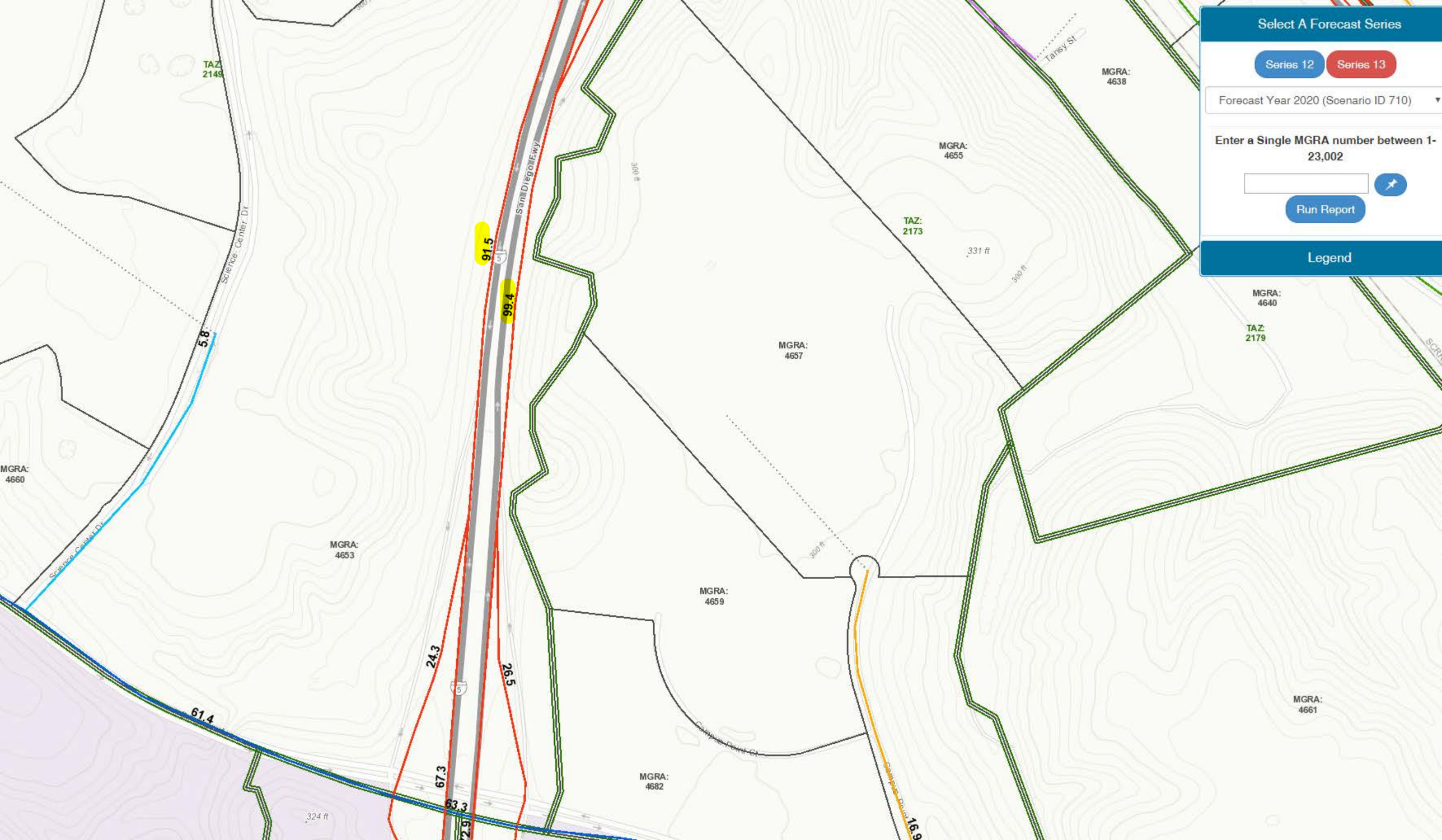


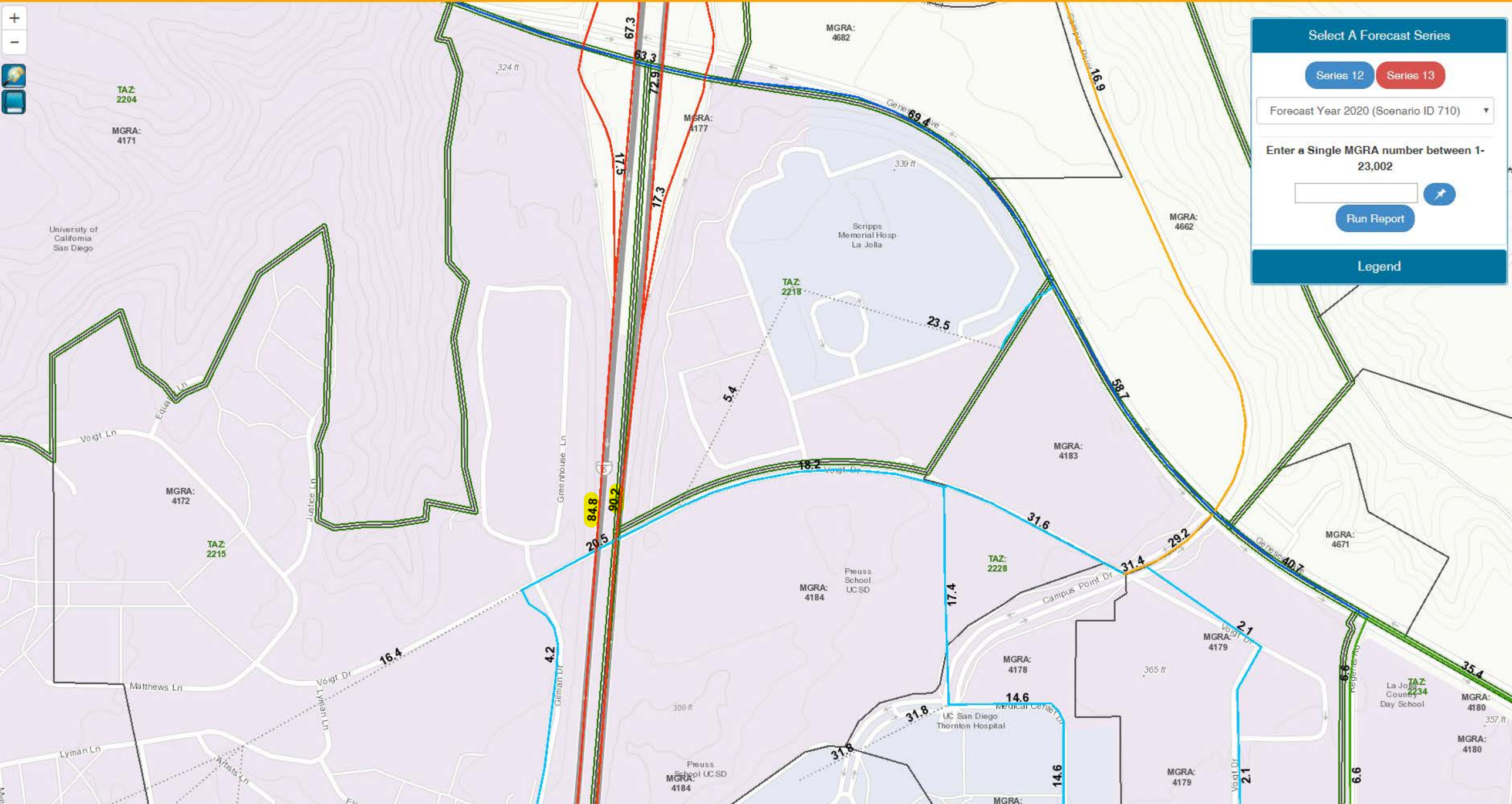
I:\ArcGIS\K\KHA-10 I-5 Genesee Interchange\Map\ISEA\Fig2-5-6_Year2030_Build.pmd -NM

Year 2030 Build Intersection/Freeway Facility Geometrics

INTERSTATE 5/GENESEE AVENUE INTERCHANGE RECONSTRUCTION

Figure 2.5-7


Select A Forecast Series
Series 12
Series 13
Forecast Year 2020 (Scenario ID 710)
Enter a Single MGRA number between 1-23,002
Run Report
Legend
TAZ: 2149
MGRA: 4638
MGRA: 4655
TAZ: 2173
MGRA: 4640
TAZ: 2179
MGRA: 4657
MGRA: 4660
MGRA: 4653
MGRA: 4659
MGRA: 4682
MGRA: 4661
Tansy St
Science Center Dr
San Diego Fwy
Campus Point Cir
Campus Point Dr
91.5
99.4
5.8
61.4
24.3
26.5
67.3
63.3
16.9
331 ft
324 ft
300 ft


Select A Forecast Series
Series 12
Series 13
Forecast Year 2020 (Scenario ID 710)
Enter a Single MGRA number between 1-23,002
Run Report
Legend
MGRA: 4682
MGRA: 4177
MGRA: 4662
MGRA: 4183
MGRA: 4671
MGRA: 4184
MGRA: 4178
MGRA: 4179
MGRA: 4180
MGRA: 4171
MGRA: 4172
TAZ: 2204
TAZ: 2218
TAZ: 2228
TAZ: 2215
TAZ: 2234
University of California San Diego
Scripps Memorial Hosp La Jolla
Preuss School UCSD
UC San Diego Thornton Hospital
La Jolla Country Day School
Voigt Ln
Voigt Dr
Matthews Ln
Lyman Ln
Artists Ln
Eduardo Ln
Justice Ln
Greenhouse Ln
Gilman Dr
Campus Point Dr
Genesee Ave
Medical Center Dr
Nobel Dr
67.3
63.3
72.9
69.4
16.9
17.1
17.3
23.5
5.4
58.7
18.2
84.8
90.2
20.5
31.6
29.2
31.4
40.7
17.4
2.1
16.4
4.2
14.6
31.8
6.6
35.4

									AM PEAK								PM PEAK						
DI	RTE	CO	PRE	PM	CS	LEG	YR	Dir	1 WAY PHV	% K	% D	% KD	HR	DAY	MNTH	Dir	1 WAY PHV	% K	% D	% KD	HR	DAY	MNTH
04	004	CC		12.67	24	A	15	W	3859	8.46	53.73	4.54	7	TUE	DEC	E	3666	7.31	59.04	4.32	15	THU	DEC
04	004	CC	R	20.10	416	A	15	W	6375	5.24	84.4	4.43	5	TUE	JUN	E	6028	6.77	61.85	4.18	17	TUE	MAR
04	004	CC	R	41.96	486	B	15	E	772	8.25	65.37	5.39	11	WED	JUN	E	502	6.36	55.17	3.51	13	WED	JUN
10	004	SJ		4.421	12	O	14	W	499	7.66	74.48	5.71	5	MON	JUN	E	595	10.64	63.91	6.8	16	THU	JUN
10	004	SJ	T	14.05	54	A	16	W	832	7.53	75.29	5.67	6	MON	APR	E	1340	12.21	74.82	9.14	17	FRI	OCT
10	004	SJ		15.91	113	B	15	W	907	7.09	69.4	4.92	6	TUE	OCT	E	1398	10.43	72.7	7.59	16	FRI	JUL
10	004	SJ	T	15.32	116	A	14	W	912	9.13	56.93	5.2	7	THU	AUG	E	1266	9.93	72.68	7.22	16	WED	MAY
10	004	SJ	R	16.06	58	B	14	W	920	7.76	67.6	5.24	6	THU	AUG	E	1266	9.93	72.68	7.21	16	WED	MAY
10	004	SJ	R	16.06	59	A	16	E	3306	8.01	52.59	4.21	7	WED	SEP	E	3182	7.75	52.3	4.05	14	FRI	APR
10	004	SJ		24.87	313	A	16	E	425	9.88	75.49	7.46	11	SAT	FEB	W	481	11.69	72.22	8.44	13	MON	FEB
10	004	SJ		24.87	336	B	16	W	375	10.56	60.98	6.44	11	SUN	JUL	W	438	10.75	69.97	7.52	16	SUN	AUG
11	005	SD	R	.878	501	A	16	S	1670	6.31	61.51	3.88	10	SAT	FEB	S	2892	9.14	73.48	6.72	15	WED	DEC
11	005	SD		4.632	901	A	16	N	5840	4.9	74.38	3.64	6	TUE	OCT	S	7635	7.79	61.18	4.76	17	WED	MAY
11	005	SD	R	11.13	952	A	16	N	8503	6.19	70.12	4.34	6	MON	NOV	S	9144	7.84	59.56	4.67	14	FRI	MAR
11	005	SD	R	12.65	903	A	16	N	8527	6.55	77.97	5.11	6	WED	DEC	S	7990	7.86	60.91	4.79	14	THU	MAY
11	005	SD	R	14.74	956	A	16	N	8302	7.72	60.38	4.66	7	THU	SEP	S	7364	7.04	58.76	4.14	17	TUE	MAY
11	005	SD	R	17.53	896	A	16	N	8435	8.91	59.89	5.34	7	THU	OCT	N	6302	6.9	57.81	3.99	17	THU	AUG
11	005	SD	R	22.26	801	B	16	N	8835	7.05	56.49	3.98	7	TUE	JUL	S	9410	7.79	54.42	4.24	15	THU	MAR
11	005	SD	R	25.95	802	B	16	N	9647	7.6	63.25	4.81	7	TUE	SEP	S	9350	7.72	60.35	4.66	15	THU	SEP
11	005	SD	R	30.68	502	A	16	N	8164	7.02	55.2	3.87	11	FRI	JUL	N	7816	6.98	53.13	3.71	13	FRI	SEP
11	005	SD	R	30.68	803	B	16	S	5910	7.44	54.59	4.06	8	WED	JUL	N	6197	7.9	53.91	4.26	15	THU	NOV
11	005	SD	R	36.27	898	A	16	S	9066	6.99	55.07	3.85	8	THU	APR	N	9269	7.33	53.72	3.94	15	WED	DEC
11	005	SD	R	49.28	904	B	16	S	7367	5.61	65.43	3.67	6	WED	MAR	N	7623	6.71	56.55	3.8	16	TUE	MAR
11	005	SD	R	51.20	905	A	16	N	7496	6.82	53.21	3.63	12	SUN	FEB	N	7560	6.89	53.1	3.66	13	SUN	MAR
11	005	SD	R	53.93	906	B	16	N	6677	7.53	51.86	3.91	11	SUN	AUG	S	6616	7.07	54.71	3.87	15	FRI	APR
12	005	ORA		.483	401	O	16	S	5886	7.63	54.8	4.18	12	SAT	FEB	N	5619	6.68	59.8	3.99	21	SUN	OCT
12	005	ORA		4.995	901	A	14	N	10025	7.97	56.57	4.51	9	SAT	JUN	N	9973	7.88	56.88	4.48	16	FRI	JUN
12	005	ORA	R	25.00	900	O	16	S	10647	7.1	55.33	3.93	7	THU	JUN	S	10820	6.64	60.07	3.99	17	MON	APR
12	005	ORA		30.26	904	B	16	N	11223	6.93	57.74	4	7	WED	OCT	S	9871	5.7	61.78	3.52	17	THU	APR
12	005	ORA		30.26	905	A	16	N	12681	6.72	55.61	3.74	7	TUE	MAY	S	11391	6.07	55.32	3.36	16	MON	MAY
12	005	ORA		33.09	906	A	16	N	12558	5.81	58	3.37	7	THU	OCT	N	12093	6.05	53.64	3.25	16	MON	JAN
07	005	LA		.7	475	A	15	S	5444	5.92	53.78	3.18	6	WED	NOV	S	5304	5.61	55.31	3.1	17	MON	OCT
07	005	LA		15.33	27	O	16	N	7932	5.57	57.01	3.18	4	WED	MAR	S	7937	5.84	54.46	3.18	15	SUN	MAR

Near Term Freeway Segment LOS Summary

Segment	Lanes	Dir.	Cap.	ADT*	AM					PM				
					Peak Hour %	Dir. Split	PHV	V/C	LOS	Peak Hour %	Dir. Split	PHV	V/C	LOS
Interstate 5														
North of Genesee Av.	4-GP + 2-AX	NB	12,760	190,900	0.074	0.45	6,450	0.505	B	0.079	0.54	8,130	0.637	C
North of Genesee Av.	4-GP + 1-AX	SB	11,080	190,900	0.074	0.55	7,753	0.700	C	0.079	0.46	6,951	0.627	C
South of Genesee Av.	4-GP + 1-AX	NB	11,080	175,000	0.074	0.45	5,912	0.534	B	0.079	0.54	7,453	0.673	C
South of Genesee Av.	4-GP + 1-AX	SB	11,080	175,000	0.074	0.55	7,108	0.641	C	0.079	0.46	6,372	0.575	B

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-AX= # of Auxillary Lanes (Assumed Capacity = 1680)
#-HOV= # of High Occupancy Vehicle Lanes (Assumed Capacity = 1680)

Note:
Capacity for LOS "E" roadway is 2,350.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002

Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes, Dated: October 27, 2016

ADT obtained from SANDAG TFIC Series 13 Forecast Year 2020 Model
Refer to **Appendix B** for ADT.

Near Term + Project Freeway Segment LOS Summary

Segment	Lanes	Dir.	Cap.	ADT*	AM					PM				
					Peak Hour %	Dir. Split	PHV	V/C	LOS	Peak Hour %	Dir. Split	PHV	V/C	LOS
Interstate 5														
North of Genesee Av.	4-GP + 2-AX	NB	12,760	190,962	0.074	0.45	6,452	0.506	B	0.079	0.54	8,133	0.637	C
North of Genesee Av.	4-GP + 1-AX	SB	11,080	190,962	0.074	0.55	7,756	0.700	C	0.079	0.46	6,953	0.628	C
South of Genesee Av.	4-GP + 1-AX	NB	11,080	175,062	0.074	0.45	5,914	0.534	B	0.079	0.54	7,456	0.673	C
South of Genesee Av.	4-GP + 1-AX	SB	11,080	175,062	0.074	0.55	7,110	0.642	C	0.079	0.46	6,374	0.575	B

Legend:

Dir.= Direction
Cap. = Capacity
ADT= Average Daily Traffic
V/C= Volume to Capacity Ratio
LOS= Level of Service
PHV= Peak Hour Volume
#-GP= # of General Purpose Lanes
#-AX= # of Auxillary Lanes (Assumed Capacity = 1680)
#-HOV= # of High Occupancy Vehicle Lanes (Assumed Capacity = 1680)

Note:
Capacity for LOS "E" roadway is 2,350.
Taken from Transition between LOS"C" and LOS "D" criteria for Basic Freeway Segments @ 65 mi/hr in "Caltrans Guide for the Preparation of Traffic Impact Studies", December 2002

Peak Hour % and Dir. Split taken from Caltrans internet posted Traffic Volumes, Dated: October 27, 2016

ADT obtained from SANDAG TFIC Series 13 Forecast Year 2020 Model
Refer to **Appendix B** for ADT.

Appendix C

Existing Conditions AM / PM Peak Hour Synchro Worksheets

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	3	36	57	5	15	92	563	500	164	874	14
Future Volume (vph)	7	3	36	57	5	15	92	563	500	164	874	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1797	1583	1681	1697	1583	1770	5085	1583	1770	5073	
Flt Permitted		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1797	1583	1681	1697	1583	1770	5085	1583	1770	5073	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	3	39	62	5	16	100	612	543	178	950	15
RTOR Reduction (vph)	0	0	37	0	0	14	0	0	277	0	1	0
Lane Group Flow (vph)	0	11	2	33	34	2	100	612	266	178	964	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)		3.5	3.5	10.8	10.8	10.8	7.7	38.6	38.6	8.0	38.9	
Effective Green, g (s)		3.5	3.5	10.8	10.8	10.8	7.7	38.6	38.6	8.0	38.9	
Actuated g/C Ratio		0.04	0.04	0.14	0.14	0.14	0.10	0.49	0.49	0.10	0.49	
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		79	70	230	232	216	172	2487	774	179	2501	
v/s Ratio Prot		c0.01		0.02	c0.02		0.06	0.12		c0.10	c0.19	
v/s Ratio Perm			0.00			0.00			0.17			
v/c Ratio		0.14	0.02	0.14	0.15	0.01	0.58	0.25	0.34	0.99	0.39	
Uniform Delay, d1		36.3	36.1	30.0	30.0	29.4	34.1	11.7	12.4	35.4	12.5	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8	0.1	0.3	0.3	0.0	4.9	0.2	1.2	65.3	0.5	
Delay (s)		37.1	36.2	30.3	30.3	29.4	39.0	11.9	13.6	100.7	13.0	
Level of Service		D	D	C	C	C	D	B	B	F	B	
Approach Delay (s)		36.4			30.1			14.8			26.6	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Yield	Stop		Yield	
Traffic Volume (vph)	192	374	48	2	44	57
Future Volume (vph)	192	374	48	2	44	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	209	407	52	2	48	62

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	616	54	110
Volume Left (vph)	209	0	48
Volume Right (vph)	0	2	62
Hadj (s)	0.10	0.01	-0.22
Departure Headway (s)	4.4	4.9	5.2
Degree Utilization, x	0.75	0.07	0.16
Capacity (veh/h)	805	693	627
Control Delay (s)	19.2	8.3	9.2
Approach Delay (s)	19.2	8.3	9.2
Approach LOS	C	A	A

Intersection Summary			
Delay	17.0		
Level of Service	C		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	62	27	15	54	118	1063	65	258	752	56
Future Volume (vph)	16	4	62	27	15	54	118	1063	65	258	752	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1599		1681	1743	1583	1770	5041		1770	5032	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1599		1681	1743	1583	1770	5041		1770	5032	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	67	29	16	59	128	1155	71	280	817	61
RTOR Reduction (vph)	0	63	0	0	0	52	0	5	0	0	5	0
Lane Group Flow (vph)	17	8	0	22	23	7	128	1221	0	280	873	0
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.2	5.2		9.1	9.1	9.1	10.7	27.4		16.4	33.3	
Effective Green, g (s)	5.2	5.2		9.1	9.1	9.1	10.7	27.4		16.4	33.3	
Actuated g/C Ratio	0.07	0.07		0.12	0.12	0.12	0.14	0.35		0.21	0.43	
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	106		195	202	183	241	1764		370	2140	
v/s Ratio Prot	c0.01	0.01		0.01	c0.01		0.07	c0.24		c0.16	0.17	
v/s Ratio Perm						0.00						
v/c Ratio	0.15	0.08		0.11	0.11	0.04	0.53	0.69		0.76	0.41	
Uniform Delay, d1	34.5	34.3		31.0	31.0	30.7	31.5	21.8		29.1	15.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3		0.3	0.3	0.1	2.2	2.3		8.6	0.6	
Delay (s)	35.0	34.6		31.2	31.2	30.8	33.7	24.1		37.6	16.2	
Level of Service	D	C		C	C	C	C	C		D	B	
Approach Delay (s)		34.7			31.0			25.0			21.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	20.2
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	414	323	443	1069	492	293
Future Volume (veh/h)	414	323	443	1069	492	293
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	450	351	482	1162	535	318
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2469	766	551	3518	700	1010
Arrive On Green	0.48	0.48	0.16	0.69	0.20	0.20
Sat Flow, veh/h	5274	1585	3456	5274	3456	2790
Grp Volume(v), veh/h	450	351	482	1162	535	318
Grp Sat Flow(s),veh/h/ln	1702	1585	1728	1702	1728	1395
Q Serve(g_s), s	4.9	14.3	13.3	9.0	14.3	8.0
Cycle Q Clear(g_c), s	4.9	14.3	13.3	9.0	14.3	8.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2469	766	551	3518	700	1010
V/C Ratio(X)	0.18	0.46	0.88	0.33	0.76	0.31
Avail Cap(c_a), veh/h	2469	766	584	3518	1666	1790
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	16.7	40.1	6.1	36.8	22.4
Incr Delay (d2), s/veh	0.2	2.0	13.4	0.3	1.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.4	6.6	2.9	6.1	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.4	18.7	53.5	6.4	38.5	22.6
LnGrp LOS	B	B	D	A	D	C
Approach Vol, veh/h	801			1644	853	
Approach Delay, s/veh	16.3			20.2	32.6	
Approach LOS	B			C	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		73.5		24.2	20.1	53.4
Change Period (Y+Rc), s		6.2		4.4	4.5	* 6.2
Max Green Setting (Gmax), s		67.3		47.1	16.5	* 47
Max Q Clear Time (g_c+I1), s		11.0		16.3	15.3	16.3
Green Ext Time (p_c), s		11.5		3.5	0.3	4.7

Intersection Summary	
HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Edition methodology expects strict NEMA phasing.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	682	1480	660	64	19
Future Volume (vph)	68	682	1480	660	64	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.7	5.9	5.9	4.9	3.0
Lane Util. Factor	1.00	0.91	0.81	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	7544	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	7544	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	741	1609	717	70	21
RTOR Reduction (vph)	0	0	0	489	0	0
Lane Group Flow (vph)	74	741	1609	228	70	21
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov
Protected Phases	5	2	6		4	3 5
Permitted Phases				6		
Actuated Green, G (s)	6.6	48.3	38.1	38.1	17.6	46.1
Effective Green, g (s)	6.6	48.3	38.1	38.1	17.6	46.1
Actuated g/C Ratio	0.05	0.40	0.32	0.32	0.15	0.38
Clearance Time (s)	4.4	6.7	5.9	5.9	4.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	97	2046	2395	502	503	608
v/s Ratio Prot	c0.04	0.15	c0.21		c0.02	c0.01
v/s Ratio Perm				0.14		
v/c Ratio	0.76	0.36	0.67	0.45	0.14	0.03
Uniform Delay, d1	55.9	25.1	35.5	32.6	44.6	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.2	0.1	1.5	2.9	0.6	0.0
Delay (s)	85.2	25.2	37.0	35.6	45.2	23.1
Level of Service	F	C	D	D	D	C
Approach Delay (s)		30.6	36.6		40.1	
Approach LOS		C	D		D	

Intersection Summary			
HCM 2000 Control Delay	35.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition cannot analyze u-turn movements.

Movement	EBL	EBT	WBU	WBT	WBR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	107	616	0	2139	371	40	10
Future Volume (vph)	107	616	0	2139	371	40	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.9		6.0	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.91	1.00	0.97	
Frt	1.00	1.00		1.00	0.85	0.97	
Flt Protected	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	1770	5085		5085	1583	3369	
Flt Permitted	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	1770	5085		5085	1583	3369	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	670	0	2325	403	43	11
RTOR Reduction (vph)	0	0	0	0	41	9	0
Lane Group Flow (vph)	116	670	0	2325	362	45	0
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	
Protected Phases	5	2	1	6	8	8	
Permitted Phases					6		
Actuated Green, G (s)	6.7	49.9		39.7	49.8	10.1	
Effective Green, g (s)	6.7	49.9		39.7	49.8	10.1	
Actuated g/C Ratio	0.09	0.69		0.55	0.69	0.14	
Clearance Time (s)	4.4	6.9		6.0	4.9	4.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	165	3534		2811	1097	473	
v/s Ratio Prot	c0.07	0.13		c0.46	c0.05	0.01	
v/s Ratio Perm					0.18		
v/c Ratio	0.70	0.19		0.83	0.33	0.09	
Uniform Delay, d1	31.6	3.8		13.2	4.4	26.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	12.7	0.0		3.0	0.2	0.1	
Delay (s)	44.3	3.9		16.2	4.5	27.0	
Level of Service	D	A		B	A	C	
Approach Delay (s)		9.8		14.5		27.0	
Approach LOS		A		B		C	

Intersection Summary			
HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	16.2
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	0	426	190	85	1684	0	971	0	764	0	0
Future Volume (vph)	0	426	190	85	1684	0	971	0	764	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Lane Util. Factor		0.95	1.00	1.00	0.95		0.97		0.91		
Frt		1.00	0.85	1.00	1.00		0.97		0.85		
Flt Protected		1.00	1.00	0.95	1.00		0.96		1.00		
Satd. Flow (prot)		3539	1583	1770	3539		3376		1441		
Flt Permitted		1.00	1.00	0.95	1.00		0.96		1.00		
Satd. Flow (perm)		3539	1583	1770	3539		3376		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	463	207	92	1830	0	1055	0	830	0	0
RTOR Reduction (vph)	0	0	127	0	0	0	71	0	71	0	0
Lane Group Flow (vph)	0	463	80	92	1830	0	1225	0	518	0	0
Turn Type		NA	Perm	Prot	NA		Perm		Perm		
Protected Phases		2		1	6						
Permitted Phases			2				4		4		
Actuated Green, G (s)		35.2	35.2	7.8	47.7		30.9		30.9		
Effective Green, g (s)		35.2	35.2	7.8	47.7		30.9		30.9		
Actuated g/C Ratio		0.39	0.39	0.09	0.52		0.34		0.34		
Clearance Time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		1370	612	151	1857		1147		489		
v/s Ratio Prot		0.13		0.05	c0.52						
v/s Ratio Perm			0.05				c0.36		0.36		
v/c Ratio		0.34	0.13	0.61	0.99		1.07		1.06		
Uniform Delay, d1		19.6	18.0	40.1	21.3		30.0		30.0		
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00		
Incremental Delay, d2		0.1	0.1	6.8	17.7		46.7		57.1		
Delay (s)		19.8	18.1	46.9	39.0		76.7		87.1		
Level of Service		B	B	D	D		E		F		
Approach Delay (s)		19.3			39.4		79.9			0.0	
Approach LOS		B			D		E			A	

Intersection Summary			
HCM 2000 Control Delay	53.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	194	1243	0	0	497	405	1245	0	566	0	0
Future Volume (vph)	194	1243	0	0	497	405	1245	0	566	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Lane Util. Factor	1.00	0.95			0.95	1.00	0.97		0.91		
Frt	1.00	1.00			1.00	0.85	0.99		0.85		
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)	1770	3539			3539	1583	3426		1441		
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)	1770	3539			3539	1583	3426		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	1351	0	0	540	440	1353	0	615	0	0
RTOR Reduction (vph)	0	0	0	0	0	335	59	0	59	0	0
Lane Group Flow (vph)	211	1351	0	0	540	105	1356	0	494	0	0
Turn Type	Prot	NA			NA	Perm	Perm		Perm		
Protected Phases	5	2			6						
Permitted Phases						6	8		8		
Actuated Green, G (s)	13.7	39.4			21.5	21.5	38.3		38.3		
Effective Green, g (s)	13.7	39.4			21.5	21.5	38.3		38.3		
Actuated g/C Ratio	0.15	0.44			0.24	0.24	0.43		0.43		
Clearance Time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)	269	1549			845	378	1457		613		
v/s Ratio Prot	0.12	c0.38			0.15						
v/s Ratio Perm						0.07	c0.40		0.34		
v/c Ratio	0.78	0.87			0.64	0.28	0.93		0.81		
Uniform Delay, d1	36.7	23.0			30.8	27.9	24.6		22.6		
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00		
Incremental Delay, d2	13.9	7.1			1.6	0.4	12.0		10.9		
Delay (s)	50.6	30.1			32.4	28.3	36.6		33.5		
Level of Service	D	C			C	C	D		C		
Approach Delay (s)		32.8			30.6		35.7			0.0	
Approach LOS		C			C		D			A	

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (veh/h)	17	5	26	[illegible]	3	114	48	251	20	19	751	[illegible]
Future Volume (veh/h)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00	0.97	1.00	1.00	0.97		
Ped-Bike Adj(A_pbT)	0.98	1.00	0.98	0.98	1.00	0.98	1.00	1.00	0.98	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frpb, ped/bikes	0.98	1.00	0.98	0.98	1.00	0.98	1.00	1.00	0.98	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (veh/h/ln)	0	0	30	0	0	94	0	0	21	0	1	0
Shared Lane Flow	qp0	qp0	Perm	qp0	qp0	Perm	Perm	qp0	Perm	Perm	qp0	
Turn Type			4			8			2			
Protected Phases												
Permitted Phases	33	33	33.1	33.1	33.1	4.0	33.6	33.6	6.0	33.6		
Actuated G (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		
Actuated g/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Vehicle Ext (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Sum of lost time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Lane Grp Cap (vph)	0	0	0	0	0	0	0	0	0	0		
v/s Ratio Perm			0.00			0.00			0.00			
v/c Ratio	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
Uniform Delay, d1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Incremental Delay, d2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Level of Service	A	A	A	A	A	A	A	A	A	A		
Approach LOS	A			A			A			A		

Intersection Summary			
HCM 2000 Control Delay	0.0	HCM 2000 Level of Service	A
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	10.0
Intersection Capacity Utilization	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Sign Control		Yield	Stop		Yield	
Future Volume (vph)	46	30	229	80	5	111
Hourly flow rate (vph)	[illegible]	[illegible]	[illegible]	[illegible]	5	121

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	76	[illegible]	126
Volume Right (vph)	0	[illegible]	121
Departure Headway (s)	4.7	4.5	4.8
Capacity (veh/h)	752	[illegible]	735
Approach Delay (s)	8.2	10.4	8.1

Intersection Summary	
Level of Service	A
Analysis Period (min)	15

M[illegible]	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	[illegible]R

[illegible]ry

/ /

M						
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

/ /

Transcriptional	EGL	EST	WAIT	WOR	AEL	ZER
Tandem Wolfram Family	31	1.03	0.01	0.7	4.06	1.03
Sound Flow [7.7]	1.00	1.00	0.00	1.00	1.00	1.00
Lower Dill Powder	1.00	0.04	0.03	1.00	0.07	1.00
JR Protocol	0.00	1.00	1.00	1.00	0.00	1.00
JR Powder	0.00	1.00	1.00	1.00	0.00	1.00
Photosynthesis RNF	0.00	0.00	0.00	0.00	0.00	0.00
ATCGT Metabolism [kDa]	0	0	0	12	4	0
Gene Type	Food	RA	RA	Force	Food	Library
Food Dial Protein				0		
Transfer Bases [1.0]	0.1	40.0	24.0	30.0	20.0	40.1
Chromosome Value [s]	4.4	0.7	1.0	0.0	2.0	
Lower Body Gene [kDa]	70	1007	2001	405	304	500
JR Radio Power				0.00		
Wolfram Energy [s]	60.7	30.0	32.4	30.6	40.0	20.0
Chromosomal Energy [s]	0.0	0.0	0.0	0.0	17.0	0.0
Level of Sequence	E	C	D	0	E	0
Chromosomal LOD		C	C		E	

Chromosomal Sequence	
Food Protein Gradient Energy	37.5
Mitochondrial Organelle Length [s]	10.0
Lower Gene Protein [kDa]	10
Nucleus Protein Level of Sequence	D
Sea of Transfer Gene [s]	10.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBR
Traffic Volume (veh/h)	26	1791	0	0	30	242	84
Sign Control	Free	Free	Free	Free	Free	Free	Free
Lane Util. Factor	1.00	0.91		0.91	1.00	0.97	
Ped-Bike Adj(A_pbT)	0.98	1.00		1.00	1.00	0.98	
Parking Bus, Adj	1.00	1.00		1.00	1.00	0.97	
Work Zone Factor, WZF	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Work Reduction (veh)	0	0	0	0	31	48	0
Flow Type	Pbl	BA	Pbl	BA	packer	Pbl	
Accumulated Flows					0		
Clearance Time (s)	1.7	3.0		3.0	3.0	3.0	
Clearance Time (s)	4.4	6.0		6.0	7.0	6.0	
Lane Grp Capa (vph)	48	2000		2000	1791	748	
v/c Ratio Prim					0.01		
Uniform Delay, d1	39.8	0.0		0.0	0.0	33.8	
Incremental Delay, d2	16.6	1.0		0.0	0.0	0.7	
Level of Service	D	A		A	A	C	
Approach LOS		A		A		C	

Intersection Summary			
HCM 2010 Control Delay	1.3	HCM 2010 Level of Service	B
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	10.0
Intersection Capacity Utilization	18		

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	0	1340	717	312	555	0	850	0	343	0	0
Future Volume (vph)	0	1340	717	312	555	0	850	0	343	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Lane Util. Factor		0.95	1.00	1.00	0.95		0.97		0.91		
Frt		1.00	0.85	1.00	1.00		0.99		0.85		
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00		
Satd. Flow (prot)		3539	1583	1770	3539		3428		1441		
Flt Permitted		1.00	1.00	0.95	1.00		0.95		1.00		
Satd. Flow (perm)		3539	1583	1770	3539		3428		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1457	779	339	603	0	924	0	373	0	0
RTOR Reduction (vph)	0	0	388	0	0	0	61	0	242	0	0
Lane Group Flow (vph)	0	1457	391	339	603	0	900	0	94	0	0
Turn Type		NA	Perm	Prot	NA		Perm		Perm		
Protected Phases		2		1	6						
Permitted Phases			2				4		4		
Actuated Green, G (s)		49.6	49.6	23.3	77.6		30.1		30.1		
Effective Green, g (s)		49.6	49.6	23.3	77.6		30.1		30.1		
Actuated g/C Ratio		0.41	0.41	0.19	0.65		0.25		0.25		
Clearance Time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		1462	654	343	2288		859		361		
v/s Ratio Prot		c0.41		c0.19	0.17						
v/s Ratio Perm			0.25				c0.26		0.07		
v/c Ratio		1.00	0.60	0.99	0.26		1.05		0.26		
Uniform Delay, d1		35.1	27.4	48.2	9.0		45.0		36.0		
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00		
Incremental Delay, d2		22.6	1.5	45.0	0.3		44.1		1.7		
Delay (s)		57.7	28.9	93.2	9.3		89.0		37.8		
Level of Service		E	C	F	A		F		D		
Approach Delay (s)		47.6			39.5		75.7			0.0	
Approach LOS		D			D		E			A	

Intersection Summary			
HCM 2000 Control Delay	54.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	900	1290	0	0	542	969	324	0	99	0	0
Future Volume (vph)	900	1290	0	0	542	969	324	0	99	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Lane Util. Factor	1.00	0.95			0.95	1.00	0.97		0.91		
Frt	1.00	1.00			1.00	0.85	1.00		0.85		
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)	1770	3539			3539	1583	3431		1441		
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)	1770	3539			3539	1583	3431		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	978	1402	0	0	589	1053	352	0	108	0	0
RTOR Reduction (vph)	0	0	0	0	0	175	54	0	86	0	0
Lane Group Flow (vph)	978	1402	0	0	589	878	309	0	11	0	0
Turn Type	Prot	NA			NA	Perm	Perm		Perm		
Protected Phases	5	2			6						
Permitted Phases						6	8		8		
Actuated Green, G (s)	57.8	119.7			57.7	57.7	16.8		16.8		
Effective Green, g (s)	57.8	119.7			57.7	57.7	16.8		16.8		
Actuated g/C Ratio	0.39	0.80			0.39	0.39	0.11		0.11		
Clearance Time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)	687	2846			1372	613	387		162		
v/s Ratio Prot	c0.55	0.40			0.17						
v/s Ratio Perm						c0.55	c0.09		0.01		
v/c Ratio	1.42	0.49			0.43	1.43	0.80		0.07		
Uniform Delay, d1	45.5	4.7			33.5	45.6	64.3		59.0		
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00		
Incremental Delay, d2	199.0	0.6			1.0	203.8	10.9		0.2		
Delay (s)	244.5	5.3			34.4	249.3	75.3		59.2		
Level of Service	F	A			C	F	E		E		
Approach Delay (s)		103.6			172.2		71.9			0.0	
Approach LOS		F			F		E			A	

Intersection Summary			
HCM 2000 Control Delay	125.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	148.8	Sum of lost time (s)	16.5
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Appendix D

Existing With Project Conditions AM / PM Peak Hour Synchro Worksheets

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	3	36	62	5	17	92	563	548	184	874	14
Future Volume (vph)	7	3	36	62	5	17	92	563	548	184	874	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1797	1583	1681	1697	1583	1770	5085	1583	1770	5073	
Flt Permitted		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1797	1583	1681	1697	1583	1770	5085	1583	1770	5073	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	3	39	67	5	18	100	612	596	200	950	15
RTOR Reduction (vph)	0	0	37	0	0	16	0	0	306	0	1	0
Lane Group Flow (vph)	0	11	2	36	36	2	100	612	290	200	964	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)		3.5	3.5	10.8	10.8	10.8	7.6	38.2	38.2	8.0	38.6	
Effective Green, g (s)		3.5	3.5	10.8	10.8	10.8	7.6	38.2	38.2	8.0	38.6	
Actuated g/C Ratio		0.04	0.04	0.14	0.14	0.14	0.10	0.49	0.49	0.10	0.49	
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		80	70	231	233	217	171	2474	770	180	2494	
v/s Ratio Prot		c0.01		c0.02	0.02		0.06	0.12		c0.11	c0.19	
v/s Ratio Perm			0.00			0.00			0.18			
v/c Ratio		0.14	0.02	0.16	0.15	0.01	0.58	0.25	0.38	1.11	0.39	
Uniform Delay, d1		36.0	35.9	29.8	29.8	29.2	33.9	11.8	12.7	35.2	12.5	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8	0.1	0.3	0.3	0.0	5.0	0.2	1.4	100.0	0.5	
Delay (s)		36.8	36.0	30.1	30.1	29.3	39.0	12.0	14.1	135.2	13.0	
Level of Service		D	D	C	C	C	D	B	B	F	B	
Approach Delay (s)		36.2			30.0			15.0			34.0	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	78.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Yield	Stop		Yield	
Traffic Volume (vph)	192	441	55	2	48	57
Future Volume (vph)	192	441	55	2	48	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	209	479	60	2	52	62

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	688	62	114
Volume Left (vph)	209	0	52
Volume Right (vph)	0	2	62
Hadj (s)	0.09	0.01	-0.20
Departure Headway (s)	4.4	5.0	5.4
Degree Utilization, x	0.84	0.09	0.17
Capacity (veh/h)	803	682	623
Control Delay (s)	26.0	8.5	9.5
Approach Delay (s)	26.0	8.5	9.5
Approach LOS	D	A	A

Intersection Summary			
Delay	22.6		
Level of Service	C		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	62	27	15	54	118	1111	65	258	757	56
Future Volume (vph)	16	4	62	27	15	54	118	1111	65	258	757	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1599		1681	1743	1583	1770	5043		1770	5033	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1599		1681	1743	1583	1770	5043		1770	5033	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	67	29	16	59	128	1208	71	280	823	61
RTOR Reduction (vph)	0	63	0	0	0	52	0	5	0	0	5	0
Lane Group Flow (vph)	17	8	0	22	23	7	128	1274	0	280	879	0
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.2	5.2		9.1	9.1	9.1	10.7	27.4		16.4	33.3	
Effective Green, g (s)	5.2	5.2		9.1	9.1	9.1	10.7	27.4		16.4	33.3	
Actuated g/C Ratio	0.07	0.07		0.12	0.12	0.12	0.14	0.35		0.21	0.43	
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	106		195	202	183	241	1764		370	2140	
v/s Ratio Prot	c0.01	0.01		0.01	c0.01		0.07	c0.25		c0.16	0.17	
v/s Ratio Perm						0.00						
v/c Ratio	0.15	0.08		0.11	0.11	0.04	0.53	0.72		0.76	0.41	
Uniform Delay, d1	34.5	34.3		31.0	31.0	30.7	31.5	22.1		29.1	15.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3		0.3	0.3	0.1	2.2	2.6		8.6	0.6	
Delay (s)	35.0	34.6		31.2	31.2	30.8	33.7	24.7		37.6	16.3	
Level of Service	D	C		C	C	C	C	C		D	B	
Approach Delay (s)		34.7			31.0			25.6			21.4	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	20.2
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	418	324	443	1109	499	293
Future Volume (veh/h)	418	324	443	1109	499	293
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	454	352	482	1205	542	318
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2473	768	543	3510	707	1009
Arrive On Green	0.48	0.48	0.16	0.69	0.20	0.20
Sat Flow, veh/h	5274	1585	3456	5274	3456	2790
Grp Volume(v), veh/h	454	352	482	1205	542	318
Grp Sat Flow(s),veh/h/ln	1702	1585	1728	1702	1728	1395
Q Serve(g_s), s	4.9	14.4	13.4	9.5	14.5	8.1
Cycle Q Clear(g_c), s	4.9	14.4	13.4	9.5	14.5	8.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2473	768	543	3510	707	1009
V/C Ratio(X)	0.18	0.46	0.89	0.34	0.77	0.32
Avail Cap(c_a), veh/h	2473	768	546	3510	1660	1778
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	16.8	40.5	6.3	36.8	22.5
Incr Delay (d2), s/veh	0.2	2.0	16.1	0.3	1.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	5.5	6.8	3.0	6.2	7.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.5	18.7	56.6	6.5	38.6	22.7
LnGrp LOS	B	B	E	A	D	C
Approach Vol, veh/h	806			1687	860	
Approach Delay, s/veh	16.3			20.8	32.7	
Approach LOS	B			C	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		73.6		24.5	19.9	53.7
Change Period (Y+Rc), s		6.2		4.4	4.5	* 6.2
Max Green Setting (Gmax), s		67.3		47.1	15.5	* 48
Max Q Clear Time (g_c+I1), s		11.5		16.5	15.4	16.4
Green Ext Time (p_c), s		12.2		3.5	0.0	4.8

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Edition methodology expects strict NEMA phasing.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	68	686	1520	660	64	19
Future Volume (vph)	68	686	1520	660	64	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.7	5.9	5.9	4.9	3.0
Lane Util. Factor	1.00	0.91	0.81	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	7544	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	7544	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	746	1652	717	70	21
RTOR Reduction (vph)	0	0	0	489	0	0
Lane Group Flow (vph)	74	746	1652	228	70	21
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov
Protected Phases	5	2	6		4	3 5
Permitted Phases				6		
Actuated Green, G (s)	6.6	48.3	38.1	38.1	17.6	46.1
Effective Green, g (s)	6.6	48.3	38.1	38.1	17.6	46.1
Actuated g/C Ratio	0.05	0.40	0.32	0.32	0.15	0.38
Clearance Time (s)	4.4	6.7	5.9	5.9	4.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	97	2046	2395	502	503	608
v/s Ratio Prot	c0.04	0.15	c0.22		c0.02	c0.01
v/s Ratio Perm				0.14		
v/c Ratio	0.76	0.36	0.69	0.45	0.14	0.03
Uniform Delay, d1	55.9	25.1	35.8	32.6	44.6	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	29.2	0.1	1.7	2.9	0.6	0.0
Delay (s)	85.2	25.2	37.4	35.6	45.2	23.1
Level of Service	F	C	D	D	D	C
Approach Delay (s)		30.6	36.9		40.1	
Approach LOS		C	D		D	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition cannot analyze u-turn movements.

Movement	EBL	EBT	WBU	WBT	WBR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	107	620	0	2179	371	40	10
Future Volume (vph)	107	620	0	2179	371	40	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.9		6.0	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.91	1.00	0.97	
Frt	1.00	1.00		1.00	0.85	0.97	
Flt Protected	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	1770	5085		5085	1583	3369	
Flt Permitted	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	1770	5085		5085	1583	3369	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	674	0	2368	403	43	11
RTOR Reduction (vph)	0	0	0	0	41	9	0
Lane Group Flow (vph)	116	674	0	2368	362	45	0
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	
Protected Phases	5	2	1	6	8	8	
Permitted Phases					6		
Actuated Green, G (s)	6.7	49.9		39.7	49.8	10.1	
Effective Green, g (s)	6.7	49.9		39.7	49.8	10.1	
Actuated g/C Ratio	0.09	0.69		0.55	0.69	0.14	
Clearance Time (s)	4.4	6.9		6.0	4.9	4.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	165	3534		2811	1097	473	
v/s Ratio Prot	c0.07	0.13		c0.47	c0.05	0.01	
v/s Ratio Perm					0.18		
v/c Ratio	0.70	0.19		0.84	0.33	0.09	
Uniform Delay, d1	31.6	3.9		13.4	4.4	26.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	12.7	0.0		3.3	0.2	0.1	
Delay (s)	44.3	3.9		16.7	4.5	27.0	
Level of Service	D	A		B	A	C	
Approach Delay (s)		9.8		14.9		27.0	
Approach LOS		A		B		C	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	16.2
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	0	429	192	85	1707	0	971	0	782	0	0
Future Volume (vph)	0	429	192	85	1707	0	971	0	782	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Lane Util. Factor		0.95	1.00	1.00	0.95		0.97		0.91		
Frt		1.00	0.85	1.00	1.00		0.97		0.85		
Flt Protected		1.00	1.00	0.95	1.00		0.96		1.00		
Satd. Flow (prot)		3539	1583	1770	3539		3372		1441		
Flt Permitted		1.00	1.00	0.95	1.00		0.96		1.00		
Satd. Flow (perm)		3539	1583	1770	3539		3372		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	466	209	92	1855	0	1055	0	850	0	0
RTOR Reduction (vph)	0	0	130	0	0	0	70	0	70	0	0
Lane Group Flow (vph)	0	466	79	92	1855	0	1240	0	525	0	0
Turn Type		NA	Perm	Prot	NA		Perm		Perm		
Protected Phases		2		1	6						
Permitted Phases			2				4		4		
Actuated Green, G (s)		34.2	34.2	7.8	46.7		31.9		31.9		
Effective Green, g (s)		34.2	34.2	7.8	46.7		31.9		31.9		
Actuated g/C Ratio		0.38	0.38	0.09	0.51		0.35		0.35		
Clearance Time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		1331	595	151	1818		1183		505		
v/s Ratio Prot		0.13		0.05	c0.52						
v/s Ratio Perm			0.05				c0.37		0.36		
v/c Ratio		0.35	0.13	0.61	1.02		1.05		1.04		
Uniform Delay, d1		20.4	18.6	40.1	22.1		29.5		29.5		
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00		
Incremental Delay, d2		0.2	0.1	6.8	26.4		39.7		50.6		
Delay (s)		20.5	18.7	46.9	48.5		69.2		80.1		
Level of Service		C	B	D	D		E		F		
Approach Delay (s)		20.0			48.4		72.6			0.0	
Approach LOS		B			D		E			A	

Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	17.0
Intersection Capacity Utilization	115.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	196	1244	0	0	502	405	1263	0	566	0	0
Future Volume (vph)	196	1244	0	0	502	405	1263	0	566	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Lane Util. Factor	1.00	0.95			0.95	1.00	0.97		0.91		
Frt	1.00	1.00			1.00	0.85	0.99		0.85		
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)	1770	3539			3539	1583	3426		1441		
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)	1770	3539			3539	1583	3426		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	213	1352	0	0	546	440	1373	0	615	0	0
RTOR Reduction (vph)	0	0	0	0	0	335	59	0	59	0	0
Lane Group Flow (vph)	213	1352	0	0	546	105	1376	0	494	0	0
Turn Type	Prot	NA			NA	Perm	Perm		Perm		
Protected Phases	5	2			6						
Permitted Phases						6	8		8		
Actuated Green, G (s)	13.7	39.4			21.5	21.5	38.3		38.3		
Effective Green, g (s)	13.7	39.4			21.5	21.5	38.3		38.3		
Actuated g/C Ratio	0.15	0.44			0.24	0.24	0.43		0.43		
Clearance Time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)	269	1549			845	378	1457		613		
v/s Ratio Prot	0.12	c0.38			0.15						
v/s Ratio Perm						0.07	c0.40		0.34		
v/c Ratio	0.79	0.87			0.65	0.28	0.94		0.81		
Uniform Delay, d1	36.8	23.0			30.8	27.9	24.8		22.6		
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00		
Incremental Delay, d2	14.7	7.1			1.7	0.4	13.6		10.9		
Delay (s)	51.4	30.1			32.5	28.3	38.5		33.5		
Level of Service	D	C			C	C	D		C		
Approach Delay (s)		33.0			30.7		37.1			0.0	
Approach LOS		C			C		D			A	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	115.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volumes (vph)	17	5	26	451	3	191	46	451	44	17	701	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Ped-Bike Adj(A_pbT)		0.99	1.00	0.98	0.98	1.00	0.98	1.00	1.00	0.98	1.00	
Flt Protected		0.95	1.00	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Flow (vph) F	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	5	28	0	3	199	0	0	38	0	1	0
Shared Lane	No	No	Prohibited	No	No	Prohibited	Prohibited	No	Prohibited	Prohibited	No	
Protected Phases			4			8			2			
Minimum Green (s)	10.0	10.0	21.0	21.0	10.0	21.0	10.0	10.0	10.0	10.0	10.0	
Maximum Time (s)	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	45.0	
Lane Grp Cap (vph)	74	0	424	424	0	84	0	1	74	0	1	
v/s Ratio Prot			0.02			0.06			0.02			
Uniform Delay, d1	50.0	50.0	37.4	37.4	50.0	50.0	50.0	50.0	50.0	50.0	50.0	
Incremental Delay, d2	1.7	0.1	1.6	2.6	0.1	6.9	0.0	0.1	17.2	0.0		
Level of Service	D	D	D	D	D	D	E	E	D	E		
Approach LOS	D			D			E			E		

Intersection Summary			
HCM 2000 Control Delay	38.1	HCM 2000 Level of Service	D
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.1%	ICU Level of Service	D

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Measurement	EBL	EBC	WBT	WBR	SBL	SBR
Log Scaled		Yes1	Stay		Yes1	
Pulse Volume (cm)	35	45	200	35	3	111
Pulse Rate (cm)	40	47	200	35	3	121
Dimension, Lower (1	6.5 1	55.1	54.1			
Volume Total (cm)	40	45	154			
Volume Right (cm)	0	30	121			
Correlation Residency (1)	4.2	4.3	4.6			
Correlation Tested	7.0	8.7	9.7			
Correlation Better (1)	3.4	11.3	3.3			

Information Summary	
Lower Or Greater	8
Volume Tested (cm)	16

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Profile Volumes [vph]	38	5	16	173	19	202	32	202	19	61	1100	12
Total Flow [vph]	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Lanes [#L Profile]	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	
Ped Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Ped Permitted	0.95	1.00		0.95	0.95	1.00	0.95	1.00		0.95	1.00	
Peak hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Bicycles [bicycles/h]	0	0	0	0	0	205	0	0	0	0	1	0
Work Zone	Split	NA		Split	NA	Perm	Perm	NA		Perm	NA	
Protected Phases						8						
Minimum Green [s]	6.0	6.0		10.0	10.0	10.0	7.7	10.0		4.0	10.0	
Clearance Time [s]	4.0	4.0		4.0	4.0	4.0	4.4	4.0		4.4	4.0	
Lane Grp Cap [vph]	190	300		203	1734	205	32	1900		102	2400	
v/s Ratio Perm						0.00						
Uniform Delay, d1	30.2	30.0		19.7	19.7	24.8	30.9	10.5		30.2	10.7	
Incremental Delay, d2	1.0	0.0		0.0	0.0	0.0	177.1	0.0		11.2	0.0	
Level of Service	C	B		B	B	C	E	B		D	B	
Approach LOS		B			B			B			B	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
Actuated Cycle Length [s]	70.0	Sum of lost time [s]	10.0
Intersection Capacity Utilization	46		

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Measurement	SET	SER	NOL	INVT	MEL	NER
Middle Molars (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Total D [illegible] (mm)	0	0	0	0	0	0
Palatal Bone [illegible]	1.00	1.00	1.00	1.00	1.00	1.00
[illegible] Bone (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Facial Bone Fenestration	0.00	0.00	0.00	0.00	0.00	0.00
[illegible] /						
[illegible] (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Bone (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] Plane	1.00	1.00	1.00	1.00	1.00	1.00
[illegible] Molar (mm)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] (width)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible] (width)	[illegible]			[illegible]	[illegible]	
[illegible] Loss	F			B	B	

Tooth Angulation Plan				
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Interpretive Summary
[illegible]

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR
Traffic Volume (veh/h)	71	1203	90	67	473	120
Future Volume (veh/h)	1600	1600	1600	1600	1600	1600
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Ped-Bike Adj(A_pbT)	0.98	1.00	1.00	1.00	0.95	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	0.99	1.00
Adj Sat Flow, veh/h/ln	1863	3433	1583	1863	3433	1583
Adj Flow Rate, veh/h	0	0	0	72	0	0
Peak Hour Factor	Peak	NA	NA	Peak	Peak	peak
Percent Heavy Veh, %				6		
Cycles, s	0.3	46.9	38.2	38.2	46.5	46.5
Crossing Time (s)	4.0	6.7	6.0	6.0	4.0	
Long Clr Clrnc (veh)	78	1867	2001	2005	2001	2001
Lane Grp Cap (veh)				0.00		
Uniform Delay, d1	18.7	18.1	18.4	20.0	18.6	18.9
Incremental Delay, d2	0.0	1.3	0.0	0.0	17.0	0.0
Level of Service	B	D	D	C	B	B
Approach LOS		D	D		B	

Intersection Summary			
HCM 2010 Control Delay	17.8	HCM 2010 Level of Service	D
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.2
Intersection Capacity Utilization	18		

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Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Traffic Volume (vph)	20	1728	8	1864	28	152	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.91		0.91	1.00	0.97	
Ped Bike Factor	0.98	1.00		1.00	1.00	0.97	
Frpb, ped/bikes	0.98	1.00		1.00	1.00	0.98	
Flpb, ped/bikes	0.98	0.92	0.92	0.92	0.92	0.98	0.98
Adj. Flow (vph)	8	0	0	0	11	48	0
Shared Lane	Prot	NA	Prot	NA	pm+ov	Prot	
Protected Phases					8		
Minimum Gap (s)	1.7	3.3		3.3	3.3	3.3	
Minimum Split (s)	4.4	8.0		8.0	4.0	4.0	
Total Split (s)	48	3000		3000	7.0%	7.0%	
Lost Time Adjust					0.0%		
Total Lost Time	5.6	6.6		6.6	6.6	7.0	
Lead/Lag		A		A	A	C	
Lead-Lag Optimize?		A		A		C	

Intersection Summary			
Cycle Length: 120		Actuated Cycle Length: 110.4	
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green		Natural Cycle: 55	
Control Type: Actuated-Coordinated		Maximum v/c Ratio: 0.61	
Intersection Capacity Utilization 61.0%		ICU Level of Service B	
Analysis Period (min) 15			

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	SBR2	NEL	NER
Lane Configurations											
Traffic Volume (vph)	0	1360	733	312	557	0	850	0	345	0	0
Future Volume (vph)	0	1360	733	312	557	0	850	0	345	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Lane Util. Factor		0.95	1.00	1.00	0.95		0.97		0.91		
Frt		1.00	0.85	1.00	1.00		0.99		0.85		
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00		
Satd. Flow (prot)		3539	1583	1770	3539		3428		1441		
Flt Permitted		1.00	1.00	0.95	1.00		0.95		1.00		
Satd. Flow (perm)		3539	1583	1770	3539		3428		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1478	797	339	605	0	924	0	375	0	0
RTOR Reduction (vph)	0	0	384	0	0	0	61	0	243	0	0
Lane Group Flow (vph)	0	1478	413	339	605	0	901	0	94	0	0
Turn Type		NA	Perm	Prot	NA		Perm		Perm		
Protected Phases		2		1	6						
Permitted Phases			2				4		4		
Actuated Green, G (s)		50.8	50.8	22.3	77.8		29.9		29.9		
Effective Green, g (s)		50.8	50.8	22.3	77.8		29.9		29.9		
Actuated g/C Ratio		0.42	0.42	0.19	0.65		0.25		0.25		
Clearance Time (s)		7.2	7.2	4.7	7.2		5.1		5.1		
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0		3.0		
Lane Grp Cap (vph)		1498	670	328	2294		854		359		
v/s Ratio Prot		c0.42		c0.19	0.17						
v/s Ratio Perm			0.26				c0.26		0.07		
v/c Ratio		0.99	0.62	1.03	0.26		1.06		0.26		
Uniform Delay, d1		34.3	27.0	48.9	9.0		45.0		36.2		
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00		
Incremental Delay, d2		19.9	1.7	58.6	0.3		46.4		1.8		
Delay (s)		54.2	28.7	107.5	9.2		91.5		38.0		
Level of Service		D	C	F	A		F		D		
Approach Delay (s)		45.3			44.5		77.6			0.0	
Approach LOS		D			D		E			A	

Intersection Summary			
HCM 2000 Control Delay	54.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support Non-NEMA phasing.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	NBR2	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	916	1294	0	0	542	969	326	0	99	0	0
Future Volume (vph)	916	1294	0	0	542	969	326	0	99	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Lane Util. Factor	1.00	0.95			0.95	1.00	0.97		0.91		
Frt	1.00	1.00			1.00	0.85	1.00		0.85		
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)	1770	3539			3539	1583	3431		1441		
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)	1770	3539			3539	1583	3431		1441		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	996	1407	0	0	589	1053	354	0	108	0	0
RTOR Reduction (vph)	0	0	0	0	0	242	53	0	76	0	0
Lane Group Flow (vph)	996	1407	0	0	589	811	312	0	21	0	0
Turn Type	Prot	NA			NA	Perm	Perm		Perm		
Protected Phases	5	2			6						
Permitted Phases						6	8		8		
Actuated Green, G (s)	58.8	110.9			47.9	47.9	17.9		17.9		
Effective Green, g (s)	58.8	110.9			47.9	47.9	17.9		17.9		
Actuated g/C Ratio	0.42	0.79			0.34	0.34	0.13		0.13		
Clearance Time (s)	4.2	7.2			7.2	7.2	5.1		5.1		
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0		3.0		
Lane Grp Cap (vph)	737	2781			1201	537	435		182		
v/s Ratio Prot	c0.56	0.40			0.17						
v/s Ratio Perm						c0.51	c0.09		0.01		
v/c Ratio	1.35	0.51			0.49	1.51	0.72		0.12		
Uniform Delay, d1	41.1	5.4			36.9	46.6	59.2		54.6		
Progression Factor	1.00	1.00			1.00	1.00	1.00		1.00		
Incremental Delay, d2	167.0	0.7			1.4	238.8	5.6		0.3		
Delay (s)	208.2	6.0			38.4	285.4	64.7		54.9		
Level of Service	F	A			D	F	E		D		
Approach Delay (s)		89.8			196.8		62.7			0.0	
Approach LOS		F			F		E			A	

Intersection Summary			
HCM 2000 Control Delay	126.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	141.1	Sum of lost time (s)	16.5
Intersection Capacity Utilization	87.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Appendix E

Cumulative Project Information

3.0 PROPOSED PROJECT

The proposed project consists of approximately 204,000 SF of scientific research. The proposed project will utilize the existing driveways along John J. Hopkins Drive (Lots 1-3) as well as the existing driveway on General Atomics Court. Please refer to **Figure 2-2A** and **Figure 2-2B** for the project site plan.

It is anticipated that the "NMR Building" on Lot 10 of Parcel 1 could be completed as early as June 2017. This building is approximately 11,500 SF and represents approximately 92 ADT. The next structure to be constructed is expected to be a 643 stall parking structure on Lots 1-3. Please refer to Section 12.3 for further discussion on temporary parking during construction. It should also be noted that the I-5/ Genesee Avenue Interchange project is anticipated to be completed by Summer 2017.

As discussed above, 11,500 square foot Scientific Research building and a parking structure will be completed beginning in Summer 2017 (post interchange completion) with approximately 92 ADT associated with it. This represents approximately 8.6% of the net increase in total project traffic (1,145 ADT). Due to the fact that occupancy is anticipated after completion of the Interchange project, the entire project was analyzed as a single phase with an opening day in 2019 when the vast majority of occupancy will occur.

3.1 TRIP GENERATION

A trip generation rate of 8 trips per 1000 square feet of scientific research was taken from the *City of San Diego Trip Generation Manual, 2003.* The proposed project would generate 1,145 average daily trips (ADT) with 183 AM (165 in / 18 out) peak hour trips and 160 PM (16 in / 144 out) peak hour trips. **Table**

3-1 shows a vehicle trip generation table for the proposed project. As shown in the table, a credit was taken for the existing 60,885 SF of scientific research buildings.

3.2 TRIP DISTRIBUTION AND ASSIGNMENT

Trip distribution percentages are based on knowledge of the existing communities surrounding the project area, the project's proximity to interstate highways and arterials, and the examination of existing traffic patterns. **Figure 3-2** shows the project's distribution. As shown, 70% of project traffic would be expected to travel on Genesee Avenue towards the I-5 freeway.

Figure 3-3 shows the project only average daily traffic volumes.

Figure 3-4 shows the project only AM/PM peak hour intersection volumes.

TABLE 3-1

TSRI Project Trip Generation

Use	Amount	Trip Rate	ADT	AM Peak Hour					PM Peak Hour				
				%	#	In/Out	In	Out	%	#	In/Out	In	Out
Existing													
Scientific Research	60,885 *SF*	8 /KSF	487	16%	78	9 : 1	70	8	14%	68	1 : 9	7	61
Proposed													
Scientific Research	204,000 *SF*	8 /KSF	1,632	16%	261	9 : 1	235	26	14%	228	1 : 9	23	206
Net New Trips (Proposed - Existing)			**1,145**		**183**		**165**	**18**		**160**		**16**	**144**

Notes:
Source - City of San Diego Trip Generation Manual, 2003

Legend

= Study Intersection

XX% = Distribution Percentage

= Proposed Project

NO SCALE

FIGURE 3-1

Project Distribution Percentages

Legend

= Study Intersection

XXX = Average Daily Traffic Volume

= Proposed Project

NO SCALE

FIGURE 3-2

Project Only Average Daily Traffic

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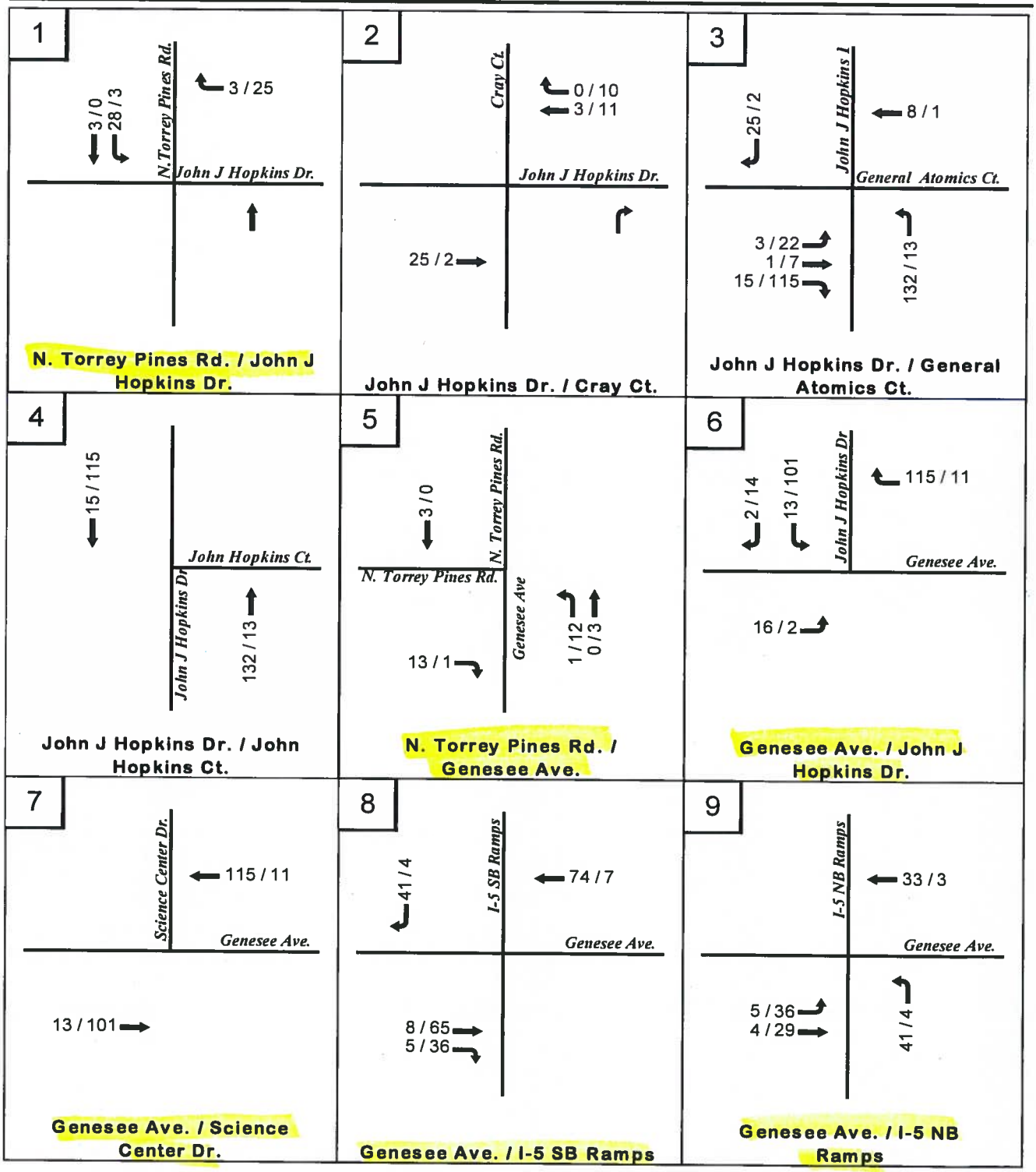


FIGURE 3-3

Project Only AM / PM Peak Hour Traffic

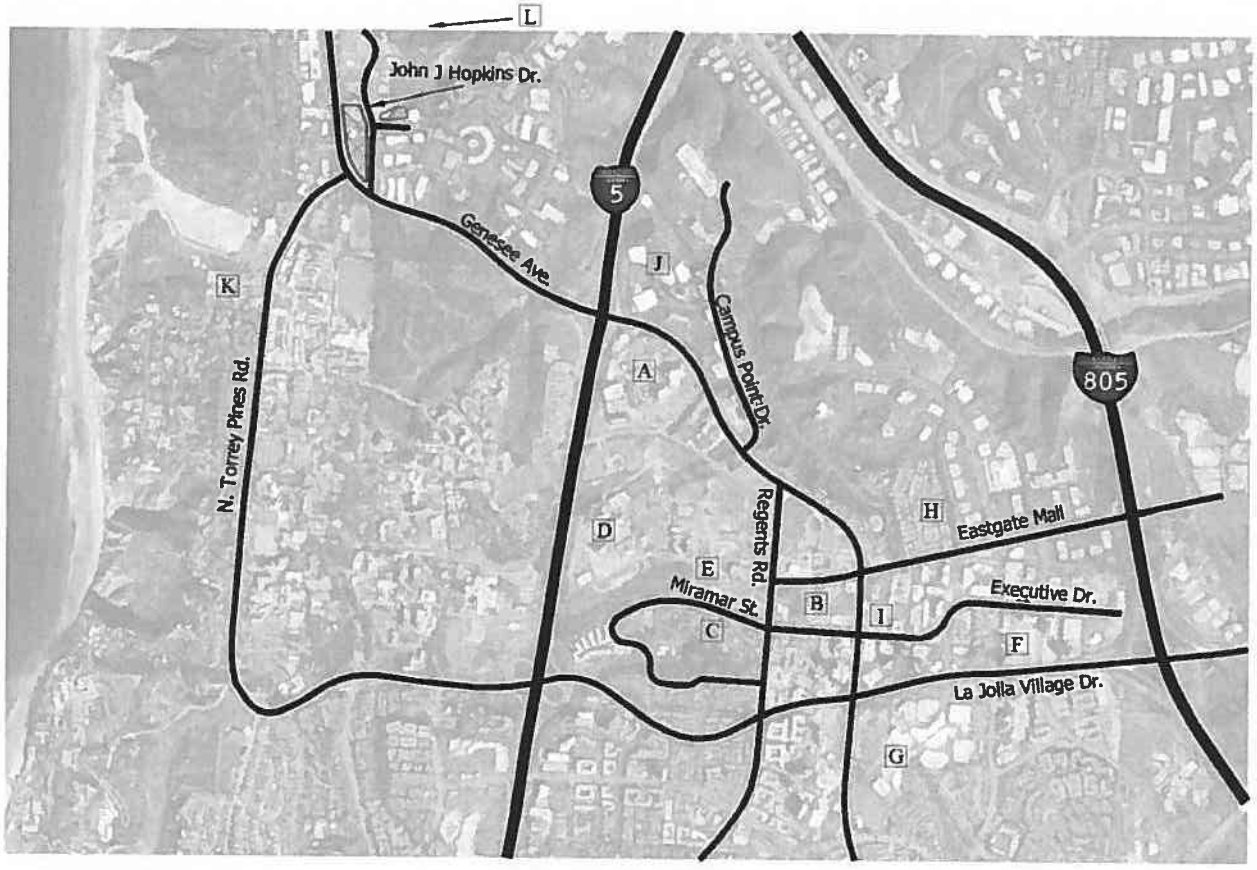
7.0 OTHER PROJECTS

Other projects surrounding TSRI were reviewed to determine if traffic from the reasonably foreseeable projects would affect the intersections and segments studied. The location of these projects can be seen in **Figure 7-1.** Project only volumes from the approved other projects were extracted from other traffic studies, and manually added to existing traffic volume to get Near Term "other project" volumes. **Table 7-1** includes a list of other projects considered and included in the traffic analysis.

Several other projects were considered, but were not included for various reasons. For example, they did not contribute sufficient traffic to the study area or they were already built and occupied at the time of the existing counts. These other projects include: La Jolla Commons, 9455 Towne Center Drive, Monte Verde (unbuilt portion does not contribute significantly to study area), University City Village, Nexus Tech Center, and Scripps Green Hospital.

Figure 7-2 shows the average daily traffic volumes created by other projects. **Figure 7-3** shows the AM and PM peak hour volumes.

Cumulative Projects information can be found in **Appendix E**.



Legend

A = Scripps Memorial Hospital
B = USCD Research Institute
C = UCSD Mesa Housing
D = East Campus Bed Tower
E = UCSD Therapeutic Center
F = La Jolla Centre 3
G = UTC Revitalization Project
H = 9514 Town Centre Drive
I = Genesee Executive Plaza
J = Campus Pointe Master Plan
K = Salk Institute
L = Spectrum 3 and 4

= Proposed Project

N
NO SCALE

FIGURE 7-1

Other Projects Locations Map

Table 7-1

Other Projects List

	Project	Location/Decription	Size	Initial Status[1]	Current Status[2]	Study
A	Scripps Memorial Hospital	Located at the southeast corner of the I-5/ Genesee Avenue Interchange.	10,995 ADT	Under Construction	Under Construction	Included
B	UCSD Research Institute (CTRI)	Bounded by Genesee Ave. and Eastgate Mall to the north, La Jolla Village Dr. to the south, the I-5 freeway to the west, and Towne Center Dr. to the east	1,730 ADT	Approved	Under Construction	Included
C	UCSD Mesa Housing	Bounded by Genesee Ave. to the north, La Jolla Village Dr. to the south, the I-5 freeway to the west, and Regents Rd. to the east.	1,727 ADT	Approved	Approved	Included
D	UCSD Bed Tower	Bounded by Genesee Ave. and Eastgate Mall to the north, La Jolla Village Dr. to the south, Villa La Jolla Dr. to the west, and Towne Center Dr. to the east	4,900 ADT	Approved	Under Construction	Included
E	UCSD Therapeutic Center	Bounded by Genesee Ave. to the north, La Jolla Village Dr. to the south, the I-5 freeway to the west, and Regents Rd. to the east.	968 ADT	Approved	Approved	Included
F	La Jolla Centre 3	Bounded by Genesee Ave. and Eastgate Mall to the north, Governor Dr. to the south, I-5 to the west, and I-805 to the east	2,156 ADT	Under Construction	Built	Included
G	UTC Revitalization Project	Bounded by Genesee Ave., Eastgate Mall, and La Jolla Village Dr. to the north, Highway 52 to the south, I-5 to the west, and I-805 to the east	21,900 ADT	Approved	Under Construction	Included
H	9514 Town Centre Drive	Bounded by Towne Centre Dr. to the north and east, Eastgate Mall to the south, and Genesee Ave. to the west.	1,366 ADT	Approved	Approved	Included
F	Genesee Executive Plaza	Bounded by Eastgate Mall to the north, Executive Dr. to the south, and Genesee Ave. to the west. (Eastern boundary not shown on map)	971 ADT	Approved	Approved	Included
J	Campus Pointe Master Plan	Bounded by Campus Point Ct. to the south, I-5 to the north and west, and Campus point Dr. to the east.	2,224 ADT	In Review	In Review	Included
K	Salk Institute	Located between Torrey Pines Scenic drive and Salk Institute Road.	1,682 ADT	Approved	Approved	Included
L	Spectrum 3 & 4	Located North of project on Meryfield Row. Bounded by Merryfield Row to the North and Science Park Road to the West.	143 ADT	In Review	In Review	Included

1 Status of Other Projects at the time existing counts were obtained for this project
2 Status of Other Projects at the time of report submittal

Legend

= Study Intersection

XXX = Average Daily Traffic Volume

= Proposed Project

NO SCALE

FIGURE 7-2

Other Projects Average Daily Traffic

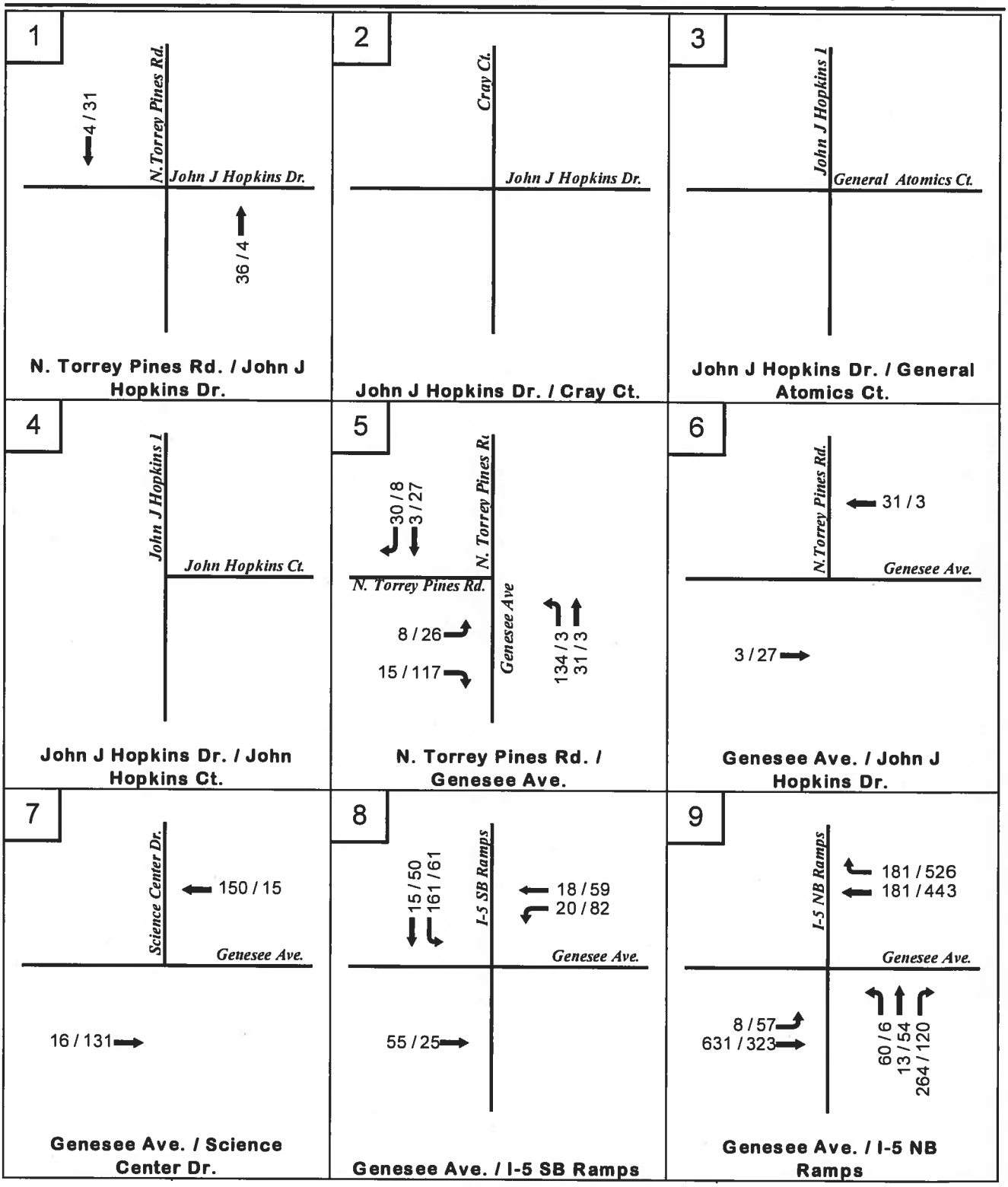


FIGURE 7-3

Other Projects AM/PM Peak Hour Traffic

All changes to land use and roadway network identified above are consistent with the University Community Plan and North University PFFP (2009). The traffic analysis includes only those roadway improvements that are fully funded as identified in the North University PFFP.
The project will be built in several phases. Currently, the campus generates approximately 16,500 trips per day. At buildout the proposed project is forecast to result in a net increase in traffic of approximately 10,995 trips per day which includes 990 a.m. peak hour trips and 1,099 p.m. peak hour trips, based on City of San Diego trip generation rates listed in the North University Community Plan and SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates* (April 2002).

Traffic impact analysis was conducted for existing, Phase I (2015), Phase II (2025), and Phase III (Phase III (2035)) conditions without and with the proposed project. As required by the City of San Diego, this traffic impact study has been prepared in accordance with the City of San Diego's Traffic Impact Study Manual. The City's goal for acceptable levels of service is generally LOS D or better at signalized and unsignalized intersections and along roadway segments.

PROJECT DESCRIPTION

Land Use Description

Upon completion of Amendment 9, the 43-acre Scripps Memorial Hospital La Jolla will include a total of three new hospital towers, two new medical office buildings, research and graduate education facilities, an outpatient care pavilion, and additional parking. The project currently operates under a Conditional Use Permit (CUP) that has been amended several times to reflect changes in the Master Plan for the campus. The following land uses and quantities represent the changes in the land use included Amendment 9:

- Addition of 142 new hospital beds included in Tower III
- Net increase of 477,680 square feet of medical office space
- Removal of 10,006 square feet of scientific research (less than Amendment 8)
- Removal of 65,951 square feet of ancillary uses (less than Amendment 8)

The existing Scripps Memorial Hospital site plan is provided in **Exhibit 2**. The proposed site plan for Amendment 9 is shown in **Exhibit 3**. The University Community Plan provides land use and development intensity thresholds for specific community subareas, including Scripps Memorial Hospital La Jolla. The proposed land uses concur with land uses outlined in the community plan for the site. Based on the proposed buildout of the hospital (existing conditions plus Amendment 8 plus Amendment 9), the hospital is forecast to generate approximately 8,101 more daily trips than allowed in the University Community Plan. The project requires a Community Plan Amendment.

Project Access

The project will maintain the existing full-access hospital entry road and signalized intersection at Genesee Avenue. A secondary access driveway is currently located along Voigt Drive, which provides limited access to hospital staff members only. The proposed project would include improvements to the Genesee Avenue / Scripps Hospital Driveway and realignment to the existing entrance road. The entrance road will be four lanes with turn lanes at key intersections.

PHASE I (2015) CONDITIONS

Study year 2015 conditions were evaluated without and with the project. The Without Project condition assumes the construction of Ximed II as approved in Amendment 8 for 5 floors to the Scripps campus. Background traffic conditions include the addition of the Phase I (2015) cumulative project trips (as shown previously in Table 15).

The proposed project traffic was added to the Without Project condition to determine the potential project impacts by 2015. The Phase I (2015) With Project condition includes the addition of forecasted project-generated traffic resulting from the following activities:

- Demolition of the existing Whittier Institute;
- Demolition of the existing McDonald Building;
- Demolition of the existing Administration/Human Resources Building;
- Conversion of the sixth floor of Ximed II Building to medical office use;
- Construction of Tower I of the hospital; and
- Construction of the Outpatient Pavilion Building.

The forecasted project trip generation for the Phase I (2015) With Project scenario is provided in **Table 18**.

Table 18
Proposed Land Uses and Forecast Project-Generated Trips by Phase I (2015)

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	IN	OUT	Total	IN	OUT
HOSPITAL	Trip Rates	20/bed	1.90/bed	1.70/bed	0.20/bed	2.10/bed	0.60/bed	1.50/bed
Demolish McDonald	-26 beds	-520	-47	-33	-14	-52	-16	-36
Shift from Existing to Tower I	+/-168 beds	0	0	0	0	0	0	0
MEDICAL OFFICE	Trip Rates	7.20/1000	1.60/KSF	1.00/KSF	0.60/KSF	1.80/KSF	0.60/KSF	1.20/KSF
Demolish Whittier	-36.006 KSF	-288	-26	-18	-8	-29	-9	-20
Convert Ximed 6th Floor	23.180 KSF	464	42	29	13	46	14	32
Demolish Admin/HR	-2.951 KSF	-59	-5	-3	-2	-6	-2	-4
Construct Outpatient Pavilion	175.000 KSF	3,500	315	221	95	350	105	245
SCIENTIFIC RESEARCH	Trip Rates	30/KSF	1.30/KSF	1.00/KSF	0.30/KSF	1.30/KSF	0.30/KSF	1.00/KSF
	0	0	0	0	0	0	0	0
Total Phase I (2015) Project Trips		**3,097**	**279**	**195**	**84**	**309**	**92**	**217**

Note: based on City of San Diego University Community Plan Trip Generation Rates KSF = Thousand Square Feet

As summarized in Table 18, the proposed Project Phase I is forecast to add 3,097 daily trips to the study area by year 2015. Construction activities will involve shifting 168 hospital beds from the existing hospital to Tower I. Therefore, no new hospital beds are proposed to be added to the campus by 2015.

Roadway improvements assumed by year 2015 as part of the North University City Public Facilities Financing Plan (NUC PFFP) include the widening of Regents Road from Executive Drive to Genesee Avenue into a four lane Major road; a dedicated southbound right-turn lane at La Jolla Village Drive / Regents Road; improvements to the I-805 / La Jolla Village Drive interchange; and

PHASE II (2025) CONDITIONS

Year Phase II (2025) conditions were evaluated without and with the project. Cumulative project traffic volumes forecasted by year 2025 were added to the baseline traffic volumes to determine the Without Project Conditions, which includes buildout of the UCSD Long Range Development and other projects within the study area. As shown previously in Table 16, a total of 74,345 daily cumulative project trips were assigned through the study area by 2025.

The forecasted project-generated traffic associated with the hospital plan through Phase II (2025) was then overlaid on the Without Project condition to evaluate project impacts through 2025. Planned changes to the campus forecast to occur between Phase I (2015) and Phase II (2025) include:

- Construction of Tower II
- Construction of Tower III (Phase I)

The forecasted project trip generation for the Phase II (2025) With Project scenario is provided in **Table 25.**

Table 25
Proposed Land Uses and Forecast Project-Generated Trips by Phase II (2025)

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	IN	OUT	Total	IN	OUT
HOSPITAL	*Trip Rates:*	*20 / bed*	*9%*	*70%*	*30%*	*10%*	*30%*	*70%*
Demolish McDonald	-26 beds	-520	-47	-33	-14	-52	-16	-36
Shift Existing to Tower I	+/-168 beds	0	0	0	0	0	0	0
Shift Existing to Tower II	+/- 168 beds	0	0	0	0	0	0	0
Shift Existing to Tower III (PI)	+/- 27 beds	0	0	0	0	0	0	0
Construct Tower III (PI)	141 beds	2,820	253	177	76	282	85	197
MEDICAL OFFICE	*Trip Rates:*	*20 / bed*	*9%*	*70%*	*30%*	*10%*	*30%*	*70%*
Demolish Whittier	-36.006 KSF	-288	-26	-18	-8	-29	-9	-20
Convert Ximed 6th Floor	23.180 KSF	464	42	29	13	46	14	32
Demolish Admin/HR	-2.951 KSF	-59	-5	-3	-2	-6	-2	-4
Construct Outpatient Pavilion	175.000 KSF	3,500	315	221	95	350	105	245
SCIENTIFIC RESEARCH	*Trip Rates:*	*8 / KSF*	*9%*	*70%*	*30%*	*10%*	*30%*	*70%*
	0	0	0	0	0	0	0	0
Total Phase II (2025) Project Trips		**5,917**	**532**	**372**	**160**	**591**	**177**	**414**

Source: City of San Diego University Community Plan Trip Generation Rates KSF= Thousand Square Feet PI = Phase I

As shown, the Project Phase II is forecast to add approximately 5,917 daily trips to the study area by year 2025. Of those trips, 2,820 are associated with the planned improvements forecast to occur between Phase I (2015) and Phase II (2025), which includes involve shifting 363 hospital beds from the existing hospital to Towers I and II and the addition of 141 beds added in Tower III (Phase I). **Exhibits 28 and 29** illustrate the Phase II (2025) peak hour and daily trip assignments, respectively.

Table 32

Proposed Land Uses and Forecast Project-Generated Trips by Phase III (2035)

Land Use	Size	Daily Trips	AM Peak Hour			PM Peak Hour		
			Total	IN	OUT	Total	IN	OUT
HOSPITAL	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Demolish McDonald	-26 beds	-520	-47	-33	-14	-52	-16	-36
Shift Existing to Tower I	+/-168 beds	0	0	0	0	0	0	0
Shift Existing to Tower II	+/- 168 beds	0	0	0	0	0	0	0
Shift Existing to Tower III (P1)	+/- 27 beds	0	0	0	0	0	0	0
Construct Tower III (P1)	141 beds	2,820	253	177	76	282	85	197
Construct Tower III (P2)	27 beds	540	49	34	15	54	16	38
MEDICAL OFFICE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Demolish Whittier	-36.006 KSF	-288	-26	-18	-8	-29	-9	-20
Convert Ximed 6th Floor	23.180 KSF	464	42	29	13	46	14	32
Demolish Admin/HR	-2.951 KSF	-59	-5	-3	-2	-6	-2	-4
Construct Outpatient Pavilion	175.000 KSF	3,500	315	221	95	350	105	245
Demolish Radiation-Oncology	-18.000 KSF	-360	-32	-22	-10	-36	-11	-25
Construct Shaetzel/South MOB	234.500 KSF	4,690	422	295	127	469	141	328
SCIENTIFIC RESEARCH	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Demolish Mericos	-5.500 KSF	-44	-4	-3	-1	-4	-1	-3
Construct Shaetzel	31.500 KSF	252	23	16	7	25	8	18
Total Phase III (2035) Project Trips		**10,995**	**990**	**693**	**297**	**1,099**	**330**	**770**

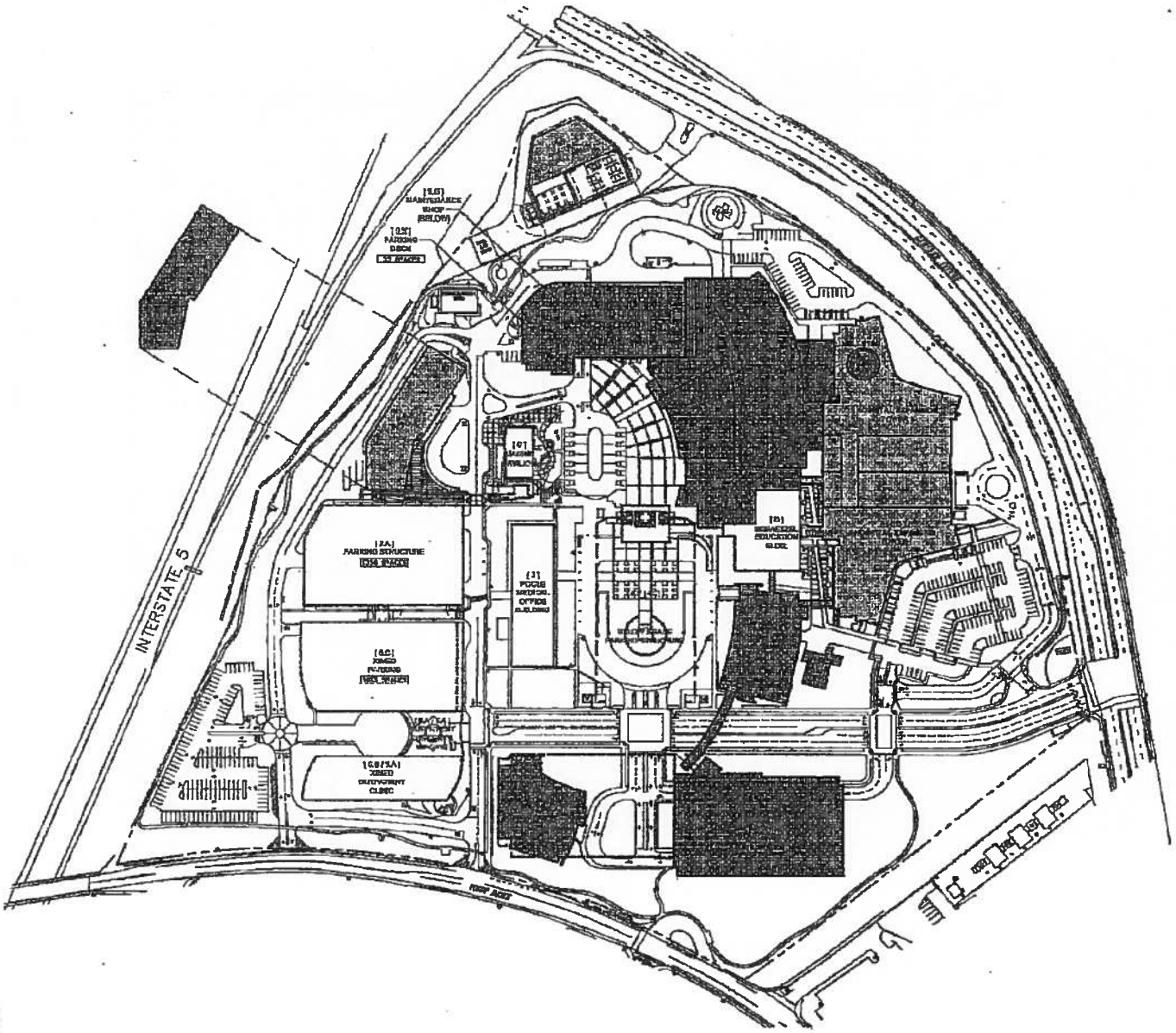
Source: City of San Diego University Community Plan Trip Generation Rates
KSF = Thousand Square Feet P1 = Phase 1 P2 = Phase 2

The Phase III (2035) scenario evaluates the operating conditions of the study intersections and roadway segments, assuming the Phase II (2025) roadway network plus planned improvements to be completed by year 2035, which includes the I-805 and I-5 Managed Lanes project by SANDAG/Caltrans. As stated previously, these project will widen the freeways, complete interchange improvements, and construct Direct Access Ramps (DAR) including one at I-5/Voigt Drive. Improvements at the Voigt Drive DAR include widening Voigt Drive, construction of a new signals at Gilman Drive / Voigt Drive and I-5 DAR/Voigt Drive, and improvements to Campus Point Drive.

The project site will be primarily accessible from the the Scripps Hospital Road at Genesee Avenue intersection. To accommodate the future forecast traffic at this intersection, several improvements will be made by year 2035:

- Dual northbound left and right turn lanes exiting the campus will be provided
- Dual left-turn lanes from Genesee Avenue (heading northwesterly) entering the campus will be constructed
- A right-turn overlap phases for the northbound (exiting) and eastbound (entering) turning movements will be installed along with associated "No U-Turn" restrictions.

Exhibit 37 illustrates the proposed year Phase III (2035) intersection lane geometries for the study area.



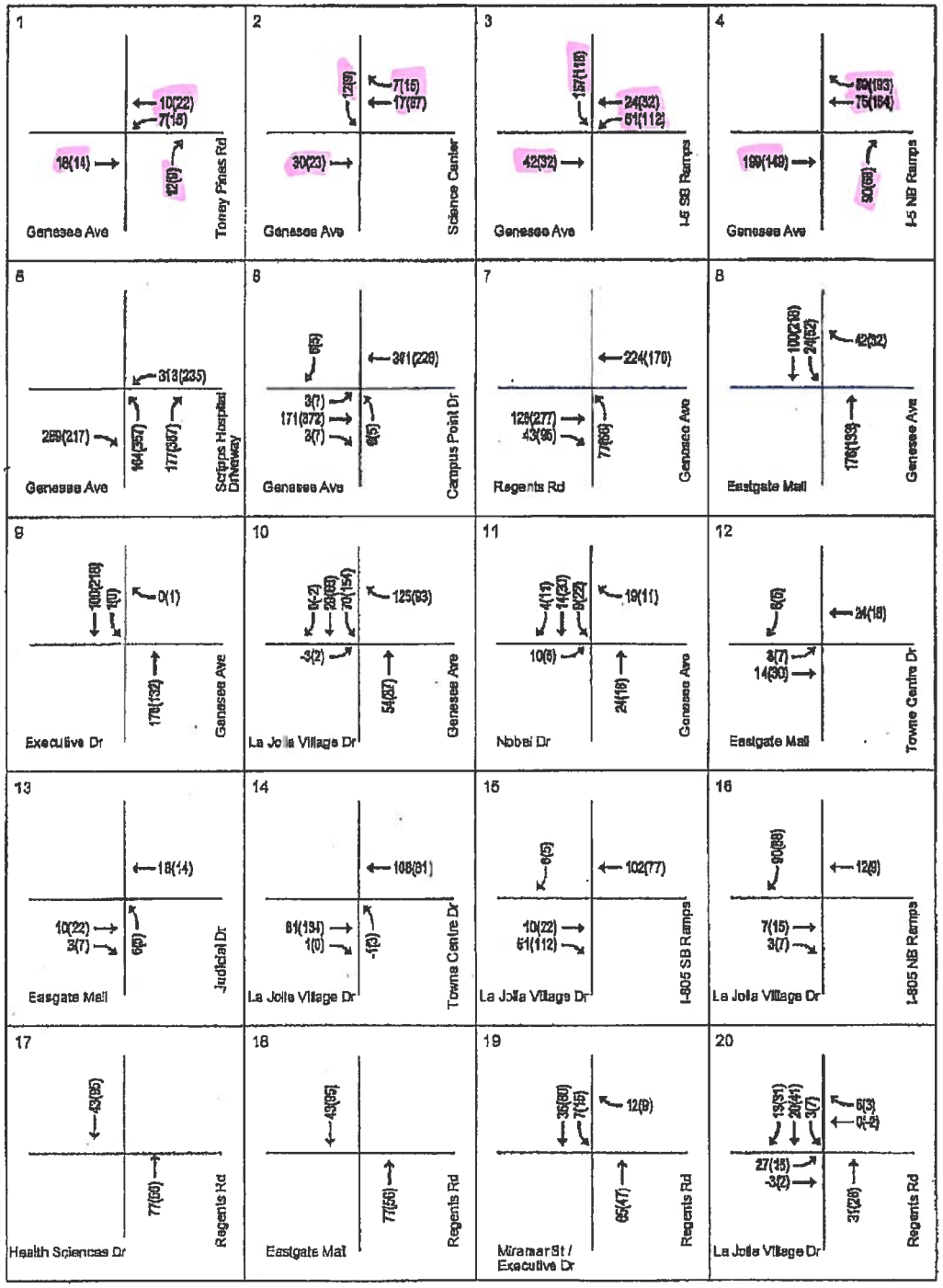
NOT TO SCALE

RBF

55-100688.001 NOVEMBER 2011

PROJECT SITE PLAN

EXHIBIT 3



LEGEND

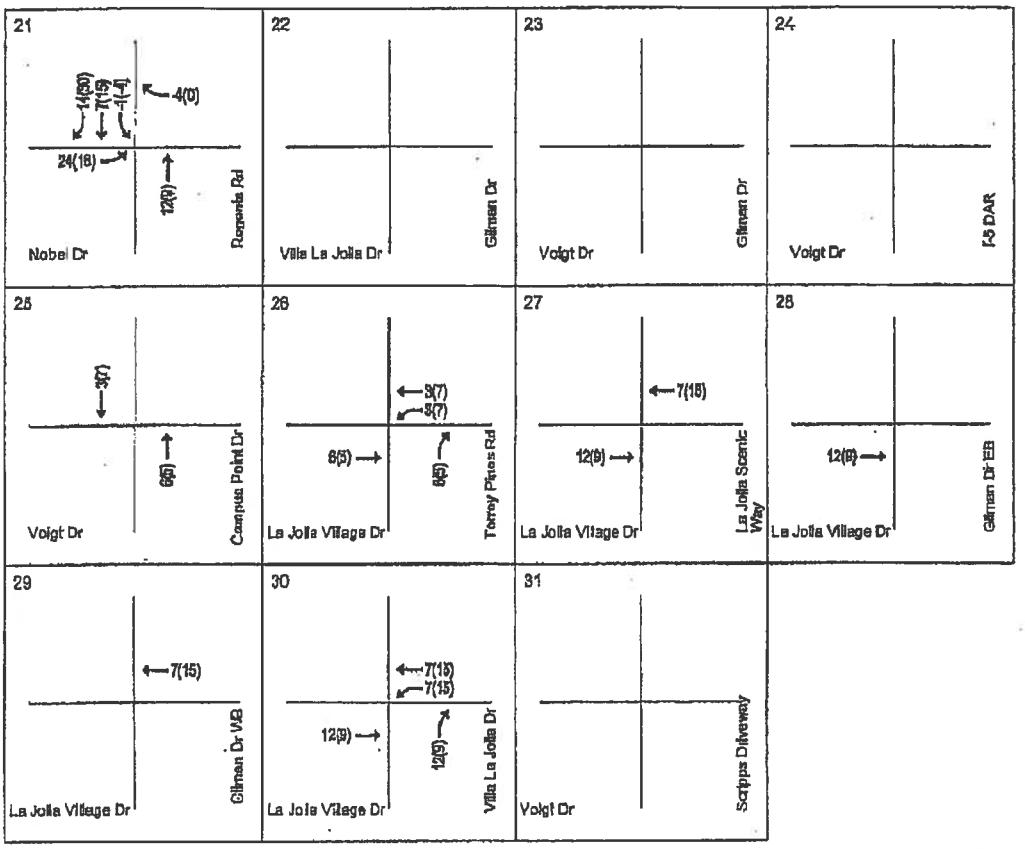
XX(XX) AM/PM PEAK HOUR VOLUME

RBF

PHASE I (2015) PEAK HOUR PROJECT TRIP ASSIGNMENT

55-100698.001 NOVEMBER 2011

EXHIBIT 22



LEGEND

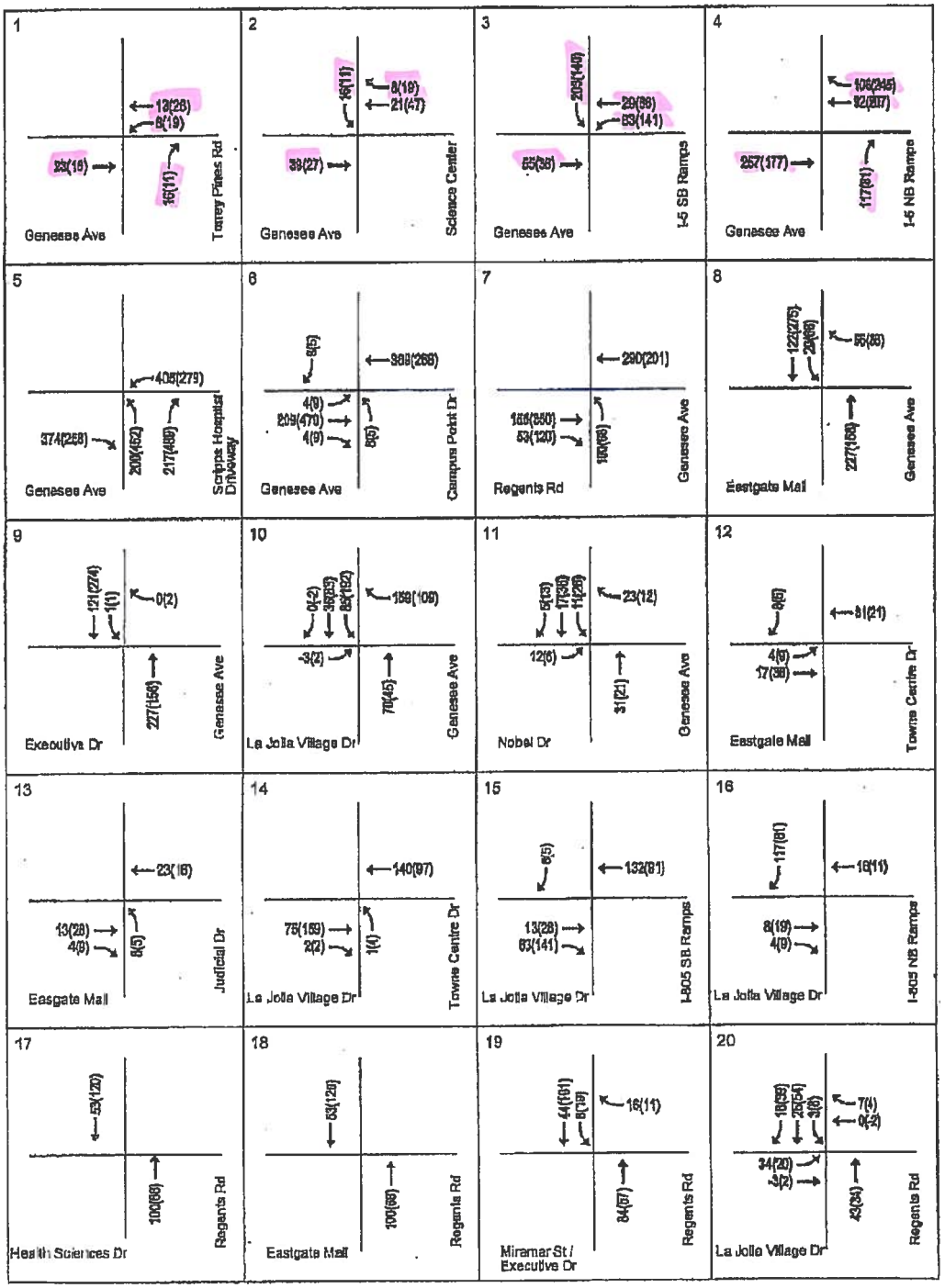
XX(XX) AM/PM PEAK HOUR VOLUME

RBF

PHASE I (2015) PEAK HOUR PROJECT TRIP ASSIGNMENT

55-100696.001 NOVEMBER 2011

EXHIBIT 22



LEGEND

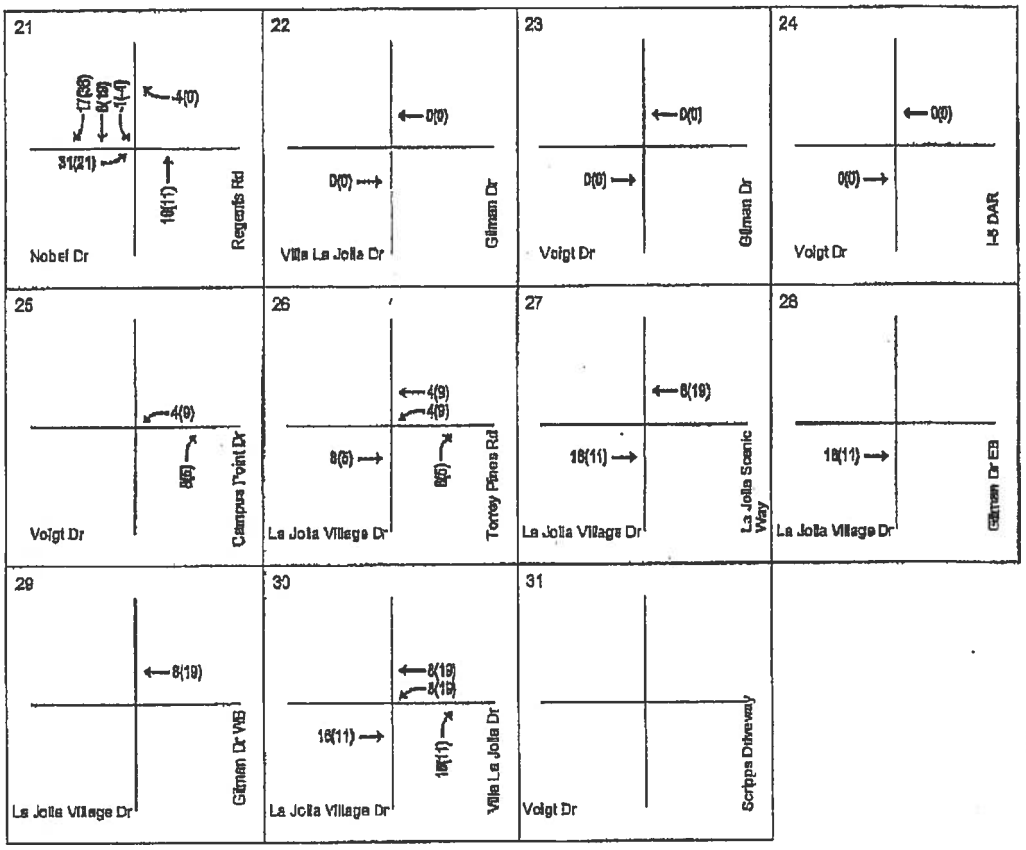
XX(XX) AM/PM PEAK HOUR VOLUME

RBF

PHASE II (2025) PEAK HOUR PROJECT TRIP ASSIGNMENT

55-100898.001 NOVEMBER 2011

EXHIBIT 28



LEGEND

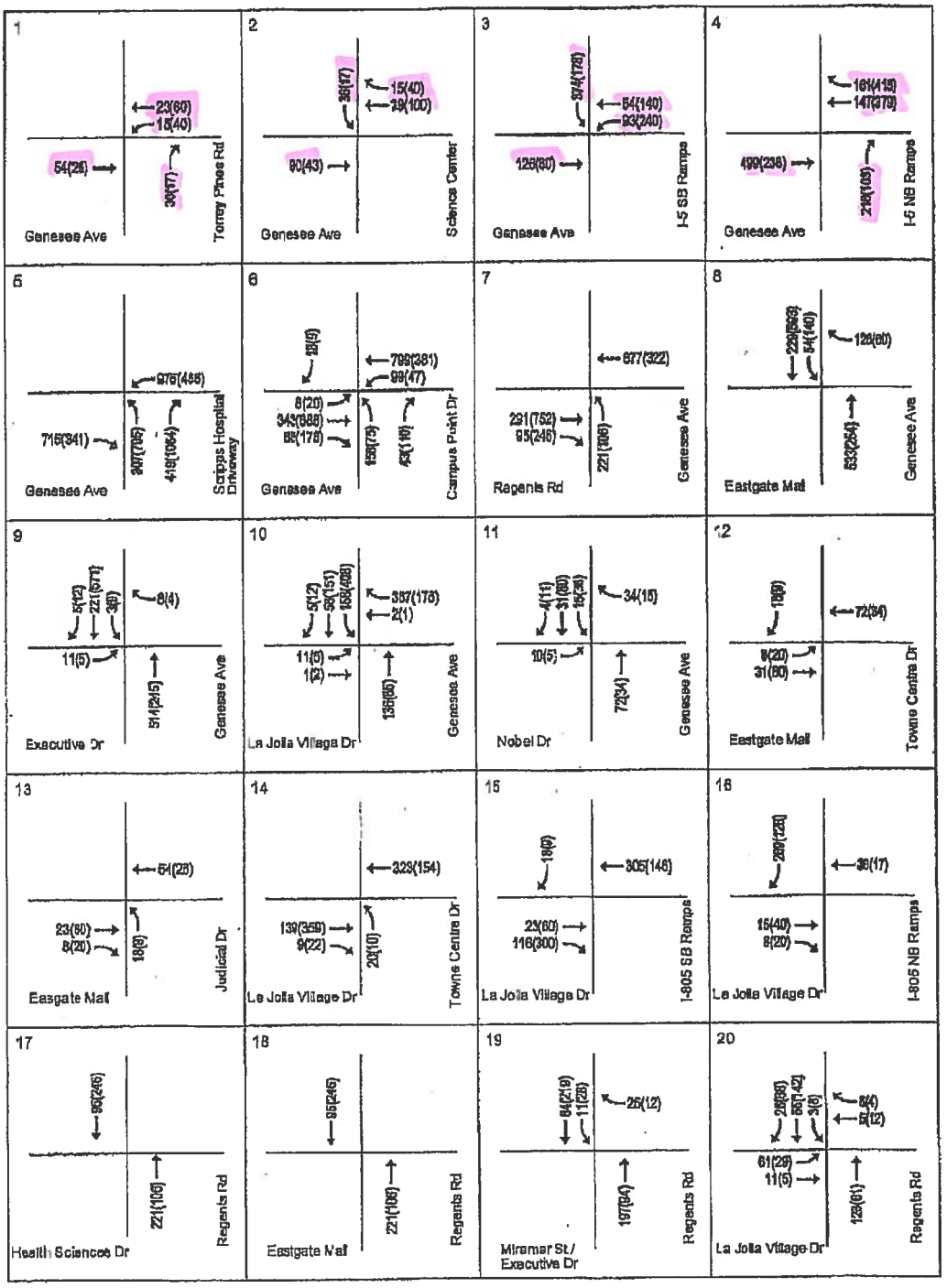
XX(XX) AM/PM PEAK HOUR VOLUME

RBF

55-100698.001 NOVEMBER 2011

PHASE II (2025) PEAK HOUR PROJECT TRIP ASSIGNMENT

EXHIBIT 28



LEGEND

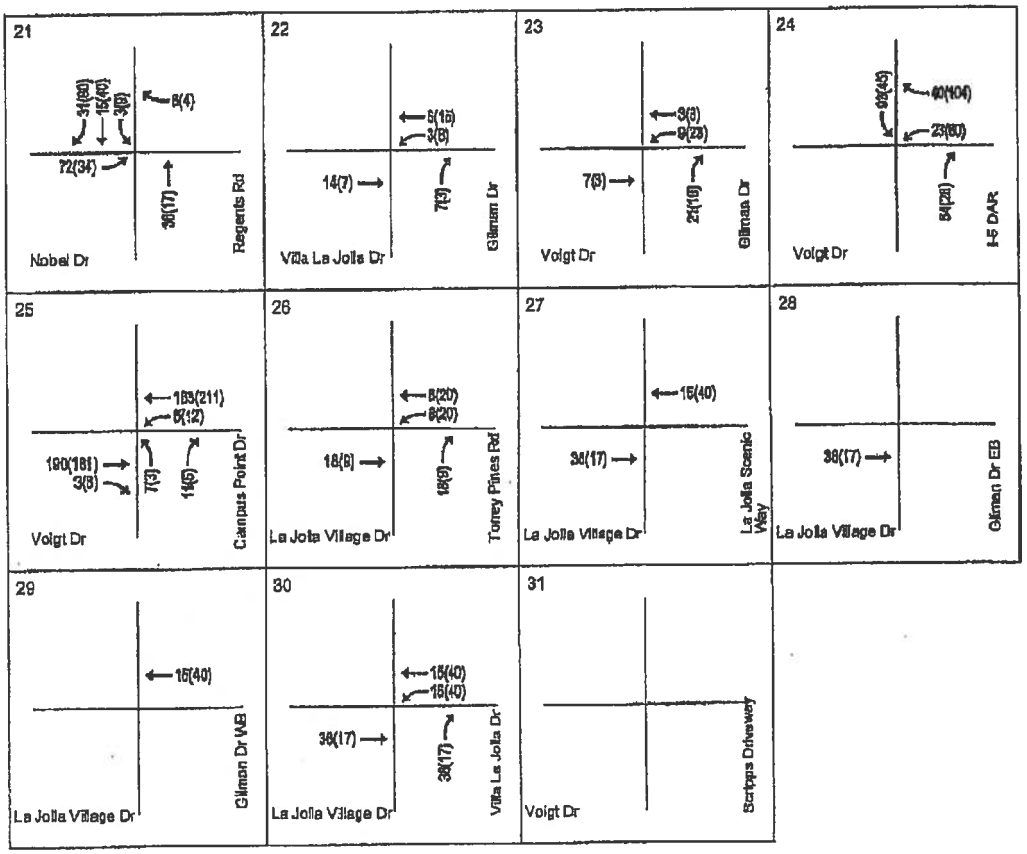
XX(XX) AM/PM PEAK HOUR VOLUME

RBF

PHASE III (2035) PEAK HOUR PROJECT TRIP ASSIGNMENT

55-100598.001 NOVEMBER 2011

EXHIBIT 35



LEGEND

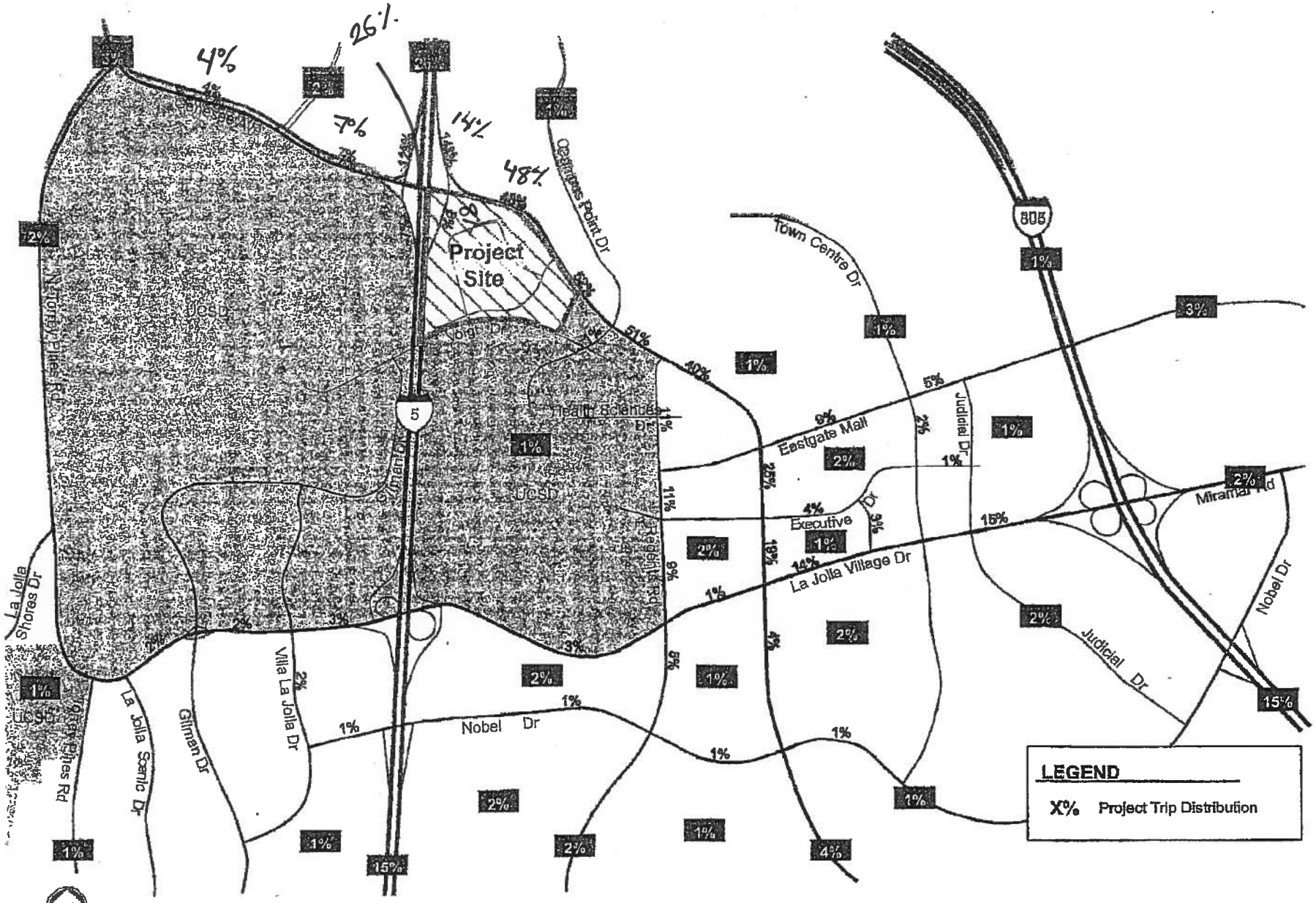
XX(XX) AM/PM PEAK HOUR VOLUME

RBF

PHASE III (2035) PEAK HOUR PROJECT TRIP ASSIGNMENT

58-100698.001 NOVEMBER 2011

EXHIBIT 35



PHASE I (2015) - PHASE II (2025) PROJECT TRIP DISTRIBUTION

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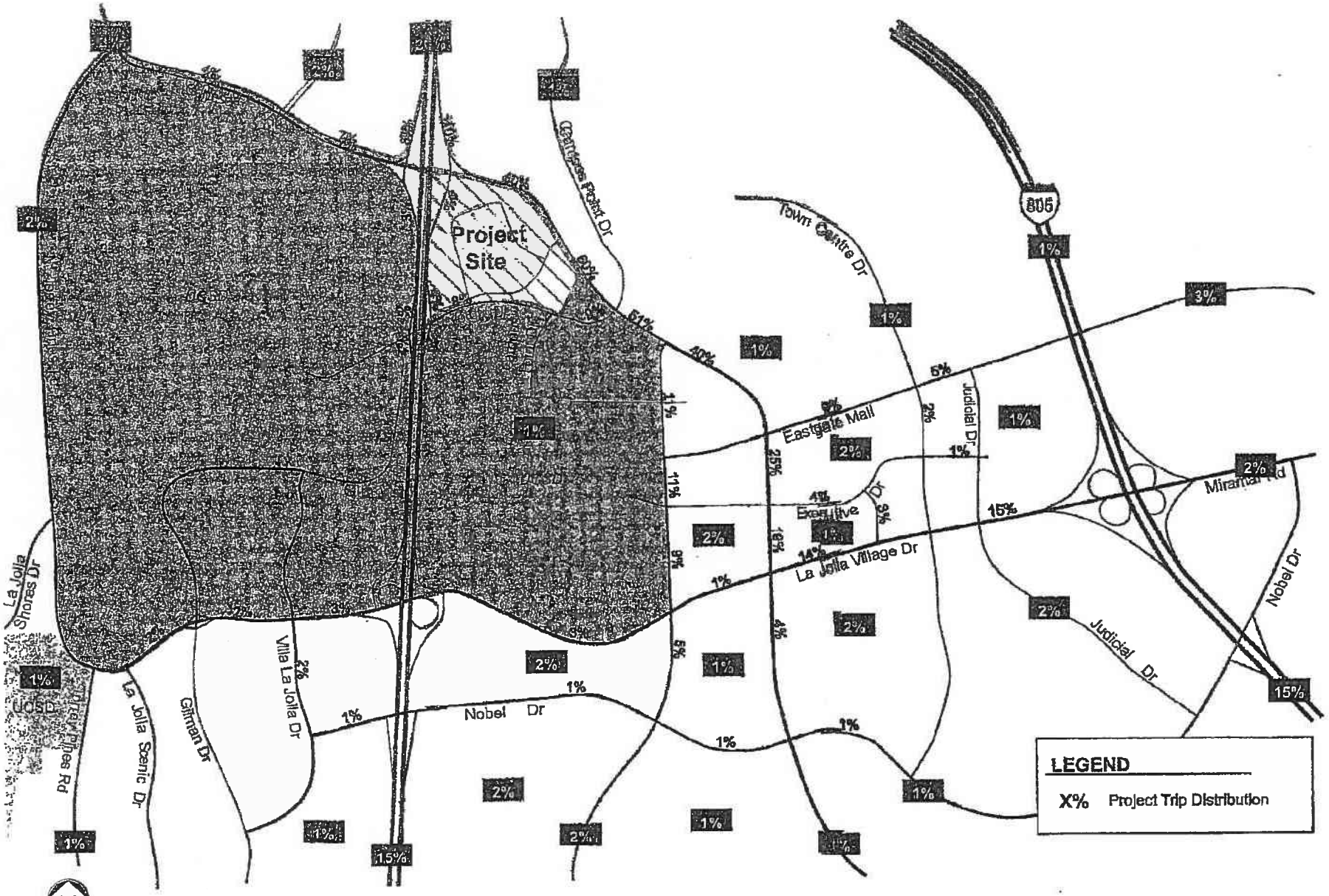

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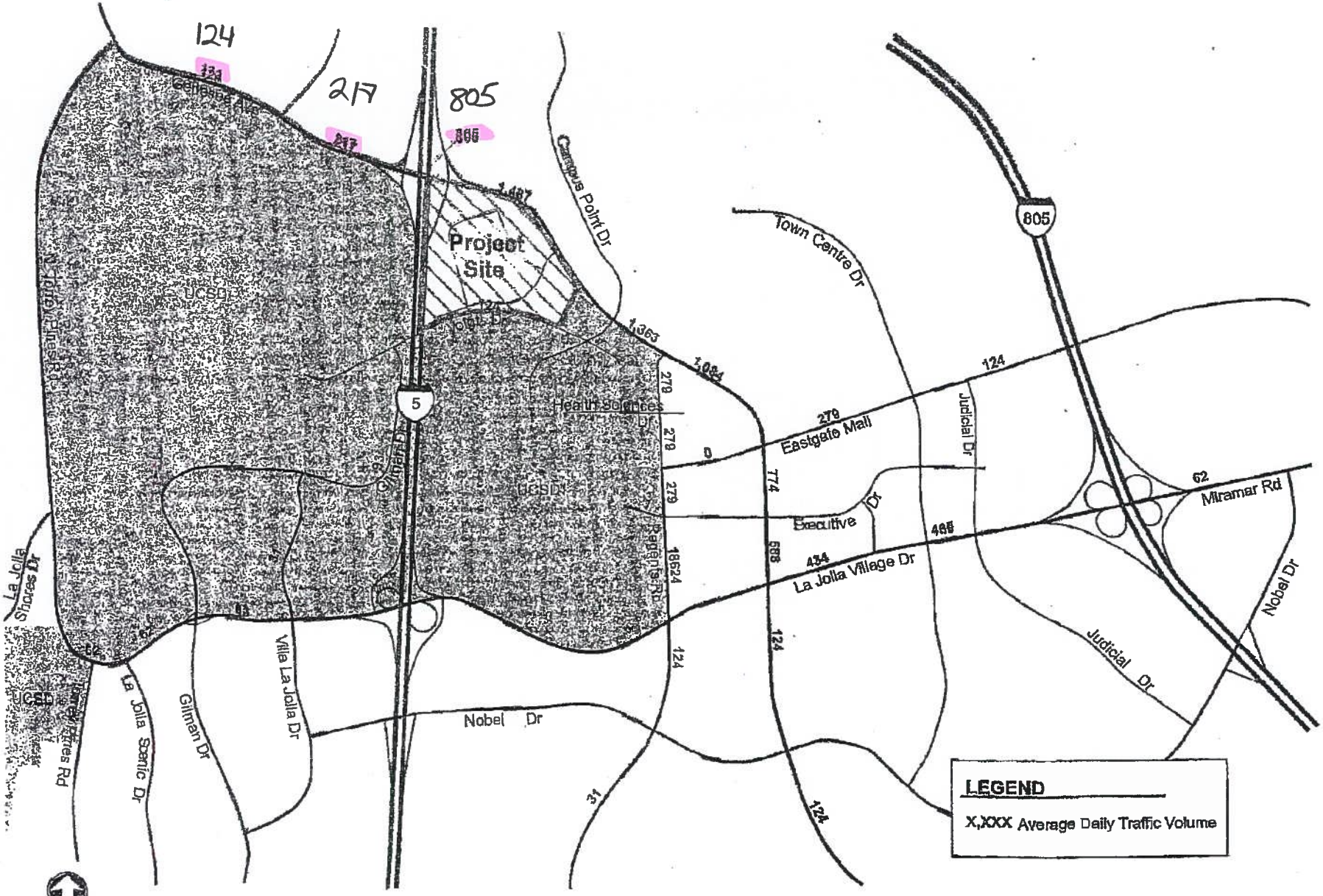
55-100898.001 NOVEMBER 2011

2035 PROJECT TRIP DISTRIBUTION

EXHIBIT 13

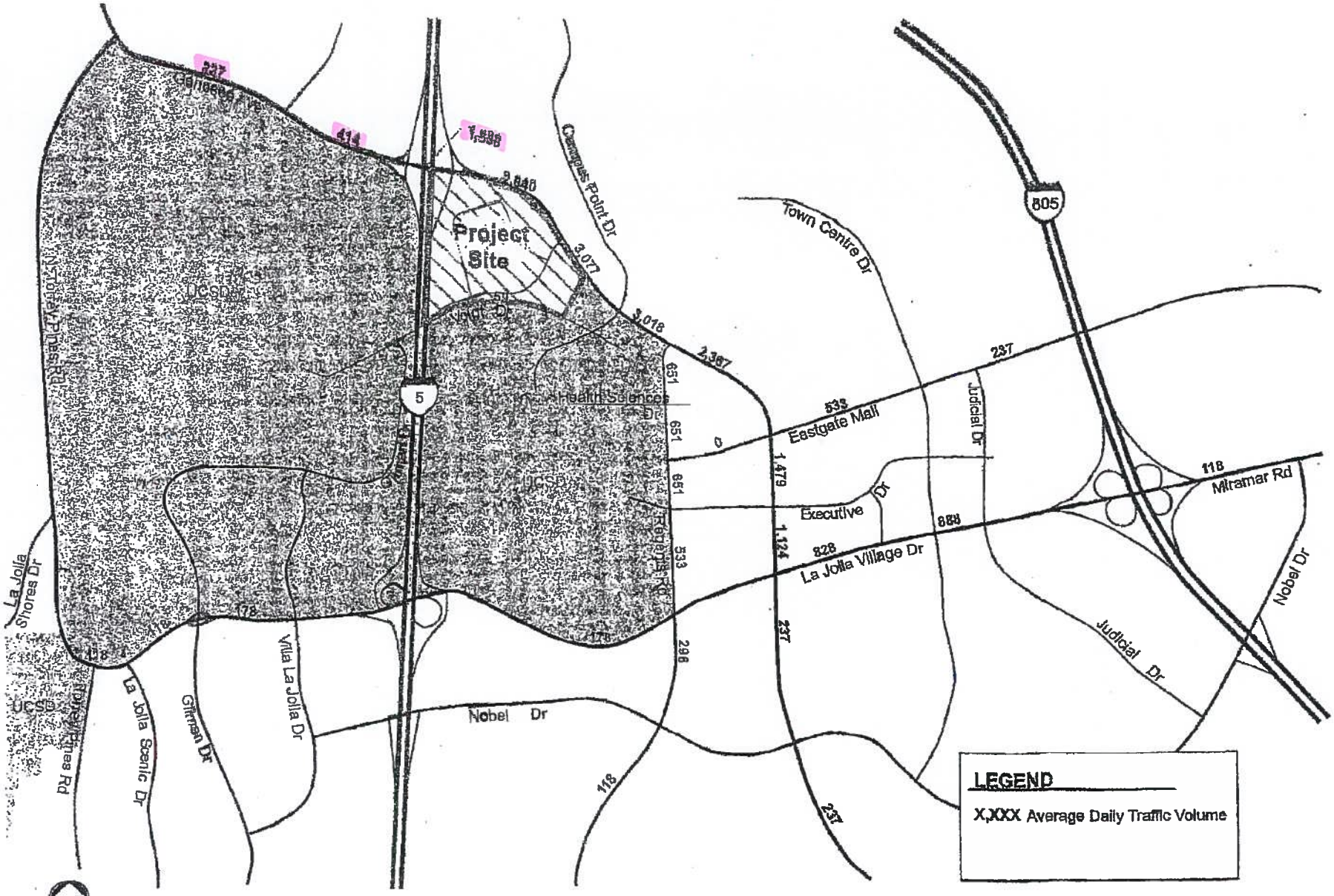


RBF

55-100698.061 NOVEMBER 2011

PHASE I (2015) DAILY PROJECT TRIP ASSIGNMENT

EXHIBIT 23



LEGEND

X,XXX Average Daily Traffic Volume

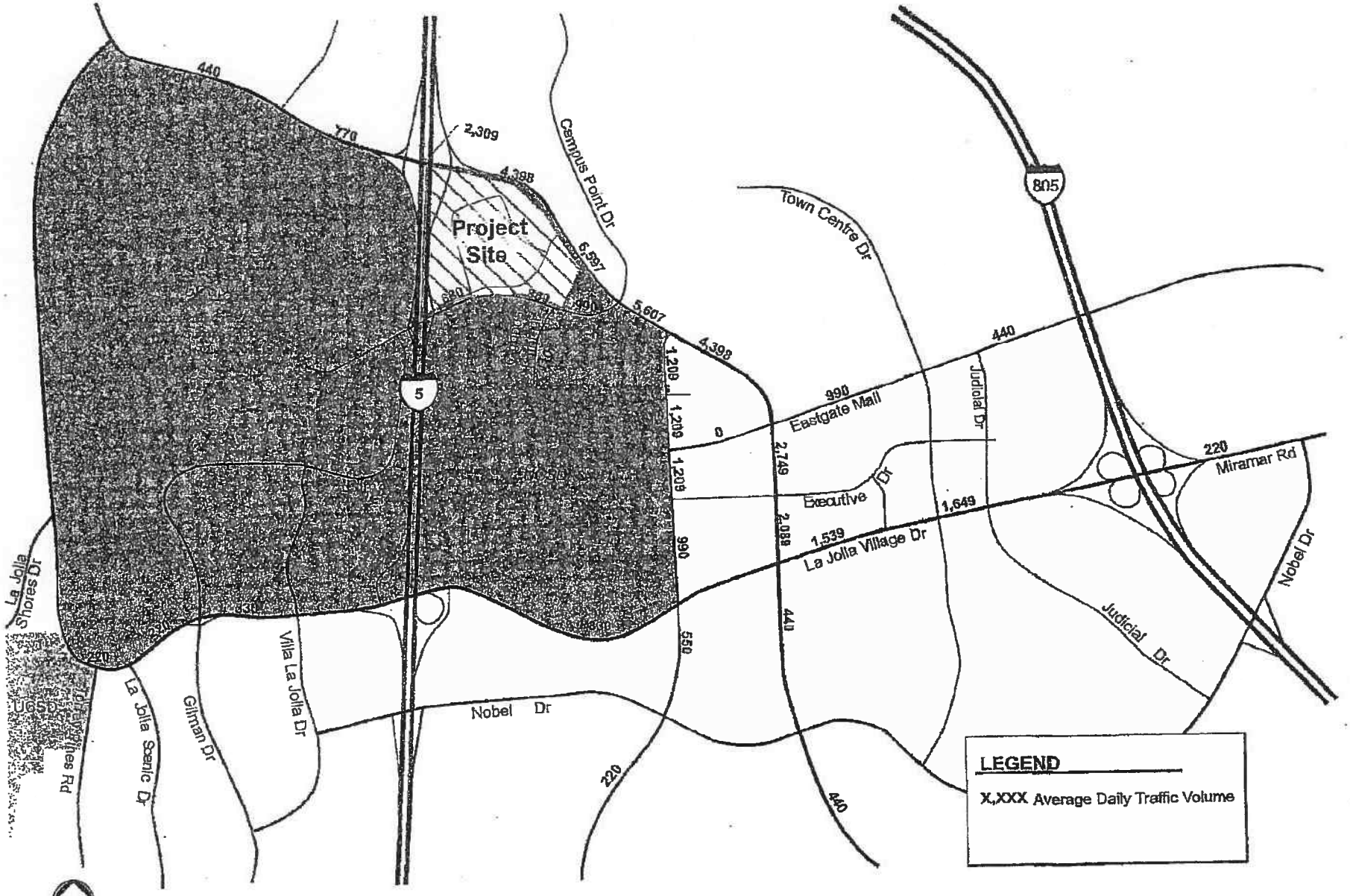
NOT TO SCALE

RBF

PHASE II (2025) DAILY PROJECT TRIP ASSIGNMENT

55-100696.001 NOVEMBER 2011

EXHIBIT 29



NOT TO SCALE

RBF

55-100698.001 NOVEMBER 2011

PHASE III (2035) DAILY PROJECT TRIP ASSIGNMENT

EXHIBIT 36

LINSCOTT
LAW &
GREENSPAN
engineers

UCSD

University of California, San Diego
Clinical & Translational Research Institute (CTRI)

September 2011

Prepared by

Linscott, Law & Greenspan, Engineers
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2.0 PROJECT DESCRIPTION

The following is a discussion of the Proposed Project's location and development description.

2.1 Project Location

The Proposed Project is located within the East Campus Health Sciences Neighborhood of the UCSD campus. The East Campus represents a collection of land uses, which consist of the *East Campus Medical Center*, *Science Research Park*, *Mesa Graduate and Married-Student Housing*, and school and campus recreation facilities.

The East Campus Medical Center includes the *Thornton Hospital*, the *Moores Cancer Research Center*, the *Perlman Ambulatory Care Center*, the *Shiley Eye Center* and *Sulpezio Cardiovascular Center*. The larger, East Campus area is bounded by Voigt Drive and Genesee Avenue to the north, Regents Road to the east, La Jolla Village Drive to the south, and Interstate 5 (I-5) to the west. Access is provided via Genesee Avenue, Regents Road, and the Voigt Drive Bridge over I-5. No direct access from La Village Drive is provided.

Within the *East Campus Medical Center*, the Proposed Project is located on the approximately 4.27-acre undeveloped site in and adjacent to the upland portion of the north canyon. Located north of the recently opened CVC, the CTRI site is bounded on the north by existing open space; to the south by Medical Center Drive North, other roads and buildings; to the west by the I-5 corridor; and to the east by the ECPS.

2.2 Project Description

The Proposed Project consists of two major components: CTRI and the East Campus Utility Plant (ECUP) expansion. It should be noted that only CTRI generates traffic.

2.2.1 *CTRI*

The approximately 360,000-gross square foot (GSF) CTRI building is proposed to create a multi-disciplinary environment to bring together in one location biologists, engineers, and clinical investigators, many of whom are internationally renowned faculty researchers, to match clinical needs with technology. The physical building also would provide a single collaboration and work space for the members of UCSD's existing Clinical and Translational Research Institute Organized Research Unit (ORU). UCSD's ORUs are multi-disciplinary programs that cut across traditional boundaries of schools and departments; as such, the existing members of the CTRI ORU currently are scattered around the east and west campus in various locations.

The CTRI building program has been organized to include eight distinct types of space within the 360,000-GSF building. These spaces would include wet research laboratories, dry research laboratories, laboratory core facilities, a vivarium, human subject research and clinical core facilities, CTRI administration and support offices, CVC physician and administrative support offices, and building common areas and support spaces.

2.2.3 East Campus Utility Plant Expansion

The second project component is expansion of the existing East Campus Utility Plan (ECUP), located adjacent to parking lot P703. The existing ECUP houses a utility plant and mechanical yard and provides centralized chilled water and emergency power to non-hospital facilities in the ECHS neighborhood. The ECUP was designed and sized to allow expansion and modification to accommodate future growth, including the CTRI facility. The proposed expansion would include 1) the addition of up to 1,400 tons of cooling capacity, likely in the form of two 700-ton electric centrifugal chillers with associated support systems, cooling towers, pumps, electrical switchgear; and 2) an upgrade in capacity of the emergency power generation and support equipment, including installation of one 1,500-kW, 12-kV diesel generator and expansion of the switchgear to include the generator breaker and two protective feeder breakers. The structural addition(s) proposed for the ECUP would be substantially similar to the existing ECUP facilities in architecture and materials, albeit with a smaller footprint, and would be built to the northeast of and immediately adjacent to the existing ECUP.

No additional staff is required to maintain the ECUP expansion. Therefore, expansion of the ECUP would not be expected to generate any appreciable traffic volumes, and is therefore not analyzed separately from the CTRI component.

8.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

8.1 Trip Generation

The proposed CTRI project consists of two primary components: the CTRI building, and the East Campus Utility Plant expansion. The CTRI component will function as an academic research facility with associated administration and support offices. The traffic generation associated with the CTRI component of the project is calculated using the "Academic Research" land use trip rate published in the *UCSD Trip Generation Assessment* (LLG 2010) and appended to the *2004 UCSD LRDP Traffic Update* (LLG 2010). The East Campus Utility Plant component proposes expanded space for utility equipment (e.g., water chillers, etc.) and would not be expected to generate new traffic, as no additional staff would be required to maintain the facilities expansion.

Table 8–1 tabulates the total project traffic generation. The total project is calculated to generate 2,880 ADT with 415 inbound/ 46 outbound trips during the AM peak hour and 40 inbound/ 363 outbound trips during the PM peak hour.

8.2 Trip Distribution/Assignment

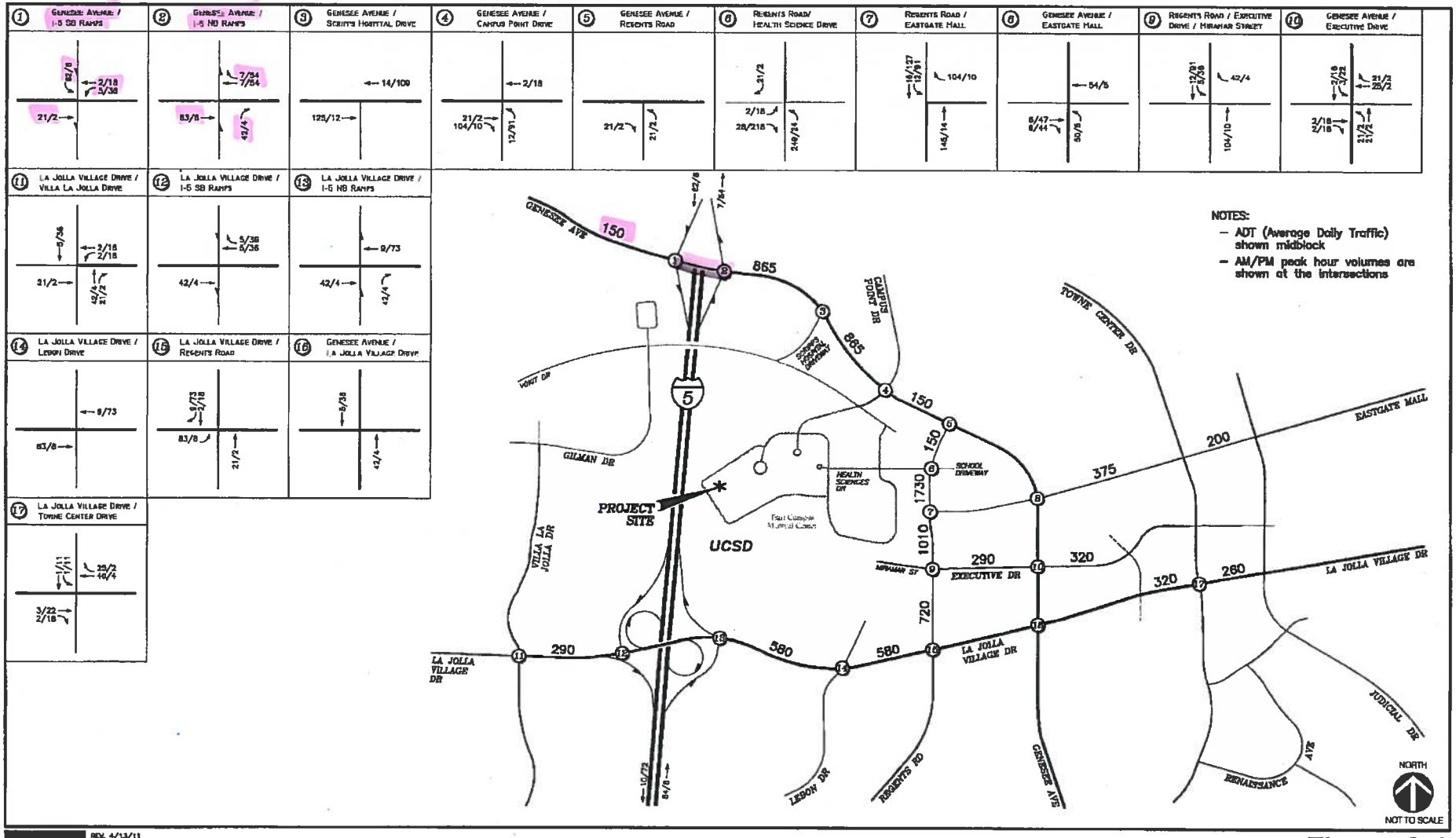
To determine the overall project's regional trip distribution percentages, a Select Zone Assignment (SZA) was obtained from SANDAG. The model was reviewed to ensure appropriate land uses were accounted for in the UCSD East Campus TAZ.

Figure 8–1 shows the project's regional traffic distribution. ***Figure 8–2*** shows the assignment of project peak hour volumes and ADT based on this distribution.

TABLE 8–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
		Rate [a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out	% of ADT	In:Out Split	Volume In	Volume Out
Academic Research	360 ksf	8 /ksf	2,880	16%	90:10	415	46	14%	10:90	40	363

Footnotes:
Trip Generation Assessment in LRDP Traffic Update (LLG 2010)



LINSCOTT LAW & GREENSPAN engineers

REV. 4/13/11
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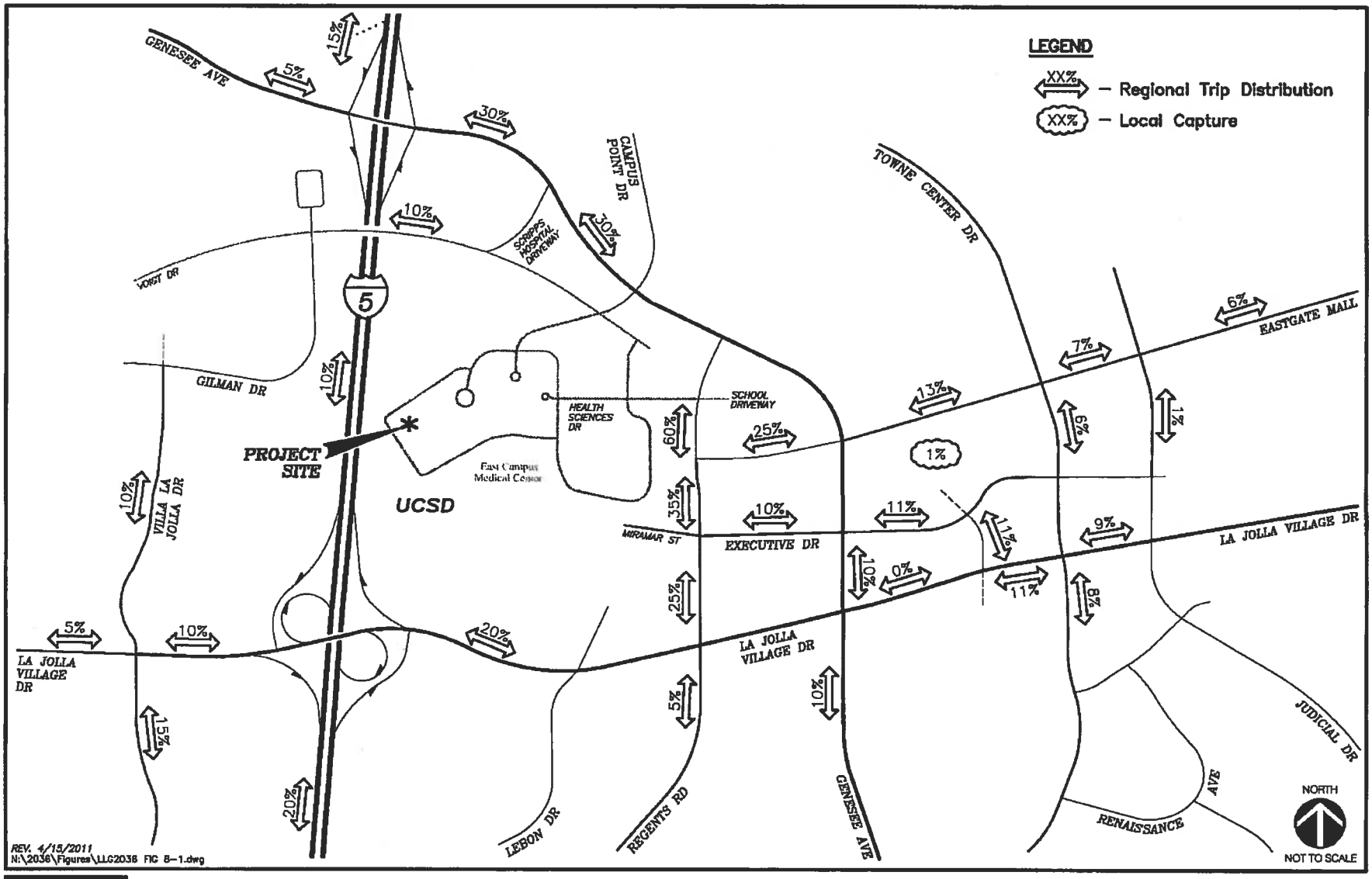
Figure 8-2

Project Traffic Volumes AM/PM Peak Hours & ADT

CLINICAL & TRANSLATIONAL RESEARCH INSTITUTE PROJECT



LINSCOTT LAW & GREENSPAN engineers

Figure 8-1

Regional Traffic Distribution

CLINICAL & TRANSLATIONAL RESEARCH INSTITUTE PROJECT

LINSCOTT
LAW &
GREENSPAN
engineers

UCSD

Traffic Impact Study for University of California, San Diego
Mesa Housing

April 21, 2015

Prepared by

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2.0 PROJECT DESCRIPTION

The following is a discussion of the proposed Project's location and development description.

2.1 Project Location

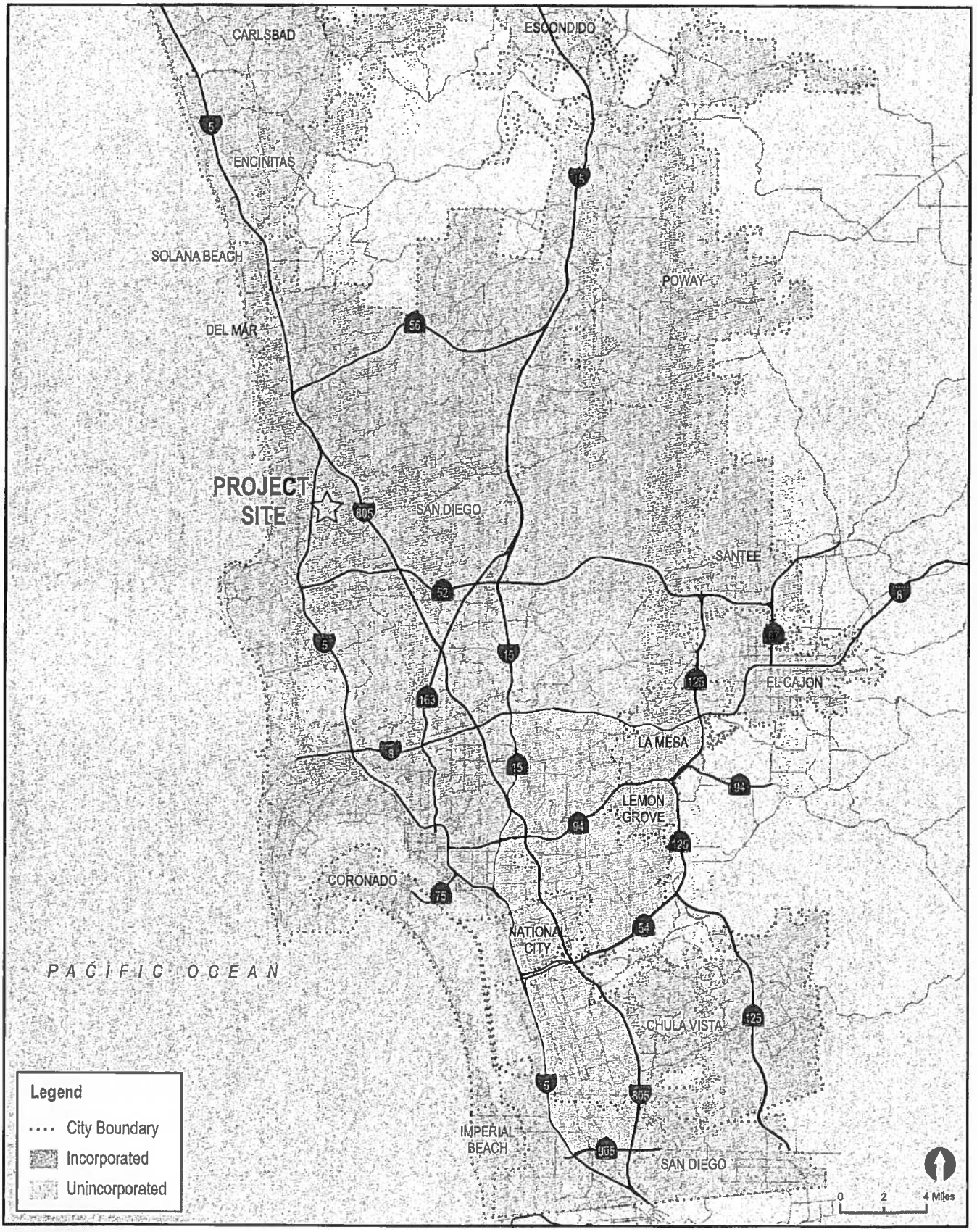
The University of California, San Diego (UCSD) main campus includes over 1,200 acres extending from the Pacific Ocean to the east side of Interstate 5 (I-5), in the northern portion of the City of San Diego and adjacent to the communities of La Jolla and University City. The site is located on the UCSD's East Campus, adjacent to the One Miramar Apartments, on the east side of Interstate 5 (I-5) within the City of San Diego.

Figure 2–1 shows a Project vicinity map. ***Figure 2–2*** shows the Project area map.

2.2 Project Description

Student housing and faculty / staff housing is proposed. This includes 853 micro-apartments for graduate students (one bed per unit) and 232 apartment units for faculty/staff (consisting of 1-, 2-, and 3-bedroom units) within five multi- story, predominantly mid-rise residential buildings. In addition, the Project includes common spaces such as staff offices, meeting rooms and computer access areas, indoor and outdoor community gathering areas, outdoor passive and active recreation spaces, and parking consisting of surface spaces and a multi-tiered, above-ground parking structure. Parking Associated with the new housing will be located northwest of the structures and only accessible by Miramar Street. 88 two bedroom existing graduate student units within the Mesa Neighborhood, and the associated parking spaces, will be removed as a result of the Project. The Project site lies in the East Campus on a 17-acre site.

Figure 2–3 depicts the proposed Project site plan.



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Date: 04/03/15

Figure 2-1

Vicinity Map

UCSD - MESA HOUSING

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation

Daily Project trip generation was determined using site specific rates derived from 3-day counts conducted at the La Jolla Del Sol and One Miramar Apartments in May 2014. La Jolla Del Sol provides housing for UCSD faculty and staff while the One Miramar Apartments provide two-bedroom apartments specifically for graduate students at UCSD. The student housing rate derived from the counts was 1.26 ADT / bed and the faculty / staff housing rate was determined to be 3.35 ADT / bed. Due to the relatively small sample size, a 10% increase in ADT was assumed when calculating the Project's trip generation. Therefore, the trip rates used in the study were 1.38 ADT / bed for the student housing and 3.69 ADT / bed for the faculty / staff housing. The student rate was also used to determine the amount of traffic associated with the 88 existing two-bedroom student housing units, which are proposed to be removed as a result of the Project.

Table 7–1 shows the total trip generation summary for the proposed Project. As shown in *Table 7-1*, the Project is calculated to generate a net total of 2,786 ADT with 109 total AM peak hour trips (34 inbound/ 75 outbound) and 106 total PM peak hour trips (63 inbound/ 43 outbound).

Appendix E contains more information on the Site Specific Rates.

TABLE 7–1
UCSD MESA HOUSING TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
		Rate[a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out	% of ADT	In:Out Split	Volume In	Volume Out
Proposed Land Uses											
Student Housing	853 Beds [b]	1.38 / Bed	1,177	*2.27%*	35:65	9	18	*2.67%*	48:52	15	16
Faculty / Staff Housing	502 Beds [c]	3.69 / Bed	1,852	*4.74%*	31:69	27	61	*4.40%*	63:37	51	30
Subtotal	*1,355 Beds*	-	*3,029*	-	-	*36*	*79*	-	-	*66*	*46*
Existing Land Uses											
Student Housing	176 Beds [d]	1.38 / Bed	243	*2.27%*	35:65	2	4	*2.67%*	48:52	3	3
Net Total		-	*2,786*	-	-	*34*	*75*	-	-	*63*	*43*

Footnotes:

a. Site specific trip generation rates derived from counts conducted at the One Miramar Apartments (student housing) and La Jolla Del Sol (faculty/staff housing). Counts were conducted over a three day period between May 20th and May 22nd, 2014. Due to the relatively small sample size, a 10% increase in ADT was applied to the counted rates.

b. Proposed student housing will provide 853 "micro-units" with one bed per unit.

c. The proposed faculty housing will include 44 one-bedroom units, 166 two-bedroom units and 42 three-bedroom units for a total of 502 beds.

d. Existing 88 two-bedroom units proposed to be demolished and replaced with the Project.

General Notes:
ADT = Average Daily Traffic

7.2 Trip Distribution/Assignment

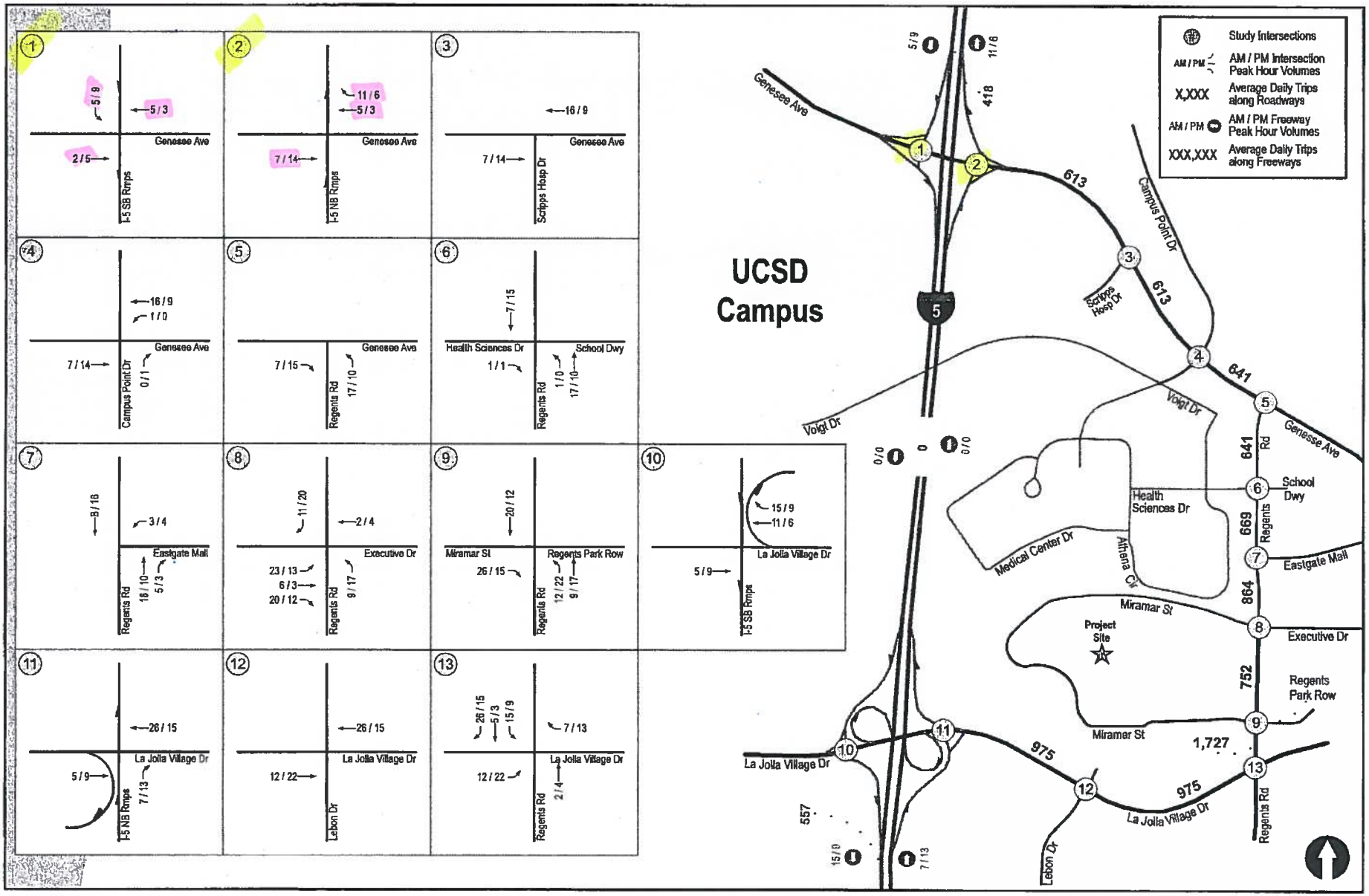
Project traffic was distributed to the street system based on existing traffic patterns and knowledge of the local area from other traffic studies conducted in the area.

Figure 7–1 shows the Project's regional traffic distribution. ***Figure 7–2*** shows the Project traffic assignment.

7.3 Regional Traffic Benefit

An important consideration for student and faculty housing land uses is that, while they do add traffic to the immediate area, the placement of such housing in close proximity to the UCSD campus will significantly shorten or eliminate otherwise much longer trips. For instance, if the Project were not built, students would need to live in other areas of San Diego such as Pacific Beach or Mission Valley and drive much longer distances to the University campus. In addition, the area surrounding the University campus provides a variety of resources for personal needs such as grocery stores, a shopping mall, recreational facilities, etc., narrowing down the need to travel farther distances. These characteristics associated with the location of the Project effectively minimize the number of vehicle miles traveled for the population that would occupy the proposed housing.

Based on the above discussion, the Project is considered a net benefit in terms of regional traffic "impacts".



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Date: 04/08/15

Figure 7-2

Project Traffic Volumes

UCSD - MESA HOUSING

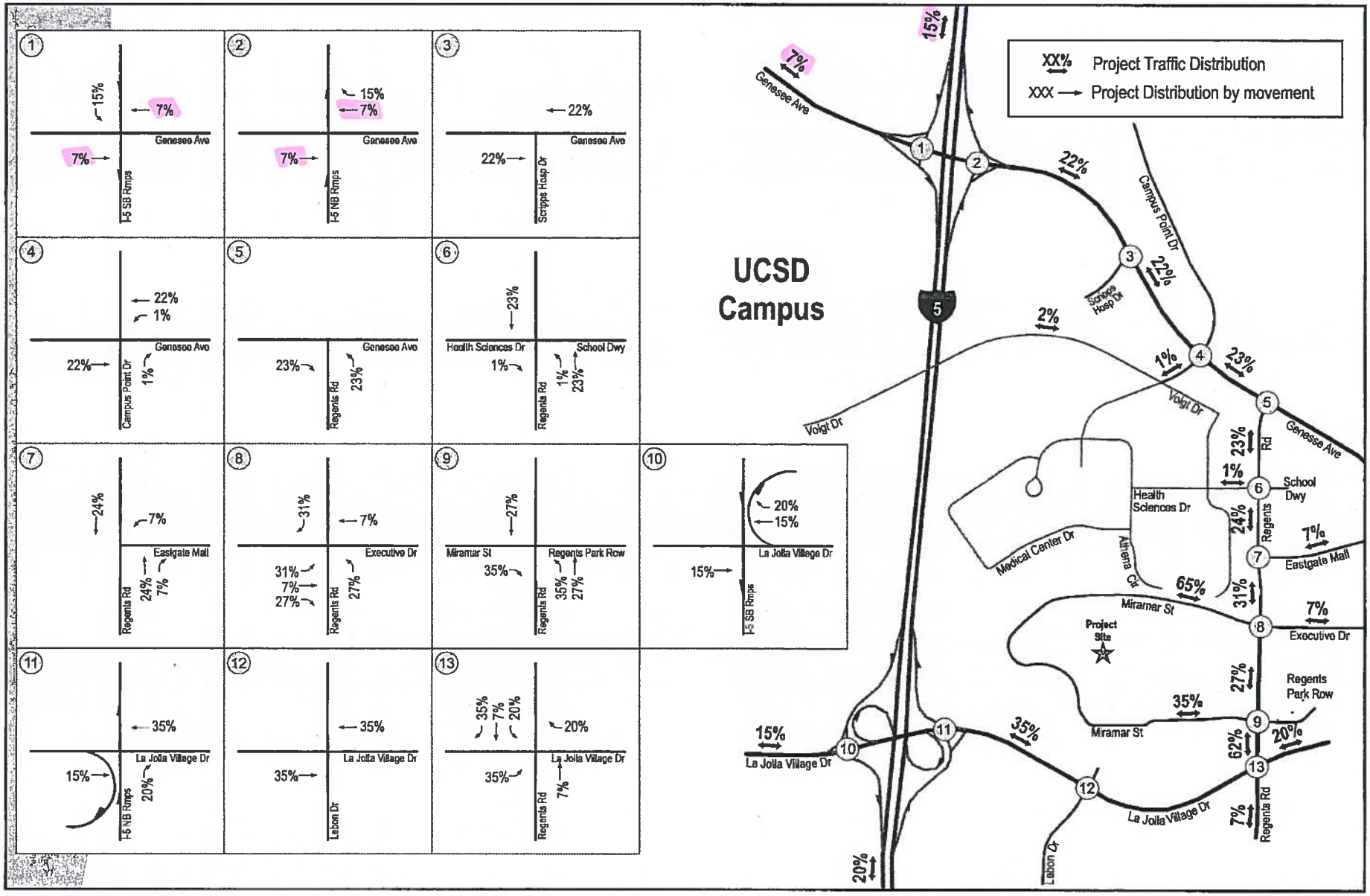

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Figure 7-1

Project Traffic Distribution

UCSD - MESA HOUSING

LINSCOTT
LAW &
GREENSPAN
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UCSD

University of California, San Diego
East Campus Bed Tower

April 8, 2010

Prepared by

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2.0 PROJECT DESCRIPTION

The following is a discussion of the Proposed Project's location and development description.

2.1 Project Location

The Proposed Project is located within the East Campus Medical Center area of the UCSD campus. The East Campus represents a collection of land uses, which consist of the *East Campus Medical Center*, *Science Research Park*, *Mesa Graduate and Married-Student Housing*, and *Preuss School*.

The East Campus Medical Center includes the *Thornton Hospital*, the *Moores Cancer Research Center*, the *Perlman Ambulatory Care Center*, the *Shiley Eye Center* and *Sulpezio Cardiovascular Center (CVC*; currently under construction*)*. The larger, East Campus area is bounded by Genesee Avenue to the north, Regents Road to the east, La Jolla Village Drive to the south, and Interstate 5 (I-5) to the west. Access is provided via Genesee Avenue, Regents Road, and the Voigt Drive bridge over I-5. No direct access from La Village Drive is provided.

Within the *East Campus Medical Center*, the Proposed Project is located on the west side, west of the Thornton Hospital. The Proposed Project's site is bound to the north, west and south by Medical Center Drive, which provides access to parking for the project site. Parking will be provided in two structures to be located north of the project site, on the north side of Medical Center Drive. Access to Genesee Avenue and Regents Road will be via Campus Point Drive and Health Sciences Drive, respectively.

2.2 Project Description

The Proposed Project consists of three major components: the Bed Tower, Helistop, and the Central Utility Plant. It should be noted that only the Bed Tower generates traffic.

2.2.1 *Bed Tower*

The nine-story, 165-foot tall bed tower would include approximately 470,310 GSF of new construction, including up to 245 patient care beds, eight operating rooms and associated pre- and post-operation beds, diagnostic and therapeutic services areas, support spaces, patient intake facilities, a pharmacy, a medical education center, a café/dining facility, mechanical/electrical facilities, and a helistop on the bed tower roof. Included in the bed tower gross square footage would be an expansion and reallocation of UCSD Medical Center's existing Women and Infants Center from its current location at the Hillcrest Medical Center campus. The proposed bed tower would provide intermediate care unit beds, intensive care unit beds, and medical surgery beds. In addition to the new construction GSF, approximately 63,800 GSF of existing space within Thornton Hospital would be renovated as part of the Proposed Project.

The Proposed Project also would include cosmetic modifications to the existing Thornton Hospital entrance pavilion on the hospital's east side; patient drop-off and limited parking areas on the hospital's west side; two reconfigured and expanded driveways off of existing Medical Center Drive

West; landscaping, hardscape, and pedestrian areas adjacent to the west entrance of the bed tower; and a westerly expansion of the existing loading dock on the south side of Thornton Hospital.

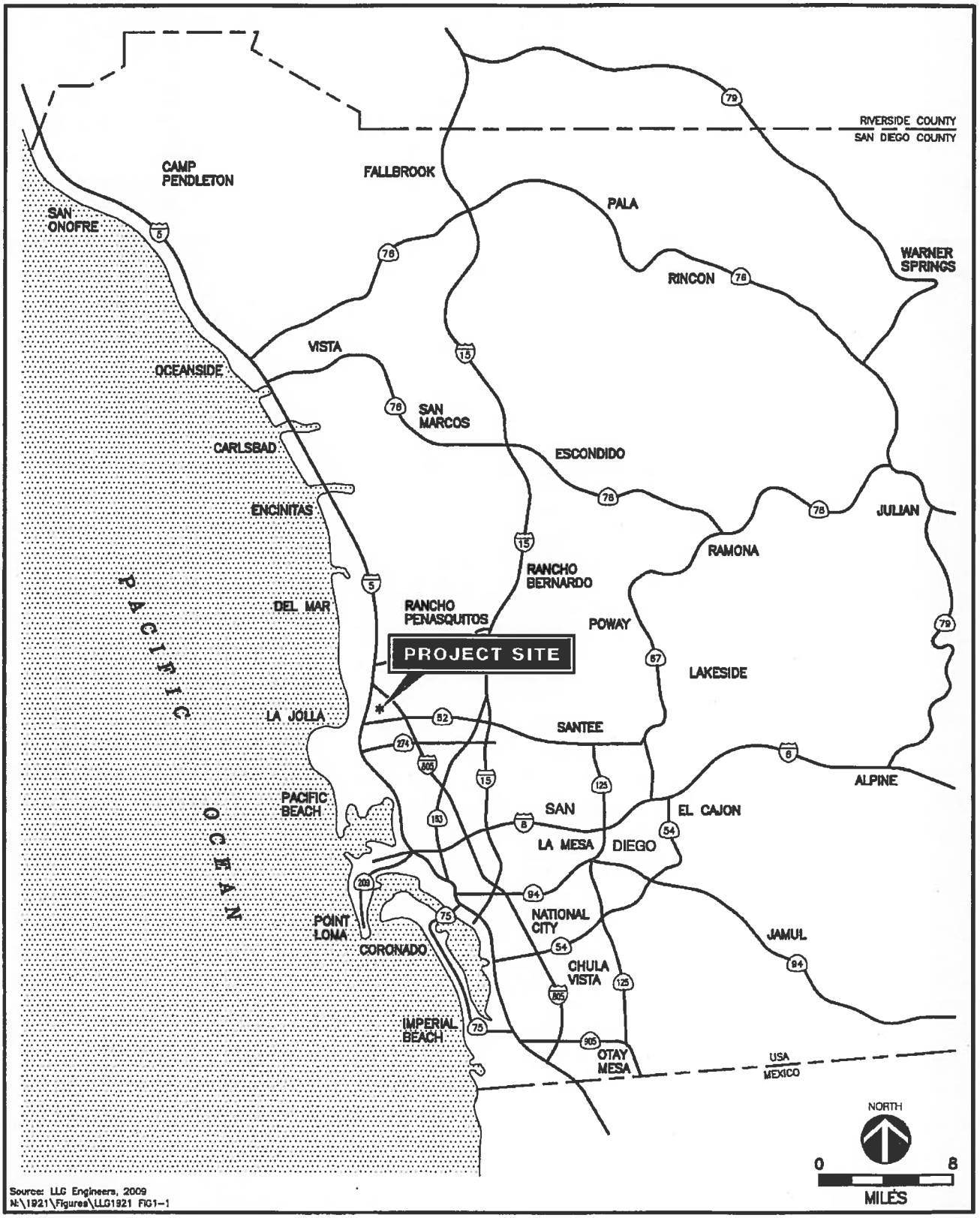
2.2.2 *Helistop*

The second component of the project would be a rooftop helistop atop the proposed Bed Tower. Helicopter flights using the helistop would conduct non-trauma-related transport of patients to and from Thornton Hospital. (Trauma-related flights would continue to land at Hillcrest Medical Center.) The heliport typically would be used to transport patients from far-off locations (e.g., in the outer portions of San Diego County or in Imperial County) and/or those that must reach East Campus Medical Center as quickly as possible to be treated by specialists at Thornton Hospital (e.g., for a critical cardiovascular condition). As such, the helistop would improve patients' access to services at Thornton Hospital. The proposed helistop, which differs from a heliport, would simply be used as a pad to accommodate take-off and approach of medical transport helicopters. No helicopter or fuel storage would take place at the helistop. The helistop is expected to serve an average of four helicopter flights per month.

2.2.3 *Central Utility Plant*

The second project component, the free-standing central utility plant, would be located on a site on the north slope of the Central Canyon, directly south of the existing hospital. The approximately 35,900 GSF central utility plant building would house the majority of the mechanical, electrical, and plumbing utilities needed to serve the existing and proposed hospital facilities, including existing Thornton Hospital, the CVC, and the proposed bed tower. The two-story central utility plant would house a Mechanical Plant consisting of chillers/cooling towers to generate chilled water for the hospital, and boilers for steam generation; and an Electrical Plant consisting of four emergency electrical (diesel) generators, and primary electrical utilities. Three of the 2,500-kilowatt (kW) emergency power generators would be new to the hospital, while the fourth would be relocated to the central utility plant from the CVC. As a result of the four new generators to be brought in to back up the hospital's power supply, the two existing 900-kW diesel generators housed near the loading/service dock would be eliminated. The central utility plant facility also would incorporate a service yard with Facilities Engineering support shops and 21 parking spaces. As part of central utility plant construction, the two existing cooling towers within the Central Canyon would be demolished.

The Facilities Engineering support shops will replace the existing shops located within the Thornton Hospital, in turn providing space within the hospital to be renovated. Thus, while the Central Utility Plant is formally a part of the Proposed Project, it is not expected to generate new traffic, and is therefore not analyzed separately from the Bed Tower component.



Source: LLG Engineers, 2009
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LINSCOTT LAW & GREENSPAN engineers

Figure 1-1

Vicinity Map

EAST CAMPUS BED TOWER PROJECT

9.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

9.1 Trip Generation

The Proposed Project consists of two primary components: the proposed Bed Tower, and the Central Utility Plant. The Bed Tower component will function as a typical, in-patient hospital. Therefore, published City rates for hospital are applicable. The Central Utility Plant component proposes space for equipment (e.g., water chillers, etc.) and "Facilities Engineering shops", although neither will generate new traffic since they are replacing the existing Facilities Engineering shops currently located in the Thornton Hospital.

Table 9–1 tabulates the total project traffic generation. The total project is calculated to generate 4,900 ADT with 309 inbound/ 132 outbound trips during the AM peak hour and 147 inbound/ 343 outbound trips during the PM peak hour.

9.2 Trip Distribution/Assignment

To determine the overall project's regional trip distribution percentages, a Select Zone Assignment (SZA) for the UCSD East Campus Traffic Analysis Zone (TAZ) was obtained from SANDAG. The model was reviewed to ensure appropriate land uses were accounted for in the UCSD East Campus TAZ.

Figure 9–1 shows the project's traffic distribution. ***Figure 9–2*** shows the assignment of project peak hour volumes and ADT based on this distribution.

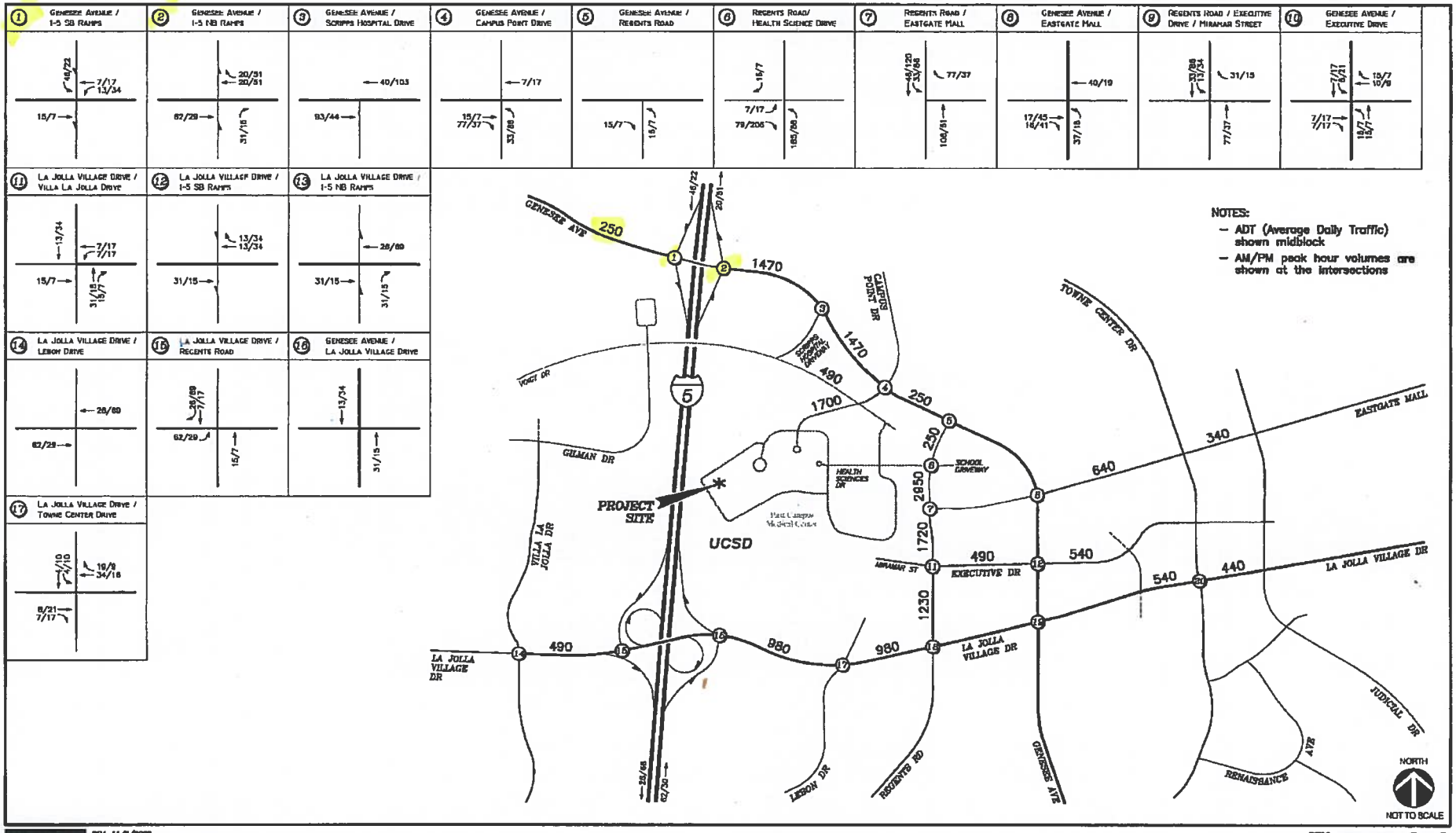
The project traffic assignment described above was added to the Year 2015 Without Project traffic volumes shown on *Figure 8–1* to develop the "*Year 2015 with Project*" traffic volumes. ***Figure 9–3*** shows the assignment of Year 2015 with Project peak hour volumes and ADT.

TABLE 9–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
		Rate [a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out	% of ADT	In:Out Split	Volume In	Volume Out
Hospital	245 Beds	20 /Bed	4,900	9%	70:30	309	132	10%	30:70	147	343

Footnotes:

a. City of San Diego's Trip Generation Rate Summary Table, May 2003.



LINSCOTT LAW & GREENSPAN engineers

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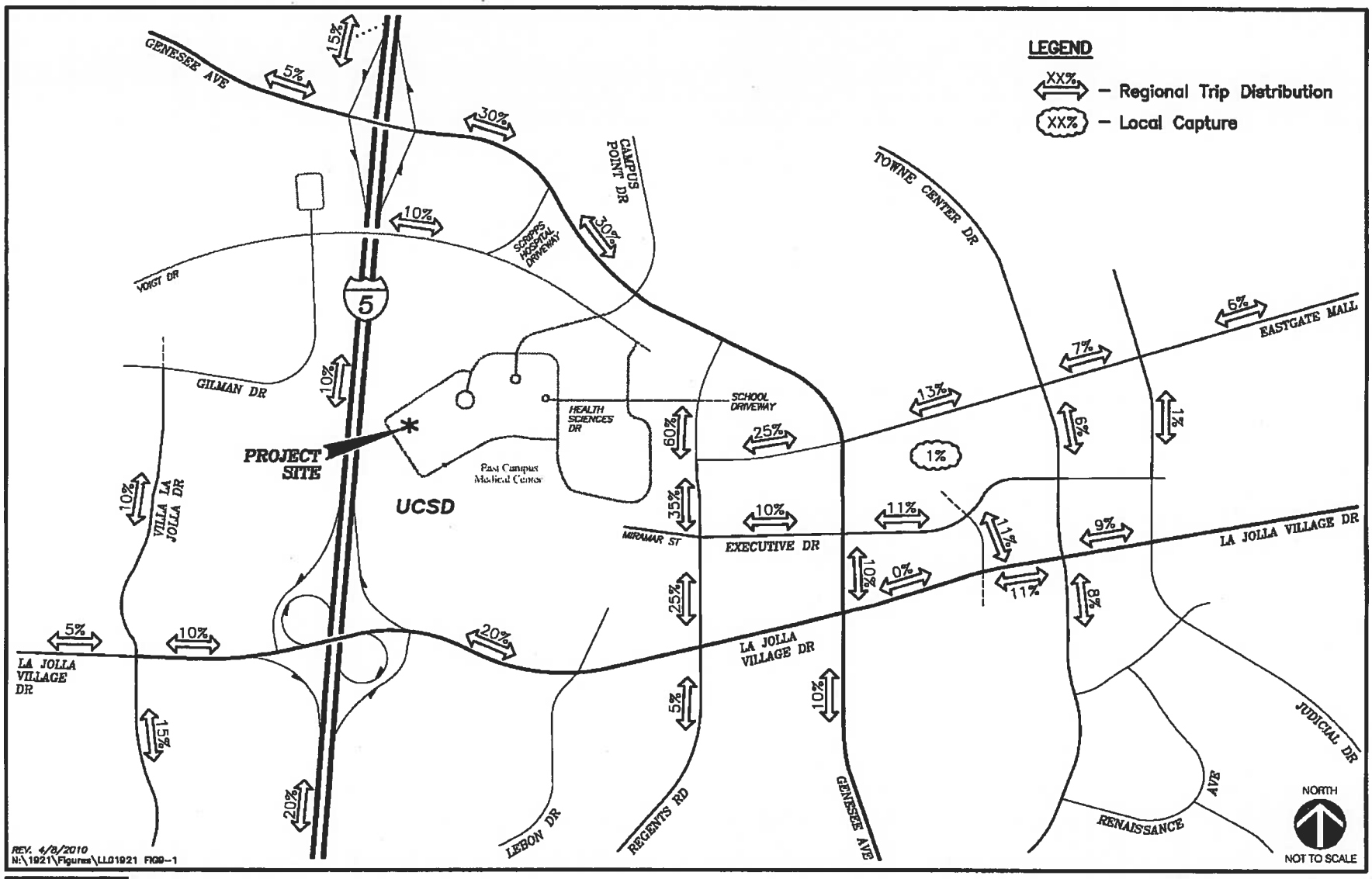
Figure 9-2

Project Traffic Volumes AM/PM Peak Hours

EAST CAMPUS BED TOWER PROJECT

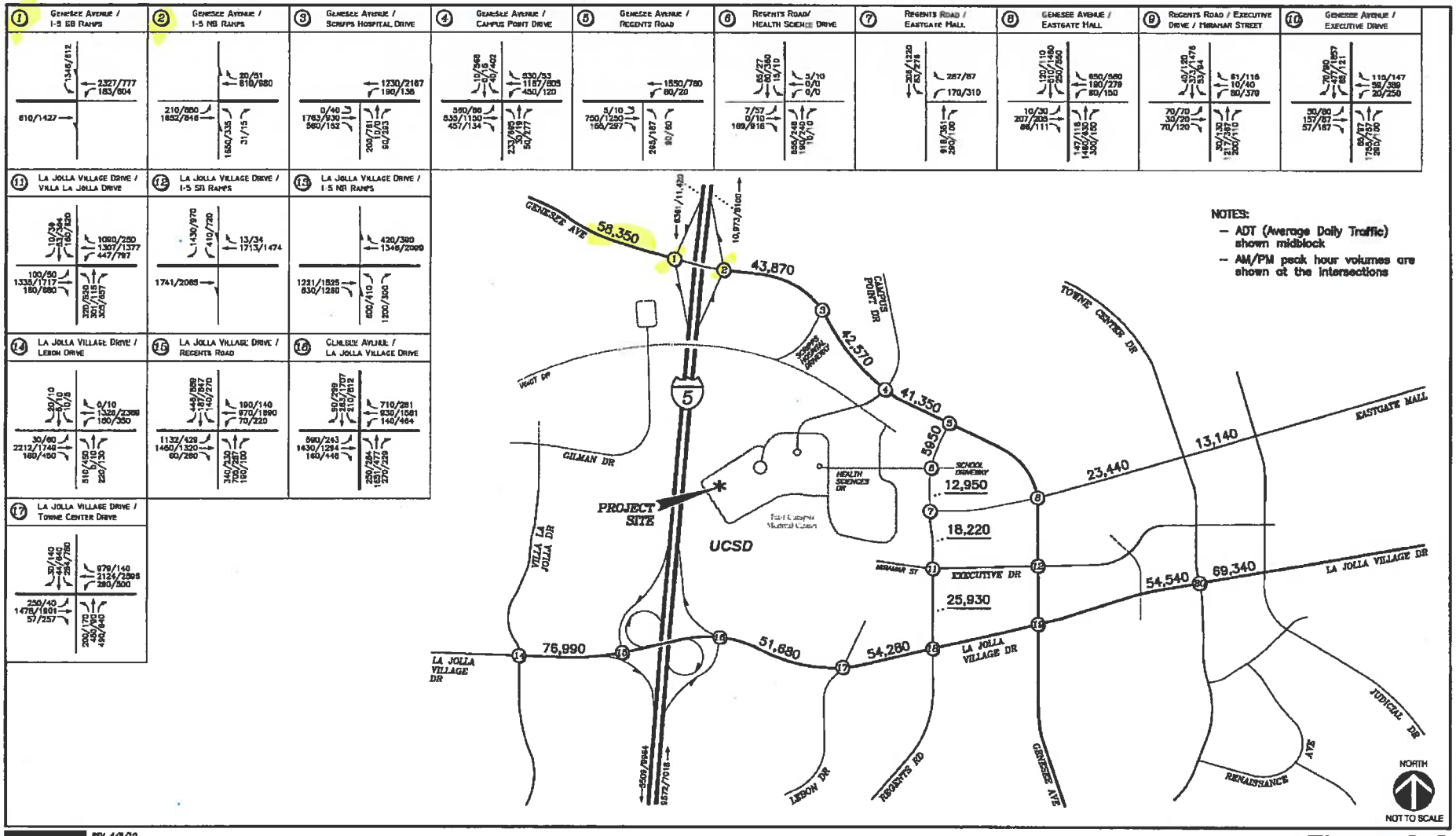


LINSCOTT LAW & GREENSPAN engineers

Figure 9-1

Regional Traffic Distribution

EAST CAMPUS BED TOWER PROJECT



LINSCOTT LAW & GREENSPAN engineers

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Figure 9-3

Year 2015 With Project Traffic Volumes AM/PM Peak Hours

EAST CAMPUS BED TOWER PROJECT

LINSCOTT
LAW &
GREENSPAN
engineers

UCSD

Traffic Impact Study for University of California, San Diego Center for Novel Therapeutics (CNT)

February 3, 2015

Prepared by

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2.0 PROJECT DESCRIPTION

The following is a discussion of the Proposed Project's location and development description.

2.1 Project Location

The University of California, San Diego (UCSD) La Jolla campus includes over 1,200 acres extending from the Pacific Ocean to the east side of Interstate 5 (I-5), in the northern portion of the City of San Diego (City) and adjacent to the communities of La Jolla and University City. The proposed Center for Novel Therapeutics (CNT) project consists of a research facility to be located within the UCSD Science Research Park (SRP) neighborhood. The 30-acre SRP is located on the eastern edge of the East Campus, just west of Regents Road. Specifically, the site is located in the northwest corner of SRP, directly east of Medical Center Drive/Athena Circle and adjacent to UCSD's Health System La Jolla.

2.2 Project Description

The CNT project proposes to construct approximately 121,000 SF of scientific research on a 7.75-acre site. Located directly east of Medical Center Drive/Athena Circle, the CNT structure would be constructed atop a proposed underground garage with one level of parking. It is anticipated that approximately one-third of the 121,000 SF of space would be occupied by the University and two-thirds by third-party tenants.

The CNT program would include various scientific research, clinical, and support spaces, as well as offices and common areas within a three-story building. The building would surround a naturally ventilated central atrium and would include operable windows and outdoor terraces and seating areas. The project would include pedestrian linkages that would connect the building both to the other sites within the SRP; and to the Moores Cancer Center, proximity to which is required to facilitate use by clinicians and research subjects.

Access to the surrounding street system is proposed via Genesee Avenue/ Campus Point Drive and Regents Road/ Health Sciences Drive intersections. Driveway access would be provided from Medical Center Drive/Athena Circle and Heath Sciences Drive. The proposed CNT would not displace any existing infrastructure, surface parking, or future development sites.

Figure 2–1 depicts the Proposed Project site plan.

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

7.1 Trip Generation

The traffic generation associated with the CNT project is calculated using the "Science Research Park" land use trip rate published in the *UCSD Trip Generation Assessment* (LLG 2010) and appended to the *UCSD 2004 LRDP Traffic Update* (LLG 2010). This trip rate of 8 trips per KSF is consistent with the City of San Diego trip generation rate for "Science Research Park."

7.2 Trip Distribution/Assignment

Project traffic was distributed to the street system using existing traffic pattern and knowledge of the local area from other traffic studies conducted in the area.

The project is calculated to generate 968 ADT with 155 total AM peak hour trips (140 inbound/ 15 outbound) and 136 total PM peak hour trips (14 inbound/ 122 outbound). ***Table 7–1*** shows the total trip generation summary for the Proposed Project.

Figure 7–1 shows the project's regional traffic distribution. ***Figure 7–2*** shows the project assignment.

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		AM Peak Hour				PM Peak Hour			
		Rate [a]	Volume	% of ADT	In : Out Split	Volume In	Volume Out	% of ADT	In : Out Split	Volume In	Volume Out
Science Research Park	121,000 SF	8/KSF	968	16%	90 : 10	140	15	14%	10 : 90	14	122

Footnotes:

a. Trip Generation Assessment in LRDP Traffic Update (LLG 2010).

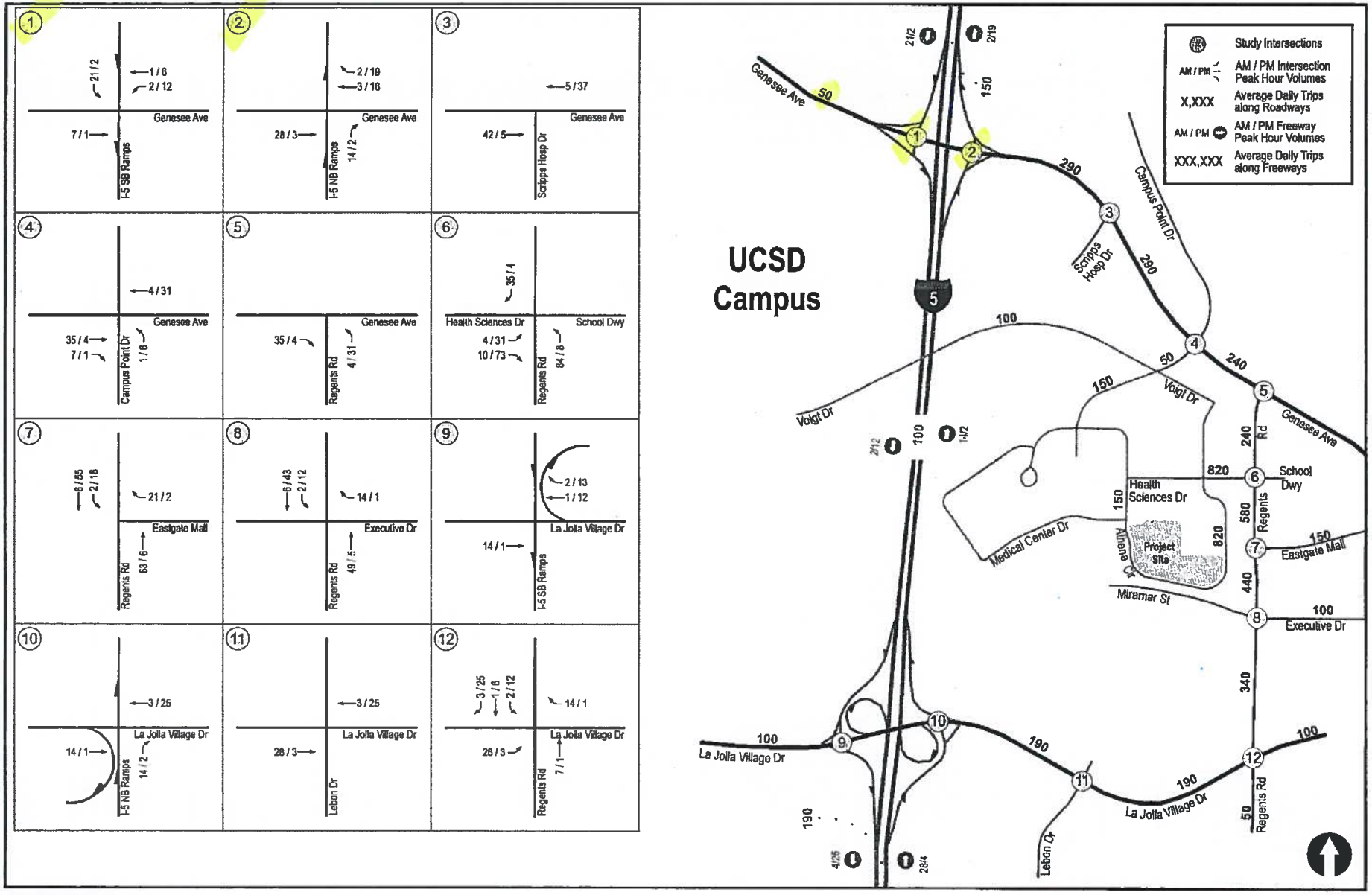

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Figure 7-2

Project Traffic Volumes

UCSD - CENTER FOR NOVEL THERAPEUTICS

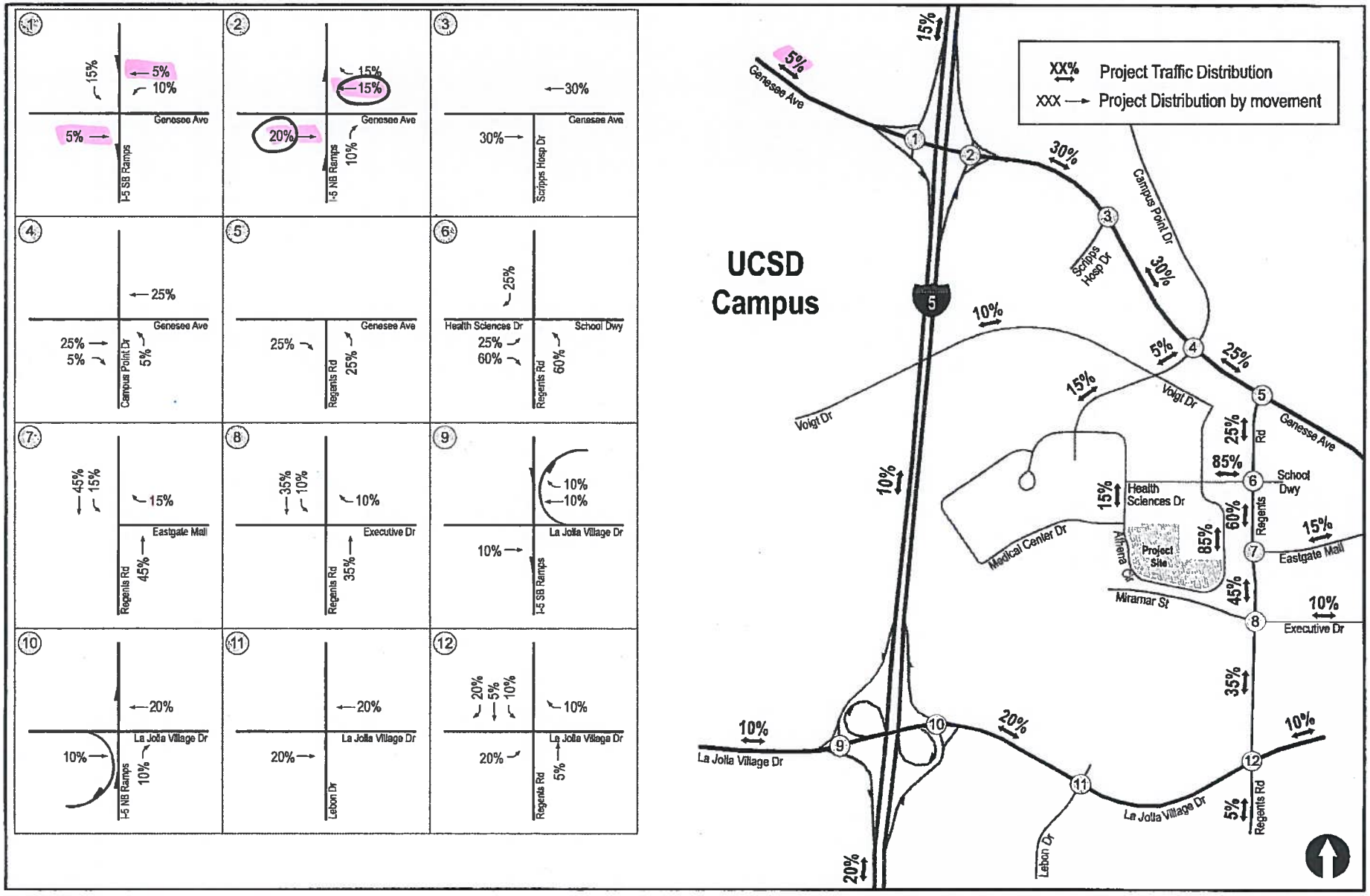

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Figure 7-1

Project Traffic Distribution

UCSD - CENTER FOR NOVEL THERAPEUTICS

TRAFFIC IMPACT STUDY

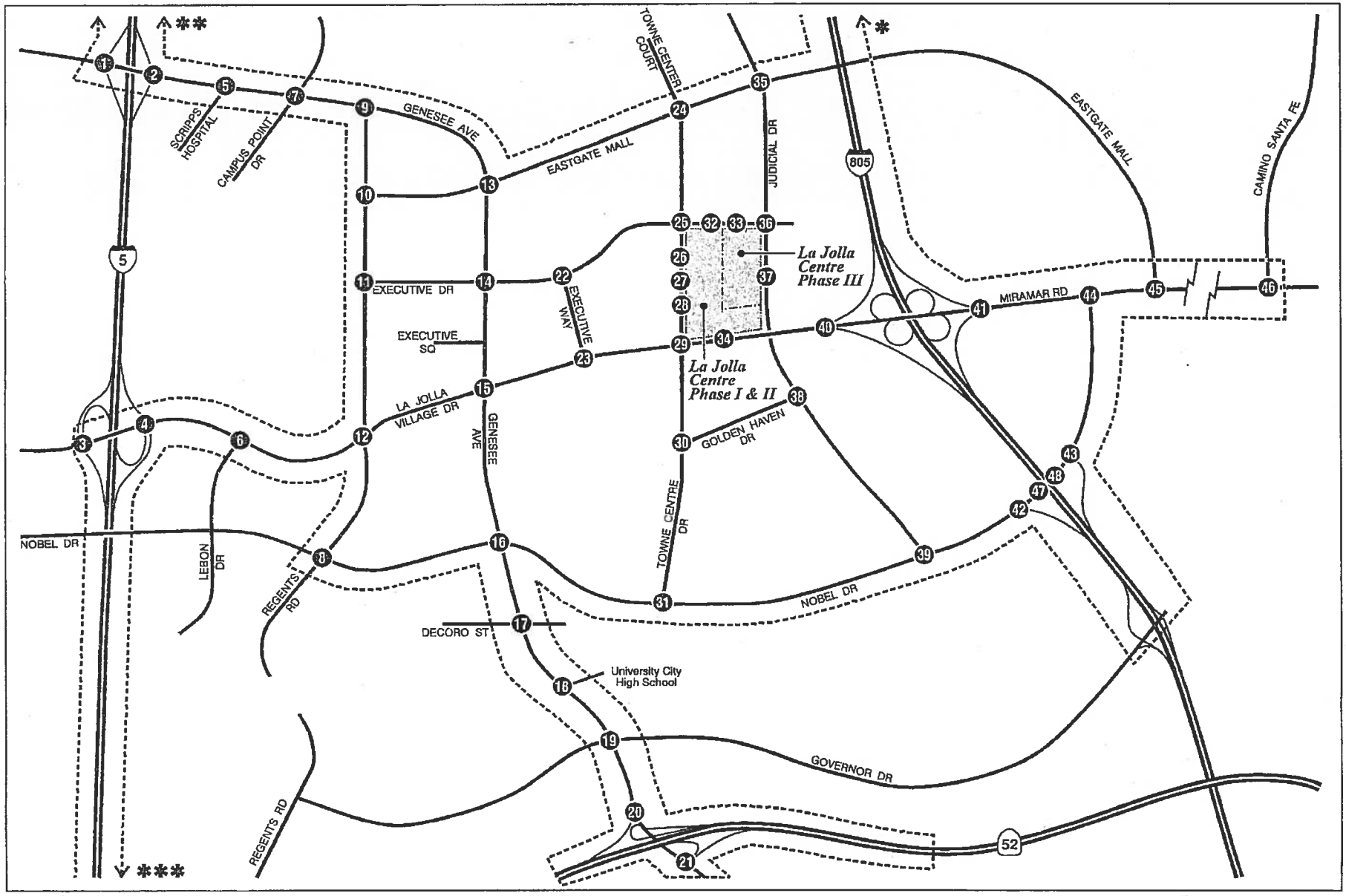
LA JOLLA CENTRE 3

CITY OF SAN DIEGO

SAN DIEGO COUNTY, CALIFORNIA

LSA

November 2011



LSA

LEGEND:

XX - Study Area Intersections

- - - - - Study Area Boundary

* - Study Area Along I-805 Extends North to Mira Mesa Boulevard

** - Study Area Along I-5 Extends North to I-805 Freeway

*** - Study Area Along I-5 Extends South to Gilman Drive

N

SCHEMATIC - NOT TO SCALE

FIGURE 2

La Jolla Centre 3

Project Site Location and Study Area Intersections

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PROJECT DESCRIPTION

The La Jolla Centre 3 site is bounded by Executive Drive to the north, La Jolla Village Drive to the south, Towne Centre Drive to the west, and Judicial Drive to the east (see Figure 3). Currently, the La Jolla Centre is partially developed with two high-rise office buildings located along Towne Centre Drive and La Jolla Village Drive. The proposed La Jolla Centre 3 project would consist of a 15-story approximately 278,800 sf Gross Leasable Area high-rise office building to be located in the undeveloped area at the southwest corner of Judicial Drive and Executive Drive in the City of San Diego (City), California. The proposed 340,000 sf high-rise office building (approximately 278,800 sf Gross Leasable Area) along with the existing 314,034 sf (approximately 257,508 sf Gross Leasable Area) office buildings would constitute a total of 536,308 sf Gross Leasable Area office space.
The La Jolla Centre 3 project proposes to build project-specific design features that would affect the lane geometrics at the intersections. Primary additions include:

- **Towne Centre Drive/Executive Drive:** Extension of the existing northbound left-turn storage from 155 feet to 260 feet.
- **Towne Centre Drive/Executive Drive:** Addition of a 100-foot long dedicated northbound right-turn lane and extension of the existing westbound left-turn storage from 100 feet to 250 feet.
- **Judicial Drive/Executive Drive:** Extension of the existing northbound left-turn storage from 180 feet to 255 feet. Removal of the white chevron-striped section on the eastbound lanes to add a second eastbound left-turn lane. Addition of a 150-foot long dedicated eastbound right-turn lane.

Figure 3 illustrates the conceptual site plan with project design features on roadways adjacent to the proposed project under Horizon Year (2030) conditions. The project site is surrounded by the following intersections and incorporates the following access locations (existing and/or proposed):

Intersections:

A. Towne Centre Drive/La Jolla Village Drive (Intersection #29 on Figure 2).

B. Towne Centre Drive/Executive Drive (Intersection #25 on Figure 2).

C. Judicial Drive/Executive Drive (Intersection #36 on Figure 2).

Site Access Locations:

1. Towne Centre Drive/Site Access 1 (Intersection #28 on Figure 2).
2. Towne Centre Drive/Site Access 2 (Intersection #27 on Figure 2).
3. Towne Centre Drive/Site Access 3 (Intersection #26 on Figure 2).
4. Site Access 4/Executive Drive (Intersection #32 on Figure 2).
5. Site Access 5/Executive Drive (Intersection #33 on Figure 2).
6. Judicial Drive/Site Access 6 (Intersection #37 on Figure 2).
7. Site Access 7/La Jolla Village Drive (Intersection #34 on Figure 2).

Please note that for purposes of this access discussion section, the intersections and site access locations have been renumbered in comparison to Figure 2.

As part of the proposed project, the existing access locations to the site along Towne Centre Drive have been modified to respond to concerns raised by City staff in its review of previously submitted conceptual site plans. Along Towne Centre Drive, the currently unsignalized access (Site Access 1 in Figure 3) is a full-access location (i.e., all left-turn and right-turn movements are permitted). LSA had previously consulted the City and, in its review, City staff had suggested limiting Site Access 1 to right-in/right-out access only. City staff also recommended a new access location (Site Access 2) farther north to allow left-turn ingress and egress to and from the site, thus providing greater separation between the intersection of Towne Centre Drive/La Jolla Village Drive and any La Jolla Centre access location that permitted left-turn movements. As discussed later, Site Access 2 along Towne Centre Drive is proposed to be signalized but does not include a provision for southbound left turns into the site. The existing right-in/right-out access (Site Access 3) along Towne Centre Drive would be closed as shown in the conceptual site plan in Figure 3.

An existing right-out only access (Site Access 4) exists along Executive Drive. This current exit-only access to the existing parking structure would be maintained and no changes to Site Access 4 are planned at this location. This access is not expected to be utilized by the proposed office development on the site but would serve existing office users. The proposed access plan would provide a new right-in/right-out site access (Site Access 5) east of Site Access 4 on Executive Drive. This right-turn movement is needed for southbound Towne Centre Drive and eastbound Executive Drive traffic since the proposed access plan would not allow any southbound left turns into the site from Towne Centre Drive.

The project also proposes to add a new site access (Site Access 6) on Judicial Drive. This is proposed as a signalized full-access location providing direct access to project traffic coming from the south and the east. It should be noted that the Planned Commercial Development (PCD) permit for the existing office buildings on site (PCD 83-0131) states that access to the then-proposed future Judicial Drive along the easterly boundary of the La Jolla Plaza Centre site would enhance future traffic circulation. The PCD permit does not specify whether the access is a full-access driveway.

The existing right-in access (Site Access 7) on La Jolla Village Drive would be maintained in the proposed access plan. Study intersections and site access locations are discussed in detail in the Access Analysis section provided later in the study.

The proposed project is part of an integrated office complex that includes La Jolla Centres 1 and 2. Figures 4 through 8 illustrate the integration of pedestrian connections and parking structure design that allows for connectivity among all of the development within the integrated office development. As shown in Figures 4 through 8, employees in all three office towers would be allowed to park in each of the three parking garages using each project access driveway. Pedestrian connections have been provided for access from each parking structure on the site to each of the three office towers (two existing and one proposed). All parking areas are accessible from each of the proposed project access locations. Although the arterial street system presents some constraints to site access, these constraints can be addressed with the knowledge that employees and patrons would have the ability to circulate to their final destinations within the site.

PARKING

The La Jolla Centre integrated office campus will share parking among the three parking structures (two existing structures and one proposed structure). The La Jolla Centre 3 project site improvements will require the removal of approximately 30–40 existing parking spaces allocated to La Jolla Centres 1 and 2. To accommodate the removal of spaces, the project proposes to build the required extra spaces within the La Jolla Centre 3 parking structure, as the table below shows.

Parking Stalls	La Jolla Centre 1	La Jolla Centre 2	La Jolla Centre 3	Total
Code/Permit Required	570[1]	513[2]	1,112[3]	2,195
Existing / Proposed	533	510	1,263	2,306
Surplus spaces				111

1 Per Permit 83-0131; Resolution No. 4645; condition #10.
2 Per PCD Permit 87-0971; Amendment 87-0855; Resolution #7431; condition #5.
3 Per LDC Section 142.0530 Table 142-05F,

The project currently proposes to provide 2,306 parking stalls for the La Jolla Centre integrated office campus at a rate of approximately 4.3 spaces/ksf of gross leasable area. Final design of the parking structure may result in a modification of this parking rate but would not result in a parking amount that is less than the code requirement as shown in the above table.

PROJECT IMPACTS

Project Trip Generation

The proposed 15-story high-rise office building (approximately 278,800 sf Gross Leasable Area) along with the existing 257,508 sf Gross Leasable Area office buildings constitute a total of 536,308 sf Gross Leasable Area office space within the integrated office plaza located at the southwest corner of Judicial Drive and Executive Drive. The total trips generated by the integrated office plaza (536,308 sf) were calculated based on the regression equations (for office use) documented in the City of San Diego Trip Generation Manual (May 2003). These trips were then divided by the total area of the office plaza (536,308 sf) to develop a trip generation rate. This rate was then applied to the 278,800 sf Gross Leasable Area office tower to estimate the trip generation for the proposed project.

Table A illustrates the project trip generation and shows that the proposed project is estimated to generate 3,124 average daily trips (ADT), of which 406 trips would occur during the a.m. peak hour and 437 trips would occur during the p.m. peak hour.

Trip Distribution and Assignment

LSA engaged San Diego Association of Governments (SANDAG) staff to prepare Horizon Year (2030) traffic Average Daily Traffic (ADT) forecast data of the area. The reasonably expected network was used for this analysis. SANDAG provided LSA with year 2030 Series 11 select zone assignment for Traffic Analysis Zone (TAZ) 2022. A copy of the select zone assignment is provided in Appendix A. LSA developed the project distribution for the office development based on select zone assignment plot from SANDAG. Based on comments from City staff, adjustments to the distribution were made primarily to reduce the internal capture within the study area and to better

Table A: Project Trip Generation

TAZ	Land Use	Size	Units	ADT	A.M. Peak Hour			P.M. Peak Hour		
					In	Out	Total	In	Out	Total
TAZ "A"										
	Existing La Jolla Village (LJV) Centre									
	Trip Generation Based on Counts[1]	257.508	TSF	N.A.	199	28	227	35	206	241
				Equation[2]	90%	10%	13% of ADT	20%	80%	14% of ADT
	Trip Generation Based on Trip Rate[2]		TSF	3,452	404	45	449	97	387	483
TAZ "B"										
	Preferred Commercial-Office Alternative									
	Trip Rate[3] = 11.21 trips/tsf			Equation[2]	90%	10%	13% of ADT	20%	80%	14% of ADT
	Trip Generation	278.800	TSF	3,124	366	41	406	87	350	437
	Scientific Research & Development Alternative									
	Trip Rate[4]=8 trips/tsf				80%	10%	16% of ADT	10%	80%	14% of ADT
	Trip Generation	100.000	TSF	800	115	13	128	11	101	112

Notes:

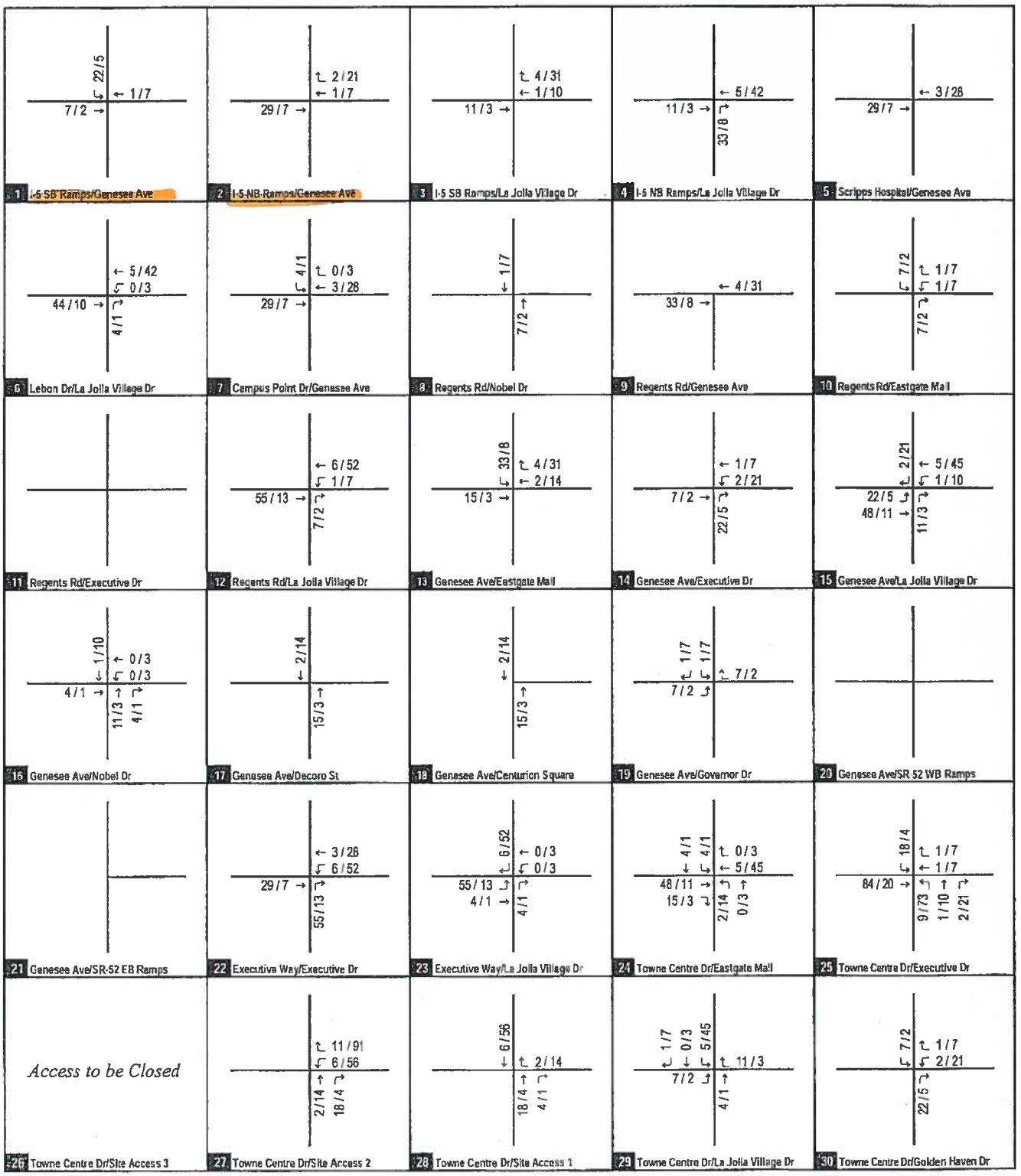
[1]Trip generation calculated using surveyed site access traffic counts, August 2009 (76% Occupancy).

[2]Trip rate/equation for Land Use Commercial-Office referenced from the *City of San Diego Trip Generation Manual* , May 2003. Regression equation for Commercial Office [Ln(T) = 0.756 Ln(x) + 3.95] was used.

[3]Trip rate/equation for Land Use Commercial-Office referenced from the *City of San Diego Trip Generation Manual* , May 2003. Regression equation for Commercial Office [Ln(T) = 0.756 Ln(x) + 3.95] calcualted for total office campus of 536,308 sf Gross Leasable Area and applied to new office component of 278,800 sf Gross Leasable Area.

[4]Trip rate for "Land Use Scientific Research & Development" referenced from the *City of San Diego Trip Generation Manual* , May 2003.

TSF = Thousand Square Feet



LSA

FIGURE 10A

XX / YY AM / PM Peak Hour Trips

La Jolla Centre 3
Traffic Impact Study
Project Peak Hour Traffic Volumes

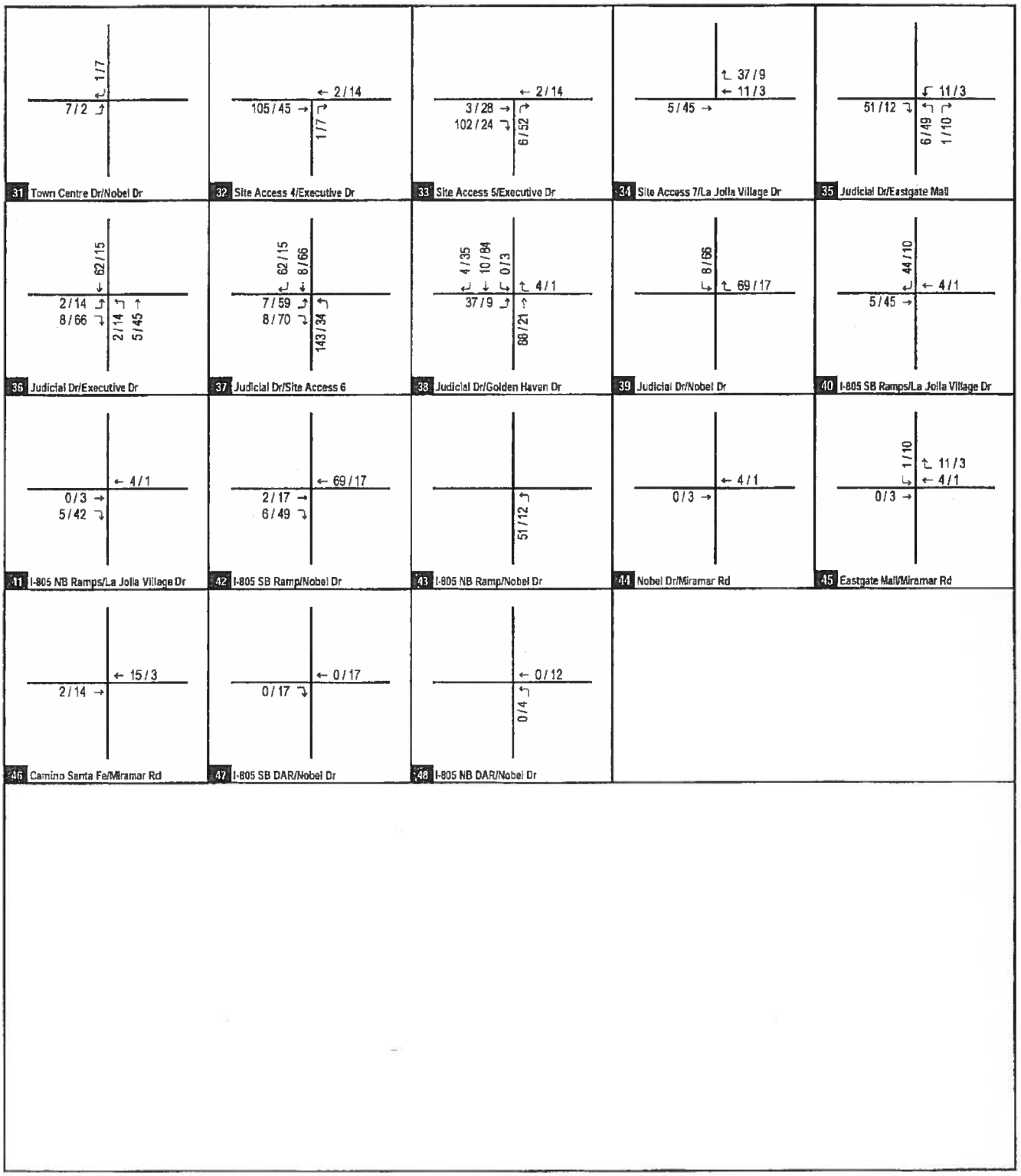


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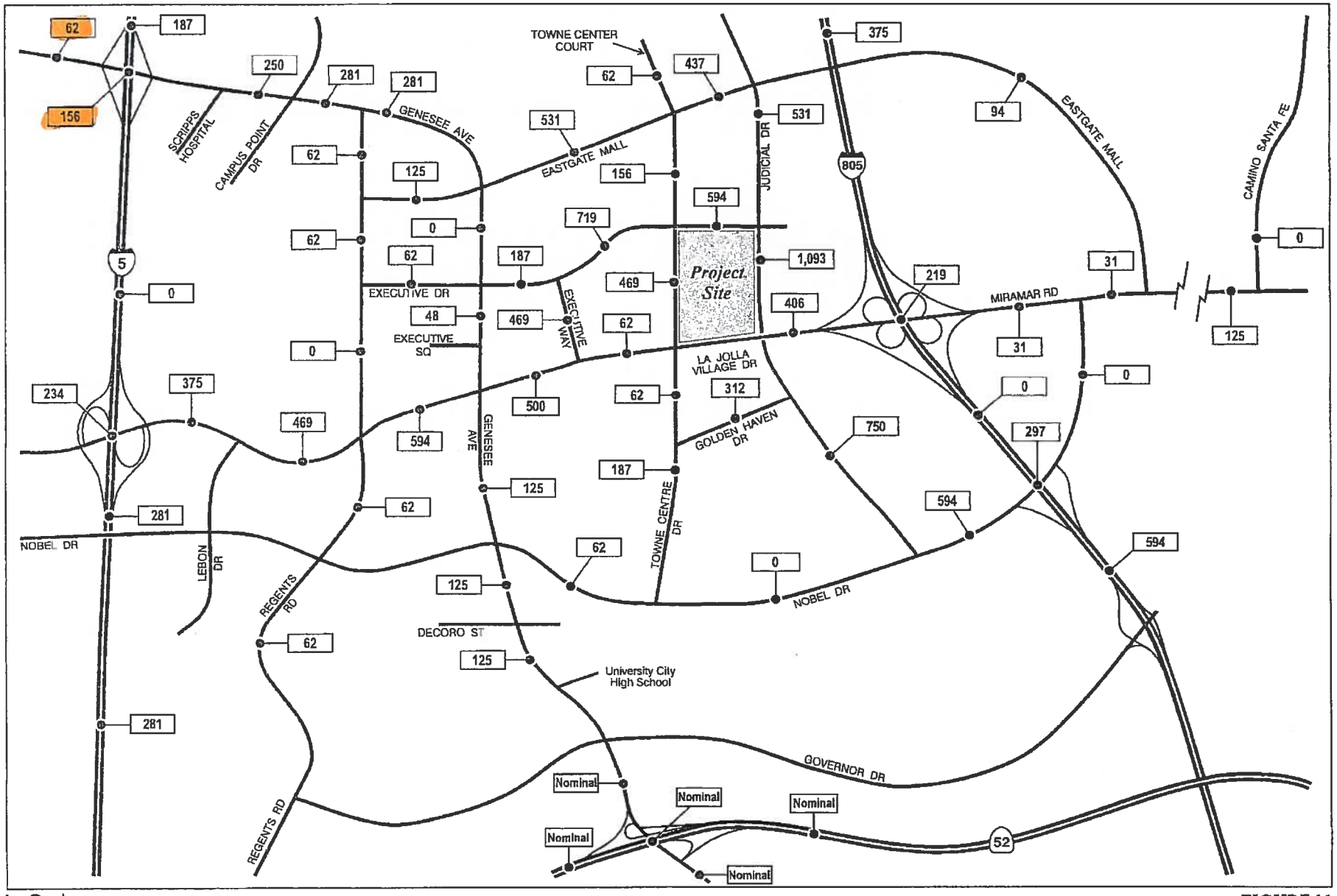
FIGURE 10B

XX /YY AM / PM Peak Hour Trips

La Jolla Centre 3
Traffic Impact Study
Project Peak Hour Traffic Volumes



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LEGEND:

X,XXX - Average Daily Traffic Volumes

FIGURE 11

N

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La Jolla Centre 3

Project Traffic Volumes (ADTs) with Regents Road Bridge

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engineers

TRAFFIC IMPACT STUDY

UNIVERSITY TOWNE CENTRE REVITALIZATION PROJECT

San Diego, California
July 23, 2007 Final Submittal

Prepared for:

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11601 Wilshire Boulevard, 12th Floor
Los Angeles, California 90025

LLG Ref. 3-04-1415

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2.0 PROJECT DESCRIPTION

The *University Towne Centre Revitalization Project* is located in the University City Community within the City of San Diego. This area of San Diego, bounded by I-5, I-805, and SR-52, is commonly referred to as "The Golden Triangle". The Golden Triangle and its fringe are composed of a considerable mix of land uses including office and commercial properties, retail properties, a university, and residential housing. The Golden Triangle area of San Diego has been zoned to encourage this type of development, providing a substantial tax base and foundation for the local economy.

The *University Towne Centre shopping center,* originally opened in 1977, serves as a multi-level, open-air regional shopping center featuring department stores, specialty retail shops, restaurants, entertainment venues, service outlets, community facilities, and open space. The existing entitlement totals 1,061,400 square feet.

The project is being processed as a Master Planned Development Plan (MPDP). The MPDP presents variable development programs that can respond to changing market conditions and desires of the community. In addition to the original project (750,000 square feet retail and 250 dwelling units), seven alternative project scenarios were developed based on a trip generation equivalency. The intent of the MPDP is to allow flexibility in the development program while ensuring the alternative project scenarios have been addressed by the analysis of the original project.

Site access will be provided along La Jolla Village Drive, Towne Centre Drive, Nobel Drive and Genesee Avenue. The majority of driveways are signalized and provide full movements access. Section 13.0 reviews site access in more detail. Regional access is provided by Interstate 5 (I-5), Interstate 805 (I-805), and State Route 52 (SR 52) located to the west, east, and south of the study area, respectively.

Figures 2–1a, 2-1b, and 2-1c depict the conceptual project site plan for the original project for levels one, two, and three, respectively.

5.0 PROJECT TRAFFIC

5.1 Project Traffic Generation

Trip generation estimates for the proposed development was based on *The City of San Diego Trip Generation Manual, May 2003*. The specific land use designation used for the trip generation was 'Regional Retail' and 'Multi-Family Residential', as it best fits the description of the project.

The 'Regional Retail' trip generation rate is based on a logarithm formula, where the trip rate is dependent on the square footage of the development. For instance, as the square footage increases, the trip rate decreases. Such a phenomenon can be attributed to the synergy between facilities of the shopping center and has been documented based on national surveys in the *Institute of Transportation Engineers Trip Generation Manual, 7th Edition*. In discussion with City of San Diego staff, it was agreed that the trip rate be based on the post-project square footage (i.e. existing plus expansion). This trip rate equates to 30.6 daily trips per 1,000 square feet. Such a trip rate would best reflect the proposed project. ***Appendix D*** contains considered trip rate methodologies.

The project site offers many transit opportunities with a regional transit center on site and a community of mixed land uses with excellent connectivity via existing and planned pedestrian bridges. **However, no transit reduction was applied to the retail portion, despite such transit opportunities.** Transit, community mixed-use, and pass-by reductions were applied, where applicable and without deviation, per the *City of San Diego Traffic Impact Study Manual.* Considering the project site is located within a dense urban setting with many modal choices available, such an approach is considered conservative.

For clarification purposes and future reference in the report, 'community mixed-use' is used to describe a community of diverse and compatible land uses emphasizing a pedestrian-oriented environment and reinforcing alternate modes of transportation while not excluding automobile use; 'pass-by' trips account for estimated vehicles attracted to the site already on the adjacent roadway system.

Table 5–1 tabulates the resultant project traffic generation. The project traffic is identified as driveway, cumulative or pass-by trips. Driveway trips account for the total number of trips generated by the site (cumulative plus pass-by trips). Driveway trips are assigned to the project driveways. Cumulative trips are new trips added to the surrounding community and are used for the determination of project impacts (driveway minus pass-by trips). Pass-by trips are existing vehicle trips deviated from the roadway to the site. Pass-by trips are discussed further in Section 5.2 of this report.

The project is calculated to generate approximately 17,800 *cumulative* ADT with 256 inbound / 182 outbound *cumulative* trips during the AM peak hour and 825 inbound / 778 outbound *cumulative* trips during the PM peak hour.

The project is calculated to generate approximately 21,900 *driveway* ADT with 315 inbound / 207 outbound *driveway* trips during the AM peak hour and 1,011 inbound / 964 outbound *driveway* trips during the PM peak hour.

TABLE 5–1
PROJECT TRIP GENERATION

Land Use	Trip Rate[a]	Trip Type	Weekday ADT[b]	AM Peak Hour		PM Peak Hour	
				In	Out	In	Out
Regional Retail (750,000 SF)	30.6 trips/1,000 SF[c] AM - 2% of ADT {70:30}[d] PM - 9% of ADT {50:50}	Driveway	22,950	321	138	1,033	1,033
	Community Mixed-Use Reduction[e]:	*Driveway*	*10%* *(2,295)*	*8%* *(26)*	*(11)*	*10%* *(103)*	*(103*
	Transit Reduction[e]:	*Driveway*	*0%* *(0)*	*0%* *(0)*	*(0)*	*0%* *(0)*	*(0*
	Subtotal:	Cumulative (80%)	16,524	236	102	744	744
		Pass-By[f] (20%)	4,131	59	25	186	186
		Driveway	20,655	295	127	930	930
Multi-Family Residential (250 units)	6 trips/dwelling unit AM - 8% of ADT {20:80} PM - 9% of ADT {70:30}	Driveway	1,500	24	96	95	40
	Community Mixed-Use Reduction[e]:	*Driveway*	*10%* *(150)*	*8%* *(2)*	*(8)*	*10%* *(9)*	*(4)*
	Transit Reduction[e]:	*Driveway*	*5%* *(68)*	*9%* *(2)*	*(8)*	*6%* *(5)*	*(2)*
	Subtotal:	Cumulative (100%)	1,282	20	80	81	34
		Pass-By[f] (0%)	0	0	0	0	0
		Driveway	1,282	20	80	81	34
TOTALS *(ADTs rounded)*:		**Cumulative**	**17,800**	**256**	**182**	**825**	**778**
		Pass-By	**4,100**	**59**	**25**	**186**	**186**
		Driveway	**21,900**	**315**	**207**	**1,011**	**964**

Footnotes:

a. Based on the City of San Diego Trip Generation Manual, May 2003.
b. Traffic volumes expressed in vehicles per day.
c. Based on Regional Retail Trip Generation (Ln (T) = 0.756 Ln (X) + 5.25, where T is the number of trips and X is the square footage in 1,000's) at post expansion square footage (1,061,400 + 750,000 = 1,811,400 SF).
d. Ratio denotes in:out traffic split.
e. Reductions per the City Traffic Impact Study Manual (refer to Appendix D).
f. Pass-by represents difference between Driveway and Cumulative trips, per the City Trip Generation Manual (refer to Appendix D)

Notes:

1. Driveway Trips—vehicles entering and exiting project driveways (Driveway = Cumulative + Pass-By)
2. Cumulative Trips—net new vehicles added to the network
3. Pass-By Trips—vehicles already on the street network diverting to the project site

5.2 Project Traffic Distribution & Assignment

The project-generated traffic was distributed and assigned to the study area network. The directional distribution of the development traffic approaching and departing the site is a function of population densities, near-term and future travel patterns, and the efficiency of the study area roadways.

Project trip distribution for the *University Towne Centre Revitalization Project* was based on the *SANDAG Series 9* Select Zone Assignment with a 2020 horizon year. The Model distributes project trips to the surrounding network on a regional level based on network zone trip productions and attractions.

Figure 5–1 presents the estimated project traffic distribution in the site environs. Since the University Community is composed of a considerable mix of land uses including office and commercial properties, retail properties, a university, and residential housing; a portion of project trips will be captured within the study area. The balance of the project trips would be distributed regionally. A conservative approach was taken in the assignment of the project trips. Project trips were assigned to the existing driveways only, despite a new driveway being proposed. This is considered conservative because more trips were assigned to fewer driveways. The primary purpose of this driveway is to serve as a drop-off area and will have access to internal parking areas. ***Figures 5–2*** and ***5–3*** show Cumulative Project trips on a peak hour and daily basis.

Pass-by trip adjustments, per the *City Traffic Impact Study Manual*, were made to account for vehicles attracted to the site already on the roadway system. Through traffic was reduced as trips passing the site are redirected into the driveway. Finally, the redirected pass-by trips are assigned as outbound traffic to continue traveling to their original destination. The magnitudes of pass-by adjustments are reflective of the driveway percentage distribution. ***Figure 5–4*** illustrates the pass-by adjustments.

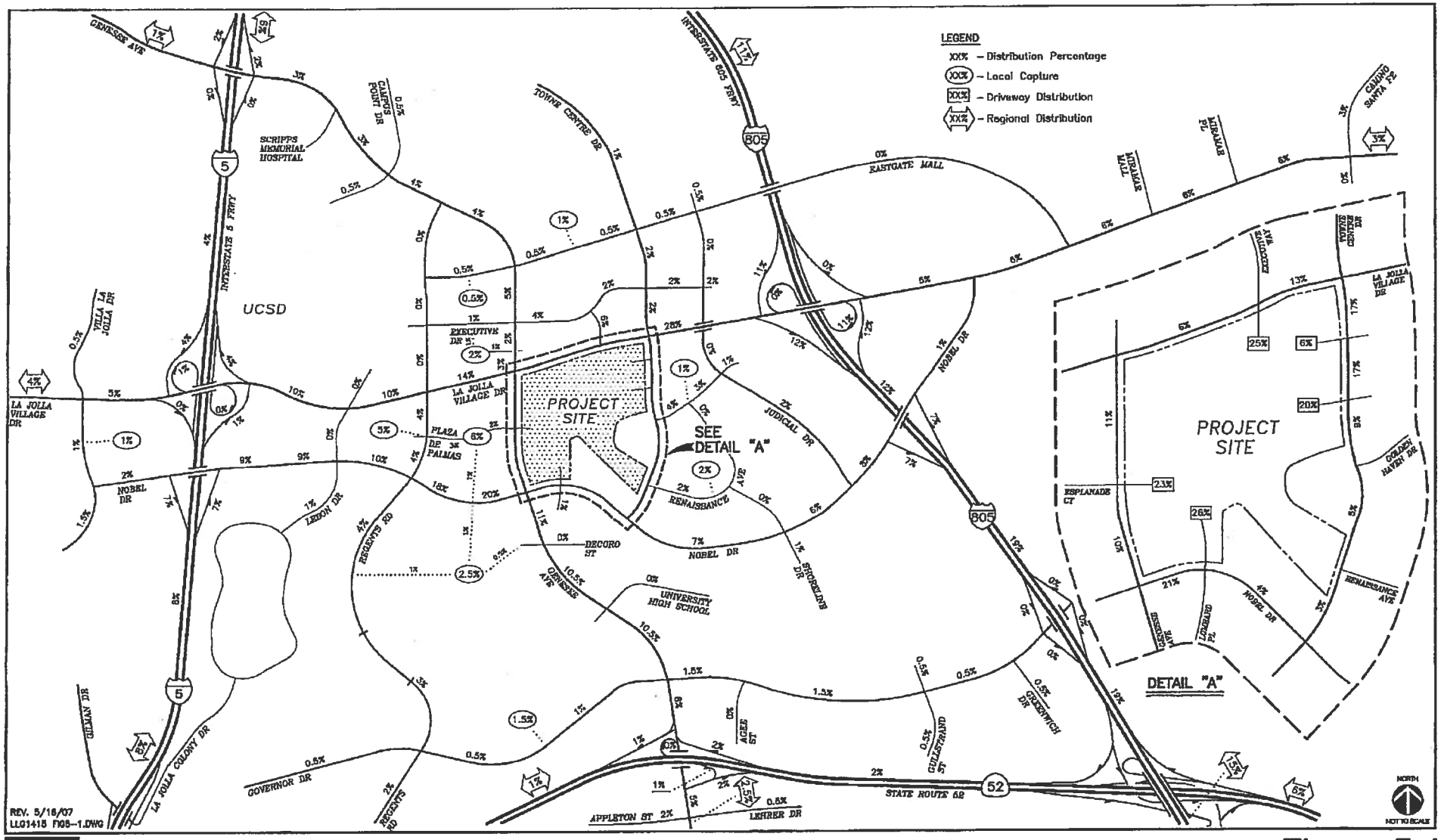

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Figure 5-1

PROJECT TRAFFIC DISTRIBUTION

UNIVERSITY TOWNE CENTRE REVITALIZATION PROJECT

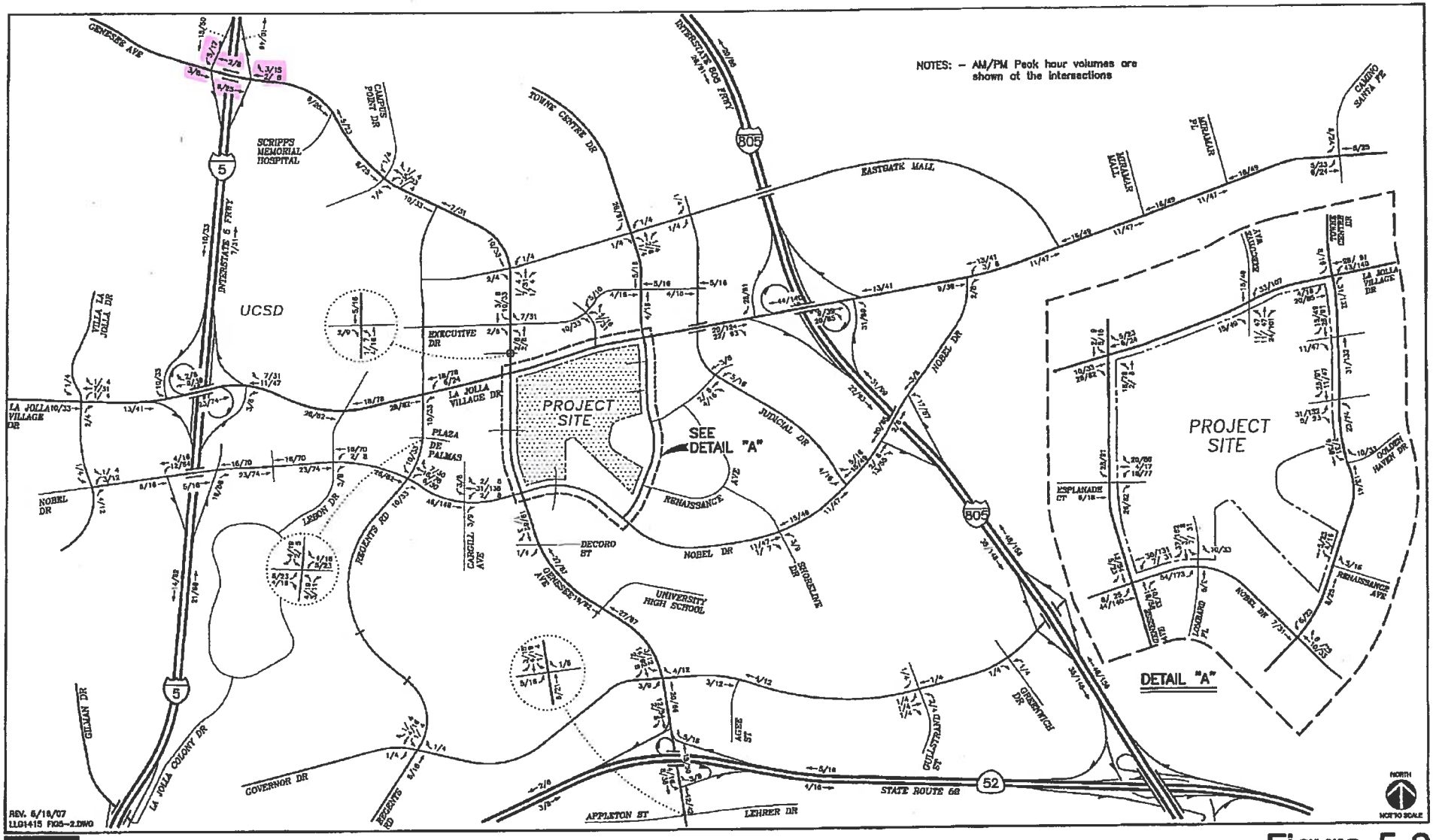

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Figure 5-2

PROJECT TRIPS (CUMULATIVE) AM/PM PEAK HOURS

UNIVERSITY TOWNE CENTRE REVITALIZATION PROJECT

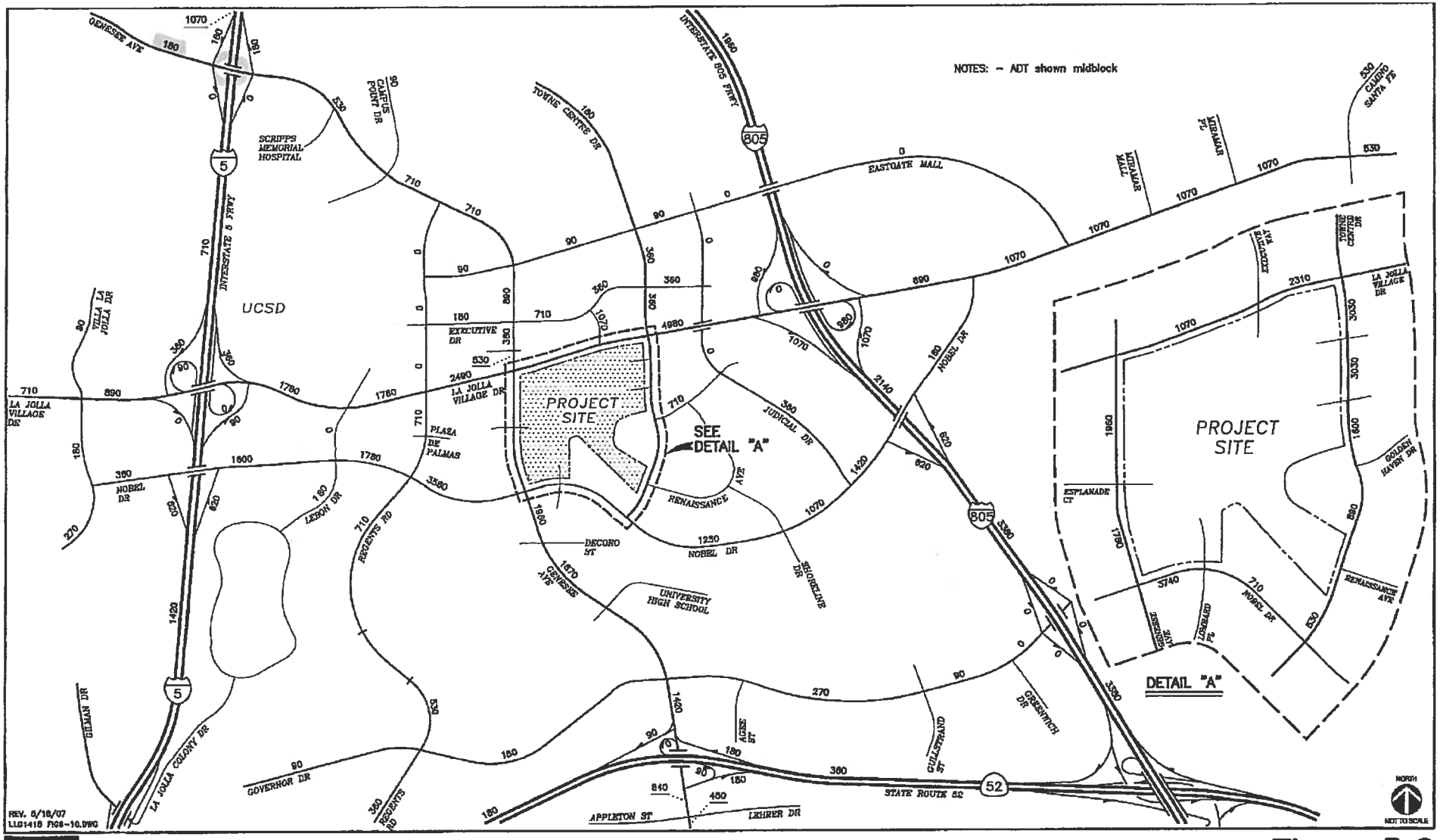

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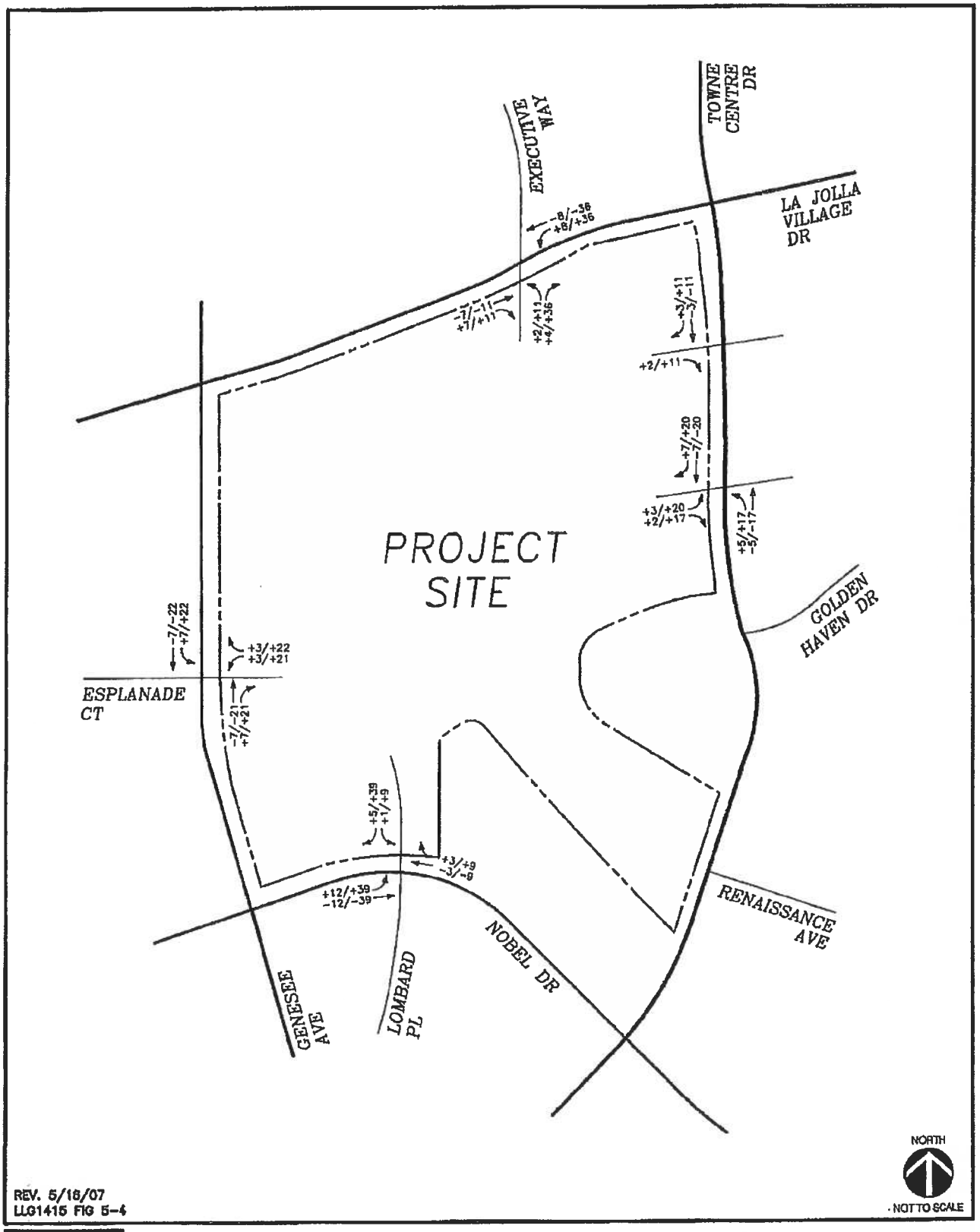
Figure 5-3

PROJECT TRIPS (CUMULATIVE) DAILY VOLUMES

UNIVERSITY TOWNE CENTRE REVITALIZATION PROJECT



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LLG1415 FIG 5-4

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Figure 5-4

PASS-BY TRIP ADJUSTMENTS AM/PM PEAK HOURS

UNIVERSITY TOWNE CENTRE REVITALIZATION PROJECT

TABLE 3-1

Project Trip Generation

Use	Amount	Trip	ADT	AM Peak Hour							PM Peak Hour					
				% *	#	In	:	Out	In	Out	% *	#	In	:	Out	In	Out
Commercial Office	100,000 SF	Log Formula	1,688	13%	219	9	:	1	197	22	14%	236	2	:	8	47	189
Existing Entitlement per City Calculations	40,251 SF	8 /KSF	322	16%	52	9	:	1	46	5	14%	45	1	:	9	5	41
NET NEW TRIPS			1,366		168				151	17		191				43	148

Notes:

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

Log Formula: Ln(T) = 0.756Ln(x)+3.95

KSF = 1,000 square feet

FIGURE 3-1

Project Only Traffic Distribution

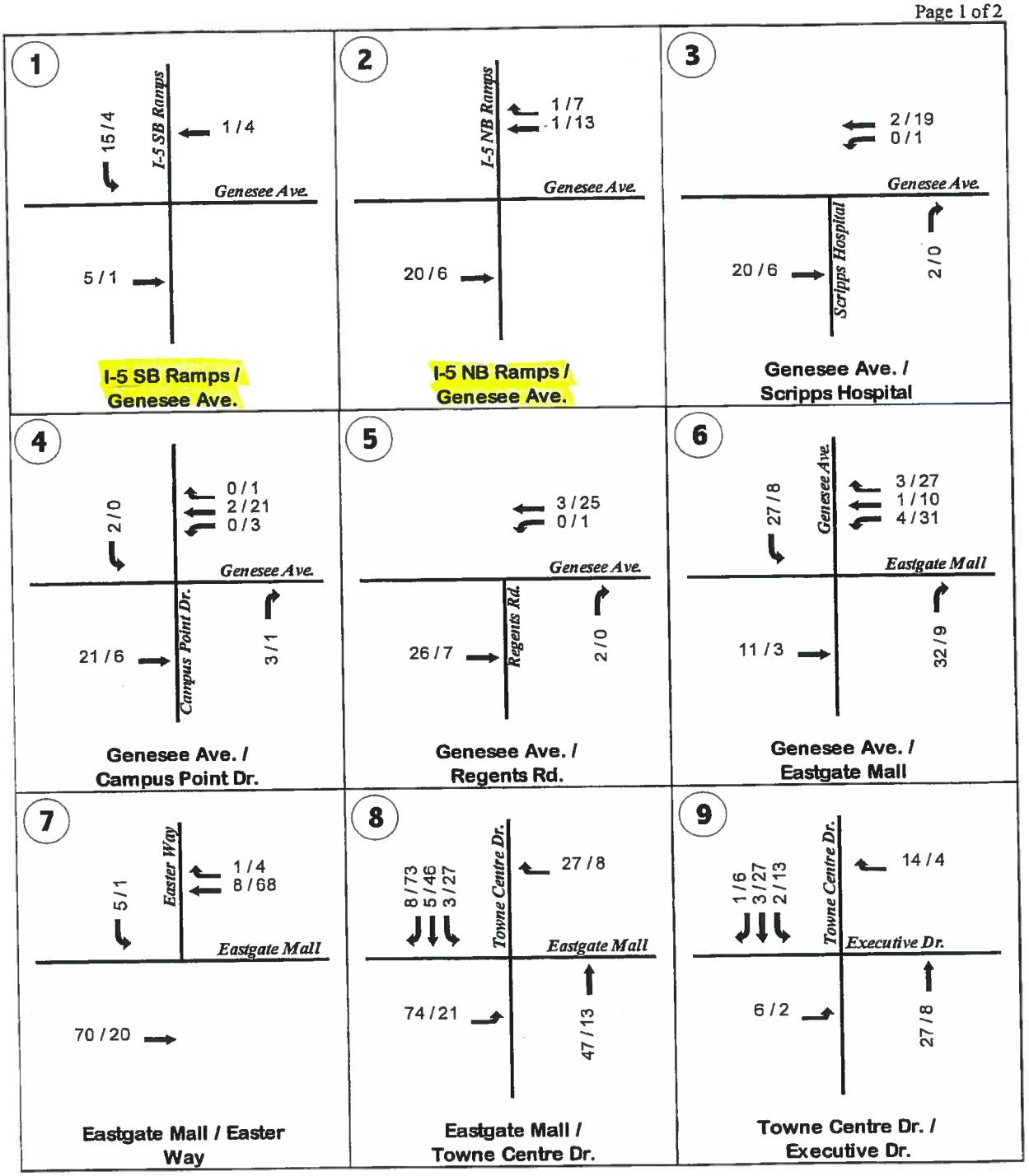


FIGURE 3-3

Project Only AM / PM Peak Hour Traffic

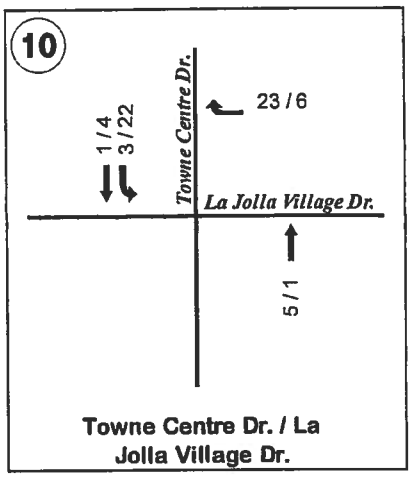


FIGURE 3-3

Project Only AM / PM Peak Hour Traffic

Genesee Executive Plaza

TABLE 8-1
TRIP GENERATION SUMMARY

Land Use	Quantity	Daily Trip Ends (ADT)		AM Peak Hour					PM Peak Hour				
		Rate	Volume	Rate	In:Out Split	Volume In	Volume Out	Volume Total	Rate	In:Out Split	Volume In	Volume Out	Volume Total
Current Trip Generation: Commercial Office	29.0 KSF	[a]	479	13%	9:1	56	6	62	14%	2:8	13	54	67
Post-Project Trip Generation: Medical Office	29.0 KSF	50/KSF[b]	1,450	6%	8:2	70	17	87	10%	3:7	44	102	146
Increase			+971			-14	11	25			+31	+48	+79

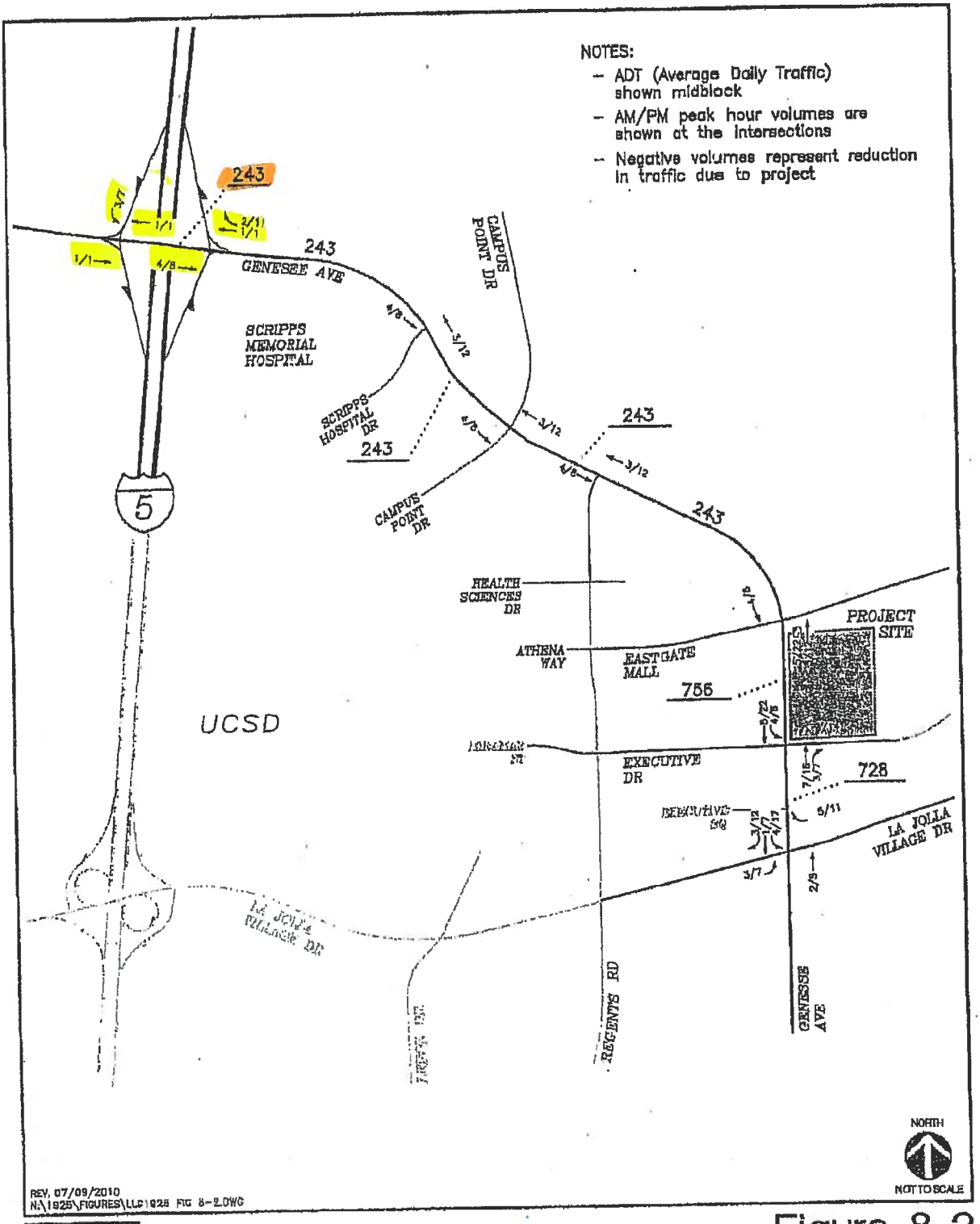
Source: City of San Diego Trip Generation Manual, Revised May 2003.

Footnotes:

a. Existing Site Rate = Ln(T) = 0.756Ln(109.145)+3.95 = 1,804 trips. 1,804/109.145 ksf = existing site rate of 16.5 trips/ksf. 29.0 ksf * 16.5 trips/ksf = 479 ADT credit for existing uses.

b. City of San Diego Traffic Generators Rate for "Medical Office Space", May 2003.

General Notes:
KSF = Thousand Square Feet
ADT = Average Daily Trips



LINSCOTT LAW & GREENSPAN engineers

Figure 8-2

Project Traffic Volumes AM/PM Peak Hours & ADT

GENESSE EXECUTIVE PLAZA MEDICAL OFFICE BUILDING

3.0 PROPOSED PROJECT

The proposed project is located on a private driveway off the northern end of Campus Point Drive (10300 Campus Point Drive) (See **Figure 2-1**). The proposed project plans to increase the density of the 41.67 acre Campus Pointe site currently containing an existing two-story 463,791 square foot (SF) multi-tenant building (referred to as "CP1") as well as a 267,934 SF scientific research building which is currently undergoing tenant improvements (referred to as "CP2"). The existing buildings have utility structures associated with them, 9,044 SF and 7,310 SF respectively, which will be retained in the future. The proposed project would add a third building totaling approximately 318,383 SF of scientific research ("CP3"). The project also proposes a 10,000 SF building (referred to as "CP4) east of CP3 which would house various amenity spaces (8,000 SF) and a small manufacturing space (2,000 SF micro-brewery). At full build-out, the total floor area would be a total of 1,060,018 SF of scientific research (including the two existing buildings). The proposed project is expected to generate a net increase of up to 2,555 average daily trips (ADT) with 410 (369 in/41 out) trips in the AM peak hour and 359 trips (36 in/323 out) in the PM peak hour.

3.1 TRIP GENERATION

A trip generation table for the project was developed as shown in **Table 3-1**. At full buildout, the 1,060,108 SF of development is expected to generate 8,409 ADT of which 5,854 can be attributed to the existing buildings (CP1 and CP2). As shown, the proposed project would generate a net increase of approximately 2,555 ADT (8,409-5,854) with 410 AM (369 in/ 41 out) peak hour trips and 359 PM (36 in/ 3323 out) peak hour trips.

3.2 TRIP DISTRIBUTION AND ASSIGNMENT

Figure 3-2 shows the project only trip distribution percentages, which were derived from a select zone analysis using SANDAG's Series 11 Traffic Model (TAZ 4606). This model reflects estimated build-out conditions for the adopted North University City Community Plan. This traffic model was adjusted to include land uses for the proposed project. Please refer to **Appendix A** for SANDAG Series 11 traffic model information.

Figure 3-1 shows the traffic model distributed project traffic. **Figure 3-2** shows the project only average daily traffic volumes, which are based on the daily new traffic generation from **Table 3-1** and distribution of project only traffic from **Figure 3-1**. **Figure 3-3** shows the AM/PM peak hour project only traffic.

TABLE 3-1

Alexandria Campus Pointe Project Trip Generation

Use	Amount	Rate[1]	ADT	AM Peak Hour						PM Peak Hour					
				%	#	In	: Out	In	Out	%	#	In	: Out	In	Out
Existing (to remain)															
Scientific Research (CP1)	463,791 SF	8 /KSF	3,710	16%	594	9	: 1	535	59	14%	519	1	: 9	52	467
Scientific Research (CP2)	267,934 SF	8 /KSF	2,143	16%	343	9	: 1	309	34	14%	309	1	: 9	36	270
Proposed															
Scientific Research (CP3)	318,383 SF	8 /KSF	2,547	16%	408	9	: 1	367	41	14%	357	1	: 9	36	321
Manufacturing (CP4)	2,000 SF	4 /KSF	8	20%	2	9	: 1	2	0	20%	2	2	: 8	0	2
Amenity Space (CP4)[2]	8,000 SF	Non-Traffic Generating													
Total Existing			5,854		937			844	93		819			82	737
Total Proposed Net Increase			2,555		410			369	41		359			36	323
Total (Existing+Proposed)			8,409		1,347			1,212	134		1,178			118	1,060

Notes:

[1] = Source: City of San Diego Trip Generation Manual, May 2003

ADT=Average Daily Trips

SF = Square Feet

KSF= 1,000 Square Feet

[2]= Amenity space primarily intended to serve patrons onsite and on adjacent properties. Therefore, it would internalize trips and not be expected to generate external ADT

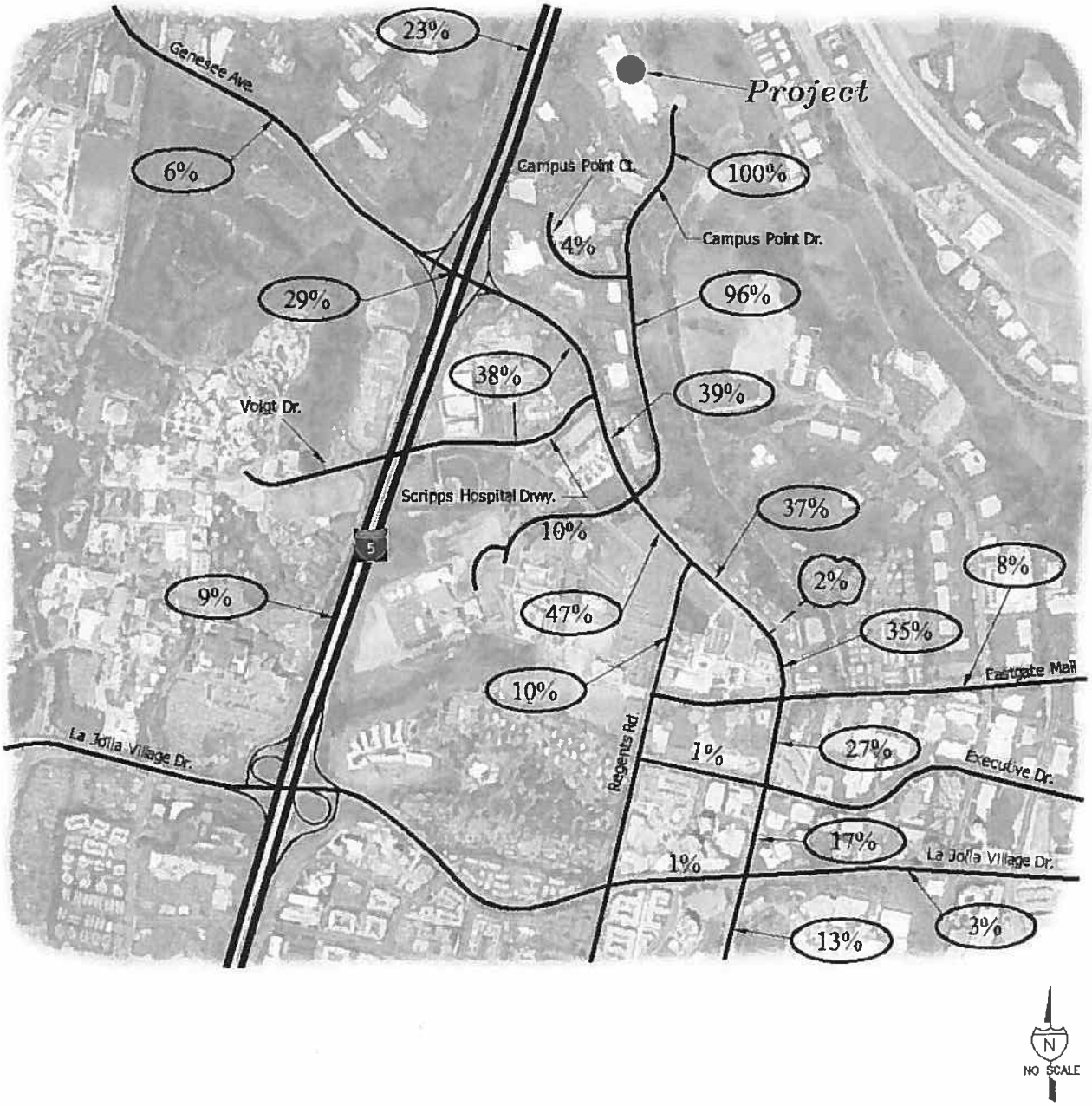


FIGURE 3-1

Project Only Traffic Distribution

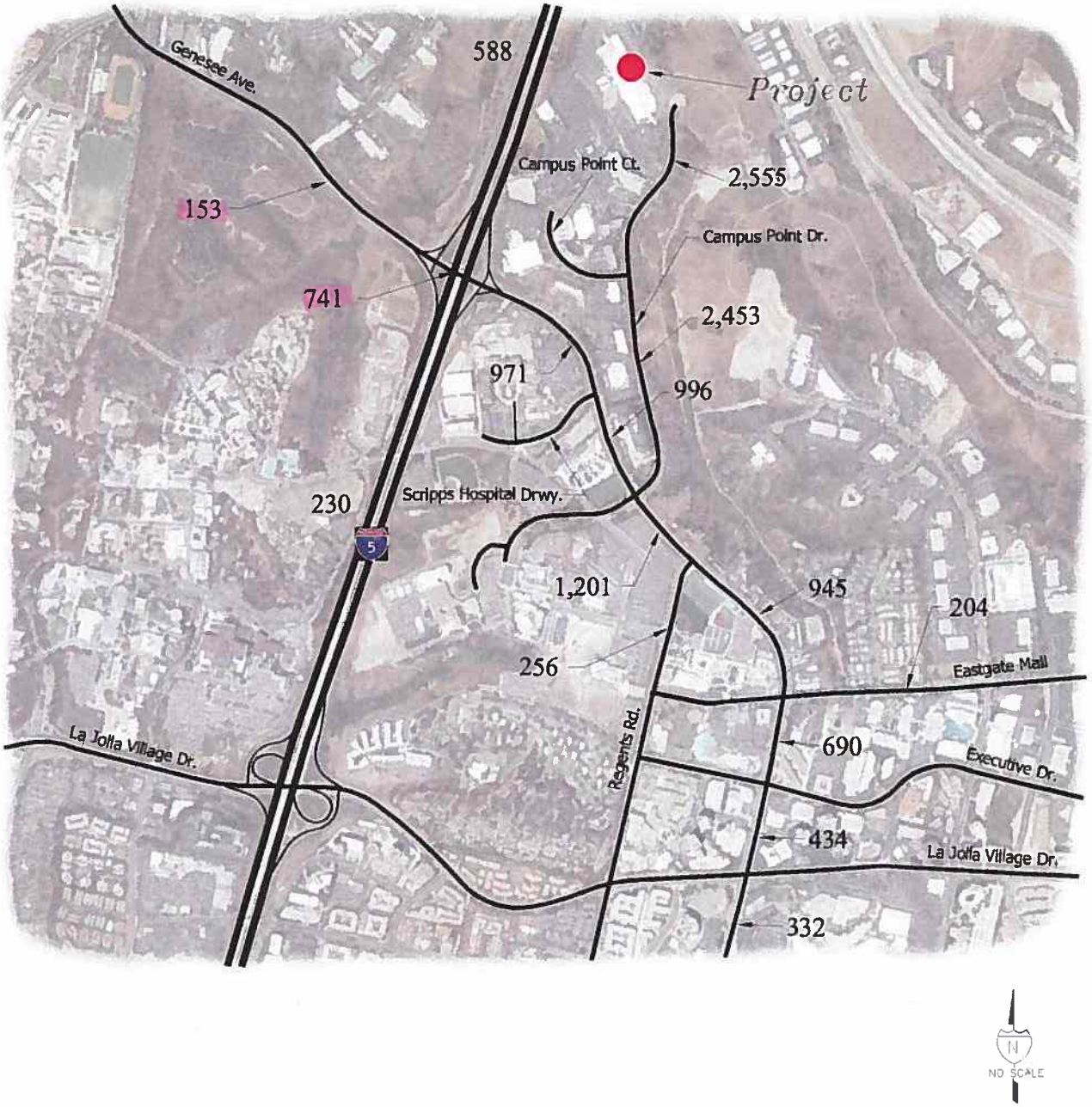


FIGURE 3-2

Project Only Average Daily Traffic

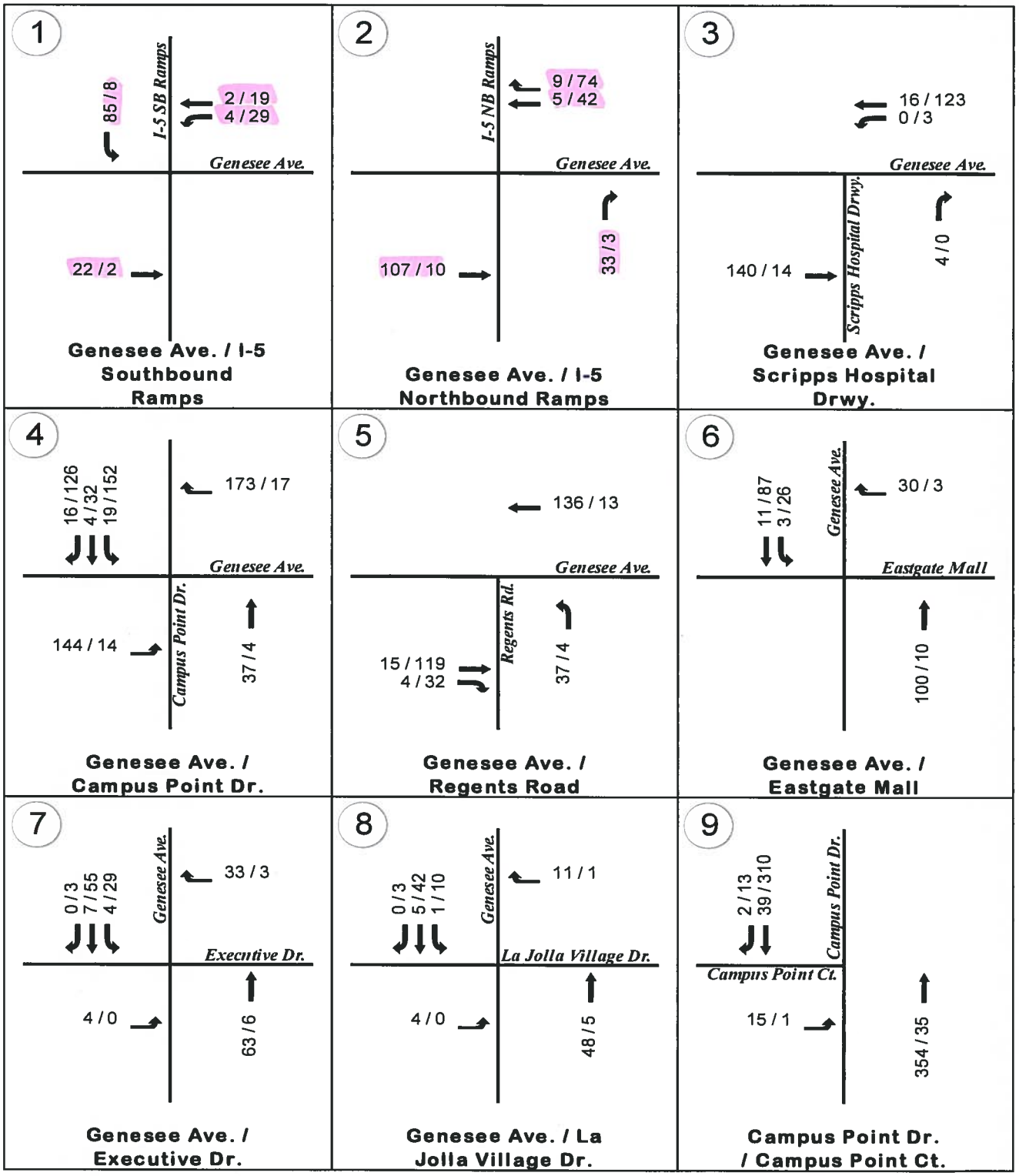


FIGURE 3-3

Project Only AM / PM Peak Hour Traffic

TRANSPORTATION ANALYSIS

for

SALK INSTITUTE MASTER PLAN

Prepared for

SALK INSTITUTE FOR BIOLOGICAL STUDIES

Submittal: September 20, 2006

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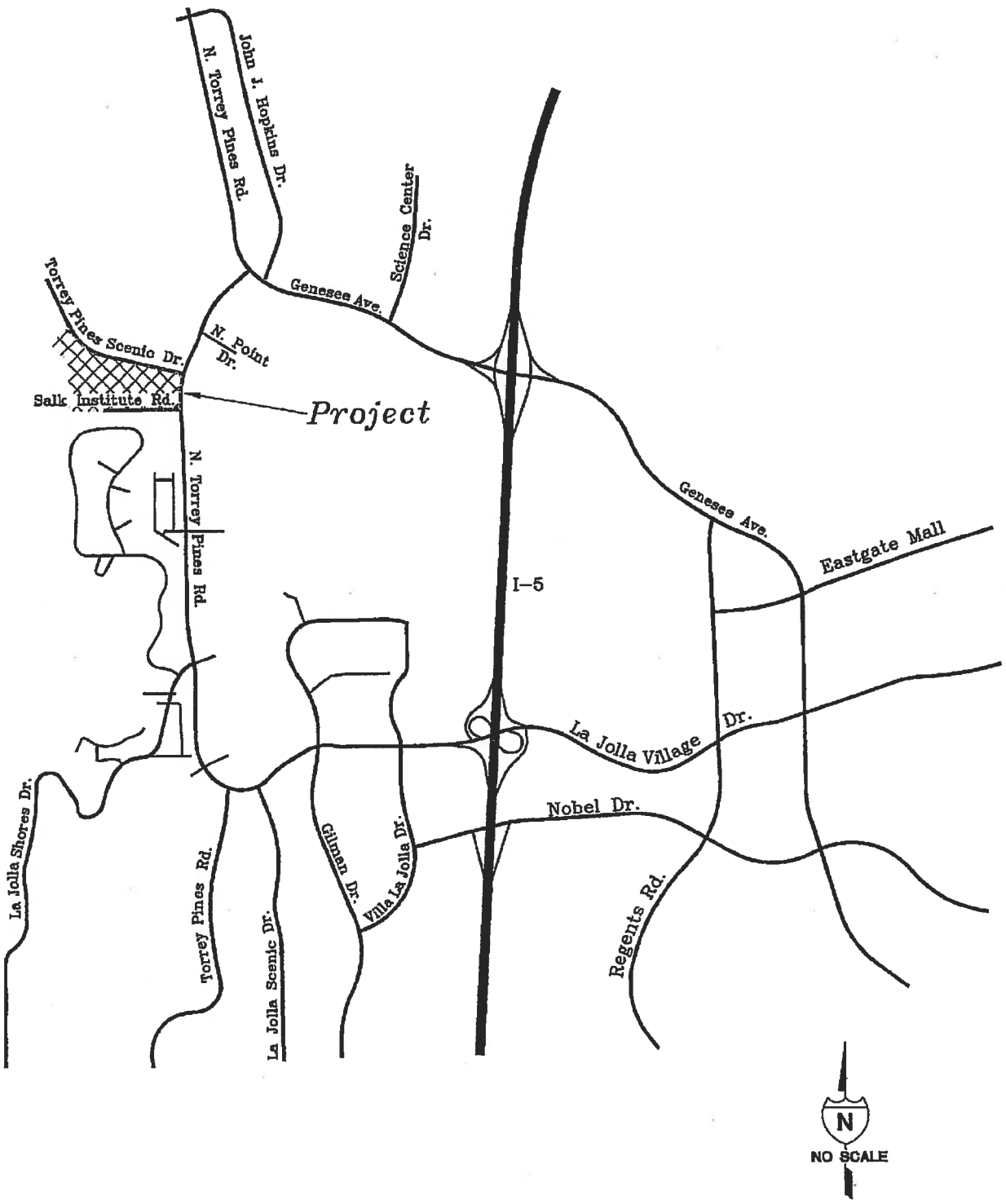

FIGURE 1-1
Project Location Map

4701-Graphics_H.dwg

2.0 PROPOSED PROJECT

The Salk Institute for Biological Studies is proposing to complete it's campus complex, as anticipated in the University Community Plan. The proposal calls for additional buildings generally in the areas designated in the original 1961 plan for the institute's development. The institute currently consists of 289,818 square feet of facilities. The Salk Institute will be demolishing 29,000 square feet of existing office and building 239,182 square feet of new office space, which is a net increase of 210,182 square feet, which is consistent with the Master Plan Update. The additional facilities and support structures consisting of: The Salk Community Center Building, a new research laboratory, greenhouses, a daycare facility and twelve residential units for visiting fellows, for a total of 500,000 square feet. **Figure 2-1** shows the approved 500,000 square foot land use for the Salk Institute from the University Community Plan, adopted on July 7, 1987, amended November 21, 2000.

2.1 TRIP GENERATION

The proposed facilities square footage allotments were obtained by USAI from the Salk Institute for Biological Studies proposed Master Plan Update. In order to determine the traffic generated by the proposed project, the City of San Diego's May 2003 Trip Generation Manual was used to create a trip generation table (**Table 2-1**) The trip generation table consists of three parts: Future Master Plan Buildout, Existing Buildings and Future Buildings based on maximum traffic.

As shown in the "Future Buildings Based on Maximum Traffic" component of **Table 2-1**, trip generation for the project and analyzed in this report is based on an increase in campus square footage of 210,182 SF. This is different from the 239,182 SF shown in the "Future Master Plan Buildout" portion of this table because 29,000 SF of existing office space will be demolished to build the additional 239,182 SF. Therefore, there will only be a net increase of 210,182 SF on the Salk Institute Campus. Please note that the 500,000 square feet of development is what was in the Community Plan assumptions shown in **Figure 2-1.**

TABLE 2-1

Project Trip Generation

Future Master Plan Buildout

Use	Amount	Trip Rate	ADT	AM PEAK HOUR					PM PEAK HOUR				
				%	#	In/Out	In	Out	%	#	In/Out	In	Out
Residential Quarters	12 DU (12,000 SF)	8 trips / DU	96	8	8	2 : 8	2	6	10	10	7 : 3	7	3
Core Facility, Mechanical Room, Equipment[1]	0 SF	No New Trips											
Torrey East Science Complex	96,400 SF	8 trips / KSF	771	16	123	9 : 1	111	12	14	108	1 : 9	11	97
Day Care Facility[2]	12,000 SF	No New Trips											
Community Center	115,182 SF	8 trips /KSF	921	16	147	9 : 1	133	14	14	129	1 : 9	13	116
Greenhouses[3]	3,600 SF	No New Trips											
Total	**239,182 SF**		**1,788**		**278**		**246**	**32**		**247**		**31**	**216**

[1]The Core Facility is a housing area for Institute equipment which would serve researchers already on the Salk campus. The Mechanical Room and Equipment area are work areas containing tooling and machinery for facilities employees, as well as an area for objects which require storage.
[2]The Day Care Facility is provided as a service for employees who work on the Salk campus.
[3]Greenhouses are accessory facilities which would serve employees already on the campus.
KSF = 1,000 Square Feet

Existing to Be Demolished

Use	Amount	Trip Rate	ADT	AM PEAK HOUR					PM PEAK HOUR				
				%	#	In/Out	In	Out	%	#	In/Out	In	Out
Demolish	29,000 SF	8 trips /KSF	232	16	37	9 : 1	33	4	14	32	1 : 9	3	29

4701-TAB2-1G.wpd

TABLE 2-1 (Cont.)

Existing Buildings

Use	Amount	*Trip Rate	ADT	AM PEAK HOUR					PM PEAK HOUR				
				%*	#	In/Out	In	Out	%*	#	In/Out	In	Out
North Building	73,000 SF	8 trips / KSF	584	16	93	9 : 1	84	9	14	82	1 : 9	8	74
South Building	85,000 SF	8 trips / KSF	680	16	109	9 : 1	98	11	14	95	1 : 9	10	86
East Building	102,818 SF	8 trips / KSF	823	16	132	9 : 1	119	13	14	115	1 : 9	12	104
West Building	20,000 SF	8 trips / KSF	160	16	26	9 : 1	23	3	14	22	1 : 9	2	20
Accessory Building	9,000 SF	8 trips / KSF	72	16	12	9 : 1	11	1	14	10	1 : 9	1	9
Total	**289,818**		**2,319**		**372**		**335**	**37**		**324**		**33**	**293**

Note:
DU = Dwelling Unit
SF = Square Feet
KSF = 1,000 Square Feet

Maximum Traffic Future Buildings Based on 100% @ 8 Trips/1,000 Square Feet

Use	Amount	ADT	AM Peak Hour			PM Peak Hour		
			#	In	Out	#	In	Out
Future Buildings	210,182 SF	1,682	270	243	27	236	24	212

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

4701-TAB2-1G.wpd

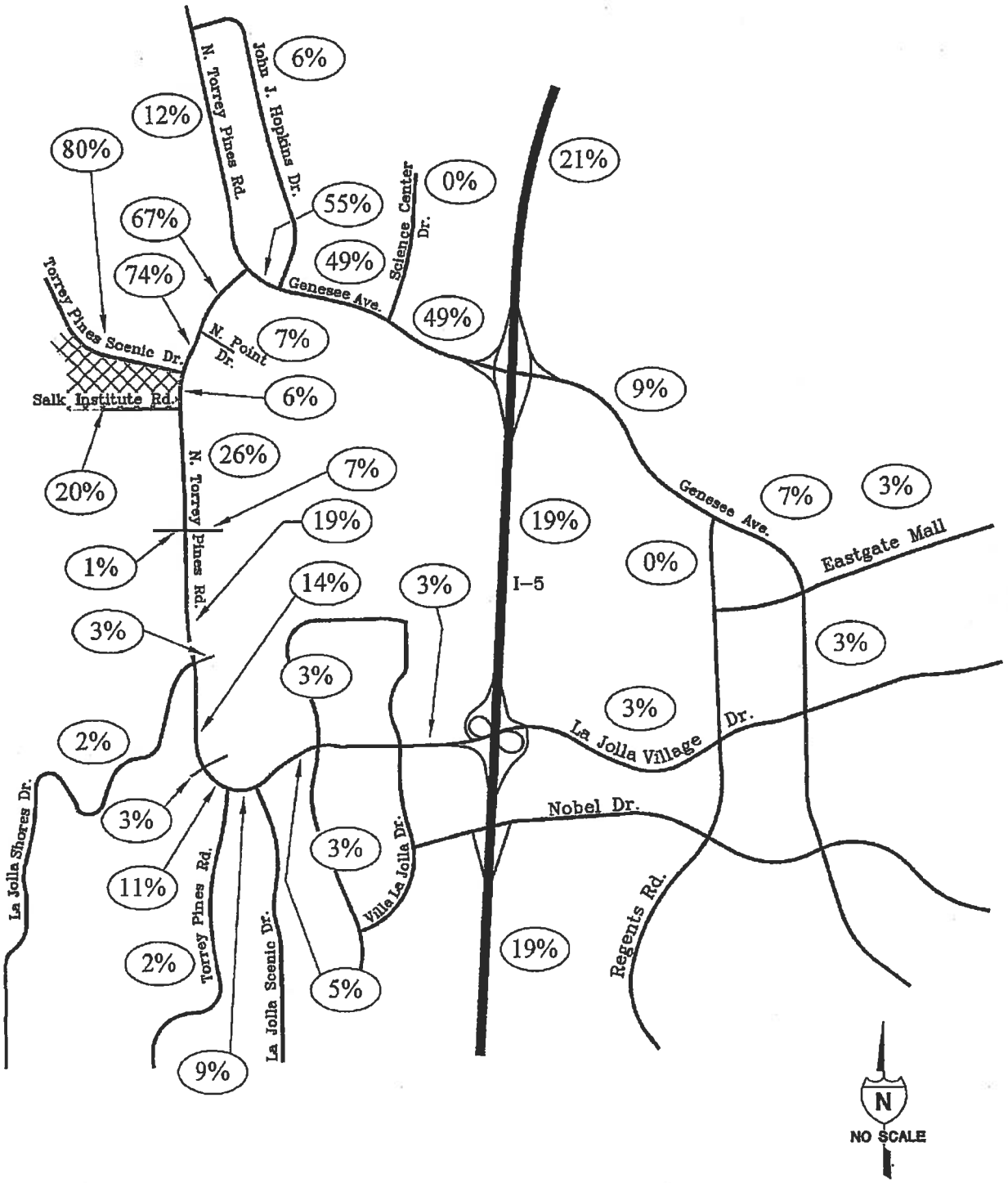

FIGURE 2-2

Project Distribution Percentages

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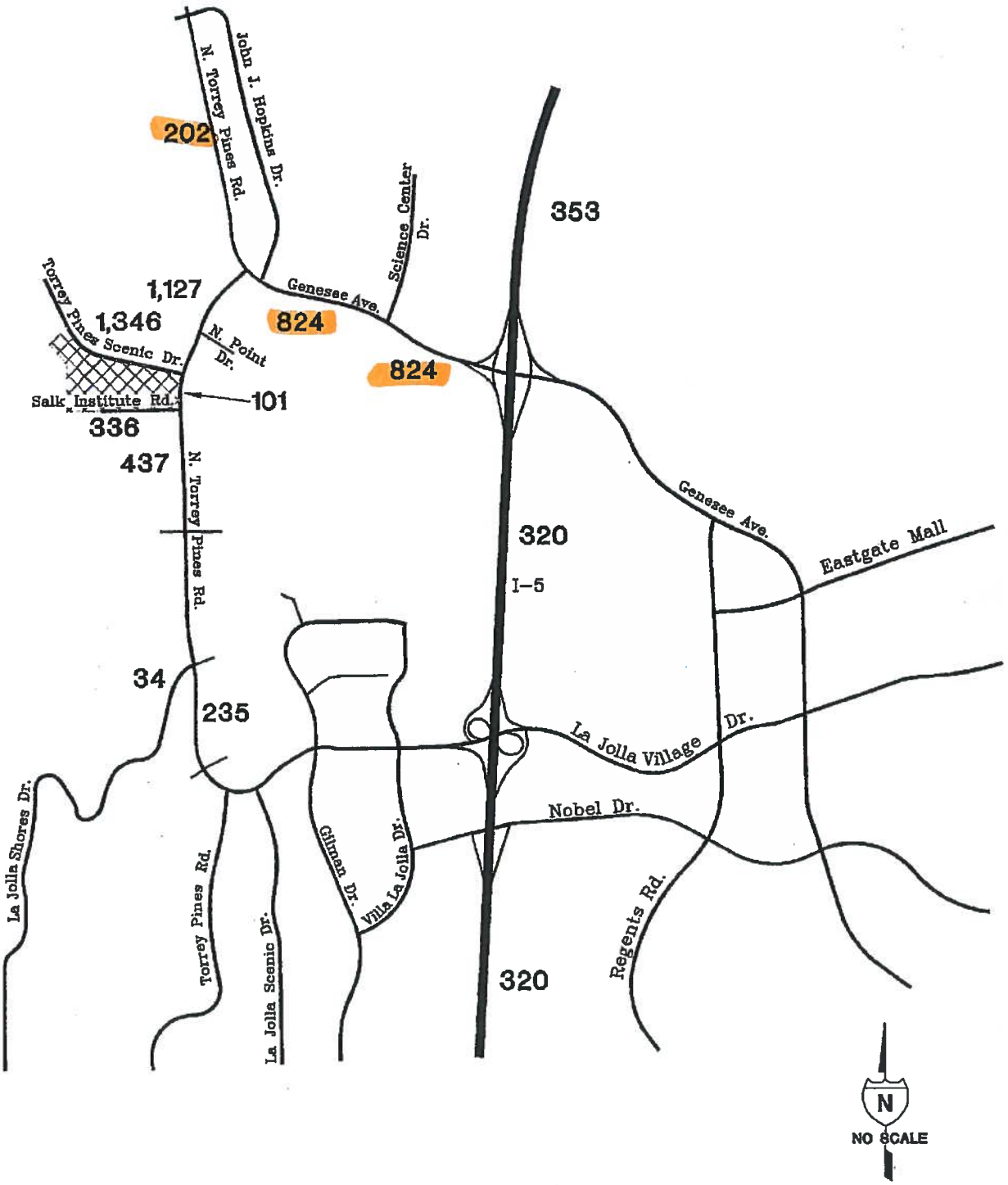

FIGURE 2-3

Project Only Average Daily Traffic

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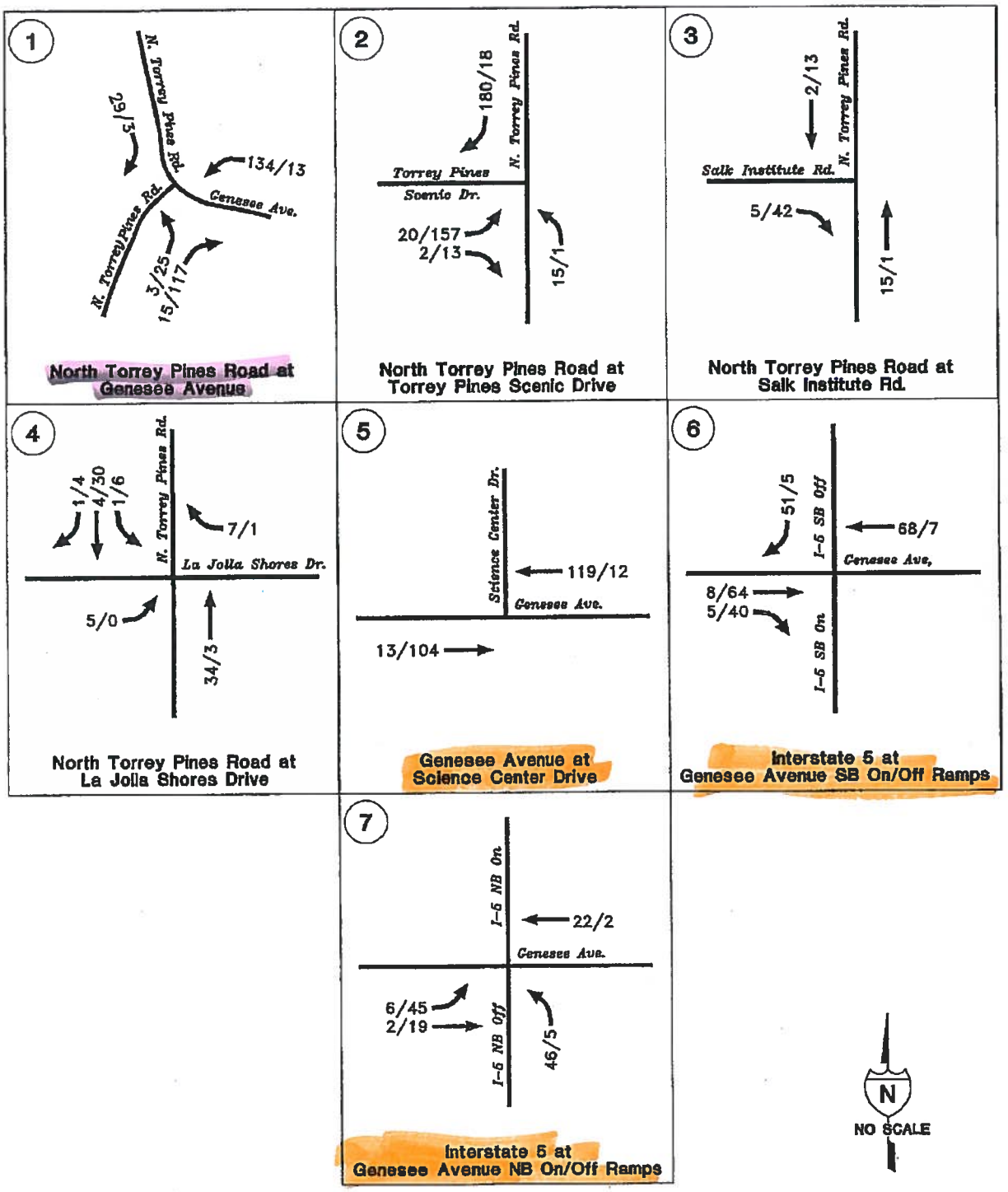


FIGURE 2-4

Project Only AM / PM Peak Hour Traffic

4701-Graphics_H.dwg

Appendix F

Near-Term Without Project Conditions AM / PM Peak Hour

Synchro Worksheets

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	3	36	57	5	15	92	563	500	164	874	14
Future Volume (vph)	7	3	36	57	5	15	92	563	500	164	874	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1797	1583	1681	1697	1583	1770	5085	1583	1770	5073	
Flt Permitted		0.96	1.00	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1797	1583	1681	1697	1583	1770	5085	1583	1770	5073	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	3	39	62	5	16	100	612	543	178	950	15
RTOR Reduction (vph)	0	0	37	0	0	14	0	0	277	0	1	0
Lane Group Flow (vph)	0	11	2	33	34	2	100	612	266	178	964	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)		3.5	3.5	10.8	10.8	10.8	7.7	38.6	38.6	8.0	38.9	
Effective Green, g (s)		3.5	3.5	10.8	10.8	10.8	7.7	38.6	38.6	8.0	38.9	
Actuated g/C Ratio		0.04	0.04	0.14	0.14	0.14	0.10	0.49	0.49	0.10	0.49	
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		79	70	230	232	216	172	2487	774	179	2501	
v/s Ratio Prot		c0.01		0.02	c0.02		0.06	0.12		c0.10	c0.19	
v/s Ratio Perm			0.00			0.00			0.17			
v/c Ratio		0.14	0.02	0.14	0.15	0.01	0.58	0.25	0.34	0.99	0.39	
Uniform Delay, d1		36.3	36.1	30.0	30.0	29.4	34.1	11.7	12.4	35.4	12.5	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.8	0.1	0.3	0.3	0.0	4.9	0.2	1.2	65.3	0.5	
Delay (s)		37.1	36.2	30.3	30.3	29.4	39.0	11.9	13.6	100.7	13.0	
Level of Service		D	D	C	C	C	D	B	B	F	B	
Approach Delay (s)		36.4			30.1			14.8			26.6	
Approach LOS		D			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	78.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Yield	Stop		Yield	
Traffic Volume (vph)	192	374	48	2	44	57
Future Volume (vph)	192	374	48	2	44	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	209	407	52	2	48	62

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	616	54	110
Volume Left (vph)	209	0	48
Volume Right (vph)	0	2	62
Hadj (s)	0.10	0.01	-0.22
Departure Headway (s)	4.4	4.9	5.2
Degree Utilization, x	0.75	0.07	0.16
Capacity (veh/h)	805	693	627
Control Delay (s)	19.2	8.3	9.2
Approach Delay (s)	19.2	8.3	9.2
Approach LOS	C	A	A

Intersection Summary			
Delay	17.0		
Level of Service	C		
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	4	62	27	15	57	118	1063	65	286	755	56
Future Volume (vph)	16	4	62	27	15	57	118	1063	65	286	755	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1599		1681	1743	1583	1770	5041		1770	5033	
Flt Permitted	0.95	1.00		0.95	0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1599		1681	1743	1583	1770	5041		1770	5033	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	4	67	29	16	62	128	1155	71	311	821	61
RTOR Reduction (vph)	0	63	0	0	0	55	0	5	0	0	5	0
Lane Group Flow (vph)	17	8	0	22	23	7	128	1221	0	311	877	0
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.2	5.2		9.1	9.1	9.1	10.7	27.4		16.4	33.3	
Effective Green, g (s)	5.2	5.2		9.1	9.1	9.1	10.7	27.4		16.4	33.3	
Actuated g/C Ratio	0.07	0.07		0.12	0.12	0.12	0.14	0.35		0.21	0.43	
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	117	106		195	202	183	241	1764		370	2140	
v/s Ratio Prot	c0.01	0.01		0.01	c0.01		0.07	c0.24		c0.18	0.17	
v/s Ratio Perm						0.00						
v/c Ratio	0.15	0.08		0.11	0.11	0.04	0.53	0.69		0.84	0.41	
Uniform Delay, d1	34.5	34.3		31.0	31.0	30.7	31.5	21.8		29.7	15.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3		0.3	0.3	0.1	2.2	2.3		15.7	0.6	
Delay (s)	35.0	34.6		31.2	31.2	30.8	33.7	24.1		45.4	16.2	
Level of Service	D	C		C	C	C	C	C		D	B	
Approach Delay (s)		34.7			31.0			25.0			23.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	20.2
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	435	352	464	1079	495	333
Future Volume (veh/h)	435	352	464	1079	495	333
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	473	383	504	1173	538	362
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2432	755	568	3506	709	1031
Arrive On Green	0.48	0.48	0.16	0.69	0.21	0.21
Sat Flow, veh/h	5274	1585	3456	5274	3456	2790
Grp Volume(v), veh/h	473	383	504	1173	538	362
Grp Sat Flow(s),veh/h/ln	1702	1585	1728	1702	1728	1395
Q Serve(g_s), s	5.2	16.4	14.0	9.2	14.4	9.2
Cycle Q Clear(g_c), s	5.2	16.4	14.0	9.2	14.4	9.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2432	755	568	3506	709	1031
V/C Ratio(X)	0.19	0.51	0.89	0.33	0.76	0.35
Avail Cap(c_a), veh/h	2432	755	582	3506	1661	1799
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	17.7	40.1	6.2	36.7	22.4
Incr Delay (d2), s/veh	0.2	2.4	15.2	0.3	1.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	6.3	7.1	3.0	6.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.0	20.1	55.3	6.5	38.4	22.6
LnGrp LOS	B	C	E	A	D	C
Approach Vol, veh/h	856			1677	900	
Approach Delay, s/veh	17.3			21.2	32.0	
Approach LOS	B			C	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		73.5		24.5	20.6	52.9
Change Period (Y+Rc), s		6.2		4.4	4.5	* 6.2
Max Green Setting (Gmax), s		67.3		47.1	16.5	* 47
Max Q Clear Time (g_c+I1), s		11.2		16.4	16.0	18.4
Green Ext Time (p_c), s		11.7		3.8	0.1	5.0

Intersection Summary	
HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Edition methodology expects strict NEMA phasing.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	84	712	1497	775	77	21
Future Volume (vph)	84	712	1497	775	77	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.7	5.9	5.9	4.9	3.0
Lane Util. Factor	1.00	0.91	0.81	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	7544	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	7544	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	91	774	1627	842	84	23
RTOR Reduction (vph)	0	0	0	575	0	0
Lane Group Flow (vph)	91	774	1627	267	84	23
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov
Protected Phases	5	2	6		4	3 5
Permitted Phases				6		
Actuated Green, G (s)	6.6	48.3	38.1	38.1	17.6	46.1
Effective Green, g (s)	6.6	48.3	38.1	38.1	17.6	46.1
Actuated g/C Ratio	0.05	0.40	0.32	0.32	0.15	0.38
Clearance Time (s)	4.4	6.7	5.9	5.9	4.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	97	2046	2395	502	503	608
v/s Ratio Prot	c0.05	0.15	c0.22		c0.02	c0.01
v/s Ratio Perm				0.17		
v/c Ratio	0.94	0.38	0.68	0.53	0.17	0.04
Uniform Delay, d1	56.5	25.3	35.6	33.6	44.8	23.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	70.6	0.1	1.6	4.0	0.7	0.0
Delay (s)	127.1	25.4	37.2	37.6	45.5	23.1
Level of Service	F	C	D	D	D	C
Approach Delay (s)		36.1	37.4		40.7	
Approach LOS		D	D		D	

Intersection Summary			
HCM 2000 Control Delay	37.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition cannot analyze u-turn movements.

Movement	EBL	EBT	WBU	WBT	WBR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	107	672	0	2390	378	52	10
Future Volume (vph)	107	672	0	2390	378	52	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.9		6.0	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.91	1.00	0.97	
Frt	1.00	1.00		1.00	0.85	0.98	
Flt Protected	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	1770	5085		5085	1583	3384	
Flt Permitted	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	1770	5085		5085	1583	3384	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	730	0	2598	411	57	11
RTOR Reduction (vph)	0	0	0	0	27	9	0
Lane Group Flow (vph)	116	730	0	2598	384	59	0
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	
Protected Phases	5	2	1	6	8	8	
Permitted Phases					6		
Actuated Green, G (s)	5.7	49.8		40.6	50.9	10.3	
Effective Green, g (s)	5.7	49.8		40.6	50.9	10.3	
Actuated g/C Ratio	0.08	0.69		0.56	0.71	0.14	
Clearance Time (s)	4.4	6.9		6.0	4.9	4.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	140	3522		2871	1120	484	
v/s Ratio Prot	c0.07	0.14		c0.51	c0.05	0.02	
v/s Ratio Perm					0.19		
v/c Ratio	0.83	0.21		0.90	0.34	0.12	
Uniform Delay, d1	32.6	4.0		13.9	4.1	26.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	31.4	0.0		5.3	0.2	0.1	
Delay (s)	64.1	4.0		19.2	4.2	27.0	
Level of Service	E	A		B	A	C	
Approach Delay (s)		12.2		17.2		27.0	
Approach LOS		B		B		C	

Intersection Summary			
HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	71.9	Sum of lost time (s)	16.2
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	567	200	160	1872	0	0	0	0	1392	0	856
Future Volume (vph)	0	567	200	160	1872	0	0	0	0	1392	0	856
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2	4.7	7.2					5.1	5.1	5.1
Lane Util. Factor		0.81	0.88	0.97	0.91					0.95	0.95	0.88
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		7544	2787	3433	5085					1681	1681	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		7544	2787	3433	5085					1681	1681	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	616	217	174	2035	0	0	0	0	1513	0	930
RTOR Reduction (vph)	0	0	146	0	0	0	0	0	0	0	0	63
Lane Group Flow (vph)	0	616	71	174	2035	0	0	0	0	756	757	867
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		29.3	29.3	5.8	39.8					37.9	37.9	37.9
Effective Green, g (s)		29.3	29.3	5.8	39.8					37.9	37.9	37.9
Actuated g/C Ratio		0.33	0.33	0.06	0.44					0.42	0.42	0.42
Clearance Time (s)		7.2	7.2	4.7	7.2					5.1	5.1	5.1
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2455	907	221	2248					707	707	1173
v/s Ratio Prot		0.08		0.05	c0.40							
v/s Ratio Perm			0.03							0.45	0.45	0.31
v/c Ratio		0.25	0.08	0.79	0.91					1.07	1.07	0.74
Uniform Delay, d1		22.3	21.0	41.5	23.3					26.1	26.1	21.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		0.1	0.0	16.7	6.6					53.9	54.4	4.2
Delay (s)		22.3	21.0	58.2	30.0					80.0	80.4	26.1
Level of Service		C	C	E	C					E	F	C
Approach Delay (s)		22.0			32.2			0.0			59.6	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	103.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	1796	0	0	672	551	1332	8	776	0	0	0
Future Volume (vph)	205	1796	0	0	672	551	1332	8	776	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.2			7.2	7.2	5.1	5.1	5.1			
Lane Util. Factor	0.97	0.91			0.81	0.88	0.95	0.95	0.88			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	3433	5085			7544	2787	1681	1686	2787			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	3433	5085			7544	2787	1681	1686	2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	223	1952	0	0	730	599	1448	9	843	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	495	0	0	49	0	0	0
Lane Group Flow (vph)	223	1952	0	0	730	104	724	733	794	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	11.0	30.8			15.6	15.6	46.9	46.9	46.9			
Effective Green, g (s)	11.0	30.8			15.6	15.6	46.9	46.9	46.9			
Actuated g/C Ratio	0.12	0.34			0.17	0.17	0.52	0.52	0.52			
Clearance Time (s)	4.2	7.2			7.2	7.2	5.1	5.1	5.1			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	419	1740			1307	483	875	878	1452			
v/s Ratio Prot	0.06	c0.38			0.10							
v/s Ratio Perm						0.04	0.43	0.43	0.28			
v/c Ratio	0.53	1.12			0.56	0.21	0.83	0.83	0.55			
Uniform Delay, d1	37.1	29.6			34.0	31.9	18.1	18.3	14.4			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	1.3	63.1			0.5	0.2	8.9	9.2	1.5			
Delay (s)	38.4	92.7			34.6	32.2	27.0	27.5	15.9			
Level of Service	D	F			C	C	C	C	B			
Approach Delay (s)		87.1			33.5			23.1			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM 2000 Control Delay	49.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	103.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2	35	409	3	114	48	951	53	15	701	13
Future Volume (vph)	17	2	35	448	3	130	48	951	58	17	701	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583	1681	1686	1583	1770	5085	1583	1770	5072	
Flt Permitted		0.96	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1783	1583	1681	1686	1583	1770	5085	1583	1770	5072	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	2	38	487	3	141	52	1034	63	18	762	14
RTOR Reduction (vph)	0	0	36	0	0	106	0	0	33	0	1	0
Lane Group Flow (vph)	0	20	2	243	247	35	52	1034	30	18	775	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)		3.7	3.7	21.0	21.0	21.0	4.5	39.7	39.7	1.6	36.8	
Effective Green, g (s)		3.7	3.7	21.0	21.0	21.0	4.5	39.7	39.7	1.6	36.8	
Actuated g/C Ratio		0.04	0.04	0.25	0.25	0.25	0.05	0.47	0.47	0.02	0.44	
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		78	69	420	421	395	94	2403	748	33	2222	
v/s Ratio Prot		c0.01		0.14	c0.15		c0.03	c0.20		0.01	0.15	
v/s Ratio Perm			0.00			0.02			0.02			
v/c Ratio		0.26	0.02	0.58	0.59	0.09	0.55	0.43	0.04	0.55	0.35	
Uniform Delay, d1		38.8	38.4	27.6	27.7	24.2	38.8	14.7	11.9	40.8	15.7	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.7	0.1	1.9	2.1	0.1	6.9	0.6	0.1	17.2	0.4	
Delay (s)		40.6	38.6	29.6	29.8	24.3	45.6	15.2	12.0	58.0	16.1	
Level of Service		D	D	C	C	C	D	B	B	E	B	
Approach Delay (s)		39.3			28.5			16.4			17.0	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	84.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Yield	Stop		Yield	
Traffic Volume (vph)	33	36	300	30	3	111
Future Volume (vph)	33	43	355	33	3	111
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	47	386	36	3	121

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	83	422	124
Volume Left (vph)	36	0	3
Volume Right (vph)	0	36	121
Hadj (s)	0.12	-0.02	-0.55
Departure Headway (s)	4.8	4.3	4.5
Degree Utilization, x	0.11	0.50	0.15
Capacity (veh/h)	719	817	729
Control Delay (s)	8.4	11.5	8.3
Approach Delay (s)	8.4	11.5	8.3
Approach LOS	A	B	A

Intersection Summary			
Delay	10.5		
Level of Service	B		
Intersection Capacity Utilization	38.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	8	96	178	10	288	22	688	19	64	1127	13
Future Volume (vph)	35	8	96	178	10	288	22	693	19	64	1166	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1606		1681	1694	1583	1770	5065		1770	5077	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1606		1681	1694	1583	1770	5065		1770	5077	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	9	104	193	11	313	24	753	21	70	1267	14
RTOR Reduction (vph)	0	96	0	0	0	255	0	2	0	0	1	0
Lane Group Flow (vph)	38	17	0	102	102	58	24	772	0	70	1280	0
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.7	5.7		13.4	13.4	13.4	1.7	28.0		5.2	31.7	
Effective Green, g (s)	5.7	5.7		13.4	13.4	13.4	1.7	28.0		5.2	31.7	
Actuated g/C Ratio	0.08	0.08		0.18	0.18	0.18	0.02	0.39		0.07	0.44	
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	139	126		310	313	292	41	1956		126	2219	
v/s Ratio Prot	c0.02	0.01		c0.06	0.06		0.01	0.15		c0.04	c0.25	
v/s Ratio Perm						0.04						
v/c Ratio	0.27	0.14		0.33	0.33	0.20	0.59	0.39		0.56	0.58	
Uniform Delay, d1	31.5	31.1		25.6	25.6	25.0	35.1	16.1		32.5	15.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.5		0.6	0.6	0.3	19.5	0.6		5.2	1.1	
Delay (s)	32.5	31.6		26.3	26.2	25.3	54.6	16.7		37.8	16.5	
Level of Service	C	C		C	C	C	D	B		D	B	
Approach Delay (s)		31.8			25.7			17.8			17.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	20.2
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	944	845	655	277	588	515
Future Volume (veh/h)	977	851	655	281	589	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1062	925	712	305	640	560
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2207	685	708	3453	800	1217
Arrive On Green	0.43	0.43	0.20	0.68	0.23	0.23
Sat Flow, veh/h	5274	1585	3456	5274	3456	2790
Grp Volume(v), veh/h	1062	925	712	305	640	560
Grp Sat Flow(s),veh/h/ln	1702	1585	1728	1702	1728	1395
Q Serve(g_s), s	17.1	49.6	23.5	2.4	20.0	16.2
Cycle Q Clear(g_c), s	17.1	49.6	23.5	2.4	20.0	16.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2207	685	708	3453	800	1217
V/C Ratio(X)	0.48	1.35	1.01	0.09	0.80	0.46
Avail Cap(c_a), veh/h	2207	685	708	3453	1114	1471
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.4	32.6	45.6	6.4	41.6	22.8
Incr Delay (d2), s/veh	0.8	167.1	35.3	0.1	2.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	50.2	13.5	0.8	8.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.1	199.7	80.9	6.4	44.5	23.1
LnGrp LOS	C	F	F	A	D	C
Approach Vol, veh/h	1987			1017	1200	
Approach Delay, s/veh	105.8			58.6	34.5	
Approach LOS	F			E	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		83.8		30.9	28.0	55.8
Change Period (Y+Rc), s		6.2		4.4	4.5	* 6.2
Max Green Setting (Gmax), s		77.4		37.0	23.5	* 50
Max Q Clear Time (g_c+I1), s		4.4		22.0	25.5	51.6
Green Ext Time (p_c), s		2.3		4.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	74.1
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Edition methodology expects strict NEMA phasing.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	1253	998	108	579	134
Future Volume (vph)	23	1286	1002	108	579	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.7	5.9	5.9	4.9	3.0
Lane Util. Factor	1.00	0.91	0.81	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	7544	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	7544	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1398	1089	117	629	146
RTOR Reduction (vph)	0	0	0	79	0	0
Lane Group Flow (vph)	25	1398	1089	38	629	146
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov
Protected Phases	5	2	6		4	3 5
Permitted Phases				6		
Actuated Green, G (s)	5.1	47.3	38.6	38.6	20.1	43.1
Effective Green, g (s)	5.1	47.3	38.6	38.6	20.1	43.1
Actuated g/C Ratio	0.04	0.39	0.32	0.32	0.17	0.36
Clearance Time (s)	4.4	6.7	5.9	5.9	4.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	75	2004	2426	509	575	568
v/s Ratio Prot	0.01	c0.27	0.14		c0.18	c0.09
v/s Ratio Perm				0.02		
v/c Ratio	0.33	0.70	0.45	0.07	1.09	0.26
Uniform Delay, d1	55.8	30.4	32.3	28.3	50.0	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	1.1	0.6	0.3	65.7	0.2
Delay (s)	58.4	31.5	32.9	28.6	115.7	27.4
Level of Service	E	C	C	C	F	C
Approach Delay (s)		31.9	32.5		99.0	
Approach LOS		C	C		F	

Intersection Summary			
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition cannot analyze u-turn movements.

Movement	EBL	EBT	WBU	WBT	WBR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	26	1929	0	950	54	321	94
Future Volume (vph)	26	1962	0	954	54	321	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.9		6.0	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.91	1.00	0.97	
Frt	1.00	1.00		1.00	0.85	0.97	
Flt Protected	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	1770	5085		5085	1583	3361	
Flt Permitted	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	1770	5085		5085	1583	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	2133	0	1037	59	349	102
RTOR Reduction (vph)	0	0	0	0	16	43	0
Lane Group Flow (vph)	28	2133	0	1037	43	408	0
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	
Protected Phases	5	2	1	6	8	8	
Permitted Phases					6		
Actuated Green, G (s)	1.8	36.8		31.5	45.5	14.0	
Effective Green, g (s)	1.8	36.8		31.5	45.5	14.0	
Actuated g/C Ratio	0.03	0.59		0.50	0.73	0.22	
Clearance Time (s)	4.4	6.9		6.0	4.9	4.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	50	2989		2558	1150	751	
v/s Ratio Prot	0.02	c0.42		0.20	0.01	c0.12	
v/s Ratio Perm					0.02		
v/c Ratio	0.56	0.71		0.41	0.04	0.54	
Uniform Delay, d1	30.0	9.2		9.7	2.4	21.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	13.6	1.5		0.5	0.0	0.8	
Delay (s)	43.6	10.6		10.2	2.4	22.3	
Level of Service	D	B		B	A	C	
Approach Delay (s)		11.1		9.8		22.3	
Approach LOS		B		A		C	

Intersection Summary			
HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	16.2
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1530	793	535	704	0	0	0	0	1048	3	352
Future Volume (vph)	0	1549	793	535	706	0	0	0	0	1048	3	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2	4.7	7.2					5.1	5.1	5.1
Lane Util. Factor		0.81	0.88	0.97	0.91					0.95	0.95	0.88
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		7544	2787	3433	5085					1681	1686	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		7544	2787	3433	5085					1681	1686	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1684	862	582	767	0	0	0	0	1139	3	385
RTOR Reduction (vph)	0	0	626	0	0	0	0	0	0	0	0	130
Lane Group Flow (vph)	0	1684	236	582	767	0	0	0	0	569	573	255
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		32.8	32.8	19.3	56.8					50.9	50.9	50.9
Effective Green, g (s)		32.8	32.8	19.3	56.8					50.9	50.9	50.9
Actuated g/C Ratio		0.27	0.27	0.16	0.47					0.42	0.42	0.42
Clearance Time (s)		7.2	7.2	4.7	7.2					5.1	5.1	5.1
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2062	761	552	2406					713	715	1182
v/s Ratio Prot		c0.22		c0.17	0.15							
v/s Ratio Perm			0.08							0.34	0.34	0.09
v/c Ratio		0.82	0.31	1.05	0.32					0.80	0.80	0.22
Uniform Delay, d1		40.8	34.6	50.4	19.6					30.1	30.1	21.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.6	0.2	53.4	0.3					9.1	9.2	0.4
Delay (s)		43.4	34.8	103.8	19.9					39.1	39.4	22.3
Level of Service		D	C	F	B					D	D	C
Approach Delay (s)		40.5			56.1			0.0			35.0	
Approach LOS		D			E			A			C	

Intersection Summary			
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	981	1597	0	0	908	1420	333	4	192	0	0	0
Future Volume (vph)	981	1601	0	0	908	1420	335	4	192	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.2			7.2	7.2	5.1	5.1	5.1			
Lane Util. Factor	0.97	0.91			0.81	0.88	0.95	0.95	0.88			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	3433	5085			7544	2787	1681	1687	2787			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	3433	5085			7544	2787	1681	1687	2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1066	1740	0	0	987	1543	364	4	209	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	377	0	0	71	0	0	0
Lane Group Flow (vph)	1066	1740	0	0	987	1166	186	182	138	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	49.3	111.7			58.2	58.2	21.2	21.2	21.2			
Effective Green, g (s)	49.3	111.7			58.2	58.2	21.2	21.2	21.2			
Actuated g/C Ratio	0.34	0.77			0.40	0.40	0.15	0.15	0.15			
Clearance Time (s)	4.2	7.2			7.2	7.2	5.1	5.1	5.1			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	1165	3911			3023	1117	245	246	406			
v/s Ratio Prot	c0.31	0.34			0.13							
v/s Ratio Perm						c0.42	c0.11	0.11	0.05			
v/c Ratio	0.92	0.44			0.33	1.04	0.76	0.74	0.34			
Uniform Delay, d1	45.9	5.9			30.0	43.5	59.5	59.4	55.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	11.0	0.4			0.3	39.1	12.7	11.1	0.5			
Delay (s)	57.0	6.2			30.3	82.6	72.2	70.4	56.2			
Level of Service	E	A			C	F	E	E	E			
Approach Delay (s)		25.5			62.2			65.9			0.0	
Approach LOS		C			E			E			A	

Intersection Summary			
HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	145.2	Sum of lost time (s)	16.5
Intersection Capacity Utilization	75.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Appendix G

Near-Term With Project Conditions AM / PM Peak Hour

Synchro Worksheets

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	17	2	35	451	3	131	48	951	58	17	701	13
Future Volume (vph)	17	2	35	490	3	147	48	951	63	19	701	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	0.95	0.95	1.00	1.00	0.91	1.00	1.00	0.91	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583	1681	1686	1583	1770	5085	1583	1770	5072	
Flt Permitted		0.96	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1783	1583	1681	1686	1583	1770	5085	1583	1770	5072	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	2	38	533	3	160	52	1034	68	21	762	14
RTOR Reduction (vph)	0	0	36	0	0	118	0	0	36	0	1	0
Lane Group Flow (vph)	0	20	2	266	270	42	52	1034	32	21	775	0
Turn Type	Split	NA	Perm	Split	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)		3.7	3.7	22.5	22.5	22.5	4.5	39.7	39.7	1.6	36.8	
Effective Green, g (s)		3.7	3.7	22.5	22.5	22.5	4.5	39.7	39.7	1.6	36.8	
Actuated g/C Ratio		0.04	0.04	0.26	0.26	0.26	0.05	0.46	0.46	0.02	0.43	
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		77	68	442	443	416	93	2361	735	33	2183	
v/s Ratio Prot		c0.01		0.16	c0.16		c0.03	c0.20		0.01	0.15	
v/s Ratio Perm			0.00			0.03			0.02			
v/c Ratio		0.26	0.02	0.60	0.61	0.10	0.56	0.44	0.04	0.64	0.35	
Uniform Delay, d1		39.6	39.2	27.6	27.6	23.8	39.5	15.4	12.5	41.7	16.4	
Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.8	0.1	2.3	2.4	0.1	7.1	0.6	0.1	33.9	0.5	
Delay (s)		41.4	39.3	29.9	30.0	24.0	46.6	16.0	12.6	75.5	16.8	
Level of Service		D	D	C	C	C	D	B	B	E	B	
Approach Delay (s)		40.0			28.6			17.2			18.4	
Approach LOS		D			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	85.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Yield	Stop		Yield	
Traffic Volume (vph)	33	43	359	33	3	111
Future Volume (vph)	33	50	414	36	3	111
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	54	450	39	3	121

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	90	489	124
Volume Left (vph)	36	0	3
Volume Right (vph)	0	39	121
Hadj (s)	0.11	-0.01	-0.55
Departure Headway (s)	4.8	4.3	4.7
Degree Utilization, x	0.12	0.58	0.16
Capacity (veh/h)	706	815	685
Control Delay (s)	8.5	13.2	8.5
Approach Delay (s)	8.5	13.2	8.5
Approach LOS	A	B	A

Intersection Summary			
Delay	11.8		
Level of Service	B		
Intersection Capacity Utilization	42.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	8	96	178	10	288	22	693	19	64	1169	13
Future Volume (vph)	35	8	96	178	10	288	22	698	19	64	1208	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Lane Util. Factor	1.00	1.00		0.95	0.95	1.00	1.00	0.91		1.00	0.91	
Frt	1.00	0.86		1.00	1.00	0.85	1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1606		1681	1694	1583	1770	5065		1770	5077	
Flt Permitted	0.95	1.00		0.95	0.96	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1606		1681	1694	1583	1770	5065		1770	5077	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	9	104	193	11	313	24	759	21	70	1313	14
RTOR Reduction (vph)	0	96	0	0	0	255	0	2	0	0	1	0
Lane Group Flow (vph)	38	17	0	102	102	58	24	778	0	70	1326	0
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases						8						
Actuated Green, G (s)	5.7	5.7		13.4	13.4	13.4	1.7	28.0		5.2	31.7	
Effective Green, g (s)	5.7	5.7		13.4	13.4	13.4	1.7	28.0		5.2	31.7	
Actuated g/C Ratio	0.08	0.08		0.18	0.18	0.18	0.02	0.39		0.07	0.44	
Clearance Time (s)	4.9	4.9		4.9	4.9	4.9	4.4	6.0		4.4	5.8	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	139	126		310	313	292	41	1956		126	2219	
v/s Ratio Prot	c0.02	0.01		c0.06	0.06		0.01	0.15		c0.04	c0.26	
v/s Ratio Perm						0.04						
v/c Ratio	0.27	0.14		0.33	0.33	0.20	0.59	0.40		0.56	0.60	
Uniform Delay, d1	31.5	31.1		25.6	25.6	25.0	35.1	16.1		32.5	15.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.5		0.6	0.6	0.3	19.5	0.6		5.2	1.2	
Delay (s)	32.5	31.6		26.3	26.2	25.3	54.6	16.7		37.8	16.7	
Level of Service	C	C		C	C	C	D	B		D	B	
Approach Delay (s)		31.8			25.7			17.9			17.8	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	20.2
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Traffic Volume (veh/h)	979	851	655	281	589	515
Future Volume (veh/h)	1012	857	655	285	590	515
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1100	932	712	310	641	560
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2206	685	707	3452	800	1217
Arrive On Green	0.43	0.43	0.20	0.68	0.23	0.23
Sat Flow, veh/h	5274	1585	3456	5274	3456	2790
Grp Volume(v), veh/h	1100	932	712	310	641	560
Grp Sat Flow(s),veh/h/ln	1702	1585	1728	1702	1728	1395
Q Serve(g_s), s	17.9	49.6	23.5	2.4	20.1	16.2
Cycle Q Clear(g_c), s	17.9	49.6	23.5	2.4	20.1	16.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2206	685	707	3452	800	1217
V/C Ratio(X)	0.50	1.36	1.01	0.09	0.80	0.46
Avail Cap(c_a), veh/h	2206	685	707	3452	1114	1470
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	32.6	45.6	6.4	41.6	22.8
Incr Delay (d2), s/veh	0.8	171.7	35.4	0.1	2.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	51.0	13.5	0.8	8.8	14.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.4	204.3	81.1	6.5	44.5	23.1
LnGrp LOS	C	F	F	A	D	C
Approach Vol, veh/h	2032			1022	1201	
Approach Delay, s/veh	106.9			58.4	34.5	
Approach LOS	F			E	C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		83.8		31.0	28.0	55.8
Change Period (Y+Rc), s		6.2		4.4	4.5	* 6.2
Max Green Setting (Gmax), s		77.4		37.0	23.5	* 50
Max Q Clear Time (g_c+I1), s		4.4		22.1	25.5	51.6
Green Ext Time (p_c), s		2.4		4.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	74.8
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Edition methodology expects strict NEMA phasing.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	23	1288	1002	108	579	134
Future Volume (vph)	23	1321	1006	108	579	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.7	5.9	5.9	4.9	3.0
Lane Util. Factor	1.00	0.91	0.81	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	5085	7544	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	5085	7544	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1436	1093	117	629	146
RTOR Reduction (vph)	0	0	0	79	0	0
Lane Group Flow (vph)	25	1436	1093	38	629	146
Turn Type	Prot	NA	NA	Perm	Prot	pt+ov
Protected Phases	5	2	6		4	3 5
Permitted Phases				6		
Actuated Green, G (s)	5.1	47.3	38.6	38.6	20.1	43.1
Effective Green, g (s)	5.1	47.3	38.6	38.6	20.1	43.1
Actuated g/C Ratio	0.04	0.39	0.32	0.32	0.17	0.36
Clearance Time (s)	4.4	6.7	5.9	5.9	4.9	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	75	2004	2426	509	575	568
v/s Ratio Prot	0.01	c0.28	0.14		c0.18	c0.09
v/s Ratio Perm				0.02		
v/c Ratio	0.33	0.72	0.45	0.07	1.09	0.26
Uniform Delay, d1	55.8	30.7	32.3	28.3	50.0	27.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	1.2	0.6	0.3	65.7	0.2
Delay (s)	58.4	31.9	32.9	28.6	115.7	27.4
Level of Service	E	C	C	C	F	C
Approach Delay (s)		32.4	32.5		99.0	
Approach LOS		C	C		F	

Intersection Summary			
HCM 2000 Control Delay	47.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.2
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition cannot analyze u-turn movements.

Movement	EBL	EBT	WBU	WBT	WBR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	26	1964	0	954	54	321	94
Future Volume (vph)	26	1997	0	958	54	321	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	6.9		6.0	4.9	4.9	
Lane Util. Factor	1.00	0.91		0.91	1.00	0.97	
Frt	1.00	1.00		1.00	0.85	0.97	
Flt Protected	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (prot)	1770	5085		5085	1583	3361	
Flt Permitted	0.95	1.00		1.00	1.00	0.96	
Satd. Flow (perm)	1770	5085		5085	1583	3361	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	2171	0	1041	59	349	102
RTOR Reduction (vph)	0	0	0	0	16	43	0
Lane Group Flow (vph)	28	2171	0	1041	43	408	0
Turn Type	Prot	NA	Prot	NA	pm+ov	Prot	
Protected Phases	5	2	1	6	8	8	
Permitted Phases					6		
Actuated Green, G (s)	1.8	36.8		31.5	45.5	14.0	
Effective Green, g (s)	1.8	36.8		31.5	45.5	14.0	
Actuated g/C Ratio	0.03	0.59		0.50	0.73	0.22	
Clearance Time (s)	4.4	6.9		6.0	4.9	4.9	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	50	2989		2558	1150	751	
v/s Ratio Prot	0.02	c0.43		0.20	0.01	c0.12	
v/s Ratio Perm					0.02		
v/c Ratio	0.56	0.73		0.41	0.04	0.54	
Uniform Delay, d1	30.0	9.3		9.7	2.4	21.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	13.6	1.6		0.5	0.0	0.8	
Delay (s)	43.6	10.9		10.2	2.4	22.3	
Level of Service	D	B		B	A	C	
Approach Delay (s)		11.3		9.8		22.3	
Approach LOS		B		A		C	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	16.2
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1550	809	535	706	0	0	0	0	1048	3	354
Future Volume (vph)	0	1569	809	535	708	0	0	0	0	1048	3	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.2	7.2	4.7	7.2					5.1	5.1	5.1
Lane Util. Factor		0.81	0.88	0.97	0.91					0.95	0.95	0.88
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		7544	2787	3433	5085					1681	1686	2787
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		7544	2787	3433	5085					1681	1686	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1705	879	582	770	0	0	0	0	1139	3	387
RTOR Reduction (vph)	0	0	639	0	0	0	0	0	0	0	0	129
Lane Group Flow (vph)	0	1705	240	582	770	0	0	0	0	569	573	258
Turn Type		NA	Perm	Prot	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases			2							4		4
Actuated Green, G (s)		32.8	32.8	19.3	56.8					50.9	50.9	50.9
Effective Green, g (s)		32.8	32.8	19.3	56.8					50.9	50.9	50.9
Actuated g/C Ratio		0.27	0.27	0.16	0.47					0.42	0.42	0.42
Clearance Time (s)		7.2	7.2	4.7	7.2					5.1	5.1	5.1
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		2062	761	552	2406					713	715	1182
v/s Ratio Prot		c0.23		c0.17	0.15							
v/s Ratio Perm			0.09							0.34	0.34	0.09
v/c Ratio		0.83	0.32	1.05	0.32					0.80	0.80	0.22
Uniform Delay, d1		40.9	34.7	50.4	19.6					30.1	30.1	21.9
Progression Factor		1.00	1.00	1.00	1.00					1.00	1.00	1.00
Incremental Delay, d2		2.9	0.2	53.4	0.4					9.1	9.2	0.4
Delay (s)		43.8	34.9	103.8	20.0					39.1	39.4	22.3
Level of Service		D	C	F	B					D	D	C
Approach Delay (s)		40.8			56.0			0.0			35.0	
Approach LOS		D			E			A			C	

Intersection Summary			
HCM 2000 Control Delay	42.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Edition methodology does not support turning movements with shared & exclusive lanes.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	997	1601	0	0	908	1420	335	4	192	0	0	0
Future Volume (vph)	997	1605	0	0	908	1420	337	4	192	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2	7.2			7.2	7.2	5.1	5.1	5.1			
Lane Util. Factor	0.97	0.91			0.81	0.88	0.95	0.95	0.88			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (prot)	3433	5085			7544	2787	1681	1687	2787			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.95	1.00			
Satd. Flow (perm)	3433	5085			7544	2787	1681	1687	2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1084	1745	0	0	987	1543	366	4	209	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	378	0	0	70	0	0	0
Lane Group Flow (vph)	1084	1745	0	0	987	1165	187	183	139	0	0	0
Turn Type	Prot	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			8				
Permitted Phases						6	8		8			
Actuated Green, G (s)	49.9	111.7			57.6	57.6	21.3	21.3	21.3			
Effective Green, g (s)	49.9	111.7			57.6	57.6	21.3	21.3	21.3			
Actuated g/C Ratio	0.34	0.77			0.40	0.40	0.15	0.15	0.15			
Clearance Time (s)	4.2	7.2			7.2	7.2	5.1	5.1	5.1			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	1178	3909			2990	1104	246	247	408			
v/s Ratio Prot	c0.32	0.34			0.13							
v/s Ratio Perm						c0.42	c0.11	0.11	0.05			
v/c Ratio	0.92	0.45			0.33	1.05	0.76	0.74	0.34			
Uniform Delay, d1	45.8	5.9			30.5	43.9	59.5	59.4	55.7			
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	11.6	0.4			0.3	42.8	12.9	11.3	0.5			
Delay (s)	57.4	6.3			30.7	86.6	72.5	70.7	56.2			
Level of Service	E	A			C	F	E	E	E			
Approach Delay (s)		25.9			64.8			66.0			0.0	
Approach LOS		C			E			E			A	

Intersection Summary			
HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	145.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	76.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

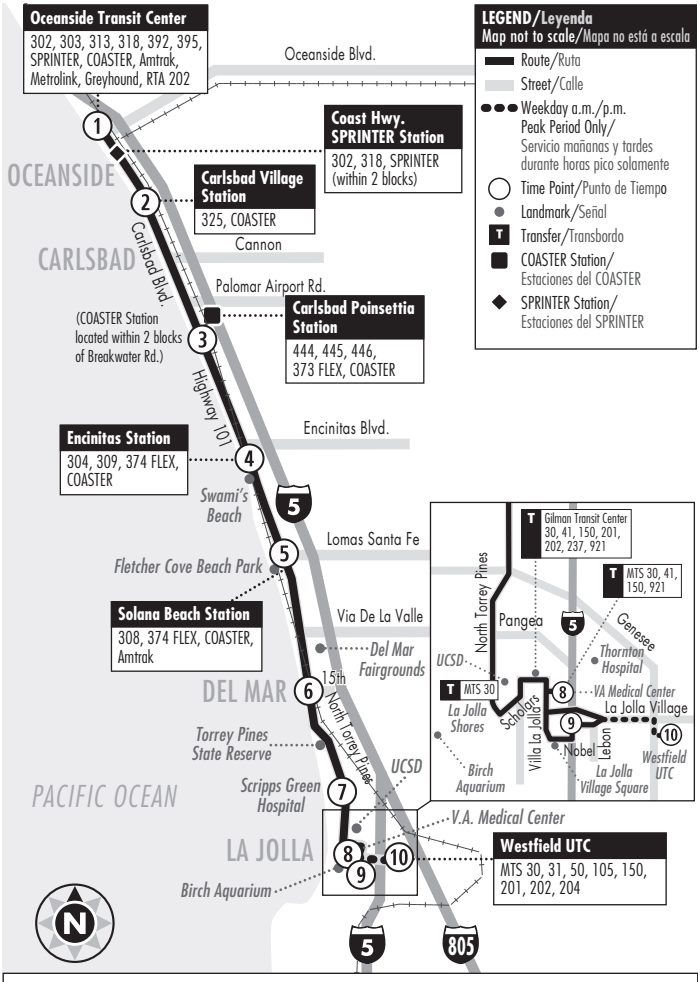
Appendix H

Transit Information

101 Oceanside to V.A./UCSD via Highway 101

M-F • SA • SU • H

Destinations/Destinos
- Coast Hwy. SPRINTER Station
- University of California, San Diego
- V.A. Medical Center
- Scripps Green Hospital
- Carlsbad State Beach
- Del Mar Fairgrounds & Racetrack
- Cedros Design District, Solana Beach
- Birch Aquarium
- Salk Institute



UCSD students may ride free on all NCTD BREEZE routes and SPRINTER service by showing a valid UCSD ID and qualifying media (U-PASS sticker within expiration date printed on sticker). UCSD Faculty and Staff may ride with an ECO Pass Regional Transit Pass on a Compass Card. This program is sponsored by UCSD's Transportation and Parking Services Department. Contact UCSD for more information.

Transportation & Parking Services
University of California, San Diego
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Moving in the right direction.

Los estudiantes de UCSD podrán viajar gratis en todas las rutas de NCTD BREEZE y servicio de SPRINTER al mostrar una identificación válida de UCSD, que tenga medios de tarifas calicativos (Calcomanía U-PASS dentro de la fecha de vencimiento imprimida en la calcomanía). Facultad y Personal de UCSD pueden viajar con un pase de Transito Regional ECO Pass en una tarjeta Compass. Este programa está patrocinado por el Departamento de Servicios de Transporte y Estacionamientos de UCSD. Póngase en contacto con UCSD para más información.

101 Oceanside to V.A./UCSD via Highway 101

Bold denotes P.M. times/Horarios en negritas son en la tarde

Monday - Friday
Southbound to V.A. Medical Center/UTC

Oceanside Transit Center	Carlsbad Village Station	Carlsbad Blvd. & Poinsettia Ln.	Encinitas Station	Highway 101 & Lomas Santa Fe Dr.	Camino Del Mar & 15th St.	Torrey Pines & Scripps	V.A. Medical Center	University Center Ln. & Nobel Dr.	Westfield UTC
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
5:05	5:16	5:30	5:47	6:00	6:07	6:20	6:33	–	6:42a
5:35	5:46	6:00	6:17	6:30	6:37	6:50	7:03	–	7:12
6:05	6:17	6:31	6:48	7:01	7:09	7:22	7:38	–	7:47
6:35	6:47	7:01	7:18	7:31	7:39	7:52	8:08	–	8:17
7:05	7:20	7:35	7:53	8:08	8:16	8:29	8:45	–	8:54
7:37	7:52	8:07	8:25	8:40	8:48	9:01	9:17	9:25	–
8:05	8:20	8:35	8:53	9:08	9:17	9:30	9:46	9:54	–
8:35	8:50	9:05	9:23	9:38	9:47	10:00	10:16	10:24	–
9:05	9:20	9:35	9:53	10:08	10:17	10:30	10:46	10:54	–
9:35	9:50	10:05	10:23	10:38	10:48	11:01	11:17	11:25	–
10:05	10:20	10:35	10:53	11:08	11:18	11:31	11:47	11:55	–
10:35	10:51	11:06	11:24	11:39	11:49	**12:02**	**12:18**	**12:26p**	**–**
11:05	11:21	11:36	11:54	**12:09**	**12:19**	**12:32**	**12:48**	**12:56**	**–**
11:35	11:51	**12:06**	**12:24**	**12:39**	**12:48**	**1:01**	**1:17**	**1:25**	**–**
12:05	**12:22**	**12:37**	**12:55**	**1:10**	**1:19**	**1:32**	**1:48**	**1:56**	**–**
12:35	**12:52**	**1:07**	**1:25**	**1:40**	**1:49**	**2:02**	**2:18**	**–**	**2:30**
1:05	**1:22**	**1:37**	**1:55**	**2:10**	**2:19**	**2:32**	**2:48**	**–**	**3:00**
1:35	**1:52**	**2:08**	**2:26**	**2:41**	**2:50**	**3:03**	**3:19**	**–**	**3:31**
2:05	**2:22**	**2:38**	**2:56**	**3:11**	**3:20**	**3:33**	**3:49**	**–**	**4:01**
2:35	**2:52**	**3:08**	**3:26**	**3:41**	**3:50**	**4:05**	**4:26**	**–**	**4:38**
3:05	**3:22**	**3:38**	**3:56**	**4:11**	**4:20**	**4:35**	**4:56**	**–**	**5:07**
3:35	**3:52**	**4:08**	**4:26**	**4:41**	**4:50**	**5:05**	**5:26**	**–**	**5:37**
4:05	**4:20**	**4:36**	**4:54**	**5:09**	**5:19**	**5:33**	**5:54**	**–**	**6:05**
4:35	**4:50**	**5:06**	**5:24**	**5:39**	**5:49**	**6:03**	**6:24**	**6:32**	**–**
5:05	**5:20**	**5:35**	**5:52**	**6:07**	**6:17**	**6:30**	**6:51**	**6:59**	**–**
5:35	**5:50**	**6:05**	**6:22**	**6:37**	**6:47**	**7:00**	**7:21**	**7:29**	**–**
6:05	**6:20**	**6:35**	**6:52**	**7:07**	**7:16**	**7:29**	**7:46**	**7:54**	**–**
6:35	**6:50**	**7:05**	**7:22**	**7:37**	**7:46**	**7:59**	**8:16**	**8:24**	**–**
7:35	**7:50**	**8:05**	**8:19**	**8:33**	**8:39**	**8:51**	**9:07**	**9:15**	**–**
8:39	**8:54**	**9:07**	**9:21**	**9:35**	**9:41**	**9:53**	**10:09**	**10:17**	**–**
9:54	**10:07**	**10:20**	**10:31**	**–**	**–**	**–**	**–**	**–**	**–**

101 Oceanside to V.A./UCSD via Highway 101

Bold denotes P.M. times/Horarios en negritas son en la tarde

Monday - Friday
Northbound to Oceanside

Westfield UTC	University Center Ln. & Nobel Dr.	V.A. Medical Center	Torrey Pines & Scripps	Camino Del Mar & 15th St.	Highway 101 & Lomas Santa Fe Dr.	Encinitas Station	Carlsbad Blvd. & Poinsettia Ln.	Carlsbad Village Station	Oceanside Transit Center
10	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
–	–	–	–	–	–	5:45	5:57	6:10	6:22a
5:28	–	5:36	5:48	5:58	6:07	6:26	6:38	6:51	7:03
5:47	–	5:55	6:07	6:17	6:26	6:45	6:57	7:10	7:22
6:17	–	6:25	6:37	6:47	6:56	7:15	7:27	7:40	7:52
6:39	–	6:49	7:05	7:17	7:26	7:45	7:57	8:10	8:22
7:09	–	7:19	7:35	7:47	7:56	8:15	8:27	8:40	8:52
7:37	–	7:47	8:03	8:15	8:24	8:43	8:57	9:10	9:22
8:06	–	8:16	8:34	8:46	8:55	9:13	9:27	9:40	9:52
8:30	–	8:40	8:58	9:10	9:23	9:41	9:55	10:10	10:22
9:00	–	9:10	9:28	9:40	9:53	10:11	10:25	10:40	10:52
–	9:34	9:41	9:57	10:09	10:22	10:40	10:54	11:09	11:22
–	10:04	10:11	10:27	10:39	10:52	11:10	11:24	11:39	11:52
–	10:32	10:40	10:56	11:08	11:20	11:38	11:52	**12:08**	**12:22p**
–	11:02	11:10	11:26	11:38	11:50	**12:08**	**12:22**	**12:38**	**12:52**
–	11:32	11:40	11:56	**12:08**	**12:20**	**12:38**	**12:52**	**1:08**	**1:22**
–	11:58	**12:06**	**12:22**	**12:36**	**12:48**	**1:06**	**1:22**	**1:38**	**1:52**
–	**12:28**	**12:36**	**12:52**	**1:06**	**1:18**	**1:36**	**1:52**	**2:08**	**2:22**
–	**12:57**	**1:05**	**1:21**	**1:35**	**1:47**	**2:05**	**2:21**	**2:37**	**2:52**
–	**1:27**	**1:35**	**1:51**	**2:05**	**2:17**	**2:35**	**2:51**	**3:07**	**3:22**
–	**1:58**	**2:06**	**2:22**	**2:36**	**2:48**	**3:06**	**3:22**	**3:38**	**3:53**
2:22	**–**	**2:32**	**2:48**	**3:02**	**3:15**	**3:33**	**3:49**	**4:06**	**4:22**
2:52	**–**	**3:02**	**3:18**	**3:32**	**3:45**	**4:03**	**4:19**	**4:36**	**4:52**
3:16	**–**	**3:26**	**3:43**	**3:59**	**4:12**	**4:30**	**4:47**	**5:04**	**5:22**
3:46	**–**	**3:56**	**4:13**	**4:29**	**4:42**	**5:00**	**5:17**	**5:34**	**5:52**
4:04	**–**	**4:14**	**4:31**	**4:51**	**5:08**	**5:28**	**5:46**	**6:04**	**6:22**
4:34	**–**	**4:44**	**5:01**	**5:21**	**5:38**	**5:58**	**6:16**	**6:34**	**6:52**
4:58	**–**	**5:08**	**5:25**	**5:45**	**6:02**	**6:22**	**6:40**	**6:58**	**7:16**
5:34	**–**	**5:44**	**6:01**	**6:21**	**6:38**	**6:58**	**7:16**	**7:34**	**7:52**
–	**6:04**	**6:11**	**6:27**	**6:41**	**6:58**	**7:18**	**7:35**	**7:53**	**8:11**
–	**7:19**	**7:26**	**7:41**	**7:55**	**8:10**	**8:30**	**8:45**	**9:03**	**9:17**
–	**8:06**	**8:13**	**8:26**	**8:38**	**8:51**	**9:10**	**9:24**	**9:39**	**9:53**
–	**9:13**	**9:19**	**9:32**	**9:44**	**9:55**	**10:10**	**10:24**	**10:39**	**10:52**

101 Oceanside to V.A./UCSD via Highway 101

Bold denotes P.M. times/Horarios en negritas son en la tarde

Saturday, Sunday & Holidays
Southbound to V.A. Medical Center

Oceanside Transit Center	Carlsbad Village Station	Carlsbad Blvd. & Poinsettia Ln.	Encinitas Station	Highway 101 & Lomas Santa Fe Dr.	Camino Del Mar & 15th St.	Torrey Pines & Scripps	V.A. Medical Center	University Center Ln. & Nobel Dr.
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
5:05	5:15	5:26	5:39	5:52	6:00	6:10	6:21	6:26a
5:40	5:50	6:01	6:14	6:27	6:35	6:45	6:56	7:01
6:35	6:47	7:00	7:15	7:28	7:36	7:46	7:57	8:02
7:05	7:17	7:30	7:45	7:58	8:06	8:16	8:27	8:33
7:35	7:48	8:03	8:18	8:31	8:39	8:51	9:03	9:09
8:05	8:18	8:33	8:48	9:01	9:09	9:21	9:33	9:39
8:35	8:49	9:04	9:19	9:33	9:41	9:53	10:05	10:11
9:05	9:19	9:34	9:49	10:03	10:11	10:23	10:35	10:41
9:35	9:50	10:06	10:21	10:35	10:43	10:55	11:09	11:15
10:05	10:20	10:36	10:51	11:06	11:14	11:26	11:40	11:46
10:35	10:52	11:08	11:25	11:40	11:49	**12:01**	**12:15**	**12:21p**
11:05	11:22	11:38	11:55	**12:11**	**12:20**	**12:32**	**12:46**	**12:52**
11:35	11:52	**12:09**	**12:26**	**12:42**	**12:51**	**1:03**	**1:17**	**1:23**
12:05	**12:22**	**12:39**	**12:56**	**1:12**	**1:21**	**1:33**	**1:47**	**1:53**
12:35	**12:53**	**1:10**	**1:30**	**1:46**	**1:55**	**2:07**	**2:21**	**2:27**
1:05	**1:23**	**1:40**	**2:00**	**2:16**	**2:25**	**2:37**	**2:51**	**2:57**
1:35	**1:53**	**2:10**	**2:28**	**2:43**	**2:52**	**3:04**	**3:18**	**3:24**
2:05	**2:23**	**2:40**	**2:58**	**3:13**	**3:22**	**3:34**	**3:48**	**3:54**
2:35	**2:53**	**3:10**	**3:28**	**3:43**	**3:52**	**4:04**	**4:18**	**4:24**
3:05	**3:23**	**3:39**	**3:57**	**4:12**	**4:21**	**4:33**	**4:47**	**4:53**
3:35	**3:52**	**4:08**	**4:25**	**4:40**	**4:49**	**5:00**	**5:14**	**5:20**
4:05	**4:22**	**4:38**	**4:55**	**5:10**	**5:19**	**5:30**	**5:44**	**5:50**
4:35	**4:52**	**5:08**	**5:25**	**5:40**	**5:49**	**6:00**	**6:14**	**6:20**
5:05	**5:22**	**5:38**	**5:55**	**6:10**	**6:19**	**6:30**	**6:44**	**6:50**
5:35	**5:50**	**6:05**	**6:21**	**6:35**	**6:44**	**6:55**	**7:09**	**7:16**
6:05	**6:20**	**6:35**	**6:51**	**7:05**	**7:14**	**7:25**	**7:39**	**7:46**
6:35	**6:50**	**7:05**	**7:21**	**7:35**	**7:44**	**7:55**	**8:09**	**8:16**
7:35	**7:50**	**8:05**	**8:21**	**8:35**	**8:44**	**8:55**	**9:09**	**9:15**
8:35	**8:50**	**9:04**	**9:18**	**9:31**	**9:40**	**9:51**	**10:05**	**10:11**

101 Oceanside to V.A./UCSD via Highway 101

Bold denotes P.M. times/Horarios en negritas son en la tarde

Saturday, Sunday & Holidays Northbound to Oceanside								
University Center Ln. & Nobel Dr.	V.A. Medical Center	Torrey Pines & Scripps	Camino Del Mar & 15th St.	Highway 101 & Lomas Santa Fe Dr.	Encinitas Station	Carlsbad Blvd. & Poinsettia Ln.	Carlsbad Village Station	Oceanside Transit Center
9	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
–	–	–	–	–	5:49	6:00	6:14	6:25a
–	–	–	–	–	6:46	6:57	7:11	7:22
6:21	6:26	6:37	6:48	6:59	7:16	7:27	7:41	7:52
6:51	6:56	7:07	7:18	7:29	7:46	7:57	8:11	8:22
7:20	7:25	7:37	7:48	7:59	8:16	8:27	8:41	8:52
7:50	7:55	8:07	8:18	8:29	8:46	8:57	9:11	9:22
8:12	8:17	8:29	8:42	8:55	9:12	9:26	9:40	9:52
8:42	8:47	8:59	9:12	9:25	9:42	9:56	10:10	10:22
9:11	9:16	9:28	9:41	9:54	10:11	10:25	10:39	10:52
9:38	9:44	9:56	10:09	10:22	10:39	10:53	11:09	11:22
10:06	10:12	10:24	10:37	10:50	11:07	11:21	11:37	11:52
10:34	10:41	10:54	11:07	11:20	11:37	11:51	**12:07**	**12:22p**
11:04	11:11	11:24	11:37	11:50	**12:07**	**12:21**	**12:37**	**12:52**
11:31	11:37	11:50	**12:04**	**12:17**	**12:34**	**12:49**	**1:06**	**1:22**
12:01	**12:07**	**12:20**	**12:34**	**12:47**	**1:04**	**1:19**	**1:36**	**1:52**
12:31	**12:37**	**12:50**	**1:04**	**1:17**	**1:34**	**1:49**	**2:06**	**2:22**
1:01	**1:07**	**1:20**	**1:34**	**1:47**	**2:04**	**2:19**	**2:36**	**2:52**
1:31	**1:37**	**1:50**	**2:04**	**2:17**	**2:34**	**2:49**	**3:06**	**3:22**
1:59	**2:06**	**2:19**	**2:33**	**2:46**	**3:03**	**3:18**	**3:36**	**3:52**
2:30	**2:37**	**2:50**	**3:03**	**3:16**	**3:33**	**3:48**	**4:06**	**4:22**
3:00	**3:07**	**3:20**	**3:33**	**3:46**	**4:03**	**4:18**	**4:36**	**4:52**
3:31	**3:37**	**3:49**	**4:02**	**4:15**	**4:32**	**4:47**	**5:05**	**5:22**
4:01	**4:07**	**4:19**	**4:32**	**4:45**	**5:02**	**5:17**	**5:35**	**5:52**
4:31	**4:37**	**4:49**	**5:02**	**5:15**	**5:32**	**5:47**	**6:05**	**6:22**
5:01	**5:07**	**5:19**	**5:32**	**5:45**	**6:02**	**6:17**	**6:35**	**6:52**
5:31	**5:37**	**5:50**	**6:03**	**6:17**	**6:34**	**6:49**	**7:07**	**7:22**
6:02	**6:08**	**6:21**	**6:34**	**6:48**	**7:05**	**7:19**	**7:37**	**7:52**
7:03	**7:09**	**7:22**	**7:35**	**7:48**	**8:05**	**8:19**	**8:37**	**8:52**
8:10	**8:16**	**8:29**	**8:41**	**8:51**	**9:07**	**9:20**	**9:37**	**9:52**
9:16	**9:22**	**9:33**	**9:44**	**9:54**	**10:10**	**10:23**	**10:39**	**10:52**

Effective OCTOBER 12, 2016

COASTER CONNECTION

Sorrento Valley COASTER Station

- **972** Sorrento Mesa
- **973** Carroll Canyon
- **978** Torrey Pines
- **979** North University City

CASH FARES / *Tarifas en efectivo*

The Sorrento Valley COASTER Connection is a free service for COASTER passengers! This service is provided as a courtesy by the Metropolitan Transit System and the North County Transit District.

¡El Sorrento Valley COASTER Connection es un servicio gratuito para los pasajeros del COASTER! Este servicio es proveído como cortesía por el Metropolitan Transit System y el North County Transit District.

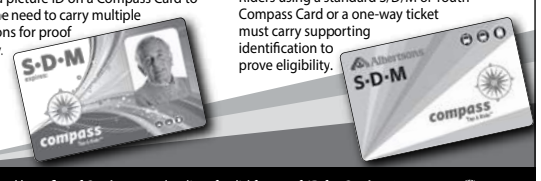
compass card

S/D/M and Youth Compass Card

All riders using reduced fares must comply with one of the following options:

Option 1 *(Recommended by MTS)*
MTS offers a picture ID on a Compass Card to eliminate the need to carry multiple identifications for proof of eligibility.

Option 2
Riders using a standard S/D/M or Youth Compass Card or a one-way ticket must carry supporting identification to prove eligibility.



*For additional benefits of **Option 1** and or list of valid forms of ID for **Option 2** go to:*
www.sdmts.com/reduced-fares

DIRECTORY / *Directorio*

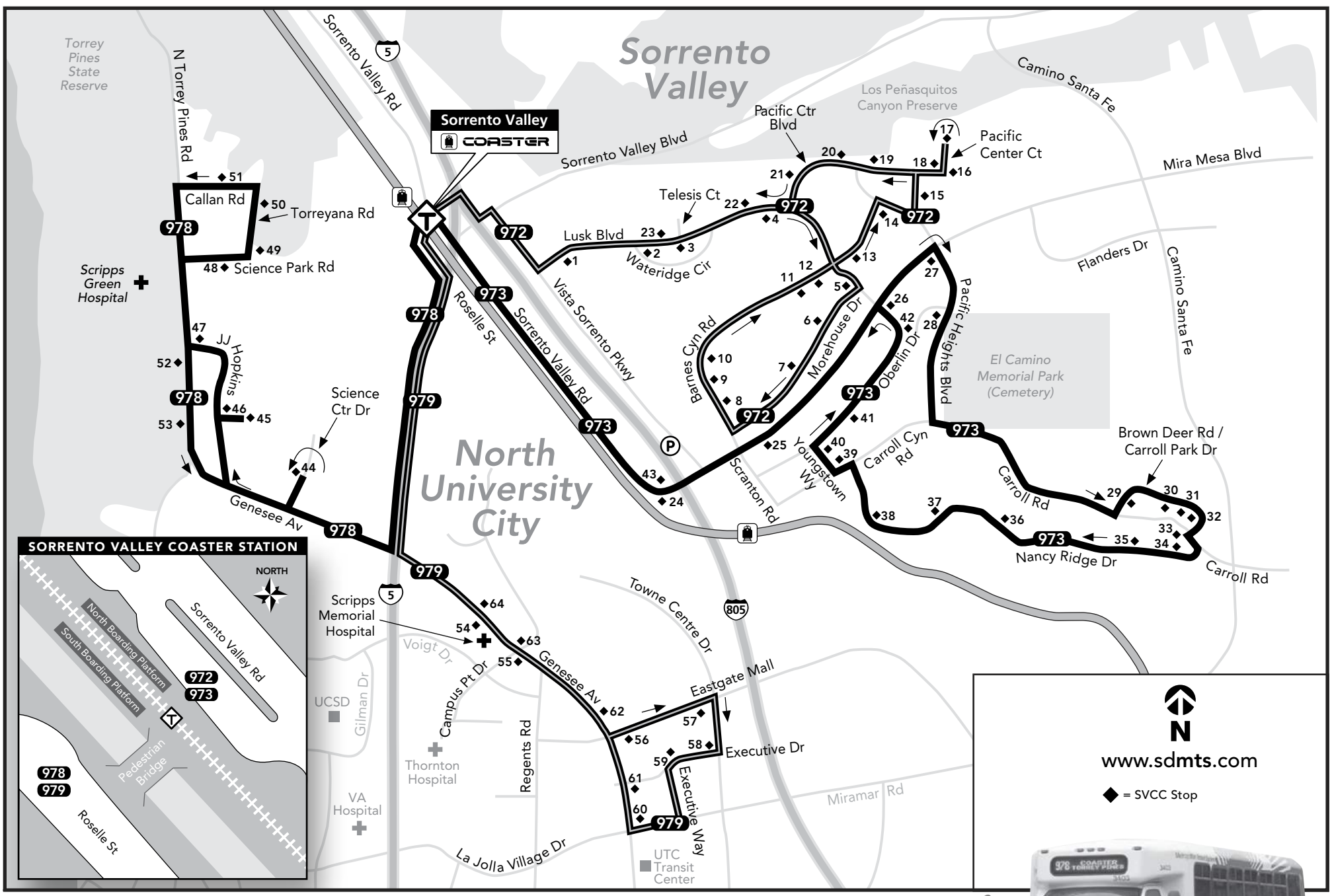
Regional Transit Information *Información de transporte público regional*	**511** or/ó **(619) 233-3004**
TTY/TDD (teletype for hearing impaired) *Teletipo para sordos*	**(619) 234-5005** or/ó **(888) 722-4889**
InfoExpress (24-hour info via Touch-Tone phone) *Información las 24 horas (via teléfono de teclas)*	**(619) 685-4900**
Customer Service / Suggestions *Servicio al cliente / Sugerencias*	**(619) 238-0100**
SafeWatch	**(619) 557-4500**
Lost & Found *Objetos extraviados*	**(877) 841-3278**
Transit Store	**(619) 234-1060** 12th & Imperial Transit Center M–F 9am–5pm
For MTS online trip planning *Planificación de viajes por Internet*	**www.sdmts.com**

For more information on riding MTS services, pick up a Rider's Guide on a bus or at the Transit Store, or visit **www.sdmts.com**.
*Para obtener más información sobre el uso de los servicios de MTS, recoja un 'Rider's Guide' en un autobús o en las Transit Store, o visita a **www.sdmts.com**.*

Thank you for riding MTS! ***¡Gracias por viajar con MTS!***

MTS Metropolitan Transit System

10/16



COASTER

Monday through Friday / *lunes a viernes*

Oceanside ➡ San Diego

	Morning (AM)				Afternoon/Evening (PM)		
Oceanside	6:00a	6:30a	7:13a	7:42a	**3:32p**	**5:12p**	**5:41p**
Carlsbad Village	6:04	6:35	7:17	7:46	**3:36**	**5:17**	**5:46**
Carlsbad Poinsettia	6:09	6:40	7:23	7:51	**3:43**	**5:22**	**5:51**
Encinitas	6:14	6:46	7:28	7:57	**3:49**	**5:28**	**5:56**
Solana Beach	6:19	6:55	7:37	8:02	**3:54**	**5:35**	**6:01**
Sorrento Valley	6:28	7:08	7:47	8:14	**4:03**	**5:44**	**6:11**
Old Town	6:54	7:31	8:10	8:37	**4:28**	**6:08**	**6:37**
San Diego	7:01	7:38	8:17	8:45	**4:35**	**6:16**	**6:45**

San Diego ➡ Oceanside

	Morning (AM)		⊛	Afternoon/Evening (PM)				
San Diego	6:24a	7:41a	8:23a	**3:38p**	**4:23p**	**4:55p**	**5:40p**	**6:26p**
Old Town	6:30	7:47	8:30	**3:44**	**4:29**	**5:01**	**5:46**	**6:32**
Sorrento Valley	6:52	8:09	8:54	**4:06**	**4:51**	**5:24**	**6:08**	**6:54**
Solana Beach	7:02	8:22	9:03	**4:17**	**5:00**	**5:34**	**6:20**	**7:04**
Encinitas	7:09	8:29	9:09	**4:23**	**5:08**	**5:40**	**6:26**	**7:10**
Carlsbad Poinsettia	7:15	8:35	9:15	**4:29**	**5:14**	**5:46**	**6:32**	**7:16**
Carlsbad Village	7:22	8:41	9:23	**4:35**	**5:21**	**5:52**	**6:38**	**7:22**
Oceanside	7:27	8:46	9:29	**4:41**	**5:28**	**5:58**	**6:45**	**7:30**

COASTER schedule shown is effective June 6, 2016 and is subject to change without notice. This may not reflect the most current schedule. Only trips that connect with the Sorrento Valley COASTER Connection are shown. Additional days and times of service can be found at www.gonctd.com.
COASTER calendario que se muestra es a partir del 6 de junio de 2016 y está sujeto a cambios sin previo aviso. Esto puede no reflejar el calendario más actual. Sólo los viajes que conectan con el Sorrento Valley COASTER Connection se muestran. Días adicionales y las horas de servicio se pueden encontrar en www.gonctd.com.

*Operated by Amtrak / *Operado por Amtrak*

ROUTE DEVIATIONS / *Desviaciones de la Ruta*

The SVCC is a demand-response service that will provide a route deviation of up to 3/4 of a mile off an operating SVCC route for requesting passengers traveling to or from the Sorrento Valley COASTER Station. This service is provided anywhere in the SVCC service area during the corresponding hours that the SVCC service operates. Lift-equipped buses are available. To ensure availability, please call (877) 841-3278 at least one hour before your trip to schedule a curb-to-curb trip.

El SVCC es un servicio de demanda-respuesta que proveerá una desviación de ruta de hasta 3/4 de milla de una ruta SVCC operativa a pasajeros que viajen a y de Sorrento Valley COASTER Station. Este servicio es proveído en cualquier parte del la área de servicio del SVCC, durante las horas correspondientes a al servicio que SVCC opera. Autobuses equipados para levantar sillas también están disponibles. Para asegurarse de su disponibilidad, por favor hable al (877) 841-3278 por lo menos una hora antes de su viaje para fijar el horario de su viaje de banqueta-a-banqueta.

COMMUTER TAX BENEFIT PROGRAM FOR EMPLOYERS / *Programa de Asistencia de Tránsito del Empleador*

Employers can provide their employees a payroll tax deduction for riding transit to work of up to $125 per month. Employers benefit from this program through reduced payroll taxes and other business deductions. For more information about this and other free commuter services for employers visit iCommuteSD.com or call 511 and say "iCommute."

Los empleadores pueden proporcionar a sus empleados una deducción de los impuestos sobre nóminas de hasta $125 dólares al mes por trasladarse al trabajo usando el transporte interurbano. Los empleadores sacan provecho de este programa mediante menores impuestos sobre nómina y otras deducciones empresariales. Para mayores informes sobre éste y otros servicios gratuitos para pasajeros interurbanos para los empleadores, favor de visitar iCommuteSD.com o llamar al 511 y decir 'iCommute'.

Alternative formats available upon request. Please call: (619) 557-4555 / *Formato alternativo disponible al preguntar. Favor de llamar: (619) 557-4555*

Route 972 – Monday through Friday / *lunes a viernes*

Sorrento Mesa ➡ Sorrento Valley COASTER Station

		Morning (AM)					Afternoon/Evening (PM)				
	Sorrento Valley COASTER Station **DEPART***	6:30a	7:10a	7:50a	8:16a	8:55a	—	**4:05p**	**4:40p**	**5:22p**	**6:10p**
1	10525 Vista Sorrento						**3:30p**				
2	EB Lusk Blvd & Wateridge Circle (after intersection)										
3	EB Lusk Blvd & Telesis Ct. (after intersection)										
4	Across from 6455 Lusk Blvd.	6:37	7:17	7:57	8:23	9:02	**3:31**	**4:14**	**4:49**	**5:31**	**6:19**
5	10225 Lusk Blvd. (electrical boxes)										
6	Across from 5525 Morehouse Drive										
7	5510 Morehouse Drive										
8	5424 Scranton Road										
9	9605 Scranton Road										
10	9805 Scranton Road										
11	10055 Barnes Canyon Road										
12	10225 Barnes Canyon Road										
13	EB Barnes Canyon Road & Lusk Blvd. (after intersection)	6:43	7:23	8:03	8:29	9:08	**3:37**	**4:20**	**4:55**	**5:37**	**6:25**
14	EB Barnes Canyon Road & Pacific Heights Blvd. (before turn)										
15	10211 Pacific Mesa Blvd.										
16	10309 Pacific Center Ct.										
17	10450 Pacific Center Ct.										
18	5910 Pacific Center Blvd.										
19	5788 Pacific Center Blvd.										
20	5764 Pacific Center Blvd.										
21	WB Pacific Center Blvd & McKellar Ct. (after intersection)										
22	Qualcomm Design Center (45 mph sign)	6:51	7:31	8:11	8:37	9:16	**3:45**	**4:28**	**5:03**	**5:45**	**6:33**
23	WB Lush Blvd & Telesis Ct. (after intersection)										
	Sorrento Valley COASTER Station **ARRIVE**	6:57	7:37	8:16	8:42	—	**3:54**	**4:37**	**5:12**	**5:56**	**6:42**

Route 973 – Monday through Friday / *lunes a viernes*

Carroll Canyon ➡ Sorrento Valley COASTER Station

		Morning (AM)					Afternoon/Evening (PM)				
	Sorrento Valley COASTER Station **DEPART***	6:30a	7:10a	7:53a	8:22a	8:55a	—	**4:06p**	**4:41p**	**5:25p**	**6:10p**
24	10240 Sorrento Valley Road						—				
25	EB Mira Mesa Blvd & Scranton Road (after intersection)						**3:30p**				
26	EB Mira Mesa Blvd & Oberlin Drive (after intersection)										
27	Pacific Heights Blvd & Mira Mesa Blvd. (after turn, electrical boxes)	6:38	7:18	8:01	8:30	9:03	**3:31**	**4:14**	**4:49**	**5:33**	**6:18**
28	Pacific Heights Blvd & Cornerstone Ct. (after intersection)										
29	Brown Deer Road & Ferris Square (at pedestrian crossing sign)										
30	9215 Brown Deer Road										
31	9339 Carroll Park Drive										
32	9449 Carroll Park Drive										
33	Nancy Ridge Drive & Carroll Road (after turn, Carroll Ridge Bus. Park)	6:47	7:27	8:09	8:38	9:12	**3:40**	**4:23**	**4:58**	**5:42**	**6:27**
34	Phage Biotechnology										
35	6650 Nancy Ridge Drive										
36	6310 Nancy Ridge Drive (electrical boxes in front of Nancy Ridge Technology Park)										
37	6150 Nancy Ridge Drive (Sorrento Ridge Business Park)										
38	5960 Nancy Ridge Drive (Sorrento Vista Industrial Park)										
39	5280 Carroll Canyon Road										
40	Youngstown Way & Oberlin Drive (before turn, at fire hydrant)										
41	5807 Oberlin Drive										
42	5871 Oberlin Drive (mailboxes)	6:51	7:31	8:13	8:42	9:16	**3:44**	**4:27**	**5:02**	**5:46**	**6:31**
43	45mph sign across street from Websense										
	Sorrento Valley COASTER Station **ARRIVE**	7:00	7:40	8:22	8:51	—	**3:54**	**4:37**	**5:12**	**5:56**	**6:41**

Route 978 – Monday through Friday / *lunes a viernes*

Torrey Pines ➡ Sorrento Valley COASTER Station

		Morning (AM)				Afternoon/Evening (PM)				
	Sorrento Valley COASTER Station **DEPART***	6:32a	7:10a	7:55a	8:24a	—	**4:10p**	**4:40p**	**5:23p**	**6:10p**
44	10240 Science Center Drive	6:38	7:16	8:01	8:30	**3:34p**	**4:16**	**4:48**	**5:33**	**6:20**
45	General Atomics Court (at end of turnaround)									
46	General Aromics Court & John Hopkins Drive (before turn)									
47	John Hopkins Drive & North Torrey Pines Road (before turn)									
48	3033 Science Park Road (driveway to L3 Communications)									
49	Torreyana Rd & Road to the Cure (before intersection)	6:45	7:23	8:07	8:37	**3:41**	**4:23**	**4:55**	**5:40**	**6:27**
50	Torreyana Rd & Callan Road (before turn)									
51	11099 Callan Road									
52	10666 North Torrey Pines Road	6:48	7:26	8:10	8:40	**3:44**	**4:26**	**4:58**	**5:43**	**6:30**
53	3366 North Torrey Pines Road									
	Sorrento Valley COASTER Station **ARRIVE**	7:06	7:42	8:24	—	**3:53**	**4:37**	**5:10**	**5:55**	**6:41**

Route 979 – Monday through Friday / *lunes a viernes*

University City ➡ Sorrento Valley COASTER Station

		Morning (AM)				Afternoon/Evening (PM)				
	Sorrento Valley COASTER Station **DEPART***	6:32a	7:10a	7:49a	8:17a	—	**4:13p**	**4:46p**	**5:30p**	**6:16p**
54	SB Genesee Ave & Scripps Driveway (after intersection)					—				
55	SB Genesee Ave & Campus Point Drive (after intersection)	6:39	7:17	7:56	8:24	**3:35p**	**4:20**	**4:53**	**5:37**	**6:23**
56	EB Eastgate Mall & Easter Way (before intersection)									
57	EB Eastgate Mall & Towne Centre Way (before turn)									
58	Towne Centre Way & Executive Drive (before turn)									
59	Executive Way & Executive Drive (before turn)									
60	NB Genesee Ave & La Jolla Village Drive (after turn)	6:44	7:22	8:01	8:29	**3:40**	**4:25**	**4:58**	**5:42**	**6:28**
61	NB Genesee Ave & Executive Drive (before intersection)									
62	NB Genesee Ave & Eastgate Mall (after intersection)									
63	NB Genesee Ave & Campus Point Drive (after intersection)									
64	NB Genesee Ave & Scripps Driveway (after intersection)									
	Sorrento Valley COASTER Station **ARRIVE**	6:54	7:32	8:11	—	**3:53**	**4:38**	**5:11**	**5:55**	**6:41**

Routes 972, 973, 978, and 979 do not operate on weekends or on the observation of the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving, and Christmas
Las rutas 972, 973, 978 y 979 no ofrecen servicio durante el fin de semana ó durante los siguientes días festivos: Año Nuevo, Memorial Day, Día de la Independencia (E.E.U.U.), Labor Day, Día de Acción de Gracias, y Navidad

* All morning departures from Sorrento Valley COASTER Station wait for the arriving southbound train. Morning buses may depart the station earlier than time shown, once all passengers have transferred from the designated COASTER train. Afternoon departures from Sorrento Valley COASTER Station may leave up to ten minutes earlier than shown.

Todas las salidas de Sorrento Valley COASTER Station en la mañana esperan la llegada del tren hacia el sur. En la mañana, cuando todos los pasajeros del COASTER se han trasladado a los autobuses, los autobuses podrán salir de la estación, aunque sea unos minutos antes del horario. En la tarde, las salidas de Sorrento Valley COASTER Station pueden salir hasta diez minutos antes de lo mostrado.

The schedules and other information shown in this timetable are subject to change. MTS does not assume responsibility for errors in timetables nor for any inconvenience caused by delayed buses. / *Los horarios e información que se indican en este itineratio están sujetos a cambios. MTS no asume responsabilidad por errores en los itinerarios, ni por ningún perjuicio que se origine por los autobuses demorados.*

COASTER SCHEDULE

EFFECTIVE October 8, 2017 - April 2, 2018 / VÁLIDO 8 de octubre del 2017 - 2 de abril del 2018

SOUTHBOUND		MONDAY-FRIDAY														
OCEANSIDE TO SAN DIEGO	READ DOWN	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	AMTRAK Pacific Surfliner	AMTRAK Pacific Surfliner	AMTRAK Pacific Surfliner	AMTRAK Pacific Surfliner
TRAIN SERVICE NO.		630	634	636	638	640	644	648	654	656	660	662	584	590	792	796
Oceanside	↓	5:03a	6:02a	6:33a	7:15a	7:40a	9:37a	11:08a	2:42p	3:32p	5:12p	5:41p	7:04p	9:05p	10:05p	12:01a
Carlsbad Village	↓	5:07a	6:06a	6:37a	7:20a	7:44a	9:42a	11:13a	2:47p	3:36p	5:17p	5:46p	7:09p	9:10p	–	12:06a
Carlsbad Poinsettia	↓	5:13a	6:12a	6:42a	7:26a	7:49a	9:47a	11:18a	2:52p	3:43p	5:22p	5:51p	–	–	–	–
Encinitas	↓	5:19a	6:18a	6:50a	7:32a	7:56a	9:54a	11:25a	3:00p	3:49p	5:28p	5:56p	–	–	–	–
Solana Beach	↓	5:25a	6:23a	6:57a	7:39a	8:01a	10:00a	11:33a	3:05p	3:54p	5:35p	6:01p	7:22p	9:31p	10:19p	12:17a
Sorrento Valley	↓	5:35a*	6:40a	7:08a	7:49a	8:12a	10:11a*	11:42a*	3:14p*	4:03p	5:44p	6:11p	7:33p*	9:40p*	–	12:26a*
San Diego-Old Town	↓	5:57a	7:04a	7:30a	8:12a	8:35a	10:33a	12:07p	3:36p	4:28p	6:08p	6:37p	7:56p	10:01p	10:47p	12:47a
San Diego-SF Depot	↓	6:05a	7:11a	7:38a	8:20a	8:43a	10:40a	12:14p	3:44p	4:35p	6:16p	6:45p	8:18p	10:14p	11:03p	1:12a

NORTHBOUND		MONDAY-FRIDAY														
SAN DIEGO TO OCEANSIDE	READ DOWN	AMTRAK Pacific Surfliner	COASTER	COASTER	AMTRAK Pacific Surfliner	COASTER	AMTRAK Pacific Surfliner	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	COASTER	AMTRAK Pacific Surfliner
TRAIN SERVICE NO.		761	631	635	567	639	573	645	651	653	655	657	661	663	665	595
San Diego-SF Depot	↓	4:00a	6:15a	7:39a	8:21a	9:38a	10:41a	12:49p	1:56p	3:36p	4:21p	4:53p	5:38p	6:24p	7:13p	8:52p
San Diego-Old Town	↓	4:07a	6:23a	7:47a	8:28a	9:46a	10:48a	12:57p	2:04p	3:44p	4:29p	5:01p	5:46p	6:32p	7:21p	8:59p
Sorrento Valley	↓	–	6:45a	8:10a	8:50a	10:09a*	11:10a*	1:19p*	2:26p*	4:06p	4:51p	5:24p	6:08p	6:54p	7:43p*	9:21p*
Solana Beach	↓	4:37a	6:57a	8:23a	9:05a	10:20a	11:24a	1:30p	2:36p	4:17p	5:00p	5:34p	6:20p	7:04p	7:53p	9:33p
Encinitas	↓	–	7:03a	8:30a	–	10:26a	–	1:36p	2:42p	4:23p	5:08p	5:40p	6:26p	7:10p	7:59p	–
Carlsbad Poinsettia	↓	–	7:09a	8:36a	–	10:32a	–	1:42p	2:48p	4:29p	5:14p	5:46p	6:32p	7:16p	8:05p	–
Carlsbad Village	↓	–	7:15a	8:42a	9:19a	10:38a	11:39a	1:47p	2:54p	4:35p	5:21p	5:52p	6:38p	7:22p	8:11p	9:46p
Oceanside	↓	4:53a	7:20a	8:47a	9:30a	10:43a	11:48a	1:54p	3:00p	4:41p	5:28p	5:58p	6:45p	7:30p	8:18p	9:55p

SOUTHBOUND		SATURDAY, SUNDAY & HOLIDAYS							
OCEANSIDE TO SAN DIEGO	READ DOWN	COASTER	COASTER	COASTER	COASTER	AMTRAK Pacific Surfliner	AMTRAK Pacific Surfliner	AMTRAK Pacific Surfliner	AMTRAK Pacific Surfliner
TRAIN SERVICE NO.		680	684	688	692	584	1588	792	796
Oceanside	↓	8:30a	11:08a	2:00p	5:21p	7:04p	8:44p	10:05p	12:01a
Carlsbad Village	↓	8:35a	11:13a	2:05p	5:26p	7:09p	8:49p	–	12:06a
Carlsbad Poinsettia	↓	8:40a	11:18a	2:10p	5:31p	–	–	–	–
Encinitas	↓	8:46a	11:25a	2:16p	5:37p	–	–	–	–
Solana Beach	↓	8:52a	11:33a	2:24p	5:44p	7:22p	9:05p	10:19p	12:17a
Sorrento Valley	↓	9:01a*	11:42a*	2:33p*	5:53p*	7:33p*	9:14p*	–	12:26a*
San Diego-Old Town	↓	9:23a	12:07p	2:54p	6:14p	7:56p	9:35p	10:47p	12:47a
San Diego-SF Depot	↓	9:31a	12:14p	3:02p	6:23p	8:18p	9:49p	11:03p	1:12a

NORTHBOUND		SATURDAY, SUNDAY & HOLIDAYS							
SAN DIEGO TO OCEANSIDE	READ DOWN	AMTRAK Pacific Surfliner	AMTRAK Pacific Surfliner	COASTER	AMTRAK Pacific Surfliner	COASTER	COASTER	COASTER	AMTRAK Pacific Surfliner
TRAIN SERVICE NO.		1761	1567	681	573	685	689	693	595
San Diego-SF Depot	↓	4:40a	8:05a	9:38a	10:41a	12:25p	3:36p	7:10p	8:52p
San Diego-Old Town	↓	4:47a	8:12a	9:46a	10:48a	12:33p	3:44p	7:18p	8:59p
Sorrento Valley	↓	–	8:34a*	10:09a*	11:10a*	12:57p*	4:06p*	7:43p*	9:21p*
Solana Beach	↓	5:17a	8:47a	10:20a	11:24a	1:06p	4:17p	7:53p	9:33p
Encinitas	↓	–	–	10:26a	–	1:11p	4:23p	7:58p	–
Carlsbad Poinsettia	↓	–	–	10:32a	–	1:16p	4:29p	8:04p	–
Carlsbad Village	↓	–	9:02a	10:38a	11:39a	1:21p	4:35p	8:10p	9:46p
Oceanside	↓	5:37a	9:11a	10:43a	11:48a	1:27p	4:41p	8:16p	9:55p

AMTRAK Pacific Surfliner®

COASTER passengers can ride 8 designated Amtrak Pacific Surfliner® trains, 7 days/week (Train Service No. 567/1567, 573, 584, 590, 595, 761/1761, 792, 796, and 1588; also Amtrak Thruway Bus 5811) with any valid COASTER fare media, within the trip limits printed on their COASTER ticket. **NOT VALID – MEMORIAL DAY WEEKEND, LABOR DAY WEEKEND, MON-SUN OF THANKSGIVING WEEK, OPENING WEEK OF THE SUMMER DEL MAR RACES, AND THUR-SUN OF COMIC-CON WEEK (these dates subject to change).** ***Amtrak trains do NOT serve Encinitas or Carlsbad Poinsettia Stations. Trains #761/1761 and #792 ONLY serve Oceanside, Solana Beach, Old Town, and Santa Fe Depot.***

All Amtrak policies and terms of travel apply and may differ from NCTD policies including photo ID requirements, unaccompanied minors, accessibility, baggage restrictions and pets. Please visit **Amtrak.com/train-travel-plan.**

Passengers are not allowed to bring alcohol on board Amtrak or COASTER trains.

Amtrak fares, schedules, route, equipment and services subject to change without notice. Other policies and restrictions apply. Amtrak and Pacific Surfliner are service marks of the National Railroad Passenger Corporation. **Amtrak.com/pacific-surfliner-train. AMTRAK 1-800-872-7245**

Los pasajeros de COASTER pueden viajar en 8 trenes seleccionados de Amtrak Pacific Surfliner®, 7 días/semana (Numero de servicio de tren 567/1567, 573, 584, 590, 595, 761/1761, 792, 796, and 1588; también Amtrak Thruway Autobús 5811) con cualquier tarifa válida de COASTER, dentro de los límites de viaje impresos en su boleto de COASTER. **NO ES VÁLIDO – FIN DE SEMANA DE CONMEMORACIÓN, FIN DE SAMANA DEL DÍA DEL TRABAJO, LUN-DOM DE LA SEMANA DE ACCIÓN DE GRACIAS, SEMANA DE APERTURA DE LAS CARRERAS DE DEL MAR DEL VERANO, Y JUE-DOM SEMANA DE COMIC-CON (estas fechas están sujetas a cambio).** ***Trenes de Amtrak NO dan servicio a las estaciones de Encinitas y Carlsbad Poinsettia. Trenes #761/1761 y #792 SOLO dan servicio en Oceanside, Solana Beach, Old Town y Santa Fe Depot.***

Todas las políticas de Amtrak y los términos de viajes aplican y pueden diferir de las de NCTD incluyendo los requisitos de identificación con fotografía, menores sin acompañante, accesibilidad, restricciones de equipaje y mascotas. Por favor visite **Amtrak.com/train-travel-plan.**

No se les permite a los pasajeros traer alcohol a bordo de trenes de Amtrak o COASTER.

Tarifas, horarios, rutas, equipo y servicios de Amtrak están sujetos a cambios sin previo aviso. Se aplican otras políticas y restricciones. Amtrak y el Pacific Surfliner son marcas registradas de National Railroad Passenger Corporation. **Amtrak.com/pacific-surfliner-train. AMTRAK 1-800-872-7245**

* Sorrento Valley COASTER Connection shuttle service not available for this train.

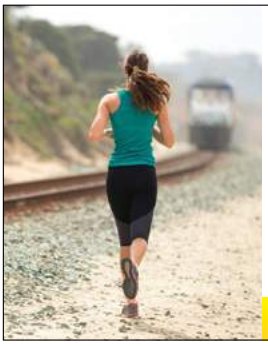
* El servicio de transporte Sorrento Valley COASTER Connection no está disponible para este tren.

Alert! *"Hoverboards" are prohibited on the following: NCTD vehicles, NCTD property, NCTD facilities, and all Amtrak trains.*

¡Aviso! *Aeropatines (hoverboards) estan prohibidos en lo siguiente: vehículos de NCTD, propiedad de NCTD, instalaciones de NCTD, y todos los trenes de Amtrak.*

COASTER operates on a Holiday (Sunday) schedule on Memorial Day, Labor Day, Thanksgiving Day, Christmas Day, and New Year's Day. Independence Day, July 4, operates on a Saturday schedule. **Schedule subject to change.**

El COASTER opera en horarios de domingo el Día de Conmemoración, Día del Trabajo, Día de Acción de Gracias, Navidad, y Año Nuevo. El Día de la Independencia, 4 de julio, opera en horarios de sábado. **Horario sujeto a cambios.**



TRESPASSING on the **tracks** can be **DEADLY** or result in **criminal CHARGES & FINES.**

Don't Take a Chance. Stay Away From the Tracks.

NORTH COUNTY TRANSIT DISTRICT

STAY OFF • STAY AWAY • STAY ALIVE

BIKES:

RESERVATIONS & AMTRAK ticket REQUIRED for BIKES on ALL AMTRAK trains.

Amtrak.com/bring-your-bicycle-onboard

BICICLETAS:

en todos los trenes de Amtrak se REQUIERE UNA RESERVACION Y BOLETO DE AMTRAK para bicicletas.

Amtrak.com/bring-your-bicycle-onboard

Tickets sold at vending machines VALID ONLY for the SAME DAY of purchase. NO REFUNDS.
One-way tickets valid for 2 hours from time of purchase. Tickets may be purchased via the Compass Cloud app on mobile devices.

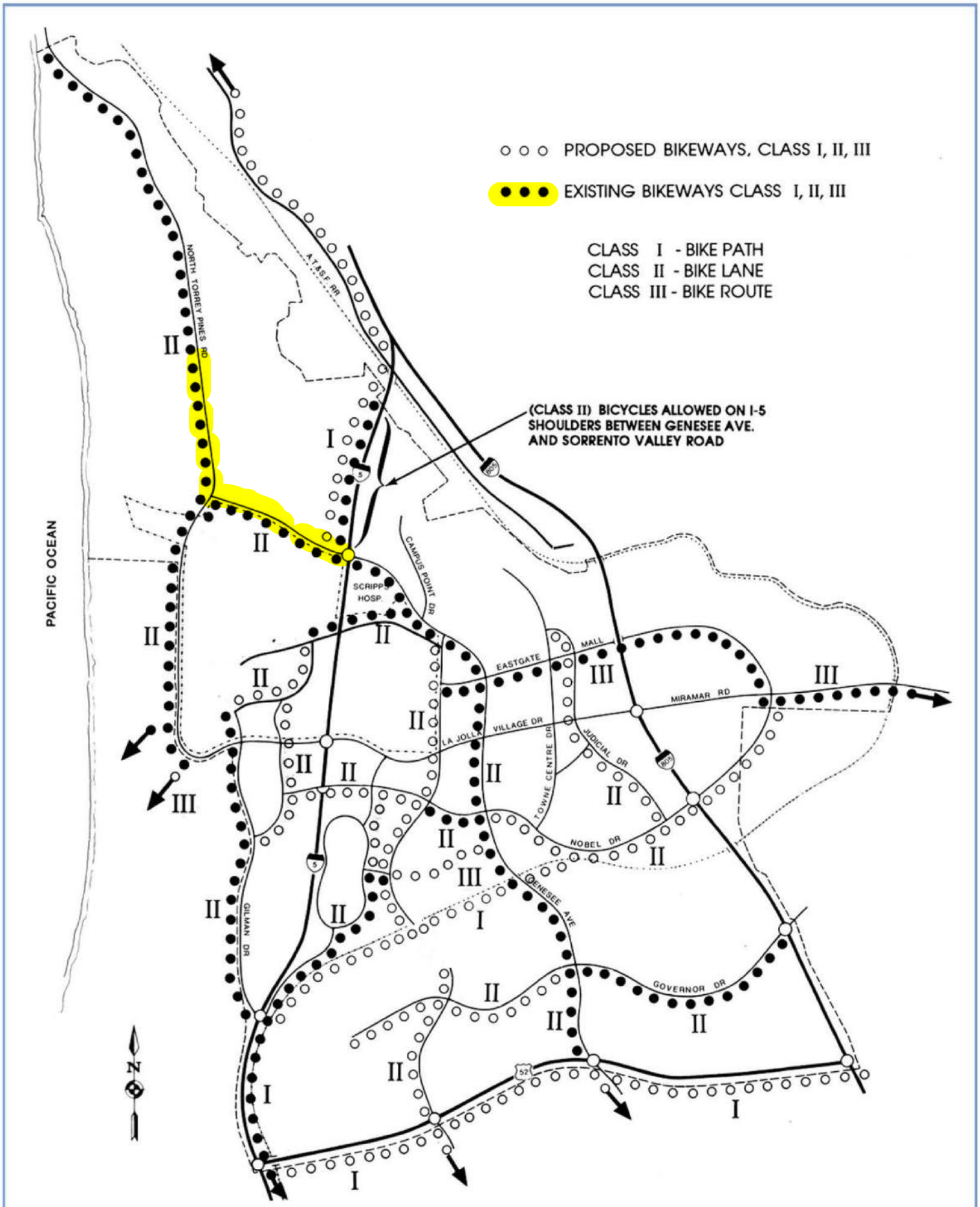
Boletos adquiridos en las máquinas son VÁLIDOS SOLAMENTE EL MISMO DÍA DE SU COMPRA. NO REEMBOLSOS.
Boletos de viaje sencillo son válidos por 2 horas desde el momento de compra. Boletos pueden ser comprados a través de la aplicación "Compass Cloud" en dispositivos móviles.

NORTH COUNTY TRANSIT DISTRICT
GoNCTD.com (760) 966-6500
@GoNCTD /GoNCTD /ncdtransit /NorthCountyTransit

Appendix I

University Community Plan

UNIVERSITY COMMUNITY PLAN



Bikeways
University Community Plan
23 FIGURE

Appendix J

SDP/CDP Amendment and PDP Submittal Package Title Sheet

SPECTRUM III & IV

SDP/CDP AMENDMENT AND PDP SUBMITTAL PACKAGE
3115 & 3215 MERRYFIELD ROW, SAN DIEGO, CA 92121

PROJECT DIRECTORY

CLIENT INFORMATION

ARE-SD REGION NO. 23, LLC
10996 TORREYANA ROAD, SUITE 250
SAN DIEGO, CA 92121

TEL: 858/638-2803
CONTACT: CHRISTOPHER CLEMENT — E-MAIL: cclement@are.com

CIVIL ENGINEERING

RICK ENGINEERING
5620 FRIARS ROAD
SAN DIEGO, CA 92110-2596
TEL: 619/291-0707 — FAX: 619/291-4165
CONTACT: THOMAS ZANETTI — E-MAIL: tzanetti@rickengineering.com

LANDSCAPE ARCHITECT

LPA, INC.
1600 NATIONAL AVE
SAN DIEGO, CA 92101
TEL: 619/795-2555 — FAX: 619/795-2552
CONTACT: GUS PUERTAS — E-MAIL: gpuertas@lpainc.com

ARCHITECT

LPA, INC.
1600 NATIONAL AVE
SAN DIEGO, CA 92101
TEL: 619/795-2555 — FAX: 619/795-2552
CONTACT: ERIC JONES — E-MAIL: ejones@lpainc.com

GEOTECHNICAL

GEOCON INCORPORATED
6960 FLANDERS DRIVE
SAN DIEGO, CA 92121-2974
TEL: 858/558-6900 — FAX: 858/558-6159
CONTACT: KELLI JAMES — E-MAIL: james@geoconinc.com

ENVIRONMENTAL

HALEY & ALDRICH, INC.
5333 MISSION CENTER RD #300
SAN DIEGO, CA 92108
TEL: 619/285-7130
CONTACT: LANCE UNVERSAGT — E-MAIL: lanceu@haleyaldrich.com

TRAFFIC ENGINEERING

URBAN SYSTEMS ASSOCIATES
8451 MIRALANI DRIVE, SUITE A
SAN DIEGO, CA 92126
TEL: 858/560-4911
CONTACT: JUSTIN SCHLAEFLI — E-MAIL: justin@urbansystems.net

DEVELOPMENT SUMMARY

PROJECT DESCRIPTION:

1. CONSTRUCTION OF A NEW 118,931 SQUARE FOOT RESEARCH AND DEVELOPMENT (R&D) BUILDING WITH SUBTERRANEAN PARKING LOCATED AT 3115 MERRYFIELD ROW SHOWN ON EXHIBIT "A" TO THIS PERMIT. THE EXISTING 145,828 SQUARE FOOT R&D BUILDING LOCATED AT 3215 MERRYFIELD ROW AND ASSOCIATED IMPROVEMENTS WILL REMAIN ON SITE AND UNCHANGED. THE TOTAL GFA FOR THE COMBINED SITES AT BUILD-OUT IS 264,759 SQUARE FEET.

2. OFF-STREET PARKING FACILITIES PER CITY OF SAN DIEGO STANDARDS (SDMC CHAPTER 14, ARTICLE 2, DIVISION 5).

3. CONSTRUCTION OF ASSOCIATED SITE IMPROVEMENTS, INCLUDING GRADING, SITE UTILITIES, DRAINAGE SYSTEM, LANDSCAPING, IRRIGATION AND HARDSCAPE.

4. ACCESSORY IMPROVEMENTS DETERMINED BY THE CITY MANAGER TO BE CONSISTENT WITH THE LAND USE AND DEVELOPMENT STANDARDS IN EFFECT FOR THIS SITE PER THE ADOPTED COMMUNITY PLAN, CALIFORNIA ENVIRONMENTAL QUALITY ACT GUIDELINES, PUBLIC AND PRIVATE IMPROVEMENT REQUIREMENTS OF THE CITY ENGINEER, THE UNDERLYING ZONE, CONDITIONS OF THIS PERMIT, AND ANY OTHER APPLICABLE REGULATIONS OF THE SDMC FOR THIS SITE.

THE 3115 MERRYFIELD ROW R&D BUILDING WAS PREVIOUSLY APPROVED FOR 57,372 SQUARE FEET. THE ADDITIONAL 61,559 SQUARE FEET IS OBTAINED THROUGH THE TRANSFER OF 49,290 SQUARE FEET FROM 3050 CALLAN ROAD (TRANSFER SITE #1) AND 12,269 SQUARE FEET FROM 3013-3033 SCIENCE PARK ROAD (TRANSFER SITE #2). 57,890 SQUARE FEET OF THE INCREASE TO THE PREVIOUSLY APPROVED 3115 MERRYFIELD ROW R&D BUILDING IS TRIP-GENERATING.

PROJECT SITE INFORMATION:

SITE ADDRESSES

PROPOSED CONCEPT - BUILDING A
3115 MERRYFIELD ROW, SAN DIEGO, CA. 92121

PREVIOUSLY APPROVED - BUILDING B
3215 MERRYFIELD ROW, SAN DIEGO, CA. 92121

ASSESSOR'S PARCEL NUMBER

340-200-09, 340-200-10, 340-200-11, 340-200-12

LEGAL DESCRIPTION

LOT 9 (ALSO REFERENCED AS B OF PARCEL MAP 17873, 20), 10, 11, & 12 OF THE LA JOLLA SPECTRUM ACCORDING TO MAP THEREOF NO. 12990, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, STATE OF CALIFORNIA.

SITE AREAS

GROSS SITE AREA	13.77 ACRES
NET SITE AREA	10.16 ACRES
LANDSCAPE AREA	2.92 ACRES
HARDSCAPE AREA	2.87 ACRES

TRANSFER SITE #1 INFORMATION:

SITE ADDRESSES

3050 CALLAN ROAD, SAN DIEGO, CA 92121

ASSESSOR'S PARCEL NUMBER

340-010-45

LEGAL DESCRIPTION

PARCEL 2 OF PARCEL MAP NO1241, IN THE CITY OF SAN DIEGO, COUNT OF SAN DIEGO, STATE OF CALIFORNIA, FILED IN THE OFFICE OF COUNTY RECORDER OF SAN DIEGO COUNTY

SITE AREAS

GROSS SITE AREA 3.18 ACRES

TRANSFER SITE #2 INFORMATION:

SITE ADDRESSES

3013-3033 SCIENCE PARK ROAD, SAN DIEGO 92121

ASSESSOR'S PARCEL NUMBER

340-010-43

LEGAL DESCRIPTION

PARCEL A (IDENTIFIED AS PARCEL 2 OF PARCEL MAP NO. 2411) & PARCEL B (IDENTIFIED AS LOT 4 OF TORREY PINES SCIENCE PARK UNIT 1, IN THE CITY OF SAN DIEGO, COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF 6229 ON FILE IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO

SITE AREAS

GROSS SITE AREA	5.81 ACRES
NET SITE AREA	4.64 ACRES

PROJECT BUILDING USE:

PROPOSED CONCEPT (BUILDING A) & PERVIOUSLY APPROVED (BUILDING B)
EXISTING USE - "RESEARCH AND DEVELOPMENT"
PROPOSED USE - "RESEARCH AND DEVELOPMENT" (NO CHANGE)

PROJECT BUILDING DATA:

PROPOSED CONCEPT - 3115 MERRYFIELD - BUILDING A
CONSTRUCTION TYPE - IIB
OCCUPANCY TYPE - B

PREVIOUSLY APPROVED - 3215 MERRYFIELD - BUILDING B
CONSTRUCTION TYPE - IIB
OCCUPANCY TYPE - B

GEOLOGIC HAZARD CATEGORY:

PROJECT SITE CONTAINS THE FOLLOWING GEOLOGIC HAZARD CATEGORIES:
HAZARD CATEGORY 25: ARDATH: NEUTRAL OR FAVORABLE GEOLOGIC STRUCTURE
HAZARD CATEGORY 51: LEVEL MESAS - UNDERLAIN BY TERRACE DEPOSITS AND BEDROCK, NORMAL RISK
HAZARD CATEGORY 52: OTHER LEVEL AREAS, GENTLY SLOPING TO STEEP TERRAIN, FAVORABLE GEOLOGIC STRUCTURE, LOW RISK

REQUIRED PERMITS:

AMENDMENT TO SITE DEVELOPMENT PERMIT (SDP) AND COASTAL DEVELOPMENT PERMIT (CDP)
NEW PLAN DEVELOPMENT PACKAGE (PDP)
NEW 3115 BUILDING PERMIT (FUTURE)

LAND USE INFORMATION AND OVERLAYS

COASTAL DEVELOPMENT PERMIT / HILLSIDE REVIEW PERMIT NO. 96-7939
INDUSTRIAL PARK ZONE (IP-I-I) (PREVIOUSLY SR = SCIENTIFIC RESEARCH)
COASTAL-NON APPEALABLE AND APPEALABLE AREAS
COASTAL HEIGHT
AIRPORT LAND USE COMPATABILITY OVERLAY ZONE
AIRPORT INFLUENCE AREAS (APZ II MIRAMAR)
PRIME INDUSTRIAL LAND
FIRST PUBLIC ROADWAY
COMMUNITY PLAN IMPLEMENTATION ZONE B
PARKING IMPACT OVERLAY ZONE (CAMPUS IMPACT AREA)

SET BACKS

	REQUIRED	EXISTING	PROPOSED
FRONT YARD	20'-0" MIN, 25'-0" STD	25'-0"	25'-0"
SIDE YARD:	15'-0" INTERIOR, 25'-0" FROM PUBLIC STREET	15'-0"	15'-0"
REAR YARD	25'-0"	25'-0"	25'-0"

MAXIMUM BUILDING HEIGHT ALLOWED

HEIGHT SHALL COMPLY WITH PROPOSITION D HEIGHT LIMITS AS OUTLINED IN CITY OF SAN DIEGO TECHNICAL INFORMATION BULLETIN BLDG-5-4

PER COASTAL HEIGHT OVERLAY ZONE (PROPOSITION D), = 30'-0"

PER BUILDING TECHNICAL BULLETIN BLDG 5-4 (SLOPED SITE) = 40'-0"

GROSS FLOOR AREA

PROPOSED CONCEPT 3115 (BLDG A) (PROVIDED FOR DESIGN INTENT):

FIRST LEVEL FLOOR AREA:	24,872 S.F.
SECOND LEVEL FLOOR AREA:	46,647 S.F.
THIRD LEVEL FLOOR AREA:	47,412 S.F.
TOTAL:	118,931 G.F.A.

EXISTING BUILDING 3215 (BLDG B)

TOTAL PREVIOUSLY APPROVED GROSS FLOOR AREA : 145,828 G.F.A.

TOTAL GROSS FLOOR AREA PER EXHIBIT "A" DESIGN INTENT = 264,759 G.S.F. (264,759 MAX.)

NOTES:

1. GROSS FLOOR AREA IS AS DEFINED BY THE CITY OF SAN DIEGO MUNICIPAL CODE.
2. MECHANICAL SPACE IS EXEMPT IN THE CALCULATION OF GROSS FLOOR AREA PER THE UNIVERSITY COMMUNITY PLAN
3. THE BASEMENT LEVEL GROSS FLOOR AREA IS EXEMPT FROM INCLUSION IN THE GROSS FLOOR AREA CALCULATION PER MUNICIPAL CODE SECTION 113.0234.A.2.B. THE BELOW GRADE & GRADE LEVEL GARAGE (MIN. 40% OPEN ON 2 SIDES) ARE ALSO NOT INCLUDED.

UNIVERSITY COMMUNITY PLAN DEVELOPMENT INTENSITY

ALLOWABLE GROSS FLOOR AREA:

PREVIOUSLY APPROVED 3115 & 3215 MERRYFIELD ROW:		203,200 G.S.F.
TRANSFERRED FROM TRANSFER SITE #1:	15,550 SF X 3.18 ACRES =	49,290 G.S.F.
UNUTILIZED AREA FROM TRANSFER SITE #2:		12,269 G.S.F.
TOTAL ALLOWABLE GFA		264,759 G.S.F.

RESEARCH AND DEVELOPMENT (R&D) AREA TABULATIONS:

SITE TOTAL OF R&D SQUARE FOOTAGE FOR COMMUNITY PLAN CONSISTENCY AND TRIP-GENERATING PURPOSES IS 239,948 S.F. PER THE BREAKDOWN BELOW:

PROPOSED 3115 MERRYFIELD - BLDG A	BUILDING AREA PER LEVEL	NON-TRIP GENERATING S.F. / MECH. SPACE
PARKING LEVEL (P3)	914 S.F.	914 S.F.
PARKING LEVEL (P2)	914 S.F.	914 S.F.
PARKING LEVEL (P1)	3,777 S.F.	3,777 S.F.
FIRST FLOOR LEVEL (L1):	44,779 S.F.	18,136 S.F.
SECOND FLOOR LEVEL (L2):	46,647 S.F.	5,918 S.F.
THIRD FLOOR LEVEL (L3):	49,786 S.F.	4,225 S.F.
TOTAL:	146,817 S.F.	33,884 S.F.
PROPOSED 3115 MERRYFIELD - BLDG A R&D S.F.	**146,817 S.F. - 33,884 S.F. =**	**112,933 S.F.**
PREVIOUSLY APPROVED 3215 MERRYFIELD - BLDG B R&D S.F.		**127,015 S.F.**
SITE TOTAL R&D S.F.		**239,948 S.F.**

NOTE: THIS EQUATES TO 57,890 SQUARE FEET OF ADDITIONAL TRIP-GENERATING R&D SQUARE FOOTAGE FROM THE PREVIOUSLY APPROVED 3115 MERRYFIELD ROW R&D BUILDING.

DEVELOPMENT INTENSITY TABULATION:

R&D S.F. / (3115 & 3215 MERRYFIELD ACRES + TRANSFER SITE #1 ACRES)

239,948 S.F. / (10.16 + 3.18) ACRES = **17,987 SF/ACRES**

DEVELOPMENT INTENSITY FOR MCAS MIRAMAR

MAX FAR IN MIRAMAR APZ II = 0.34
W/ AREA EXEMPTION FOR NON-TRIP GENERATING (NTG) S.F., NOT TO EXCEED 10% OF TOTAL

ALLOWABLE EXEMPT NTG AREA TABULATION
264,759 G.S.F. X 10% = 26,475 S.F.

PROPOSED NTG AREAS:

PROPOSED CONCEPT 3115 MERRYFIELD - BUILDING A	33,884 S.F. NTG
PREVIOUSLY APPROVED 3215 MERRYFIELD - BUILDING B	48,337 S.F. NTG
SITE TOTAL	82,221 S.F. NTG

82,221 S.F. NTG (SF OF PROPOSED DESIGN) > 26,475 S.F. NTG (10% MAX ALLOWED NTG EXEMPTION)

GROSS SITE ACRES
3115 & 3215 MERRYFIELD ACRES + TRANSFER SITE #1 = 13.77 ACRES + 3.18 ACRES = 16.95 ACRES

PROPOSED FAR TABULATION
264,759 G.S.F.- 26,475 S.F. NTG = 238,284 S.F. / (16.95 GROSS SITE ACRES X 43,560 S.F.) = 0.32 FAR

LOT COVERAGE

PROPOSED CONCEPT BUILDING A - 3115 MERRYFIELD:	49,786 S.F.
PROPOSED CONCEPT BUILDING A - 3115 MERRYFIELD MECHANICAL ENCLOSURE:	2,673 S.F.
PREVIOUSLY APPROVED BUILDING B - 3215 MERRYFIELD:	63,504 S.F.
PREVIOUSLY APPROVED BUILDING B - 3215 MERRYFIELD MECHANICAL ENCLOSURE:	5,217 S.F.
TOTAL PROJECT FOOTPRINT:	121,180 S.F.

121,180 S.F. / (10.16 ACRES X 43,560S.F.) = 27% PROPOSED LOT COVERAGE
MAX LOT COVERAGE PER LA JOLLA SPECTRUM PID (NO 89-0269) = 40%

PARKING

SD MUNICIPAL CODE TABLE 142-05G (142.0227) FOR R&D OUTSIDE OF TRANSIT AREA: 2.5/1000 TO 4.0/1000

MINIMUM PARKING TO BE PROVIDED AT FULL ENTITLEMENT
(239,948 S.F. RESEARCH & DEVELOPMENT) @ 2.5/1000 = 600 SPACES

MAXIMUM PARKING TO BE PROVIDED AT FULL ENTITLEMENT
(239,948 S.F. RESEARCH & DEVELOPMENT) @ 4.0/1000 = 959 SPACES

PROJECT PARKING SUMMARY (BUILDING A + BUILDING B)

PARKING RATIO - MIN PARKING REQUIRED:
BLDG A (2.5 SPACES PER 1,000 S.F. @ 112,933 S.F.) = 282 STALLS
BLDG B (2.5 SPACES PER 1,000 S.F. @ 127,015 S.F.) = 318 STALLS
SITE TOTAL MIN REQUIRED STALLS = 600 STALLS

SITE TOTAL PROVIDED STALLS:
BLDG A (40 SURFACE STALLS + 295 SUBGRADE STALLS) = 335 STALLS
BLDG B (122 SURFACE STALLS + 290 SUBGRADE STALLS) = 412 STALLS
SITE TOTAL OF PROVIDED STALL 747 STALLS

SHORT TERM BICYCLE PARKING MINIMUM - PERMANENTLY ANCHORED RACKS:
5% OF REQUIRED STALLS = 600 STALLS X 5% REQ'D = 30 STALLS PROVIDED = 35 STALLS

LONG TERM BICYCLE PARKING MINIMUM - LOCKERS OR COVERED LOCKABLE ROOM W/ RACKS:
5% OF REQUIRED STALLS = 600 STALLS X 5% REQ'D = 30 STALLS PROVIDED = 44 STALLS

MOTORCYCLE PARKING MINIMUM:
2% OF REQUIRED STALLS = 600 STALLS X 2% REQ'D = 12 STALLS PROVIDED = 14 STALLS

CARPOOL/ZERO EMISSION DESIGNATED PARKING MINIMUM (@ 2.5/1,000):
8% OF STALLS PROVIDED = 747 STALLS X 8% REQ'D = 60 STALLS PROVIDED = 77 STALLS

PROPOSED BUILDING A - 3115 MERRYFIELD
PROVIDED FOR DESIGN INTENT:

PARKING RATIO - MIN PARKING REQUIRED:
2.5/1,000 SF@ 112,933 S.F. OF R&D = 282 STALLS

SITE TOTAL PROVIDED STALLS:
40 SURFACE STALLS + 295 SUBGRADE STALLS = 335 STALLS

SHORT TERM BICYCLE PARKING MINIMUM - PERMANENTLY ANCHORED RACKS:
5% OF REQUIRED STALLS = 282 STALLS X 5% REQ'D = 14 STALLS PROVIDED = 14 STALLS

LONG TERM BICYCLE PARKING MINIMUM - LOCKERS OR COVERED LOCKABLE ROOM W/ RACKS:
5% OF REQUIRED STALLS = 282 STALLS X 5% REQ'D = 14 STALLS PROVIDED = 14 STALLS

MOTORCYCLE PARKING MINIMUM:
2% OF REQUIRED STALLS = 282 STALLS X 2% REQ'D = 6 STALLS PROVIDED = 6 STALLS

CARPOOL/ZERO EMISSION DESIGNATED PARKING MINIMUM:
8% OF PROVIDED STALLS = 335 STALLS X 8% REQ'D = 27 STALLS PROVIDED = 27 STALLS

EXISTING BUILDING B - 3215 MERRYFIELD
NO CHANGES PROPOSED FOR DESIGN INTENT

PARKING RATIO:
2.5 SPACES PER 1,000 S.F. @ 127,015 S.F. = 318 STALLS

SITE TOTAL PROVIDED STALLS:
122 SURFACE STALLS + 290 SUBGRADE STALLS = 412 STALLS

SHORT TERM BICYCLE PARKING MINIMUM - PERMANENTLY ANCHORED RACKS:
5% OF REQUIRED STALLS = 318 STALLS X 5% REQ'D = 16 STALLS PROVIDED = 21 STALLS

LONG TERM BICYCLE PARKING MINIMUM - LOCKERS OR COVERED LOCKABLE ROOM W/ RACKS:
5% OF REQUIRED STALLS = 318 STALLS X 5% REQ'D = 16 STALLS PROVIDED = 30 STALLS

MOTORCYCLE PARKING MINIMUM:
2% OF REQUIRED STALLS = 318 STALLS X 2% REQ'D = 6 STALLS PROVIDED = 8 STALLS

CARPOOL/ZERO EMISSION DESIGNATED PARKING MINIMUM:
8% OF STALLS PROVIDED = 412 STALLS X 8% REQ'D = 33 STALLS PROVIDED = 50 STALLS**
(SEE NOTE 1 BELOW)

NOTE 1 - PREVIOUSLY APPROVED EXHIBIT "A" INDICATED 22 CARPOOL/ZERO EMISSION DESIGNATED PARKING STALL, BUT THE NUMBER WAS INCREASED TO 50 STALLS DURING THE CORE AND SHELL BUILDING PERMIT PROCESS (PTS NUMBER 490798)

ACCESSIBLE PARKING TABULATION

PROPOSED CONCEPT - 3115 MERRYFIELD
TOTAL STALLS = 335 STALLS

SURFACE PARKING:
38 STANDARD
01 ACCESSIBLE
01 VAN ACCESSIBLE
40 TOTAL SURFACE PARKING

SUB-GRADE PARKING:
288 STANDARD
05 ACCESSIBLE
02 VAN ACCESSIBLE
295 TOTAL SUB-GRADE PARKING

EXISTING BUILDING B - 3215 MERRYFIELD
TOTAL STALLS = 412 STALLS

SURFACE PARKING:
116 STANDARD
05 ACCESSIBLE
01 VAN ACCESSIBLE
122 TOTAL SURFACE PARKING

SUB-GRADE PARKING:
281 STANDARD
07 ACCESSIBLE
02 VAN ACCESSIBLE
290 TOTAL SUB-GRADE PARKING

MINIMAL PARKING STALL REQUIREMENTS

STANDARD STALLS: 8'-0" W X 18'-0" L
9'-0" W X 18'-0" L (WHERE ADJ. TO WALL OR COLUMN)

ACCESSIBLE STALLS: 9'-0" W X 18'-0" L WITH 5'-0" ACCESS AISLE

VAN ACCESSIBLE STALLS: 9-0" W X 18'-0" L WITH 8'-0"ACCESS AISLE

**PARKING REQUIREMENTS SCOURED FROM SDMC*

SITE SPECIFIC WASTE MANAGEMENT

A SITE SPECIFIC WASTE MANAGEMENT PLAN COVERING PRE-CONSTRUCTION DEMOLITION, CONSTRUCTION, AND POST CONSTRUCTION USE AND INFORMATION ON ADEQUATE LANDFILL SPACE AVAILABLE TO SERVE THE SITE IS REQUIRED TO BE SUBMITTED BY THE APPLICANT AND APPROVED BY THE CITY'S ENVIRONMENTAL SERVICES DEPARTMENT, PRIOR TO OBTAINING ANY FUTURE DEVELOPMENT PERMITS.

IN ADDITION, THE PLAN SHOULD INCLUDE INFORMATION ON HOW THE PROJECT WOULD COMPLY WITH THE CITY'S WASTE MANAGEMENT AND RECYCLING ORDINANCES, AND STATE AND FEDERAL STATUTES.

SCREENING FROM PUBLIC VIEW

ALL MECHANICAL EQUIPMENT, TRASH STORAGE, SERVICE AREAS AND UTILITY APPURTENANCES, SHALL BE SCREENED FROM PUBLIC VIEW. SCREENING MAY INCLUDE WALLS AND LANDSCAPING.

SUSTAINABILITY

1. THE PROPOSED 3115 & 3215 BUILDINGS WILL BE LEED SILVER OR BETTER.

2. THE CONSERVATION ELEMENTS OF THE CITY'S GENERAL PLAN CONTAINS CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT GOALS & POLICIES WHICH EXCEED THE EXPECTATIONS OF THE SUSTAINABLE BUILDING EXPEDITE PROGRAM. SEE SHEET A1.2 FOR A LIST OF THE PROPOSED SUSTAINABLE, CLEAN & GREEN BUILDING DEVELOPMENT ELEMENTS BEING PROPOSED FOR THIS PROJECT.

HAZARDOUS MATERIALS

PROCESSING, MANUFACTURING, OR STORAGE OF BULK QUANTITIES OF HAZARDOUS MATERIALS (GREATER THAN 10,000 GALLONS) SHALL NOT BE PERMITTED ON THE PREMISES.

SHEET INDEX

ISSUE DATE	SHEET #	SHEET NAME
GENERAL INFORMATION		
09/27/17	G0.11	TITLE SHEET
CIVIL		
07/28/17	C2.1	GRADING PLAN
07/28/17	C2.2	GRADING PLAN
07/28/17	C2.3	GRADING PLAN
07/28/17	C3.1	UTILITY PLAN
07/28/17	C3.2	UTILITY PLAN
07/28/17	C3.3	UTILITY PLAN
07/28/17	C4.1	BMP SHEET
07/28/17	C4.2	BMP SHEET
07/28/17	C4.3	BMP SHEET
LANDSCAPE		
07/28/17	L0.1	LANDSCAPE DIAGRAM AND CALCUTIONS
07/28/17	L0.2	LANDSCAPE VIGNETTE
07/28/17	L0.3	BRUSH MANAGEMENT PLAN
07/28/17	L0.4	OVERALL CONCEPTUAL LANDSCAPE PLAN
07/28/17	L1.1	CONCEPTUAL LANDSCAPE PLAN
07/28/17	L1.2	CONCEPTUAL LANDSCAPE PLAN
ARCHITECTURE		
07/28/17	A1.0	EXISTING OVERALL SITE PLAN
07/28/17	A1.2	PROPOSED OVERALL SITE PLAN
07/28/17	A1.3	FIRE DEPARTMENT ACCESS PLAN
07/28/17	A2.0	CONCEPTUAL FLOOR PLANS
07/28/17	A2.1	CONCEPTUAL FLOOR PLANS
07/28/17	A2.2	CONCEPTUAL FLOOR PLANS
07/28/17	A2.3	CONCEPTUAL FLOOR PLANS
07/28/17	A2.4	CONCEPTUAL FLOOR PLANS
07/28/17	A2.5	CONCEPTUAL FLOOR PLANS
07/28/17	A2.6	CONCEPTUAL ROOF PLAN
07/28/17	A3.1	CONCEPTUAL ELEVATIONS
07/28/17	A4.1	SITE SECTIONS
07/28/17	A4.2	COASTAL HEIGHT COMPLIANCE
07/28/17	A4.3	COASTAL HEIGHT COMPLIANCE

APPLICABLE CODES

DESIGN AND CONSTRUCTION SHALL CONFORM TO ALL FEDERAL, STATE AND LOCAL BUILDING CODES AND ORDINANCES TO INCLUDE BUT NOT LIMITED TO THE MOST CURRENT VERSION OF THE FOLLOWING DOCUMENTS:

- 2016 CALIFORNIA BUILDING CODE (PART 2 OF TITLE 24)
- 2016 CALIFORNIA ELECTRIC CODE (PART 3 OF TITLE 24)
- 2016 CALIFORNIA MECHANICAL CODE (PART 4 OF TITLE 24)
- 2016 CALIFORNIA PLUMBING CODE (PART 5 OF TITLE 24)
- 2016 CALIFORNIA ENERGY CODE (PART 6 OF TITLE 24)
- 2016 CALIFORNIA ELEVATOR CODE (PART 7 OF TITLE 24)
- 2016 CALIFORNIA FIRE CODE (PART 9 OF TITLE 24)
- ACCESSIBILITY REGULATIONS AS PRESCRIBED BY THE 2016 CALIFORNIA BUILDING CODE, CHAPTER 11
- AMERICANS WITH DISABILITIES ACT GUIDELINES, AS AMENDED, 28 CFR PART 36 AND 36 CFR 1911.
- ALL LOCAL CODES AND ORDINANCES ADOPTED BY THE CITY OF SAN DIEGO.

GENERAL NOTES

1. PRIOR TO THE ISSUANCE OF ANY BUILDING PERMITS, THE OWNER/PERMITTEE SHALL ASSURE, BY PERMIT AND BOND, THE DESIGN AND CONSTRUCTION OF ANY NEW WATER AND SEWER SERVICE(S), IF REQUIRED, OUTSIDE OF ANY DRIVEWAY, AND THE DISCONNECTION AT THE MAIN OF THE EXISTING UNUSED WATER SERVICE ADJACENT TO THE PROJECT SITE, IN A MANNER SATISFACTORY TO THE DIRECTOR OF PUBLIC UTILITIES AND THE CITY ENGINEER.

2. PRIOR TO THE ISSUANCE OF ANY BUILDING PERMITS, THE OWNER/PERMITTEE SHALL APPLY FOR A PLUMBING PERMIT FOR THE INSTALLATION OF APPROPRIATE PRIVATE BACK FLOW PREVENTION DEVICE(S), ON EACH WATER SERVICE (DOMESTIC, FIRE AND IRRIGATION), IN A MANNER SATISFACTORY TO THE DIRECTOR OF PUBLIC UTILITIES AND THE CITY ENGINEER.

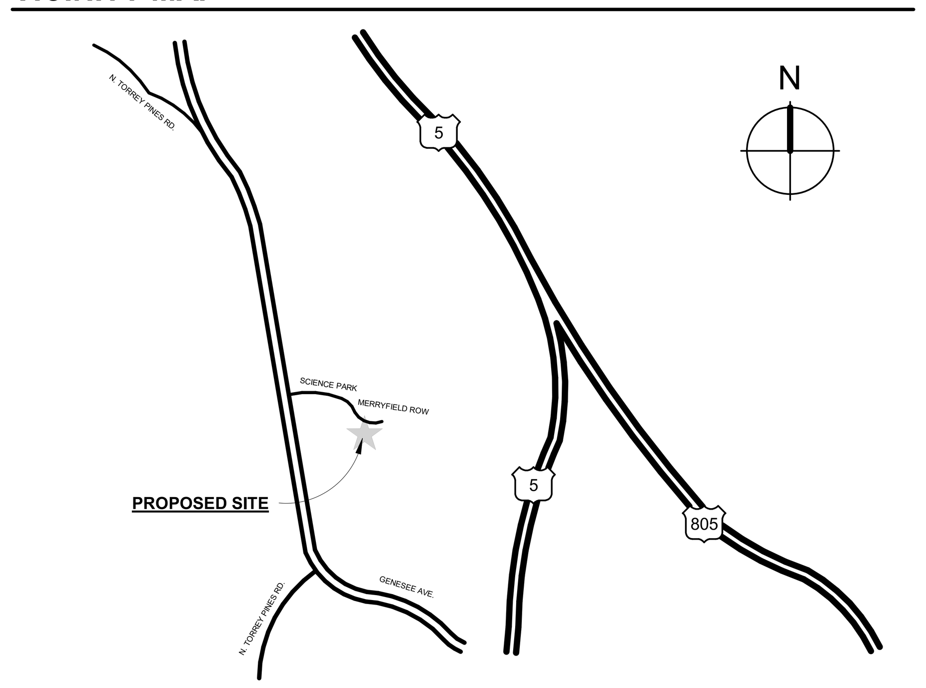
3. ALL ONSITE WATER AND SEWER FACILITIES WILL BE PRIVATE AND SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE CALIFORNIA UNIFORM PLUMBING CODE AND SHALL BE REVIEWED AS PART OF THE BUILDING PERMIT PLAN CHECK. IN ADDITION, THE DEVELOPER SHALL SUBMIT CALCULATIONS, SATISFACTORY TO THE DIRECTOR OF PUBLIC UTILITIES, FOR SIZING OF THE PROPOSED SEWER LATERAL FROM THE PROPERTY LINE TO ITS CONNECTION WITH THE PUBLIC SEWER MAIN.

4. NO TREES OR SHRUBS EXCEEDING THREE FEET IN HEIGHT AT MATURITY SHALL BE INSTALLED WITHIN TEN FEET OF ANY WATER AND SEWER FACILITIES.

5. PRIOR TO THE ISSUANCE OF ANY CERTIFICATED OF OCCUPANCY, ALL PUBLIC WATER AND SEWER FACILITIES SHALL BE COMPLETE AND OPERATIONAL IN A MANNER SATISFACTORY TO THE DIRECTOR OF PUBLIC UTILITIES AND THE CITY ENGINEER.

6. THE OWNER/PERMITTEE SHALL DESIGN AND CONSTRUCT ALL PROPOSED PUBLIC WATER AND SEWER FACILITIES IN ACCORDANCE WITH ESTABLISHED CRITERIA IN THE CURRENT EDITION OF THE CITY OF SAN DIEGO WATER FACILITY DESIGN GUIDELINES AND CITY REGULATIONS, STANDARDS AND PRACTICES.

VICINITY MAP



NOTE: THE ILLUSTRATIONS, GRAPHICS AND NOTES DEPICTED IN THIS DOCUMENT ARE CONCEPTUAL. THE INTENT OF THIS DOCUMENT IS TO PROVIDE THE GUIDELINES FOR DEVELOPMENT AND CONSTRUCTION OF FUTURE BUILDING(S) AND PARKING ON THIS SITE IN ACCORDANCE WITH THE REQUIREMENTS ESTABLISHED BY THE CITY OF SAN DIEGO MUNICIPAL CODE, COMMUNITY PLAN AND COASTAL DEVELOPMENT REGULATIONS, WHILE MAINTAINING THE FLEXIBILITY TO ADJUST WITHIN THE GUIDELINES ESTABLISHED, BASED ON THE PROGRAM NEEDS OF THE POTENTIAL TENANT.

LPA
p. 619.795.2555 f. 619.795.2552
w. lpainc.com e. lpa@lpainc.com
1600 National Ave
San Diego, California 92113

Draft for Consultant Coordination
09/21/17

SPECTRUM III & IV
SDP/CDP AMENDMENT AND PDP SUBMITTAL PACKAGE
3115 & 3215 MERRYFIELD ROW, SAN DIEGO, CA 92121

Submittal	Date
SDP/CDP AMENDMENT AND PDP PACKAGE SUBMITTAL	07/28/17
SDP/CDP AMENDMENT AND PDP PACKAGE RESUBMITTAL	09/27/17

Job. No.	15028.50
Date	09/27/17
Checked by	PD
Scale	NOT TO SCALE

TITLE SHEET

G0.11

Appendix K

City of San Diego Bicycle Master Plan

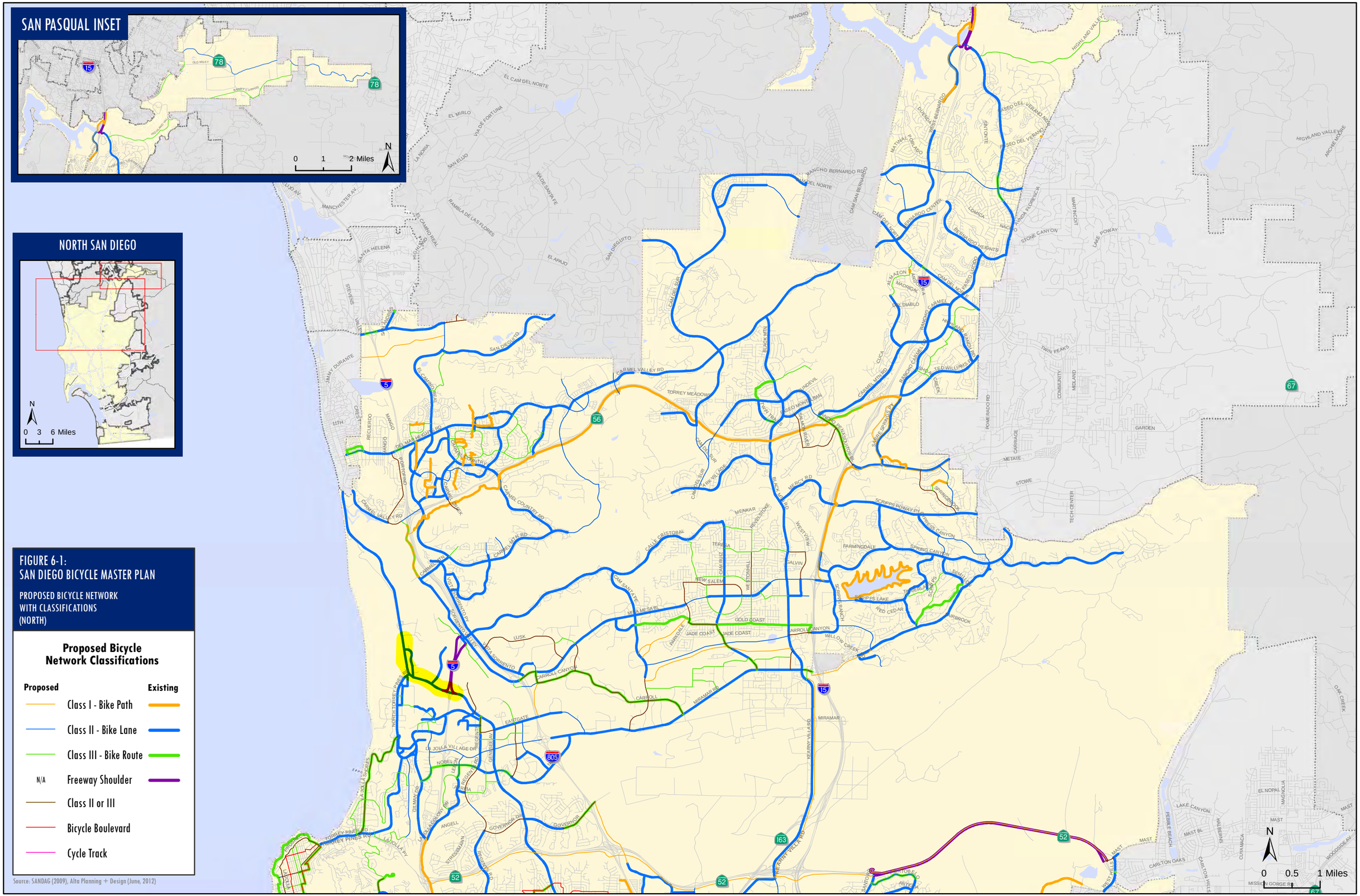
City of San Diego Bicycle Master Plan

San Diego, California

FINAL – Deceber 2013

PREPARED BY:
Alta Planning + Design
PREPARED FOR:
The City of San Diego

alta
PLANNING + DESIGN



Source: SANDAG (2009), Alta Planning + Design (June, 2012)

Appendix L

Summer 2017 Photos of I-5 / Genesee Interchange

Figure 1: Genesee Avenue – I-5 SB On-ramp (7/24/2017)

Figure 2: Genesee Avenue – I-5 SB Off-ramp (7/24/2017)

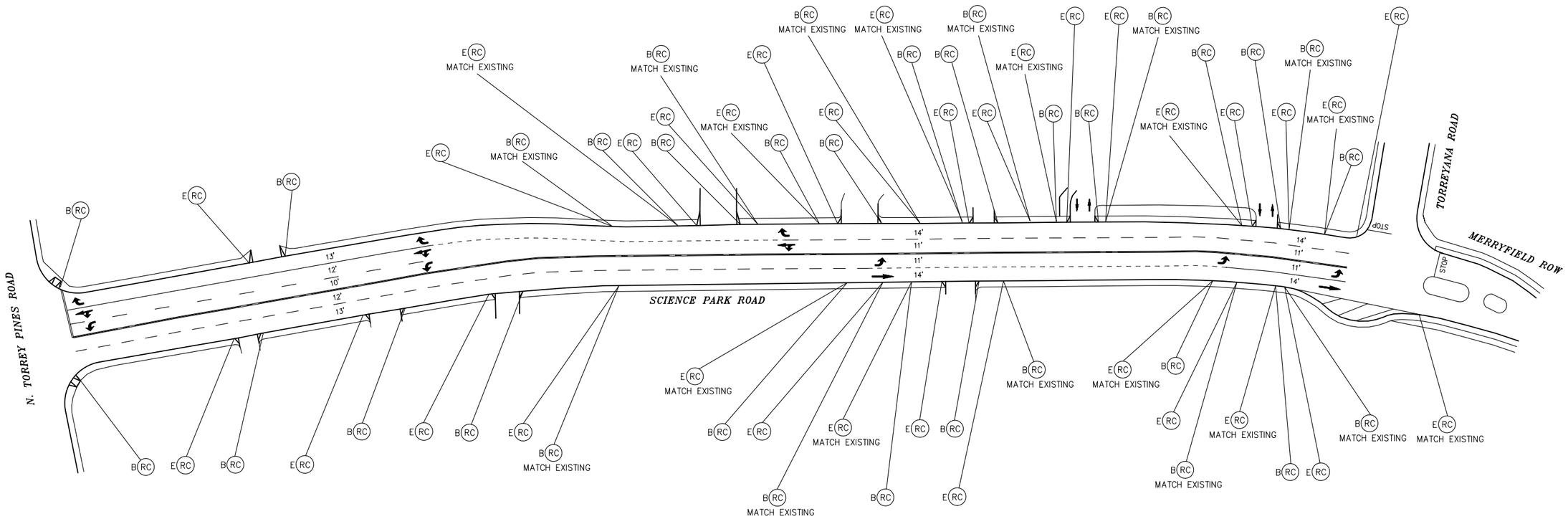
Figure 3: Genesee Avenue – I-5 NB On-ramp (7/24/2017)

Figure 4: Genesee Avenue – I-5 NB Off-ramp (7/24/2017)

Figure 5: Genesee Avenue – I-5 SB Ramps

Appendix M

Conceptual Striping Plan of Science Park Road



LEGEND

B RC = BEGIN RED CURB DETAIL

E RC = END RED CURB DETAIL

CONCEPTUAL STRIPING LAYOUT
FOR DISCUSSION PURPOSES ONLY.
PLAN DOES NOT REPRESENT
COMPLETED DESIGN

SCALE: 1"=60'
0 30 60

CONCEPTUAL STRIPING LAYOUT FOR:

Science Park Road

\\DISKSTATION\Projects\003117 Spectrum 3 (Phase 2)\Engineering Drawings_A\3117-PD-01_B.dwg Feb 22, 2018 CNorthcutt

Appendix N

City of San Diego's Climate Action Plan Consistency Checklist

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST INTRODUCTION

In December 2015, the City adopted a Climate Action Plan (CAP) that outlines the actions that City will undertake to achieve its proportional share of State greenhouse gas (GHG) emission reductions. The purpose of the Climate Action Plan Consistency Checklist (Checklist) is to, in conjunction with the CAP, provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to the California Environmental Quality Act (CEQA).[1]

Analysis of GHG emissions and potential climate change impacts from new development is required under CEQA. The CAP is a plan for the reduction of GHG emissions in accordance with CEQA Guidelines Section 15183.5. Pursuant to CEQA Guidelines Sections 15064(h)(3), 15130(d), and 15183(b), a project's incremental contribution to a cumulative GHG emissions effect may be determined not to be cumulatively considerable if it complies with the requirements of the CAP.

This Checklist is part of the CAP and contains measures that are required to be implemented on a project-by-project basis to ensure that the specified emissions targets identified in the CAP are achieved. Implementation of these measures would ensure that new development is consistent with the CAP's assumptions for relevant CAP strategies toward achieving the identified GHG reduction targets. Projects that are consistent with the CAP as determined through the use of this Checklist may rely on the CAP for the cumulative impacts analysis of GHG emissions. Projects that are not consistent with the CAP must prepare a comprehensive project-specific analysis of GHG emissions, including quantification of existing and projected GHG emissions and incorporation of the measures in this Checklist to the extent feasible. Cumulative GHG impacts would be significant for any project that is not consistent with the CAP.

The Checklist may be updated to incorporate new GHG reduction techniques or to comply with later amendments to the CAP or local, State, or federal law.

[1] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

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CAP CONSISTENCY CHECKLIST SUBMITTAL APPLICATION

- The Checklist is required only for projects subject to CEQA review.[2]
- If required, the Checklist must be included in the project submittal package. Application submittal procedures can be found in Chapter 11: Land Development Procedures of the City's Municipal Code.
- The requirements in the Checklist will be included in the project's conditions of approval.
- The applicant must provide an explanation of how the proposed project will implement the requirements described herein to the satisfaction of the Planning Department.

Application Information

Contact Information

Project No./Name: _____

Property Address: _____

Applicant Name/Co.: _____

Contact Phone: _____ Contact Email: _____

Was a consultant retained to complete this checklist? ☐ Yes ☐ No If Yes, complete the following

Consultant Name: _____ Contact Phone: _____

Company Name: _____ Contact Email: _____

Project Information

1. What is the size of the project (acres)? _____
2. Identify all applicable proposed land uses:
   - ☐ Residential (indicate # of single-family units): _____
   - ☐ Residential (indicate # of multi-family units): _____
   - ☐ Commercial (total square footage): _____
   - ☐ Industrial (total square footage): _____
   - ☐ Other (describe): _____
3. Is the project or a portion of the project located in a Transit Priority Area? ☐ Yes ☐ No
4. Provide a brief description of the project proposed:

[2] Certain projects seeking ministerial approval may be required to complete the Checklist. For example, projects in a Community Plan Implementation Overlay Zone may be required to use the Checklist to qualify for ministerial level review. See Supplemental Development Regulations in the project's community plan to determine applicability.

CAP CONSISTENCY CHECKLIST QUESTIONS

Step 1: Land Use Consistency

The first step in determining CAP consistency for discretionary development projects is to assess the project's consistency with the growth projections used in the development of the CAP. This section allows the City to determine a project's consistency with the land use assumptions used in the CAP.

Step 1: Land Use Consistency		
Checklist Item (Check the appropriate box and provide explanation and supporting documentation for your answer)	Yes	No
A. Is the proposed project consistent with the existing General Plan and Community Plan land use and zoning designations?;[3] OR, B. If the proposed project is not consistent with the existing land use plan and zoning designations, and includes a land use plan and/or zoning designation amendment, would the proposed amendment result in an increased density within a Transit Priority Area (TPA)[4] and implement CAP Strategy 3 actions, as determined in Step 3 to the satisfaction of the Development Services Department?; OR, C. If the proposed project is not consistent with the existing land use plan and zoning designations, does the project include a land use plan and/or zoning designation amendment that would result in an equivalent or less GHG-intensive project when compared to the existing designations?	☐	☐

If "***Yes***," proceed to Step 2 of the Checklist. For question B above, complete Step 3. For question C above, provide estimated project emissions under both existing and proposed designation(s) for comparison. Compare the maximum buildout of the existing designation and the maximum buildout of the proposed designation.

If "***No***," in accordance with the City's Significance Determination Thresholds, the project's GHG impact is significant. The project must nonetheless incorporate each of the measures identified in Step 2 to mitigate cumulative GHG emissions impacts unless the decision maker finds that a measure is infeasible in accordance with CEQA Guidelines Section 15091. Proceed and complete Step 2 of the Checklist.

[3] This question may also be answered in the affirmative if the project is consistent with SANDAG Series 12 growth projections, which were used to determine the CAP projections, as determined by the Planning Department.

[4] This category applies to all projects that answered in the affirmative to question 3 on the previous page: Is the project or a portion of the project located in a transit priority area.

Step 2: CAP Strategies Consistency

The second step of the CAP consistency review is to review and evaluate a project's consistency with the applicable strategies and actions of the CAP. Step 2 only applies to development projects that involve permits that would require a certificate of occupancy from the Building Official or projects comprised of one and two family dwellings or townhouses as defined in the California Residential Code and their accessory structures.[5] All other development projects that would not require a certificate of occupancy from the Building Official shall implement Best Management Practices for construction activities as set forth in the Greenbook (for public projects).

Step 2: CAP Strategies Consistency			
Checklist Item (Check the appropriate box and provide explanation for your answer)	Yes	No	N/A
Strategy 1: Energy & Water Efficient Buildings			
1. *Cool/Green Roofs*. • Would the project include roofing materials with a minimum 3-year aged solar reflection and thermal emittance or solar reflection index equal to or greater than the values specified in the voluntary measures under California Green Building Standards Code (Attachment A)?; OR • Would the project roof construction have a thermal mass over the roof membrane, including areas of vegetated (green) roofs, weighing at least 25 pounds per square foot as specified in the voluntary measures under California Green Building Standards Code?; OR • Would the project include a combination of the above two options? Check "N/A" only if the project does not include a roof component.	☐	☐	☐

[5] Actions that are not subject to Step 2 would include, for example: 1) discretionary map actions that do not propose specific development, 2) permits allowing wireless communication facilities, 3) special events permits, 4) use permits or other permits that do not result in the expansion or enlargement of a building (e.g., decks, garages, etc.), and 5) non-building infrastructure projects such as roads and pipelines. Because such actions would not result in new occupancy buildings from which GHG emissions reductions could be achieved, the items contained in Step 2 would not be applicable.

2. *Plumbing fixtures and fittings* With respect to plumbing fixtures or fittings provided as part of the project, would those low-flow fixtures/appliances be consistent with each of the following: Residential buildings: • Kitchen faucets: maximum flow rate not to exceed 1.5 gallons per minute at 60 psi; • Standard dishwashers: 4.25 gallons per cycle; • Compact dishwashers: 3.5 gallons per cycle; and • Clothes washers: water factor of 6 gallons per cubic feet of drum capacity? Nonresidential buildings: • Plumbing fixtures and fittings that do not exceed the maximum flow rate specified in Table A5.303.2.3.1 (voluntary measures) of the California Green Building Standards Code (See Attachment A); and • Appliances and fixtures for commercial applications that meet the provisions of Section A5.303.3 (voluntary measures) of the California Green Building Standards Code (See Attachment A)? Check "N/A" only if the project does not include any plumbing fixtures or fittings.	☐	☐	☐

Strategy 3: Bicycling, Walking, Transit & Land Use			
3. *Electric Vehicle Charging* • Multiple-family projects of 17 dwelling units or less: Would 3% of the total parking spaces required, or a minimum of one space, whichever is greater, be provided with a listed cabinet, box or enclosure connected to a conduit linking the parking spaces with the electrical service, in a manner approved by the building and safety official, to allow for the future installation of electric vehicle supply equipment to provide electric vehicle charging stations at such time as it is needed for use by residents? • Multiple-family projects of more than 17 dwelling units: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use by residents? • Non-residential projects: Of the total required listed cabinets, boxes or enclosures, would 50% have the necessary electric vehicle supply equipment installed to provide active electric vehicle charging stations ready for use? Check "N/A" only if the project is a single-family project or would not require the provision of listed cabinets, boxes, or enclosures connected to a conduit linking the parking spaces with electrical service, e.g., projects requiring fewer than 10 parking spaces.	☐	☐	☐

Strategy 3: Bicycling, Walking, Transit & Land Use (Complete this section if project includes non-residential or mixed uses)			
4. *Bicycle Parking Spaces* Would the project provide more short- and long-term bicycle parking spaces than required in the City's Municipal Code (Chapter 14, Article 2, Division 5)?[6] Check "N/A" only if the project is a residential project.	☐	☐	☐

[6] Non-portable bicycle corrals within 600 feet of project frontage can be counted towards the project's bicycle parking requirements.

5. *Shower facilities*

If the project includes nonresidential development that would accommodate over 10 tenant occupants (employees), would the project include changing/shower facilities in accordance with the voluntary measures under the California Green Building Standards Code as shown in the table below?

Number of Tenant Occupants (Employees)	Shower/Changing Facilities Required	Two-Tier (12" X 15" X 72") Personal Effects Lockers Required
0-10	0	0
11-50	1 shower stall	2
51-100	1 shower stall	3
101-200	1 shower stall	4
Over 200	1 shower stall plus 1 additional shower stall for each 200 additional tenant-occupants	1 two-tier locker plus 1 two-tier locker for each 50 additional tenant-occupants

Check "N/A" only if the project is a residential project, or if it does not include nonresidential development that would accommodate over 10 tenant occupants (employees).

☐ ☐ ☐

6. *Designated Parking Spaces*

If the project includes a nonresidential use in a TPA, would the project provide designated parking for a combination of low-emitting, fuel-efficient, and carpool/vanpool vehicles in accordance with the following table?

Number of Required Parking Spaces	Number of Designated Parking Spaces
0-9	0
10-25	2
26-50	4
51-75	6
76-100	9
101-150	11
151-200	18
201 and over	At least 10% of total

This measure does not cover electric vehicles. See Question 4 for electric vehicle parking requirements.

Note: Vehicles bearing Clean Air Vehicle stickers from expired HOV lane programs may be considered eligible for designated parking spaces. The required designated parking spaces are to be provided within the overall minimum parking requirement, not in addition to it.

Check "N/A" only if the project is a residential project, or if it does not include nonresidential use in a TPA.

☐	☐	☐

7. *Transportation Demand Management Program* If the project would accommodate over 50 tenant-occupants (employees), would it include a transportation demand management program that would be applicable to existing tenants and future tenants that includes: At least one of the following components: • Parking cash out program • Parking management plan that includes charging employees market-rate for single-occupancy vehicle parking and providing reserved, discounted, or free spaces for registered carpools or vanpools • Unbundled parking whereby parking spaces would be leased or sold separately from the rental or purchase fees for the development for the life of the development And at least three of the following components: • Commitment to maintaining an employer network in the SANDAG iCommute program and promoting its RideMatcher service to tenants/employees • On-site carsharing vehicle(s) or bikesharing • Flexible or alternative work hours • Telework program • Transit, carpool, and vanpool subsidies • Pre-tax deduction for transit or vanpool fares and bicycle commute costs • Access to services that reduce the need to drive, such as cafes, commercial stores, banks, post offices, restaurants, gyms, or childcare, either onsite or within 1,320 feet (1/4 mile) of the structure/use? Check "N/A" only if the project is a residential project or if it would not accommodate over 50 tenant-occupants (employees).	☐	☐	☐

Step 3: Project CAP Conformance Evaluation (if applicable)

The third step of the CAP consistency review only applies if Step 1 is answered in the affirmative under option B. The purpose of this step is to determine whether a project that is located in a TPA but that includes a land use plan and/or zoning designation amendment is nevertheless consistent with the assumptions in the CAP because it would implement CAP Strategy 3 actions. In general, a project that would result in a reduction in density inside a TPA would not be consistent with Strategy 3.The following questions must each be answered in the affirmative and fully explained.

1. **Would the proposed project implement the General Plan's City of Villages strategy in an identified Transit Priority Area (TPA) that will result in an increase in the capacity for transit-supportive residential and/or employment densities?**

   Considerations for this question:
   - Does the proposed land use and zoning designation associated with the project provide capacity for transit-supportive residential densities within the TPA?
   - Is the project site suitable to accommodate mixed-use village development, as defined in the General Plan, within the TPA?
   - Does the land use and zoning associated with the project increase the capacity for transit-supportive employment intensities within the TPA?

2. **Would the proposed project implement the General Plan's Mobility Element in Transit Priority Areas to increase the use of transit?**

   Considerations for this question:
   - Does the proposed project support/incorporate identified transit routes and stops/stations?
   - Does the project include transit priority measures?

3. **Would the proposed project implement pedestrian improvements in Transit Priority Areas to increase walking opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system provide multiple and direct pedestrian connections and accessibility to local activity centers (such as transit stations, schools, shopping centers, and libraries)?
   - Does the proposed project urban design include features for walkability to promote a transit supportive environment?

4. **Would the proposed project implement the City of San Diego's Bicycle Master Plan to increase bicycling opportunities?**

   Considerations for this question:
   - Does the proposed project circulation system include bicycle improvements consistent with the Bicycle Master Plan?
   - Does the overall project circulation system provide a balanced, multimodal, "complete streets" approach to accommodate mobility needs of all users?

5. **Would the proposed project incorporate implementation mechanisms that support Transit Oriented Development?**

   Considerations for this question:
   - Does the proposed project include new or expanded urban public spaces such as plazas, pocket parks, or urban greens in the TPA?
   - Does the land use and zoning associated with the proposed project increase the potential for jobs within the TPA?
   - Do the zoning/implementing regulations associated with the proposed project support the efficient use of parking through mechanisms such as: shared parking, parking districts, unbundled parking, reduced parking, paid or time-limited parking, etc.?

6. **Would the proposed project implement the Urban Forest Management Plan to increase urban tree canopy coverage?**

   Considerations for this question:
   - Does the proposed project provide at least three different species for the primary, secondary and accent trees in order to accommodate varying parkway widths?
   - Does the proposed project include policies or strategies for preserving existing trees?
   - Does the proposed project incorporate tree planting that will contribute to the City's 20% urban canopy tree coverage goal?

CLIMATE ACTION PLAN CONSISTENCY CHECKLIST
ATTACHMENT A

This attachment provides performance standards for applicable Climate Action Pan (CAP) Consistency Checklist measures.

Table 1 Roof Design Values for Question 1: Cool/Green Roofs supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan

Land Use Type	Roof Slope	Minimum 3-Year Aged Solar Reflectance	Thermal Emittance	Solar Reflective Index
Low-Rise Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
High-Rise Residential Buildings, Hotels and Motels	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16
Non-Residential	≤ 2:12	0.55	0.75	64
	> 2:12	0.20	0.75	16

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 residential and non-residential voluntary measures shown in Tables A4.106.5.1 and A5.106.11.2.2, respectively. Roof installation and verification shall occur in accordance with the CALGreen Code.

CALGreen does not include recommended values for low-rise residential buildings with roof slopes of ≤ 2:12 for San Diego's climate zones (7 and 10). Therefore, the values for climate zone 15 that covers Imperial County are adapted here.

Solar Reflectance Index (SRI) equal to or greater than the values specified in this table may be used as an alternative to compliance with the aged solar reflectance values and thermal emittance.

Table 2	Fixture Flow Rates for Non-Residential Buildings related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan
Fixture Type	**Maximum Flow Rate**
Showerheads	1.8 gpm @ 80 psi
Lavatory Faucets	0.35 gpm @60 psi
Kitchen Faucets	1.6 gpm @ 60 psi
Wash Fountains	1.6 [rim space(in.)/20 gpm @ 60 psi]
Metering Faucets	0.18 gallons/cycle
Metering Faucets for Wash Fountains	0.18 [rim space(in.)/20 gpm @ 60 psi]
Gravity Tank-type Water Closets	1.12 gallons/flush
Flushometer Tank Water Closets	1.12 gallons/flush
Flushometer Valve Water Closets	1.12 gallons/flush
Electromechanical Hydraulic Water Closets	1.12 gallons/flush
Urinals	0.5 gallons/flush

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Tables A5.303.2.3.1 and A5.106.11.2.2, respectively. See the California Plumbing Code for definitions of each fixture type.

Where complying faucets are unavailable, aerators rated at 0.35 gpm or other means may be used to achieve reduction.

Acronyms:
gpm = gallons per minute
psi = pounds per square inch (unit of pressure)
in. = inch

Table 3	**Standards for Appliances and Fixtures for Commercial Application related to Question 2: Plumbing Fixtures and Fittings supporting Strategy 1: Energy & Water Efficient Buildings of the Climate Action Plan**	
Appliance/Fixture Type	Standard	
Clothes Washers	Maximum Water Factor (WF) that will reduce the use of water by 10 percent below the California Energy Commissions' WF standards for commercial clothes washers located in Title 20 of the *California Code of Regulations*.	
Conveyor-type Dishwashers	0.70 maximum gallons per rack (2.6 L) (High-Temperature)	0.62 maximum gallons per rack (4.4 L) (Chemical)
Door-type Dishwashers	0.95 maximum gallons per rack (3.6 L) (High-Temperature)	1.16 maximum gallons per rack (2.6 L) (Chemical)
Undercounter-type Dishwashers	0.90 maximum gallons per rack (3.4 L) (High-Temperature)	0.98 maximum gallons per rack (3.7 L) (Chemical)
Combination Ovens	Consume no more than 10 gallons per hour (38 L/h) in the full operational mode.	
Commercial Pre-rinse Spray Valves (manufactured on or after January 1, 2006)	Function at equal to or less than 1.6 gallons per minute (0.10 L/s) at 60 psi (414 kPa) and • Be capable of cleaning 60 plates in an average time of not more than 30 seconds per plate. • Be equipped with an integral automatic shutoff. • Operate at static pressure of at least 30 psi (207 kPa) when designed for a flow rate of 1.3 gallons per minute (0.08 L/s) or less.	

Source: Adapted from the California Green Building Standards Code (CALGreen) Tier 1 non-residential voluntary measures shown in Section A5.303.3. See the California Plumbing Code for definitions of each appliance/fixture type.

Acronyms:
L = liter
L/h = liters per hour
L/s = liters per second
psi = pounds per square inch (unit of pressure)
kPa = kilopascal (unit of pressure)

URBAN SYSTEMS ASSOCIATES, INC.
PLANNING & TRAFFIC ENGINEERING, MARKETING & PROJECT SUPPORT
CONSULTANTS TO INDUSTRY AND GOVERNMENT

May 24, 2018

Jeff Peterson
City of San Diego
1222 First Avenue, MS 501
San Diego, CA 92101

E-Mail:JAPeterson@Sandiego.gov

RE: Spectrum 3 TIA Impacts and Mitigation

Dear Neil:

As you know, we recently completed a Focused Transportation Study for the Spectrum 3 project in the City of San Diego. This letter is intended to expand on the conclusions of the Focused Transportation Study in order to clarify the status of a specific mitigation measure which was carried over from a previous Environmental Impact Report.

As you know, the La Jolla Spectrum project was originally approved with an EIR dated February 24, 1992. The document number is 89-0269. That EIR determined that there were several impacts from the Spectrum project which required mitigation. One mitigation measure remains incomplete and has been carried over as a condition of the previous Spectrum 3&4 project as well as the current Spectrum 3 project. This mitigation measure is discussed on page 3 of the attached copy of the EIR and concerns the restriction of parking on Science Park Road "east of the intersection improvement, to Torreyana Road" in order to restripe to four lanes. This improvement was based on impacts disclosed in the original EIR for the project. As referenced in the traffic study, this impact and mitigation were also included as Condition No. 26 in CDP/HRP/PID 89-0269 as a condition of approval. As stated, this is neither a new impact nor is it new mitigation and has been known since at least 1992 as documented in the attached EIR.

Based on a review of the conclusions of the original EIR as well as the history of previous work on the Spectrum 3 site, all impacts and mitigation discussed in the updated Focused Transportation Study are consistent with and were previously disclosed and mitigation identified in the original EIR. No new impacts or mitigation have been discovered.

Please let me know if you have any questions.

Justin P. Schlaefli

Justin Schlaefli, PE, TE, PTOE

CC: Leo Alo; Morgan Dresser

8451 Miralani Drive, Suite A • San Diego, CA 92126 • (858) 560-4911

HALEY & ALDRICH, INC.
5333 Mission Center Road
Suite 300
San Diego, CA 92108
603.280.9210

27 September 2017
File No. 130385-002

Eric Jones
AIA / NCARB / LEED AP BD+C
LPA, Inc.
1600 National Avenue
San Diego, California 92113

Subject: Spectrum 3 - Addendum to Greenhouse Gas Analysis
3115 Merryfield Row
San Diego, California 92121

Dear Mr. Jones:

Haley & Aldrich, Inc., (Haley & Aldrich) is pleased to submit this Addendum to the *Greenhouse Gas (GHG) Analysis for the Spectrum 3 and 4, 3115 and 3215 Merryfield Row Project, San Diego California* (February 23, 2016) prepared by RECON Environmental, Inc. (RECON) proposal for LPA, Inc. (LPA), referred to herein as the 2016 GHG Analysis. This report was relied upon for the City of San Diego's Mitigated Negative Determination (MND) for the Spectrum III & IV Project (MND Project#422478) finalized on August 12, 2016. After the MND was issued, LPA proposed an increase to the previously entitled Spectrum 3 building located at 3115 Merryfield Row, San Diego, California. Specifically, LPA proposes to increase the square footage (sf) from 57,372 sf to 118,931 sf through the transfer of unused entitlements on Spectrum 1 & 2 and the Callan property. This addendum updates the emissions calculated in the 2016 GHG Analysis to address the incremental increase in GHG emissions from the proposed increase, and compares overall emissions of the Spectrum III & IV project to interim Thresholds of Significance under the California Environmental Quality Act (CEQA). In order for the evaluated emissions to be compared on an equivalent basis to those evaluated in the 2016 GHG Analysis, this addendum incorporates the assumptions and analysis methodology used in the 2016 GHG Report.

Regulatory Background

When the Spectrum 3&4 project was approved in 2016, the City of San Diego did not have an adopted greenhouse gas (GHG) Threshold of Significance for screening under the California Environmental Quality Act (CEQA). Therefore, the City of San Diego utilized the California Air Pollution Control Officers Association (CAPCOA) report "CEQA & Climate Change" dated January 2008 as an interim threshold to determine whether a GHG analysis would be required. The CAPCOA report referenced a 900-metric ton guideline as a conservative threshold for requiring further analysis. Therefore, the 900-metric ton threshold was been used by the City of San Diego to determine whether GHG emissions from the previously approved project were significant. This emission level was based on the amount of vehicle trips, electricity generation, natural gas consumption/combustion, water usage, and solid waste

generation. In addition, construction emissions are calculated, amortized over 30 years then added to the project's operational emissions.

Based on the size of the initial project, the a GHG emissions analysis was prepared to quantify potential project emissions and compare them to the interim threshold. The 2016 GHG Analysis was relied upon for the Spectrum III & IV MND. As described in the study, GHG emission estimates were made for the five primary sources of GHG emissions associated with additional development vehicular traffic on area roadways, electricity generation, natural gas consumption/combustion, water usage, and solid waste generation. Emissions were calculated for two scenarios: (1) existing baseline Conditions and (2) the proposed project. The results of the study indicated that the project would result in a net of about 540 metric tons of carbon dioxide equivalent (CO_2e) emission per year over the existing land uses, which is below the screening criteria. Accordingly, GHG emissions were identified as less than significant in the project's MND.

Analysis Methodology

While newly proposed projects are now evaluated using the City's Climate Action Plan (CAP) checklist, this addendum evaluates the incremental increases in project emissions sources including construction (off-road, hauling, and worker commute vehicles), mobile (on-road vehicles from project operation), area (fireplaces, consumer products [e.g., cleansers, aerosols, solvents], landscape maintenance equipment, warehouse equipment, architectural coatings), energy, water and wastewater, and solid waste sources based on the analysis used for the 2016 project. This was done in order to evaluate the proposed increase based on the methodology that was in place at the time of the approval. Therefore, to evaluate the project's GHG emissions, emissions were calculated using the CAPCOA California Emissions Estimator Model, version 2013.2.2 (CalEEMod). Although a newer version of CalEEMod is now available, to ensure that the incremental increases are compared to previously evaluated impacts on an equivalent basis, version 2013.2.2 was identified as most appropriate for this addendum report.

The previously reviewed project included demolition of the 79,759-square foot building that was located at 3115 Merryfield Row and the 76,894-square-foot building that was located at 3215 Merryfield Row. New construction on 3115 Merryfield was to include a new 57,372 square foot Research and Development (R&D) building with 148 sub-grade parking spaces and new construction on 3215 Merryfield Row was to include a new 145,828-square-foot R&D building with 290 sub-grade parking spaces and associated facilities.

The currently proposed project involves construction of a new 118,931 square foot R&D building at 3115 Merryfield Row with 290 sub-grade parking spaces (approximately 25,512 square feet below grade) in place of the previously reviewed building, for a net increase in 61,559 square feet of R&D building at 3115 Merryfield Row. No changes to the previously reviewed construction at 3215 Merryfield Row are proposed. The combined project will total 264,759 square feet of R&D building, and include 587 sub-grade parking spaces (approximately 44,201 square feet below grade).

This proposed project will be constructed in two phases. Phase 1 will consist of the demolition of the existing building at 3215 Merryfield Row and the construction of Building B. Phase 1 is expected to be

completed and fully occupied in November 2017. By the end of Phase 1, the existing building at 3115 Merryfield Row will be demolished or in the process of demolition. Phase 2 will consist of the construction of Building A which will replace the existing building at 3115 Merryfield Row. Phase 2 is expected to be complete and occupied in late 2018, or early 2019. Phase 2 is the first phase which would experience a net increase in trips under the proposed modifications. For purposes of this incremental analysis, the construction phase as previously proposed will be considered complete, including all demolition, site preparation, and grading. Phase 2 construction will consist of building construction, architectural coating, and paving.

This analysis evaluates the project emissions in the year 2020 to parallel the year of the state GHG reduction goals. The analysis methodology and input data are described in the following sections. Where project-specific data was not available, model inputs were based on information provided in the CalEEMod User's Guide[1]. Attachment 1 includes the complete CalEEMod output files for this addendum.

CONSTRUCTION EMISSIONS

Construction-related activities are temporary, short-term sources of GHG emissions. Sources of construction-related air emissions include: construction equipment exhaust; construction-related trips by workers, delivery trucks, and material-hauling trucks; and construction-related power consumption.

Using CalEEMod, GHG emissions associated with each phase of project construction are calculated by multiplying the total fuel consumed by the construction equipment and worker trips by applicable emission factors. All estimates of the required construction activities and equipment are based on surveys performed by the South Coast Air Quality Management District (SCAQMD) and the Sacramento Metropolitan Air Quality Management District of typical construction projects; project schedule and equipment needs have been scaled based on project's size. For the purposes of this incremental analysis, the construction phase as previously proposed will be considered complete, including all demolition, site preparation, and grading. Phase 2 construction will consist of a duplicate building construction, architectural coating, and paving phases. For construction related mobile emission, Phase 1 construction trips were in CalEEMod to match those in the 2016 GHG Analysis. Phase 2 construction trips for construction and architectural coating were set as a second phase equivalent to the first. This avoids basing Phase 2 construction trips on the combined size of both phases, which would be an over-estimation.
Construction emissions are calculated for each year of construction activity based on the construction equipment profile and other factors determined as needed to complete all phases of construction by the target completion year. As such, each year has varying quantities of GHG emissions. However, total project construction GHG emissions were amortized over 30 years, the approximate lifetime of a project, and added to operational emissions in order to provide annual emission rate over the lifetime of a project.

[1] California Air Pollution Control Officers Association (CAPCOA), 2013 California Emissions Estimator model (CalEEMod). User's Guide Version 2013.2.2. September.

MOBILE EMISSIONS

Mobile source GHG emissions are generated by the combustion of fossil fuels in vehicle engines. Vehicle emissions are estimated by multiplying the trip rate, trip length, vehicle emission factors. Under the 2016 GHG Analysis, existing uses at the site were assumed to have generated 1,250 trips per day and the previously proposed project would have generated 1,626 trips per day (Urban Systems, Inc., 2017). The currently proposed project is expected to increase the average trips per day by 203, for a conservative total of 1,829 tips per day.

An average regional trip length of 5.8 miles for urban areas was used to determine vehicle miles traveled based on SANDAG regional data[2]. To remain consistent with the 2016 GHG Analysis, vehicle emissions were modeled using vehicle emission factors from CARB's Emission Factors 2011 model (EMFAC2011). Vehicle emission factors include GHG reducing effects from the implementation of Pavley I (Clean Car Standards) and the LCFS. The emissions from mobile sources would be further reduced by the implementation of LEV III and Tire Pressure Program (County of San Diego 2013). However, emissions estimates do not account for reductions from LEV III and the Tire Pressure Program. Thus, estimates are considered conservative.

The project will achieve LEED Silver or better. Currently proposed sustainability measures relating to mobile emissions include encouraging bicycling, low emission vehicles (LEVs), and carpooling. Measures to encourage bicycling include installing bicycle racks, and providing shower and changing facilities. Measures to encourage LEV use include providing preferred parking for low emission vehicles or providing alternative-fuel refueling stations. Measures to encourage carpooling include limiting parking supply and designating preferred parking for carpool and vanpools. Although sustainability measures used for LEED compliance would reduce the projects' mobile source emissions, they are conceptual and exact reductions are speculative. Therefore, mobile source emissions were modeled without accounting for these sustainability measures and are considered conservative.

ENERGY USE EMISSIONS

Within the Energy Use category, GHGs are emitted as a result of activities in buildings for which electricity and natural gas are used as energy sources. GHGs are generated during the generation of electricity from fossil fuels off-site in power plants. Because they are generated off-site, these emissions are considered indirect, but are calculated in association with a building's operation. GHGs are also generated directly through combustion of natural gas.

Building energy use is typically divided into energy consumed by the built environment and energy consumed by uses that are independent of the construction of the building such as plug-in appliances. In California, the Energy Code governs energy consumed by the built environment, mechanical systems,

[2] San Diego Association of Governments (SANDAG) 2014 Correspondence with RECON and SANDAG on 03/20/14 confirming the urban regional trip length of 5.8 miles derived from Series 12 base year (2008) model, as referenced in the 2016 GHG Analysis

and some types of fixed lighting. Non-building energy use, or "plug-in energy use," can be further subdivided by specific end-use (refrigeration, cooking, office equipment, etc.).

Energy use values were calculated in CalEEMod and are based on energy values from 2016 GHG Analysis, which were based on the CEC-sponsored California Commercial End Use Survey, which identifies energy use by building type and climate zone. By default, CalEEMod version 2013.2.2 estimates energy emission assuming compliance with the 2008 Energy Code. Emissions evaluated in the 2016 GHG Analysis assumed that land use changes would be subject to the 2013 Energy Code. To account for compliance with the 2013 Energy Code, CalEEMod electricity use assumptions were reduced 21.8 percent to account for the increase in electrical efficiency and a 16.8 percent reduction was applied natural gas emissions to account increase in natural gas efficiency[3]. Although the 2016 Energy Code is now available, to allow for equivalent comparison of the proposed increase in GHG emissions, no changes to these energy efficiency assumptions were made.

The electricity supplier for the project site is San Diego Gas & Electric (SDG&E). The 2016 GHG Analysis used projected 2020 energy-intensity factors for SDG&E are based on the California Climate Action Registry's (CCAR) emission factors for SDG&E[4] and CPUC reports assessing SDG&E's renewables portfolio[5]. Reductions from compliance with Renewables Portfolio Strategy were incorporated using linear interpolation. Resulting projected energy-intensity factors are shown in Table 5 of the 2016 GHG Analysis. Although updated data is now available, to allow for equivalent comparison of the proposed increase in GHG emissions, no changes to these energy intensity factors were made for this addendum.

AREA SOURCE EMISSIONS

Typical area sources include GHG emissions that would occur from the use of fireplaces and landscaping equipment, as well as from the use of consumer products and architectural coatings. The project does not include any fireplaces. The use of landscape equipment emits GHGs associated with the equipment's fuel combustion. The landscaping equipment values used in the 2016 GHG Analysis were derived from the 2011 In-Use Off-Road Equipment Inventory Model (CARB 2011). Although updated data is now available, to allow for equivalent comparison of the proposed increase in GHG emissions, no changes to these values were made for this addendum.

WATER AND WASTEWATER EMISSIONS

The amount of water used and wastewater generated by a project has indirect GHG emissions associated with it. These emissions are a result of the energy used to supply, distribute, and treat water and wastewater. In addition to the indirect GHG emissions associated with energy use, wastewater treatment can directly emit both methane (CH_4) and nitrous oxide (N_2O).

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[3] California Energy Commission (CEC). 2013 Impact Analysis California's 2013 Building Energy Efficiency Standards. July.
[4] California Climate Action Registry (CCAR). 2011 2009 Annual Emissions Report San Diego Gas & Electric.
[5] California Public Utilities Commission (CPUC). 2014 Biennial RPS Program Update In Compliance with Public Utilities Code Section 399.19. February.

GHG emissions associated with supplying and treating the water and wastewater are calculated for this project based on the indoor and outdoor water use consumption data for each land use subtype, which comes from the Pacific Institute's Waste Not, Want Not: The Potential for Urban Water Conservation in California 2003[6]. Based on that report, a percentage of total water consumption was dedicated to landscape irrigation. This percentage was used to determine outdoor water use. Wastewater generation was similarly based on a reported percentage of total indoor water use. Indoor water efficiency measures equal to or greater than those in City Council Policy 900-14—Green Building Policy, are required by 2013 CalGreen (effectively a 20 percent reduction in indoor water use from baseline levels). Thus, modeling only accounts for the requirements of 2013 CalGreen. To allow for equivalent comparison of the proposed increase in GHG emissions, no changes to these values were made for this addendum.

SOLID WASTE EMISSIONS

The disposal of solid waste produces GHG emissions from anaerobic decomposition in landfills, incineration, and transportation of waste. To calculate the GHG emissions generated by disposing of solid waste for the project, the total volume of solid waste was calculated using waste disposal rates identified by California Department of Resources Recycling and Recovery. The methods for quantifying GHG emissions from solid waste are based on the I method, using the degradable organic content of waste. GHG emissions associated with the project's waste disposal were calculated using these parameters.

GHG Impact Analysis

In accordance with CEQA and the City of San Diego guidelines, this analysis evaluates the significance of the project in terms of (1) its contribution of GHGs to cumulative statewide emissions, and (2) its consistency with local and state regulations, plans, and policies aimed at reducing GHG emissions.

GHG EMISSIONS

Would the project generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Based on the methodology summarized above, the primary sources of direct and indirect GHG emissions have been calculated. Table 1 summarizes the project emissions, the previously proposed project emissions, and the emissions of the buildings that existing before this project was undertaken. Emissions are presented in metric tons of CO_2e (Mt CO_2e).

Table 1. Existing, Previously Proposed, and Currently Proposed GHG Emission in 2020 (Mt CO_2e)

[6] California Greenhouse Gas Inventory for 2000 – 2011 – by Category as Defined in the 2008 Scoping Plan. Last updated August 1, 2013. As referenced in 2016 GHG Analysis.

Emission Source	Existing Emissions	Previously Proposed Emissions	Currently Proposed Emissions	Net Change from Existing Emissions	Net Change from Previously Proposed Emissions
Vehicles	672	872	992	320	120
Energy Use	464	774	785	321	11
Area Sources	<1	<1	<1	0	0
Water Use	342	346	451	109	105
Solid Waste Disposal	5	7	9	4	2
Construction	0	25	45	45	20
Total Project	1,483	2,023	2,282	799	258

Source: CalEEMod, version 2013.2.2 (Attachment 1)
Note: Totals may vary due to independent rounding.

As shown in Table 1, the previously existing on-site uses that would be replaced by the project are estimated to result in the generation of 1,483 Mt CO_2e annually. New uses proposed by the project are estimated to result in the emission of 2,282 Mt CO_2e annually. Therefore, the project would result in a net increase of GHG emissions of approximately 799 Mt CO_2e over the existing land uses in 2020. This result is below the 900 Mt CO_2e interim CEQA Threshold of Significance and represents an incremental increase of 258 Mt CO2e over previously proposed emissions.

CONSISTENCY WITH ADOPTED PLANS, POLICIES, AND REGULATIONS

Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of GHGs?

As identified in the MND, applicable plans for the purposes of reducing GHG emissions include the City of San Diego's Climate Action Plan (CAP), the City's General Plan, the University Community Plan, and the State Scoping Plan. Project design features such as the allocation of parking spaces for bicycle storage and carpool and zero emission vehicles would promote the use of alternative modes of transportation. The project would be subject to state regulations including the 2016 Energy Code and 2016 California Green Building Standards and local regulations including the City Refuse and Recyclable Materials Storage Regulations, Recycling Ordinance, and the C&D Debris Deposit Ordinance. These regulations would require the project to be energy and water efficient and reduce waste. In addition, the project would consist of infill development located in close proximity to public transit, which, by nature, would result in reduced vehicle miles travels and associated GHG emissions. As such, the proposed project would be consistent with the overall goals and strategies of local and state plans, policies, and regulations aimed at reducing GHG emissions from land development. The size of the incremental increase in proposed project emissions is not large enough to affect the determination made in the MND that impacts would be less than significant.

Conclusion

The magnitude of the incremental increase in proposed project emissions is not large enough to affect the determinations made in the MND that impacts would be less than significant with regards to GHG emissions and consistency with applicable policies, plans and regulations.

We appreciate the opportunity to provide this addendum to the 2016 GHG Analysis. Please feel free to contact Robert Kallin with any questions.

Sincerely yours,
HALEY & ALDRICH, INC.

Robert L. Kallin
Technical Specialist

Attachment
CalEEMod Output Files

C:\Users\lunverzagt\Desktop\Spectrum\2017-0925-HAI-Spectrum 3 GHG Addendum_D1.docx

Attachment 1

CalEEMod Output Files

Spectrum 3 & 4 - Proposed Project 2020 Emissions

San Diego Air Basin, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Research & Development	264.76	1000sqft	6.08	264,759.00	0
Enclosed Parking with Elevator	587.00	Space	1.01	44,201.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2020
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	539.36	**CH4 Intensity (lb/MWhr)**	0.022	**N2O Intensity (lb/MWhr)**	0.005

1.3 User Entered Comments & Non-Default Data

Project Characteristics - GHG intensity factors set to match 2016 GHG Analysis

Land Use - Land size and type set to match proposed buildout

Construction Phase - Phase 1 construction schedule set to match 2016 GHG Analysis
Phase 2 construction schedule to include construction, coating, and paving of proposed building.

Grading - Material imported set to match 2016 GHG Analysis

Architectural Coating - Coating VOC set to match 2016 GHG Analysis

Vehicle Trips - Workday trip rate set to match traffic study impacts

Area Coating - Coating VOC set to match 2016 GHG Analysis

Energy Use - Natural gas and electric entergy intensity factors set to match 2016 GHG Analysis

Area Mitigation -

Demolition - Demolition square footage set to match 2016 GHG Analysis

Trips and VMT - Phase 1 construction trips set to match 2016 GHG Analysis
Phase 2 construction trips for construction and architectural coating set as a second phase equivalent to the first.

Water Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Exterior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblArchitecturalCoating	EF_Nonresidential_Interior	250.00	150.00
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	150
tblAreaCoating	Area_EF_Nonresidential_Interior	250	150
tblConstructionPhase	NumDays	20.00	230.00
tblConstructionPhase	NumDays	300.00	230.00
tblConstructionPhase	NumDays	30.00	20.00
tblConstructionPhase	NumDays	300.00	230.00
tblConstructionPhase	NumDays	20.00	230.00
tblConstructionPhase	NumDays	20.00	18.00
tblConstructionPhase	PhaseEndDate	12/14/2017	1/26/2017

tblConstructionPhase	PhaseEndDate	1/11/2018	9/18/2018
tblConstructionPhase	PhaseEndDate	8/6/2019	9/18/2018
tblConstructionPhase	PhaseStartDate	1/27/2017	3/11/2016
tblConstructionPhase	PhaseStartDate	2/24/2017	11/1/2017
tblConstructionPhase	PhaseStartDate	9/19/2018	11/1/2017
tblEnergyUse	T24E	1.48	1.16
tblEnergyUse	T24E	3.92	3.07
tblEnergyUse	T24NG	4.54	3.78
tblGrading	AcresOfGrading	50.00	10.00
tblGrading	MaterialImported	0.00	10,507.00
tblLandUse	LandUseSquareFeet	264,760.00	264,759.00
tblLandUse	LandUseSquareFeet	234,800.00	44,201.00
tblLandUse	LotAcreage	5.28	1.01
tblProjectCharacteristics	CH4IntensityFactor	0.029	0.022
tblProjectCharacteristics	CO2IntensityFactor	720.49	539.36
tblProjectCharacteristics	N2OIntensityFactor	0.006	0.005
tblProjectCharacteristics	OperationalYear	2014	2020
tblTripsAndVMT	HaulingTripNumber	0.00	1,313.00
tblTripsAndVMT	VendorTripNumber	82.00	58.00
tblTripsAndVMT	VendorTripNumber	82.00	58.00
tblTripsAndVMT	WorkerTripNumber	20.00	15.00
tblTripsAndVMT	WorkerTripNumber	183.00	129.00
tblTripsAndVMT	WorkerTripNumber	37.00	26.00
tblTripsAndVMT	WorkerTripNumber	37.00	26.00
tblTripsAndVMT	WorkerTripNumber	183.00	129.00
tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CC_TL	7.30	5.80
tblVehicleTrips	CNW_TL	7.30	5.80

tblVehicleTrips	CNW_TL	7.30	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	CW_TL	9.50	5.80
tblVehicleTrips	WD_TR	8.11	6.91

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	3.8584	5.6000	4.9163	7.9500e-003	0.3412	0.3141	0.6553	0.1335	0.2950	0.4285	0.0000	698.1509	698.1509	0.1077	0.0000	700.4127
2017	1.0959	1.2667	1.1926	2.0600e-003	0.0514	0.0745	0.1260	0.0139	0.0701	0.0840	0.0000	176.5811	176.5811	0.0275	0.0000	177.1596
2018	3.2101	2.9995	3.1286	5.7100e-003	0.1526	0.1694	0.3220	0.0413	0.1598	0.2010	0.0000	477.7733	477.7733	0.0680	0.0000	479.2007
Total	**8.1644**	**9.8662**	**9.2375**	**0.0157**	**0.5452**	**0.5580**	**1.1032**	**0.1887**	**0.5248**	**0.7135**	**0.0000**	**1,352.5053**	**1,352.5053**	**0.2032**	**0.0000**	**1,356.7730**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	3.8584	5.6000	4.9162	7.9500e-003	0.3412	0.3141	0.6553	0.1335	0.2950	0.4285	0.0000	698.1504	698.1504	0.1077	0.0000	700.4123
2017	1.0959	1.2667	1.1926	2.0600e-003	0.0514	0.0745	0.1260	0.0139	0.0701	0.0840	0.0000	176.5810	176.5810	0.0275	0.0000	177.1594
2018	3.2101	2.9995	3.1286	5.7100e-003	0.1526	0.1694	0.3220	0.0413	0.1598	0.2010	0.0000	477.7730	477.7730	0.0680	0.0000	479.2004
Total	**8.1644**	**9.8662**	**9.2375**	**0.0157**	**0.5452**	**0.5580**	**1.1032**	**0.1887**	**0.5248**	**0.7135**	**0.0000**	**1,352.5044**	**1,352.5044**	**0.2032**	**0.0000**	**1,356.7721**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5547	7.0000e-005	7.8800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0152	0.0152	4.0000e-005	0.0000	0.0161
Energy	0.0158	0.1432	0.1203	8.6000e-004		0.0109	0.0109		0.0109	0.0109	0.0000	781.7621	781.7621	0.0285	8.6600e-003	785.0454
Mobile	0.6778	1.1908	5.9961	0.0143	0.9674	0.0169	0.9843	0.2587	0.0156	0.2743	0.0000	991.0181	991.0181	0.0397	0.0000	991.8525
Waste						0.0000	0.0000		0.0000	0.0000	4.0842	0.0000	4.0842	0.2414	0.0000	9.1529
Water						0.0000	0.0000		0.0000	0.0000	41.3004	414.7019	456.0023	4.2589	0.1040	577.6802
Total	**2.2483**	**1.3340**	**6.1242**	**0.0151**	**0.9674**	**0.0278**	**0.9952**	**0.2587**	**0.0265**	**0.2852**	**45.3846**	**2,187.4973**	**2,232.8819**	**4.5685**	**0.1127**	**2,363.7471**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	1.5547	7.0000e-005	7.8800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0152	0.0152	4.0000e-005	0.0000	0.0161
Energy	0.0158	0.1432	0.1203	8.6000e-004		0.0109	0.0109		0.0109	0.0109	0.0000	781.7621	781.7621	0.0285	8.6600e-003	785.0454
Mobile	0.6778	1.1908	5.9961	0.0143	0.9674	0.0169	0.9843	0.2587	0.0156	0.2743	0.0000	991.0181	991.0181	0.0397	0.0000	991.8525
Waste						0.0000	0.0000		0.0000	0.0000	4.0842	0.0000	4.0842	0.2414	0.0000	9.1529
Water						0.0000	0.0000		0.0000	0.0000	33.0403	320.2467	353.2870	3.4066	0.0831	450.5864
Total	**2.2483**	**1.3340**	**6.1242**	**0.0151**	**0.9674**	**0.0278**	**0.9952**	**0.2587**	**0.0265**	**0.2852**	**37.1245**	**2,093.0420**	**2,130.1665**	**3.7163**	**0.0918**	**2,236.6532**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**18.20**	**4.32**	**4.60**	**18.65**	**18.56**	**5.38**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Phase 1 Demolition	Demolition	1/1/2016	1/28/2016	5	20	
2	Phase 1 Site Preparation	Site Preparation	1/29/2016	2/11/2016	5	10	
3	Phase 1 Grading	Grading	2/12/2016	3/10/2016	5	20	
4	Phase 1 Building Construction	Building Construction	3/11/2016	1/26/2017	5	230	
5	Phase 1 Architectural Coating	Architectural Coating	3/11/2016	1/26/2017	5	230	
6	Phase 1 Paving	Paving	1/27/2017	2/23/2017	5	20	
7	Phase 2 Construction	Building Construction	11/1/2017	9/18/2018	5	230	
8	Phase 2 Architectural Coating	Architectural Coating	11/1/2017	9/18/2018	5	230	
9	Phase 2 Paving	Paving	9/19/2018	10/12/2018	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 749,339; Non-Residential Outdoor: 249,780 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Phase 1 Architectural Coating	Air Compressors	1	6.00	78	0.48
Phase 1 Demolition	Excavators	3	8.00	162	0.38
Phase 1 Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Phase 1 Grading	Excavators	2	8.00	162	0.38
Phase 1 Building Construction	Cranes	1	7.00	226	0.29
Phase 1 Building Construction	Forklifts	3	8.00	89	0.20
Phase 1 Building Construction	Generator Sets	1	8.00	84	0.74
Phase 1 Paving	Pavers	2	8.00	125	0.42

Phase 1 Paving	Rollers	2	8.00	80	0.38
Phase 1 Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Phase 1 Grading	Rubber Tired Dozers	1	8.00	255	0.40
Phase 1 Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Phase 1 Grading	Graders	1	8.00	174	0.41
Phase 1 Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Phase 1 Paving	Paving Equipment	2	8.00	130	0.36
Phase 1 Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Phase 1 Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Phase 1 Building Construction	Welders	1	8.00	46	0.45
Phase 2 Architectural Coating	Air Compressors	1	6.00	78	0.48
Phase 2 Construction	Cranes	1	7.00	226	0.29
Phase 2 Construction	Forklifts	3	8.00	89	0.20
Phase 2 Construction	Generator Sets	1	8.00	84	0.74
Phase 2 Paving	Pavers	2	8.00	125	0.42
Phase 2 Paving	Paving Equipment	2	8.00	130	0.36
Phase 2 Paving	Rollers	2	8.00	80	0.38
Phase 1 Grading	Scrapers	2	8.00	361	0.48
Phase 2 Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Phase 2 Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Phase 1 Demolition	6	15.00	0.00	1.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Site Preparation	7	18.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Grading	8	15.00	0.00	1,313.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Building Construction	9	129.00	58.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 1 Architectural Coating	1	26.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 Architectural Coating	1	26.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 Construction	9	129.00	58.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Phase 2 Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Phase 1 Demolition - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-005	0.0000	8.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0429	0.4566	0.3503	4.0000e-004		0.0229	0.0229		0.0214	0.0214	0.0000	37.0974	37.0974	0.0101	0.0000	37.3092
Total	**0.0429**	**0.4566**	**0.3503**	**4.0000e-004**	**8.0000e-005**	**0.0229**	**0.0230**	**1.0000e-005**	**0.0214**	**0.0214**	**0.0000**	**37.0974**	**37.0974**	**0.0101**	**0.0000**	**37.3092**

3.2 Phase 1 Demolition - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	1.5000e-004	1.2000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0342	0.0342	0.0000	0.0000	0.0342
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	6.8000e-004	6.4800e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1210	1.1210	6.0000e-005	0.0000	1.1222
Total	**5.2000e-004**	**8.3000e-004**	**6.6000e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1551**	**1.1551**	**6.0000e-005**	**0.0000**	**1.1564**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					8.0000e-005	0.0000	8.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0429	0.4566	0.3503	4.0000e-004		0.0229	0.0229		0.0214	0.0214	0.0000	37.0973	37.0973	0.0101	0.0000	37.3092
Total	**0.0429**	**0.4566**	**0.3503**	**4.0000e-004**	**8.0000e-005**	**0.0229**	**0.0230**	**1.0000e-005**	**0.0214**	**0.0214**	**0.0000**	**37.0973**	**37.0973**	**0.0101**	**0.0000**	**37.3092**

3.2 Phase 1 Demolition - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	1.5000e-004	1.2000e-004	0.0000	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0342	0.0342	0.0000	0.0000	0.0342
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	6.8000e-004	6.4800e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1210	1.1210	6.0000e-005	0.0000	1.1222
Total	**5.2000e-004**	**8.3000e-004**	**6.6000e-003**	**1.0000e-005**	**1.2100e-003**	**1.0000e-005**	**1.2200e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.1551**	**1.1551**	**6.0000e-005**	**0.0000**	**1.1564**

3.3 Phase 1 Site Preparation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0254	0.2732	0.2055	2.0000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	18.4386	18.4386	5.5600e-003	0.0000	18.5554
Total	**0.0254**	**0.2732**	**0.2055**	**2.0000e-004**	**0.0903**	**0.0147**	**0.1050**	**0.0497**	**0.0135**	**0.0632**	**0.0000**	**18.4386**	**18.4386**	**5.5600e-003**	**0.0000**	**18.5554**

3.3 Phase 1 Site Preparation - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	4.1000e-004	3.8900e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6726	0.6726	4.0000e-005	0.0000	0.6733
Total	**3.1000e-004**	**4.1000e-004**	**3.8900e-003**	**1.0000e-005**	**7.2000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6726**	**0.6726**	**4.0000e-005**	**0.0000**	**0.6733**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0254	0.2732	0.2055	2.0000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	18.4385	18.4385	5.5600e-003	0.0000	18.5553
Total	**0.0254**	**0.2732**	**0.2055**	**2.0000e-004**	**0.0903**	**0.0147**	**0.1050**	**0.0497**	**0.0135**	**0.0632**	**0.0000**	**18.4385**	**18.4385**	**5.5600e-003**	**0.0000**	**18.5553**

3.3 Phase 1 Site Preparation - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.1000e-004	4.1000e-004	3.8900e-003	1.0000e-005	7.2000e-004	1.0000e-005	7.3000e-004	1.9000e-004	1.0000e-005	2.0000e-004	0.0000	0.6726	0.6726	4.0000e-005	0.0000	0.6733
Total	**3.1000e-004**	**4.1000e-004**	**3.8900e-003**	**1.0000e-005**	**7.2000e-004**	**1.0000e-005**	**7.3000e-004**	**1.9000e-004**	**1.0000e-005**	**2.0000e-004**	**0.0000**	**0.6726**	**0.6726**	**4.0000e-005**	**0.0000**	**0.6733**

3.4 Phase 1 Grading - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0648	0.7481	0.4914	6.2000e-004		0.0358	0.0358		0.0330	0.0330	0.0000	58.1957	58.1957	0.0176	0.0000	58.5644
Total	**0.0648**	**0.7481**	**0.4914**	**6.2000e-004**	**0.0655**	**0.0358**	**0.1014**	**0.0337**	**0.0330**	**0.0667**	**0.0000**	**58.1957**	**58.1957**	**0.0176**	**0.0000**	**58.5644**

3.4 Phase 1 Grading - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0137	0.1906	0.1571	4.9000e-004	0.0112	2.5200e-003	0.0137	3.0700e-003	2.3100e-003	5.3900e-003	0.0000	44.8423	44.8423	3.2000e-004	0.0000	44.8491
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	6.8000e-004	6.4800e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1210	1.1210	6.0000e-005	0.0000	1.1222
Total	**0.0143**	**0.1913**	**0.1636**	**5.0000e-004**	**0.0124**	**2.5300e-003**	**0.0149**	**3.3900e-003**	**2.3200e-003**	**5.7200e-003**	**0.0000**	**45.9633**	**45.9633**	**3.8000e-004**	**0.0000**	**45.9713**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0655	0.0000	0.0655	0.0337	0.0000	0.0337	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0648	0.7481	0.4914	6.2000e-004		0.0358	0.0358		0.0330	0.0330	0.0000	58.1957	58.1957	0.0176	0.0000	58.5643
Total	**0.0648**	**0.7481**	**0.4914**	**6.2000e-004**	**0.0655**	**0.0358**	**0.1014**	**0.0337**	**0.0330**	**0.0666**	**0.0000**	**58.1957**	**58.1957**	**0.0176**	**0.0000**	**58.5643**

3.4 Phase 1 Grading - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0137	0.1906	0.1571	4.9000e-004	0.0112	2.5200e-003	0.0137	3.0700e-003	2.3100e-003	5.3900e-003	0.0000	44.8423	44.8423	3.2000e-004	0.0000	44.8491
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.1000e-004	6.8000e-004	6.4800e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.1210	1.1210	6.0000e-005	0.0000	1.1222
Total	**0.0143**	**0.1913**	**0.1636**	**5.0000e-004**	**0.0124**	**2.5300e-003**	**0.0149**	**3.3900e-003**	**2.3200e-003**	**5.7200e-003**	**0.0000**	**45.9633**	**45.9633**	**3.8000e-004**	**0.0000**	**45.9713**

3.5 Phase 1 Building Construction - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3594	3.0074	1.9525	2.8300e-003		0.2076	0.2076		0.1950	0.1950	0.0000	255.4720	255.4720	0.0634	0.0000	256.8026
Total	**0.3594**	**3.0074**	**1.9525**	**2.8300e-003**		**0.2076**	**0.2076**		**0.1950**	**0.1950**	**0.0000**	**255.4720**	**255.4720**	**0.0634**	**0.0000**	**256.8026**

3.5 Phase 1 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0696	0.5978	0.8376	1.4500e-003	0.0398	8.8100e-003	0.0486	0.0114	8.1000e-003	0.0195	0.0000	132.0155	132.0155	1.0300e-003	0.0000	132.0372
Worker	0.0467	0.0617	0.5878	1.3400e-003	0.1091	8.4000e-004	0.1100	0.0290	7.7000e-004	0.0298	0.0000	101.7052	101.7052	5.3700e-003	0.0000	101.8180
Total	**0.1163**	**0.6595**	**1.4254**	**2.7900e-003**	**0.1490**	**9.6500e-003**	**0.1586**	**0.0404**	**8.8700e-003**	**0.0493**	**0.0000**	**233.7207**	**233.7207**	**6.4000e-003**	**0.0000**	**233.8553**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3594	3.0074	1.9525	2.8300e-003		0.2076	0.2076		0.1950	0.1950	0.0000	255.4717	255.4717	0.0634	0.0000	256.8023
Total	**0.3594**	**3.0074**	**1.9525**	**2.8300e-003**		**0.2076**	**0.2076**		**0.1950**	**0.1950**	**0.0000**	**255.4717**	**255.4717**	**0.0634**	**0.0000**	**256.8023**

3.5 Phase 1 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0696	0.5978	0.8376	1.4500e-003	0.0398	8.8100e-003	0.0486	0.0114	8.1000e-003	0.0195	0.0000	132.0155	132.0155	1.0300e-003	0.0000	132.0372
Worker	0.0467	0.0617	0.5878	1.3400e-003	0.1091	8.4000e-004	0.1100	0.0290	7.7000e-004	0.0298	0.0000	101.7052	101.7052	5.3700e-003	0.0000	101.8180
Total	**0.1163**	**0.6595**	**1.4254**	**2.7900e-003**	**0.1490**	**9.6500e-003**	**0.1586**	**0.0404**	**8.8700e-003**	**0.0493**	**0.0000**	**233.7207**	**233.7207**	**6.4000e-003**	**0.0000**	**233.8553**

3.5 Phase 1 Building Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0295	0.2509	0.1722	2.5000e-004		0.0169	0.0169		0.0159	0.0159	0.0000	22.7505	22.7505	5.6000e-003	0.0000	22.8681
Total	**0.0295**	**0.2509**	**0.1722**	**2.5000e-004**		**0.0169**	**0.0169**		**0.0159**	**0.0159**	**0.0000**	**22.7505**	**22.7505**	**5.6000e-003**	**0.0000**	**22.8681**

3.5 Phase 1 Building Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7400e-003	0.0481	0.0713	1.3000e-004	3.5800e-003	6.9000e-004	4.2700e-003	1.0300e-003	6.3000e-004	1.6600e-003	0.0000	11.6867	11.6867	9.0000e-005	0.0000	11.6886
Worker	3.8100e-003	5.0500e-003	0.0477	1.2000e-004	9.8300e-003	7.0000e-005	9.9000e-003	2.6100e-003	7.0000e-005	2.6800e-003	0.0000	8.8044	8.8044	4.5000e-004	0.0000	8.8138
Total	**9.5500e-003**	**0.0532**	**0.1190**	**2.5000e-004**	**0.0134**	**7.6000e-004**	**0.0142**	**3.6400e-003**	**7.0000e-004**	**4.3400e-003**	**0.0000**	**20.4912**	**20.4912**	**5.4000e-004**	**0.0000**	**20.5024**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0295	0.2509	0.1722	2.5000e-004		0.0169	0.0169		0.0159	0.0159	0.0000	22.7505	22.7505	5.6000e-003	0.0000	22.8681
Total	**0.0295**	**0.2509**	**0.1722**	**2.5000e-004**		**0.0169**	**0.0169**		**0.0159**	**0.0159**	**0.0000**	**22.7505**	**22.7505**	**5.6000e-003**	**0.0000**	**22.8681**

3.5 Phase 1 Building Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.7400e-003	0.0481	0.0713	1.3000e-004	3.5800e-003	6.9000e-004	4.2700e-003	1.0300e-003	6.3000e-004	1.6600e-003	0.0000	11.6867	11.6867	9.0000e-005	0.0000	11.6886
Worker	3.8100e-003	5.0500e-003	0.0477	1.2000e-004	9.8300e-003	7.0000e-005	9.9000e-003	2.6100e-003	7.0000e-005	2.6800e-003	0.0000	8.8044	8.8044	4.5000e-004	0.0000	8.8138
Total	**9.5500e-003**	**0.0532**	**0.1190**	**2.5000e-004**	**0.0134**	**7.6000e-004**	**0.0142**	**3.6400e-003**	**7.0000e-004**	**4.3400e-003**	**0.0000**	**20.4912**	**20.4912**	**5.4000e-004**	**0.0000**	**20.5024**

3.6 Phase 1 Architectural Coating - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.1863					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.2503	0.1988	3.1000e-004		0.0207	0.0207		0.0207	0.0207	0.0000	26.9368	26.9368	3.1800e-003	0.0000	27.0035
Total	**3.2251**	**0.2503**	**0.1988**	**3.1000e-004**		**0.0207**	**0.0207**		**0.0207**	**0.0207**	**0.0000**	**26.9368**	**26.9368**	**3.1800e-003**	**0.0000**	**27.0035**

3.6 Phase 1 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4100e-003	0.0124	0.1185	2.7000e-004	0.0220	1.7000e-004	0.0222	5.8500e-003	1.6000e-004	6.0000e-003	0.0000	20.4987	20.4987	1.0800e-003	0.0000	20.5215
Total	**9.4100e-003**	**0.0124**	**0.1185**	**2.7000e-004**	**0.0220**	**1.7000e-004**	**0.0222**	**5.8500e-003**	**1.6000e-004**	**6.0000e-003**	**0.0000**	**20.4987**	**20.4987**	**1.0800e-003**	**0.0000**	**20.5215**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	3.1863					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0389	0.2503	0.1988	3.1000e-004		0.0207	0.0207		0.0207	0.0207	0.0000	26.9368	26.9368	3.1800e-003	0.0000	27.0035
Total	**3.2251**	**0.2503**	**0.1988**	**3.1000e-004**		**0.0207**	**0.0207**		**0.0207**	**0.0207**	**0.0000**	**26.9368**	**26.9368**	**3.1800e-003**	**0.0000**	**27.0035**

3.6 Phase 1 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.4100e-003	0.0124	0.1185	2.7000e-004	0.0220	1.7000e-004	0.0222	5.8500e-003	1.6000e-004	6.0000e-003	0.0000	20.4987	20.4987	1.0800e-003	0.0000	20.5215
Total	**9.4100e-003**	**0.0124**	**0.1185**	**2.7000e-004**	**0.0220**	**1.7000e-004**	**0.0222**	**5.8500e-003**	**1.6000e-004**	**6.0000e-003**	**0.0000**	**20.4987**	**20.4987**	**1.0800e-003**	**0.0000**	**20.5215**

3.6 Phase 1 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0208	0.0178	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003	0.0000	2.4256	2.4256	2.6000e-004	0.0000	2.4310
Total	**0.2901**	**0.0208**	**0.0178**	**3.0000e-005**		**1.6500e-003**	**1.6500e-003**		**1.6500e-003**	**1.6500e-003**	**0.0000**	**2.4256**	**2.4256**	**2.6000e-004**	**0.0000**	**2.4310**

3.6 Phase 1 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	1.0200e-003	9.6200e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.7745	1.7745	9.0000e-005	0.0000	1.7764
Total	**7.7000e-004**	**1.0200e-003**	**9.6200e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**2.0000e-003**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7745**	**1.7745**	**9.0000e-005**	**0.0000**	**1.7764**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.2869					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.1600e-003	0.0208	0.0178	3.0000e-005		1.6500e-003	1.6500e-003		1.6500e-003	1.6500e-003	0.0000	2.4256	2.4256	2.6000e-004	0.0000	2.4310
Total	**0.2901**	**0.0208**	**0.0178**	**3.0000e-005**		**1.6500e-003**	**1.6500e-003**		**1.6500e-003**	**1.6500e-003**	**0.0000**	**2.4256**	**2.4256**	**2.6000e-004**	**0.0000**	**2.4310**

3.6 Phase 1 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.7000e-004	1.0200e-003	9.6200e-003	2.0000e-005	1.9800e-003	1.0000e-005	2.0000e-003	5.3000e-004	1.0000e-005	5.4000e-004	0.0000	1.7745	1.7745	9.0000e-005	0.0000	1.7764
Total	**7.7000e-004**	**1.0200e-003**	**9.6200e-003**	**2.0000e-005**	**1.9800e-003**	**1.0000e-005**	**2.0000e-003**	**5.3000e-004**	**1.0000e-005**	**5.4000e-004**	**0.0000**	**1.7745**	**1.7745**	**9.0000e-005**	**0.0000**	**1.7764**

3.7 Phase 1 Paving - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0191	0.2030	0.1473	2.2000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	20.6934	20.6934	6.3400e-003	0.0000	20.8266
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0191**	**0.2030**	**0.1473**	**2.2000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**20.6934**	**20.6934**	**6.3400e-003**	**0.0000**	**20.8266**

3.7 Phase 1 Paving - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	6.2000e-004	5.8400e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0777	1.0777	5.0000e-005	0.0000	1.0788
Total	**4.7000e-004**	**6.2000e-004**	**5.8400e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0777**	**1.0777**	**5.0000e-005**	**0.0000**	**1.0788**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0191	0.2030	0.1473	2.2000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	20.6934	20.6934	6.3400e-003	0.0000	20.8265
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0191**	**0.2030**	**0.1473**	**2.2000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**20.6934**	**20.6934**	**6.3400e-003**	**0.0000**	**20.8265**

3.7 Phase 1 Paving - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	6.2000e-004	5.8400e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	1.0777	1.0777	5.0000e-005	0.0000	1.0788
Total	**4.7000e-004**	**6.2000e-004**	**5.8400e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**1.0777**	**1.0777**	**5.0000e-005**	**0.0000**	**1.0788**

3.8 Phase 2 Construction - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0667	0.5677	0.3898	5.8000e-004		0.0383	0.0383		0.0360	0.0360	0.0000	51.4880	51.4880	0.0127	0.0000	51.7541
Total	**0.0667**	**0.5677**	**0.3898**	**5.8000e-004**		**0.0383**	**0.0383**		**0.0360**	**0.0360**	**0.0000**	**51.4880**	**51.4880**	**0.0127**	**0.0000**	**51.7541**

3.8 Phase 2 Construction - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0130	0.1089	0.1613	3.0000e-004	8.1100e-003	1.5600e-003	9.6700e-003	2.3200e-003	1.4300e-003	3.7500e-003	0.0000	26.4489	26.4489	2.0000e-004	0.0000	26.4531
Worker	8.6200e-003	0.0114	0.1080	2.7000e-004	0.0222	1.7000e-004	0.0224	5.9100e-003	1.5000e-004	6.0600e-003	0.0000	19.9258	19.9258	1.0100e-003	0.0000	19.9471
Total	**0.0216**	**0.1203**	**0.2692**	**5.7000e-004**	**0.0304**	**1.7300e-003**	**0.0321**	**8.2300e-003**	**1.5800e-003**	**9.8100e-003**	**0.0000**	**46.3747**	**46.3747**	**1.2100e-003**	**0.0000**	**46.4002**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0667	0.5677	0.3898	5.8000e-004		0.0383	0.0383		0.0360	0.0360	0.0000	51.4880	51.4880	0.0127	0.0000	51.7541
Total	**0.0667**	**0.5677**	**0.3898**	**5.8000e-004**		**0.0383**	**0.0383**		**0.0360**	**0.0360**	**0.0000**	**51.4880**	**51.4880**	**0.0127**	**0.0000**	**51.7541**

3.8 Phase 2 Construction - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0130	0.1089	0.1613	3.0000e-004	8.1100e-003	1.5600e-003	9.6700e-003	2.3200e-003	1.4300e-003	3.7500e-003	0.0000	26.4489	26.4489	2.0000e-004	0.0000	26.4531
Worker	8.6200e-003	0.0114	0.1080	2.7000e-004	0.0222	1.7000e-004	0.0224	5.9100e-003	1.5000e-004	6.0600e-003	0.0000	19.9258	19.9258	1.0100e-003	0.0000	19.9471
Total	**0.0216**	**0.1203**	**0.2692**	**5.7000e-004**	**0.0304**	**1.7300e-003**	**0.0321**	**8.2300e-003**	**1.5800e-003**	**9.8100e-003**	**0.0000**	**46.3747**	**46.3747**	**1.2100e-003**	**0.0000**	**46.4002**

3.8 Phase 2 Construction - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2495	2.1749	1.6393	2.5100e-003		0.1397	0.1397		0.1314	0.1314	0.0000	221.3797	221.3797	0.0542	0.0000	222.5173
Total	**0.2495**	**2.1749**	**1.6393**	**2.5100e-003**		**0.1397**	**0.1397**		**0.1314**	**0.1314**	**0.0000**	**221.3797**	**221.3797**	**0.0542**	**0.0000**	**222.5173**

3.8 Phase 2 Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0530	0.4276	0.6704	1.2800e-003	0.0353	6.2900e-003	0.0416	0.0101	5.7900e-003	0.0159	0.0000	113.0458	113.0458	8.5000e-004	0.0000	113.0637
Worker	0.0341	0.0453	0.4247	1.1900e-003	0.0967	7.1000e-004	0.0974	0.0257	6.5000e-004	0.0264	0.0000	83.4002	83.4002	4.1000e-003	0.0000	83.4863
Total	**0.0871**	**0.4730**	**1.0952**	**2.4700e-003**	**0.1320**	**7.0000e-003**	**0.1390**	**0.0358**	**6.4400e-003**	**0.0422**	**0.0000**	**196.4460**	**196.4460**	**4.9500e-003**	**0.0000**	**196.5499**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2495	2.1749	1.6393	2.5100e-003		0.1397	0.1397		0.1314	0.1314	0.0000	221.3794	221.3794	0.0542	0.0000	222.5171
Total	**0.2495**	**2.1749**	**1.6393**	**2.5100e-003**		**0.1397**	**0.1397**		**0.1314**	**0.1314**	**0.0000**	**221.3794**	**221.3794**	**0.0542**	**0.0000**	**222.5171**

3.8 Phase 2 Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0530	0.4276	0.6704	1.2800e-003	0.0353	6.2900e-003	0.0416	0.0101	5.7900e-003	0.0159	0.0000	113.0458	113.0458	8.5000e-004	0.0000	113.0637
Worker	0.0341	0.0453	0.4247	1.1900e-003	0.0967	7.1000e-004	0.0974	0.0257	6.5000e-004	0.0264	0.0000	83.4002	83.4002	4.1000e-003	0.0000	83.4863
Total	**0.0871**	**0.4730**	**1.0952**	**2.4700e-003**	**0.1320**	**7.0000e-003**	**0.1390**	**0.0358**	**6.4400e-003**	**0.0422**	**0.0000**	**196.4460**	**196.4460**	**4.9500e-003**	**0.0000**	**196.5499**

3.9 Phase 2 Architectural Coating - 2017

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6493					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1400e-003	0.0470	0.0402	6.0000e-005		3.7300e-003	3.7300e-003		3.7300e-003	3.7300e-003	0.0000	5.4895	5.4895	5.8000e-004	0.0000	5.5017
Total	**0.6565**	**0.0470**	**0.0402**	**6.0000e-005**		**3.7300e-003**	**3.7300e-003**		**3.7300e-003**	**3.7300e-003**	**0.0000**	**5.4895**	**5.4895**	**5.8000e-004**	**0.0000**	**5.5017**

3.9 Phase 2 Architectural Coating - 2017

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7400e-003	2.3000e-003	0.0218	6.0000e-005	4.4800e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0161	4.0161	2.0000e-004	0.0000	4.0204
Total	**1.7400e-003**	**2.3000e-003**	**0.0218**	**6.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**4.0161**	**4.0161**	**2.0000e-004**	**0.0000**	**4.0204**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.6493					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1400e-003	0.0470	0.0402	6.0000e-005		3.7300e-003	3.7300e-003		3.7300e-003	3.7300e-003	0.0000	5.4895	5.4895	5.8000e-004	0.0000	5.5017
Total	**0.6565**	**0.0470**	**0.0402**	**6.0000e-005**		**3.7300e-003**	**3.7300e-003**		**3.7300e-003**	**3.7300e-003**	**0.0000**	**5.4895**	**5.4895**	**5.8000e-004**	**0.0000**	**5.5017**

3.9 Phase 2 Architectural Coating - 2017

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.7400e-003	2.3000e-003	0.0218	6.0000e-005	4.4800e-003	3.0000e-005	4.5200e-003	1.1900e-003	3.0000e-005	1.2200e-003	0.0000	4.0161	4.0161	2.0000e-004	0.0000	4.0204
Total	**1.7400e-003**	**2.3000e-003**	**0.0218**	**6.0000e-005**	**4.4800e-003**	**3.0000e-005**	**4.5200e-003**	**1.1900e-003**	**3.0000e-005**	**1.2200e-003**	**0.0000**	**4.0161**	**4.0161**	**2.0000e-004**	**0.0000**	**4.0204**

3.9 Phase 2 Architectural Coating - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.8239					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0279	0.1875	0.1734	2.8000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	23.8730	23.8730	2.2700e-003	0.0000	23.9206
Total	**2.8518**	**0.1875**	**0.1734**	**2.8000e-004**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**23.8730**	**23.8730**	**2.2700e-003**	**0.0000**	**23.9206**

3.9 Phase 2 Architectural Coating - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8700e-003	9.1300e-003	0.0856	2.4000e-004	0.0195	1.4000e-004	0.0196	5.1800e-003	1.3000e-004	5.3100e-003	0.0000	16.8093	16.8093	8.3000e-004	0.0000	16.8267
Total	**6.8700e-003**	**9.1300e-003**	**0.0856**	**2.4000e-004**	**0.0195**	**1.4000e-004**	**0.0196**	**5.1800e-003**	**1.3000e-004**	**5.3100e-003**	**0.0000**	**16.8093**	**16.8093**	**8.3000e-004**	**0.0000**	**16.8267**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	2.8239					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0279	0.1875	0.1734	2.8000e-004		0.0141	0.0141		0.0141	0.0141	0.0000	23.8729	23.8729	2.2700e-003	0.0000	23.9206
Total	**2.8518**	**0.1875**	**0.1734**	**2.8000e-004**		**0.0141**	**0.0141**		**0.0141**	**0.0141**	**0.0000**	**23.8729**	**23.8729**	**2.2700e-003**	**0.0000**	**23.9206**

3.9 Phase 2 Architectural Coating - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.8700e-003	9.1300e-003	0.0856	2.4000e-004	0.0195	1.4000e-004	0.0196	5.1800e-003	1.3000e-004	5.3100e-003	0.0000	16.8093	16.8093	8.3000e-004	0.0000	16.8267
Total	**6.8700e-003**	**9.1300e-003**	**0.0856**	**2.4000e-004**	**0.0195**	**1.4000e-004**	**0.0196**	**5.1800e-003**	**1.3000e-004**	**5.3100e-003**	**0.0000**	**16.8093**	**16.8093**	**8.3000e-004**	**0.0000**	**16.8267**

3.10 Phase 2 Paving - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1545	0.1305	2.0000e-004		8.4500e-003	8.4500e-003		7.7700e-003	7.7700e-003	0.0000	18.3319	18.3319	5.7100e-003	0.0000	18.4517
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1545**	**0.1305**	**2.0000e-004**		**8.4500e-003**	**8.4500e-003**		**7.7700e-003**	**7.7700e-003**	**0.0000**	**18.3319**	**18.3319**	**5.7100e-003**	**0.0000**	**18.4517**

3.10 Phase 2 Paving - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	5.1000e-004	4.7500e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9335	0.9335	5.0000e-005	0.0000	0.9344
Total	**3.8000e-004**	**5.1000e-004**	**4.7500e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9335**	**0.9335**	**5.0000e-005**	**0.0000**	**0.9344**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0145	0.1545	0.1305	2.0000e-004		8.4500e-003	8.4500e-003		7.7700e-003	7.7700e-003	0.0000	18.3319	18.3319	5.7100e-003	0.0000	18.4517
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0145**	**0.1545**	**0.1305**	**2.0000e-004**		**8.4500e-003**	**8.4500e-003**		**7.7700e-003**	**7.7700e-003**	**0.0000**	**18.3319**	**18.3319**	**5.7100e-003**	**0.0000**	**18.4517**

3.10 Phase 2 Paving - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.8000e-004	5.1000e-004	4.7500e-003	1.0000e-005	1.0800e-003	1.0000e-005	1.0900e-003	2.9000e-004	1.0000e-005	2.9000e-004	0.0000	0.9335	0.9335	5.0000e-005	0.0000	0.9344
Total	**3.8000e-004**	**5.1000e-004**	**4.7500e-003**	**1.0000e-005**	**1.0800e-003**	**1.0000e-005**	**1.0900e-003**	**2.9000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.9335**	**0.9335**	**5.0000e-005**	**0.0000**	**0.9344**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.6778	1.1908	5.9961	0.0143	0.9674	0.0169	0.9843	0.2587	0.0156	0.2743	0.0000	991.0181	991.0181	0.0397	0.0000	991.8525
Unmitigated	0.6778	1.1908	5.9961	0.0143	0.9674	0.0169	0.9843	0.2587	0.0156	0.2743	0.0000	991.0181	991.0181	0.0397	0.0000	991.8525

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Research & Development	1,828.96	503.04	293.88	2,572,703	2,572,703
Enclosed Parking with Elevator	0.00	0.00	0.00		
Total	1,828.96	503.04	293.88	2,572,703	2,572,703

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Research & Development	5.80	5.80	5.80	33.00	48.00	19.00	82	15	3
Enclosed Parking with Elevator	5.80	5.80	5.80	0.00	0.00	0.00	0	0	0

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.513300	0.073549	0.191092	0.130830	0.036094	0.005140	0.012550	0.022916	0.001871	0.002062	0.006564	0.000586	0.003446

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	625.9242	625.9242	0.0255	5.8000e-003	628.2591
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	625.9242	625.9242	0.0255	5.8000e-003	628.2591
NaturalGas Mitigated	0.0158	0.1432	0.1203	8.6000e-004		0.0109	0.0109		0.0109	0.0109	0.0000	155.8379	155.8379	2.9900e-003	2.8600e-003	156.7863
NaturalGas Unmitigated	0.0158	0.1432	0.1203	8.6000e-004		0.0109	0.0109		0.0109	0.0109	0.0000	155.8379	155.8379	2.9900e-003	2.8600e-003	156.7863

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Research & Development	2.92029e+006	0.0158	0.1432	0.1203	8.6000e-004		0.0109	0.0109		0.0109	0.0109	0.0000	155.8379	155.8379	2.9900e-003	2.8600e-003	156.7863
Total		**0.0158**	**0.1432**	**0.1203**	**8.6000e-004**		**0.0109**	**0.0109**		**0.0109**	**0.0109**	**0.0000**	**155.8379**	**155.8379**	**2.9900e-003**	**2.8600e-003**	**156.7863**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Research & Development	2.92029e+006	0.0158	0.1432	0.1203	8.6000e-004		0.0109	0.0109		0.0109	0.0109	0.0000	155.8379	155.8379	2.9900e-003	2.8600e-003	156.7863
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0158**	**0.1432**	**0.1203**	**8.6000e-004**		**0.0109**	**0.0109**		**0.0109**	**0.0109**	**0.0000**	**155.8379**	**155.8379**	**2.9900e-003**	**2.8600e-003**	**156.7863**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	260344	63.6930	2.6000e-003	5.9000e-004	63.9306
Research & Development	2.29811e+006	562.2312	0.0229	5.2100e-003	564.3285
Total		**625.9242**	**0.0255**	**5.8000e-003**	**628.2591**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Enclosed Parking with Elevator	260344	63.6930	2.6000e-003	5.9000e-004	63.9306
Research & Development	2.29811e+006	562.2312	0.0229	5.2100e-003	564.3285
Total		**625.9242**	**0.0255**	**5.8000e-003**	**628.2591**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	1.5547	7.0000e-005	7.8800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0152	0.0152	4.0000e-005	0.0000	0.0161
Unmitigated	1.5547	7.0000e-005	7.8800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0152	0.0152	4.0000e-005	0.0000	0.0161

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3473					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2066					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.4000e-004	7.0000e-005	7.8800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0152	0.0152	4.0000e-005	0.0000	0.0161
Total	**1.5547**	**7.0000e-005**	**7.8800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0152**	**0.0152**	**4.0000e-005**	**0.0000**	**0.0161**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.3473					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.2066					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.4000e-004	7.0000e-005	7.8800e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.0152	0.0152	4.0000e-005	0.0000	0.0161
Total	**1.5547**	**7.0000e-005**	**7.8800e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**	**0.0000**	**0.0152**	**0.0152**	**4.0000e-005**	**0.0000**	**0.0161**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	353.2870	3.4066	0.0831	450.5864
Unmitigated	456.0023	4.2589	0.1040	577.6802

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	130.181 / 0	456.0023	4.2589	0.1040	577.6802
Total		**456.0023**	**4.2589**	**0.1040**	**577.6802**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
Research & Development	104.145 / 0	353.2870	3.4066	0.0831	450.5864
Total		**353.2870**	**3.4066**	**0.0831**	**450.5864**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	4.0842	0.2414	0.0000	9.1529
Unmitigated	4.0842	0.2414	0.0000	9.1529

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Research & Development	20.12	4.0842	0.2414	0.0000	9.1529
Total		**4.0842**	**0.2414**	**0.0000**	**9.1529**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
Research & Development	20.12	4.0842	0.2414	0.0000	9.1529
Total		**4.0842**	**0.2414**	**0.0000**	**9.1529**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Vegetation

HALEY & ALDRICH, INC.
5333 Mission Center Road
Suite 300
San Diego, CA 92108
603.280.9210

27 September 2017
File No. 130385-002

Eric Jones
AIA / NCARB / LEED AP BD+C
LPA, Inc.
1600 National Avenue
San Diego, California 92113

Subject: Spectrum 3
Addendum to Noise Analysis and Mitigated Negative Determination Findings
3115 Merryfield Row
San Diego, California 92121

Dear Mr. Jones:

Haley & Aldrich, Inc., (Haley & Aldrich) is pleased to submit this Addendum to the *Noise Analysis for the Spectrum 3 and 4, 3115 and 3215 Merryfield Row Project, San Diego California* (February 23, 2016) prepared by RECON Environmental, Inc. (RECON) prepared for LPA, Inc. (LPA), referred to herein as the Noise Report. The Noise Report was relied upon for the City of San Diego's Mitigated Negative Determination (MND) for the Spectrum III & IV Project (MND Project #422478) finalized on August 12, 2016. The MND found that all construction and operational noise impacts from the project, as previously proposed, were less than significant or had no impact with regards to the applicable Thresholds of Significance under the California Environmental Quality Act (CEQA). After the MND was issued, Alexandria Real Estate (ARE) proposed an increase to the previously entitled Spectrum 3 building located at 3115 Merryfield Row, San Diego, California (Building A). Specifically, ARE proposes to increase the square footage (sf) from 57,372 sf to 118,931 sf through the transfer of unused entitlements on Spectrum 1 & 2 and the Callan property.

This addendum evaluates the impact of the proposed project changes on the conclusions of the Noise Report to determine if the Noise Report can be relied upon to make the same determinations of significance for the currently proposed project. To accomplish this, the reasoning behind each applicable Initial Study Checklist Question from the MND is reviewed below. If the reasoning behind the determination of impact is unaffected by the proposed changes to the project, then the conclusions of the Noise Report can be relied upon to make a similar determination.

Initial Study Checklist Questions - Noise

XII.a) Would the project result in generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

The City of San Diego's MND found the project, as previously proposed, to have less than significant impacts. The reasoning for the determination is excerpted in italics below.

> *The project would generate noise from additional traffic on area roadways; heating, ventilation, and air conditioning (HVAC) units; loading dock; and construction activities. The Noise Report prepared by RECON (November 17, 2015) evaluated potential noise impacts from construction and operation of the project. Impacts related to the noise/land use compatibility guidelines established in the General Plan as well as the operational standards established in the Noise Abatement and Control Ordinance are discussed below.*
>
> *<u>On-Site Generated Noise</u>*
> *Stationary on-site generated noise sources are regulated by the City's Noise Abatement and Control Ordinance. The applicable noise limits between the project site and the neighboring industrial uses is a one-hour average sound level of 75 A-weighted decibels [dB(A)] L_{eq} any time of the day. Project noise sources would be typical of the surrounding properties, which include office and research buildings. The primary noise sources on-site would include parking activities, loading dock activities, mechanical equipment such as boilers and chilling towers, and HVAC units. Noise levels were conservatively modeled with all equipment and HVAC operating at peak capacity and all loading bays simultaneously active.*
>
> *According to the Noise Report prepared for the project, noise levels due to normal operation of the project would range from 33 to 63 dB(A) L_{eq} at the project boundaries. Therefore, project noise levels would comply with applicable noise level limits (75 dB[A] L_{eq}) from the City Noise Abatement and Control Ordinance.*

The determination that the project would be below applicable noise level limits relied upon noise modeling of vehicle traffic and on-site generated noise from parking activities, load dock activities, mechanical equipment such as chilling towers and standby generators, and HVAC units. The proposed changes to each of these noise-generating sources is described below, and the potential impacts addressed.

- <u>Vehicle traffic</u> – The 2016 Noise Report assessed noise impacts from an estimated 1,626 average daily trips for the previously proposed project. As currently proposed, the project is expected to create a total of 1,659 trips per day[1]. With an increase of less than 2 percent in average daily trips, the previously modeled results of vehicle traffic are consistent with the currently proposed project.

[1] Urban Systems Associates, Inc. 2017 Traffic Impact Analysis for Spectrum 3.

- Parking lot activities – The 2016 Noise Report evaluated project noise from parking lot activities based on the relative increase in project trip generation. As described above, the previously modeled results of vehicle traffic are consistent with the currently proposed project.
- Loading dock activities – The Noise Report included a loading area for large trucks associated with 3215 Merryfield Row (Building B). No changes are proposed to that location and Building B is currently under construction. The proposed changes include a new loading area associated with 3115 Merryfield Row along the western end of the building. Noise generation at this loading dock is expected to be similar to the dock already discussed in the Noise Report. The Noise Report determined that, accounting for the limited time of operation, each truck may generate hourly noise levels of approximately 66.5 dB(A) L_{eq} at a distance of 50 feet for each loading dock. As the property boundary is approximately 70 feet from the loading dock, property boundary impacts from this source would be consistent with the previously modeled property line noise levels and well below the applicable noise level limit of 75 dB(A) L_{eq}.
- Mechanical equipment – Outdoor equipment in open air enclosures assessed by the Noise Report included a a cooling tower and standby generator associated with Building A. Similar equipment is proposed under the new configuration. The Noise Report conservatively placed the equipment close to the property boundary. The final configurations of the cooling tower and emergency generator would not be any closer to the property boundary.
- HVAC Units – The Noise Report assumed that a 20-ton HVAC unit would be required for every 8,000 to 9,000 sf of building space. This corresponded to approximately 7 HVAC units rated at 20 tons for Building A and 17 HVAC units rated at 20 tons for Building B. Extending this assumption to the proposed project would increase the number of HVAC units at Building A by 7 units, bringing the total number of HVAC units at Building A to about 14. Building A and Building B are similar with respect to overall design and distances to the property boundary. As the newly proposed Building A would have fewer HVAC units than those modeled in the Noise Report for Building B, and those units would be at similar distances from the property boundary, it is reasonable to infer that noise impacts from Building A would be similar to or lesser than those previously modeled for Building B, which were found to be less than significant.

These changes, while potentially creating minor changes to the noise contour levels in the Noise Report, are consistent in the scale and type of noise sources evaluated in the Noise Report. In this regard, the Noise Report remains a valid source supporting the determination that noise impacts are less than significant.

Noise/Land Use Compatibility

The Noise Element of the City's General Plan specifies compatibility standards for different categories of land use. Research and development land uses are compatible with exterior noise levels up to 65 community noise equivalent level (CNEL), conditionally compatible with noise levels up to 75 CNEL, and incompatible with exterior noise levels above 75 CNEL. Additionally, the interior noise standard for research and development land uses is 50 CNEL.

Noise levels at the project site were modeled using Sound PLAN. Exterior noise levels due to vehicle traffic on local roadways would result in noise levels between 40 and 54 CNEL across the project site. Based on the City noise compatibility criteria, the project would be compatible with

> *the ambient noise levels providing interior noise levels do not exceed an interior noise standard of 50 CNEL.*
>
> *Project buildings would be constructed using standard commercial construction techniques typical of the area including masonry exterior facades and dual glazed windows. According to the FHWA's Highway Traffic Noise Analysis and Abatement Guidance, these standard construction techniques would result in an exterior-to-interior noise reduction of 35 dB(A) (FHWA 2011). Noise levels along the building facades are projected to reach up to 54 CNEL. Therefore, interior noise levels would be attenuated to 34 CNEL or less. As interior noise levels would not exceed 50 CNEL, the project would comply with City compatibility standards. Impacts would be less than significant.*

The determination that noise impacts would be less than significant with respect to the City's exterior noise compatibility standards relied upon modeling of traffic noise levels from Noise Report. The predicted impacts were based on an estimated 1,626 average daily trips for the previously proposed project. As currently proposed, the project is expected to create a total of 1,659 trips per day[2]. With an increase of less than 2 percent in average daily trips, the previously modeled results of vehicle traffic are consistent with the currently proposed project. In this regard, the Noise Report remains a valid source supporting the determination that noise impacts are less than significant.

The determination that noise impacts would be less than significant with respect to the City's interior noise compatibility standards relied upon standard commercial construction techniques typical of the area, such as masonry exterior facades and dual glazed windows. The proposed project would be constructed using similar techniques. In this regard, the Noise Report remains a valid source supporting the determination that noise impacts are less than significant.

XII.b) Would the project result in generation of excessive ground borne vibration or ground borne noise levels?

The City of San Diego's MND found the project, as previously proposed, to have no impacts. The reasoning for the determination is excerpted in italics below.

> *As described in to XII.d., below, potential effects from construction noise would be reduced through compliance with City restrictions. Pile driving activities that would potentially result in ground borne vibration or ground borne noise are not anticipated with construction of the project. As such, the project would not result in the exposure of persons to excessive ground borne vibration or noise, and impacts would be less than significant. No mitigation measures are required.*

None of the proposed changes to the project would result in ground borne vibration or noise levels. A determination of no impact remains valid.

[2] Urban Systems Associates, Inc. 2017 Traffic Impact Analysis for Spectrum 3.

XII.c) Would the project result in a substation permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

The City of San Diego's MND found the project, as previously proposed, to have less than significant impacts. The reasoning for the determination is excerpted in italics below.

> *The project would increase traffic volumes on local roadways. Noise level increases would be greatest nearest the project site, as this location would represent the greatest concentration of project-related traffic. The project would not substantially alter the vehicle classifications mix on local or regional roadways, nor would the project alter the speed on an existing roadway or create a new roadway; thus, the primary factor affecting off-site noise levels would be increased traffic volumes. Based on the City CEQA Guidelines, a 3 dB(A) increase in the noise level is considered a potentially significant impact in locations with existing high ambient noise levels. Therefore, for the purposes of this analysis, a noise impact would be considered significant if project implementation would expose off-site uses to a traffic noise level of 3 dB or greater over existing noise levels. The project traffic would contribute to less than 1 dB increase in the noise levels of adjacent roadways. Thus, the project would result in a less than perceptible change in traffic noise levels. As a result, the increase in ambient noise levels would be less than significant.*

The determination that noise impacts would be less than significant with regard to the City's exterior noise compatibility standards relied upon modeling of traffic noise levels from Noise Report. The predicted impacts were based on an estimated 1,626 average daily trips for the previously proposed project. As currently proposed, the project is expected to create a total of 1,659 trips per day[3]. With an increase of less than 2 percent in average daily trips, the previously modeled results of vehicle traffic are consistent with the currently proposed project. In this regard, the Noise Report remains a valid source supporting the determination that noise impacts are less than significant.

XII.d) Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing without the project?

The City of San Diego's MND found the project, as previously proposed, to have less than significant impacts. The reasoning for the determination is excerpted in italics below.

> *Construction noise levels at residential receivers are regulated by the City's Noise Abatement and Control Ordinance which restricts construction activity from 7 p.m. to 7 a.m. of the following day, and on specified holidays and requires that construction noise not exceed an average sound level greater than 75 decibels (dB) during the 12-hour period from 7:00a.m. to 7:00 p.m. at or beyond the property lines of any residential zoned property. Based on the Noise Report, construction noise levels at the nearest property line of a residentially zoned area would reach up to 48 dB(A) Leq.· Further, the project would be required to comply with the City Noise Ordinance, and construction noise impacts would be less than significant. The area surrounding the project site is non-residential and consists of offices for research and development. The project would generate*

[3] Urban Systems Associates, Inc. 2017 Traffic Impact Analysis for Spectrum 3 & 4.

> *temporary noise levels during grading and construction and the project would comply with the San Diego Municipal Code, Article 9.5, Noise Abatement and Control. Therefore, construction noise impacts at residential receivers would be less than significant.*

The determination that construction and temporary noise impacts would be less than significant relied upon compliance with the City's Noise Abatement and Control Ordinance and the modeling of construction related equipment in the Noise Report. The project as currently proposed would also be subject to the Noise Abatement and Control Ordinance. Additionally, the construction noise modeling conducted in the Noise Report remains valid for the proposed project. The exact number and pieces of construction equipment required were not identified in the Noise Report. In the absence of specifics, it was assumed that the loudest noise levels would occur during grading activities. Construction equipment used during grading was estimated using the California Air Pollution Control Officers Association's California Emissions Estimator Model, version 2013.2.2 (CalEEMod). The construction process for the currently proposed project would use similar equipment and result in grading of the same area. In this regard, the Noise Report remains a valid source supporting the determination that noise impacts are less than significant.

XII.e) Would the project result in, for a project located within an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?

The City of San Diego's MND found the project, as previously proposed, to have no impacts. The reasoning for the determination is excerpted in italics below.

> *The project site lies approximately 6 miles northwest of MCAS Miramar. The project site is located within the ALUCPOZ, the Airport Influence Area (Review Area 1 for MCAS Miramar), and the Accident Potential Zone (APZ-2 for MCAS Miramar); however, the project site is not located within the airport ALUCP noise contours. Therefore, the project would not expose people residing or working in the area to excessive noise levels according to the MCAS Miramar ALUCP (2011). No impact would occur.*

The overall project footprint remains unchanged; therefore, the determination of no impact remains valid.

XII.f) Would the project result in, for a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

The City of San Diego's MND found the project, as previously proposed, to have no impacts. The reasoning for the determination is excerpted in italics below.

> *The project site is not located within the vicinity of a private airstrip. There would be no impact.*

The overall project footprint remains unchanged; therefore, the determination of no impact remains valid.

Conclusion

In conclusion, the changes from the previously reviewed project, while potentially creating minor changes to the noise contour levels in the Noise Report, are consistent in the scale and type of noise sources evaluated in the Noise Report. In this regard, the Noise Report remains a valid source supporting the determination that noise impacts are less than significant.

We appreciate the opportunity to provide this addendum to the Noise Report. Please feel free to contact Robert Kallin with any questions.

Sincerely yours,
HALEY & ALDRICH, INC.

Robert L. Kallin
Technical Specialist

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MEMO

To: Lance Unverzagt

From: Rachael Nixon

Date: July 26, 2017

RE: Spectrum 3 Project

Chambers Group, Inc. (Chambers Group) conducted a technical review of the biological and cultural sources reports for the Spectrum 3 Project and CEQA Compliance. Chambers Group understands that the previous building has been torn down; however, under the existing entitlement, the allowable SF for Spectrum 3 would be 57,372. The current proposal for Spectrum 3 is to process an amendment to transfer development intensity from the Callan property as well as the Spectrum 1 and 2 site. Upon approval, the entitlement for Spectrum 3 would increase from 57,372 to approximately 118,931. The following summarizes the results of Chambers Group review.

On July 21, 2017, Chambers Group Senior Biologist, Mike McEntee conducted a review of the Biological Resource Report for the Spectrum 3 and 4, 3115 and 3215 Merryfield Row Project, San Diego, California (prepared by RECON Environmental, Inc., June 2016). Chambers Group concurs with the biological assessment and recommended mitigation measures (page 28-29) for biological resources, and that the assessment is in compliance with CEQA and the City's guidelines for this project. Should the project area change to include areas not previously assessed for biological resources then additional analysis of potential impacts to biological resources may be required.

On July 26, 2017, Chambers Group Senior Archaeologist, Rachael Nixon MA, RPA conducted a review of the Archaeological Resources Report for Spectrum Three and Four Project, San Diego, California (prepared by RECON Environmental, Inc., October 2015). Chambers Group concurs that the study is in compliance with CEQA and the City's guidelines for cultural resources (not including paleontological resources) this project. Should the project area change to include areas not previously assessed then additional analysis of potential impacts to cultural resources may be required.